Town of Moraga	Agenda Item
Public Hearings	6.A

Meeting Date: October 3, 2023

TOWN OF MORAGA **STAFF REPORT**

To: Planning Commission

From: Project Planner: Brian Horn, Senior Planner
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Subject: New Verizon Wireless Communication Facility and Grading of an Access Road from the End of Sanders Ranch Road – (APN 258-300-019)

CEQA: An Initial Study and Draft Mitigated Negative Declaration (State Clearinghouse Number 2023080783) have been prepared and circulated for this project in accordance with the requirements of the California Environmental Quality Act.

Recommendation

Conduct a Public Hearing and Consider Adopting the Following Two Planning Commission Resolutions:

1. Resolution __-2023 Adopting a Mitigated Negative Declaration Prepared for the Project in Accordance with the Requirements of the California Environmental Quality Act (CEQA).

2. Resolution __-2023 Approving Conditional Use Permit (UP 06-22), Design Review (DR-03-22), Grading Permit (GR 02-22) and Hillside Development Permit (HDP 02-22) to Construct and Operate a New Verizon Wireless Communication Facility on an Existing PG&E Transmission Tower Located on an Open Space Parcel within the Sanders Ranch Subdivision that would be Accessed by a New 15 Foot Wide 1,330-Foot Long Access Road Connecting to Sanders Ranch Road.

I. Application Basics

A. Entitlements Required:

- Conditional Use Permit, under Moraga Municipal Code (MMC) Sections 8.12.120 and 8.144.080

- Design Review Permit, under MMC Section 8.72.060

- Grading Permit, under MMC Section 14.08

- Hillside Development Permit, under MMC Section

B. Applicants Team:

- Applicant: Michelle Duarte, SAC Wireless OBO Verizon Wireless, 333 University Avenue, Suite 200, Sacramento, CA 95825

- Property Owner: Sanders Ranch Homeowners Association, 315 Diablo Road, Danville, CA, 94556

- Project Engineer: Madhan Kumar K, MS, PE, Lets America, Inc. 112 S. Kyrene Rd., STE 1, Chandler, AZ 85226

- RF Compliance Report: David Charles Cotton, Jr., Waterford, 7430, New Technology Way, Suite 150, Frederick, MA 21703

II. Request/Project Summary

The proposed project involves the installation of a new Verizon Wireless Facility consisting of six panel antennas on a 12-foot high "top hat" extension that would be located on top of an existing PG&E transmission tower. The new facility requires a Conditional Use Permit and Design Review Permit approved by the Planning Commission. The tower with the "top hat" extension would extend the existing 107.3-foot tower to reach a total height of approximately 116 feet. Also installed on the tower would be three 6449 antenna integrated radio (air) antennas with a centerline height of 45 feet along with six Verizon Wireless radios, two Verizon Wireless Raycap, a microwave antenna with a centerline height of 35 feet, and two hybrid wireless cables. An equipment enclosure consisting of a 19-foot by 19-foot concrete pad with 8-foot-tall composite fencing would enclose the facilities' ground equipment, including an emergency generator, within the base of the PG&E transmission tower. A new transformer would be located on a 4-foot 2-inch by 4-foot 4-inch pad approximately 9 feet west of the equipment enclosure pad along with a 3,000-gallon water tank. PG&E would supply the project with electricity. The proposed diesel generator for the project would be rated below 50 brake-horsepower and would operate under two hours per day for occasional maintenance activities. Additionally, the proposed project would include the installation of new Verizon Wireless fiber vaults every 150 feet along Sanders Ranch Road and installation of a new fiber route for approximately 8,600 feet through existing in-road conduits. This work would replace existing Verizon Wireless fiber vaults and fiber routes beneath Sanders Ranch Road.

To provide access to the transmission tower for construction and maintenance, a new 15-foot-wide access driveway constructed of Class II aggregate base would be graded and built approximately 155 feet northwest from near the end of Sanders Ranch Road to the tower. The new road would be built on some portions of slopes exceeding 20 percent, would be approximately 1,330 feet in length and, for approximately 630 feet in length, would run adjacent to the Old Moraga Ranch Trail and would also cross a Moraga Open Space Ordinance minor ridgeline.

The total grading triggers a grading permit requiring approval by the Planning Commission/Design Review Board because the proposed grading is 200 cubic yards or greater and will be on slopes between 20% and 25%. The total proposed grading for the project is approximately 350 cubic yards of cut and 530 cubic yards of fill, totaling approximately 1,020 cubic yards of grading activities. The maximum cut depth would be approximately 3.6 feet and the maximum fill height would be approximately 4 feet. The total disturbed area of the site would be approximately 0.75 acres.

To see the above-described project, please see the photos simulations, project plans and grading plans in Attachments K through M.

Figure 1: Vicinity Map



Table 1: Land Use Information (From Facility Location on Southern Half of Property)

Location		Existing Use	Zoning District	General Plan Designation
Subject Property (APN 258-300-019)		The parcel is primarily vacant hillside land that is open space for the Sanders Ranch Subdivision. There are two PG&E transmission towers on the property, a portion of the Old Moraga Ranch Trail, and a MOSO minor ridgeline.	OS-M	MOSO Open Space
Surrounding Properties	North	Vacant hillsides and Single-Family Residences	OS-M, and 2 DUA	MOSO Open Space and Residential 2 du/ac
	South	Single-Family Residential	2 DUA and 3 DUA	Residential 2 du/ac, and Residential 3 du/ac
	East	Single-Family Residential	2 DUA	Residential 2 du/ac
	West	Hillside lands, Moraga Tennis and Swim Club (nonoperational), single-family residences	OS-M and 3 DUA	MOSO Open Space, and Residential 3 du/ac

Table 2: Project Chronology

Date	Action
May 31, 2022	Application submitted
June 27, 2022	Application deemed incomplete
March 9, 2023	Application materials resubmitted
March 16, 2023	Application deemed incomplete
May 5, 2023	Application materials resubmitted
June 28, 2023	FCC Shot Clock Tolling Agreement signed with Verizon to allow time for CEQA environmental work – extended until October 3, 2023
August 31, 2023	CEQA IS/MND made available for public comment – The Notice of Intent was mailed to abutting property owners, and posted at the property and the Town Offices, Moraga Commons Park, and the Hacienda de las Flores.
September 22, 2023	Public hearing notices mailed/posted.
October 2, 2023	CEQA IS/MND public comment period ends at 5:00pm
October 3, 2023	Planning Commission Public Hearing

III. Background

In 2019 the Merrill Fire began in the early morning which initiated a PG&E public safety power shutoff. The fire burned approximately 40 to 60 acres adjacent to and within the Sanders Ranch Subdivision. Communication for first responders and residents in the community presented a challenge in that there is not adequate cell service within the subdivision. After the Merrill Fire, the Moraga Police Chief approached the Sanders Ranch Homeowners Association (SRHOA) and Verizon about getting wireless coverage out to the Sanders Ranch Subdivision, which is the purpose of this project.

The SRHOA has provided a letter of support for this project, included as Attachment C. As stated in the SRHOA letter, the objective of this project is to address public safety and quality-of-life concerns due to a lack of adequate cellular service, and Verizon has worked with the SRHOA to find an acceptable location and design for the facility.

IV. Project Setting

A. Neighborhood/Area Description:

The project site is located on a common open space parcel within the Sanders Ranch Subdivision in the southeastern portion of Moraga. Surrounding land uses include open space comprised of hillside lands and single-family residences to the north, single-family residences to the south and east, and single-family residences, the Moraga Tennis and Swim Club (nonoperational) and open space comprised of hillside lands, and single-family residences to the west. The Old Moraga Ranch Trail runs along the western property line of the project parcel.

B. Site Conditions:

The project site currently has existing PG&E transmission towers and lines, and the project will be collocated on the existing transmission lines. Existing overhead lines extend from the northern portion of the site through the proposed project area and continue further south of the site. The project site and immediate surroundings generally consist of nonnative grassland, oak woodlands and scrub consisting primarily of Coyote brush. The property is sloped, including areas exceeding 20 percent slope. A MOSO[1] minor ridgeline runs through the project site. The project parcel comprises approximately 100.8 acres, with the total disturbed area of the site being approximately 0.75 acres.

V. Regulatory Setting

A. Local and Federal Regulations

The Federal Telecommunications Act provides that local agencies can regulate location and aesthetics of wireless facilities but cannot regulate based on health effects and cannot deny a provider a reasonable means to address an identified coverage gap within a certain area.

This approach is reflected in Chapter 8.144, which establishes limitations and prohibitions on location of wireless facilities in certain locations including within 500 feet of MOSO Ridgelines, on the crest of any ridgeline with an elevation of 800-feet or greater and in residential districts, but also allows for exceptions to these prohibitions where it is "determined by the Planning Commission that there is no other alternative location for the carrier to provide adequate coverage."

B. Federal Communications Commission (FCC) Shot Clock

[1] Moraga Open Space Ordinance

Under the federal Telecommunications Act, the FCC has established strict time limits for local jurisdictions to process wireless applications. In 2009, the FCC issued a ruling known as the "Shot Clock ruling," clarifying what constituted a reasonable amount of time for processing applications. For a wireless facility collocated on an existing structure, FCC rules require that the application must be approved or denied by the local jurisdiction within 90 days of the application being filed, excluding tolling when an application is deemed incomplete. In October 2015, the State of California adopted Assembly Bill No. 57, since codified as California Government Code Section 65964.1 which provides that an application for a wireless telecommunications facility is "deemed approved" if the local government has not approved or disapproved it within the applicable time period under the FCC Shot Clock ruling.

To have sufficient time to conduct an environmental review under CEQA, the Town requested a shot clock extension with the applicant. On June 28, 2023, a shot clock extension was executed extending the time under the Federal Communications Act to October 3, 2023, for the Planning Commission to act on the application, and, if a timely appeal is filed, to December 13, 2023, for the Town Council to act on the application. If these deadlines are not met, then per Government Code Section 65964.1, the project will be deemed automatically approved.

VI. Analysis

A. Development Standards

The proposed wireless facility is subject to the general development standards of MMC Section 8.144.030 and open space district development standards in MMC Section 8.144.060. These standards and the project's compliance with them are summarized in Tables 3 and 4.

Table 3: General Development Standards (MMC 8.144.030)

Development Standards	Standard	Comment
Ground Mounted Equipment	Minimal functional height of not greater than 20 feet	**Complies.** Ground mounted equipment would be on a concrete pad within the footprint of the PG&E transmission tower and enclosed by an 8' tall composite fence, with a GPS antenna extending approximately a foot above. North of the enclosure will be a green 3,000-gallon water tank. These will be non-reflective earth tone colors.
	Non-reflective finish or painted to minimize visual impacts	
	Sited to be screened by existing development, topography or vegetation. If the equipment enclosure is not screened from view, it shall be compatible with the design scale, material, colors and landscaping of other existing structures on the site.	**Complies**. The enclosure would be within the footprint of the existing PG&E transmission tower. Due to the topography, the equipment enclosure will not be visible from some off-site views, and its distance from offsite views, minimal size and location within the footprint of the PG&E transmission tower will limit its visual impacts. The enclosure

Development Standards	Standard	Comment
		fencing would be brown, and the water tank would be green which are earth tone colors that are compatible with the surrounding environment of the site.
Roof and Building Mounted Equipment	Located far from outer edge of building	**Not applicable.** The project does not include any roof or building mounted equipment.
	Painted to match exterior of building or background	
	Avoid mounting equipment on peaks of roofs	
	Equipment shall be screened or hidden from view	
Radio Frequency Emissions	Facility shall comply with FCC standards	**Complies**. The facility complies with FCC public exposure limits (see Section VI.B.5, below)
Collocation with existing facilities	Encouraged to collocate with water tanks, light standards and other utility structures	**Complies**. The project is collocated with an existing PG&E transmission tower structure.
Exterior Lighting	To be manually operated and used only during night maintenance	**Complies as conditioned.** This performance standard is included as a condition of approval
Location of facility	Where feasible facility shall be on publicly owned property	**Complies.** The property is privately owned by the Sanders Ranch Homeowners Association. The applicant prepared an Alternative Site Analysis which analyzed several potential sites with the primary purpose of serving southern Moraga and the Sanders Ranch community. There were no other publicly owned sites within the targeted coverage area. Therefore, it was not feasible to locate the facility on publicly owned property.
Removal of Equipment	Must be removed 30 days after discontinuation of use	**Complies as conditioned**. This requirement in included as a condition of approval.
Description of Site Selection Process	Coverage objectives and alternate site analysis shall be submitted	**Complies.** See Section VI.B.2
Proximity to Residential Buildings and property lines	300-feet minimum to a residential building and 100-feet minimum to a residential property line	**Complies.** The facility would be approximately 378 feet from the nearest residential building and 193 feet from the nearest residential property line or building.

Table 4: Open Space and Open Space MOSO District Development Standards

Development Standards (MMC§ 8.144.030)	Standard	Comment
Major Ridgelines	Shall not be located within 500-feet of a major ridgeline unless use permit approved prior to April 28, 1999	**Complies,** the proposed facility is not within 500 feet of a major ridgeline.
Minor Ridgelines	Shall not be located on the crest of any ridgeline with an elevation of 800-feet or greater, nor shall the silhouette of an antenna be visible above the ridge as viewed from a lower elevation perspective generally available to the public.	**Complies**. The wireless facility will not be located on the crest of a minor ridgeline. The antennas will be located at the top of an existing PG&E transmission tower, whose silhouette extends above the ridgeline, and the new antennas will essentially be part of the existing structure.
Slope of Property	Shall not be located where the slope has a grade of 20% or greater in MOSO open space	**Complies**. The proposed facility is located on MOSO open space lands. The wireless facility and its equipment will be located in an area with an average slope of less than 20%, and the overall area of disturbance will be less than 20.
Special Design Considerations	Design facilities to appear as natural features, such as rocks or trees	**Complies.** The antennas would be collocated on the PG&E transmission tower and painted to match. The equipment enclosure would be within the base of the PG&E transmission tower and the green water tank would be located just to the north. No additional screening is recommended, as the ground mounted equipment should be screened from most views by topography and/or vegetation, further, the SRHOA has reviewed and approved of the design, which would only be potentially visible within the Sanders Ranch Subdivision. The ground equipment shelter and water tank will be earth tone colors, which will be compatible with the surrounding environment.

B. Key Issues

1. Ridgeline Protection and MOSO

The proposed wireless facility would be located within the MOSO open space zoning district adjacent to a minor MOSO ridgeline which ranges in elevation from 838 feet to 850 feet west of the proposed wireless facility, which will be within and adjacent to a PG&E transmission tower sitting at an elevation of approximately 838 feet. The proposed access road to the facility will run along/cross the minor MOSO ridgeline for approximately

300 feet between the approximate elevations of 810 and 830 feet. MMC § 8.128. – Ridgeline protection was adopted by the Town in 2018. The purpose and intent of these regulations are as follows:

A. *"Implement general plan goals which call for the town to regulate development in a manner that maintains undeveloped hillsides and ridgelines in the town in a scenic natural setting, and other town policies related to ridgeline and hillside areas.*
B. *Preserve and protect the town's unique semi-rural feel and scenic natural setting characterized by visually prominent ridgelines and hillsides that appear substantially free of visible development.*
C. *Allow for a reasonable amount of development near ridgelines to support a range of community goals including increasing economic vitality, protecting public safety, supporting public recreation, and increasing housing choices.*
D. *Allow for the continued use of land and existing structures on and near ridgelines consistent with the purpose of this chapter.*
E. *Protect the public health, safety and welfare by reducing public exposure to geologic risks and other hazards common on and near ridgelines.*
F. *Protect scenic resources by limiting the hillside development visible from the town's scenic corridors and other public places*."

Summarized, the intent of the regulations is to maintain undeveloped hillsides and ridgelines in a scenic natural setting, substantially free of development, but allowing for a reasonable amount of development to support a range of community goals, including economic vitality and public safety, in this case allowing improved communication access for first responders. The primary objectives of this project are to increase cellular service to provide stronger, more reliable wireless communication and data service for public safety personnel and residents within Sanders Ranch and southern Moraga.

MMC §8.144.030.D of the Town's Wireless Communication Ordinance encourages the collocation of wireless telecommunication facilities on utility poles and other structures where the collocation is found to minimize the overall visual impact. In this case the proposed facility would result in minor changes to the existing PG&E structure, with antennas and ancillary tower mounted equipment painted to match the tower, an equipment enclosure within the footprint of the transmission tower, a 3,000 gallon water tank and PG&E transformer north adjacent to the PG&E transmission tower, and grading and construction of a 15 foot wide access road from Sander Ranch Road to the wireless facility. The ground mounted facilities and access road would only be visible to properties and streets within the Sanders Ranch subdivision but are expected to be substantially obscured from most views by topography and vegetation at the site and ridgeline elevations, as the grasses and other vegetation grow high enough to obscure views, and the road will be at a much higher elevation than where the subdivision homes and roads are located. The road would be surfaced with a Class II aggregate, so visible portions of the road would be compatible with the semi-rural character of the property. The proposed access road is necessary for Verizon and the Moraga Orinda Fire District to access the site. The road at its lower elevations where it connects with Sanders Ranch Road will be more visible to homes and streets within the northwest section of Sanders Ranch.

Road Crossing a Minor MOSO Ridgeline (MMC 8.128.060.A)
MMC Section 8.128.060.A contains standards and requirements for the development of roads that would cross a MOSO ridgeline. The Planning Commission may allow a road to cross a minor MOSO ridgeline, together with underground utilities, upon finding that the crossing is necessary for the orderly development of the Town, the road complies with all applicable requirements on MMC Section 8.128.060, and it does not otherwise conflict with the municipal code.

For minor MOSO ridgelines, a road may be located within 200 feet of the crest of the minor MOSO ridgeline for only the minimum necessary to cross the ridgeline. In this case, the wireless facility and majority of the road would be within this 200-foot buffer, the road would run along, adjacent to and cross the minor MOSO ridgeline for approximately 300 feet, which is necessary as it is the most direct route from Sanders Ranch Road to the wireless facility and was preferred by MOFD. This is a relatively small section of the ridgeline, as the ridgeline is approximately 2,100 feet in length. MMC Section 8.128.060.A.4. states that roads crossing a ridgeline, where allowed, shall comply with the following standards.

a. *Roads shall be located and designed to minimize visibility when viewed from a road or other public place; and*
b. *On-street parking is prohibited on roads within the horizontal ridgeline buffer for major MOSO and significant non-MOSO ridgeline and within two hundred (200) feet of a minor MOSO ridgeline. The road shall be designed with the minimum width necessary to accommodate only through traffic without parking; and*
c. *Streetlights shall not be permitted on ridgelines; and*
d. *Road placement should minimize glare from vehicle lights visible from public places and nearby homes; and*
e. *All utilities shall be undergrounded with cost to be borne by the project developer.*

Regarding the above standards, at the ridgeline, the access road would be visible from some roads and properties within the Sanders Ranch Subdivisions and the Old Moraga Ranch Trail. The views from within the Sanders Ranch subdivision are anticipated to be substantially obscured by topography and vegetation, as the grasses and other vegetation grow high enough to obscure views of the road, and the road will be at a much higher elevation than where the subdivision homes and roads are located, The road is not a structure that would substantially alter the visual environment, and views of it from the Old Moraga Ranch Trail would be limited to the time that it would take a pedestrian to walk through the portion of trail and briefly view where it crosses the minor ridgeline. Surrounding hillsides and ridgelines would continue to obstruct views of the proposed access road from the rest of the trail. Further, the road would be surfaced with Class II aggregate, which would be compatible with the semi-rural character of the site. Parking along the access road would be prohibited. Parking at the project site would be temporary and would occur as part of maintenance activities. No streetlights would be installed. Access to the road would be restricted to maintenance and emergency vehicles. All new utilities would be placed underground.

Additionally, per MMC Section 8.128.060.D the road must be consistent with Section RH 4 (Roads and Sidewalks) of the Moraga Design Guidelines, which include.

RH2.1 Visibility. Roads should be located, designed, and landscaped to minimize their visibility from scenic corridors.

RH2.2 Natural Contours. Roads should follow the natural contours of the land and should not be orientated perpendicular to contour lines.

RH2.3 Curbside Parking. To reduce grading and allow for narrower roads, curbside parking lanes are discouraged. Guest parking should be provided through shared parking bays where doing so minimizes visual impacts and site disturbance.

RH2.4 Width. Roads should not exceed the minimum width required for emergency vehicle access and to meet applicable public works standards.

RH2.5 Sidewalks. Sidewalks may be provided on one side of the road only if doing so will minimize road width, grading, and general site disturbance. Separated and/or meandering pedestrian facilities that can accommodate landscape buffering and grade separations to better respond to topography are encouraged.

Overall, the road is substantially consistent with these guidelines in the ridgeline area. It will not be visible from a scenic corridor, it follows the natural contours, except for a small portion before it veers to the east and off the ridgeline towards the facility, there is no parking along the road, it will be the minimum width to meet emergency vehicle access standards and does not proposed sidewalks as it will not be accessed by the public as its primary purpose is as a maintenance and fire access road.

Further, staff believes that the findings for exceptions under MMC Section 8.128.060.C to the above standards could be made as the access road is necessary for the orderly development of the Town in order to enhance public safety through the provision of reliable wireless service for Sanders Ranch and the southern neighborhoods of Moraga.

MOSO Wireless Communication Standards
MMC §8.144.060 provides development standards specific to wireless communication facilities within non-MOSO and MOSO open space districts. This section restricts development of wireless facilities within 500 feet of MOSO major ridgelines, restricts development on the crest of any ridgeline with an elevation of 800 feet or greater, and that the silhouette of antennas is not visible above the ridge of a MOSO minor ridgeline as viewed from a lower elevation perspective generally available to the public, and not be located where the slope has a grade of 20% or greater in MOSO open space. MMC §8.144.060.B. in reference to the MOSO ridgeline development standards states that *"The facilities shall comply with the above development standards unless the applicant establishes and it is determined by the planning commission that there is no other optimal location for the carrier to provide adequate coverage, and it is determined that compliance with these standards would violate federal law. The burden shall be on the applicant to prove to the satisfaction of the planning commission that there is no optimal locations where adequate coverage could be provided."*

The proposed antennas will be located on a PG&E transmission tower that extends approximately 100 feet above the adjacent minor ridgeline and the equipment will be located on the ground below the ridgeline. However, an approximately 300-foot portion of the necessary access road will be built on or along the minor ridgeline. The applicant has prepared an Alternative Sites Analysis for the Planning Commissions consideration which is included as Attachment D and further discussed in VI.B.2 of this report.

The project is also subject to the Guidelines for Interpreting and Implementing the Moraga Open Space Initiative (MOSO Guidelines), with the purpose of providing for the interpretation, implementation, and application of the Moraga Open Space Ordinance for development projects. The MOSO guidelines require that development on MOSO lands be within development envelopes or cells, with predevelopment slopes of less than 20% The development envelopes are a maximum size of 10,000 square feet, and for projects disturbing areas larger than this, contiguous envelopes are to be used. Page 22 (no sheet number) of the grading plans (Attachment M) shows four development cells, with three of the cells exceeding 20% predevelopment slopes for the construction of the road. Additionally, Section III.A.1.a and c of the MOSO guidelines restrict development on slopes with grades of 20% or greater and on the crest of a minor MOSO ridgeline. Section III.B provides exceptions that allow development in these areas, which includes establishment of a fire trail approved by the Moraga Orinda Fire Protection District (MOFD). MOFD confirmed that they classify the access road to the facility as a fire trail, and the access road is required by MOFD for access to the wireless facility. Therefore, the access road would be exempt from MOSO guidelines development prohibitions. The wireless facility and upper portion of the access road are in a cell with an average slope of 8.80%, which complies with the MOSO cell guidelines.

2. Alternative Sites Analysis and Five-Year Wireless Communications Facility Master Plan

Identifying sites for new wireless facilities generally begins by locating areas where there are coverage gaps. As described in the Alternative Sites Analysis (Attachment D), the purpose of this facility is to fill a Significant Gap in wireless service in the southern Moraga area. Specifically, per the Alternative Sites Analysis, there is a "*lack of reliable in-building coverage in residential areas west and east of Canyon Road south of the Sanders Drive intersection, areas farther south along Larch Avenue and Camino Pablo, and the Sanders Ranch neighborhood. In-vehicle service is lacking along local roadways, including significant stretches of Larch Avenue and Camino Pablo as well as the entire length of Sanders Ranch Road. In the southern portion of the gap, there is no reliable coverage whatsoever. (Collectively, the "Significant Gap")."*

Verizon wireless considered five potential sites within the area as options. At these sites, they weighed a combination of factors, including *"the available height, equipment space, radio frequency propagation, proximity to end users, elevation, local topography, environmental impacts and other factors such as a willing landlord in completing its site analysis."* Below is the list of the sites considered (Table derived from Verizon Alternative Sites Analysis) with the reason why the site was rejected. Additional details are in the Alternative Sites Analysis (Attachment D).

Table 5: Sites Considered

Candidate Location	Zoning, Ground Elevation and Facility Type	Reason for Rejection
Candidate 1: (Project Site) End of Sanders Ranch Road, Moraga (APN 258-300-019)	MOSO Open Space 838 Feet Collocation on PG&E transmission tower.	Selected site.
Candidate 2: End of Sanders Ranch Road, Moraga (APN 258-300-019) (Same parcel as Candidate1, located .2 miles northwest)	MOSO Open Space 785 feet Collocation on PG&E transmission tower	This Candidate was rejected as it was closer than 300 feet to a residential structure and 100 feet from a residential property line which does not meet MMC 8.144.303 general development standard I., additionally it is 85 feet lower in elevation than Candidate 1.
Candidate 3: East of Hetfield Place, Moraga (APN 258-160-062)	MOSO Open Space 720 Feet Collocation on PG&E transmission tower	The site could not serve the Significant Gap primarily because the signal would be blocked by terrain to the south.
Candidate 4: Shannon Court, Outside of Moraga town limits (APN 258-300-005)	A-2 (Contra Costa County) 815 feet Collocation on PG&E transmission tower	This location could not fully serve the Significant Gap as it would be blocked by terrain to the northwest. It would also require a new access road and utilities similar to Candidate 1.
Candidate 5: Shannon Court, Outside of Moraga Town limits (APN 258-310-002)	A-2 (Contra Costa County) 925 feet Collocation with East Bay Municipal Utility District water tank.	This location could not fully serve the Significant Gap as the signal would be blocked by terrain to the west.

Based on the submitted materials, including the supporting coverage and site analysis information provided by the applicant, staff concurs that this site is the optimal location to provide adequate coverage, and the site is the preferred location for the SRHOA on their property. In addition, the proposed site location on an existing utility tower is consistent with MMC 8.144.030(D) which states that *"All new wireless communication facilities shall be collocated with existing and/or with other planned new facilities whenever feasible and aesthetically desirable. Collocation is discouraged when it will increase visual impacts. Service providers are encouraged to collocate with other facilities such as water tanks, light standards and other utility structures where the collocation is found to minimize the overall visual impact."* The installation of the facility on and at the base of an existing PG&E transmission tower would result in only a modest change to the silhouette of the tower, while providing for the optimal coverage for the area based on the sites surveyed that were available. The ground mounted equipment and access road are expected to be substantially obscured from most views within the Sanders Ranch subdivision by the

natural vegetation on the site and topography. Please also see section VI B.3 for further discussion regarding the facilities' aesthetics.

Verizon also submitted a wireless five-year master plan, which shows their three existing sites within the Town and the proposed site. A coverage map of the collective sites in shown on page 7 of the Alternative Sites Analysis.

3. Design Review/Aesthetics

The project proposes physical changes to the existing PG&E transmission tower that include the installation of six panel antennas on a 12-foot high "top hat" extension that would be located on top of an existing PG&E transmission tower. The tower with the "top hat" extension would extend the existing 107.3-foot tower to reach a total height of approximately 116 feet. Also installed on the tower would be three 6449 antenna integrated radio (air) antennas with a centerline height of 45 feet along with six Verizon Wireless radios, two Verizon Wireless Raycap, a microwave antenna with a centerline height of 35 feet, and two hybrid wireless cables. The development standards require non-reflective finishes that match the PG&E tower structure or blend into the background of the surrounding area. The recommended conditions of approval require that the antennas and ancillary equipment be painted the same color as the transmission tower. This is consistent with other wireless facilities that have been installed on PG&E transmission towers throughout the Town.

The ground mounted elements of the wireless facility include an equipment enclosure consisting of a 19-foot by 19-foot concrete pad with 8-foot-tall brown composite fencing which would screen the ground mounted equipment, including an emergency generator, within the base of the PG&E transmission tower. A small GPS antenna would extend approximately 2' above the top of the fencing, but due to the distance from off-site views, located within the footprint of the PG&E transmission tower, it is not anticipated that this would be perceptible from off site. Adjacent and to the north of the facility would be a 3,000 gallon, 7' 6" tall green water tank and a new approximately 4' high PG&E transformer. The proposed brown enclosure fencing, and water tank would not be visible outside of the Sanders Ranch Subdivision and would be obstructed from many views within the subdivision by topography and/or vegetation. The proposed colors of the fencing and water tank are earth tones which will be compatible with the surrounding environment. Further, the SRHOA has reviewed and approved the proposed plans. Therefore, given that the ground mounted equipment would only be visible from properties and streets within the Sanders Ranch Subdivision, no additional screening of the ground mounted equipment is being recommended.

4. Grading

The total proposed grading for the project is approximately 350 cubic yards of cut and 530 cubic yards of fill, totaling approximately 1,020 cubic yards of grading activities. The maximum cut depth would be approximately 3.6 feet and the maximum fill height would be approximately 4 feet. The grading is needed for the construction of a new 15-foot-wide access driveway surfaced with Class II aggregate necessary for the construction and maintenance of the wireless facility. The access driveway would be approximately 1,330 feet in length extending from the wireless facility to Sanders Ranch Road to the north.

The grading for the road will generally follow the topography of the land consistent with Design Guideline ID10.6, with maximum cuts of 3.6 feet and a maximum fill of approximately four feet. There will be one retaining wall along the western property line that will be approximately 70 feet in length with a maximum exposed height of 3 feet. The retaining wall is necessary to keep all of the grading work on the property, as the road will run adjacent to the western property line. The development of the road will require grading of slopes of 20% or greater, although the footprint of work will have an overall average slope of 19.75%. Consistent with Design Guideline ID10.3 a site-specific geotechnical analysis was prepared for the project by Krazen & Associates, Inc. dated February 21, 2023 (Attachment E), which provided recommendations for the grading, retaining walls and foundation. Additionally, the Initial Study-Mitigated Negative Declaration for the project identified the following Mitigation Measures for the project related to the grading, GEO-1 and GEO-2, shown on pages 7 and 8 of the Mitigation Monitoring and Reporting Plan (Attachment A). The grading on slopes of 20% or greater is for the proposed access road, which is exempt from MOSO development prohibitions as a fire trail approved by the MOFD under MOSO Guidelines section III.B.2. This facility is required by MOFD to have this access.

5. RF-EME Report

The applicant has submitted a theoretical Radio Frequency Emissions Compliance (RF-EME) report prepared by WATERFORD Consultants, LLC., dated July 26, 2022, assessing and addressing compliance of the proposed facility design with appropriate guidelines limiting human exposure to radio frequency (RF) electromagnetic energy (EME) (Attachment F). The report states on page 2. *"Based on the computational guidelines set forth in FCC OET[2] Bulletin 65, Waterford Consultants, LLC has developed software to predict the overall Maximum Permissible Exposure (MPE) possible at any location given the spatial orientation and operating parameters of multiple RF sources."*

The analysis on page 4 of the report states that *"The panel-type antennas to be employed at this site are highly directional by design and the orientation in azimuth and mounting elevation, as documented, serves to reduce the potential to exceed MPE limits at any location other than directly in front of the antennas. For accessible areas at ground level, the maximum predicted power density level resulting from all Verizon Wireless operations is 38.594% of the FCC General Population limits… The maximum predicted power density level resulting from all Verizon Wireless operations is 1.386% of the FCC General Population limits. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings. As predicted RF power densities will not exceed the FCC General Population limits, no mitigation action other than restricting access to the tower is required to achieve or maintain compliance."*

6. Noise

A Noise Study (Attachment G) for the project was prepared by WATERFORD Consultants, LLC., which considered a heat exchanger for an Air Conditioning unit and emergency generator as the primary noise sources of concern. For wireless

[2] The Office of Engineering and Technologies

Communication facilities, MMC Section 8.144.070 limits the maximum allowable exterior noise level of sixty (60) db at the property line. The report estimates that the total cumulative decibel level of the heat exchanger and generator would be 35.7 dBa[3], which would be compliance with the Town's zoning standards for wireless facilities. The project will be subject to the standard conditions of approval for wireless facilities in MMC Section 8.144.070 D to minimize noise, which include, 1) A maximum allowable exterior noise level of sixty (60) dB at the property line of the facility must not be exceeded, 2) Any maintenance or testing that will create noise that is audible from residences and other nearby sensitive receptors shall occur between the hours of eight a.m. to five p.m. Monday through Friday, excluding emergency repairs, and 3) Backup generators shall comply with the same noise standards referenced above and shall only be operated during power outages, emergency occurrences, or for testing and maintenance in accordance with subsection (D)(2) of this section.

C. Findings

In order to approve the Conditional Use Permit, Design Review, Grading Permit and Hillside Development Permit, the Planning Commission must make the required findings set forth in the proposed approval resolution.

VII. General Plan Consistency

General Plan Policy Analysis: The Moraga General Plan contains several policies applicable to the project, including the following:

1. Guiding Principle 7: Encourage land uses, development patterns, and utilization of new communication and transportation technologies that may help reduce automobile trips and air pollution, ensuring that new wireless communication facilities are sited and designed to preserve the Town's unique visual character.

   Staff Analysis: This facility is being proposed to provide cell service within the Sanders Ranch Subdivision and the surrounding southern Moraga neighborhoods, which lacks reliable wireless coverage, which presents a challenge to residents and first responders in emergency situations and can limit residents' ability to conduct business at home. The facility would be collocated with an existing PG&E transmission tower, with tower mounted equipment painted to match the tower, ground mounted equipment using earth tone colors to blend with the environment and the grading of the access road generally matching the topography of the site. The ground equipment and grading will primarily be visible from the residences and streets within the Sanders Ranch Subdivision, and the SRHOA has approved of the project design.

   In 2019 the Merrill Fire began in the early morning during a PG&E public safety power shutoff, burning approximately 40 to 60 acres adjacent to and within the Sanders Ranch Subdivision. Communication for first responders and residents in the community presented a challenge in that there is not adequate cell service within the subdivision. After the Merrill Fire, the Moraga Police Chief approached the SRHOA and Verizon about getting wireless coverage out to the Sanders Ranch Subdivision,

[3] dBa levels are "A" weighted according to the weighting curves to approximate the way the human ear hears.

which is the purpose of this project. The SRHOA has provided a letter of support for this project, included as Attachment C. As stated in the SRHOA letter, the objective of this project it to address public safety and quality-of-life concerns due to a lack of adequate cellular service, and Verizon has worked with the SRHOA to find an acceptable location and design for the facility.

2. Policy CD1.2 – Site Planning, Building Design and Landscaping: Retain natural topographic features and scenic qualities through sensitive site planning, architectural design and landscaping. Design buildings and other improvements to retain a low visual profile and provide dense landscaping to blend structures with the natural setting.

   Staff Analysis: The proposed project would be collocated with an existing PG&E transmission facility. Per the conditions of approval, the proposed antennas, tower extension "top hat" and equipment mounted to the PG&E transmission tower would be painted a non-reflective light grey to match the tower. The ground mounted equipment would be earth tone colors and would be largely screened from off-site views by existing vegetation and topography. The access road will be fairly straight and direct to the wireless facility from Sanders Ranch Road, following the topography to minimize grading and is expected to be largely screened from view at and near the ridgeline by vegetation, as the natural grasses and shrubs on the site grow fairly tall.

3. Policy CD1.3 – View Protection: Protect important elements of the natural setting to maintain the Town's semi-rural character. Give particular attention to viewsheds along the Town's scenic corridors, protecting ridgelines, hillside areas, mature native tree groupings, and other significant natural features. Consideration should be given to views both from within the Town and from adjacent jurisdictions. Likewise, the Town should work with adjacent jurisdictions to protect views from Moraga to adjacent areas.

   Staff Analysis: The proposed wireless facility would be located on, and at the base of, an existing utility tower, and the access road along a minor MOSO ridgeline. Due to topography and existing vegetation, the ground mounted equipment and access road near the ridgeline will be screened from most off-site views and would be from within the Sanders Ranch Subdivision. The antennas and "top hat" extension would be visible from residences and streets within southern Moraga, including Camino Pablo, a Town designated scenic corridor. However, the collocated equipment will be painted to match the PG&E transmission tower and will only be a minimal change to the silhouette of the PG&E transmission tower.

4. Policy CD1.5 – Ridgelines and Hillside Areas: Protect ridgelines from development. In hillside areas, require new developments to conform to the site's natural setting, retaining the character of existing landforms preserving significant native vegetation and with respect to ridgelines, encourage location of building sites so that visual impacts are minimized. When grading land with an average slope of 20% of more, require 'natural contour' grading to minimize soil displacement and use of retainer walls. Design buildings and other improvements in accordance with the natural

setting, maintaining a low profile and providing dense native landscaping to blend hillside structures with the natural setting.

Staff Analysis: The wireless facility will be collocated on an existing PG&E transmission tower and the equipment mounted on the tower painted to match. The ground mounted equipment will be enclosed by a brown fence within the footprint of the PG&E transmission tower, and just north of the base of the tower will be a green 3,000-gallon water tank. The proposed equipment shelter and water tank at the base of the tower complements the colors of the surrounding site and should be well screened from offsite views by existing vegetation and topography. The access road will be graded from the wireless facility over and along the ridgeline down to Sanders Ranch Road, and will follow the topography of the land, with the deepest cuts at 3.6 feet and the maximum fill height approximately 4 feet. The road will be most visible at lower elevations where it connects with Sanders Ranch Road, but this would be below the ridgeline area and only visible to the homes near to the access road. Conditions of approval will require that any graded areas that are outside of the developed access road be hydroseeded with a native grass mixture.

5. Policy OS1.5 – Development on Slopes and Ridgelines in Open Space Lands: In MOSO Open Space, development shall be prohibited on slopes with grades of twenty percent (20%) or greater and on the crests of minor ridgelines. The Town Council shall reduce the allowable densities on slopes of less than twenty percent (20%) through appropriate means such as requiring proportionally larger lot sizes or other appropriate siting limitations. For the purposes of this paragraph the term 'minor ridgeline' means any ridgeline, including lateral ridges, with an elevation greater than 800 feet above mean sea level, other than a major ridgeline.

   Staff Analysis: The purpose of the proposed wireless facility is to close a significant gap in wireless coverage, to provide wireless coverage within the Sandes Ranch Subdivision and southern Moraga. Verizon has shown the optimal location for this coverage to be on an existing PG&E transmission tower, which is located just east of a minor MOSO ridgeline. To access the facility a road needs to be constructed, which will run across and adjacent to the minor MOSO ridgeline. MMC §8.144.060.B. allow for the development of wireless facilities on slopes exceeding 20% on MOSO lands where it can be shown through an alternative sites analysis that it is the optimal location for the facility. A road may cross a ridgeline in compliance with MMC Section 8.128.060, or if it can be shown that it's necessary for the orderly development of the Town, which in this case is to enhance public safety. The access road will be on portions of slope that are 20% or greater, although the overall grading area of disturbance is 19.75%. MOFD classifies this access road as fire trail, which would be exempt from the MOSO development slopes prohibitions under Section III.B of the MOSO Guidelines.

6. CD8.4: Scenic Vistas. Ensure that new development in Hillside Areas, on and near Ridgelines, and within the Town's scenic corridors does not diminish the visual quality of Moraga's scenic vistas and the public's enjoyment of these vistas. Development that complies with all applicable guidelines and all other requirements for hillside and scenic corridor development shall be considered to comply with this policy.

Staff Analysis: The proposed wireless facility, as conditioned and mitigated, is substantially in compliance with the Town's guidelines and development standards or qualifies for exemptions related to closing a significant gap in wireless coverage and for public safety.

7. CD8.5: Hillside Development. To the maximum extent possible, require that development of new homes and non-residential uses in Hillside Areas retains the natural character of the existing landscape uninterrupted by visible manmade features. For example, development shall seek to conform to and blend with the site's natural setting, retain and respect the character of existing landforms, preserve natural vegetation, utilize contour grading to minimize soil displacement and use of retaining walls, maintain a low visual profile, and incorporate appropriate screening using native vegetation. Development that complies with all applicable guidelines and all other requirements for hillside development shall be considered to comply with this policy.

   Staff Analysis: The wireless facility will be collocated on an existing PG&E transmission tower and the equipment mounted on the tower painted to match. The ground mounted equipment will be enclosed by a brown fence within the footprint of the PG&E transmission tower, and just north of the base of the tower will be a green 3,000-gallon water tank. The proposed equipment shelter and water tank at the base of the tower complements the colors of the surrounding site and should be well screened from offsite views by existing vegetation and topography. The access road will be graded from the wireless facility over and along the ridgeline down to Sanders Ranch Road, and will follow the topography of the land, with the deepest cuts at 3.6 feet and the maximum fill height approximately 4 feet. There will be an approximately 70 foot long retaining wall, no more than 3 feet in height along the western property line. The road will be most visible at lower elevations where it connects with Sanders Ranch Road, but this would be below the ridgeline area and only visible to the homes near to the access road. Total ground disturbance for the site will be approximately 0.75 acres on the southern 30-acre portion of this approximately 100-acre property, Overall, the natural character of the site will remain substantially intact.

8. Policy CD8.8: Hillside and Ridgeline Protection. Require development to be located and designed so that Major MOSO Ridgelines, Minor MOSO Ridgelines, Significant Non-MOSO Ridgelines, and the Hillside Areas below them remain the dominant visual features when viewed from the Town's scenic corridors.

   Staff Analysis: The top hat, antennas and other tower mounted equipment would be visible from Camino Pable, a Town designated scenic corridor. However, the proposed facility would make minor visual changes to the existing PG&E tower, as the antennas and other equipment placed on the tower and painted to match. The minor MOSO ridgeline adjacent to the tower would not be substantially diminished by this project when viewed from Camino Pablo.

9. Policy CD1.7 – Wireless Communications Facilities: Regulate the location and design of wireless communications facilities, satellite dishes and other miscellaneous

antennas in accordance with the Town's Ordinance No. 176 and the Federal Communications Act.

Staff Analysis: The project is in substantial compliance with the Federal Communications Act and Ordinance No. 176. The applicant has provided an alternative sites analysis showing that this site is the optimal site to close a significant gap in wireless coverage within the Sanders Ranch Subdivision and southern Moraga. This allows for relief from MOSO development standards for location of the facility.

10. Policy OS6.2 – Noise Levels: Ensure that noise from all sources is maintained at levels that will not adversely affect adjacent properties or the community, especially during evening and early morning hours. Reasonable exceptions may be made in the interest of public safety.

    Staff Analysis: The wireless facility is an unmanned facility that will operate 24 hours a day, seven days a week. A Noise Study for the project was prepared by WATERFORD Consultants, LLC., which considered a heat exchanger for an Air Conditioning unit and emergency generator as the primary noise sources of concern. The report estimates that the total cumulative decibel level of the heat exchanger and generator would be 35.7 dBa[4], which would be compliance with the Town's zoning standards for wireless facilities. The project will include standard conditions of approval for wireless facility noise from MMC Section 8.144.070.

VIII. CEQA Determination

An Initial Study and Mitigated Negative Declaration (IS/MND) were prepared for the project in accordance with the requirements of California Environmental Quality Act (CEQA) and made available for public review and comment for 30 days from August 31, 2023, through October 2, 2023.

As the lead agency, the Town of Moraga determined an IS/MND to be the appropriate CEQA document because the proposed project could result in potentially significant impacts to air quality, biological resources and unknown/unmapped cultural/tribal resources during construction, geology and soils, and land use and planning. However, mitigation measures were identified that would reduce any potentially significant impacts to these areas to less-than-significant levels. These mitigation measures are shown in the Mitigation Monitoring and Reporting Program in Attachment A.

IX. Community Notification

This project had two notifications. A Notice of Intent for the IS/MND was posted at the Contra Costa County Clerk-Recorder's office, submitted to the Governor's Office of Planning and Research State Clearinghouse, posted at the site, Moraga Commons Park, the Hacienda de las Flores and the Town Offices and mailed to the owners or properties abutting the project parcel on August 31, 2023.

[4] dBa levels are "A" weighted according to the weighting curves to approximate the way the human ear hears.

The public meeting notices were mailed to 165 property owners within a 300-foot radius of the site, posted at the site and at the Moraga Commons Park, the Hacienda de las Flores and the Town Offices on September 22, 2023. Prior to publishing this staff report or any public notices being posted or mailed, approximately 75 public comments were submitted in support of the project. Additionally, the attorney representing Verizon Wireless submitted a letter in support of the project on September 25, 2023. At the time of the publishing of this staff report, no additional comments were submitted.

X. Recommendation

Staff recommends that, the Planning Commission adopt the following Resolutions:

1) Resolution __-2023 Adopting a Mitigated Negative Declaration Prepared for the Project in Accordance with the Requirements of the California Environmental Quality Act (CEQA).

2) Resolution __-2023 Approving Conditional Use Permit (UP 06-22), Design Review (DR-03-22), Grading Permit (GR 02-22) and Hillside Development Permit (HDP 02-22) to Construct and Operate a New Wireless Communication Facility on an Existing PG&E Transmission Tower Located on an Open Space Parcel within the Sanders Ranch Subdivision that would be Accessed by a New 15 Foot Wide 1,330-Foot Long Access Road Connecting to Sanders Ranch Road.

Report reviewed by:

Afshan Hamid, AICP, Planning Director
Karen Murphy, Assistant Town Attorney

Attachments:

A. CEQA Draft Planning Commission Resolution __-2023 with MMRP
B. Draft Planning Commission Resolution __-2023
C. Sanders Ranch HOA Letter of Support
D. Alternative Sites Analysis, RF Engineers Statement and Five-Year Master Plan
E. Geotechnical Investigation
F. RF-EME Report
G. Noise Study
H. Biological Resource Assessment
I. Public Comment
J. Verizon Wireless Attorney Letter
K. Photo Simulations
L. Project Plans
M. Grading Plans

ATTACHMENT A

CEQA Draft Resolution __-2023
Initial Study/Mitigated Negative Declaration
Mitigation Monitoring and Reporting Plan

TOWN OF MORAGA

PLANNING COMMISSION

RESOLUTION NO. ____-2023

Adopting a Mitigated Negative Declaration Prepared for the Sanders Ranch Verizon Wireless Facility in Accordance with the Requirements of the California Environmental Quality Act (CEQA).

WHEREAS, the Town of Moraga, acting as the Lead Agency as defined in Public Resources Code (PRC) §21067, prepared an Initial Study for the Sanders Ranch Wireless Facility Project pursuant to the California Environmental Quality Act ("CEQA") to ascertain whether the project may have a significant effect on the environment; and

WHEREAS, the Town determined that a Mitigated Negative Declaration was the appropriate and proper environmental analysis, given that the addition of specified mitigation measures would result in the project having no significant effect on the environment; and

WHEREAS, an Initial Study-Mitigated Negative Declaration (IS-MND) was prepared and filed with the State Clearinghouse on August 31, 2023; and circulated for public comment for a period of 32 days; and

WHEREAS, no public comments have been received; and

WHEREAS, the Town of Moraga Planning Commission considered the proposed IS-MND together with any comments received during the public review process, and the public was provided an opportunity for oral testimony at the October 3, 2023, hearing.

NOW THEREFORE, BE IT RESOLVED THAT THE PLANNING COMMISSION OF THE TOWN OF MORAGA HEREBY:

1. The Planning Commission makes the following findings and determinations with respect to the Sanders Ranch Verizon Wireless Facility IS/MND:

    a. The Planning Commission has reviewed and considered the IS/MND, comments received during the public review period, and the Town's written responses to any comments prior to acting on the project.

    b. The IS/MND adequately describes the environmental impacts of the project. On the basis of the whole record before it, the Planning Commission finds that there is no substantial evidence that the project, as mitigated, will have a significant effect on the environment.

    c. The MND has been completed in compliance with CEQA and the CEQA Guidelines.

d. The MND is complete and adequate and reflects the Town's independent judgment and analysis as to the environmental effects of the project.

e. The Planning Commission has determined that the proposed project will not have a significant effect on the environment because revisions to the project design have been made or agreed to by the project proponent to mitigate all identified impacts to a less than significant level.

2. The Planning Commission of the Town of Moraga hereby adopts the MND for the Sanders Ranch Verizon Wireless Facility.

3. The Planning Commission hereby adopts the Mitigation Monitoring and Reporting Program included in the IS/MND, which is incorporated herein by reference.

4. The Planning Commission directs the Town's Planning Department to file a notice of determination with the County Clerk of Contra Costa County.

5. Pursuant to CEQA Guidelines section 15091(e), the documents and other materials that constitute the record of proceedings upon which the Planning Commission has based its recommendations are located in and may be obtained from, the Office of the Town Clerk at 329 Rheem Boulevard, Moraga, California. The Town Clerk is the custodian of records for all matters before the Town.

PASSED AND ADOPTED BY THE PLANNING COMMISSION OF THE TOWN OF MORAGA this ___ day of _____, 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED: ATTEST:

_____ _____

Ben Helber
Chair

Afshan Hamid, AICP
Planning Director



Sanders Ranch Wireless Facility

Initial Study – Mitigated Negative Declaration

prepared by

Town of Moraga
Planning Department
329 Rheem Boulevard
Moraga, California 94556
Contact: Brian Horn, Senior Planner

prepared with the assistance of

Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, California 94612

August 2023

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com
4878-1139-2120 v1

Sanders Ranch Wireless Facility

Initial Study – Mitigated Negative Declaration

prepared by

Town of Moraga
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Moraga, California 94556
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Appendix E Geotechnical Engineering Investigation
Appendix F Noise Assessment Letter

Initial Study – Mitigated Negative Declaration

The Town of Moraga, as the Lead Agency, prepared this Initial Study – Mitigated Negative Declaration for the Sanders Ranch Wireless Facility Project in compliance with the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et. seq.), and the regulations and policies of the Town of Moraga, California. The Sanders Ranch Wireless Facility Project (hereinafter referred to as "proposed project" or "project") would involve the installation of six panel antennas on a 12-foot high "top hat" extension located on top of an existing PG&E transmission tower with associated infrastructure including an emergency generator, transformer and 3,000-gallon water tank. The project would require the construction of a new approximately 1,330-foot-long graded access road from Sanders Ranch Road to the existing tower as well as in-road utilities improvements beginning at Camino Pablo and running along Sanders Ranch Road.

1. Project Title

Sanders Ranch Wireless Facility Project

2. Lead Agency Name and Address

Town of Moraga
329 Rheem Boulevard
Moraga, California 94556

3. Contact Person and Phone Number

Brian Horn, Senior Planner
Office: (925) 888-7044
Email: bhorn@moraga.ca.us

4. Project Sponsor's Name and Address

Verizon
2785 Mitchell Drive, Building 9
Walnut Creek, California 94598
Office: (925) 279-6000

5. Project Location

The project site is located on open space land within the Sanders Ranch Subdivision (Assessor's Parcel Number 258-300-019) in the southeastern portion of the Town of Moraga, California. The site footprint totals approximately 0.75-acre within the common open space area of the Sanders Ranch Subdivision and east of a segment of the existing Old Moraga Ranch Trail. Regional access is available to the site from Interstate 580 (I-580), located approximately 5 miles west of the site; Interstate 680 (I-680), located approximately 5 miles east of the site; and State Route 24 (SR 24),

located approximately 4.7 miles north of the site. Local access to the site is available from Sanders Ranch Road via Canyon Road and Camino Pablo. Figure 1 shows the regional location of the project site, and Figure 2 provides an aerial image of the project site in its neighborhood context.

6. General Plan Designation

The Town of Moraga 2002 General Plan designates the project site as Moraga Open Space Ordinance (MOSO) Open Space. The MOSO designation is intended to protect the remaining open space resources within the Town (Town of Moraga 1986).

7. Zoning

The project site is zoned as MOSO Open Space. Pursuant to Moraga Municipal Code (MMMC) Chapter 8.52 and according to the MOSO Guidelines, permitted uses include agriculture and accessory buildings. Conditional uses permitted within the MOSO area include single-family residential (including accessory buildings and structures), park and outdoor recreational facility, and schools. The project would also be subject to Chapter 8.144 of the MMC which would regulate the design of the structure in relation to its proximity to the MOSO minor ridgeline, and Chapter 8.128 of the MMC which would regulate the access road in relation to the MOSO minor ridgeline.

8. Surrounding Land Uses and Setting

The project site is located on common open space for the Sanders Ranch Subdivision. Surrounding land uses include open space to the north and south, single-family residences to the east, and open space to the west. The nearest residence to the site is located approximately 75 feet to the east of the proposed access road). A MOSO minor ridgeline runs through the project site. A portion of the ridgeline runs parallel to the proposed access road and cuts across it at two points northwest of the tower. An easement for the Old Moraga Ranch trail runs along the proposed alignment of the access road, north of the existing Pacific Gas and Electric (PG&E) transmission tower to be modified. However, during multiple site visits conducted by Rincon and the Town, it was determined that the natural trail has diverged from the trail easement shown and is physically located on a different property and runs roughly parallel to the alignment of the proposed new road on the project site, as shown in Figure 2.

The project site is currently undeveloped with the exception of an existing PG&E transmission tower. Existing overhead lines extend from the northern portion of the site through the proposed project area and continue further south of the site. The project site and immediate surroundings generally consist of native grassland with some shrubs and trees and are sloped, with some slope areas exceeding 20 percent. Photographs of existing conditions on the project site are shown in Figure 3.

Figure 1 Regional Location

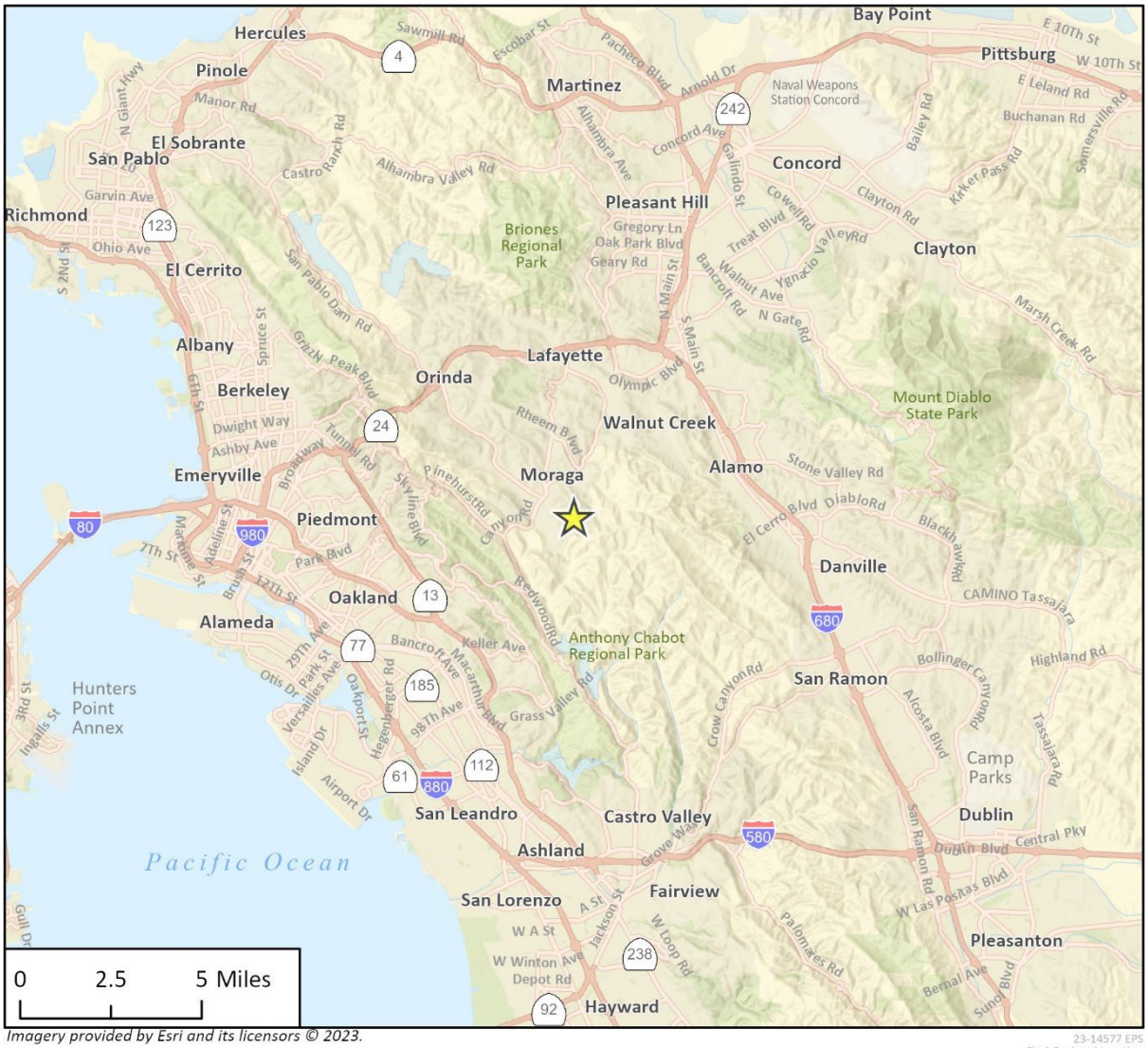


Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2023.
Additional data provided by East Bay Regional Parks District, 2023.

23-14577 EPS
Fig 2 Project Location 20230804

Figure 3 Existing Conditions of the Project Site



Photograph 1. Surrounding setting of the existing transmission tower to be modified



Photograph 2. Looking south along the first section of the proposed road alignment from the northern portion of the alignment

9. Description of Project

The proposed project would involve the installation of six panel antennas on a 12-foot high "top hat" extension that would be located on top of an existing PG&E transmission tower. The tower with the "top hat" extension would extend the existing 107.3-foot tower to reach a total height of approximately 116 feet. Also installed on the tower would be three 6449 antenna integrated radio (air) antennas with a centerline height of 45 feet along with six Verizon Wireless radios, two Verizon Wireless Raycap[1], a microwave antenna with a centerline height of 35 feet, and two hybrid wireless cables. An equipment enclosure consisting of a 19-foot by 19-foot concrete pad with 8-foot-tall composite fencing would enclose the facilities' ground equipment, including an emergency generator, within the base of the PG&E transmission tower. A new transformer would be located on a 4-foot 2-inch by 4-foot 4-inch pad approximately 9 feet west of the equipment enclosure pad along with a 3,000-gallon water tank. The project would be supplied electricity by PG&E. The proposed diesel generator for the project would be rated below 50 brake-horsepower and would operate under two hours per day for occasional maintenance activities. The project would comply with applicable California Green Building Standards, including installation of energy-efficient equipment and lighting. Additionally, the proposed project would include the installation of new Verizon Wireless fiber vaults every 150 feet along Sanders Ranch Road and installation of a new fiber route for approximately 8,600 feet through existing in-road conduits. This work would replace existing Verizon Wireless fiber vaults and fiber routes beneath Sanders Ranch Road.

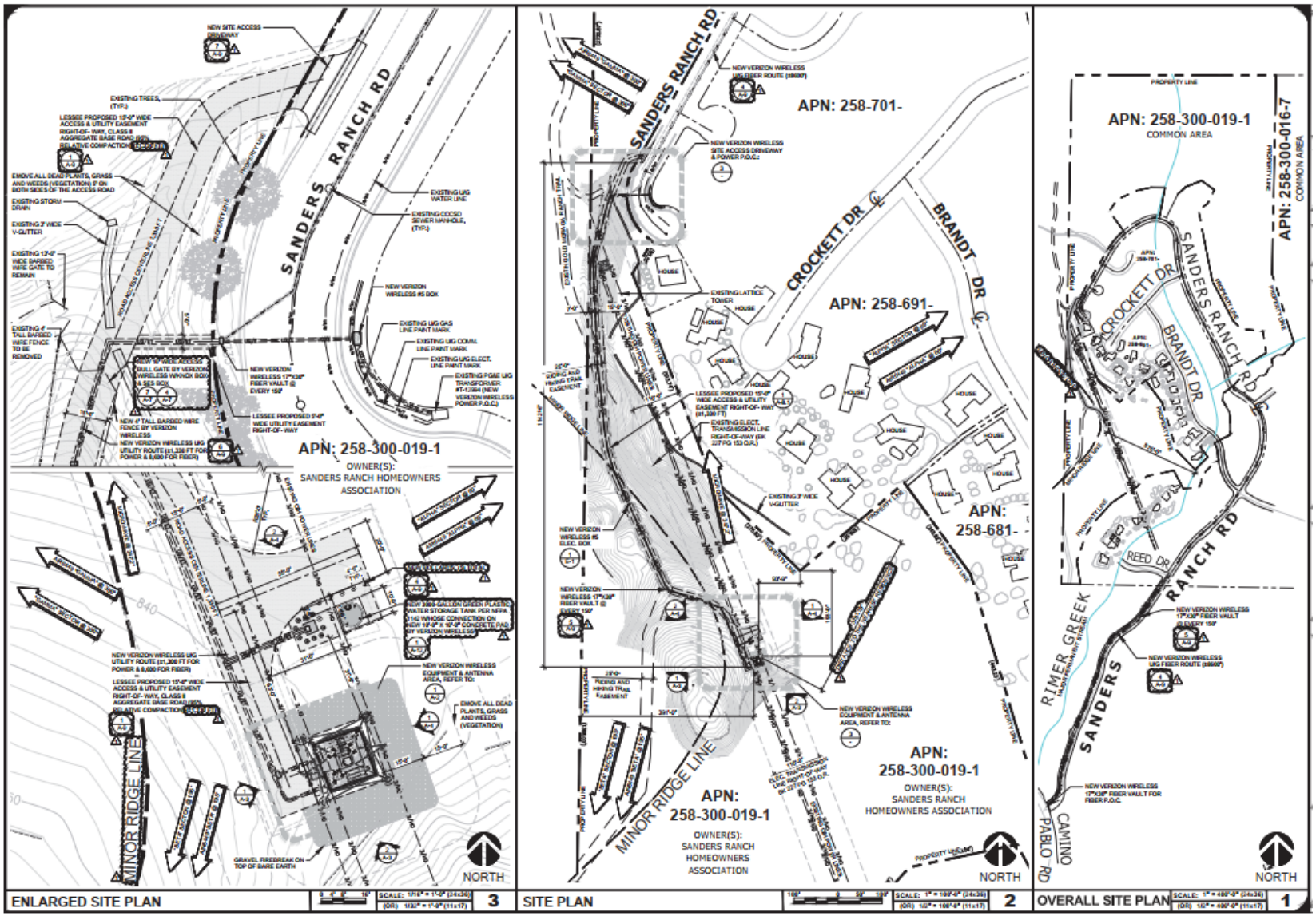
To provide access to the facility for construction and maintenance, a new 15-foot-wide access driveway constructed of Class II aggregate base would be graded and built approximately 155 feet northwest from near the end of Sanders Ranch Road to the existing PG&E transmission tower to be modified. The new road would be built on some portions of slopes exceeding 20 percent, roughly following the alignment of a portion of Old Moraga Ranch Trail for approximately 630 feet, and would also cross a Moraga Open Space Ordinance minor ridgeline.

Construction would occur over approximately four months. Grading activities would primarily occur along the proposed new road alignment and through a portion of a MOSO minor ridgeline. The total proposed grading for the project would be approximately 350 cubic yards of cut and 530 cubic yards of fill, totaling approximately 1,020 cubic yards of grading activities. The maximum cut depth would be approximately 3.6 feet and the maximum fill height would be approximately 4 feet. The total disturbed area of the site would be approximately 0.75 acres.

Figure 4 shows the proposed site plan.

[1] "…Industrial surge protection, connectivity, and power management solutions for telecommunications…" (Raycap 2023)

Figure 4 Proposed Site Plan



10. Other Public Agencies Whose Approval is Required

The Town of Moraga is the lead agency with responsibility for approving the proposed project. Discretionary approval from the Federal Communications Commission would also be required.

11. Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

On June 30, 2023, the Town of Moraga sent Assembly Bill (AB) 52 notification letters via certified mail to the following Native American tribes: the Guidiville Indian Rancheria, the Ohlone Indian Tribe, The confederated Villages of Lisjan, The Chicken Ranch Rancheria of MeWuk Indians, the Muwekma Ohlone Indian Tribe of the SF Bay Area, the North Valley Yokuts Tribe, the Tule river Indian Tribe, the Indian Canyon Mutsun Ban of Costanoan, Wilton Rancheria, Nashville Enterprise Miwok-Maidu Nishinam Tribe, Wuksache Indian Tribe/Eshom Valley Band, and the Amah Mutsun Tribal Band of Mission San Juan Bautista. The Town did not receive certified confirmation of delivery from the Indian Canyon Mutsun Band of Costanoan, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, and the Wuksache Indian Tribe/Eshom Valley Bandand Tribes, and therefore, resent them an email notification on August 2, 2023.

Under AB 52, tribes have 30 days from receipt of the letter to respond and request consultation. On July 13, 2023, the Town received a request from the Confederated Villages of Lisjan Nation to receive a copy of the final CHRIS and environmental document for this project, along with the SLF from the Native American Heritage Commission and any additional archeological reports. They requested these items be sent to their physical address in Oakland, California. Copies of AB 52 correspondence for this project are included in Appendix B.

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry Resources	■	Air Quality
■	Biological Resources	■	Cultural Resources	☐	Energy
■	Geology/Soils	☐	Greenhouse Gas Emissions	☐	Hazards & Hazardous Materials
☐	Hydrology/Water Quality	■	Land Use/Planning	☐	Mineral Resources
☐	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☐	Transportation	■	Tribal Cultural Resources
☐	Utilities/Service Systems	☐	Wildfire	■	Mandatory Findings of Significance

Determination

Based on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

■ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "less than significant with mitigation incorporated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature	Date
Brian Horn	Senior Planner
Printed Name	Title

Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	■	☐
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	■
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	■	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	■	☐

Regulatory Setting

The following Moraga General Plan sections would be applicable to the project.

Moraga 2002 General Plan

Policy CD1.3 **View Protection.** Protect important elements of the natural setting to maintain the Town's semi-rural character. Give particular attention to viewsheds along the Town's scenic corridors, protecting ridgelines, hillside areas, mature native tree groupings, and other significant natural features. Consideration should be given to views both from within the Town and from adjacent jurisdictions. Likewise, the Town should work with adjacent jurisdictions to protect views from Moraga to adjacent areas.

Policy CD1.5 **Ridgelines and Hillside Areas.** Protect ridgelines from development. In hillside areas, require new developments to conform to the site's natural setting, retaining the character of existing landforms preserving significant native vegetation and with respect to ridgelines, encourage location of building sites so that visual impacts are minimized. When grading land with an average slope of 20% of more, require 'natural contour' grading to minimize soil displacement and use of retainer walls. Design buildings and other improvements in accordance with the natural setting, maintaining a low profile and providing dense native landscaping to blend hillside structures with the natural setting.

Policy CD1.7 **Wireless Communication Facilities.** Regulate the location and design of wireless communications facilities, satellite dishes and other miscellaneous antennas in accordance with the Town's Ordinance No. 176 and the Federal Communications Act.

Moraga Municipal Code

The following section of the Moraga Municipal Code (MMC) would be applicable to the project.

SECTION 8.144.060, OPEN SPACE AND OPEN SPACE MOSO DISTRICT DEVELOPMENT STANDARDS.

A. In addition to the general development standards provided in Section 8.144.030, facilities proposed to be located within the Town's open space and ridgeline areas as defined by Chapter 8.128 and the General Plan shall comply with the following development standards.
   1. No wireless communication facilities which do not as of the effective date of the ordinance codified in this chapter have a conditional or temporary use permit shall be located within five hundred (500) feet of a major ridgeline as defined in the Moraga open space ordinance (MOSO).
   2. No wireless communication facilities which do not as of the effective date of said ordinance have a conditional or temporary use permit shall be located on the crest of a minor ridge with an elevation of eight hundred (800) feet or greater as defined in the Moraga open space ordinance (MOSO), nor shall the silhouette of an antenna be visible above the ridge as viewed from a lower elevation perspective generally available to the public.
   3. No wireless communications facilities which do not as of the effective date of said ordinance have a conditional or temporary use permit shall be located on areas where the slope has a grade of twenty (20) percent or greater in MOSO open space.
   4. Special design considerations such as designing facilities to appear as natural features found in the immediate area, such as rocks or trees, shall be considered in approving facilities for such use.

B. The facilities shall comply with the above development standards unless the applicant establishes and it is determined by the planning commission that there is no other optimal location for the carrier to provide adequate coverage, and it is determined that compliance with these standards would violate federal law. The burden shall be on the applicant to prove to the satisfaction of the planning commission that there is no optimal locations where adequate coverage could be provided.

C. Notwithstanding the foregoing, any temporary use permits which are valid as of the effective date of said ordinance must receive approval by the planning commission of a conditional use permit in order to be in compliance with this chapter.

Impact Analysis

a. Would the project have a substantial adverse effect on a scenic vista?

A scenic vista is usually defined as a panoramic view from an elevated position or a long-range view from a public vantage point. This can include views of natural features or of the built environment, when architecture and landscaped boulevards offer high-value views of an area considered important to the sense of place.

The project site is located on open space adjacent to the Sanders Ranch Subdivision. Surrounding land uses include open space to the north and east, single-family residences to the south, and open space to the west. Additionally, a MOSO minor ridgeline is located south of the project site on which the existing Old Moraga Ranch Trail is located. As described above in the Project Description, a portion of the ridgeline runs parallel to the access road and cuts across it at two points northwest of the tower. Additionally, the mapped Old Moraga Ranch trail briefly runs along the proposed access road, north of the tower. However, during multiple site visits conducted by Rincon and the Town, it was determined that the natural trail has diverged from the mapped trail and is now located roughly parallel to the project site, as shown in Figure 2.

The proposed project would expand upon an existing PG&E transmission tower and would also involve construction of a new access road from Sanders Ranch Road to the tower and smaller structures within the base and adjacent to the transmission tower. The additional equipment added to the tower would incrementally increase the visible equipment and height, but this increase would not be substantial, nor would it or the new smaller structures intrude on scenic views from the trail or Sanders Ranch Road and subdivision substantially more than the existing equipment does under current conditions. The proposed access road and related adjustments to the trail surface and/or alignment would not obstruct or substantially alter the scenic vistas currently available from the trail. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road and would not obstruct or substantially alter the scenic vistas currently available in the area. Impacts to scenic vistas would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The nearest officially designated State Scenic Highways are Interstate 680 (I-680) located 5 miles east of the site and State Route (SR 24) located 4.5 miles north of the site. The nearest eligible designated State Scenic Highway is SR 13 located approximately 4 miles west of the site (California Department of Transportation [Caltrans] 2023). Due to intervening topography, development, trees and distance, the project site is not clearly visible from these highways. In addition, the project would not involve tree removal or damage to rock outcroppings or buildings. As discussed above under Criterion a and below under Criterion c, the contours or scenic qualities of the identified minor ridgeline would not be substantially changed. Therefore, implementation of the project would have no effect on scenic resources in view of a State Scenic Highway. There would be no impact.

NO IMPACT

c. Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project site is currently developed with an existing PG&E transmission tower but is otherwise generally undeveloped, and, therefore, non-urbanized; in addition, the Town of Moraga as a whole is non-urbanized pursuant to CEQA Statute Section 21071 because its population, including in combination with adjacent cities, is under 100,000 residents. However, the analysis below reviews potential impacts for both non-urbanized and urbanized areas. Existing overhead lines extend from the northern portion of the site through the proposed project area and continue further south of the site. The surrounding area of the project site consists of native grassland with some shrubs and trees and is moderately to steeply sloped. Development of the proposed project would comply with Town zoning standards, including Chapter 8.52 of the MMC which permits the use of accessory buildings in MOSO areas. The project would also be required to comply with Chapter 8.144 of the MMC which regulates the design of the structure in relation to its proximity to the MOSO minor ridgeline.

The proposed tower improvements would extend the tower by approximately 8 feet to a total height of roughly 116 feet and would include new smaller structures for associated equipment adjacent to the tower. This incremental increase in height and addition of new small structures would not substantially change or degrade the existing visual character of this existing structure. The addition of a new access roadway and facility improvements would alter the character of the overall site as seen from the urbanized areas of Sanders Ranch Road, other locations within the Sanders Ranch Subdivision and the Old Moraga Ranch trail. Residents within the Sanders Ranch Subdivision would see the entrance to the 15-foot-wide aggregate access driveway approximately 155 feet northwest from the end of Sanders Ranch Road cul-de-sac, as well as portions of the road as it extends up the hillside. Old Moraga Ranch trail users would see minor alterations during a brief segment of the trail including views of a gravel roadway and, in the distance and partially obscured by topography and vegetation, the new small structures of the wireless facility. Consistent with MMC Section 8.144.0070.A and B which require that wireless communication facilities have a non-reflective finish, be painted to be compatible with the surrounding area and be compatible with the design, scale, materials, colors and landscaping of other existing structures on site, the proposed project would be required to use nonreflective materials and be similar in design to the existing transmission tower. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road and would not degrade the existing visual character of the area. The proposed site changes would incrementally alter the visual character for neighboring residents and trail users; however, the project would be generally consistent with existing development on the site and would not introduce new uses to the area. The proposed project would not substantially degrade the existing visual character of the site. Further, the project would not conflict with applicable zoning regulations. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

The immediate project vicinity contains limited sources of light and glare. Existing light and glare are from the existing utility tower, existing security lighting on the tower, and nearby residences. Temporary construction activities would not occur during evening hours and, as such, no construction light and glare impacts would be anticipated. Operation of the proposed project would continue to use the existing tower and security lighting. Coatings on the proposed panel additions would be non-reflective consistent with the existing tower design. Maintenance vehicles may also be sources of light and glare on the project site. Vehicle travel to the project site for maintenance activities would be limited to daytime hours and would not generate light. Glare from the maintenance vehicles would be temporary and would cease once maintenance activities are completed. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road and would not generate light or glare. The project would not substantially alter light or glare conditions in the vicinity. Impacts related to project light and glare would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	■
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	■

Impact Analysis

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b. Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

The California Department of Conservation (DOC) manages the Farmland Mapping and Monitoring Program to assess and record suitability of land for agricultural purposes. The project site and adjacent properties do not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) identified with the Farmland Mapping and Monitoring Program, are not enrolled in Williamson Act contracts, and do not support forest land or resources (DOC 2023). Vegetation on the site is generally characterized by non-native grasses and there are no trees on the site that would be impacted by the project. The site is not considered forest or timberland (California Department of Fish and Wildlife [CDFW] 2023). As such, the project would not convert forest or timberland uses, and no impact would occur.

For the above reasons, the proposed project would have no impact with respect to conversion of Farmland to non-agricultural use; conflict with existing agricultural zoning or Williamson Act contracts; and loss of forest land or conversion of forest land to non-forest use.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	■	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	■	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	■	☐

Overview of Air Pollution

The federal and State Clean Air Acts (CAA) mandate the control and reduction of certain air pollutants. Under these laws, the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for "criteria pollutants" and other pollutants. Some pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere, including carbon monoxide, volatile organic compounds (VOC)/reactive organic gases (ROG),[2] nitrogen oxides (NO_X), particulate matter with diameters of ten microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), sulfur dioxide, and lead. Other pollutants are created indirectly through chemical reactions in the atmosphere, such as ozone, which is created by atmospheric chemical and photochemical reactions primarily between ROG and NO_X. Secondary pollutants include oxidants, ozone, and sulfate and nitrate particulates (smog).

Air pollutant emissions are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories:

- Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat.

[2] CARB defines VOC and ROG similarly as, "any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate," with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term ROG is used in this IS-MND.

- Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and can also be divided into two major subcategories:

- On-road sources that may be legally operated on roadways and highways.
- Off-road sources include aircraft, ships, trains, and self-propelled construction equipment.

Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

Air Quality Standards and Attainment

The project site is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). BAAQMD has jurisdiction over much of the nine-county Bay Area, including Contra Costa County. As the local air quality management agency, BAAQMD is required to monitor air pollutant levels to ensure that the NAAQS and CAAQS are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the SFBAAB is classified as being in "attainment" or "nonattainment." In areas designated as non-attainment for one or more air pollutants, a cumulative air quality impact exists for those air pollutants, and the human health impacts associated with these criteria pollutants, presented in Table 1 are already occurring in that area as part of the environmental baseline condition.

Table 1 Health Effects Associated with Non-Attainment Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Suspended particulate matter (PM_{10})	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[1]
Suspended particulate matter ($PM_{2.5}$)	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.

Source: United States Environmental Protection Agency 2022

Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The SFBAAB is designated a nonattainment area for the federal 8-hour ozone standard, federal $PM_{2.5}$ 24-hour standard, state 8-hour and 1-hour ozone standards, state PM_{10} annual and 24-hour standards, and the state $PM_{2.5}$ 24-hour standard (BAAQMD 2017a). This nonattainment status is a result of several factors, such as mobile sources, wood burning, industrial combustion, and dust, in the SFBAAB.

Air Quality Management

Because the SFBAAB currently exceeds the federal ozone and $PM_{2.5}$ standards and the state ozone, PM_{10}, and $PM_{2.5}$ standards, BAAQMD is required to implement strategies to reduce pollutant levels to achieve attainment of the NAAQS and CAAQS. BAAQMD adopted the 2017 Clean Air Plan (2017 Plan) as an update to the 2010 Clean Air Plan. The 2017 Plan provides a regional strategy to protect public health and the climate. Consistent with the greenhouse gas (GHG) reduction targets adopted by the state, the 2017 Plan lays the groundwork for a long-term effort to reduce Bay Area GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors (ROG and NO_X) and reduce transport of ozone and its precursors to neighboring air basins. In addition, the 2017 Plan builds upon and enhances BAAQMD's efforts to reduce emissions of fine particulate matter and toxic air contaminants (TAC) (BAAQMD 2017a).

Air Pollutant Emission Thresholds

The BAAQMD has adopted guidelines for quantifying and determining the significance of air quality emissions in its *California Environmental Quality Act Air Quality Guidelines* (BAAQMD 2022). BAAQMD recommends that lead agencies determine appropriate air quality emissions thresholds of significance based on substantial evidence in the record. BAAQMD's significance thresholds in the updated guidelines for projects within the SFBAAB are the most appropriate thresholds for use in determining air quality impacts of the project.

Table 2 presents these significance thresholds for construction and operational-related criteria air pollutant and precursor emissions used for the purposes of this analysis. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. For the purposes of this analysis, the project would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 2.

Table 2 Criteria Air Pollutant Significance Thresholds

	Construction Thresholds	Operational Thresholds	
Pollutant	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
Fugitive Dust	Best Management Practices	None	

Source: BAAQMD 2022

BAAQMD does not have quantitative thresholds for fugitive dust emissions during construction. Instead, BAAQMD states that the following Best Management Practices (BMPs) must be implemented to reduce fugitive dust emissions to a less than significant level:

BAAQMD Basic Best Management Practices for Construction-Related Fugitive Dust Emissions

The applicant shall require all construction contractors to implement the basic construction mitigation measures recommended by BAAQMD to reduce fugitive dust emissions. Emission reduction measures will include, at a minimum, the following measures:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
8. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.
9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

In the absence of a qualified Community Risk Reduction Plan, BAAQMD has established the following thresholds for local community risks and hazards associated with TACs and $PM_{2.5}$ for assessing individual source impacts at a local level. Impacts would be significant if:

- The project would result in an increased cancer risk of > 10 in one million
- The project would result in an increased non-cancer (i.e., Chronic or Acute) risk of > 1.0 Hazard Index
- The project would result in an ambient $PM_{2.5}$ concentration increase of > 0.3 µg/m^3 annual average

A project would be considered to have a cumulatively considerable impact if the aggregate total of current and proposed TAC sources within a 1,000 feet radius of the project fence-line in addition to the project would exceed the cumulative thresholds. Impacts would be significant if:

- The project would result in an increased cancer risk of > 100 in one million
- The project would result in an increased non-cancer (i.e., Chronic or Acute) risk of > 10 Hazard Index
- The project would result in an ambient $PM_{2.5}$ concentration increase of > 0.8 µg/m^3 annual average

Excess cancer risks are defined as those occurring in excess of or above and beyond those risks that would normally be associated with a location or activity if toxic pollutants were not present. Non-carcinogenic health effects are expressed as a hazard index, which is the ratio of expected exposure levels to an acceptable reference exposure level.

BAAQMD considers children, the elderly, and those with preexisting serious health problems to be sensitive receptors. Land uses where sensitive receptors are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers and preschools, hospices, dormitories, prisons, nursing homes, hospitals, and residential communities (BAAQMD 2022).

BAAQMD establishes operational screening criteria for criteria air pollutants and precursors. If a project meets the screening criteria outlined in Table 3-1 of the BAAQMD CEQA Guidelines (BAAQMD 2017b), the project would not result in the generation of operational-related criteria air pollutants and/or precursors that exceed the emissions thresholds shown in Table 2 above.

Methodology

Air pollutant emissions generated by project construction and operation were estimated using the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod utilizes project-specific information, including the project's land use(s), square footage for different uses (e.g., parking lot, general office building, strip mall), and location, to model a project's construction and operational emissions. The analysis reflects the construction and operation of the project as described under Section 9, *Description of Project*.

Construction emissions modeled include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as worker, hauling, and vendor trips. CalEEMod estimates construction emissions by multiplying the amount of time equipment is in operation by emission factors. Construction of the project was analyzed based on the applicant-provided project characteristics, disturbance areas, and construction activities. Quantities and types of equipment used during construction were based on applicant-provided

data. Emissions modeling assumes a proposed start date of January 2024 with project construction occurring over approximately four months. CalEEMod does not provide default land use subtypes that accurately represent the proposed project components. Therefore, the following assumptions were included in the model based on details described under Section 9, *Description of Project*:

- The equipment enclosure, transformer, water tank, and all associated concrete pads were modeled using the land use subtype "General Office Building." Given that components of the project include concrete foundations, electrical components, and other building-like features, "General Office Building" was the most reflective land use available among the CalEEMod options in terms of construction duration, construction equipment quantities, and onsite operational sources. This land use subtype also accounts for modifications and improvements on the existing electrical tower.
- The proposed gravel driveway was modeled using the land use subtype "Other Non-asphalt Surfaces."
- The total area of ground disturbance was assumed to be 0.75 acres.
- The proposed emergency standby generator was assumed to operate two hours per day as a maintenance and testing scenario.
- Project operation was assumed to generate 110 vehicle trips per day. This is based on the California Department of Transportation's screening threshold used for transportation significance of 110 trips per day. This is a conservative estimate that would allow for additional trips, if necessary, beyond the estimated monthly maintenance trips.

It is assumed that all construction equipment used would be diesel-powered. This analysis assumes that the project would comply with all applicable regulatory standards. In particular, the project would comply with BAAQMD Basic Construction Control Measures listed under *Air Pollutant Emissions Thresholds* above.

Operational emissions modeled include energy emissions, mobile source emissions, and area source emissions. Mobile source emissions are generated by vehicle trips to and from the project site. Emissions attributed to energy use include natural gas consumption for space and water heating. Area source emissions are generated by landscape maintenance equipment, consumer products and architectural coatings.

Impact Analysis

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The California Clean Air Act requires that air districts create a Clean Air Plan that describes how the jurisdiction will meet air quality standards. The most recently adopted air quality plan is the 2017 Plan. The 2017 Plan focuses on two paramount goals, both consistent with the mission of BAAQMD:

- Protect air quality and health at the regional and local scale by attaining all national and state air quality standards and eliminating disparities among Bay Area communities in cancer health risk from TACs
- Protect the climate by reducing Bay Area GHG emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050
- Under BAAQMD's methodology, a determination of consistency with the 2017 Plan should demonstrate that a project:
- Supports the primary goals of the air quality plan

- Includes applicable control measures from the air quality plan
- Does not disrupt or hinder implementation of any air quality plan control measures

A project that would not support the 2017 Plan's goals would not be considered consistent with the 2017 Plan. On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating support with the 2017 Plan's goals. As discussed under Impact AQ-2 below, the project would not result in exceedances of BAAQMD thresholds for criteria air pollutants and thus would not conflict with the 2017 Plan's goal to attain air quality standards.

The 2017 Plan includes goals and measures to promote building decarbonization, conservation of water, use of on-site renewable energy, and energy efficiency. The project would be supplied electricity by PG&E, which is required to procure 100% of its energy supply from renewable sources by 2045. The proposed diesel generator would be rated below 50 brake-horsepower and would operate for occasional maintenance activities and during public outages, which on average would be under two hours per day for the life of the project. The project would comply with any applicable California Green Building Standards, including installation of energy-efficient equipment and lighting. Therefore, the project would not conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be less than significant impact.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The San Francisco Bay Area Air Basin is designated a nonattainment area for the federal 8-hour ozone standard, federal $PM_{2.5}$ 24-hour standard, state 8-hour and 1-hour ozone standards, state PM_{10} annual and 24-hour standards, and the state $PM_{2.5}$ 24-hour standard. The following subsections discuss emissions associated with construction and operation of the project.

Construction Emissions

Project construction would generate temporary air pollutant emissions associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction equipment/vehicles. Table 3 summarizes the estimated maximum daily emissions of pollutants during project construction. As shown therein, construction-related emissions would not exceed applicable thresholds for construction impacts.

Table 3 Estimated Maximum Daily Construction Emissions

Construction Year	ROG	NO_x	CO	SO_2	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Maximum Daily Emissions	3	20	20	<1	1	1
Thresholds	54	54	None	None	82	54
Threshold Exceeded?	**No**	**No**	**N/A**	**N/A**	**No**	**No**

lbs/day = pounds per day; ROG = reactive organic gases, NO_X = nitrogen oxides, CO = carbon monoxide, SO_2 = sulfur dioxide, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Notes: See Appendix A for modeling results. Some numbers may not add up due to rounding. Emissions presented are the highest of the winter and summer modeled emissions.

In lieu of quantitative thresholds for fugitive dust, BAAQMD states that implementation of BMPs would ensure that impacts related to fugitive dust are less than significant. Without incorporation of BMPs, project construction would potentially result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. Mitigation Measure AQ-1 would ensure that construction related impacts would be less than significant.

Operational Emissions

Operational emissions are typically associated with area sources (e.g., architectural coatings, consumer products, and landscaping equipment), energy sources (e.g., mechanical equipment) and mobile sources (e.g., vehicle trips to and from the project site). The project would result in operational emissions from area, mobile, and energy sources.

Table 4 summarizes the project's maximum daily operational emissions by emission source. As shown therein, operational emissions would not exceed the BAAQMD's operational thresholds for criteria pollutants. Therefore, project operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment, and impacts would be less than significant.

Table 4 Estimated Maximum Daily and Annual Operational Emissions

Emissions Source	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions (lbs/day)	1	1	5	<1	1	<1
Thresholds	54	54	None	None	82	54
Threshold Exceeded?	**No**	**No**	**N/A**	**N/A**	**No**	**N/A**
Maximum Annual Emissions (tons/year)	<1	<1	1	<1	<1	<1
Thresholds	10	10	None	None	15	10
Threshold Exceeded?	**No**	**No**	**N/A**	**N/A**	**No**	**N/A**

lbs/day = pounds per day; ROG = reactive organic gases, NO_X = nitrogen oxides, CO = carbon monoxide, SO_2 = sulfur dioxide, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Notes: See Appendix A for modeling results. Some numbers may not add up due to rounding.

Mitigation Measure

AQ-1 BAAQMD Basic Best Management Practices for Construction-Related Fugitive Dust Emissions

The applicant shall require all construction contractors to implement the basic construction mitigation measures recommended by BAAQMD to reduce fugitive dust emissions. Emission reduction measures will include, at a minimum, the following measures:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
8. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.
9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

Significance After Mitigation

Implementation of Mitigation Measure AQ-1 would minimize fugitive dust emissions resulting from construction activities. Implementation of these BMPs would reduce project impacts from fugitive dust emissions to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Certain population groups such as children, the elderly, and people with health issues are particularly sensitive to air pollution. The majority of sensitive receptor locations are schools, residences and hospitals. The closest sensitive receptors to the project site are the single-family residences near the eastern boundary of the project site, ranging from 75 to 200 feet east of the project site. The following subsections discuss the project's potential to result in impacts related to TAC emissions during construction and operation.

Construction

Construction-related activities would result in temporary project-generated emissions of diesel particulate matter (DPM) exhaust emissions from off-road, heavy-duty diesel equipment for site

preparation, grading, building construction, and other construction activities. DPM was identified as a TAC by CARB in 1998 (CARB 2021).

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction of the proposed project would occur over approximately four months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the California Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of proposed construction activities (i.e., 24 months) is approximately seven percent of the total exposure period used for 30-year health risk calculations. Current models and methodologies for conducting health-risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities, resulting in difficulties in producing accurate estimates of health risk (BAAQMD 2022).

The maximum PM_{10} and $PM_{2.5}$ emissions would occur during site preparation and grading activities. These activities would last for approximately 35 days. PM emissions would decrease for the remaining construction period because construction activities such as building construction and paving would require less intensive construction equipment. While the maximum DPM emissions associated with site preparation and grading activities would only occur for a portion of the overall construction period, these activities represent the worst-case condition for the total construction period. This would represent less than one percent of the total 30-year exposure period for health risk calculation. Given the aforementioned discussion, DPM generated by project construction would not create conditions where the probability is greater than one in one million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than one for the Maximally Exposed Individual.

In addition, as mentioned above, the project would be required to implement the BAAQMD *Basic Construction Mitigation Measures* during all phases of construction on the project site to reduce dust emissions. Therefore, project construction would not expose sensitive receptors to substantial TAC concentrations, and impacts would be less than significant.

Operation

Sources of operational TACs include, but are not limited to, land uses such as freeways and high-volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities. The project does not include construction of new gas stations, dry cleaners, highways, roadways, or other sources that could be considered new permitted or non-permitted sources of TAC or $PM_{2.5}$ in proximity to sensitive receptors. In addition, mobile emissions generated from the project would be minimal and spread over a broad geographical area. Therefore, project operation would not expose sensitive receptors to substantial TAC concentrations, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

BAAQMD's 2022 CEQA Air Quality Guidelines identifies land uses that have the potential to generate substantial odor complaints. The uses in the table include wastewater treatment plants, landfills or transfer stations, refineries, composting facilities, confined animal facilities, food manufacturing, smelting plants, and chemical plants (BAAQMD 2022). Odors are typically associated with industrial projects involving the use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes, as well as sewage treatment facilities and landfills.

During construction activities, heavy equipment and vehicles would emit odors associated with vehicle and engine exhaust and during idling. However, these odors would be intermittent and temporary and would cease upon completion.

The project does not involve, nor would locate, new sensitive receptors in proximity to odor-emitting uses as identified in BAAQMD's 2022 CEQA Air Quality Guidelines. The proposed uses would not generate objectionable odors that would affect a substantial number of people. Furthermore, the project would be subject to BAAQMD Regulation 7, Odorous Substances, which requires abatement of any nuisance generating an odor complaint. Therefore, the project would not substantially cause new sources of odors and would not significantly expose sensitive receptors to existing or new odors, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	■	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	■	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	■
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	■	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	■	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

The analysis in this section is based in part upon a biological resource assessment prepared by AJM Ecological Solutions, LLC in March 2021 (Appendix C to this Initial Study).

Regulatory Setting

Federal and State

Regulatory authority over biological resources is shared by federal, state, and local agencies under a variety of laws, ordinances, regulations, and statutes. Primary authority for biological resources lies with the land use control and planning authority of local jurisdictions (in this instance, the Town of Moraga).

The California Department of Fish and Wildlife (CDFW) is a trustee agency for biological resources throughout the state under CEQA and has direct jurisdiction under the California Fish and Game Code (CFGC). Under the California Endangered Species Act and the federal Endangered Species Act, the CDFW and the U.S. Fish and Wildlife Service (USFWS), respectively, have direct regulatory authority over species formally listed as threatened or endangered (and listed as rare for CDFW). Native and/or migratory bird species are protected under the CFGC Sections 3503, 3503.5, and 3511.

Statutes in the Clean Water Act (CWA), CFGC, and CCR protect wetlands and riparian habitat. The U.S. Army Corps of Engineers (USACE) has regulatory authority over wetlands and waters of the United States under Section 404 of the CWA. The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) ensure water quality protection in California pursuant to Section 401 of the CWA and Section 13263 of the Porter-Cologne Water Quality Control Act. The CDFW regulates waters of the State under the CFGC Section 1600 et seq.

Special-status species are those plants and animals: 1) listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS and the National Marine Fisheries Service (NMFS) under the federal Endangered Species Act; 2) listed or proposed for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act; 3) recognized as California Species of Special Concern by the CDFW; 4) afforded protection under CFGC; and 5) occurring on Lists 1 and 2 of the CDFW California Rare Plant Rank (CRPR) system.

Impact Analysis

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The project site is undeveloped with the exception of an existing PG&E tower. The site does not contain riparian habitat and is not located within a known regional wildlife movement corridor or other sensitive biological area as indicated by the USFWS Critical Habitat portal (Appendix C). Based on the surroundings and lack of native or riparian habitat located on or adjacent to the site, no federal-or state-listed endangered, threatened, rare, or otherwise sensitive flora or fauna are anticipated to occur within the project site (Appendix C).

The site contains non-native vegetation and non-native invasive herbaceous lands with dense areas of coyote brush (Appendix C). Non-native grasslands provide suitable nesting habitat for passerine bird species protected under the Migratory Bird Treaty Act (MBTA). Protected birds include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows, and others, including their body parts (feathers, plumes etc.), nests, and eggs. Construction activities could disturb ground nesting and adjacent shrub nesting birds within and around the construction site. Potential impacts on special-status and migratory birds that could result from the construction and operation of the project include the destruction of eggs or occupied nests, mortality of young, and the abandonment of nests with eggs or young birds prior to fledging. If these species were found to be present, impacts to these species would be significant. Therefore, Mitigation Measure BIO-1 would be required to reduce impacts to a less-than-significant level.

Mitigation Measure

BIO-1 Nesting Bird Avoidance and Minimization Measures

The following avoidance and minimization measures shall be implemented during project construction activities:

- Initial site disturbance should occur outside the general avian nesting season (February 1 through September 15), if feasible.
- If initial site disturbance occurs in a work area within the general avian nesting season indicated above, a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to initial disturbances in the work area. The survey shall include the entire area of disturbance area plus a 50-foot buffer (relevant to non-raptor species) and 300-foot buffer (relevant to raptors) around the site. If active nests are located, all construction work shall be conducted outside a buffer zone from the nest to be determined by the qualified biologist. The buffer should be a minimum of 50 feet for non-raptor bird species and at least 300 feet for raptor species. Larger buffers may be required and/or smaller buffers may be established depending upon the species, status of the nest, and construction activities occurring in the vicinity of the nest. The buffer area(s) shall be closed to all construction personnel and equipment until the adults and young are no longer reliant on the nest site. A qualified biologist shall confirm that breeding/nesting is completed and young have fledged the nest prior to removal of the buffer.
- If construction activities in a given work area cease for more than 14 days, additional surveys shall be conducted for the work area. If active nests are located, the aforementioned buffer zone measures shall be implemented.

Significance After Mitigation

Implementation of Mitigation Measure BIO-1 would reduce the potential for project construction activities to result in the loss of active bird nests through a pre-construction nesting bird survey and establishment of avoidance buffers around active nests, if present. Implementation of these measures would reduce project impacts to special-status plant and wildlife species to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

AJM Ecological Solutions, LLC conducted an assessment of potentially jurisdictional features as part of the literature review and performed a reconnaissance-level survey of the project site. The project site does not contain wetlands or other areas designated as waters of the U.S. and no further studies or regulatory permitting would be required. Therefore, the project would not result in a significant impact to federally protected wetlands as defined by Section 404 of the Clean Water Act (Appendix C).

NO IMPACT

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project's area of disturbance does not contain trees but the surrounding areas contain oak woodland. The project would not involve tree removal for construction of the access road, utility work beneath Sanders Ranch Road, or tower improvements. Furthermore, the project would comply with Moraga General Plan Policy CD1.5 which requires development in MOSO areas to conform to the site's natural setting, retaining the character of existing landforms, preserving significant native vegetation and with respect to ridgelines. The project would not substantially modify the existing topography and would not require tree removal. Grading for the proposed access road would not substantially alter the MOSO minor ridgeline and would generally retain the character of the existing landforms. With required adherence to the aforementioned existing policies, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

There are no Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans that govern activities on the project site (Appendix C). Therefore, the project would not conflict with such a plan and no impact would occur.

NO IMPACT

5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	■
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	■	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	■	☐

This section provides an analysis of the project's impacts on cultural resources, including historical and archaeological resources, as well as human remains. CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1). A historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or any object, building, structure, site, area, place, record, or manuscript a lead agency determines to be historically significant (CEQA Guidelines, Section 15064.5[a] [1-3]).

A resource is considered historically significant if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, if it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC, Section 21083.2[a], [b]).

PRC, Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Methodology

Rincon completed background and archival research in support of this assessment in July 2023. A variety of primary and secondary source materials were consulted. Sources included, but were not limited to, historical maps, aerial photographs, and written histories of the area. The following sources were utilized to develop an understanding of the project site and its context:

- Contra Costa County Assessor's Office
- Historical aerial photographs accessed via NETR Online
- Historical aerial photographs accessed via University of California, Santa Barbara Library FrameFinder
- Historical USGS topographic maps
- Historical newspaper clippings obtained from Newspapers.com, ProQuest Historical Newspapers.com, and the California Digital Newspaper Collection

On July 14, 2023, Rincon received California Historical Resources Information System (CHRIS) records search results from the Northwest Information Center (NWIC) (Appendix D). The NWIC is the official state repository for cultural resources records and reports for the county in which the proposed project falls. The purpose of the records search was to identify previously recorded cultural resources, as well as previously conducted cultural resources studies within the project site and a 0.5-mile radius surrounding it. Rincon also reviewed the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Historical Landmarks list, and the Built Environment Resources Directory (BERD). Additionally, Rincon reviewed the Archaeological Determination of Eligibility (ADOE) list.

Rincon contacted the Native American Heritage Commission (NAHC) on June 14, 2023, to request a search of the Sacred Lands File (SLF), as well as a contact list of Native Americans culturally affiliated with the project site vicinity (Appendix D). On June 30, 2023, the Town of Moraga sent letters to 12 Native American contacts in the area to request information on potential cultural resources in the project site vicinity that may be impacted by the proposed projects development (Appendix B).

Under contract to the Town, an archaeologist from Rincon Consultants conducted a pedestrian archaeological and built environment survey of the project site on July 20, 2023. The site was surveyed using transect intervals spaced 10-15 meters and oriented generally from north to south. Exposed ground surfaces were examined artifacts, ecofacts, soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings or historic debris. Ground disturbances such as burrows and drainages were also visually inspected. Additionally, under the direction of architectural historian JulieAnn Murphy, the Rincon Archaeologist visually inspected the built environment resources within the project site, including buildings, structures, and landscape elements. Pursuant to OHP Guidelines (California OHP 1995: 2), properties over 45 years of age were evaluated for inclusion in the NRHP, CRHR, and local listing and recorded on California Department of Parks (DPR) 523 series forms.

Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

The 0.4-mile segment of the Moraga Castro Valley Transmission Line, the alignment of which includes the project site, is recommended ineligible for listing in the NRHP, CRHR, or local listing because it lacks historical or architectural significance. As a result of the evaluation included in Appendix D, Rincon found no evidence suggesting the transmission line is associated with important events in the history of utility design and does not qualify as a historical resource as defined in Section 15064.5 of the CEQA Guidelines. It is therefore recommended ineligible for the NRHP, CRHR, or as a Town of Moraga Landmark.

The field survey and background research identified one built-environment historical resource on the project site, the transmission tower. However, the resource was determined ineligible for the NRHP, the CRHR, or as a Town of Moraga Landmark for lack of historical or architectural significance. The proposed project to modify the transmission tower for cell antennas and the installation of necessary associated equipment, and the construction of a new access road would not result in the substantial adverse change to the significance of a historical resource. The proposed project would result in no impact to historical resources.

NO IMPACT

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Two field surveys conducted in 1981 and 1982 by Nancy Schluntz and Donna J. Little, respectively, discovered flank scrapers within portions of the project site. However, no archaeological resources were identified during the field survey, and neither of the two flaked scrapers identified in 1981 were relocated (Appendix D). The current field survey did not relocate the scraper identified in 1981 nor did it identify substantial prehistoric or historic-period archaeological remains within areas of the project site subject to ground disturbing activities or the immediate vicinity.

While the Town of Moraga is surrounded by a confluence of freshwater sources, the project site is not located near freshwater sources. Consistent with habitation patterns and isolated archaeological artifacts have been identified in the general vicinity, the undulating hillside topography, lack of historic period use or access depicted in maps and aerials, negative SLF results, and lack of specific archaeological resources recorded in the area suggest there is a low potential for encountering intact subsurface archaeological deposits. However, the lack of surface evidence of archaeological materials does not entirely preclude their subsurface existence. Therefore, implementation of Mitigation Measure CR-1 would be required.

Mitigation Measure

CR-1 Unanticipated Discovery of Cultural Resources

In the event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 50 feet of the find shall halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric, then a Native American representative shall also be

contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or Native American representative determines it to be appropriate, archaeological testing for CRHR eligibility shall be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via project redesign, a qualified archaeologist shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, per the requirements of CCR Guidelines Section 15126.4(b)(3)(C). The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative, as appropriate, shall recover and document the scientifically consequential information that justifies the resource's significance. The Town shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the California Historical Resources Information System, pursuant to CCR Guidelines Section 15126.4(b)(3)(C).

Significance After Mitigation

Impacts would be less than significant with implementation of Mitigation Measure CR-1.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

No human remains are known to be present within the project site or along Sanders Ranch Road. However, the discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be of Native American origin, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance. With adherence to existing regulations, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	■	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	■	☐

Electricity is primarily consumed by the built environment for lighting, appliances, heating and cooling systems, and other uses such as industrial processes in addition to being consumed by alternative fuel vehicles. Most of California's electricity is generated in state, with approximately 30 percent imported from the northwest and southwest regions of the United States in 2020 (California Energy Commission [CEC] 2021). In addition, approximately 33 percent of California's electricity supply in 2020 came from renewable energy sources, such as wind, solar photovoltaic, geothermal, and biomass (CEC 2021). In 2018, Senate Bill 100 accelerated the state's Renewable Portfolio Standards Program, codified in the Public Utilities Act, by requiring electricity providers to increase procurement from eligible renewable energy and zero-carbon resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

The smallest scale at which energy consumption information is readily available is the county level. Therefore, energy consumption in Contra Costa County is used herein to characterize the town's existing consumption of electricity and natural gas. According to the California Energy Commission (CEC), Contra Costa County consumed approximately 8,287 GWh of electricity in 2021 from residential and non-residential uses (CEC 2023a). Moraga is served by Marin Clean Energy (MCE), which supplies electricity to all accounts (residential, business, and municipal) and is delivered through Pacific Gas and Electric (PG&E) infrastructure. MCE buys power mainly from clean sources like wind, solar, and hydropower (MCE 2023). In addition, property owners and businesses within Moraga can opt out of MCE to continue receiving electricity from PG&E directly. At the end of December 2022, Moraga had 6,440 electric accounts, 5,777 of which were with MCE for an enrollment rate of 89.7%. Of those 5,777 accounts, 2.7% are Deep Green (Town of Moraga 2023). Contra Costa County consumed approximately 971 millions of therms of natural gas in 2021 in both residential and non-residential uses (CEC 2023b).

Petroleum fuels are primarily consumed by on-road and off-road equipment in addition to some industrial processes, with California being one of the top petroleum-producing states in the nation (CEC 2023b). Gasoline, which is used by light-duty cars, pickup trucks, and sport utility vehicles, is the most used transportation fuel in California with 11.6 million gallons sold in 2021 (CEC 2023c). Diesel, which is used primarily by heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and

barges, farm equipment, and heavy-duty construction and military vehicles, is the second most used fuel in California with 1.6 million gallons sold in 2021 (CEC 2023c). Table 5 summarizes the petroleum fuel consumption for Contra Costa County, in which the project site would be located, as compared to statewide consumption.

Table 5 2021 Annual Gasoline and Diesel Consumption

Fuel Type	Contra Costa County (millions of gallons)	California (millions of gallons)	Proportion of Statewide Consumption[1]
Gasoline	374	13,818	2.7%
Diesel	28	1,883	1.5%

Source: CEC 2023c

Energy consumption is directly related to environmental quality in that the consumption of nonrenewable energy resources releases criteria air pollutant and GHG emissions into the atmosphere. The environmental impacts of air pollutant and GHG emissions associated with the project's energy consumption are discussed in detail in Section 3, *Air Quality*, and Section 8, *Greenhouse Gas Emissions*, respectively.

Impact Analysis

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction Energy Demand

During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. The proposed project would require site preparation and grading, pavement installation, and equipment installation.

Energy use during project construction would be temporary in nature, and construction equipment used would be typical of similar-sized construction projects in the region. In addition, the project would utilize construction contractors who are in compliance with applicable CARB regulations that restrict the idling of heavy-duty diesel motor vehicles and govern the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. Electrical power would be consumed to construct the project, and the demand, to the extent required, would be supplied from existing electrical infrastructure in the area. Overall, construction activities would require minimal electricity consumption and would not have an adverse impact on available electricity supplies or infrastructure.

Construction activities would utilize fuel-efficient equipment consistent with state and federal regulations and would comply with state measures to reduce the inefficient, wasteful, or unnecessary consumption of energy. In addition, pursuant to applicable regulatory requirements such as CalGreen Code Section 4.408, the project would comply with construction waste management practices to divert a minimum of 50 percent of construction and demolition debris. These practices would result in efficient use of energy necessary to construct the project.

Furthermore, in the interest of cost efficiency, construction contractors would not utilize fuel in a manner that is wasteful or unnecessary. Therefore, project construction would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy. Project construction impacts would be less than significant.

Operational Energy Demand

Operational energy use of the proposed project would be similar to existing utilities on site or telecommunication facilities in the area. The additions to the existing PG&E tower would be constructed to current electrical codes and would be subject to energy efficiency regulations for the specific type of development. The project would be supplied electricity by PG&E, which is required to procure 100 percent of its energy supply from renewable sources by 2045. The proposed diesel generator would be rated below 50 brake-horsepower and would operate for an average of under two hours per day for occasional maintenance activities and power outages. The project would also comply with applicable California Green Building Standards, including installation of energy-efficient equipment and lighting. Therefore, operation of the proposed project would not result in the inefficient, wasteful, or unnecessary consumption of energy. The project would not result in a significant impact due to wasteful, inefficient, or unnecessary consumption of energy resources.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The Town of Moraga's Climate Action Plan includes energy conservation and energy efficiency strategies for its transportation, residential, commercial, and municipal operations. The proposed project would result in a minimal increase in energy demand. As the proposed project is not related to transportation and is not a residential, commercial, or municipal use, it would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. As a result, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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7 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	■	☐
2. Strong seismic ground shaking?	☐	☐	■	☐
3. Seismic-related ground failure, including liquefaction?	☐	■	☐	☐
4. Landslides?	☐	■	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	■	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	■	☐	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	■	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	■
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	■	☐	☐

The analysis in this section is based in part on the geotechnical engineering investigation prepared for the project by Krazan & Associates, Inc. in February 2023. The geotechnical investigation is included as Appendix E to this Initial Study.

Regulatory Setting

Alquist-Priolo Earthquake Fault Zoning Act

Following the 1989 Loma Prieta earthquake, the Seismic Hazards Mapping Act (SHMA) was passed by the California legislature in 1990. The SHMA (PRC Chapter 7.8, Section 2690-2699.6) directs the Department of Conservation, California Geological Survey to identify and map areas prone to liquefaction, earthquake-induced landslides and amplified ground shaking. It also requires that agencies only approve projects in seismic hazard zones following site-specific geotechnical investigations to determine if the identified hazard is present and the inclusion of appropriate mitigation to reduce earthquake-related hazards.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 was enacted, in part, to address seismic hazards not included in the Alquist-Priolo Act, including strong ground shaking, landslides, and liquefaction. Under the Alquist-Priolo Act, the State Geologist is responsible for identifying and mapping seismic hazards. CGS Special Publication 117, adopted in 1997 by the State Mining and Geology Board, constitutes guidelines for evaluating seismic hazards other than surface faulting and for recommending mitigation measures as required by PRC Section 2695(a). In accordance with the mapping criteria, the CGS seismic hazard zone maps identifies areas with the potential for a ground shaking event that corresponds to 10 percent probability of exceedance in 50 years.

The purpose of the Seismic Hazards Mapping Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, counties, and state agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The Seismic Hazards Mapping Act requires site-specific geotechnical investigations prior to permitting most urban development projects in seismic hazard zones.

California Building Code (CBC)

The California Building Code (CBC), Title 24, Part 2, provides building codes and standards for the design and construction of structures in California. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of building and structures. The CBC contains specific requirements for seismic safety, excavation, foundations, retaining walls, soil conditions, and site demolition. It also regulates grading activities, including drainage and erosion control. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

The CBC is updated every three years by order of the legislature, with supplements published in intervening years. State law mandates that local governments enforce the CBC. In addition, a city and/or county may establish more restrictive building standards reasonably necessary because of local climatic, geological, or topographical conditions. The 2022 CBC is based on the International Building Code.

Impact Analysis

a.1. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Active faults are defined by the State of California to be a fault that has surface displacement within the Holocene time (approximately the last 10,000 years). Potentially active faults as defined by the State of California to be a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years). Any fault that is sufficiently active describes a fault that has some evidence of Holocene displacement on one or more of its segments or branches. Associated issues with earthquakes include liquefaction, which is the rapid transformation of sediment to a fluid-like state. It occurs when water-saturated, loose to medium dense, relatively clay-free sands and silts are subjected to earthquake ground motion.

The Bay Area contains both active and potentially active faults. Major active faults in the area are the Hayward and Calaveras faults located approximately 4.3 miles west of the site and 6.5 miles southeast of the site, respectively. The project site itself is not located within an Earthquake Fault Zone (California Geological Survey [CGS] 2021).

The project site is not within an Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults exist on the site (California Geological Survey [CGS] 2021). Direct ground rupture of a known earthquake fault would be unlikely, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

The nearest mapped active fault, the Hayward Fault, is located approximately 4 miles west of the project site (CGS 2021). The United States Geological Survey (USGS) has stated that there is a 72 percent chance of at least one magnitude 6.7 or greater earthquake striking the San Francisco Bay region between 2014 and 2043 (USGS 2016). Therefore, the site could be subjected to at least one moderate to severe earthquake that would cause strong ground shaking. However, the project does not include habitable structures, and project construction would be required to comply with the seismic safety requirements in the CBC and the California Public Utilities Commission (CPUC) energy requirements. Compliance with such requirements would reduce seismic ground shaking impacts to the maximum extent practicable with current engineering methods. Therefore, impacts related to strong seismic ground shaking would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie close to the ground surface. The surface soils of the site have been identified as firm to stiff silty clay and sandy clay or medium dense silty sand with trace clay. These soils are moderately strong, slightly compressible, and have a moderate expansion potential (Appendix E). The existing structure and proposed project would be required to be constructed in compliance with the California Building Code (CBC), which requires structures to be designed and constructed to resist liquefaction potential from seismic-related ground failure.

The geotechnical investigation prepared for the project (Appendix E) analyzed the potential for liquefaction induced settlements and provided recommendations for the design of the proposed structure's foundation. Pursuant to MMC Title 15, the Town of Moraga adopted the CBC; Section 1803.1.1.3 of the CBC states that the building department of each locality (in this case the Moraga Planning Department) must approve the soil investigation or geotechnical investigation (Appendix E) if it determines that the recommended action is likely to prevent structural damage. As a condition of the building permit, the approved recommended actions would be incorporated into project construction. Pursuant to the MMC and the CBC, the recommendations included in the geotechnical investigation (Appendix E) would be incorporated into the design of the project and verified by the Town prior to issuance of a building permit. Implementation of Mitigation Measure GEO-1 would ensure that all recommendations will be implemented.

The project would not increase the potential for unstable soils, on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. With incorporation of recommendations included in Appendix E during project construction, the cuts and fills needed for project grading would be formed to create stable slopes to limit the potential for soil slope failures. Furthermore, the grading would be designed such that it would not increase the potential for landslides on the existing slopes, either on or off site.

With adherence to MMC, the CBC, implementation of recommendations in the design-level geotechnical investigation, and implementation of Mitigation Measure GEO-1, impacts would be less than significant.

Mitigation Measure

GEO-1 Geotechnical Considerations

The project applicant shall implement all measures and recommendations set forth in the Geotechnical Investigation prepared by Krazan & Associates, Inc. in February 2023 (on file with the Town of Moraga and included as Appendix E). Recommendations include but are not limited to the following:

- Based on the existing moisture contents of the upper on-site soils, stabilization of the on-site subgrade may be required. Typical remedial measures include: discing and aerating the soils during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill materials; or mixing the soil with an approved lime or cement product.

- Ata minimum, the upper 18-inches of subgrade soil shall be moisture conditioned to a minimum of two percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557
- Concrete slab on-grade and exterior flatwork areas shall be supported by a minimum of 24-inches of non-expansive engineered fill or lime treated engineered fill.
- Reconstructed slopes shall be constructed at an inclination not exceeding 2:1 (horizontal to vertical) slopes or flatter. A geotechnical professional shall be retained to review all slope reconstruction plans and specifications prior to initiating the repair work.
- Where fills greater than eight feet are to be constructed on original ground that slopes at inclinations steeper than 6:1 (horizontal to vertical), benches shall be cut into the existing slope as the filling operations proceed.
- Site grading near slopes and the embankments, including retaining walls and wing walls, shall be accomplished such that excessive sheet run-off is prevented. The completed slopes shall be seeded or otherwise vegetated to protect from erosion. Within the side of embankments facing water flow, rock rip rap or concrete paving shall be used to prevent erosion.

Significance After Mitigation

Implementation of Mitigation Measure GEO-1 would reduce impacts related to liquefaction, landslide, lateral spreading, subsidence, or collapse.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

a.4. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The project site and its immediate vicinity are not mapped for landslide potential; however, unmapped landslides and areas of localized slope instability may be locally present (CGS 2021). Construction at the project site and for the access road would involve grading on moderate to steep slopes in soils and rocks of varying strength. According to the Geotechnical Investigation, construction on the project site's slopes would be feasible provided the recommendations in the Geotechnical Investigation are followed and as required pursuant to MMC Title 15. MMC Title 15 would require that the cuts and fills needed for project grading would be formed to create stable slopes to avoid susceptibility to land sliding and would not increase the potential for landslides on the existing slopes. Construction activities would be limited to the project footprint and geotechnical recommendations as listed in Appendix E and as summarized in Mitigation Measure GEO-1 would be implemented.

Mitigation Measure Implementation of Mitigation Measure GEO-1 would be required.

Significance After Mitigation

Implementation of Mitigation Measure GEO-1 would reduce impacts to slope instability and associated slope failure to less than significant levels.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project result in substantial soil erosion or the loss of topsoil?

Project construction, particularly grading and leveling, could result in erosion and loss of topsoil from the project site. Such grading could result in erosion induced sedimentation of downstream drainages, which may result in significant impacts. The project developer would be required to follow applicable CBC and MMC requirements to reduce soil erosion, including MMC Section 14.24.012, which requires erosion and sedimentation control measures and drainage plans to be prepared by a civil engineer and submitted to the Town for approval prior to issuance of a grading permit. Where appropriate, the control measures must include measures including, but not limited to, short-term erosion control planting, waterproof slope covers, stormwater retention basins, and devices to trap, store, and filter sediment during project construction and operation. Compliance with Town regulations would reduce impacts related to soil erosion and the loss of topsoil to less than significant levels.

LESS THAN SIGNIFICANT IMPACT

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Expansive soils are soils that swell in density and volume as they absorb water and contract as they lose water. Associated problems include cracking and deterioration of roadway surface, as they expand and contract during seasonal wet and dry cycles. The surface soils of the site have been identified as firm to stiff silty clay and sandy clay or medium dense silty sand with trace clay. These soils are moderately strong, slightly compressible, and have a moderate expansion potential (Appendix E)

Expansive soils are those that have a potential to undergo significant changes in volume, either shrinking or swelling, due to their composition and moisture content. Periodic shrinking and swelling of expansive soils can cause extensive damage to nearby roads or trails. The surface soils of the site have been identified as firm to stiff silty clay and sandy clay or medium dense silty sand with trace clay. These soils are moderately strong, slightly compressible, and have a moderate expansion potential (Appendix E). The proposed project would be constructed to comply with current CBC standards and with implementation of Mitigation Measure GEO-1, impacts would be less than significant.

Mitigation Measure

Implementation of Mitigation Measure GEO-1 would be required.

Significance After Mitigation

Implementation of Mitigation Measure GEO-1 would reduce impacts related to unstable soils to less than significant levels.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The proposed project would not require subsurface infrastructure such as sewer or septic tanks. Therefore, no impacts from septic systems or alternative wastewater disposal systems would occur.

NO IMPACT

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Paleontological resources, or fossils, are the evidence of once-living organisms preserved in the rock record. They include both the fossilized remains of ancient plants and animals and the traces thereof (e.g., trackways, imprints, burrows, etc.). Paleontological resources are not found in "soil" but are contained within the geologic deposits or bedrock that underlies the soil layer. Typically, fossils are greater than 5,000 years old (i.e., older than middle Holocene in age) and are typically preserved in sedimentary rocks. Although rare, fossils can also be preserved in volcanic rocks and low-grade metamorphic rocks under certain conditions (Society of Vertebrate Paleontology [SVP] 2010). Fossils occur in a non-continuous and often unpredictable distribution within some sedimentary units, and the potential for fossils to occur within sedimentary units depends on several factors. It is possible to evaluate the potential for geologic units to contain scientifically important paleontological resources, and therefore evaluate the potential for impacts to those resources and provide mitigation for paleontological resources if they are discovered during construction of a development project.

Rincon evaluated the paleontological sensitivity of the geologic units that underlie the project site to assess the project's potential for significant impacts to scientifically important paleontological resources. The analysis was based on a review of existing information in the scientific literature regarding known fossils within geologic units mapped at the project site. According to the SVP (2010) classification system, geologic units can be assigned a high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources. Following the literature review, a paleontological sensitivity classification was assigned to each geologic unit mapped within the project site. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units.

The new access road and concrete pad are underlain by the Orinda Formation (Dibblee and Minch 2005). Due to its long history of producing scientifically significant fossils (Paleobiology Database 2023; University of California Museum of Paleontology 2023), the Orinda Formation has high paleontological sensitivity.

Ground disturbing activities within previously undisturbed sediments with high paleontological sensitivity could result in significant impacts to paleontological resources. Impacts would be significant if construction activities result in the destruction, damage, or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data. The new access road and concrete pad will require grading that reaches up to 4 feet below the current grade, which will impact previously undisturbed sediments. Therefore, the project does have the potential for significant impacts to paleontological resources.

The following mitigation measure would address the potentially significant impacts if paleontological resources were damaged or destroyed during project implementation and ground-disturbing activities. This measure would apply to all phases of project construction and would ensure that any significant fossils present on-site are preserved. Implementation of Mitigation Measure GEO-2 would reduce potential impacts to paleontological resources to less than significant level and would effectively mitigate the project's impacts to these resources through the recovery, identification, and curation of previously unrecovered fossils.

Mitigation Measure

GEO-2 Unanticipated Discovery of Paleontological Resources

If a potential fossil is discovered during project construction, construction activity within 50 feet of the find shall cease until the discovery is examined by a Qualified Professional Paleontologist. If the find is determined to be significant, the Qualified Professional Paleontologist shall direct all mitigation measures related to paleontological resources consistent with Society of Vertebrate Paleontology (2010) standards. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement.

Significance After Mitigation

Mitigation Measure GEO- 2 would avoid impacts to paleontological resources in the case of unanticipated fossil discoveries. This measure would apply to all phases of project construction and would reduce the potential for impacts to unanticipated fossils present on site by providing for the recovery, identification, and curation of paleontological resources. Impacts would be less than significant with mitigation.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	■	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	■	☐

Overview of Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of GHG emissions contributing to the "greenhouse effect," a natural occurrence which takes place in Earth's atmosphere and helps regulate the temperature of the planet. The majority of radiation from the sun hits Earth's surface and warms it. The surface, in turn, radiates heat back towards the atmosphere in the form of infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping into space and re-radiate it in all directions.

GHG emissions occur both naturally and as a result of human activities, such as fossil fuel burning, decomposition of landfill wastes, raising livestock, deforestation, and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 30, meaning its global warming effect is 30 times greater than CO_2 on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2022).[3]

[3] The Intergovernmental Panel on Climate Change's (2022) *Sixth Assessment Report* determined that methane has a GWP of 30. However, the 2017 Climate Change Scoping Plan published by the California Air Resources Board uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

Regulatory Setting

The "California Global Warming Solutions Act of 2006," (Assembly Bill [AB] 32), outlines California's major legislative initiative for reducing GHG emissions. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHG emissions to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 target of 431 million metric tons (MMT) of carbon dioxide equivalents (CO_2e), which was achieved in 2016. CARB approved the Scoping Plan on December 11, 2008, which included GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among others. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since the Scoping Plan's approval.

The CARB approved the 2013 Scoping Plan update in May 2014 (CARB 2014). The update defined the CARB's climate change priorities for the next five years, set the groundwork to reach post-2020 statewide goals, and highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the state's longer term GHG reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2014).

On September 8, 2016, the governor signed Senate Bill (SB) 32 into law, extending the California Global Warming Solutions Act of 2006 by requiring the state to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, and implementation of recently adopted policies and legislation, such as SB 1383 and SB 100 (discussed later). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of six MT CO_2e by 2030 and two MT CO_2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, sub-regional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017).

AB 1279, "The California Climate Crisis Act," was passed on September 16, 2022 and declares the State would achieve net zero GHG emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative GHG emissions thereafter. In addition, the bill states that the State would reduce GHG emissions by 85 percent below 1990 levels no later than 2045. The 2022 Scoping Plan lays out a path to achieve AB 1279 targets (CARB 2022). The actions and outcomes in the 2022 Scoping Plan would achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

Significance Thresholds

Individual projects do not generate sufficient GHG emissions to influence climate change directly. However, physical changes caused by a project can contribute incrementally to significant cumulative effects, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines Section 15064[h][1]).

According to CEQA Guidelines Section 15183.5(b), projects can tier from a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (2016) in its white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions.

The 2022 BAAQMD *CEQA Guidelines* document contains two approaches for determining significance of GHGs (BAAQMD 2022). The two approaches are as follows:

1. Projects must include, at a minimum, the following project design elements:
    - **Buildings**
        - The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
        - The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
    - **Transportation**
        - Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
            - Residential projects: 15 percent below the existing VMT per capita
            - Office projects: 15 percent below the existing VMT per employee
            - Retail projects: no net increase in existing VMT
        - Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.
2. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

According to the BAAQMD CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans, a qualified GHG reduction strategy must:

- Quantify GHG emissions, both existing and projected over a specified period, resulting from activities in a defined geographic area
- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated in the geographic area
- Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels
- Be adopted in a public process following environmental review

This analysis will evaluate the project in terms of consistency with the project design elements listed under criterion 1 above.

Methodology

GHG emissions were modeled under the same assumptions and methodology outlined in Section 3, *Air Quality.* As discussed under *Significance Thresholds* above, projects consistent with a qualified climate action plan (CAP) are assumed to have less-than-significant impacts related to GHG emissions. Therefore, the proposed project's estimated GHG emissions during construction and operation are presented for informational purposes only.

Impact Analysis

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

As described in Section 6, *Energy*, the project would be required to comply with the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation during construction, which imposes limits on idling and restricts the use of older vehicles; this would reduce fuel consumption and lead to the use of fuel-efficient vehicles on the construction site. Construction equipment would also be maintained to applicable standards, and construction activity and associated fuel consumption and energy use would be temporary and typical for construction sites.

The proposed project would be consistent with BAAQMD criteria for buildings since it would not include natural gas appliances or natural gas plumbing. Additionally, the project would not include long-term parking, so EV parking requirements would not be applicable. The project would result in negligible VMT because only maintenance trips would be required for project operation. The additions to the existing PG&E tower would be constructed to current electrical codes and would be subject to energy efficiency regulations for the specific type of development and CPUC energy efficiency regulations. Therefore, the project would not result in wasteful or unnecessary energy consumption during construction and operation or conflict with existing energy standards and regulations, and would be consistent with the BAAQMD building thresholds.

Although BAAQMD does not have numeric thresholds for GHG emissions under the updated guidelines, the project's emissions inventory is presented for informational purposes. Table 6 shows the estimated construction emissions amortized over 30 years, the anticipated lifespan of the project. Table 7 shows the estimated combined annual GHG emissions associated with the project. As shown in the tables below, the proposed project would generate approximately 176 MT CO_2e per year.

Table 6 Estimated Construction GHG Emissions

Year	Project Emissions (MT/yr CO_2e)
Total	151
Total Amortized over 30 Years	5

See Appendix A for CalEEMod worksheets.

Table 7 Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions (CO_2e in metric tons)
Construction	5
Operational	
Mobile	169
Area	<1
Energy	2
Water	0
Waste	<1
Stationary	<1
Total	**176**

See Appendix A for CalEEMod worksheets.

b. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The Town of Moraga Climate Action Plan (Town of Moraga 2014) includes GHG emissions reductions strategies for the following sectors: land use and transportation, residential energy, commercial energy, solid waste, water and wastewater, and municipal operations. The proposed project would be a utility project and as such, none of the actions listed in the Climate Action Plan would be applicable to the proposed project, and the project would not conflict with the Town of Moraga Climate Action Plan.

In addition, the proposed project would not conflict with the 2022 BAAQMD *CEQA Guidelines* because it contains project design features that are consistent with BAAQMD significance criteria, as detailed under Impact a. Therefore, the proposed project would not conflict with applicable plans or regulations, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	■	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	■	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☐	■
d. Be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	■	☐
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	■
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	■	☐

Regulatory Setting

Department of Toxic Substances Control

As a department of CalEPA, the Department of Toxic Substances Control (DTSC) regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of the Resource Conservation and Recovery Act (RCRA) and the California Health and Safety Code.

DTSC also administers the California Hazardous Waste Control Law (HWCL) to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the USEPA approves the California program, both state and federal laws apply in California. The HWCL lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

Government Code Section 65962.5 requires the DTSC, the State Department of Health Services, SWRCB, and the California Department of Resources Recycling and Recovery (CalRecycle) compile and annually update lists of hazardous waste sites and land designated as hazardous waste sites throughout the state. The Secretary for Environmental Protection consolidates the information submitted by these agencies and distributes it to each city and county where sites on the lists are located. Before the lead agency accepts an application for any development project as complete, the applicant must consult these lists to determine if the site at issue is included.

If any soil is excavated from a site containing hazardous materials, it is considered a hazardous waste if it exceeds specific criteria in Title 22 of the CCR. Remediation of hazardous wastes found at a site may be required if excavation of these materials is performed, or if certain other soil disturbing activities would occur. Even if soil or groundwater at a contaminated site does not have the characteristics required to be defined as hazardous waste, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking jurisdiction.

Regional Water Quality Control Board

The Regional Water Quality Control Board (RWQCB) regulates discharges and releases to surface and groundwater in the project area. The RWQCB generally oversees cases involving groundwater contamination. The Contra Costa Health Services Hazardous Materials Programs handles most leaking underground storage tank cases, so the RWQCB may oversee cases involving other groundwater contaminants, i.e., Spills, Leaks, Incidents, and Clean-up cases. In the case of spills at a project site, the responsible party would notify the County of Contra Costa, RWQCB, or DTSC and a lead would be determined.

RWQCB has established guidelines used to evaluate the potential risk associated with chemicals found in soil or groundwater where a release of hazardous materials has occurred called Environmental Screening Levels (ESLs). ESLs were developed to expedite the identification and evaluation of potential environmental concerns at contaminated sites. ESLs address soil, groundwater, soil gas, and indoor air and cover a range of concerns (e.g., impacts to drinking water, aquatic habitat, and vapor intrusion).

Contra Costa Health Services Hazardous Materials Programs

The Contra Costa Health Services Hazardous Materials Programs is designated as the Town's Certified Unified Program Agency (CUPA), which is overseen by the California Environmental Protection Agency and coordinates the regulation of hazardous materials and hazardous wastes in the Town. CUPA ensures the consistent application of statewide standards during administrative, permitting, inspection, and enforcement activities associated with hazardous materials and hazardous wastes. If a business operated at the project site would use and store hazardous materials and generate hazardous wastes, CUPA would require the electronic submittal of chemical and facility information, a Hazardous Materials Business Plan, and hazardous waste generator permits to the California Environmental Reporting System online database. If operations at the project site would include the treatment, storage, and/or disposal of hazardous waste, the Contra Costa Health Services Hazardous Materials Programs would regulate these activities under a tiered permitting system.

CUPA, through the Hazardous Materials Office, regulates USTs containing hazardous materials, including installation, operation and maintenance, temporary closure, and removal and disposal of USTs. Additionally, CUPA holds the responsibility and authority to implement the Aboveground Petroleum Storage Act, which regulates aboveground petroleum storage tanks through administrative requirements, permitting, inspections, and enforcement. Any aboveground or underground storage tanks present at the project site would be managed by the Contra Costa Health Services Hazardous Materials Programs.

The Contra Costa Health Services Hazardous Materials Programs also administers the California Accidental Release Prevention (CalARP) Program, which aims to reduce the likelihood and impact of accidental releases of regulated toxic and flammable substances through administrative and operational procedures, and facility inspections. If the facility located on the project site would be regulated under the CalARP Program, the facility would file a written Risk Management Plan with the Contra Costa Health Services Hazardous Materials Programs.

Impact Analysis

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Construction

Project construction may include the temporary transport, storage, use, or disposal of potentially hazardous materials including fuels, lubricating fluids, cleaners, solvents, or contaminated soils. If spilled, these substances could pose a risk to the environment and to human health. However, the transport, storage, use, or disposal of hazardous materials is subject to various federal, state, and local regulations designed to reduce risks associated with hazardous materials, including potential risks associated with upset or accident conditions. Hazardous materials would be required to be transported under U.S. Department of Transportation (USDOT) regulations (USDOT Hazardous Materials Transport Act, 49 Code of Federal Regulations), which stipulate the types of containers, labeling, and other restrictions to be used in the movement of such material on interstate highways. In addition, the use, storage, and disposal of hazardous materials are regulated through the RCRA.

DTSC is responsible for implementing the RCRA program, as well as California's own hazardous waste laws. DTSC regulates hazardous waste, cleans up existing contamination, and looks for ways to control and reduce the hazardous waste produced in California. It does this primarily under the authority of RCRA and in accordance with the HWCL (California H&SC Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (Title 22, California Code of Regulations, Divisions 4 and 4.5). DTSC also oversees permitting, inspection, compliance, and corrective action programs to ensure that hazardous waste managers follow federal and state requirements and other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. Compliance with existing regulations would reduce the risk of potential release of hazardous materials during construction. Impacts would be less than significant.

Operation

Wireless facilities and access roads typically do not use or store large quantities of hazardous materials other than those typically used for maintenance and landscaping. Therefore, project operation would not involve the use, storage, transportation, or disposal of substantial quantities of hazardous materials and would not result in the release of such materials into the environment. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The nearest school to the project site is Camino Pablo Elementary School, located approximately 0.4 miles southwest of the project site. There are no schools within 0.25 mile of the project site, and project operation would not involve the use or storage of hazardous materials. The project would not result in impacts on hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

NO IMPACT

d. Would the project be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The following resources were reviewed to determine if hazardous materials may be present at the project site.

- **Department of Toxic Substances Control (DTSC)**
  - Online Cortese List of Hazardous Waste and Substances Sites (DTSC 2023)
- **California State Water Resources Control Board (SWRCB)**
  - Online GeoTracker database search for leaking underground storage tanks (LUST) and other cleanup sites (SWRCB 2023a)
  - Polyfluoroalkyl substances (PFAS) Investigation online Public Map Viewer (SWRCB 2022b)
- **California Department of Conservation Geologic Energy Management Division (CalGEM)**
  - Online Mapping System (CalGEM 2023)
- **U.S. Department of Transportation (USDOT)**
  - National Pipeline Mapping System (NPMS) online Public Map Viewer (USDOT 2023)

- **California Department of Resources Recycling and Recovery (CalRecycle)**
  - Solid Waste Information System (SWIS) (CalRecycle 2019)

DTSC Database Review

A review of the online Cortese List of Hazardous Waste and Substances Sites determined that the project site is not listed as a hazardous waste and substances site. Additionally, there are no listed hazardous waste and substance sites within 1,000 feet of the project site (DTSC 2023).

SWRCB GeoTracker Database Review

A review of the online GeoTracker database determined that the project site is not listed as a hazardous waste and substances site. Additionally, there are no sites listed in the GeoTracker Database within 1,000 feet of the project site (SWRCB 2023a).

PFAS Database Review

Beginning in 2019, the California SWRCB sent assessment requirements to property owners of sites that may be potential sources of PFAS. These sites currently include select landfills, airports, chrome plating facilities, publicly owned treatment works facilities, Department of Defense (DoD) sites, and bulk fuel storage terminals and refineries. According to the SWRCB, "PFAS are a large group of human-made substances that do not occur naturally in the environment and are resistant to heat, water, and oil" (SWRCB 2021). A review conducted on July 24, 2023 of the California Statewide PFAS Investigation online Public Map Viewer indicates that there are no current chrome plating, airport, landfill, publicly owned treatment works, DoD, or bulk fuel storage terminal or refinery PFAS orders at any facilities listed as located within one-half mile of the project site (SWRCB 2023b).

Well Finder Database Review

A review of the CalGEM Online Mapping System indicates that no oil wells are located on the project site, adjacent properties, or within 0.25 mile of the project site (CalGEM 2023).

Pipeline Database Review

The NPMS online Public Map Viewer indicates that one Pacific Gas and Electric Company-operated natural gas pipeline with an active status is located along St Mary's Road, approximately 1 mile north of the project site. Another Pacific Gas and Electric Company-operated natural gas pipeline with an active status is located along Moraga Way, approximately 1.5-mile northwest of the project site. The NPMS Viewer does not depict an accident or incident along either pipeline (USDOT 2023).

Landfill Database Review

The SWIS online database indicates that no landfills are located within one-half mile of the project site (CalRecycle 2019).

Review Summary

The project site is not specifically listed as a DTSC Cortese hazardous material site compiled pursuant to Government Code Section 65962.5. Based on the database research conducted, the project site is not within one-half mile of a facility that could be a potential source of PFAS or a well

containing PFOA or PFOS. Additionally, there are no oil wells, landfills, or pipelines with reported instances within 0.25 mile of the site. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The project site is approximately 9.5 miles northeast of Oakland International Airport. The project site would not be located within the noise or safety compatibility zones of Oakland International Airport (Alameda County Community Development Agency 2010). Therefore, the project would not result in a safety hazard or excessive noise for people working in the project area. Impacts would be less than significant.

NO IMPACT

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction of the proposed project would occur within the boundary of the project site and would not lead to street closures which would interfere with emergency evacuations or response. Construction activities for the installation of the fiber vaults and fiber route would be limited to use of vehicles and equipment along Sanders Ranch Road. The proposed project does not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, including the Contra Costa County Hazard Mitigation Plan (Contra Costa County 2018). The project would not result in physical changes to nearby roadways that would interfere or impair emergency response or evacuation. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Construction activities associated with the project may have the potential to result in activation of wildfires from sources such as welders, excavators, gasoline-powered equipment, and vehicles. The proposed project would be required to comply with the current California Fire Code during construction and operation of the proposed project to reduce potential impacts related to wildfire. In addition, the proposed water storage tank would serve as a safety feature intended to reduce potential impacts related to wildfire. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	■	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	■	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	■	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	■	☐
(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	■	☐
(iv) Impede or redirect flood flows?	☐	☐	■	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	■	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	■	☐

Regulatory Setting

Clean Water Act

The Federal CWA, enacted by Congress in 1972 and amended several times since, is the primary federal law regulating water quality in the United States. The Act established the basic structure for regulating discharges of pollutants into the waters of the United States. The CWA gave the USEPA authority to implement federal pollution control programs, such as setting water quality standards for contaminants in surface water, establishing wastewater and effluent discharge limits for various contaminants in surface water, and imposing requirements for controlling nonpoint-source pollution. At the federal level, the Clean Water Act is administered by the USEPA and USACE. At the State and regional levels in California, the Act is administered and enforced by the SWRCB and the nine regional water quality control boards. The SFRWQCB is the CWA enforcement agency for Contra Costa County.

Town of Moraga Municipal Ordinances

Moraga Municipal Code Chapter 13.04 is related to stormwater management and discharge control, whereby the Town complies with provisions of the Porter-Cologne Water Quality Control Act and the Federal Clean Water Act, as well as conditions of the Town's NPDES permit. Section 13.04.050 sets out the guidelines for preparation and implementation of a stormwater control plan for development projects that are subject to development runoff requirements. Section 13.04.060 lists prohibited discharge including non-stormwater discharges into the stormwater system and discharges that violate the NPDES permit. Section 13.04.090 lays out best management practices and standards such as proper maintenance of sidewalks, landscaped areas, parking lots, and paved areas. Construction activities are mandated to incorporate site-specific BMPs, which can be a combination of BMPs from the California BMP Handbook (January 2003), the Caltrans Stormwater Quality Handbooks, Construction Site Best Management Practices Manual (March 2003), the SFRWQCB Erosion and Sediment Control Field Manual (2002), and the Town's grading and erosion control ordinance (Moraga Municipal Code Chapter 14.04).

Impact Analysis

a. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

b. *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

Construction

Project construction would involve ground-disturbing activities and use of heavy construction equipment. Grading and other construction activities associated with the project would have the potential to cause soil erosion and increase sediment loads in stormwater runoff resulting from exposed or disturbed soil. Additionally, spills, leakage, or improper handling and storage of substances such as oils, fuels, chemicals, metals, and other substances used during various construction phases could be collected in stormwater runoff and impact water quality of receiving water bodies. To minimize these impacts, the project would be required to comply with MMC Title 13, which details requirements for erosion and sediment control plans, and which regulates

discharge of materials into curbside gutters, storm sewers, and storm drains. The project would be required to implement BMPs for drainage and erosion control during construction and meet requirements for stormwater and sewer discharge. Compliance with state and local requirements would reduce impacts to surface and ground water quality to less than significant levels.

Operation

The 361 square-foot concrete pad proposed to support ancillary facilities of the proposed project would increase impervious surfaces on the project site. However, the increase in runoff from increased impervious surfaces would be minimal and would likely percolate into the surrounding pervious area of the project site. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road would not introduce new impervious surfaces and would not result in additional runoff. Therefore, project operation would not substantially interfere with groundwater recharge, impact groundwater quality, or impede sustainable groundwater management. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c.(i) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?

c.(ii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

c.(iii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

c.(iv) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

The nearest creek to the project site is Moraga Creek, located approximately 0.3-mile southeast of the project site. There is existing residential development and roadways located between the project site and Moraga Creek. Project construction would not alter the course of these creeks or other nearby creeks, streams, or rivers.

Ground disturbing activities, such as grading, could temporarily affect the potential for erosion during construction. The project would result in a minimal increase in impervious surfaces on the project site. Implementation of BMPs, stormwater control measures, and NPDES permit requirements would reduce the amount of runoff that could enter the storm drain system compared to existing conditions and the project would not result in impeded flood flows. Furthermore, the proposed project would be subject to Chapter 14.48 of the MMC which requires compliance with recommendations for drainage and erosion control made within a Town-approved geotechnical report.

The addition of the proposed access road would require grading of the project site. However, the access road would be a dirt road layered with gravel and would not introduce new impervious surface areas. The gravel access road would continue to allow stormwater to percolate back into the ground and would not substantially increase the amount of runoff that could enter the storm drain system. The addition of the gravel access road would not result in impeded flood flows as it would generally maintain the existing flood flow pathways. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road would not introduce new impervious surfaces and would not result in impeded flood flows. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, the project site is located in Zone X, which is characterized as an area of minimal flood hazard and having a less than 0.2 percent annual chance to be inundated by flood waters as a result of a storm event (Map #06013C0428F, June 16, 2009) (FEMA 2023). According to the California Governor's Office of Emergency Services (Cal OES) MyHazards online database, the project site is not located in a 100-year floodplain (Cal OES 2015).

The project site is located approximately 10 miles east of the San Francisco Bay and is not located in a tsunami or seiche zone, as shown in the Alameda County Tsunami Hazard Areas maps produced by the California Department of Conservation (DOC) (DOC 2023). The nearest body of water that could experience seiche (water level oscillations in an enclosed or partially enclosed body of water) is the San Francisco Bay. No other large bodies of water with the potential to inundate the project site by a seiche are located near the site. Therefore, the proposed project would not result in the risk of release of pollutants due to inundation by a tsunami, seiche, or flooding. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The proposed project would not require or result in groundwater extraction activities. The addition of impervious surfaces to the project site would not be substantial and the minimal increase in runoff from these surfaces would percolate back into the soils surrounding the project site. As discussed above, operational water use would be limited to firefighting uses and would draw water from the proposed on-site water tank. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road would not require groundwater or impede recharge. Further, should the project require water from EBMUD resources, EBMUD does not rely on groundwater sources (EBMUD 2021). Therefore, project implementation would not conflict with a sustainable groundwater management plan. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

11 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	■
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	■	☐	☐

Impact Analysis

a. Would the project physically divide an established community?

The project would involve development of an existing site and additions to an existing PG&E tower. It would also include the construction of a new access road from Sanders Ranch Road. The access road circulation would be limited to the internal project site. The project site is and would continue to be accessible by Sanders Ranch Road. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road and would not physically divide an established community. The Old Moraga Ranch Trail would not be obstructed or substantially rerouted. No new roads, linear infrastructure, or other development features are proposed that would divide an established community or limit movement, travel, or social interaction between established land uses. Project construction would not physically divide an established community; there would be no impact to established communities. The proposed project would have no impact.

NO IMPACT

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The Town's General Plan includes numerous policies, many of which do not pertain to environmental resources. The policies address a variety of topics, including biological resources, air quality and greenhouse gas reduction, open space, energy resources and efficiency, mineral resources, hydrology and water quality, water conservation, paleontological resources, and scenic resources. A discussion of the project's consistency with applicable General Plan policies is provided in Table 8.

Moraga General Plan

The Town's General Plan contains policies with the purpose of avoiding or mitigating an environmental effect. Table 8 shows applicable General Plan policies that aim to avoid or mitigate environmental effects and the project's consistency with those policies.

Table 8 Project Consistency with Moraga General Plan Policies

General Plan Policy	Project Consistency
Policy CD1.7. Wireless Communication Facilities. Regulate the location and design of wireless communications facilities, satellite dishes and other miscellaneous antennas in accordance with the Town's Ordinance No. 176 and the Federal Communications Act.	**Consistent.** The proposed project would be required to comply with Federal Communications Act regulations for the design and development of the proposed project. Additionally, the proposed project would build upon an already existing utility tower that has been previously approved by the Town and would not introduce a new feature to the area.
Policy CD8.9. Roads Crossing Ridgeline. The Town may allow roads to cross a designated Major MOSO Ridgeline, Minor MOSO Ridgeline, or Significant Non-MOSO Ridgeline only if the crossing is necessary for the orderly development of the Town and the crossing complies with all applicable requirements in Municipal Code Section 8.128.060.A (Crossing Ridgeline Allowed).	**Consistent.** The project would include the development of an access road to the project site within a minor MOSO ridgeline. The development of the access road is necessary to provide access to the wireless communication facility which would allow for safety access for the Moraga Orinda Fire District, and maintenance access to the project site, which would serve the goal of providing adequate cell service to residents in the area. The crossing would comply with Municipal Code Section 8.128.060.A as detailed below.
Policy OS1.5. Development on Slopes and Ridgelines in Open Space Lands. In MOSO Open Space, development shall be prohibited on slopes with grades of twenty percent (20%) or greater and on the crests of minor ridgelines. The Town Council shall reduce the allowable densities on slopes of less than twenty percent (20%) through appropriate means such as requiring proportionally larger lot sizes or other appropriate siting limitations. For the purposes of this paragraph the term 'minor ridgeline' means any ridgeline, including lateral ridges, with an elevation greater than 800 feet above mean sea level, other than a major ridgeline.	**Consistent.** No new lots are being created. The project would not result in additional density on an area with a slope of twenty percent or greater.
Policy OS2.1. **Protection of Wildlife Areas.** Prohibit development in locations where it will have a significantly adverse effect on wildlife areas. When development is permitted in the vicinity of wildlife areas, require implementation of appropriate mitigation measures to reduce any adverse impact upon the wildlife.	**Consistent.** As discussed in Section 4, *Biological Resources, t*he site does not contain riparian habitat and is not located within a known regional wildlife movement corridor or other sensitive biological area as indicated by the USFWS Critical Habitat portal (Appendix C).
Policy PS4.2. Development Review for Geologic Hazards. Require development proposals to address geologic hazards, including but not limited to landslide, surface instability, erosion, shrink-swell (expansiveness) and seismically active faults. Technical reports addressing the geologic hazards of the site shall be prepared by an independent licensed soil engineer, geologist and/or structural engineer, approved by the Town and at the expense of the developer. All technical reports shall be reviewed by the Town and found to be complete prior to approval of a development plan.	**Consistent.** The project applicant has contracted with Kranzan & Associates, Inc. to provide a Geotechnical Investigation of the project site. The Geotechnical Investigation is included as Appendix E to this document.

Source: Town of Moraga 2002

As shown above, the project would be consistent with applicable General Plan policies that aim to avoid or mitigate environmental effects.

Moraga Municipal Code

The MMC contains regulations that intend to avoid or mitigate environmental effects in the Town. Table 9 shows policies that aim to avoid or mitigate environmental effects and the project's consistency with those regulations.

Table 9 Project Consistency with the MMC

Moraga Municipal Code	Project Consistency
Section 8.128.060.A. Municipal Code Section 8.128.060.A contains standards and requirements for the development of roads that would cross a MOSO ridgelines: A. **Crossing Ridgeline Allowed.** 1. The planning commission may allow a road, together with attendant underground utilities, to cross a major MOSO ridgeline, a minor MOSO ridgeline, or a significant non-MOSO ridgeline upon finding that the crossing is necessary for the orderly development of the town, the road complies with all applicable requirements of Section 8.128.060, and it does not otherwise conflict with the Municipal Code. 2. For major MOSO ridgelines and significant non-MOSO ridgelines, a road may be located within the horizontal ridgeline buffer for only the minimum distance necessary to cross the ridgeline. 3. For minor MOSO ridgelines, a road may be located within two hundred (200) feet of the crest of the ridgeline for only the minimum distance necessary to cross the ridgeline. 4. Roads crossing a ridgeline, where allowed, shall comply with the following standards: a. Roads shall be located and designed to minimize visibility when viewed from a road or other public place; and b. On-street parking is prohibited on roads within the horizontal ridgeline buffer for major MOSO and significant non-MOSO ridgeline and within two hundred (200) feet of a minor MOSO ridgeline. The road shall be designed with the minimum width necessary to accommodate only through traffic without parking; and c. Streetlights shall not be permitted on ridgelines; and d. Road placement should minimize glare from vehicle lights visible from public places and nearby homes; and e. All utilities shall be undergrounded with cost to be borne by the project developer. 5. A "road" means any public or private thoroughfare constructed of any material approved by the town that provides permanent vehicle access to abutting property or a public right-of-way. Roads may include associated and parallel pedestrian pathways, bicycle lanes or paths, sidewalks, single-use or multi-use trails, and on-street parallel parking spaces, that are an integral part of or directly adjacent to a road approved by the town consistent with this section. 6. A road is considered to "cross a ridgeline" if it rises in elevation on one side of a ridgeline, extends over the ridgeline crest, and then descends down the hillside on the opposite side of the ridgeline.	**Consistent.** The proposed access road would be necessary for the orderly development of the town inasmuch as it would facilitate cell service in the area, which would contribute to public safety and convenience. The proposed access road would cross the minor MOSO ridgeline briefly, and travel along the ridgeline would be limited such that minimal disturbance to the ridgeline would occur consistent with the provisions of the MMC. At the ridgeline, the access road would be visible from some roads and properties within the Sanders Ranch Subdivisions and the Old Moraga Ranch Trail. The views from within the Sanders Ranch subdivision are anticipated to be substantially obscured by topography and vegetation, as the grasses and other vegetation grow high enough to obscure views of the road, and the road will be at a much higher elevation than where the subdivision homes and roads are located, The road is not a structure that would substantially alter the visual environment, and views of it from the Old Moraga Ranch Trail would be limited to the time that it would take a pedestrian to walk through the portion of trail and briefly view where it crosses the minor ridgeline. Surrounding hillsides and ridgelines would continue to obstruct views of the proposed access road from the rest of the trail. Parking along the access road would be prohibited. Parking at the project site would be temporary and would occur as part of maintenance activities. No streetlights would be installed. Access to the road would be restricted to maintenance and emergency vehicles. The project's access road would comply with the requirements of Section R4 (Roads and Sidewalks) in the town design guidelines, as applicable.

Moraga Municipal Code	Project Consistency
B. **Design Guidelines.** Any road crossing a ridgeline shall comply with the design guidelines for roads in Section R4 (Roads and Sidewalks) in the town design guidelines.	
Section 8.144.030. Section 8.144.030 contains general development standards for wireless communication facilities.	**Consistent.** The proposed project would build upon an existing utility tower.. The additions to the project site would be consistent with development standards as set forth by the MMC
Section 8.144.060. Section 8.144.060 contains development standards for wireless communication facilities within open space and open space MOSO district.	**Consistent.** The proposed project would build upon an existing utility tower.. The additions to the project site would be consistent with development standards as set forth by the MMC

Source: MMC 2023

As shown above, the project would be consistent with the MMC and applicable building codes that intend to avoid or mitigate environmental effects.

The project would not conflict with the Town's General Plan or Municipal Code and would be consistent with the applicable land use designation and zoning district and development standards. Therefore, with implementation of mitigation measures AQ-1, BIO-1, CR-1, GEO-1, GEO-2, and TCR-1 identified within this IS-MND, impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

12 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	■
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	■

Regulatory Setting

Surface Mining and Reclamation Act of 1975

Pursuant to the mandate of the Surface Mining and Reclamation Act of 1975, the State Mining and Geology Board requires all cities to incorporate into their general plans mapped mineral resources designations approved by the State Mining and Geology Board.

Impact Analysis

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

According to mapping completed by the State of California for suitability of use as construction materials, it was determined that no minerals or aggregate resources of statewide importance are located within Moraga (California Department of Conservation 1996). In addition, there are no natural gas, oil, or geothermal resources identified in or adjacent to Moraga. The project site and surrounding properties are categorized as urban land or grazing land and do not have current oil or gas extraction. No mineral resource activities would be altered or displaced by the proposed project. There would be no impact.

NO IMPACT

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13 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	■	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	■

Overview of Noise and Vibration

Noise

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 2020a).

HUMAN PERCEPTION OF SOUND

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Caltrans 2020a).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as

one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud (10.5 times the sound energy) (Caltrans 2020a).

SOUND PROPAGATION AND SHIELDING

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in the noise level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line), the path the sound will travel, site conditions, and obstructions.

Sound levels are described as either a "sound power level" or a "sound pressure level," which are two distinct characteristics of sound. Both share the same unit of measurement, the dB. However, sound power (expressed as L_{pw}) is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers, such as an eardrum or microphone, which is the sound pressure level. Sound measurement instruments only measure sound pressure, and noise level limits are typically expressed as sound pressure levels.

Noise levels from a point source (e.g., construction, industrial machinery, air conditioning units) typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance. Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2020a). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features, such as hills and dense woods, and man-made features, such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA's guidance indicates that modern building construction generally provides an exterior-to-interior noise level reduction of 10 dBA with open windows and an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows (FHWA 2011).

DESCRIPTORS

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. The noise descriptors used for this study are the equivalent noise level (L_{eq}), day-night average level (L_{dn}), and the community noise equivalent level (CNEL).

L_{eq} is one of the most frequently used noise metrics; it considers both duration and sound power level. The L_{eq} is defined as the single steady-state A-weighted sound level equal to the average sound energy over a time period. When no time period is specified, a one-hour period is assumed. The L_{max} is the highest noise level within the sampling period, and the L_{min} is the lowest noise level within the measuring period. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

Groundborne Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent buildings or structures and vibration energy may propagate through the buildings or structures. Vibration may be felt, may manifest as an audible low-frequency rumbling noise (referred to as groundborne noise), and may cause windows, items on shelves, and pictures on walls to rattle. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants at vibration-sensitive land uses and may cause structural damage.

Typically, groundborne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used as it corresponds to the stresses that are experienced by buildings (Caltrans 2020b).

The FTA's Transit Noise and Vibration Impact Assessment Manual (FTA 2018) has established standards for vibration impact assessments, which are summarized below in Table 10.

Table 10 Federal Transit Administration Construction Vibration Impact Criteria

Building Category	In./sec. ppv
Reinforced – Concrete, Steel, or Timber (no plaster)	0.5
Engineered Concrete and Masonry (no plaster)	0.3
Non-engineered Timber and Masonry Buildings	0.2
Buildings Extremely Susceptible to Vibration Damage	0.12

Source: FTA 2018

Project Noise Setting

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Typically, the following land uses are considered noise-sensitive: schools, libraries, hospitals, parks, and residential neighborhoods. The project is located within 75 to 200 feet of the nearest single-family residences and is located 0.4-mile east of the nearest school (Camino Pablo Elementary School).

The existing noise environment of the project site represents a suburban noise environment, which is specified by Caltrans as having a typical noise level of 40 dBA during the nighttime (Caltrans 2013). Actual noise levels may be lower given the adjacent open space and the low-density character of the adjacent subdivision.

Regulatory Setting

Town of Moraga General Plan

The Town of Moraga 2002 General Plan Open Space Element includes policies to support the Goal of "a peaceful and tranquil community (Town of Moraga 2002)." Noise policies include:

Policy OS6.1: Acoustical Standards. Develop acoustical standards that properly reflect acceptable sound emission levels.

Policy OS6.2: Noise Levels. Ensure that noise from all sources is maintained at levels that will not adversely affect adjacent properties or the community, especially during evening and early morning hours. Reasonable exceptions may be made in the interest of public safety.

Policy OS6.3: Noise Sensitive Uses. Locate uses where they will be most acoustically compatible with elements of the man-made and natural environment.

Policy OS6.4: Noise Impacts of New Development. Ensure that new development will not raise noise levels above acceptable levels on the Town's arterials and major local streets.

Policy OS6.5: Acoustical Data with Development Applications. Require the submittal of acoustical data, when and where appropriate, as part of the development application process so that the noise impacts of proposed uses can be properly evaluated and mitigated.

Policy OS6.6: Temporary Noise Sources. Permit temporary noise-generating activities such as construction only for the shortest reasonable duration and in locations that will have the least possible adverse effect.

Policy OS6.7: Vehicle Noise. Require that vehicles, including those used for recreational purposes, be used in such a manner that they will not intrude on the peace and quiet of residential areas. Reasonable exceptions may be made in the interest of public safety.

Policy OS6.8: Public Information on Noise Pollution. Whenever appropriate, use public information programs to educate the public on the value of an environment that is free of noise pollution.

Town of Moraga Municipal Code

Chapter 7.12, Noise Control, of Moraga's Municipal Code governs noise in the Town. Chapter 7.12.010 declares that it is the Town's policy to prohibit unnecessary, excessive and annoying noises from all sources since certain noise levels are detrimental to the health and welfare of the Town's citizens. Moraga Municipal Code Chapter 7.12.060 dictates that it is unlawful for a person to create noise that unreasonably interferes with the workings of or disturbs or unduly annoys a person within a school, hospital, or church. Chapter 7.12.080 states that it is unlawful for a person to operate machinery that disturbs the peace, quiet, and comfort of neighboring residents. Article 3, Chapter 7.12.090 mandates construction shall not occur within 500 feet of a residential zone during the hours of 5:00 p.m. and 8:00 a.m. in such a manner that a reasonable person residing in the area is discomforted or annoyed.

Chapter 7.12.130 establishes standards for determining a noise violation. Those standards include:

- The level of the noise;
- The intensity of the noise;
- Whether the nature of the noise is usual or unusual;
- Whether the origin of the noise is natural or unnatural;
- The level and intensity of the background noise, if any;
- The proximity of the noise to residential sleeping facilities;
- The nature and zoning of the area within which the noise emanates;
- The density of the inhabitation of the area within which the noise emanates;

- The time of the day or night the noise occurs;
- The duration of the noise;
- Whether the noise is recurrent, intermittent or constant; and
- Whether the noise is produced by a commercial or noncommercial activity.

FTA Transit and Noise Vibration Impact Assessment Manual

The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction in their Transit and Noise Vibration Impact Assessment Manual (FTA 2018). For residential, commercial, and industrial uses, the daytime noise threshold is 80 dBA Leq, 85 dBA Leq, and 90 dBA Leq for an 8-hour period, respectively. As the Town of Moraga does not have a quantitative construction noise threshold, the FTA standards are used for this analysis.

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

Construction of the access road would approach as close as 75 feet to the nearest residences to the east and approximately 40 feet to the Old Moraga Ranch Trail to the west, while construction of the project equipment at the tower site would occur as close as 200 feet to the nearest residence to the east and 400 feet to the trail. While the construction near the trail would reach 40 feet at the closest point, the majority of the access road construction would be further than 75 feet, and often several hundred feet away; in addition, any one trail user in this location would be exposed to construction noise for a short duration as they would be walking the trail and as the construction equipment is mobile. Therefore, the 75-foot distance is also used to determine construction noise level exposure to the trail. The applicant indicated that equipment would include a backhoe, compactor, dozer, excavator, skid steer loader, water truck, and hauling truck. Construction noise was estimated using reference noise levels from the FHWA Roadway Construction Noise Model (RCNM). Due to the small size of the project site, all project equipment would not be anticipated to be working simultaneously; a conservative construction scenario was analyzed including simultaneous operation of a dozer, excavator, and a backhoe. At 75 feet, a dozer, excavator, and a backhoe would generate a noise level of 78 dBA L_{eq}. This would be below the FTA's 80 dBA L_{eq} threshold for residential uses. In addition, project construction would comply with the hours stated in Moraga Municipal Code Chapter 7.12.090. Therefore, impacts from construction equipment would be less than significant.

Onsite Operation Noise

A Noise Assessment Letter was completed by Waterford Consultants (Appendix F). The letter identified the project's operational noise sources as an emergency generator and a heat exchanger. The generator would result in a noise level of 65 dBA at 23 feet, and the heat exchanger would generate a noise level of 65 dBA at 5 feet. The distance from the generator and heat exchanger to the nearest residential property was analyzed at 226 feet and 230 feet, respectively. This is the distance where the project equipment is located; the 75-foot distance used for the construction analysis above is for construction of the access road. Outside of emergencies, the generator would only be used occasionally for testing and maintenance.

The letter identified the Town of Moraga's exterior noise limits as noise that is sustained over a five-minute period shall not exceed the 55 dBA during daytime hours and 50 dBA during nighttime hours (beginning one hour after sunset) inside of a residence with all windows and doors closed. The combined noise level of both sources operating simultaneously was determined to be 35.7 dBA at the nearest residence, which would not exceed the 55 dBA noise limit during daytime hours and 50 dBA noise limit during nighttime hours. Further, the 35.7 dBA noise level would only be met when both sources are operating, which will not be a standard occurrence as the emergency generator will not typically be operational. The project noise levels of 35.7 dBA would also be below the typical quiet suburban environment of approximately 40 dBA. In addition, the Old Moraga Ranch Trail is located 400 feet to the west of the proposed equipment and would be exposed to noise levels of approximately 31 dBA if both the generator and heat exchanger are running, which are also below Town noise limits and typical ambient levels. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road and would not introduce new sources of noise. Impacts would be less than significant.

Offsite Roadway Noise

Typically, a doubling of traffic would result in a 3 dBA increase, which is considered a barely perceptible noise increase. The project would require infrequent maintenance trips and would result in a negligible addition to traffic on nearby roadways that would not result in a doubling of traffic. Traffic noise increases from the project would be less than 3 dBA, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Project construction would not involve activities typically associated with excessive groundborne vibration such as pile driving or blasting. The greatest anticipated source of vibration during general project construction activities would be from a dozer, which may be used within 75 feet of the nearest residential structure during construction of the access road. A dozer creates a vibration level of approximately 0.089 in/sec PPV at a distance of 25 feet. At the distance of 75 feet, vibration levels would attenuate to 0.027 in/sec PPV, which is lower than the FTA threshold of 0.2 in/sec PPV. Therefore, temporary impacts associated with construction would be less than significant. The project does not include any substantial vibration sources associated with operation. Operational vibration impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The Oakland International Airport is the nearest public airport, located approximately nine miles to the southwest of the project site. Due to the distance from the airport, the project would not be exposed to excessive aircraft noise levels. No substantial noise exposure from airport noise would occur to construction workers or employees of the project, and no impacts would occur.

NO IMPACT

14 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	■	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	■

Impact Analysis

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The project would involve additions to an existing utility structure, construction of associated facilities, construction of a new access road; and installation of fiber vaults and a fiber route; it would not involve the construction of new dwelling units or other active uses and would therefore not directly induce population growth in the Town. The project would improve communication coverage in the area; however, improved communication coverage would not result in substantial population growth. The project could facilitate the creation of temporary jobs during construction and operation; however, it can reasonably be assumed that workers on the project site would likely come from the existing workforce in the area and would not contribute to population growth. Since the proposed project would not result in substantial unplanned population growth, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project site is currently undeveloped with the exception of an existing PG&E tower and does not provide housing. The project would not displace existing people or housing and would not necessitate the construction of replacement housing elsewhere. There would be no impact.

NO IMPACT

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15 Public Services

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	1 Fire protection?	☐	☐	■	☐
	2 Police protection?	☐	☐	■	☐
	3 Schools?	☐	☐	■	☐
	4 Parks?	☐	☐	■	☐
	5 Other public facilities?	☐	☐	■	☐

Impact Analysis

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The Moraga-Orinda Fire District (MOFD) provides fire protection and emergency medical services in Moraga. This service area represents 42 square miles and approximately 38,500 residents (MOFD 2021a). The MOFD operates five fire stations including four paramedic engine companies, one paramedic truck company, three paramedic ambulances (two cross-staffed), and one Battalion Chief. MOFD is an "all-risk" fire service agency with 68 regular employees, 30 volunteers, and 5 Board of Directors members.

Fire Station 41 located at 1284 Moraga Way is located approximately 1.3 miles northwest of the project site. Fire Station 41 is staffed with five firefighters and equipment includes a fire engine, type 3 wildland fire engine and Leader ALS ambulance. The project would be required to comply with all applicable fire code standards. In addition, the project site is within the MOFD service area. The project would be required to meet all Office of Energy Infrastructure Safety requirements. While the project would introduce a generator to the project site, use of the generator would be

temporary and would occur in the event that power is not available through PG&E. Installation of new fiber vaults and fiber route would be located underground on Sanders Ranch Road and would not generate the need for increased levels of fire department response. The project would not increase population in the area nor introduce structures or uses which could generate the need for substantially increased levels of fire department response or facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The Moraga Police Department (MPD) provides police services to the Town of Moraga. Police headquarters are located at 329 Rheem Boulevard. The MPD is currently authorized for 13 sworn officers, additional volunteer reserve officers and police cadets, and two civilian positions (Town of Moraga 2022). Sworn personnel include a Chief of Police, Lieutenant, Detective, Corporals, and Patrol Officers. Civilian positions include a Support Services Coordinator and Police Services Technician.

The police headquarters are located at 329 Rheem Boulevard, located approximately 5 miles north of the project site. The project would not introduce a new population and no habitable structures would be constructed on the site. Therefore, the project would not increase population in the area nor introduce structures which could generate the need for increased levels of police response or facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

The project would not involve construction of residences and would not increase population in the area. The number of school-aged children would not increase as a result of the project and as such, would not result in the need for new or physically altered school facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

As discussed above within the *Project Description*, an easement for the Old Moraga Ranch Trail is located within the project site. The mapped easement for Old Moraga Ranch trail briefly runs along the proposed access road, north of the tower. However, during multiple site visits conducted by Rincon and the Town, it was determined that the actual trail has diverged from the original easement and is now located parallel to the project site, as shown in Figure 2. Furthermore, as discussed in Section 14, *Population and Housing*, the proposed project would not result in substantial population growth which would result in substantial new uses on existing parks and trails within Moraga. The proposed changes to the portions of the trail that would be affected by the project are analyzed throughout this Initial Study, as construction of the access road is part of the proposed project. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

As discussed in Section 14, *Population and Housing*, the proposed project would not result in substantial population growth in Moraga or growth beyond that anticipated in the Town's General Plan as it would not increase the development on the site or induce of facilitate population growth. As discussed in Section 10, *Hydrology and Water Quality,* impacts related to stormwater facilities would be less than significant. As discussed in Section 19, *Utilities and Service Systems,* impacts related to water and wastewater water facilities would be less than significant. Therefore, demand for other public facilities, such as libraries, would not be substantial or require the modification or construction of libraries or other public facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	■	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	■	☐

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Moraga Parks and Recreation Department administers recreation centers and maintains parks within town limits. The Town is responsible for the management of 307 acres of existing parkland, including 57.5 acres of developed parks and 250 acres of preserved natural areas (Town of Moraga 2007). The Town operates a number of recreational facilities including picnic areas, volleyball courts, basketball courts, playgrounds, an amphitheater, a skate park, and about two miles of pedestrian and multi-use trails. The East Bay Regional Park District administers the 7.65 mile Lafayette-Moraga Regional Trail which parallels St. Mary's Road and is intended for hiking, bicycling, and equestrian use (EBRPD 2022). A portion of the Old Moraga Ranch Trail is located adjacent to the project site.

As described in Section 14, *Population and Housing,* the project would not directly result in an increase in population and would not result in increased demand for or use of parks, trails or recreational facilities. The proposed access road would be located along a portion of the mapped Old Moraga Ranch Trail, but not within the existing physical trail. Along this portion of the mapped trail, the access road would be graded to allow for vehicles to access the site and gravel would be added to the area. However, the natural trail has diverged from the original path and is now located approximately 30 feet or more from the road. Trail users would continue to use the existing, natural trail when hiking the area, or the new access road if it coincides with a brief segment of the trail. Trail users would continue to see the existing transmission tower located north of the trail and would also be able to view the associated structures of the tower. However, views would be brief as trail users travel past the project site. Vehicle travel along the trail section would be minimal and would be limited to maintenance activities for the project structure or road. Maintenance of the road would be required for continued project operation and would provide an additional maintained area for trail users. Therefore, development of the proposed project would not result in

substantial physical deterioration of recreational facilities or require the need for new or expanded recreational facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	■	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	■	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	■	☐
d. Result in inadequate emergency access?	☐	☐	■	☐

Regulatory Setting

Senate Bill 743

On September 27, 2013, SB 743 was signed into law. The legislature found that with the adoption of the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the State had signaled its commitment to encourage land use and transportation planning decisions and investments that reduce vehicle miles traveled and thereby contribute to the reduction of greenhouse gas emissions, as required by the California Global Warming Solutions Act of 2006 (AB 32). In December 2018, the Governor's Office of Planning and Research (OPR) finalized new CEQA guidelines (CEQA Guidelines section 15064.3), that identify VMT as the most appropriate criteria to evaluate a project's transportation impacts.

In November 2017, OPR released a technical advisory containing recommendations regarding the assessment of VMT, proposed thresholds of significance, and potential mitigation measures for lead agencies to use while implementing the required changes contained in Senate Bill 743 (SB 743). Also in November 2017, OPR released the proposed text for Section 15064.3, "Determining the Significance of Transportation Impacts," which summarized the criteria for analyzing transportation impacts for land use projects and transportation projects and directs lead agencies to "choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure." OPR recommends that for most instances a per service population threshold should be adopted and that a fifteen percent reduction below that of existing development would be a reasonable threshold.

Impact Analysis

a. Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Regional access is available to the site from Interstate 580 (I-580), located approximately 5 miles west of the site; Interstate 680 (I-680), located approximately 5 miles east of the site; and State Route 24 (SR 24), located approximately 4.7 miles north of the site. Local access to the site is available from Sanders Ranch Road via Canyon Road and Camino Pablo. The proposed project would generate an incremental number of vehicle trips. Vehicle trips for the proposed project would be limited to travel to and from the site during construction and for service calls and maintenance during operation. Installation of new fiber vaults and fiber route would require the temporary use of construction vehicles on Sanders Ranch Road and between each fiber vault. As vehicle trips due to the project would be negligible, impacts of the project related to consistency with a roadway plan, policy, or program would be less than significant.

There are existing sidewalks located along Sanders Ranch Road. The proposed project would not result in modifications to the existing sidewalks along Sanders Ranch Road. There are currently no bicycle lanes located along Sanders Ranch Road. Because the proposed project would not impact existing pedestrian and bicycle facilities, impacts of the project related to consistency with pedestrian and/or bicycle plans, policies, and programs would be less than significant. The project would not degrade local access to bus stops along Moraga Road/Canyon Road, which can be accessed via the local roadway and sidewalk network. There are no active bus stops near the project site and no bus stops near the entrance to the access road from Sanders Ranch Road. Therefore, implementation of the proposed project would not conflict with plans, programs, and policies regarding transit facilities, or decrease the performance and safety of such facilities. The proposed project would have no impact related to consistency with existing transit plans, policies, and programs.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

The proposed project would generate an incremental number of vehicle trips. Vehicle trips for the proposed project would be limited to travel to and from the site during construction and for service calls and maintenance during operation. Installation of new fiber vaults and fiber route would require the temporary use of construction vehicles to travel to Sanders Ranch Road and between each fiber vault. Vehicle trips related to construction would be temporary and would cease upon completion of the project's construction. Operation of the project may necessitate the maintenance of the structure which would increase vehicle trips to the site. However, vehicle trips for maintenance would be minimal and likely would not exceed the Small Project VMT screening threshold (i.e., projects that generate less than 110 daily vehicular trips are generally assumed to cause a less-than-significant transportation impact) used by the California Department of Transportation (Office of Planning and Research 2017). As no habitable structures would be constructed on the site, the project would not result in an increase in population that would affect the capacity of transit facilities to accommodate public demand. Therefore, the project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

d. Would the project result in inadequate emergency access?

During construction and for maintenance, vehicles and equipment would access the site via Sanders Ranch Road. Project activities would be limited to the project site and the proposed access road alignment. Construction of the project would not alter or affect existing street and intersection networks or involve an incompatible use. Activities on nearby roadways including Sanders Ranch Road and Camino Pablo would be limited to installation of new underground fiber vaults and fiber route which would require the temporary use of construction vehicles to travel to Sanders Ranch Road and between each fiber vault. There would be no activities that would result in hazards due to the project or result in inadequate emergency access.

Operation of the proposed project would be limited to the project site and the proposed access road. Project implementation would occur within open space where hazards and emergency access are not a primary concern. Furthermore, emergency vehicles would have more direct access to the tower and adjacent open space in the event of an emergency or wildfire. Operation of the project would not alter or affect existing street and intersection networks or involve an incompatible use. There would be no new features that would substantially increase hazards due to a geometric design feature or result in inadequate emergency access. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	■	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

As of July 1, 2015, California Assembly Bill 52 of 2014 (AB 52) was enacted and expands CEQA by defining a new resource category, "tribal cultural resources." AB 52 establishes that "A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

Rincon contacted the Native American Heritage Commission (NAHC) on June 14, 2023, to request a search of the Sacred Lands File (SLF), as well as a contact list of Native Americans culturally affiliated with the project site vicinity The Town of Moraga mailed a notification letter on June 30, 2023 to the following Native American tribes: the Guidiville Indian Rancheria, the Ohlone Indian Tribe, The confederated Villages of Lisjan, The Chicken Ranch Rancheria of MeWuk Indians, the Muwekma Ohlone Indian Tribe of the SF Bay Area, the North Valley Yokuts Tribe, the Tule river Indian Tribe, the Indian Canyon Mutsun Ban of Costanoan, Wilton Rancheria, Nashville Enterprise Miwok-Maidu Nishinam Tribe, Wuksache Indian Tribe/Eshom Valley Band, and the Amah Mutsun Tribal Band of Mission San Juan Bautista.

Under AB 52, tribes have 30 days from receipt of the letter to respond and request consultation. On July 13, 2023, the Town received a request from the Confederated Villages of Lisjan Nation to receive a copy of the final CHRIS and environmental document for this project, along with the SLF from the Native American Heritage Commission and any additional archeological reports. They requested these items be sent to their physical address in Oakland, California. The Town will comply and send the aforementioned documents to the tribe after their completion. No other tribes responded and requested formal consultation under AB 52. However, during construction activities, especially those requiring earth disturbance in previously undeveloped portions of the site, there is potential to disturb unanticipated tribal cultural resources. Impacts would be less than significant with implementation of Mitigation Measure TCR-1. This measure would apply to all phases of project construction and would ensure that if tribal cultural resources are found on-site they would be preserved and evaluated for their significance as a cultural resource. Implementation of Mitigation Measure TCR-1 would reduce potential impacts to tribal cultural resources to less than

significant level and would effectively mitigate the project's impacts to these resources through the recovery, identification, and preservation of unanticipated tribal cultural resources.

Mitigation Measure

TCR-1 Unanticipated Discovery of Tribal Cultural Resources

In the event that cultural resources of Native American origin are identified during project construction, all earth-disturbing work within 50 feet of the find shall be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the find as a cultural resource and an appropriate local Native American representative is consulted. If the Town, in consultation with local Native American tribes, determines that the resource is a tribal cultural resource and thus significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with local Native American group(s). The plan shall include avoidance of the resource or, if avoidance of the resource is infeasible, the plan shall outline the appropriate treatment of the resource in coordination with the appropriate local Native American tribal representative and, if applicable, a qualified archaeologist. The plan shall include measures to ensure the find is treated in a manner that respectfully retains, to the degree feasible, the qualities that render the resource of significance to the local Native American group(s). Examples of appropriate mitigation for tribal cultural resources include, but are not limited to, protecting the cultural character and integrity of the resource, protecting traditional use of the resource, protecting the confidentiality of the resource, or heritage recovery.

Significance After Mitigation

Implementation of Mitigation Measure TCR-1 would minimize impacts to tribal cultural resources encountered during project construction. Impacts would be less than significant with mitigation incorporated.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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19 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	■	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	■	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	■	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	■	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	■	☐

Impact Analysis

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Water

Water that would be used for construction activities would be trucked into the site. Operational water demands would be limited to fire-fighting needs. The proposed water tank on the project site would be constructed in compliance with the National Fire Protection Association Section 1142 which identifies a method of determining the minimum water supply necessary for structural firefighting purposed in areas where it has been determined there is no water or inadequate water for firefighting (National Fire Protection Association 2022). As such, the project would require new water facilities. However, the water facilities would be limited to the project area and would be constructed in accordance with existing regulations. Impacts to water facilities and water supplies would be less than significant.

Wastewater

Wastewater generation on site would be limited to the construction period and would be disposed of in portable toilets. A truck servicing the portable toilets would remove the wastewater generated and transfer it to Central San for treatment. Wastewater generation on the site would cease upon completion of the construction of the project. There would be no operational wastewater generators on the project site. As such, the project would not require new or expanded wastewater facilities and impacts to wastewater would be less than significant.

Stormwater

The project would be required to comply with MMC Title 13, which details requirements for erosion and sediment control plans, and which regulates discharge of materials into curbside gutters, storm sewers, and storm drains. The project would be required to implement BMPs for drainage and erosion control during construction and meet requirements for stormwater and sewer discharge. The 361 square-foot concrete pad proposed to support ancillary facilities of the proposed project would increase impervious surfaces on the project site. However, the increase in runoff from increased impervious surfaces would be minimal and would likely percolate into the surrounding pervious areas of the project site. Impacts related to stormwater on the project site would be less than significant.

Telecommunications, Electricity, and Natural Gas

Telecommunications services in Moraga are provided by private companies, including AT&T and Comcast/XFinity. The telecommunications provider used by residents and businesses in Moraga is subject to the user's discretion. Telecommunications facilities are generally available throughout the Town.

As discussed in Section 6, *Energy*, Marin Clean Energy (MCE) is the default electricity provider for the Town, and Pacific Gas and Electric Company (PG&E) is the primary natural gas provider for the Town. However, residents have the option to opt out of MCE and enroll in PG&E for electricity service. In conjunction with the utility companies, the California Public Utilities Commission (CPUC) regulates energy conservation programs. The proposed project likely would not require a substantial additional amount of power beyond what is already provided to the project site. Therefore, the project would not result in the need for new or expanded electric power facilities.

The proposed project would not use natural gas during construction or operation. The project itself would include the expansion of telecommunication facilities on the project site. However, as discussed throughout this document, impacts related to the expansion of the facility would either be less than significant with mitigation or less than significant. Therefore, impacts related to telecommunications, electricity, and natural gas would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Construction of the proposed project would generate a limited amount of construction waste including oil, fuel, coolants, lubricants, and batteries. The project would be required to comply with Section 5.408, Construction Waste Reduction, Disposal, and Recycling, of the existing California Green Building Standards Code (CALGreen), which requires projects to recycle and/or salvage a minimum of 65 percent of nonhazardous construction and demolition waste; or, to meet a local construction and demolition waste management ordinance (whichever is more stringent). As such, the MMC Chapter 15.08, requires construction of the proposed project to divert 50 percent of the construction and demolition debris from landfill. The project would divert its construction debris consistent with the provisions of CALGreen and the MMC Chapter 15.08. Operation of the proposed project would not generate waste. As such, impacts related to solid waste would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	■
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	■
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	■
d. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	■

Impact Analysis

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

According to maps prepared by the California Department of Forestry and Fire Protection (CAL FIRE), most of Moraga is not located within a Very High Fire Hazard Severity Zone (VHFHSZ). The southwestern-most portion of the town is located within a Local Responsibility Area VHFHSZ. State Responsibility Areas are located outside of town limits (CAL FIRE 2023). The project site is not in a CAL FIRE designated Very High Fire Hazard Severity Zone and is located approximately 2.5 miles north of the nearest Very High Fire Hazard Severity Zone (CALFIRE 2023). The project site is located within a Moderate Fire Hazard Severity Zone and the adjacent Sanders Ranch Subdivision is mapped as a High Fire Hazard Severity Zone. Additionally, prevailing winds in Moraga are generally from the west off the ocean from February to November, and from the north from November to February (Weatherspark 2022); therefore, prevailing winds would likely blow wildfires away from the project site. Furthermore, in the event of an emergency, operation of the proposed project would allow for broader and more reliable cellular service for residents within the area.

Project implementation would not impair an adopted emergency response plan or emergency evacuation plan or exacerbate wildfire risks. While the project would introduce a generator to the project site, use of the generator would be temporary and would only occur in the event that power is not available through PG&E. The generator would be located within the proposed equipment enclosure and located atop a 19-foot by 19-foot concrete pad, away from brush or grassland that is subject to accidental ignition. Furthermore, the proposed project would include the construction of a water tank pursuant to the requirements of the National Fire Protection Association Section 1142 which would provide for water for firefighting purposes where there are limited water facilities. Further, the project would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk or expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post fire slope instability, or drainage changes in or near state responsibility areas or lands classified as very high fire severity zones. Installation of new fiber vaults and fiber route would on Sanders Ranch Road would not exacerbate fire risk as utilities would be undergrounded. Because the project is not located in a Very High Fire Severity Zone and includes water infrastructure which would serve to reduce potential impacts related to fire, no impact related to wildfire would occur.

NO IMPACT

21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	■	☐	☐
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	■	☐	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	■	☐	☐

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Based on the analysis provided throughout this IS-MND, implementation of the proposed project would not substantially degrade the quality of the environment and would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of California history or prehistory. Biological resources are addressed in Section 4, *Biological Resources.* With

implementation of Mitigation Measures BIO-1, related to nesting birds, the proposed project would not substantially reduce wildlife habitat or populations.

Mitigation measures CR-1, GEO-2, and TCR-1 have been designed to reduce potential impacts to unknown archaeological, paleontological, and tribal cultural resources. There are no historic resources on the site. Based on the ability of the identified mitigation measures to reduce potential impacts to prehistory resources to less than significant levels, the proposed project's impacts would be less than significant with implementation of the aforementioned mitigation measures.

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b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Other projects are either approved or under consideration for approval in the project area, such as the residential projects, Hetfield Estates, MCSP Area 14, MCSP Area 15 and 17, 1600 School Street the Moraga Country Club Clubhouse Expansion Project. These other projects in the area are consistent with the envisioned land uses in the Town's General Plan. Cumulative projects are consistent with the growth planned for within the Town.

These other projects would impact some of the same resources as the proposed project, such as aesthetics, air quality, biological resources, cultural resources, geology and soils, noise, and water supply, given that they involve construction of residences and recreation facilities. Cumulative impacts of the proposed project associated with some of the resource areas are addressed in the individual resource sections above: Aesthetics, Air Quality, Cultural Resources, Greenhouse Gases, Geology and Soils, Noise, Water Supply, and Solid Waste (CEQA Guidelines Section 15064(h)(3)). Air Quality would be less than significant with implementation of BAAQMD BMPs required under Mitigation Measure AQ-1. Greenhouse Gas impacts would be less than significant. Water supply and solid waste impacts would be less than significant. Some of the other resource areas were determined to have no impact in comparison to existing conditions and therefore would not contribute to cumulative impacts, such as Mineral Resources and Agricultural Resources. As such, cumulative impacts in these issue areas would also be less than significant (not cumulatively considerable). The proposed project would not generate new VMT that exceeds regional average VMT per employee and therefore would not contribute to a cumulative increase in the average VMT per employee in the region. The proposed project would not result in a significant contribution to cumulatively considerable impacts, and impacts would be less than significant with implementation of the mitigation measures contained in this Initial Study.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Effects to human beings are generally associated with air quality, noise, seismicity risks, GHG emissions, and hazards and hazardous materials. These resources are most closely related to impacts on humans because they can affect health and quality of life. As discussed in this IS-MND, implementation of the proposed project would result in less than significant environmental impacts with respect to these issue areas with mitigation incorporated. Impacts related to air quality would be reduced through Mitigation Measure AQ-1 which would minimize fugitive dust emissions

resulting from construction activities to less than significant levels.. The geotechnical recommendations Mitigation Measure GEO-1 and GEO-2 discussed in Section 7, *Geology and Soils*, would ensure that soils and grounds are stable due to potential slope risk and reduce impacts to undiscovered paleontological resources. Impacts related with GHG emissions would be less than significant. Accordingly, with implementation of the mitigation measures provided in this IS-MND, the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. Impacts would be less than significant with mitigation.

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List of Preparers

Rincon Consultants, Inc. prepared this IS-MND under contract to the Town of Moraga. Persons involved in data gathering analysis, project management, and quality control are listed below.

RINCON CONSULTANTS, INC.

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William Vosti, Senior Environmental Planner
Leslie Trejo, Environmental Planner
Lucas Carneiro, Environmental Planner
JulieAnn Murphy, Architectural Historian Project Manager
Elaine Foster, MA, RPA, Archaeologist
Owen Routt, Senior Biologist

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Mitigation Monitoring and Reporting Program

The Initial Study-Mitigated Negative Declaration (IS-MND) for the Sanders Ranch Wireless Facility Project (project) identifies the mitigation measures required to reduce the environmental impacts associated with the project. The California Environmental Quality Act (CEQA) requires a public agency to adopt a monitoring and reporting program for assessing and ensuring compliance with any required mitigation measures applied to proposed development. As stated in Section 21081.6(a)(1) of the Public Resources Code:

> "the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment."

Section 21081.6 also provides general guidelines for implementing mitigation monitoring programs and indicates that specific reporting and/or monitoring requirements, to be enforced during project implementation, shall be defined as part of making findings or adopting a mitigated negative declaration. The mitigation monitoring table lists the identified mitigation measures for the project. To ensure that the mitigation measures are properly implemented, a monitoring program has been devised which identifies the timing and responsibility for monitoring each measure. The first column, "Mitigation Measure", identifies mitigation measures that were identified in the IS-MND. The second column, "Action Required," refers to the monitoring action that must be taken to ensure the implementation of the mitigation measure. The third column, "Timing," refers to when the monitoring will occur to ensure that the mitigation action is complete. The fourth column, "Frequency", refers to how often the mitigation will be implemented. The fifth column, "Responsibility," refers to the agency responsible for oversight or ensuring that the mitigation measure is implemented. The remaining "Compliance Verification" columns are where the Town verifies that the measures have been implemented.

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification		
					Initial	Date	Comments
Air Quality							
AQ-1 BAAQMD Basic Best Management Practices for Construction-Related Fugitive Dust Emissions							
The applicant shall require all construction contractors to implement the basic construction mitigation measures recommended by BAAQMD to reduce fugitive dust emissions. Emission reduction measures will include, at a minimum, the following measures: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. All excavation, grading, and/or demolition activities	Confirm construction contractors implement applicable BAAQMD construction measures throughout the duration of construction activities.	During the duration of construction activities	Once prior to the beginning of construction activities to confirm applicable BAAQMD mitigation measures, then periodically throughout construction activities.	Town of Moraga Planning Department			

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification		
					Initial	Date	Comments
shall be suspended when average wind speeds exceed 20 mph. 7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site. 8. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel. 9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.							
Biological Resources							
BIO-1 Nesting Bird Avoidance and Minimization Measures							
The following avoidance and minimization measures shall be implemented during project construction activities: ▪ Initial site disturbance should occur outside the general avian nesting season (February 1 through September 15), if feasible.	• Confirm initial ground disturbance occurs outside of February 1 through September 15. • If initial ground disturbance occurs during February 1 through September 15, confirm a qualified biologist has been retained	• Prior to construction: Confirm initial ground disturbance timing; confirm retention of qualified biologist for pre-	Once: confirm construction start date; confirm retention of biologist; confirm pre-construction survey is completed, and as needed if there is an extended break in	Town of Moraga Planning Department			

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification		
					Initial	Date	Comments
▪ If initial site disturbance occurs in a work area within the general avian nesting season indicated above, a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to initial disturbances in the work area. The survey shall include the entire area of disturbance area plus a 50-foot buffer (relevant to non-raptor species) and 300-foot buffer (relevant to raptors) around the site. If active nests are located, all construction work shall be conducted outside a buffer zone from the nest to be determined by the qualified biologist. The buffer should be a minimum of 50 feet for non-raptor bird species and at least 300 feet for raptor species. Larger buffers may be required and/or smaller buffers may be established depending upon the species, status of the nest, and construction activities occurring in the vicinity of the nest. The buffer area(s) shall be closed to all construction personnel and equipment until the adults and young are no longer reliant on the nest site. A qualified biologist shall confirm that breeding/nesting is completed and young have	to conduct a nesting bird and raptor pre-construction survey in the disturbance footprint and buffer area. • If there is a break in ground disturbance greater than two weeks, confirm a qualified biologist is retained to conduct a subsequent pre-construction survey. • Confirm a report of the nesting bird and raptor survey results is submitted to the Town. • If nests are found during the pre-construction survey, confirm the locations are flagged and mapped, and confirm avoidance buffers are established. • Confirm that all construction work is conducted outside the established avoidance buffers.	construction surveys, confirm a report detailing results of the nesting bird and raptor surveys is submitted to the Town (prior to grading activities), confirm identified nests are flagged and mapped, confirm avoidance buffers are established. • During construction: confirm retention of qualified biologist for on-site monitoring, if required.	ground disturbance; confirm survey results report is submitted; confirm identified nests are flagged and mapped; confirm retention of biologist for on-site monitoring, if required.				

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification		
					Initial	Date	Comments
fledged the nest prior to removal of the buffer. ▪ If construction activities in a given work area cease for more than 14 days, additional surveys shall be conducted for the work area. If active nests are located, the aforementioned buffer zone measures shall be implemented.							
Cultural Resources							
CUL-1 Unanticipated Discovery of Cultural Resources							
In the event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 50 feet of the find shall halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric, then a Native American representative shall also be contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or Native American representative determines it to be appropriate, archaeological testing for CRHR eligibility shall be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via project redesign, a qualified archaeologist shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, per the requirements of	• Confirm work is halted if any archaeological resources are identified during project construction, until the resource can be evaluated by a qualified archaeologist and the Native American monitor. • Ensure that all identified prehistoric resources are also evaluated by a Native American representative.	• Confirm work is halted if a resource is identified and evaluated during construction. • Confirm prehistoric resources are evaluated by a Native American monitor following discovery.	As needed during construction	Town of Moraga Planning Department			

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification Initial	Date	Comments
CCR Guidelines Section 15126.4(b)(3)(C). The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative, as appropriate, shall recover and document the scientifically consequential information that justifies the resource's significance. The Town shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the California Historical Resources Information System, pursuant to CCR Guidelines Section 15126.4(b)(3)(C).							
Geology and Soils							
GEO-1 Geotechnical Considerations							
The project applicant shall implement all measures and recommendations set forth in the Geotechnical Investigation prepared by Krazan & Associates, Inc. in February 2023 (on file with the Town of Moraga and included as Appendix E to the IS-MND). Recommendations include but are not limited to the following: ▪ Based on the existing moisture contents of the upper on-site soils, stabilization of the on-site subgrade may be required. Typical remedial measures include: discing and aerating the soils during dry weather;	Confirm project applicant implements all recommendations includes within the Geotechnical Investigation.	Prior to the start of construction activities then after construction has completed.	Prior to construction, then as needed during construction activities.	Town of Moraga Planning Department			

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification		
					Initial	Date	Comments
mixing the soil with dryer materials; removing and replacing the soil with an approved fill materials; or mixing the soil with an approved lime or cement product. ▪ Ata minimum, the upper 18-inches of subgrade soil shall be moisture conditioned to a minimum of two percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557 ▪ Concrete slab on-grade and exterior flatwork areas shall be supported by a minimum of 24-inches of non-expansive engineered fill or lime treated engineered fill. ▪ Reconstructed slopes shall be constructed at an inclination not exceeding 2:1 (horizontal to vertical) slopes or flatter. A geotechnical professional shall be retained to review all slope reconstruction plans and specifications prior to initiating the repair work. ▪ Where fills greater than eight feet are to be constructed on original ground that slopes at inclinations steeper than 6:1 (horizontal to vertical), benches shall be cut into the existing slope as the filling operations proceed.							

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification		
					Initial	Date	Comments
▪ Site grading near slopes and the embankments, including retaining walls and wing walls, shall be accomplished such that excessive sheet run-off is prevented. The completed slopes shall be seeded or otherwise vegetated to protect from erosion. Within the side of embankments facing water flow, rock rip rap or concrete paving shall be used to prevent erosion.							
GEO-2 Unanticipated Discovery of Paleontological Resources							
If a potential fossil is discovered during project construction, construction activity within 50 feet of the find shall cease until the discovery is examined by a Qualified Professional Paleontologist. If the find is determined to be significant, the Qualified Professional Paleontologist shall direct all mitigation measures related to paleontological resources consistent with Society of Vertebrate Paleontology (2010) standards. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement.	• Confirm work is halted if any paleontological resources are identified during project construction, until the resource can be evaluated by a qualified paleontologist. • Confirm any paleontological resource discovered during construction is examined by a Qualified Professional Paleontologist and mitigated appropriately. • Confirm project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement.	• Confirm work is halted if a resource is identified and evaluated during construction. • Confirm any identified paleontological resources are examined by a Qualified Professional Paleontologist and mitigated appropriately. • Confirm project applicant shall include a standard inadvertent discovery clause in every construction contract.	Prior to the start of construction activities and then as needed during construction	Town of Moraga Planning Department			

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification		
					Initial	Date	Comments
Land Use and Planning							
LUP-1 IS-MND Mitigation Measures							
The project shall implement mitigation measures AQ-1, BIO-1, CR-1, GEO-1, GEO-2, and TCR-1 identified within the IS-MND.	Confirm all mitigation measures identified within the IS-MND are implemented	Throughout project activities	Ongoing throughout permitting, project construction activities, and after completion of construction	Town of Moraga Planning Department			
Tribal Cultural Resources							
TCR-1 Unanticipated Discovery of Tribal Cultural Resources							
In the event that cultural resources of Native American origin are identified during project construction, all earth-disturbing work within 50 feet of the find shall be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the find as a cultural resource and an appropriate local Native American representative is consulted. If the Town, in consultation with local Native American tribes, determines that the resource is a tribal cultural resource and thus significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with local Native American group(s). The plan shall include avoidance of the resource or, if avoidance of the resource is infeasible, the plan shall outline the appropriate treatment of the resource in coordination with the appropriate local Native American tribal representative and, if applicable, a qualified archaeologist. The plan shall include measures to ensure the find is treated in a manner that respectfully retains, to the degree feasible, the qualities that	• Confirm work is halted work within 50 feet of any identified cultural resource of Native American origin during construction, until the resource can be evaluated by a local Native American representative. • Confirm a mitigation plan is prepared and implemented if the Town and local Native American representative determine the identified resources is a tribal cultural resource.	• Confirm work is halted if a cultural resource of Native American origin is identified during construction. • Confirm a mitigation plan is prepared and implemented following determination that a discovery is a tribal cultural resource.	As needed during construction	Town of Moraga Planning Department			

Mitigation Measure	Action Required	Timing	Frequency	Responsibility	Compliance Verification		
					Initial	Date	Comments
render the resource of significance to the local Native American group(s). Examples of appropriate mitigation for tribal cultural resources include, but are not limited to, protecting the cultural character and integrity of the resource, protecting traditional use of the resource, protecting the confidentiality of the resource, or heritage recovery.							

ATTACHMENT B

Draft Planning Commission Resolution

TOWN OF MORAGA

PLANNING COMMISSION

RESOLUTION NO. ____-2023

Approving Conditional Use Permit (UP 06-22), Design Review (DR-03-22), Grading Permit (GR 02-22) and Hillside Development Permit (HDP 02-22) to Construct and Operate a New Wireless Communication Facility on an Existing PG&E Transmission Tower Located on an Open Space Parcel within the Sanders Ranch Subdivision that would be Accessed by a New 15 Foot Wide 1,330-Foot Long Access Road Connecting to Sanders Ranch Road. (APN 258-300-019)

WHEREAS, in 2019, the Merrill Fire began in the early morning during a PG&E public safety power shutoff, burning approximately 40 to 60 acres adjacent to and within the Sanders Ranch Subdivision. Communication for first responders and residents in the community presented a challenge in that there is not adequate cell service within the subdivision. After the Merrill Fire, the Moraga Police Chief approached the Sanders Ranch Homeowners Association (SRHOA) and Verizon about getting wireless coverage out to the Sanders Ranch Subdivision, which is the purpose of this project; and

WHEREAS, on May 31, 2022, SAC Wireless on behalf of Verizon Wireless submitted Conditional Use Permit, Design Review, Grading and Hillside Development Permit applications for the proposed wireless communication facility; and

WHEREAS, after several submittals and rounds of review the application was deemed complete for processing on May 15, 2023; and

WHEREAS, the Town determined that this project would require that an Initial Study – Mitigated Negative Declaration be prepared due to the proposed grading of an access road from the proposed wireless facility to Sanders Ranch Road on MOSO zoned land with slopes exceeding 20% and the road crossing and running adjacent to a minor MOSO ridgeline; and,

WHEREAS, FCC rules place a 90 day shot clock on wireless projects collocated on existing structures, in this case a PG&E transmission tower, therefore, in order to draft and complete the CEQA process, Verizon and the Town of Moraga agreed to a shot clock extension to October 3, 2023, for the project to be heard before the Planning Commission; and

WHEREAS, a Draft Initial Study-Mitigated Negative Declaration (IS-MND) was filed with the State Clearinghouse on August 31, 2023; and circulated for public comment for a period of 32 days; and;

WHEREAS, public hearing notices were mailed to 165 property owners within a 300 foot radius of the project site on September 22, 2023 and posted on the project site, the Town offices, the Commons Park and the Hacienda de las Flores at least ten (10) days prior to the hearing date; and

WHEREAS, the Planning Commission held a public hearing on October 3, 2023 and at that public

hearing, at which time it considered all oral and documentary evidence presented, and incorporated all testimony and documents into the record by reference.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission of the Town of Moraga hereby makes the following findings and determinations pertaining to the project:

SECTION 1: RECITALS. The foregoing recitals are true and correct and incorporated into the findings and determinations set forth in this Resolution.

SECTION 2: CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to the California Environmental Quality Act (CEQA) the Town prepared and adopted an Initial Study and Mitigated Negative Declaration (IS/MND) for the project in accordance with the requirements of California Environmental Quality Act (CEQA) after it was made available for public review and comment for 30 days from August 31, 2023, through October 2, 2023.

SECTION 3: FINDINGS TO ALLOW A ROAD TO CROSS A MINOR MOSO RIDGELINE. The Planning Commission hereby makes the following findings to allow a road to cross a minor MOSO ridgeline.

1. **The crossing is necessary for the orderly development of the Town** because the proposed site has been determined to be the optimal location for a wireless facility to serve a significant gap in wireless coverage in order to enhance public safety through the provision of reliable wireless service for Sanders Ranch and the southern neighborhoods of Moraga.

2. **The road complies with all applicable requirements of Section 8.128.060** because, while the road would run along, adjacent to and cross the minor MOSO ridgeline for approximately 300 feet, it is necessary as it is the most direct route from Sanders Ranch Road to the wireless facility that minimizes grading, and a direct route to the facility is preferred by the Moraga Orinda Fire District. The access road would be visible from some roads and properties within the Sanders Ranch Subdivisions and the Old Moraga Ranch Trail. The views from within the Sanders Ranch subdivision are anticipated to be substantially obscured by topography and vegetation, as the grasses and other vegetation grow high enough to obscure views of the road, and the road will be at a much higher elevation than where the homes and roads are located, The road is not a structure that would substantially alter the visual environment, and views of it from the Old Moraga Ranch Trail would be limited to the time that it would take a pedestrian to walk through the portion of trail and briefly view where it crosses the minor ridgeline. Surrounding hillsides and ridgelines would continue to obstruct views of the proposed access road from the rest of the trail. Further, the road would be surfaced with class II aggregate, which would be compatible with the semi-rural character of the site. Parking along the access road would be prohibited. Parking at the project site would be temporary and would occur as part of maintenance activities. No streetlights would be installed. Access to the road would be restricted to maintenance and emergency vehicles. All new utilities would be placed underground.

3. **The road does not otherwise conflict with the Municipal Code** because the overall average slope of the area of grading will be less than 20%. Portions of the access road will be within MOSO cells that have average slope of 20% or greater, however, as the access road is considered a fire trail by the Moraga Orinda Fire District, it is exempt from MOSO cell development prohibitions under Section III.B of the Guidelines for Interpreting and Implementing the Moraga Open Space Ordinance.

SECTION 4: CONDITIONAL USE PERMIT FINDINGS. Pursuant to Section 8.12.120 of the Moraga Municipal Code, the Planning Commission hereby makes the following findings:

1. **The proposed use is appropriate to the specific location** because MMC Section 8.144.030-D states that all new wireless communication facilities shall be collocated with existing facilities whenever feasible and aesthetically desirable. The proposed facility would have antennas and ancillary equipment located on a PG&E transmission tower and painted to match the tower. The ground mounted equipment enclosure and water tank would be earth tone colors to match the existing environment. An access road would be graded to the site closely following the natural contours of the property. The applicant prepared an alternative sites analysis which explored several locations for the facility, and which determined that this would be the optimal location to serve a significant gap in wireless service in Sanders Ranch and southern Moraga.
2. **The proposed use is not detrimental to the health, safety, and general welfare of the Town.** because a theoretical Radio Frequency Emissions Compliance (RF-EME) report prepared by WATERFORD Consultants, LLC., dated July 26, 2022, assessed and addressed compliance of the proposed facility design with appropriate guidelines limiting human exposure to radio frequency (RF) electromagnetic energy. The report states that *"For accessible areas at ground level, the maximum predicted power density level resulting from all Verizon Wireless operations is 38.594% of the FCC General Population limits… The maximum predicted power density level resulting from all Verizon Wireless operations is 1.386% of the FCC General Population limits. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings. As predicted RF power densities will not exceed the FCC General Population limits, no mitigation action other than restricting access to the tower is required to achieve or maintain compliance."* Additionally, the standard conditions of approval for the project require the applicant to conduct testing at least once every five years to verify compliance with FCC radio frequency emissions standards to assure there will be no adverse impact to public health and safety or the general welfare of the Town.
3. **The proposed use will not adversely affect the orderly development of property within the Town** because the site already includes an existing utility structure, locating the facility with an existing PG&E transmission tower is consistent with MMC Section 8.144.030(d) which states *"all new wireless communication facilities "shall be collocated with existing and/or with other planned*

new facilities whenever feasible and aesthetically desirable. Collocation is discouraged when it will increase visual impacts. Service providers are encouraged to collocate with other facilities such as light standards, utility poles and other structures where the collocation is found to minimize the overall visual impact." The proposed facility has been designed to minimize visual impacts by being located within the footprint and adjacent to an existing PG&E transmission tower and would not substantially alter the appearance of the existing transmission tower. The antennas will be painted to match the tower and the ground mounted equipment enclosure and water tank will be painted earth tone colors to match the surrounding environment. The facility will be located approximately 378 feet from the nearest residence and 193 feet from the nearest residential property line which is in compliance with MMC Section 8.144.030.I.

4. **The proposed use will not adversely affect the preservation of property values and the protection of the tax base and other substantial revenue sources within the Town** because the equipment will be collocated with an existing utility structure whose impact and effect on property values, to the extent they exist, is known and which the wireless collocation would not substantially worsen. The facility has been designed to minimize visual impacts. Further, the improved wireless telecommunications service in the community could contribute to an improvement in property values.

5. **The proposed use is consistent with the objectives, policies, general land uses and programs specified in the general plan and applicable specific plans** because Town of Moraga General Plan Guiding Principal 7 encourages *"land uses, development patterns, utilization of new communication and transportation technologies that may help reduce automobile trips and air pollution, ensuring that new wireless communication facilities are sited and designed to preserve the Town's unique character."* The Verizon wireless communications facility is substantially consistent with the requirements of the Town's Wireless Communications Ordinance and qualifies for an exception to the prohibition of development within the Town's open space and ridgeline areas, and slopes on slopes of 20% or greater in accordance with the development standards listed in MMC Section 8.144.060. The proposed access road will be consistent with the requirements of MMC Section 8.128.060 for roads crossing ridgelines and as it serves as a fire trail to the facility, is exempt from MOSO development prohibitions as identified in Section III.B of the Guideline for Interpreting and Implementing the Moraga Open Space Ordinance. The project has been designed to minimize visual impacts and will enhance public safety within the Sanders Ranch Subdivision and southern Moraga by providing reliable wireless service.

6. **The proposed use will not create a nuisance or enforcement problem within the neighborhood** because the new antennas are on a utility tower at a height that is not readily accessible to the general public. A noise study prepared for the facility determined that the facility is not expected to produce noise in excess of the 60 dB standard at the property lines, as required in MMC Section 8.144.070.D of the Town's Municipal Code and a theoretical Radio Frequency Emissions Compliance report prepared for the wireless facility predicts that RF power

densities will not exceed the FCC General Population limits at ground level or in adjacent buildings. The equipment cabinets would be fenced with locking doors accessible for maintenance purposes only and the access road to the facility will have a locked gate at the entrance. The standard conditions of approval will address any potential nuisance or enforcement problems.

7. **The proposed use will not encourage marginal development within the neighborhood** because the wireless facility would be collocated with an existing PG&E tower on open space land within the Sanders Ranch Subdivision. An alternative sites analysis was prepared which determined this location to be the optimal location to serve a significant gap in wireless coverage. Further, the facility complies will all development standards for wireless facilities set forth in MMC Section 8.144.030 and 8.144.060. The facility has been designed using colors to blend into the site and grading that substantially follows the natural contours of the property. Additional development on this open space parcel would be highly restricted, the wireless facility is not expected to have an adverse effect on the quality of future improvements on the property or surrounding area.

8. **The proposed use will not create a demand for public services within the Town beyond that of the ability of the Town to meet in light of taxation and spending restraints imposed by law** because the wireless service provided by the facility would not generate new population or be of a type that requires Town services.

9. **The proposed use is consistent with the Town's approved funding priorities** because no expenditure of Town funds is required, the Verizon wireless communications transmission facility will have no impact on the Town's funding priorities

SECTION 5: DESIGN REVIEW APPROVAL FINDINGS. Pursuant to MMC Section 8.72.080(B), the Planning Commission hereby finds as follows:

1. **The proposed improvements conform with good design as set forth in the Town of Moraga Design Guidelines, and in general contributes to the character and image of the town as a place of beauty, spaciousness, balance, taste, fitness, broad vistas, and high quality** because the facility will be located on and within the footprint of an existing PG&E transmission tower. The proposed antennas and ancillary equipment installed on the tower will be painted to match the tower and the fencing of the equipment enclosure and water tank will be earth tone colors to blend with the surrounding environment. Grading for the access road would closely follow the natural contour of the site. At and around the ridgeline, the ground mounted equipment and access road will be substantially screened from off-site views by existing vegetation and topography. The road at lower elevations will be more visible to nearby homes but is designed with a minimal width and class II aggregate base surface, which is compatible with the semi-rural character of the site. Overall, the proposed facility would present a minor visual change to the PG&E tower and consistent with MMC Section 8.144.030.D

which encourages collocation of wireless facilities with other utility structures where visual impacts can be minimized.

2. **The proposed improvements will not have a substantial adverse effect on neighboring properties or the community due to poor planning; neglect of proper design standards; or the existence of building and structures unsuitable to and incompatible with the character of the neighborhood and the character of the community** because the wireless facility would be collocated on an existing utility structure in an open space on an existing utility structure with an access road that closely follows the topography of the site, minimizing cut and fill. The facility has been designed to blend in with the site and existing and would be a minimal visual change to the utility structure and surrounding area.

3. **The proposed improvements will not lower property values; discourage the maintenance and improvement of surrounding properties; or preclude the most appropriate development of other properties in the vicinity** because the equipment will be collocated with an existing utility structure whose impact and effect on property values, to the extent they exist, is known and which the wireless collocation would not substantially worsen. The proposed facility would not result in the discouragement of improvements to surrounding properties or preclude development of other properties, as it has been designed to minimize visual impacts by being located with an existing PG&E transmission tower, would not substantially alter the appearance of the existing transmission tower, and would provide a new wireless service option for this area, which may enhance property values. Further, the facility is located on a large MOSO zoned open space parcel, collocated with an existing utility structure and is more than 190 feet away from the nearest residential property.

4. **The proposed improvements will not impair public health, safety or welfare** because a theoretical Radio Frequency Emissions Compliance (RF-EME) report prepared by WATERFORD Consultants, LLC., dated July 26, 2022, assessed and addressed compliance of the proposed facility design with appropriate guidelines limiting human exposure to radio frequency (RF) electromagnetic energy. The report states that *"For accessible areas at ground level, the maximum predicted power density level resulting from all Verizon Wireless operations is 38.594% of the FCC General Population limits… The maximum predicted power density level resulting from all Verizon Wireless operations is 1.386% of the FCC General Population limits. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings. As predicted RF power densities will not exceed the FCC General Population limits, no mitigation action other than restricting access to the tower is required to achieve or maintain compliance."* The standard conditions of approval for the project require the applicant to conduct testing at least once every five years to verify compliance with FCC radio frequency emissions standards to assure there will be no adverse impact to public health and safety or the general welfare of the Town. Further, the project will be built in accordance with the California Building Code and the Town of Moraga's Grading Ordinance.

SECTION 6: GRADING APPROVAL FINDINGS. Pursuant to MMC Section 14.12.030(B), the Planning Commission, acting as the Design Review Board, hereby makes the following findings for grading on slopes greater than 20 percent:

1. **The grading is consistent with the Town Design Guidelines** The project proposes 1,020 cubic yards of grading, primarily for an access road to the wireless facility to Sanders Ranch Road. The road will be 15 feet in width and approximately 1,330 feet in length. The grading for the road will generally follow the topography of the land consistent with Design Guideline ID10.6, with maximum cuts of 3.6 feet and a maximum fill of approximately four feet. There will be one retaining wall along the western property line that will be approximately 70 feet in length with a maximum exposed height of 3 feet. The retaining wall is necessary to keep all of the grading work on the property, as the road will run adjacent to the western property line. The development of the road will require grading in slopes of 20% or greater, although the footprint of work will have an overall average slope of 19.75%. Consistent with Design Guideline ID10.3 a site-specific geotechnical analysis was prepared for the project by Krazen & Associates, Inc. dated February 21, 2023, which provided recommendations for the grading, retaining walls and foundation.

2. **The grading is consistent with the regulations of Chapter 14.12 – Design Review Board Authority, of the Moraga Municipal Code** The proposed grading is being reviewed by the Planning Commission acting as the Design Review Board because the project includes 200 cubic yards of grading or more and portions of the work will be on slopes of 20% or greater, although the average slope of the total area of work will be 19.75%.

3. **The grading is not detrimental to Public Safety**. The grading work is on a large open space property that will be located more than 100 feet away from offsite residential buildings and structures. A site-specific geotechnical analysis was prepared for the project by Krazen & Associates, Inc. dated February 21, 2023, which provided recommendations for the grading, retaining walls and foundation. Additionally, the Initial Study-Mitigated Negative Declaration for the project identified the geotechnical Mitigation Measures, GEO-1 and GEO-2, within the Mitigation Monitoring and Reporting Plan that will be adhered to during project development.

4. **The grading is not detrimental to stormwater runoff.** The project is located on a large open space parcel and it is anticipated that any stormwater runoff created by new impervious surfaces will be treated within the grasslands on the property. The conditions of approval require that a final stormwater control plan be submitted to ensure that stormwater is treated onsite.

5. **The grading is consistent with the requirements of Chapter 8.136 of the Moraga Municipal Code.** The grading meets the requirements for a Hillside Development Permit as set forth in section 7 below.

SECTION 7: HILLSIDE DEVELOPMENT PERMIT FINDINGS. Pursuant to MMC Section 8.136.050, the Planning Commission hereby makes the following findings:

1. **The proposed development is consistent with the General Plan, Municipal Code, Design Guidelines, and any applicable specific plan or area plan adopted by the Town Council.** The proposed wireless facility meets the Conditional Use Permit findings described in Section 4 and the Design Review findings described in Section 5 of this resolution. Furthermore, the grading for the road will generally follow the topography of the land consistent with Design Guideline ID10.6. The development of the road will require grading in slopes of 20% or greater, although the footprint of work will have an overall average slope of 19.75%. Consistent with Design Guideline ID10.3 a site-specific geotechnical analysis was prepared for the project by Krazen & Associates, Inc. dated February 21, 2023, which provided recommendations for the grading, retaining walls and foundation. Additionally, the Initial Study-Mitigated Negative Declaration for the project identified the following Mitigation Measures for the project related to the grading, GEO-1 and GEO-2, shown on pages 7 and 8 of the Mitigation Monitoring and Reporting Plan.

2. **The proposed development is designed to minimize visual impacts, protect scenic resources, and maintain Moraga's semi-rural feel to the greatest extent possible.** The proposed wireless facility meets the Conditional Use Permit findings described in Section 4 and the Design Review findings described in Section 5 of this resolution. Additionally, the grading for the road will generally follow the topography of the land consistent with Design Guideline ID10.6, with maximum cuts of 3.6 feet and a maximum fill of approximately four feet. There will be one retaining wall along the western property line that will be approximately 70 feet in length with a maximum exposed height of 3 feet. At and near the ridgeline the road will be well screened from offsite views by vegetation and topography. At the lower elevations of the site, the road will be more visible to adjacent residences, the road will be surfaced with class II aggregate, which will be compatible with the semi-rural feel of the property.

3. **The proposed development protects biological, hydrological, and other environmental resources to the greatest extent possible.** The site does not contain any special status plant or wildlife species. A mitigation measure during construction for protected bird species has been included for the project to protect nesting birds that may be present in the grasses and shrubs. There are streams or other waters of the U.S. on the property, condition of approval requires that all stormwater be treated on-site. A site-specific geotechnical analysis was prepared for the project by Krazen & Associates, Inc. dated February 21, 2023, which provided recommendations for the grading, retaining walls and foundation. Additionally, the Initial Study-Mitigated Negative Declaration for the project identified the geotechnical Mitigation Measures, GEO-1 and GEO-2, within the Mitigation Monitoring and Reporting Plan that will be adhered to during project development.

4. **The proposed development is designed and located to minimize exposure to landslides and other geologic hazards.** A site-specific geotechnical analysis was prepared for the project by Krazen & Associates, Inc. dated February 21, 2023, which provided recommendations for the grading, retaining walls and foundation. Additionally, the Initial Study-Mitigated Negative Declaration for the project identified the geotechnical Mitigation Measures, GEO-1 and GEO-2, within the Mitigation Monitoring and Reporting Plan that will be adhered to during project development.

5. **The proposed development minimizes soil displacement and utilizes grading techniques that blend with natural slopes and achieve a natural appearance.** The grading for the road will generally follow the topography of the land consistent with Design Guideline ID10.6, with maximum cuts of 3.6 feet and a maximum fill of approximately four feet. The total proposed grading for the project is approximately 350 cubic yards of cut and 530 cubic yards of fill, totaling approximately 1,020 cubic yards of grading activities. The road will be 15 feet in width and 1,330 feet in length and has been designed in a relatively straight line as opposed to a switch back design which would have resulted in additional grading. The road would be surfaced with class II aggregate, which will be compatible with the semi-rural character of the site.

6. **The proposed development will not be detrimental to the public health, safety, and welfare**. A theoretical Radio Frequency Emissions Compliance (RF-EME) report was prepared by WATERFORD Consultants, LLC., dated July 26, 2022, assessed and addressed compliance of the proposed facility design with appropriate guidelines limiting human exposure to radio frequency (RF) electromagnetic energy. The construction of the wireless facility equipment will be done in compliance with the 2022 California Building Standards Code. Additionally, the grading work for the project is on a large open space property that will be located more than 100 feet away from offsite residential buildings and structures. A site-specific geotechnical analysis was prepared for the project by Krazen & Associates, Inc. dated February 21, 2023, which provided recommendations for the grading, retaining walls and foundation. Additionally, the Initial Study-Mitigated Negative Declaration for the project identified the geotechnical Mitigation Measures, GEO-1 and GEO-2, within the Mitigation Monitoring and Reporting Plan that will be adhered to during project development.

SECTION 8: APPROVAL. The Planning Commission hereby approves Conditional Use Permit (UP 06-22), Design Review (DR-03-22), Grading Permit (GR 02-22) and Hillside Development Permit (HDP 02-22), subject to the Conditions of Approval attached hereto as Attachment No. A.

PASSED AND ADOPTED BY THE PLANNING COMMISSION OF THE TOWN OF MORAGA this ___ day of _____, 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED:

Ben Helber
Chair

ATTEST:

Afshan Hamid, AICP
Planning Director

Attachment A
CONDITIONS OF APPROVAL
Conditional Use Permit (UP 06-22)
Design Review (DR 03-22)
Grading Permit (GR 03-22)
Hillside Development Permit (HDP 02-22)
End of Sanders Ranch Road
APN: 258-300-019

Project Description:
The project involves the installation of six panel antennas on a 12-foot high "top hat" extension that would be located on top of an existing PG&E transmission tower. The tower with the "top hat" extension would extend the existing 107.3-foot tower to reach a total height of approximately 116 feet. Also installed on the tower would be three 6449 antenna integrated radio (air) antennas with a centerline height of 45 feet along with six Verizon Wireless radios, two Verizon Wireless Raycap, a microwave antenna with a centerline height of 35 feet, and two hybrid wireless cables. An equipment enclosure consisting of a 19-foot by 19-foot concrete pad with 8-foot-tall composite fencing would enclose the facilities' ground equipment, including an emergency generator, within the base of the PG&E transmission tower. A new transformer would be located on a 4-foot 2-inch by 4-foot 4-inch pad approximately 9 feet west of the equipment enclosure pad along with a 3,000-gallon water tank. The project would be supplied electricity by PG&E. The proposed diesel generator for the project would be rated below 50 brake-horsepower and would operate under two hours per day for occasional maintenance activities. Additionally, the proposed project would include the installation of new Verizon Wireless fiber vaults every 150 feet along Sanders Ranch Road and installation of a new fiber route for approximately 8,600 feet through existing in-road conduits. This work would replace existing Verizon Wireless fiber vaults and fiber routes beneath Sanders Ranch Road.

To provide access to the facility for construction and maintenance, a new 15-foot-wide access driveway constructed of Class II aggregate base would be graded and built approximately 155 feet northwest from near the end of Sanders Ranch Road to the existing PG&E transmission tower to be modified. The new road would be built on some portions of slopes exceeding 20 percent, would be approximately 1,330 feet in length and for approximately 630 feet in length would run adjacent to the Old Moraga Ranch Trail and would also cross a Moraga Open Space Ordinance minor ridgeline.

The total proposed grading for the project is approximately 350 cubic yards of cut and 530 cubic yards of fill, totaling approximately 1,020 cubic yards of grading activities. The maximum cut depth would be approximately 3.6 feet and the maximum fill height would be approximately 4 feet. The total disturbed area of the site would be approximately 0.75 acres.

CONDITIONS OF APPROVAL:

Prior to Building/Grading Permit Issuance

1. The plans submitted for building and grading permits to construct the wireless communication facility and access road shall be substantially in accordance with the plans approved by the Planning Commission on October 3, 2023, and the conditions of this use permit. Minor revisions to the plans may be approved administratively by the Planning Director. Any significant changes to the plans will require re-submittal to the Planning Commission for approval.

2. These conditions of approval and the mitigation measures of the mitigation monitoring and reporting plan shall be printed on the first or second sheet of each plan set submitted for a building or grading permit pursuant to this approval, under the title 'Conditions of Approval.' Subsequent sheets may also be used if the first sheet is not of sufficient size to list all the conditions. The sheet(s) containing the conditions shall be the same size as those sheets containing the construction drawings; 8- 1/2" by 11" sheets are not acceptable. The applicant shall provide a written response to each condition and how it is addressed by the applicant.

3. The Moraga-Orinda Fire District shall review and approve the construction plans. Verification of MOFD approval shall be submitted to the Town of Moraga Planning Department.

4. The East Bay Regional Park District shall review the construction plans to determine whether any permits are required by the district per Condition 20 of this permit. Verification of East Bay Regional Park District review and their determination shall be submitted to the Town of Moraga Planning Department.

5. A Construction & Demolition Debris Recycling Waste Management Plan Acknowledgement Form shall be submitted to the Planning Department prior to issuance of the grading or building permit for the project.

6. All applications involving the hauling of more than 500 cubic yards shall require a permit issuable by the Town Council following notice to interested parties in accordance with Town Council Resolution 02-83. Prior to issuance of a grading permit, the applicant shall obtain a hauling permit.

7. The project shall fully comply with the Town's Stormwater Management and Discharge Control Ordinance, the Contra Costa Clean Water Program's Stormwater C.3 Guidebook and any amendments thereof, and the requirements of the Regional Water Quality Control Board. As part of these requirements, the applicant shall incorporate Low Impact Development (LID), Integrated Management Practices (IMPs) or Best Management Practices (BMPs) to the maximum extent practicable into the design of this project, implement them, and provide for perpetual operation and maintenance for all treatment IMPs/BMPs.

8. All construction plans (including, but not limited to, site, improvement, structural, mechanical, architectural, building, grading and landscaping plans) shall comply with the approved Stormwater Control Plan (SWCP), the Town's Stormwater Management and Discharge Control Ordinance, the "C.3 Guidebook" and the requirements of the Regional Water Quality Control Board. All construction plans shall include details and specifications necessary to implement all measures of the SWCP, subject to the review and approval of the Public Works Department. To ensure conformance with the SWCP, the applicant shall submit a completed "Construction Plan C.3 Checklist" indicating the location on the construction plans of all elements of the SWCP as described in the "C.3 Guidebook."

9. Prior to the start of any grading, an erosion control plan shall be submitted for approval to the Town and such other interested agencies as the Town may direct. The plan shall be designed to limit erosion of all disturbed portions of the property and to eliminate the transport of soil onto adjacent properties or into streets, storm drains, or drainage ways. The plan shall have:
    a. Name, address, and a 24-hour phone number of the owner or responsible party, and the person or contractor responsible for construction activities, installing and maintaining the site's BMPs, and performing emergency BMP deployment work.
    b. The name, address and signature of the civil engineer or person who prepared the plan.
    c. BMPs shall be site specific, phase and season appropriate. Show the location of all proposed erosion and sediment control BMPs, non-stormwater control BMPs, and waste management control BMPs. Show the location and placement of BMPs such as gravel bags, diverters, check dams, slope planting, drains, and other BMPs.

10. Prior to the start of any grading, the Applicant shall install all erosion control measures shown on the approved erosion control plans.

11. Prior to the start of any grading, the Applicant shall submit to the Town a copy of the grading permit obtained from Contra Costa County.

12. Prior to the start of any grading, a pre-work meeting shall be held with a representative of the Applicant, the grading and/or hauling contractor(s), the project geotechnical engineer, the project engineer, the Town's consulting geotechnical engineer, the Contra Costa County Grading Inspector, and staff representing the Public Works Department and Planning Department of the Town of Moraga. The purpose of the meeting will be to review the conditions of approval for the project and ensure that the individuals doing the work and those inspecting it are aware of all the requirements.

During Construction

13. All grading operations should be completed before the wet season (October 15 through April 15). Should any slopes remain exposed or sparsely vegetated, or should any grading operation be considered during the wet season, the Town may approve wet season grading if all of the following conditions are met:
    a. An erosion control plan shall be submitted for approval to the Town and such other interested agencies as the Town may direct. The plan shall have site specific, phase and wet season appropriate best management practices.
    b. A letter from the project geotechnical engineer or certified engineering geologist stating that such grading is acceptable and will not create a hazard to life, limb, property and public welfare.
    c. Wet weather best management practices (BMPs) for grading operations in conformance with approved plans and SWPPP have been placed and approved by the town and installed and are kept continuously in place.
    d. A bond for $10,000 shall be provided to the Town, guaranteeing maintenance of the erosion control measures and to provide assurance to the Town for payment of any fines imposed by the Regional Water Quality Control Board due to the Applicant's failure to control erosion on the site.
    e. The Town of Moraga shall be authorized to draw against the bond for erosion control and to take appropriate action as may be required to protect off-site properties or water quality under the following circumstances:
        i. The Applicant has, in the Town's opinion, failed to install or maintain the erosion control measures in accordance with the approved plan.
        ii. The installation, correction, or correction of erosion control measures is not proceeding per the approved schedule.
        iii. The Town Engineer finds that an emergency situation exists or is threatened whereby damage to off-site properties or water quality may result due to the discharge of soils, earthen material, or debris.

14. Noise-generating construction and grading activities shall take place on weekdays only between the hours of 8:00 AM and 5:00 PM. No construction or grading activities are permitted on Saturdays, Sundays or Town observed holidays, unless it is an emergency and prior Town approval has been obtained.

15. Dust control and equipment wash-down shall be done with Title 22 recycled water and contained on-site. Runoff from these procedures shall not be allowed to flow onto adjoining properties or into the Town's storm drain system.

16. The applicant and its contractors shall be responsible for preventing spills of any demolition debris or construction materials on Town streets. If any spills of debris occur, then the applicant will be held responsible for the immediate cleanup of the spill and repair of any damage that may have been done to the street. All corrections shall be made to the satisfaction of the Town Engineer.

17. If underground utilities leading to any adjacent properties are uncovered and/or damaged or broken at any time during construction, the applicant and the contractor involved shall immediately notify the Public Works Department and the appropriate agency/ies and carry out any corrective action to its/their satisfaction.

Prior to Building Permit Final

18. Graded areas outside of the road and structure footprints shall be hydroseeded with a native seed mix, subject to approval of the Planning Department.

19. The Planning Department shall conduct a final inspection of the site to verify compliance with the project plans and conditions of approval.

At All Times

20. Should work be proposed or conducted within the alignment of the existing Old Moraga Ranch trail which is maintained by the East Bay Regional Park District, or any formal or informal access points to the trail from Sanders Ranch Road, the following conditions shall apply:
    a. If construction would close the Old Moraga Ranch Trail, or the informal walk-in entrance the public uses to access the trail, the applicant shall implement a public notification plan, approved by the East Bay regional Park District, to inform the public of the dates and lengths of the trail closure no sooner than 30-days prior to the implementation date.
    b. The proposed bull gate should not block pedestrian, bike, or equestrian users from accessing the trail. If it would, the applicant will need to modify the date design, or add a 4-foot-wide minimum trail gate, or another entry structure that will allow pedestrians, bikers and equestrians to access the trail. The park district will take no responsibility for maintaining or replacing either the vehicle or trail gate. The Park District requests a legal contract to be put into place that Verizon will promptly replace a damaged gate to prevent illegal access to the trail by the public's vehicles.
    c. Vehicles should not travel faster than 5 mph, should yield to all trail users, and should use extreme caution when using the access road. Speed limit signs should be posted by Verizon.
    d. A minimum of two (2) wayfinding signs should be installed by Verizon at the junctions of the proposed access road and the Trail to guide trail users and prevent them from accidentally following the access road and not the Trail. Any existing drainage issues within 100-feet of the junction should be repaired and the improvements should conform seamlessly.
    e. Maintenance of improvements to the Old Moraga Ranch Trail. Any improvements to the Trail that are made as part of the project to accommodate Verizon vehicles and equipment, and any structures or new surfacing that are proposed by the applicant and approved by the Park District review team and the Town of Moraga will not be the responsibility of the Park District staff to maintain. For example, maintenance of the Class

II aggregate base surface and the proposed retaining wall should fall to Verizon in perpetuity.

f. Maintenance agreement. A legal maintenance agreement shall be put in place prior to construction that names Verizon as the responsible party to maintain this stretch of Trail so long as the communications facility is in operation. Verizon shall be required to respond to any maintenance concerns or repairs within 10 working days of being notified.
g. Future trail modifications. Any proposed changes or improvements to the Trail or Trail infrastructure made by Verizon or future facility operators shall be coordinated with and approved by the Park District and maintained by the communications facility operator.

21. Every ten years, the permit holder shall provide the following to the Town:
    a. Verification of continued compliance with the conditions of approval.
    b. Demonstration that the Verizon facility has been upgraded to the greatest extent permitted by the technology that exists at the time.
    c. Consistency of the facility with the provisions of federal law.

22. The applicant shall conduct an on-site RF-EME test (not computer modelling) of the operating facility to verify compliance with FCC standards and submit the test report to the Town within 30 days after the new equipment has been installed and operational, and annually thereafter. The test shall be done including all collated facilities during normal business hours and on a non-holiday weekday with the Verizon facility operating at maximum power which shall measure total emissions from the site. Current photos of the facility shall be taken during onsite testing and included in the report.

23. The permit holder shall conduct annual tests to verify compliance with FCC radio frequency emissions standards and provide such test results to the town. Such testing shall be conducted during normal business hours and on a non-holiday weekday with the facility operating at maximum power and shall measure total emissions from the cell site. The annual test results are to be conducted as follows:

    a. Test results shall be from actual onsite testing rather than computer modelling.

    b. Current photographs of the facilities shall be taken during onsite testing and submitted with the test results to the Town to confirm continued compliance with conditions of approval; including signs, fencing and required screening vegetation.

24. If the radio frequency emission test results exceed the FCC standards or scientific and/or medical data determine the wireless telecommunications operation to be detrimental to the health and safety of the citizens of Moraga, the Town shall reserve the right to revoke the conditional use permit if corrective changes to the facility cannot be made within a timeframe determined by the Planning Director.

25. The wireless facility shall be maintained and operated in such a manner as to minimize noise impacts on nearby residents and the public. Noise reduction shall be accomplished through the following measures:

    a) The maximum allowable (peak level) exterior noise level shall be 60 dB measured at the property line of the facility.

    b) Maintenance or testing of the facility that creates audible noise that could be heard from residences in the vicinity shall occur only between the hours of 8:00 a.m. to 5:00 p.m. Monday through Friday, excluding emergency repairs.

    c) Backup generators shall comply with the same noise standards referenced above and shall only be operated during power outages, emergency occurrences, or for testing and maintenance in accordance with condition 17.b. above.

    d) Mechanical equipment, such as air conditioning units, pumps, etc., shall be designed so that average sound levels do not exceed 40 dB(a) outside the nearest existing residences between 10:00 p.m. and 7:00 a.m., or 45 dB(a) between 7:00 a.m. and 10:00 p.m. Noise associated with the communication equipment shall not be perceptible from off-site.

26. All antennas and equipment of the Verizon facility mounted on the PG&E transmission tower shall have a non-reflective finish and be painted the same color as the PG&E transmission tower.

27. The equipment shelter shall be painted brown with non-reflective finish, and the water tank green as shown on the submitted photo simulations (Version Date: August 14, 2023).

28. The applicant shall ensure compliance with all of the conditions of approval. Failure to comply with any condition may result in construction being stopped, issuance of a citation, and/or modification or revocation of the approval.

29. The approved construction is subject to, and shall comply with, all applicable Town Ordinances and laws and regulations of other governmental agencies.

30. The applicant shall apply for and pay all appropriate fees for building permits, plan checks and inspections.

31. Any exterior lighting used by technicians shall be manually operated and used only during night maintenance or emergencies. The lighting shall be constructed or located so that only the intended area is illuminated, and off-site glare is fully controlled.

32. This permit and each condition contained herein shall be binding upon the applicant and any transferor, or successor in interest.

33. All equipment associated with this wireless communication facility shall be removed within thirty days of the discontinuation of use and the site shall be restored to its original preconstruction condition in a manner consistent with continued use by any collocated facility. The Town shall be given thirty (30) days' notice of intent to discontinue use of the facility prior to discontinuation of use.

34. Initial Study – Mitigated Negative Declaration (IS-MND) Mitigation Compliance. All required mitigation measures identified in the IS-MND (SCH# 2023080783) shall be implemented and monitored in accordance with the adopted Mitigation Monitoring and Reporting Program (MMRP).

35. The applicant and/or property owner agree to defend, indemnify, and hold harmless the Town of Moraga, its agents, officers, council members, employees, boards, commissions, and Council from any and all claims, actions or proceedings brought against any of the foregoing individuals or entities, seeking to attack, set aside, void or annul any approval of the application or related decision, or the processing or adoption of any environmental documents or negative declarations which relate to the approval. This indemnification shall include, but is not limited to, all damages, costs, expenses, attorney fees or expert witness fees that may be awarded to the prevailing party arising out of or in connection with the approval of the application or related decision, whether or not there is concurrent, passive or active negligence on the part of the Town, its agents, officers, council members, employees, boards, commissions, and Council. If for any reason any portion of this indemnification agreement is held to be void or unenforceable by a court of competent jurisdiction, the remainder of the agreement shall remain in full force and effect. The Town of Moraga shall have the right to appear and defend its interest in any litigation arising from the approval of the application or any related decision through its Town Attorney or outside counsel selected by the Town Attorney. The applicant shall be required to reimburse the Town for attorney's fees incurred by the Town in connection with the litigation.

36. The use permit will automatically expire on October 3, 2024. If a building permit is not issued by October 3, 2024, the use permit becomes null and void. However, this discretionary action may be renewed by the Planning Director for a maximum period of one (1) year provided the applicant places such a request in writing to the Planning Director with a showing good cause.

ATTACHMENT C

Sanders Ranch Homeowners Association Letter of Support

SANDERS RANCH HOMEOWNERS ASSOCIATION
2 SANDERS RANCH RD, MORAGA, CA 94556
315 DIABLO ROAD, SUITE 221, DANVILLE, CA 94526

May 10, 2022

Town of Moraga
Design Review Board, Planning Commission and Town Council
329 Rheem Blvd.
Moraga, CA 94556

Re: Support for SAC Wireless/Verizon Wireless Communications CUP
for APN 258-300-019-1

The Sanders Ranch Homeowners Association ("SRHOA"), representing 273 residences in the southern portion of town, **fully supports the above-captioned application** for a wireless communications cellular facility as submitted.

The SRHOA has worked for over three years with SAC Wireless, PG&E and Verizon to bring improved cellular coverage to the Sanders Ranch community and southern Moraga, where coverage presently is nonexistent or has major gaps. As you are no doubt aware, these coverage gaps have significant public safety and quality-of-life implications that SRHOA has endeavored for years to address for our own and neighboring residents.

Our work with SAC Wireless, PG&E, and Verizon has included numerous open HOA meetings and discussions with individual and groups of residents and has resulted in the aforementioned application that will site a facility in an acceptable location (with an acceptable design) that is *not* in objectionable proximity to homes. We believe our work and discussions with the applicant and nearest neighbors will provide critical telecommunications services (with their concomitant benefits) to the broader Moraga community without any adverse visual, audible or other impacts upon neighbors.

We urge the DRB, Planning Commission and Town Council to approve the application as submitted.

Very Truly Yours,

SANDERS RANCH HOMEOWNERS ASSOCIATION

By:



Junaid Mohiuddin
Member of the Board of Directors
Communications Committee Chair

ATTACHMENT D

Alternative Sites Analysis, Engineers RF Statement and
Five-Year Wireless Plan

Alternatives Analysis

Sanders Ranch

Sanders Ranch Road, Moraga



March 9, 2023

Summary of Site Evaluations
Conducted by Verizon Wireless

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Map of Alternatives

I. Executive Summary

Verizon Wireless must fill and significant gap in service in the southern Moraga area. Based on the review of five alternatives set forth in the following analysis, Verizon Wireless believes that placing antennas on an existing PG&E lattice transmission tower (the "Proposed Facility") constitutes the least intrusive feasible alternative to serve the identified gap in network service based on the values expressed in the Moraga Municipal Code (the "Code").

II. Significant Gap

There is a significant gap in Verizon Wireless network service in the southern Moraga area. This includes a lack of reliable in-building coverage in residential areas west and east of Canyon Road south of the Sanders Drive intersection, areas farther south along Larch Avenue and Camino Pablo, and the Sanders Ranch neighborhood. In-vehicle service is lacking along local roadways, including significant stretches of Larch Avenue and Camino Pablo as well as the entire length of Sanders Ranch Road. In the southern portion of the gap, there is no reliable coverage whatsoever. (Collectively, the "Significant Gap").

To remedy the Significant Gap, Verizon Wireless must place a new facility to ensure reliable network service. The Proposed Facility will provide new, reliable in-building coverage in residential areas and reliable in-vehicle service along local roadways where lacking. The Significant Gap and the Proposed Facility coverage are more fully described in the *Statement of Verizon Wireless Radio Frequency Design Engineer Stefano Iachella* (the "RF Engineer's Statement").

III. Methodology

Once a significant gap has been determined, Verizon Wireless seeks to identify a location and design that will provide required network service through the "least intrusive means" based upon the values expressed by local regulations. In addition to seeking the least intrusive alternative, sites proposed by Verizon Wireless must be feasible. To this end, Verizon Wireless reviews the available height, equipment space, radio frequency propagation, proximity to end users, elevation, local topography, environmental impacts and other factors such as a willing landlord in completing its site analysis.

Code Requirements

The Code requires a description of the site selection process, including coverage objectives and alternatives. Code § 8.144.030(H). Wireless facilities are permitted in all zones upon approval of a conditional use permit. Code § 8.144.080.

The Code requires collocation with existing facilities if possible and aesthetically desirable, encouraging collocation with utility poles or other structures if that would minimize overall visual impact. Code § 8.144.030(D). Collocation is defined to include placement on utility facilities and structures. Code § 8.144.020.

Siting in business or commercial districts is encouraged. Code § 8.144.040. Siting in residential districts is prohibited unless there is no alternative to provide adequate coverage. Code § 8.144.050. The Code prohibits antennas and equipment closer than 300 feet from a residential structure, and closer than 100 from a residential property line. Code § 8.144.030(I).

In open space and MOSO open space districts, wireless facilities may not be located within 500 feet of a major ridgeline, on the crest of minor ridgelines over 800 feet in elevation, at a location where an antenna silhouette would be visible above the ridge as viewed from lower-elevation public views, or on slopes over 20 percent in MOSO open space, unless there is no other optimal location to provide adequate coverage and strict compliance would violate federal law. Code §§ 8.144.060(A), (B).

Coverage Map Explanation

Coverage maps are provided to illustrate why certain alternatives could not serve the Significant Gap. Coverage maps depict the anticipated level of signal, and therefore the projected coverage provided by a wireless facility at a given location. The coverage maps in this analysis have been prepared using the low-band 700 MHz frequency band, which provides the broadest coverage.

Referenced signal receive power (RSRP) is a measurement of signal level in decibel milliwatts (dBm), which is a negative number that decreases due to distance and other factors.

The RSRP coverage thresholds are:

In-building >= -85 dBm. Green depicts good coverage that meets or exceeds thresholds for reliable network coverage in homes and in vehicles.

In-vehicle >= -95 dBm. Yellow depicts reliable in-vehicle coverage only.

Outdoor >= -105 dBm. Red depicts reliable outdoor service only.

Unreliable < -105 dBm. Gray indicates unreliable service levels.

IV. Analysis

Summary

Following the Code's direction, Verizon Wireless first investigated opportunities to collocate on existing wireless facilities or utility structures. The closest existing wireless carrier facilities are 0.9 miles north of the Proposed Facility and include Verizon Wireless's Moraga facility.

Within the gap area, Verizon Wireless readily identified an existing utility structure available for collocation, a PG&E lattice transmission tower on a non-residential property near the center of the gap. There are already numerous wireless facilities collocated on PG&E towers within Moraga and the surrounding communities. Verizon Wireless also reviewed the two PG&E towers to the north of the Proposed Facility and one to the south, as well as an East Bay Municipal Utility District ("EBMUD") water tank, but those alternatives were either prohibited by the Code or infeasible to serve the Significant Gap.

Verizon Wireless did not consider the closest business and commercial area, which is located one mile northwest of the Proposed Facility at the intersection of Canyon Road and Moraga Way, beyond the gap area.

By locating in the OS-M–MOSO open space zone, Verizon Wireless avoided siting in a residential zone, and the Proposed Facility exceeds the required setbacks from residences and residential property lines. Because the Proposed Facility satisfies the Code's preference to collocate on an existing structure, Verizon Wireless did not consider placement of a new tower, which would be more intrusive.

Collocations with Existing Wireless Facilities

Verizon Wireless first investigated collocation with existing wireless facilities, but found no wireless carrier facilities within the gap area. As noted, the closest existing wireless carrier facilities are clustered near the EBMUD Carter water tank 0.9 miles north of the Proposed Facility, beyond the gap area. This is the location of Verizon Wireless's existing Moraga facility, which cannot serve the Significant Gap, as described in the RF Engineer's Statement.

Collocations with Existing Utility Structures

Verizon Wireless next considered collocating on existing utility structures, readily identifying the following option, and reviewing four additional alternatives.

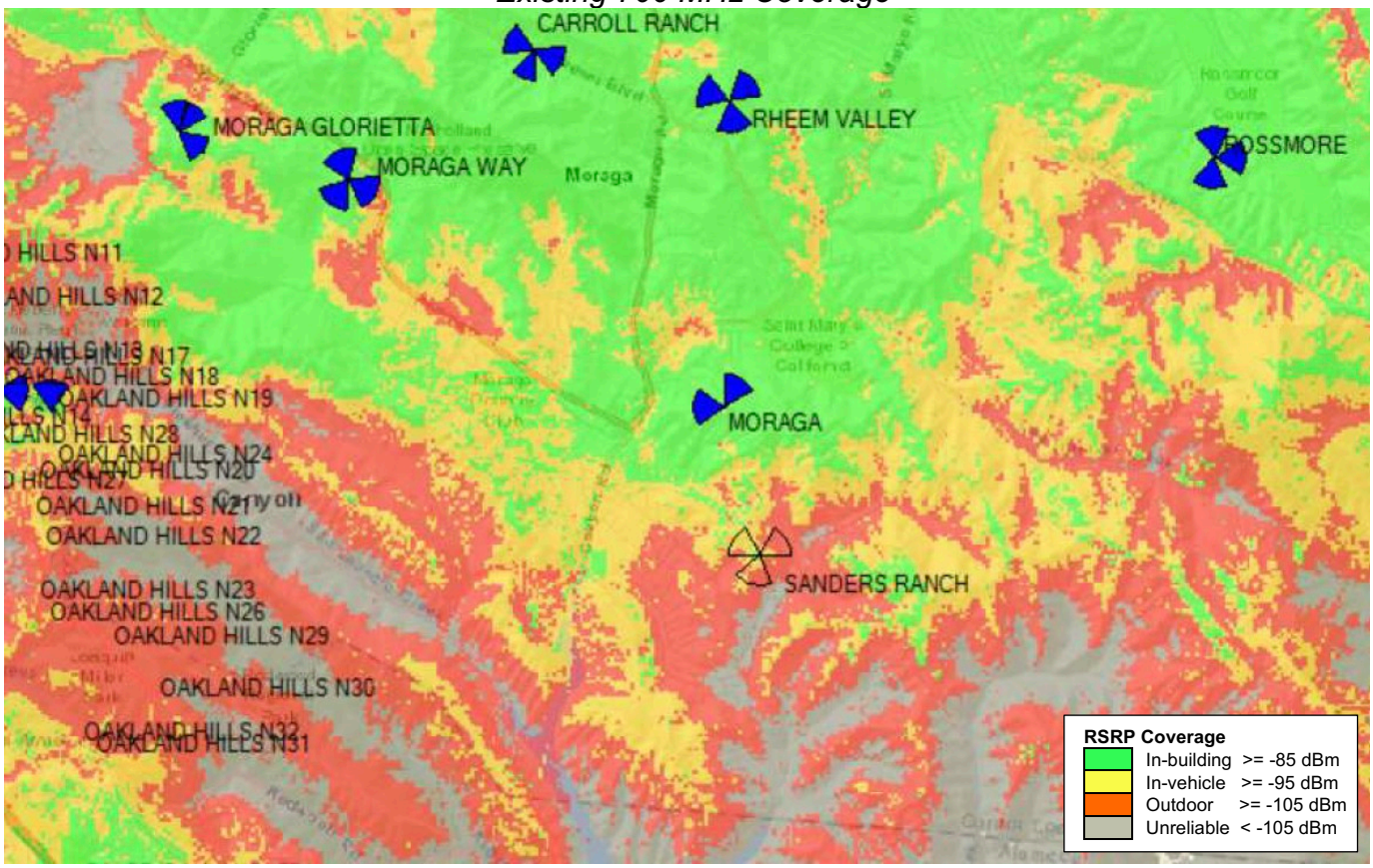
1. Proposed Facility
Address: Sanders Ranch Road, APN 258-300-019
Zoning: OS-M – MOSO Open Space
Elevation: 838 Feet



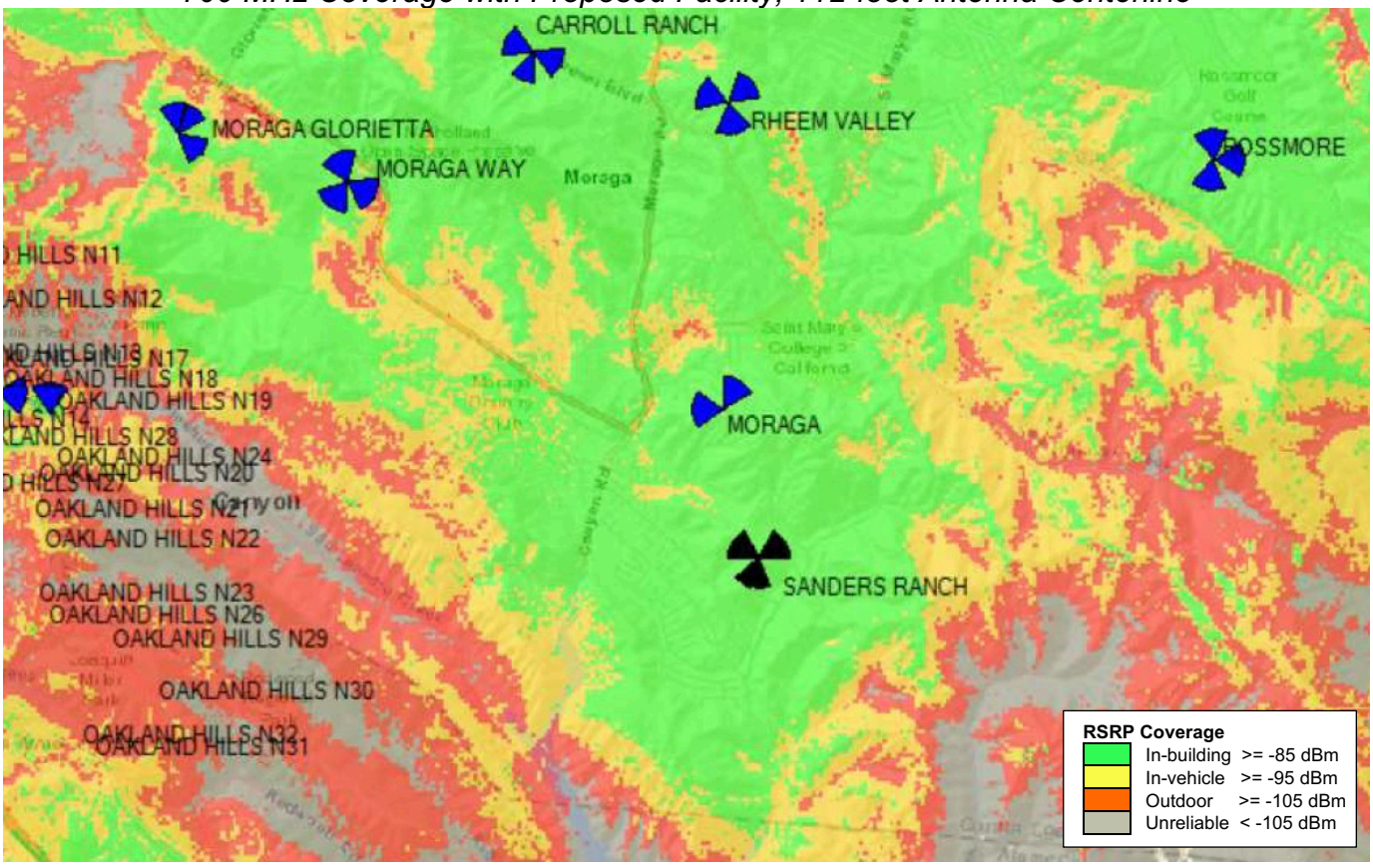
The Proposed Facility has been thoughtfully designed to minimize any impact to the surrounding community. Verizon Wireless proposes to mount six panel antennas on an eight-foot lattice extension above an existing 107.3-foot PG&E transmission tower, for a total height of 115 feet 7 inches. On the tower legs below electric conductors, Verizon Wireless will mount three additional panel antennas at 45 feet, and one small microwave antenna at 35 feet. Verizon Wireless will place associated network equipment on a concrete slab below the tower, including a standby generator that will provide continued service during emergencies. The equipment area will be surrounded by an eight-foot composite fence. Utility connections will be routed underground along a new access road. These improvements will be located entirely within a 100-acre property which is a designated common area owned by the Sanders Ranch Homeowners Association.

With panel antennas placed at 112-foot and 45-foot centerlines at this elevated location, the Proposed Facility will provide new, reliable Verizon Wireless service to the Significant Gap, as shown in the coverage maps below. A detailed comparison of existing and proposed coverage is found in the RF Engineer's Statement. This is Verizon Wireless's preferred location and design for the Proposed Facility.

Existing 700 MHz Coverage



700 MHz Coverage with Proposed Facility, 112-foot Antenna Centerline



2. PG&E Tower to North #1

Address: Sanders Ranch Road, APN 258-300-019
Zoning: OS-M – MOSO Open Space
Elevation: 785 Feet



Verizon Wireless considered this PG&E transmission tower located 0.2 miles northwest of the Proposed Facility on the same parcel, but approximately 85 feet lower in elevation. This tower is located within 110 feet of the nearest residence to the east at 102 Sanders Ranch Road, and within 60 feet of that residential property line. The Code prohibits antennas and equipment closer than 300 feet from a residential structure and 100 feet from a residential property line. Because it could not meet either of these setbacks, a facility at this location would be prohibited by the Code, and cannot be considered a less intrusive alternative to the Proposed Facility.

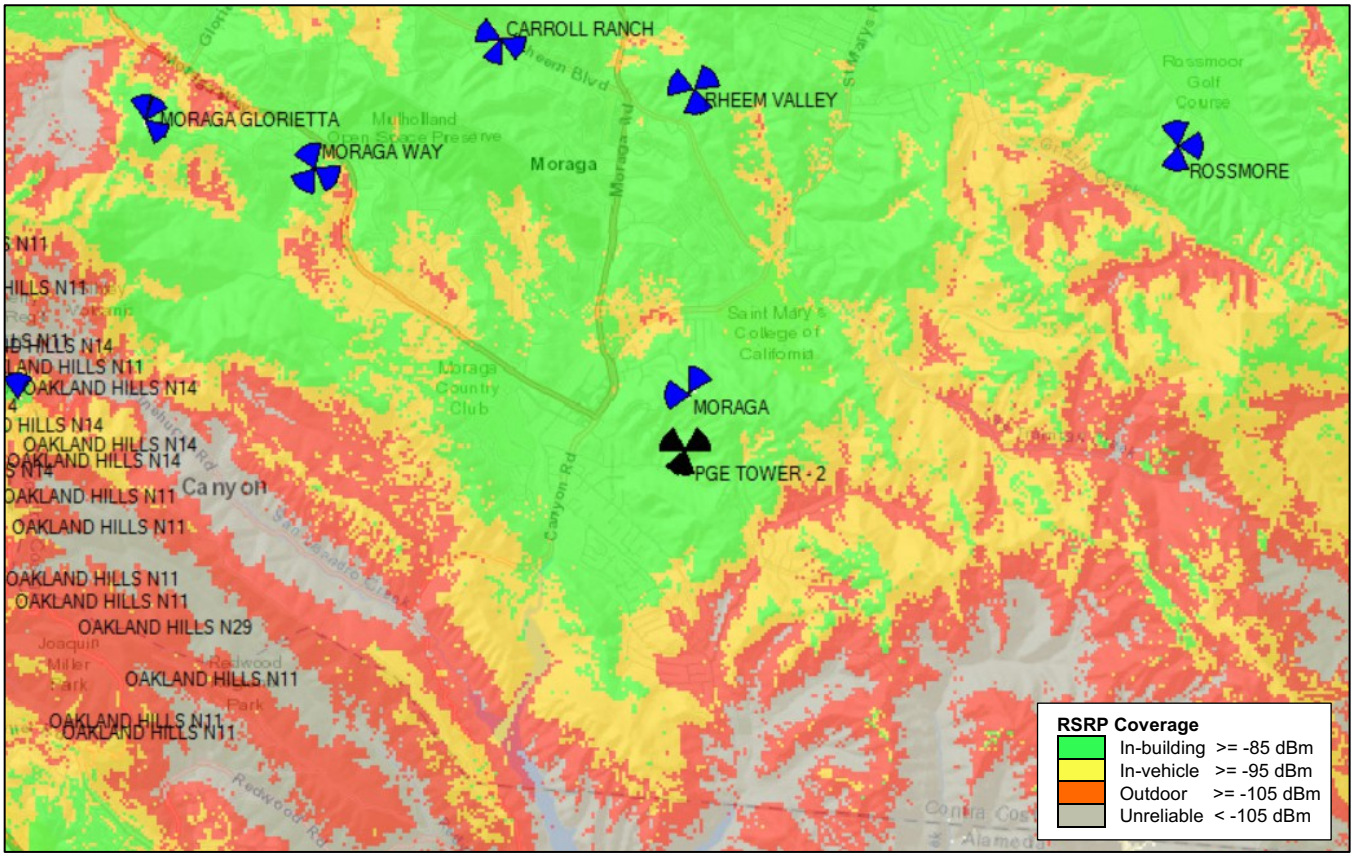
3. PG&E Tower to North #2

Address: East of Hetfield Place, APN 258-160-062
Zoning: OS-M – MOSO Open Space
Elevation: 720 Feet



Verizon Wireless considered this PG&E transmission tower located on a 132-acre property 0.6 miles northwest of the Proposed Facility and approximately 118 feet lower in elevation. This PG&E tower is only 0.3 miles south of Verizon Wireless's existing Moraga facility, which is located on the same parcel. Verizon Wireless RF engineers determined that a facility at this location cannot serve the Significant Gap, largely because signal would be blocked by terrain to the south, including the ridge where the Proposed Facility will be located. As shown on the following map, coverage would be lacking in residential areas along Larch Avenue, Camino Pablo and Rimer Drive south of Eileen Court and Sarah Lane. This is not a feasible alternative to the Proposed Facility.

Coverage from Facility at PG&E Tower to North #2
112-foot Antenna Centerline



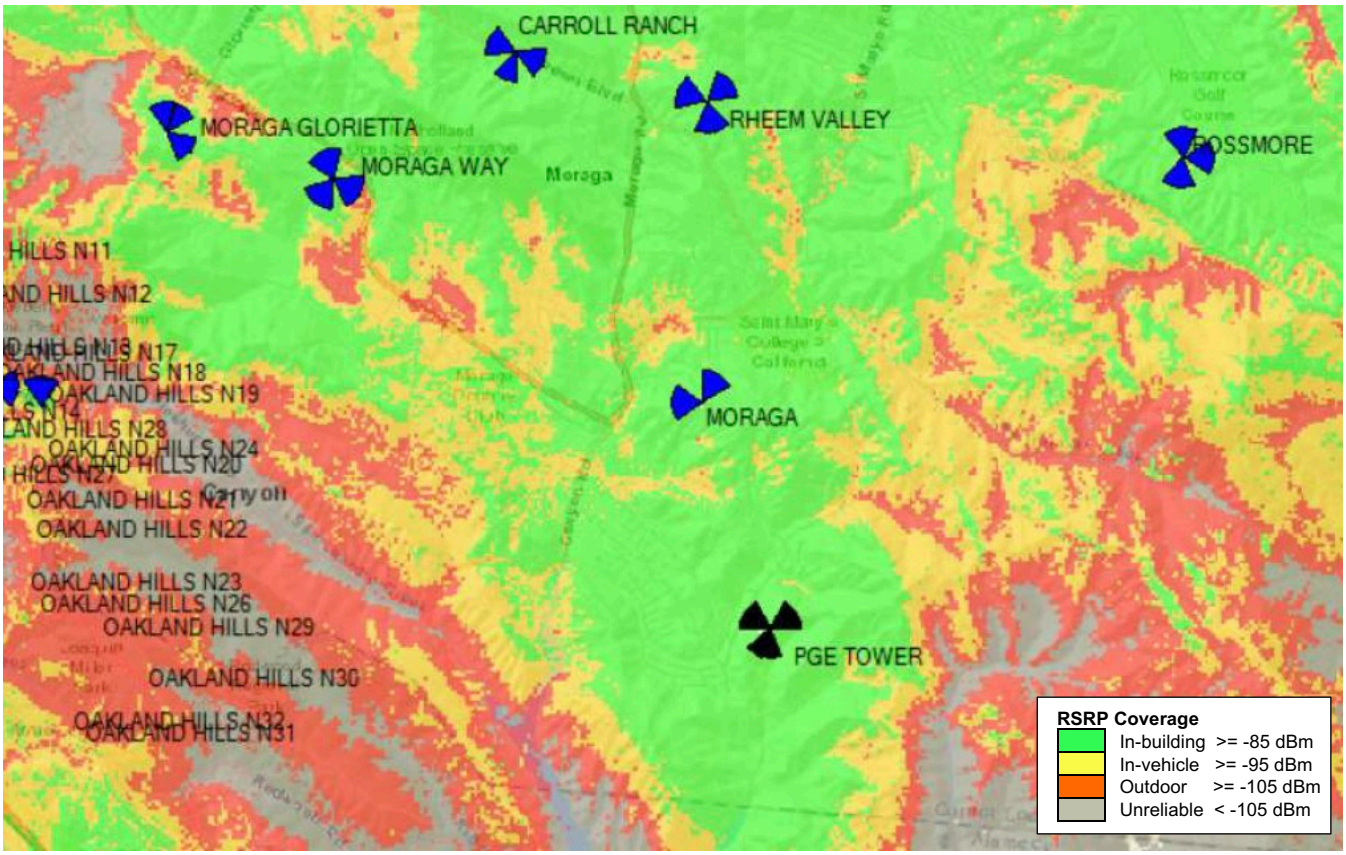
4. PG&E Tower to South

Address: Shannon Court, APN 258-300-005
Zoning: A-2 (Contra Costa County)
Elevation: 815 Feet



Verizon Wireless considered this PG&E transmission tower located on a 338-acre EBMUD property in unincorporated Contra Costa County, 0.5 miles southeast of the Proposed Facility and approximately 25 feet lower in elevation. A wireless facility at this location would require a new access road and underground utilities of similar length to the Proposed Facility, likely extending east across undeveloped terrain to Shannon Court. Verizon Wireless RF engineers determined that a facility at this location south of the coverage objective cannot fully serve the identified Significant Gap, in part because signal would be blocked by terrain to the northwest, including the ridge where the Proposed Facility will be located. As shown on the following map, in-building coverage from this alternative would be deficient in the residential area west of Canyon Road south of its intersection with Sanders Drive, as well in the eastern portion of the Sanders Ranch neighborhood. As compared to the Proposed Facility, this alternative would provide 12 percent less in-building coverage (a reduction of 0.5 square miles in critical areas), and it would serve 30 percent less population (a decrease of 1,120 residents). Accordingly, this is not a viable alternative to the Proposed Facility.

Coverage from Facility at PG&E Tower to South
112-foot Antenna Centerline



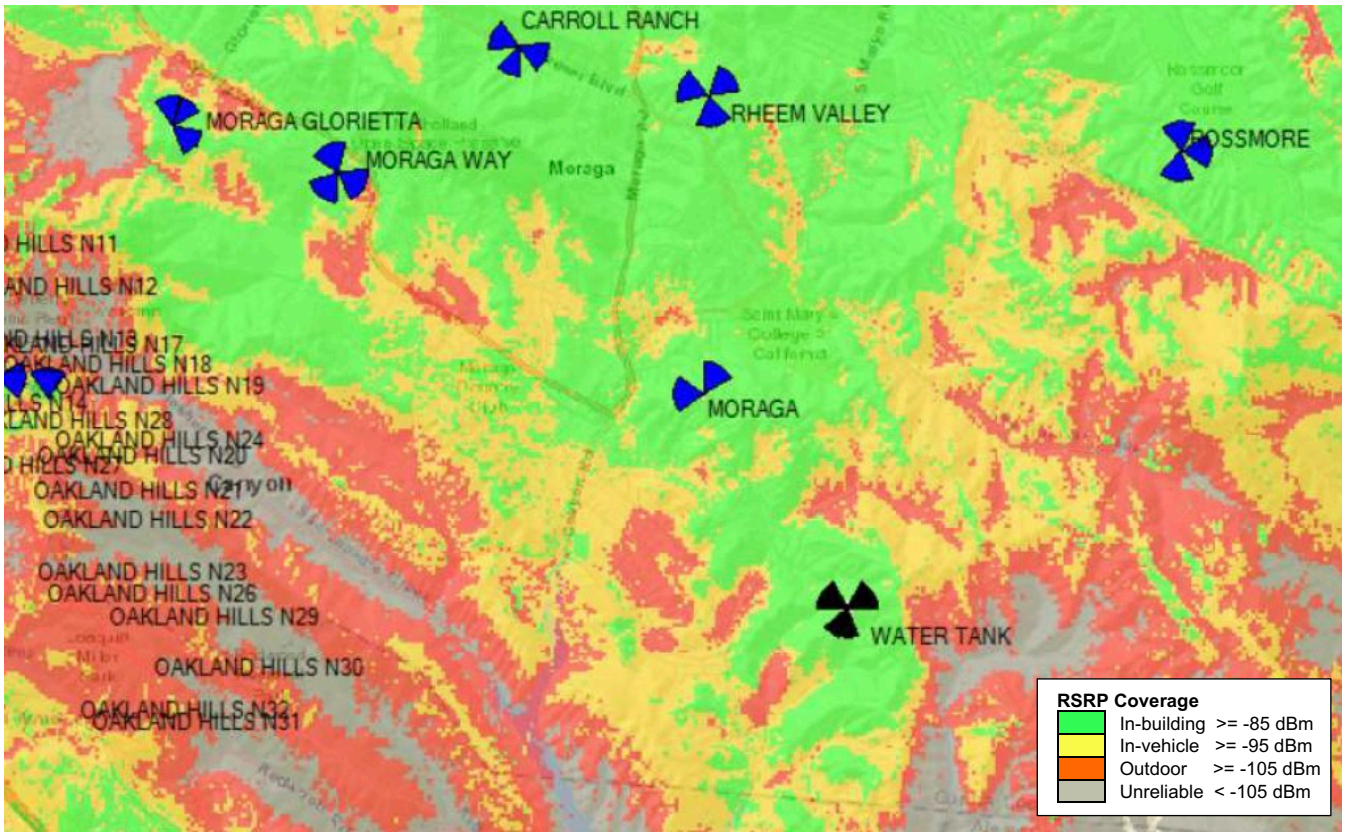
5. EBMUD Arroyo Water Tank

Address: Shannon Court, APN 258-310-002
Zoning: A-2 (Contra Costa County)
Elevation: 925 Feet



Verizon Wireless considered this water tank site located on a 69-acre EBMUD property in unincorporated Contra Costa County, 0.75 miles southeast of the Proposed Facility and approximately 90 feet greater in elevation. Verizon Wireless RF engineers determined that a facility collocated on the water tank at this location southeast of the coverage objective cannot serve the Significant Gap, largely because signal would be blocked by terrain to the west, including the ridge where the Proposed Facility will be located. As shown on the following map, coverage would be lacking in most of the residential areas along Canyon Road south of Sanders Drive, and areas along Larch Avenue and Camino Pablo. This is not a feasible alternative to the Proposed Facility.

Coverage from Facility at EBMUD Arroyo Water Tank
30-foot Antenna Centerline



V. Conclusion

Verizon Wireless has considered five specific alternatives to fill the Significant Gap in service in the southern Moraga area. Based upon the values expressed in the Moraga Municipal Code, the Proposed Facility clearly constitutes the least intrusive feasible location for Verizon Wireless's new facility.

verizon

Sanders Ranch Facility

Alternative Site Locations



verizon
2785 Mitchell Drive
Walnut Creek, CA 94598

October 31, 2022

To: Moraga Planning Department

From: Stefano Iachella, Radio Frequency Design Engineer
Verizon Wireless Network Engineering Department

Subject: Statement in Support of Verizon Wireless's Proposed Facility
100 Sanders Ranch Road

Executive Summary

Verizon Wireless has identified a significant gap in service in southern Moraga. This area currently receives inadequate service from distant existing Verizon Wireless facilities: the Rheem Valley facility 2.5 miles north, and the Moraga Way facility in Orinda 3.0 miles northwest, both on PG&E transmission towers. While the closest existing facility is the Moraga facility 0.9 miles north, it is located beyond the crest of a hill. The Rossmore facility 3.3 miles east and the Oakland Hills facilities over 3.5 miles west cannot serve the gap due to great distance and intervening topography. There are no facilities in the vacant area to the south.

Due to the distance from the existing facilities and intervening topography, there is a gap in reliable service coverage and a lack of strong dominant signal in the southern Moraga area, resulting in slow data speeds and unreliable service.

In the Moraga area, the vast majority of Verizon Wireless's bandwidth is in the mid-band AWS, PCS and C-Band frequencies, with a smaller amount in the low-band 700 MHz and 850 MHz frequencies. The low-band frequencies travel farther and are essential for providing reliable coverage to a target service area to ensure that customers can access the network. Mid-band frequencies supplement coverage and provide additional data capacity. Together, reliable low-band and mid-band service are important for residents, visitors, users in transit, and contact with emergency response personnel.

I describe below the significant gap in coverage that Verizon Wireless seeks to remedy (the "Significant Gap"). To provide reliable coverage and strong dominant signal, the Significant Gap must be remedied through construction of a new facility on an existing PG&E lattice transmission tower (the "Proposed Facility").

Verizon Wireless Bandwidth by Frequency – Moraga Area

	Band	FCC Designation	Frequency Band	Bandwidth	Percent of Total Bandwidth
Low-band	700 MHz	UHF Low Band	700 MHz	22 MHz	12.08 %
	850 MHz	Cellular	850 MHz	20 MHz	10.99 %
Mid-band	PCS	Personal Communications Service	1900 MHz	20 MHz	10.99 %
	AWS	Advanced Wireless Service	2100 MHz	60 MHz	32.97 %
	C-Band	C-Band	3700 MHz	60 MHz	32.97 %

Verizon Wireless Services

Verizon Wireless provides personal wireless services, a category of "telecommunications services," which include voice services that allow users of mobile, handheld telephones to place and receive calls to other mobile and landline telephone users through the national, switched telephone network using conventional telephone numbers. This includes the ability of such users to connect to emergency personnel by dialing 911. Verizon Wireless's network also provides information services through its wireless facilities, which will include the Proposed Facility. These information services include wireless broadband, mobile data networks, and connection to the internet, which Verizon Wireless provides using the same infrastructure as its personal wireless services.

Coverage Gap

Verizon Wireless is experiencing a gap in its service coverage in the southern Moraga area. Reliable 700 MHz in-building service is lacking in residential areas west and east of Canyon Road south of Sanders Drive, the residential areas farther south along Larch Avenue and Camino Pablo, and the Sanders Ranch neighborhood.

Reliable 700 MHz in-vehicle service is lacking on a 1.2-mile stretch of Camino Pablo east of Dickenson Drive extending to Rancho Laguna Park (with 4,725 vehicle trips per day), a 1.0-mile stretch of Larch Avenue east of Lynch Court extending to Camino Pablo (with 1,280 vehicle trips per day), and the entire 1.4-mile stretch of Sanders Ranch Road east of Camino Pablo. *Town of Moraga Engineering and Traffic Surveys for Speed Limits,* March 2013.

Within these areas, there is also a lack of reliable AWS service, including a near-complete lack of AWS service in residential areas along Larch Avenue and Camino Pablo. In the southern portion of the gap, in areas near the junction of Camino Pablo and Sanders Ranch Road, there is no reliable service whatsoever in any frequency band.

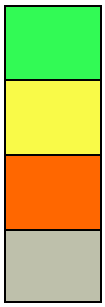
To remedy the Significant Gap, Verizon Wireless must place a new facility to ensure reliable network service. The Proposed Facility will provide new, reliable

700 MHz service where lacking in the residential areas along Canyon Road, Larch Avenue and Camino Pablo, as well as the Sanders Ranch neighborhood. It will also provide new, reliable 700 MHz in-vehicle service to local roadways where lacking, as described above. Additionally, the Proposed Facility will provide new reliable AWS service within the gap area. In total, the Proposed Facility will provide reliable in-building coverage above -85 dBm to an area of 4.2 square miles with a population of 3,700.

A graphic description of the coverage gap is shown on the following coverage map, followed by a map showing the improved coverage to be provided by the Proposed Facility. Maps have been prepared for each the 700 MHz and AWS frequency bands. With similar frequencies, the low-band 700 MHz and 850 MHz bands have similar propagation characteristics, as do the mid-band PCS, AWS and C-Band bands.

Referenced signal receive power (RSRP) is a measurement of signal level in decibel milliwatts (dBm), which is a negative number that decreases due to distance and other factors.

The RSRP coverage thresholds on the coverage maps are:



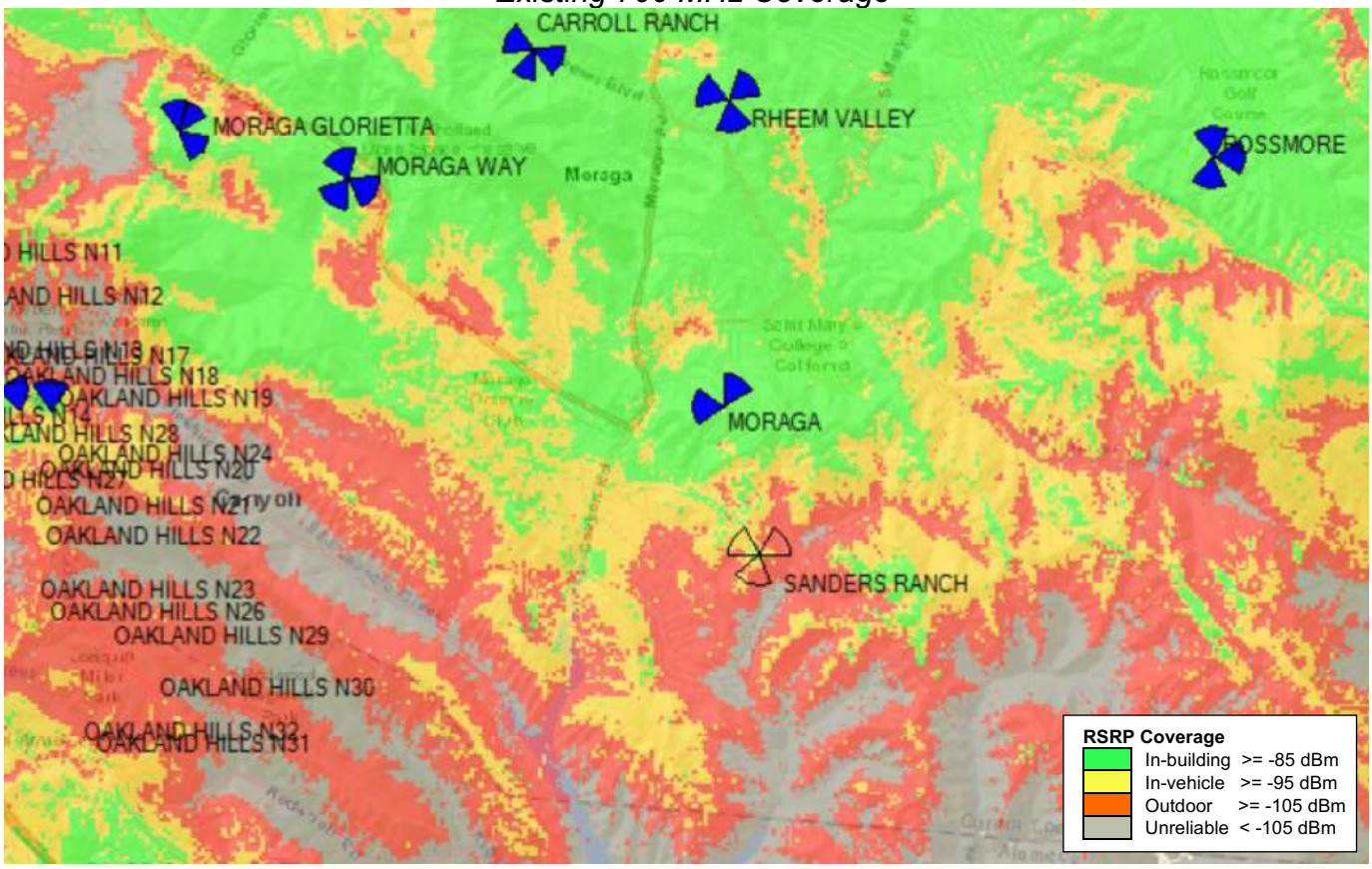
In-building >= -85 dBm. Green depicts good coverage that meets or exceeds thresholds for reliable network coverage in homes and vehicles.

In-vehicle >= -95 dBm. Yellow depicts reliable in-vehicle coverage only.

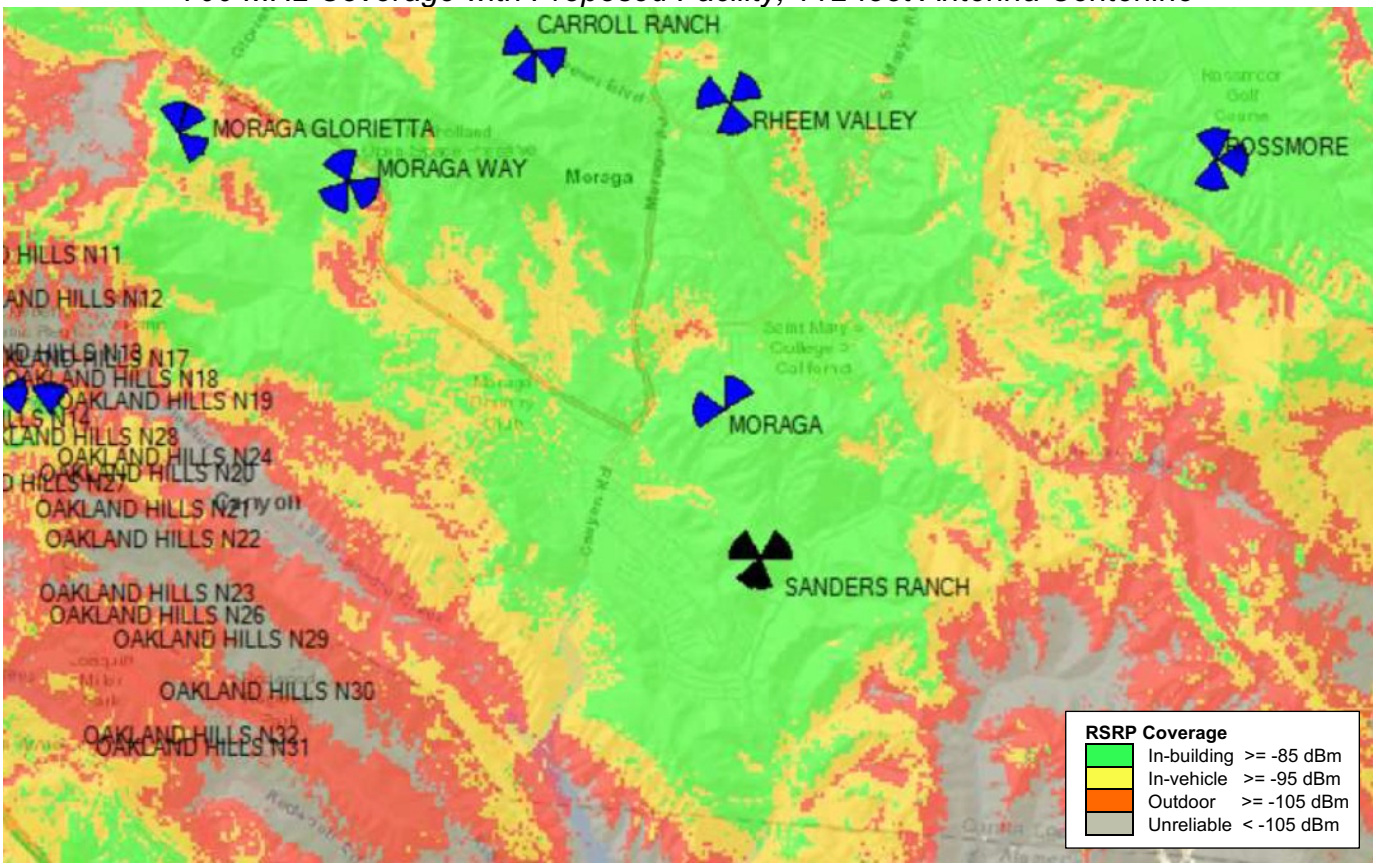
Outdoor >= -105 dBm. Red depicts reliable outdoor service only.

Unreliable < -105 dBm. Gray depicts unreliable service levels.

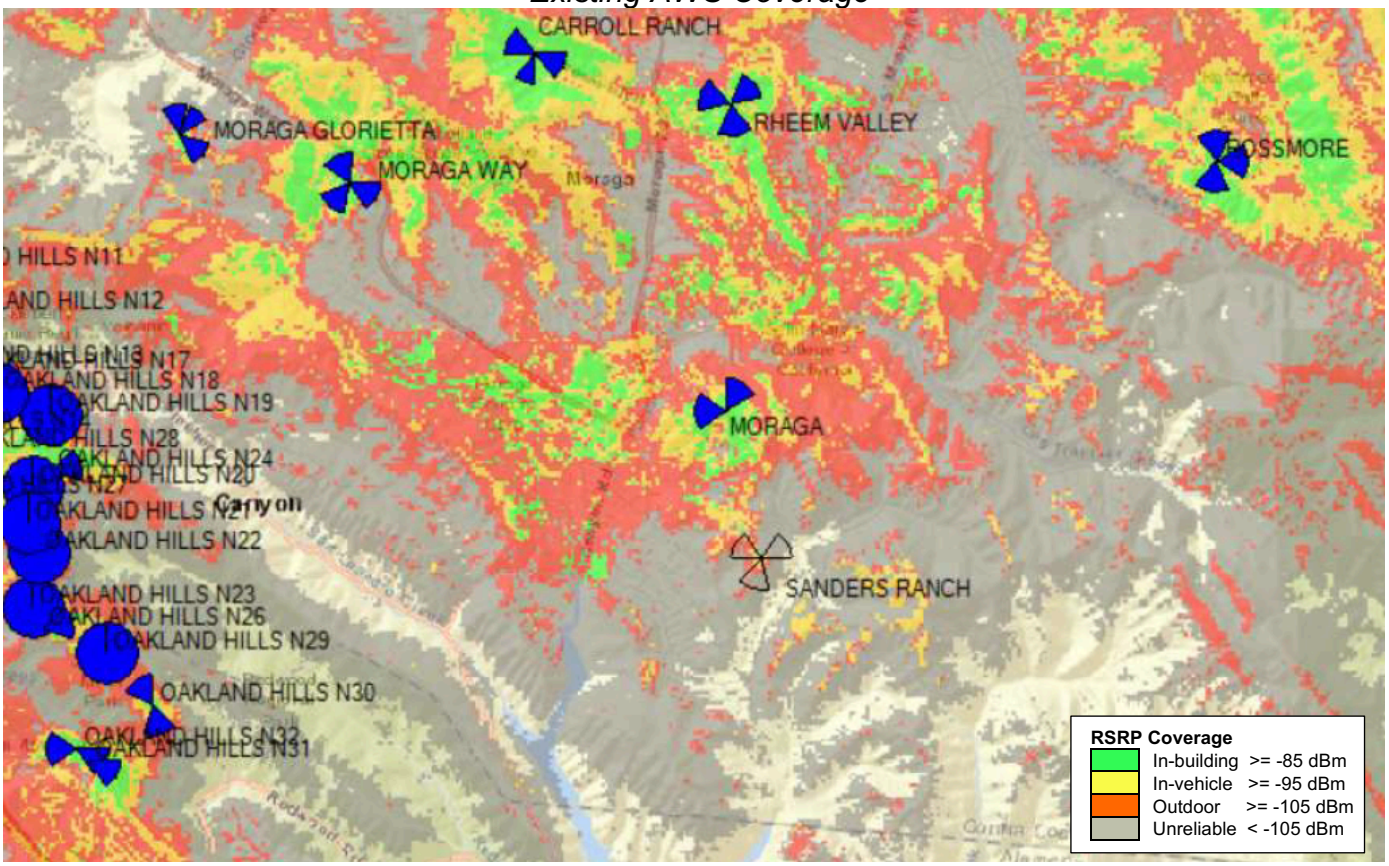
Existing 700 MHz Coverage



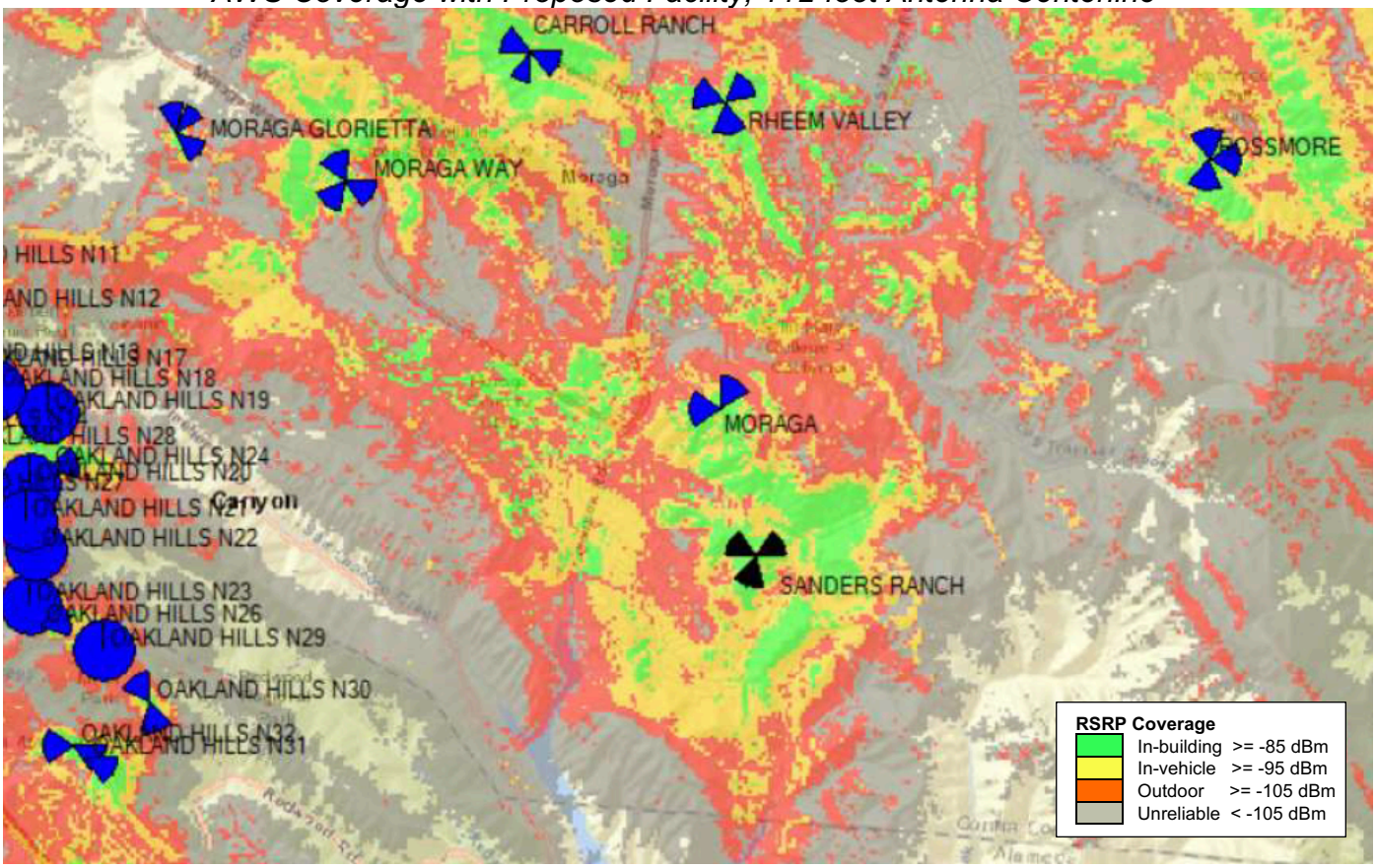
700 MHz Coverage with Proposed Facility, 112-foot Antenna Centerline



Existing AWS Coverage



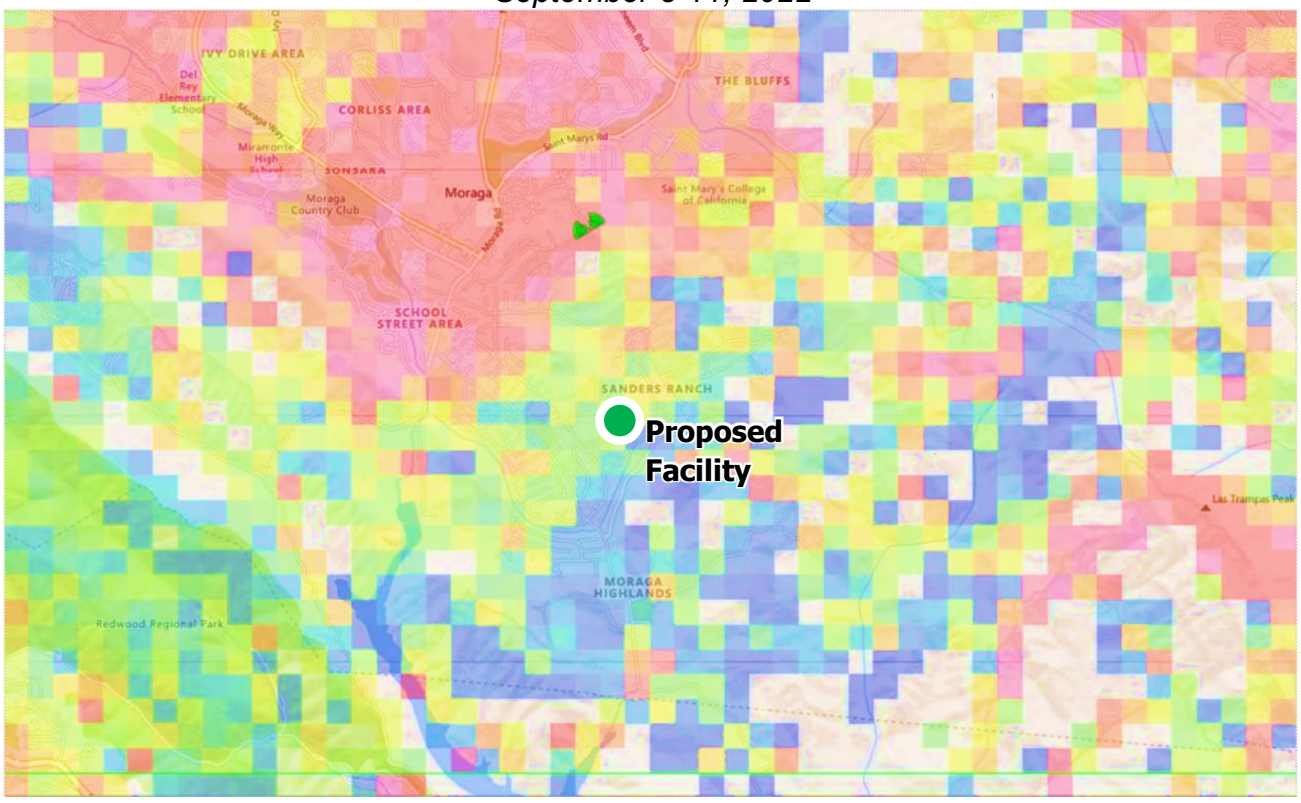
AWS Coverage with Proposed Facility, 112-foot Antenna Centerline

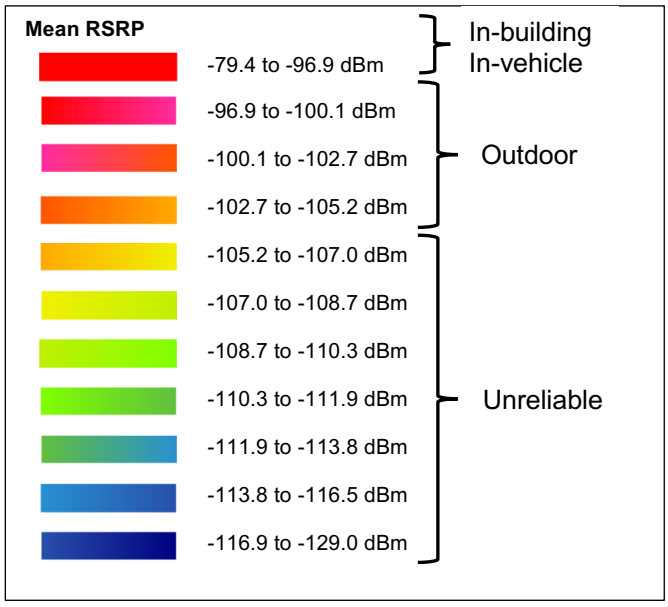


The following map shows the average RSRP of Verizon Wireless signal received by user devices in the Moraga area from Monday, September 5 through Sunday, September 11, 2022. The devices report the RSRP to the network, and Verizon Wireless uses its TrueCall tool to analyze this data and optimize system performance.

In this case, dark red indicates reliable in-building and in-vehicle service levels, red and orange indicate outdoor service, and yellow, green and blue indicate unreliable service. The map shows how service levels are unreliable in the gap area, including areas along Larch Avenue and Camino Pablo as well as the Sanders Ranch neighborhood.

RSRP Average Signal Level Reported by User Devices
September 5-11, 2022





Dominant Signal

As described above, the identified gap area receives inadequate service from existing Verizon Wireless facilities that provide only weak dominant signal to the area, primarily due to distance. "Dominant signal" indicates which Verizon Wireless facility provides the strongest signal to user devices at a particular location. This is apparent in the following best server maps, which depict the areas of dominant signal for each facility. Signal from each facility is shown in a different color. The maps are prepared for each the low-band 700 MHz and mid-band AWS frequencies.

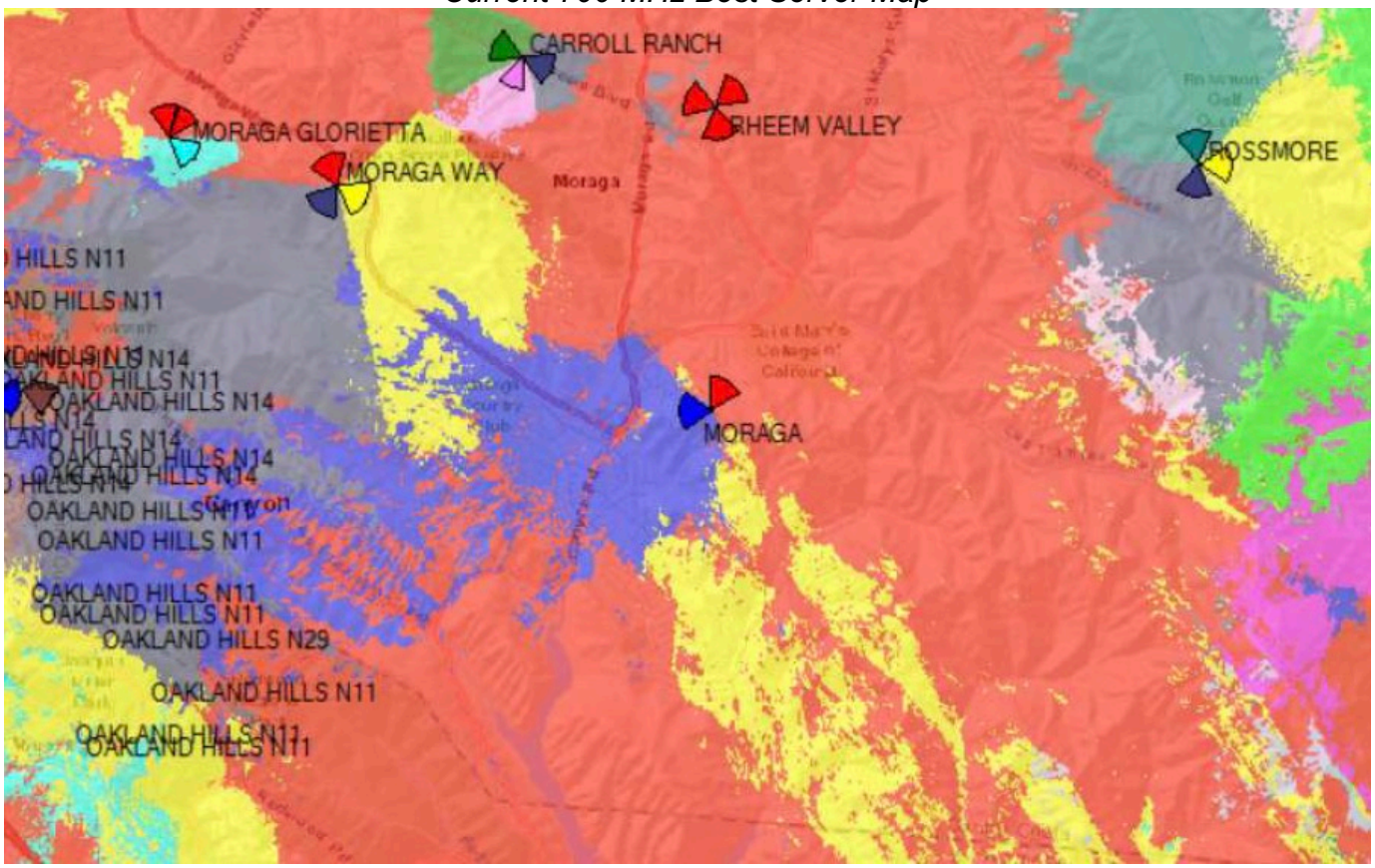
Although dominant, the signal from the distant existing Verizon Wireless facilities is weak in much of gap area. Notably, the Rheem Valley facility 2.5 miles north of the Proposed Facility (shown in red on the 700 MHz map) serves a very large area, including much of the gap. The Moraga Way facility 3.0 miles northwest (shown in yellow) also serves portions of the gap. Dominant signal from these two facilities is intermixed in much of the gap area, including the location of the Proposed Facility and its surroundings. This demonstrates weak dominant signal, which compromises system performance, including for network users in transit.

At times of high traffic volume, the coverage area of the surrounding Verizon Wireless facilities shrinks to accommodate an increasing number of mobile devices closer to each facility. As a result, the coverage gap area expands and is exacerbated during times of high customer usage. The contraction of coverage during times of high usage has become more relevant as the demand for wireless services has increased rapidly over time. According to CTIA's *2022 Annual Survey Highlights*, mobile wireless data traffic almost quadrupled from 2016 to 2021.

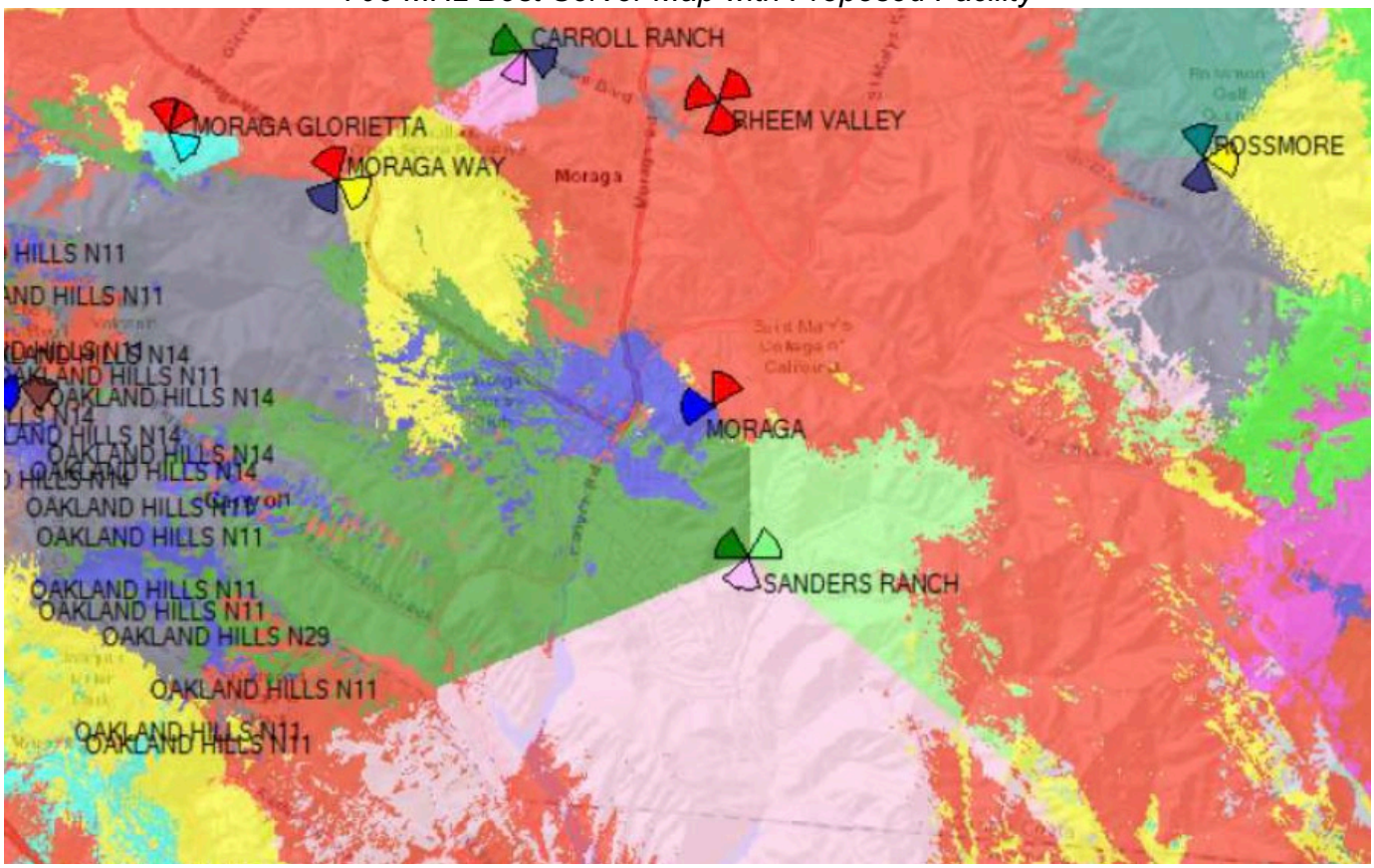
The lack of strong, reliable dominant signal degrades network performance, resulting in unreliable service, particularly during busy hours. This affects the reliability of Verizon Wireless service for residents, workers and visitors as well as for critical communications with emergency service personnel. According to the National Emergency Number Association, there are an estimated 240 million 911 calls each year nationwide, with 80 percent or more from wireless devices in many areas. In emergencies, first responder agencies increasingly rely on dependable Verizon Wireless service.

As shown on the second best server map, the Proposed Facility is strategically located to provide strong, new dominant signal to the gap area (shown in shades of light green, pink, and dark green on the 700 MHz map). It will provide new dominant signal to surrounding residential areas currently served by the distant Rheem Valley and Moraga Way facilities, relieving the demand on those facilities so they can devote their resources to users closer to their locations. This will improve signal quality and overall network performance in the greater vicinity.

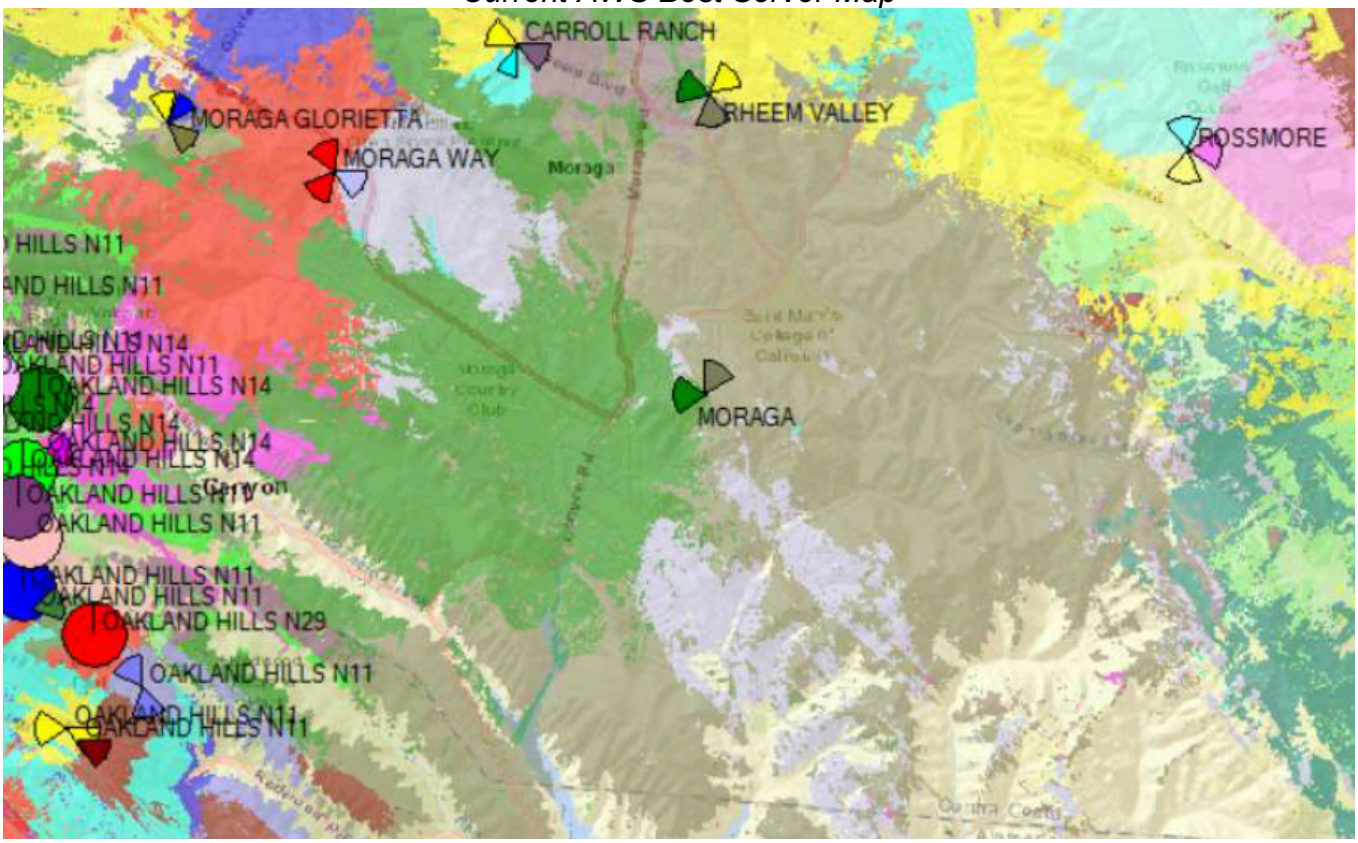
Current 700 MHz Best Server Map



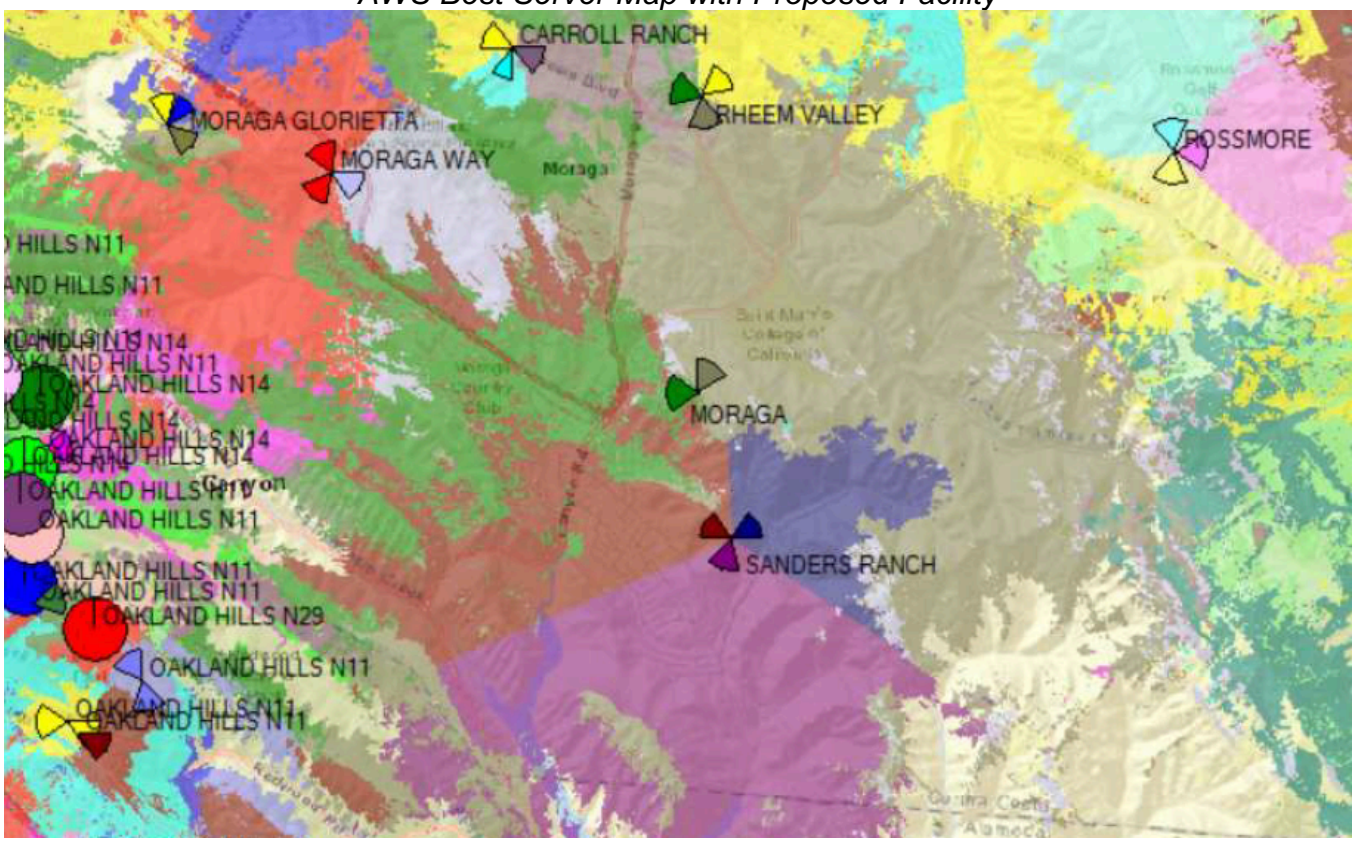
700 MHz Best Server Map with Proposed Facility



Current AWS Best Server Map



AWS Best Server Map with Proposed Facility



Conclusion

As the Verizon Wireless network matures, the network must be supplemented with more sites closer to customers, in large measure due to the increase in usage of the network. New wireless technology requires facilities closer to customers, and this service cannot be provided adequately by the distant existing facilities that provide only weak signal to the gap area. These network challenges have led to the Significant Gap in Verizon Wireless coverage in southern Moraga. Verizon Wireless must deploy the Proposed Facility to provide reliable service coverage to network customers.

Please feel free to contact me with any questions or comments regarding Verizon Wireless's proposed facilities.

Respectfully submitted,

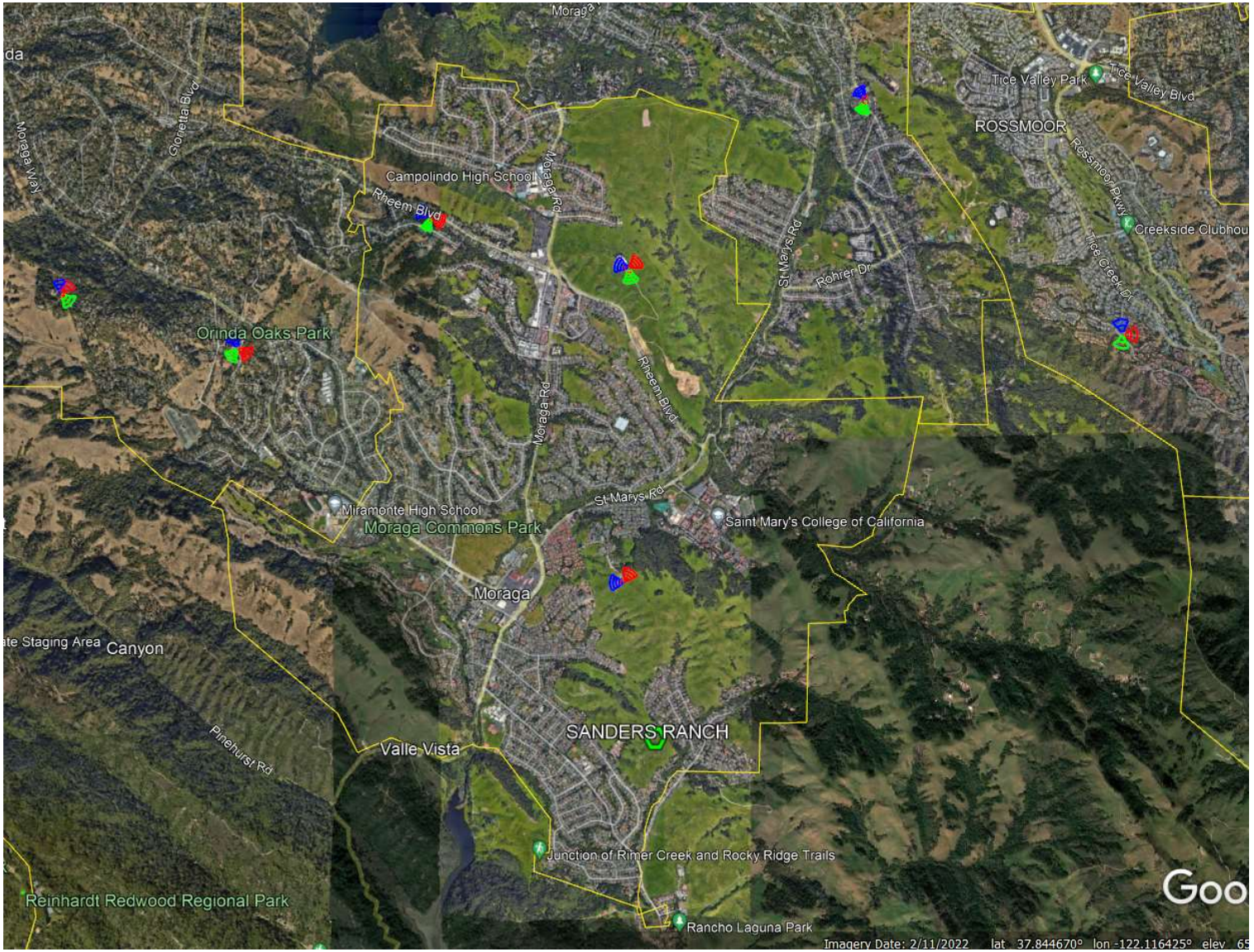
Stefano Iachella

Stefano Iachella
RF Design Engineer
Network Engineering Department
Verizon Wireless

My responsibilities include engineering and design of cellular wireless communications facility networks. I have over 26 years of experience in the cellular wireless industry, with proficiency in various planning, design and optimization tasks for wireless networks. I received my Bachelor's Degree in Electrical Engineering & Computer Science (EECS) from UC Berkeley and a Master's Degree in Electrical Engineering Communications from San Francisco State University.

MORAGA - 5-Year Plan
October 5, 2022

On Air = 3
Future = 1



Carroll Ranch facility. 262 Rheem Boulevard, APN 255-062-004. This is a macro cell tower facility with six panel antennas above a PG&E transmission tower, and two antennas below, with 12 radios on the tower, and ancillary equipment placed in a fenced area under the tower.

Rheem Valley facility. Fay Hill Road, APN 256-040-025. This is a macro cell tower facility with six panel antennas above a PG&E transmission tower, and three antennas below, with three radios on the tower, and other equipment placed in a fenced area near the tower.

Moraga facility. Alta Mesa Drive, APN 258-160-062. This is a macro cell tower facility with six antennas and three radios placed on short masts, along with equipment in a fenced area.

ATTACHMENT E

Geotechnical Investigation

February 21, 2023 KA Project No. 042-22060

Ms. Farah Ali
SAC Wireless
333 University Avenue, Suite 200
Sacramento, California 95825

RE: Limited Geotechnical Engineering Investigation
Proposed Sanders Ranch PSL# 304480
100 Sanders Ranch Road
Moraga, California

Dear Ms. Ali:

In accordance with your request, we have completed the Limited Geotechnical Engineering Investigation for the above-referenced project site.

PROPOSED CONSTRUCTION

We understand that design of the proposed development is currently underway; structural load information and other final details pertaining to the structures are unavailable. On a preliminary basis, it is understood the planned development will include construction of improvements to the existing cellular facility. Included in the improvements are a new control slab, retaining walls and a roadway. It is understood the structures will be supported on shallow foundations. Footing loads are anticipated to be light to moderate. On-site paved areas and landscaping are also planned for the development of the project.

In the event, these structural or grading details are inconsistent with the final design criteria, the Soils Engineer should be notified so that we may update this writing as applicable.

SITE LOCATION AND SITE DESCRIPTION

The site is located southwest of the intersection of Crockett Drive and Brandt Drive in Moraga, California. The site is predominately surrounded by residential developments and vacant land. The existing cellular site is located in the southeast portion of the site. Several trees are located within the site. Natural drainage courses are located within the site. The site is covered by a native weed/grass growth and the surface soils have a loose consistency. The site terrain consists of rolling hills with the majority of the slopes trending down from south to north.

FIELD AND LABORATORY INVESTIGATIONS

Subsurface soil conditions were explored by drilling 8 borings to depths ranging from approximately 5½ to 10½ feet below existing site grade, using hand sampling equipment. The approximate boring locations are shown on the site plan. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsoils. Soil samples were retained for laboratory testing. During drilling operations, the soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A detailed description of the field investigation is presented in Appendix A.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory testing program was formulated with emphasis on the evaluation of natural moisture, shear strength, expansion potential, plasticity, and moisture-density relationships of the materials encountered. In addition, chemical tests were performed to evaluate the soil-cement reactivity. Details of the laboratory test program and results of the laboratory tests are summarized in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, upper soils consisted of approximately 6 to 12 inches of very loose silty clay. These soils are disturbed, have low strength characteristics and are highly compressible when saturated.

Below the loose surface soils, approximately 3 to 4 feet of firm to stiff silty clay and sandy clay or medium dense silty sand with trace clay were encountered. Field and laboratory tests suggest that these soils are moderately strong, slightly compressible and have a moderate expansion potential. Dry densities ranged from 80 to 108 pcf. Representative soil samples had angles of internal friction of 12 to 29 degrees. Representative soil samples had expansion indices of 29 to 86.

Below 4 to 5 feet, predominately stiff to very stiff silty clay and sandy clay or medium dense clayey sand were encountered. Field and laboratory tests suggest that these soils are moderately strong, slightly compressible and have a moderate expansion potential. Dry densities ranged from 79 to 105 pcf. Representative soil samples had angles of internal friction of 7 and 31 degrees. These soils had similar strength characteristics to the upper soils and extended to the termination depth of our borings.

For additional information about the soils encountered, please refer to the logs of borings in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was not encountered.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, and climatic conditions, as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

Groundwater Influence on Structures/Construction

If earthwork is performed during or soon after periods of precipitation, the subgrade soils may become saturated, "pump," or not respond to densification techniques. Based on the existing moisture contents of the upper on-site soils, it is anticipated stabilization of the on-site subgrade will be required. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

Site Preparation

General site clearing should include removal of vegetation; debris; existing utilities; structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. Site stripping should extend to a minimum depth of 2 to 4 inches, or until all organics in excess of 3 percent by volume are removed. Deeper stripping may be required in localized areas. These materials will not be suitable for use as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas.

Fill material was not encountered in our borings. However, fill may be present between and beyond our boring locations. It is recommended that any uncertified fill material encountered within pavement areas be removed and/or recompacted. The fill material should be moisture-conditioned to near optimum moisture and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. As an alternative, the Owner may elect not to recompact the existing fill within paved areas. However, the Owner should be aware that the paved areas may settle, which may require annual maintenance. At a minimum, it is recommended that the upper 18 inches of subgrade soil be moisture-conditioned to a minimum of 2 percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Following stripping, fill removal operations and demolition activities, the exposed subgrade in exterior flatwork and pavement areas should be excavated to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned to a minimum of 2 percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Limits of recompaction should extend a minimum of 2 feet beyond the edge of pavements or sidewalks. Prior to backfilling, the bottom of the excavation should be excavated/scarified to a depth of 8 inches, moisture-conditioned to a minimum of 2 percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Several trees are located within the project site and vicinity. If not utilized for the proposed development, tree removal operations should include roots greater than 1 inch in diameter. The resulting excavations should be cleaned to firm native ground and backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

In order to reduce the potential for excessive total and differential settlement and provide uniform support for the planned structures, it is recommended following stripping and demolition operations, the upper 2 feet of native soils beneath the proposed structural areas be excavated, worked until uniform and free from large clods, moisture-conditioned to a minimum of 2 percent above optimum moisture content, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. In addition, it is recommended that the proposed foundations be supported by a minimum of 12 inches of Engineered Fill. Over-excavation should extend to a minimum of 5 feet beyond proposed footing lines. The base width of the over-excavation should be established on the basis of a 60-degree upward projection from the bottom of the footings. Prior to fill placement, the exposed subgrade soils should be scarified to a depth of 6 inches, moisture-conditioned to a minimum of 2 percent above optimum moisture content, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

It is recommended that concrete slab-on-grade and exterior flatwork areas be supported by a minimum of 24 inches of non-expansive Engineered Fill or lime-treated Engineered Fill. The intent is to support slab-on-grade and exterior flatwork areas with 24 inches of non-expansive Engineered Fill. The fill placement serves two functions: 1) it provides a uniform amount of soil, which will more evenly distribute the soil pressures and 2) it reduces moisture content fluctuation in the clayey material beneath the building area. The non-expansive fill material should be a well-graded silty sand or sandy silt soil. A clean sand or very sandy soil is not acceptable for this purpose. A sandy soil will allow the surface water to drain into the expansive clayey soil below, which may result in soil swelling. Imported Fill should be approved by the Soils Engineer prior to placement. The fill should be placed as specified as Engineered Fill.

Sand/cement slurry may also be used as an acceptable alternative to non-expansive Engineered Fill for support of foundations and slabs-on-grade. If sand/cement slurry is used for Engineered Fill, the requirement for the lateral limits of removal and recompaction extending 5 feet beyond structural elements may be omitted; recommended vertical over-excavation depths shall remain unchanged. Slurry used as Engineered Fill for support of foundations should have a minimum cement content of 2 sacks (188 pounds) per cubic yard. The slurry placement operations should include vibration of the material as it is placed to promote consolidation and to reduce air voids within the slurry. Placement of slurry should be observed and documented by Krazan & Associates, Inc. to verify the use of proper materials and procedures. In addition, the recommended allowable equivalent fluid passive pressure provided in the Foundations section of this report should be reduced by 25 percent if the alternative for slurry backfill is selected.

The upper soils, during wet winter months, become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Soils Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section and the Engineered Fill section.

R-Value Test Results & Pavement Sections

Four R-Values were obtained from the project site at the locations shown on the attached site plan. The samples were tested in accordance with the State of California Materials Manual Test Designation 301. Results of the tests are as follows:

Sample	Depth	Description	R-Value at Equilibrium
1	12-24"	Silty Clay (CL)	Less than 5
2	12-24"	Silty Clay (CL)	Less than 5
3	12-24"	Silty Clay (CL)	Less than 5
4	12-24"	Silty Clay (CL)	Less than 5

The test results are low and indicate poor subgrade support characteristics under dynamic traffic loads. The following table shows the recommended pavement sections for various traffic indices.

Location	Asphaltic Concrete	Class II Aggregate Base*	Compacted Subgrade**	Lime-Treated Subgrade***
Access Road (TI-5)	--	16.0"	18.0"	NA
Access Road (TI-5)	--	6.0"	--	18.0"

**** 95% compaction based on ASTM Test Method D1557 or CAL 216***
***** 90% compaction based on ASTM Test Method D1557 or CAL 216***
****** 5% High Calcium Quick Lime compacted to a minimum of 90% compaction based on ASTM Test Method D1557 or CAL 216***

Traffic Index	Asphaltic Concrete	Class II Aggregate Base*	Class III Aggregate Subbase	Compacted Subgrade**
4.0	2.0"	8.5"	--	12.0"
4.0	2.0"	4.5"	4.5"	12.0"
4.5	3.0"	9.0"	--	12.0"
4.5	3.0"	4.0"	5.5"	12.0"
5.0	3.0"	11.0"	--	12.0"
5.0	3.0"	5.0"	6.5"	12.0"
5.5	3.0"	11.5"	--	12.0"
5.5	3.0"	5.0"	7.0"	12.0"
6.0	3.0"	13.5"	--	12.0"
6.0	3.0"	6.5"	8.0"	12.0"
6.5	3.5"	14.0"	--	12.0"
6.5	3.5"	6.0"	9.0"	12.0"
7.0	4.0"	15.5"	--	12.0"
7.0	4.0"	6.5"	10.0"	12.0"
7.5	4.0"	17.0"	--	12.0"
7.5	4.0"	7.5"	10.5"	12.0"

** 95% compaction based on ASTM Test Method D1557 or CAL 216*
*** 90% compaction based on ASTM Test Method D1557 or CAL 216*

If traffic indices are not available, an estimated (typical value) index of 4.5 may be used for light automobile traffic, and an index of 7.0 may be used for light truck traffic.

The following recommendations are for light-duty and heavy-duty Portland Cement Concrete Pavement Sections based on the design procedures developed by the Portland Cement Association.

PORTLAND CEMENT PAVEMENT
LIGHT DUTY

Traffic Index	Portland Cement Concrete***	Class II Aggregate Base*	Compacted Subgrade**
4.5	6.0"	5.0"	12.0"

HEAVY DUTY

Traffic Index	Portland Cement Concrete***	Class II Aggregate Base*	Compacted Subgrade**
7.0	7.0"	6.0"	12.0"

** 95% compaction based on ASTM Test Method D1557 or CAL 216*
*** 90% compaction based on ASTM Test Method D1557 or CAL 216*
****Minimum compressive strength of 3000 psi*

It is recommended that any uncertified fill material encountered within pavement areas be removed and/or recompacted. The fill material should be moisture-conditioned to near optimum moisture and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. As an alternative, the Owner may elect not to recompact the existing fill within paved areas. However, the Owner should be aware that the paved areas may settle, which may require annual maintenance. At a minimum, it is recommended that the upper 18 inches of subgrade soil be moisture-conditioned to a minimum of 2 percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Slope Construction/Reconstruction

Slopes can be constructed/reconstructed by placement of Engineered Fill utilizing a keying and benching procedure as described below. Reconstructed slopes should be constructed at an inclination not exceeding 2:1 (horizontal to vertical) slopes or flatter. Krazan and Associates, Inc. should be retained to review all slope reconstruction plans and specifications prior to initiating the repair work.

Temporary construction slopes, in the natural soil, should be constructed in accordance with Occupational Safety and Health Administration (OSHA) standards. However, in all cases, appropriate safety precautions should be provided. Construction dewatering is not expected to present problems during late summer or early fall. During these months, subsurface flow will be minimal. Although unlikely, if water is encountered it may be handled either singularly or with a combination of discing, diverting, and pumping. This office will be in a position to assist the Contractor in designing dewatering systems if the conditions at the time of construction warrant it.

General site clearing should include removal of vegetation, landslide debris, and any loose and/or saturated materials. Excavations or depressions extending below subgrade levels should be cleaned to firm, undisturbed soil and backfilled with Engineered Fill, placed and recompacted in accordance with the recommendations stated herein.

Where fills greater than 8 feet are to be constructed on original ground that slopes at inclinations steeper than 6:1 (horizontal to vertical), benches should be cut into the existing slope as the filling operations proceed. Each bench should consist of a level terrace a minimum of 10 feet wide, with the rise to the next bench held to 4 feet or less. Where fills of comparable height will be constructed on ground that slopes at an inclination steeper than 4:1 (horizontal to vertical), a keyway should be provided in addition to the benches. Each keyway should consist of a level trench at least 10 feet wide and at least 2 feet deep, with side slopes not exceeding 1:1 (horizontal to vertical), cut into the existing slope. Where fills of comparable height will be constructed on ground that slopes at an inclination steeper than 2:1 (horizontal to vertical), geotextile fabric and retaining structures should be utilized in slope construction where subsequent specific building site investigations warrant.

Permanent cut-and-fill slopes inclined at 2:1 (horizontal to vertical) should be grossly stable. If static surcharge loading is located within a horizontal distance from the brow of the slope, equal to ⅓ the slope height (H/3) or 30 feet, whichever is less, a stability analysis should be performed. Fill slopes should be constructed by over-filling and trimming back to provide a firm, well-compacted slope face.

Slope Protection

Site grading near slopes and the embankments, including retaining walls and wing walls, should be accomplished such that excessive sheet run-off is prevented. The completed slopes should be seeded or otherwise vegetated to protect from erosion. Well-vegetated slopes, at the recommended configuration, should be reasonably protected from typical erosional effects. However, vegetated slopes may not be protected from unusual flow conditions, such as a flood event. If erosion control from unusual flow conditions is desired, more substantial erosion protection measures, such as grouted cobble slope facing or manufactured slope protection products, should be considered.

Within the side of embankments facing water flow, it is recommended that rock rip rap or concrete paving be used to prevent erosion. Rip rap or paving should be inspected regularly, to be sure that they are not dislodged or damaged. Eroded areas should be promptly repaired and reseeded or protected by rip rap or paving. As an alternative to the rip rap or paving, an erosion control geotextile material may be installed for erosion control. The geotextile protection used to guard against erosion should be approved in writing by the Soils Engineer, prior to use.

Engineered Fill

The on-site, upper native soils are predominately silty clay and sandy clay. These soils will not be suitable for reuse as non-expansive Engineered Fill. These clayey soils will be suitable for reuse for fill placement within the upper 24 inches of slab-on-grade and exterior flatwork areas, provided they are lime-treated. The preliminary application rate of lime should be 5 percent by dry weight. The lime material should be calcium oxide, commonly known as quick-lime. Additional testing is recommended to determine the appropriate application rate of lime prior to placement. These soils will be suitable for use as General Engineered Fill within pavement areas, and below 24 inches from finished pad grade within slab-on-grade areas and exterior flatwork areas, provided they are cleansed of excessive organics and debris and moisture-conditioned to at least 2 percent above optimum moisture.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since he has complete control of the project site at that time.

Imported Fill material should be predominately non-expansive granular material with a plasticity index less than 10 and an expansion index less than 15. Imported Fill should be free from rocks and clods greater than 4 inches in diameter. All Imported Fill material should be submitted to the Soils Engineer for approval at least 48 hours prior to delivery at the site.

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned to a minimum of 2 percent above optimum moisture content, and compacted to achieve at least 90 percent maximum density as based on ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

Foundations - Conventional

After completion of the recommended site preparation the site should be suitable for shallow footing support. The proposed equipment may be supported on a shallow foundation system bearing on a minimum of 12 inches of Engineered Fill. Spread and continuous footings can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	1,650 psf
Dead-Plus-Live Load	2,200 psf
Total Load, Including Wind or Seismic Loads	2,925 psf

Footings should have a minimum depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Footings should have a minimum width of 12 inches, regardless of load. Ultimate design of foundations and reinforcement should be performed by the project's Structural Engineer.

The total movement is not expected to exceed 1 inch. Differential movement should be less than ½ inch. Most of the settlement is expected to occur during construction, as the loads are applied. However, additional post-construction movement may occur if the foundation soils are flooded or saturated.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.3 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 225 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. The passive pressure should be reduced by 25 percent to 188 pcf if the site preparation alternative for slurry backfill is selected. A ⅓ increase in the value above may be used for short duration, wind, or seismic loads.

Lateral Earth Pressures and Retaining Walls

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 55 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 75 pounds per square foot per foot per depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways.

Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have a minimum width of 12 inches, should extend upward to within 12 inches of the top of the wall, and should be encapsulated by a geotextile filter fabric, such as Mirafi 140N or equivalent. The upper 12 inches of backfill should consist of native soils, concrete, asphaltic concrete or other suitable backfill to reduce surface drainage into the wall drain system. The aggregate should conform to Class 2 permeable materials graded in accordance with CalTrans Standard Specifications (2018). Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or an equivalent substitute, are acceptable alternatives in lieu of gravel provided they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

Drainage pipes should be placed with perforations down and should discharge in a non-erosive manner away from foundations and other improvements. The pipes should be placed no higher than 6 inches above the heel of the wall in the centerline of the drainage blanket and should have a minimum diameter of 4 inches. Collector pipes may be either slotted or perforated. Slots should be no wider than ⅛ inch, while perforations should be no more than ¼ inch in diameter. If retaining walls are less than 6 feet in height, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 4-inch diameter holes (concrete walls) or unmortared head joints (masonry walls) and not be higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep hole to retard soil piping.

During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

Seismic Parameters – 2022 California Building Code

The Site Class per Section 1613 of the 2022 California Building Code (2022 CBC) and ASCE 7-16, Chapter 20 is based upon the site soil conditions. It is our opinion that a Site Class D is most consistent with the subject site soil conditions. For seismic design of the structures based on the seismic provisions of the 2022 CBC, we recommend the following parameters:

Seismic Item	Value	CBC Reference
Site Class	D	Section 1613.2.2
Site Coefficient F_a	1.200	Table 1613.2.3 (1)
S_s	1.839	Section 1613.2.1
S_{MS}	2.207	Section 1613.2.3
S_{DS}	1.472	Section 1613.2.4
Site Coefficient F_v	1.700	Table 1613.2.3 (2)

S_1	0.692	Section 1613.2.1
S_{M1}	1.176	Section 1613.2.3
S_{D1}	0.784	Section 1613.2.4
T_S	0.533	Section 1613.2

* Based on Equivalent Lateral Force (ELF) Design Procedure being used.

LIMITATIONS

Soils Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using the most appropriate and most current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Soils Engineering, physical changes in the site, either due to excavation or fill placement, new agency regulations, or possible changes in the proposed structure after the soils report is completed may require the soils report to be professionally reviewed. In light of this, the Owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that 2 years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. If any variations or undesirable conditions are encountered during construction, the Soils Engineer should be notified so that supplemental recommendations may be made.

The conclusions of this report are based on the information provided regarding the proposed construction. If the proposed construction is relocated or redesigned, the conclusions in this report may not be valid. The Soils Engineer should be notified of any changes so the recommendations may be reviewed and re-evaluated.

This report is a Geotechnical Engineering Investigation with the purpose of evaluating the soil conditions in terms of foundation design. The scope of our services did not include any Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands. Any statements, or absence of statements, in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment.

The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices and a degree of conservatism deemed proper for this project. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

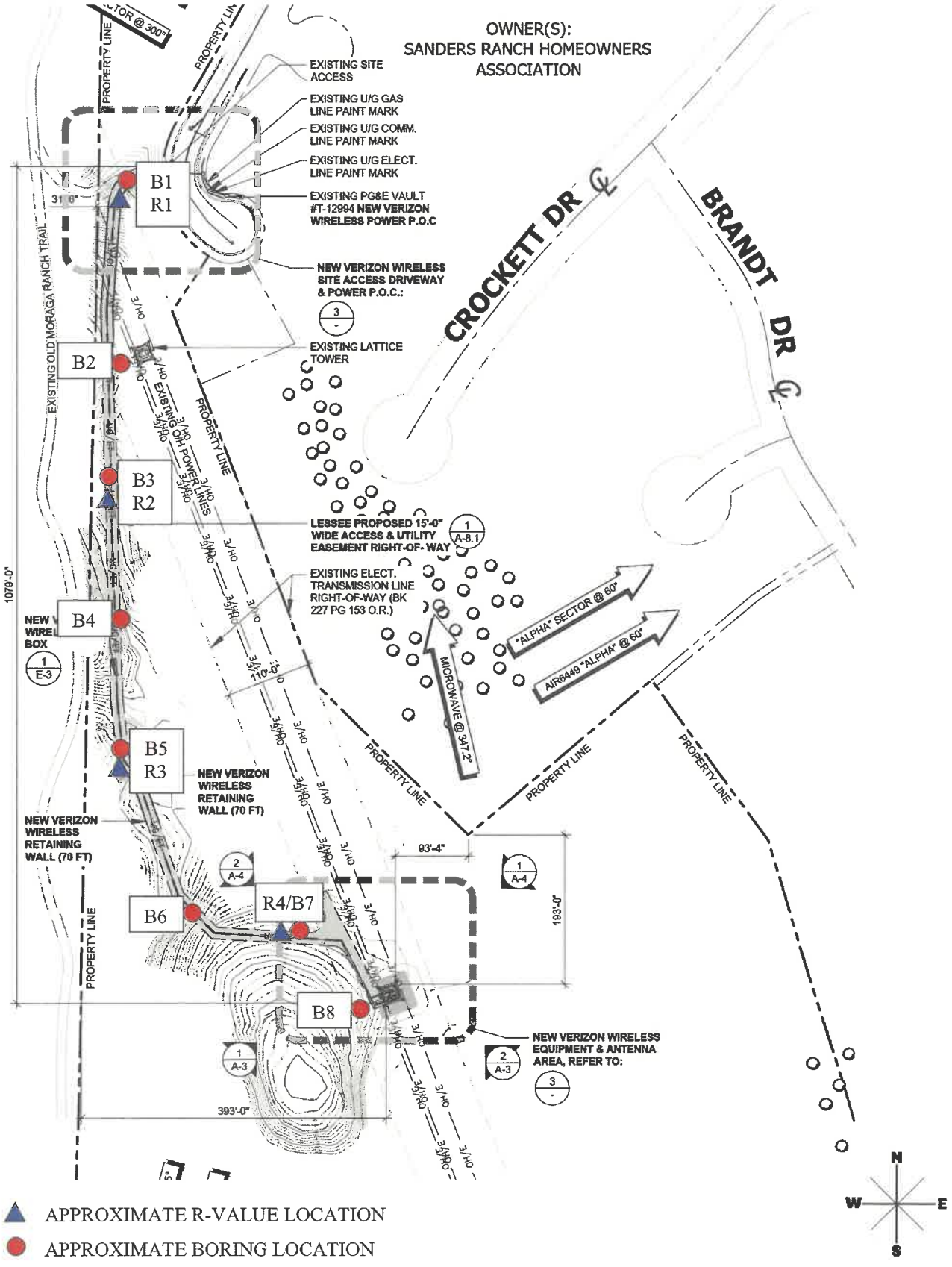
If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (559) 348-2200.

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.



Dave R. Jarosz, II
Managing Engineer
RCE No. 60185/RGE No. 2698

DRJ:ht



▲ APPROXIMATE R-VALUE LOCATION

● APPROXIMATE BORING LOCATION

SITE MAP	**Scale:** NTS	**Date:** Jan. 2023	Krazan GEOTECHNICAL ENGINEERING
Sanders Ranch PSL#304480 **100 Sanders Ranch Road** **Moraga, California**	**Drawn by:** HT	**Approved by:** DJ	
	Project No. 042-22060	**Figure No.** 1	

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

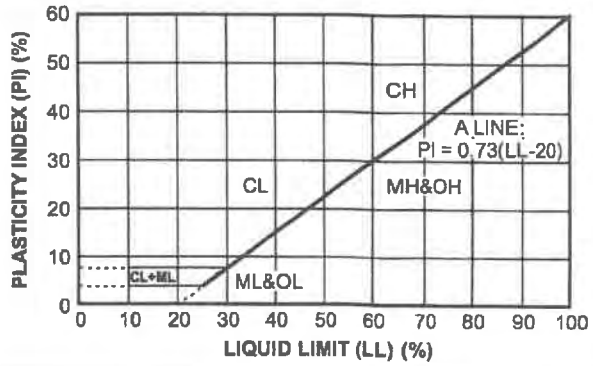
CONSISTENCY CLASSIFICATION

Description	Blows per Foot
Granular Soils	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
Cohesive Soils	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION

Grain Type	*Standard Sieve Size*	*Grain Size in Millimeters*
Boulders	Above 12 inches	Above 305
Cobbles	12 to 13 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
Coarse-grained	3 to ¾ inches	76.2 to 19.1
Fine-grained	¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
Coarse-grained	No. 4 to No. 10	4.76 to 2.00
Medium-grained	No. 10 to No. 40	2.00 to 0.42
Fine-grained	No. 40 to No. 200	0.42 to 0.074
Silt and Clay	Below No. 200	Below 0.074

PLASTICITY CHART



Log of Boring B1

Project: Sanders Ranch PSL#304480 | **Project No:** 042-22060

Client: SAC Wireless | **Figure No.:** A-1

Location: 100 Sanders Ranch Road, Moraga, California | **Logged By:** Michael Rupright

Depth to Water> | **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20 40 60)	Water Content (%) (10 20 30 40)
0		Ground Surface						
0		***SILTY CLAY (CL)*** Very loose; dark brown, very moist, drills easily						
2		Firm below 12 inches	79.7	32.3	■			■
4		Stiff below 3 feet	95.5	22.5	■			■
6		End of Borehole						
8								
10								
12								
14								
16								
18								
20								

Drill Method: Solid Flight | **Drill Date:** 1-24-23

Drill Rig: Hand Auger | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 5½ Feet

Krazan and Associates

Log of Boring B2

Project: Sanders Ranch PSL#304480 | **Project No:** 042-22060

Client: SAC Wireless | **Figure No.:** A-2

Location: 100 Sanders Ranch Road, Moraga, California | **Logged By:** Michael Rupright

Depth to Water> | **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***SILTY CLAY (CL)*** Very loose; dark brown, very moist, drills easily				
2		Firm below 12 inches		32.4		
4		Stiff and grayish-brown below 4 feet				
6			96.9	23.8		
8						
10			98.4	24.1		
10		End of Borehole				
12						
14						
16						
18						
20						

Penetration Test blows/ft: 20 40 60

Water Content (%): 10 20 30 40

Drill Method: Solid Flight | **Drill Date:** 1-24-23

Drill Rig: Hand Auger | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 10½ Feet

Krazan and Associates

Sheet: 1 of 1

Log of Boring B3

Project: Sanders Ranch PSL#304480 | **Project No:** 042-22060

Client: SAC Wireless | **Figure No.:** A-3

Location: 100 Sanders Ranch Road, Moraga, California | **Logged By:** Michael Rupright

Depth to Water> | **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***SILTY CLAY (CL)*** Very loose; dark brown, moist, drills easily				
2		Firm below 12 inches	88.6	26.5	■	
		Very stiff and light brown below 3 feet				
4			105.4	19.0	■	
6		End of Borehole				
8						
10						
12						
14						
16						
18						
20						

Penetration Test blows/ft: 20 40 60

Water Content (%): 10 20 30 40

Drill Method: Solid Flight | **Drill Date:** 1-24-23

Drill Rig: Hand Auger | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 5½ Feet

Krazan and Associates

Sheet: 1 of 1

Log of Boring B4

Project: Sanders Ranch PSL#304480 | **Project No:** 042-22060

Client: SAC Wireless | **Figure No.:** A-4

Location: 100 Sanders Ranch Road, Moraga, California | **Logged By:** Michael Rupright

Depth to Water> | **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20 40 60)	Water Content (%) (10 20 30 40)
0		Ground Surface						
		SILTY CLAY (CL) Very loose; dark brown, moist, drills easily						
2		Firm below 12 inches	92.0	26.3	■			■
		Stiff and light brown below 3 feet						
4		***CLAYEY SAND (SC)*** Medium dense, fine-grained; grayish-brown, moist, drills easily	104.2	19.7	■			■
6		End of Borehole						
8								
10								
12								
14								
16								
18								
20								

Drill Method: Solid Flight | **Drill Date:** 1-24-23

Drill Rig: Hand Auger | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 5½ Feet

Krazan and Associates

Sheet: 1 of 1

Log of Boring B5

Project: Sanders Ranch PSL#304480 | **Project No:** 042-22060

Client: SAC Wireless | **Figure No.:** A-5

Location: 100 Sanders Ranch Road, Moraga, California | **Logged By:** Michael Rupright

Depth to Water> | **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***SILTY CLAY (CL)*** Very loose; dark brown, moist, drills easily				
2		Firm below 12 inches	105.2	15.2	■	
2		***SILTY SAND (SM)*** Medium dense, fine-grained with trace CLAY; grayish-brown, moist, drills easily				
4		***CLAYEY SAND (SC)*** Medium dense, fine-grained; grayish-brown, moist, drills easily	89.2	14.7	■	
6		End of Borehole				

Penetration Test blows/ft: 20 40 60

Water Content (%): 10 20 30 40

Drill Method: Solid Flight | **Drill Date:** 1-24-23

Drill Rig: Hand Auger | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 5½ Feet

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Sheet: 1 of 1

Log of Boring B6

Project: Sanders Ranch PSL#304480 | **Project No:** 042-22060

Client: SAC Wireless | **Figure No.:** A-6

Location: 100 Sanders Ranch Road, Moraga, California | **Logged By:** Michael Rupright

Depth to Water> | **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***SILTY CLAY (CL)*** Very loose; dark brown, moist, drills easily Firm below 12 inches				
2			92.7	22.9	■	
4			87.5	25.9	■	
6		End of Borehole				
8						
10						
12						
14						
16						
18						
20						

Penetration Test blows/ft: 20 40 60

Water Content (%): 10 20 30 40

Drill Method: Solid Flight | **Drill Date:** 1-24-23

Drill Rig: Hand Auger | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 5½ Feet

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Sheet: 1 of 1

Log of Boring B7

Project: Sanders Ranch PSL#304480 | **Project No:** 042-22060

Client: SAC Wireless | **Figure No.:** A-7

Location: 100 Sanders Ranch Road, Moraga, California | **Logged By:** Michael Rupright

Depth to Water> | **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***SILTY CLAY (CL)*** Very loose; dark brown, moist, drills easily Firm below 12 inches				
2		***CLAYEY SAND (SC)*** Medium dense, fine- to medium-grained; brown, moist, drills easily	105.0	17.4	■	
4		***SANDY CLAY (CL)*** Stiff, fine-grained; dark brown, very moist, drills easily	78.9	31.6	■	
6		End of Borehole				

Penetration Test blows/ft: 20 40 60

Water Content (%): 10 20 30 40

Drill Method: Solid Flight | **Drill Date:** 1-24-23

Drill Rig: Hand Auger | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 5½ Feet

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Log of Boring B8

Project: Sanders Ranch PSL#304480 **Project No:** 042-22060

Client: SAC Wireless **Figure No.:** A-8

Location: 100 Sanders Ranch Road, Moraga, California **Logged By:** Michael Rupright

Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20 40 60)	Water Content (%) (10 20 30 40)
0		Ground Surface						
		SANDY CLAY (CL) Very loose, fine- to medium-grained; dark brown, moist, drills easily Firm below 12 inches						
2			108.2	17.8	■			■
		SILTY CLAY (CL) Stiff; light brown, moist, drills easily						
4								
			85.1	23.2	■			■
6								
8								
			97.9	25.3	■			■
10		End of Borehole						
12								
14								
16								
18								
20								

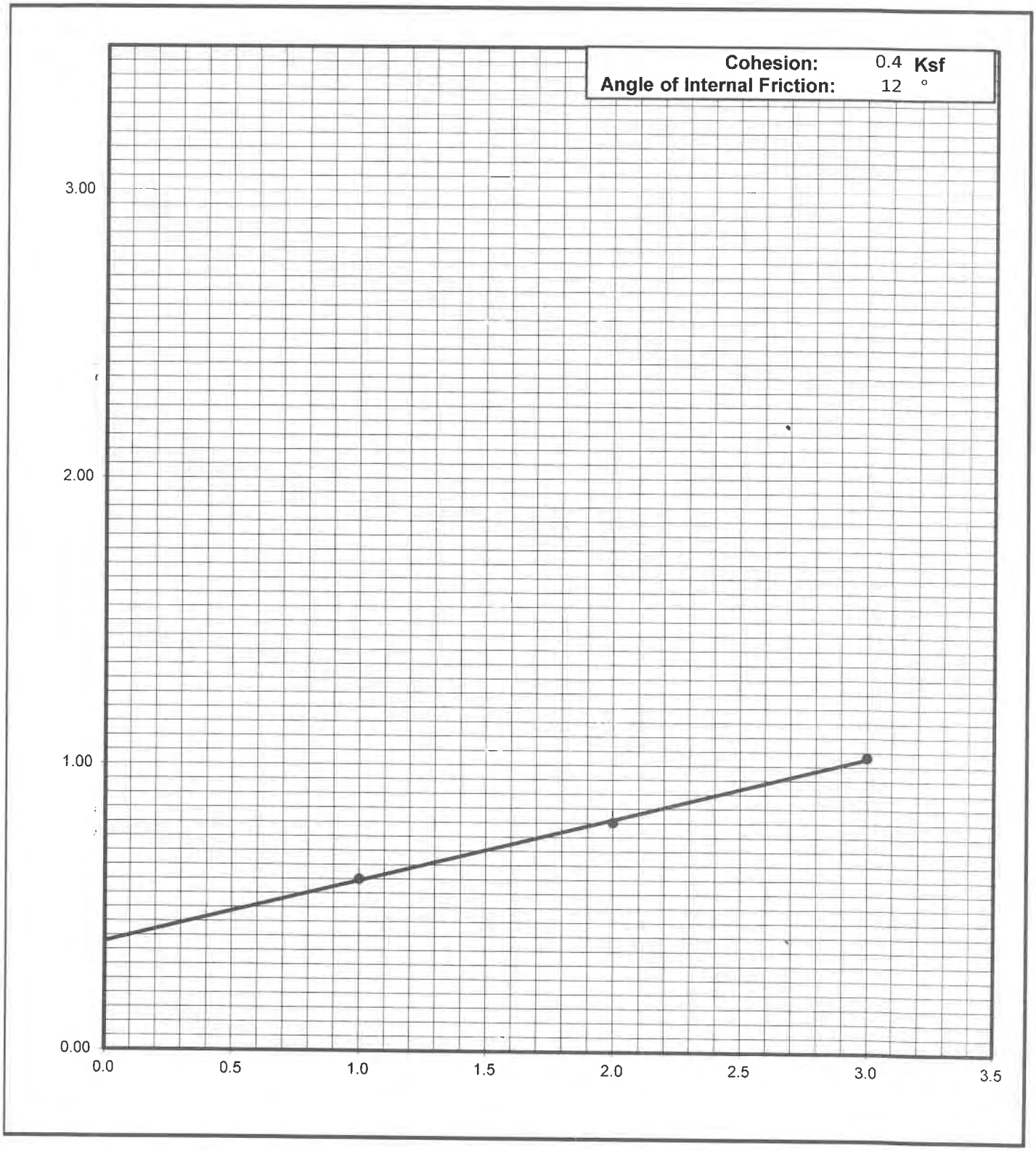
Drill Method: Solid Flight **Drill Date:** 1-24-23

Drill Rig: Hand Auger **Krazan and Associates** **Hole Size:** 4½ Inches

Driller: Brent Snyder **Elevation:** 10 Feet

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

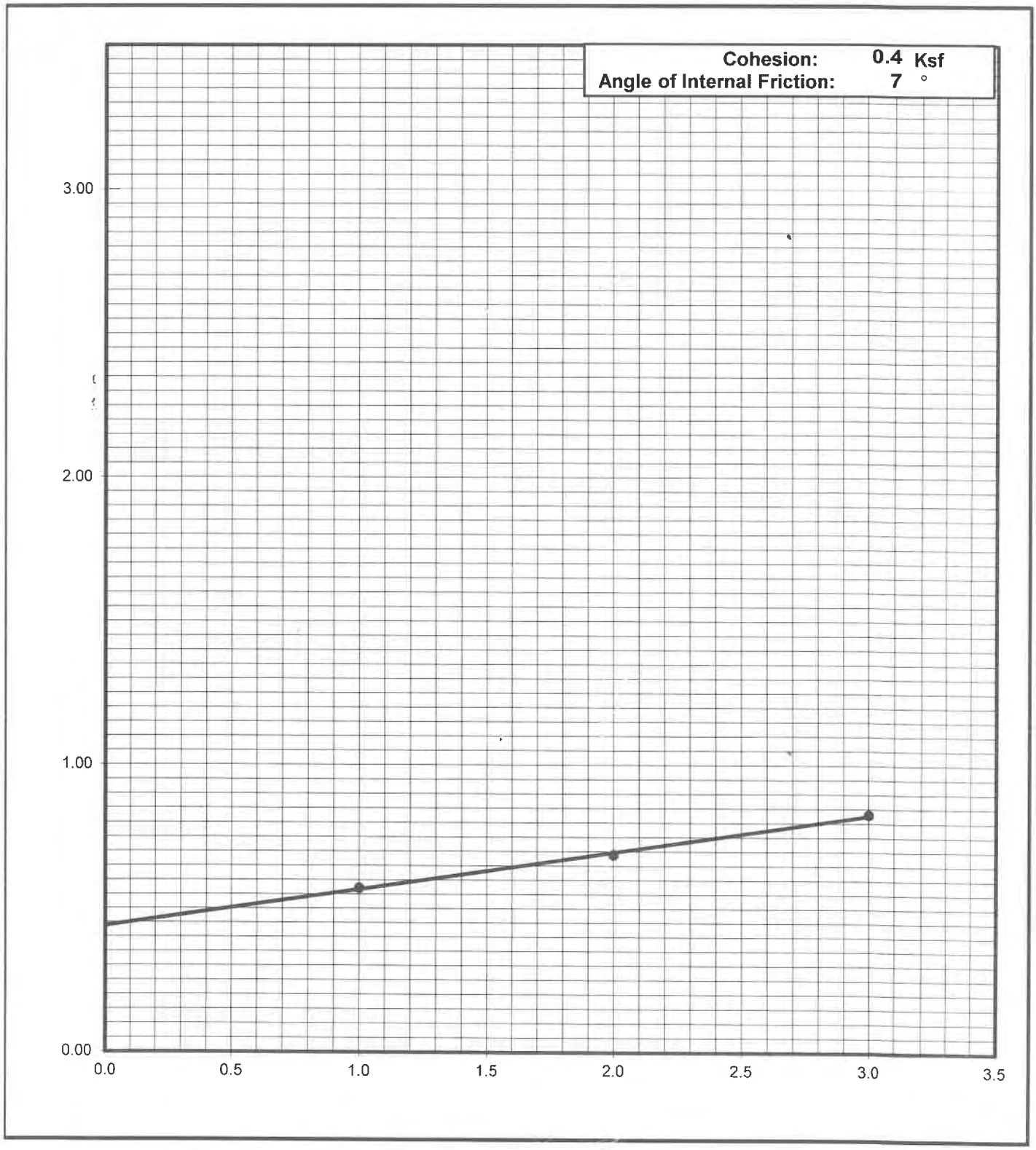
Project Number	Boring No. & Depth	Soil Type	Date
042-22060	B1 @ 2-2.5'	CL	2/16/2023



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Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

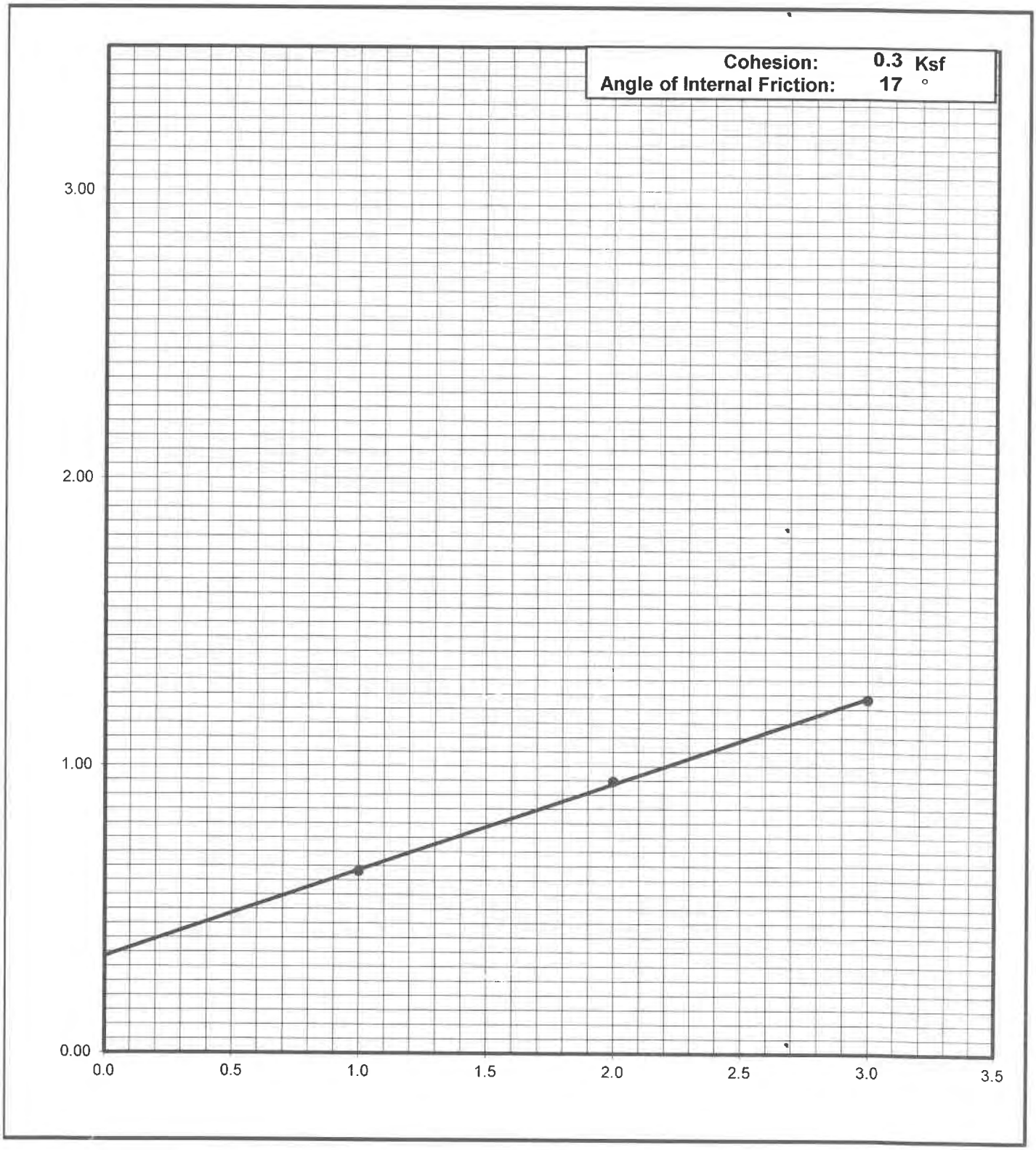
Project Number	Boring No. & Depth	Soil Type	Date
042-22060	B2 @ 5-5.5'	CL	2/16/2023



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Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

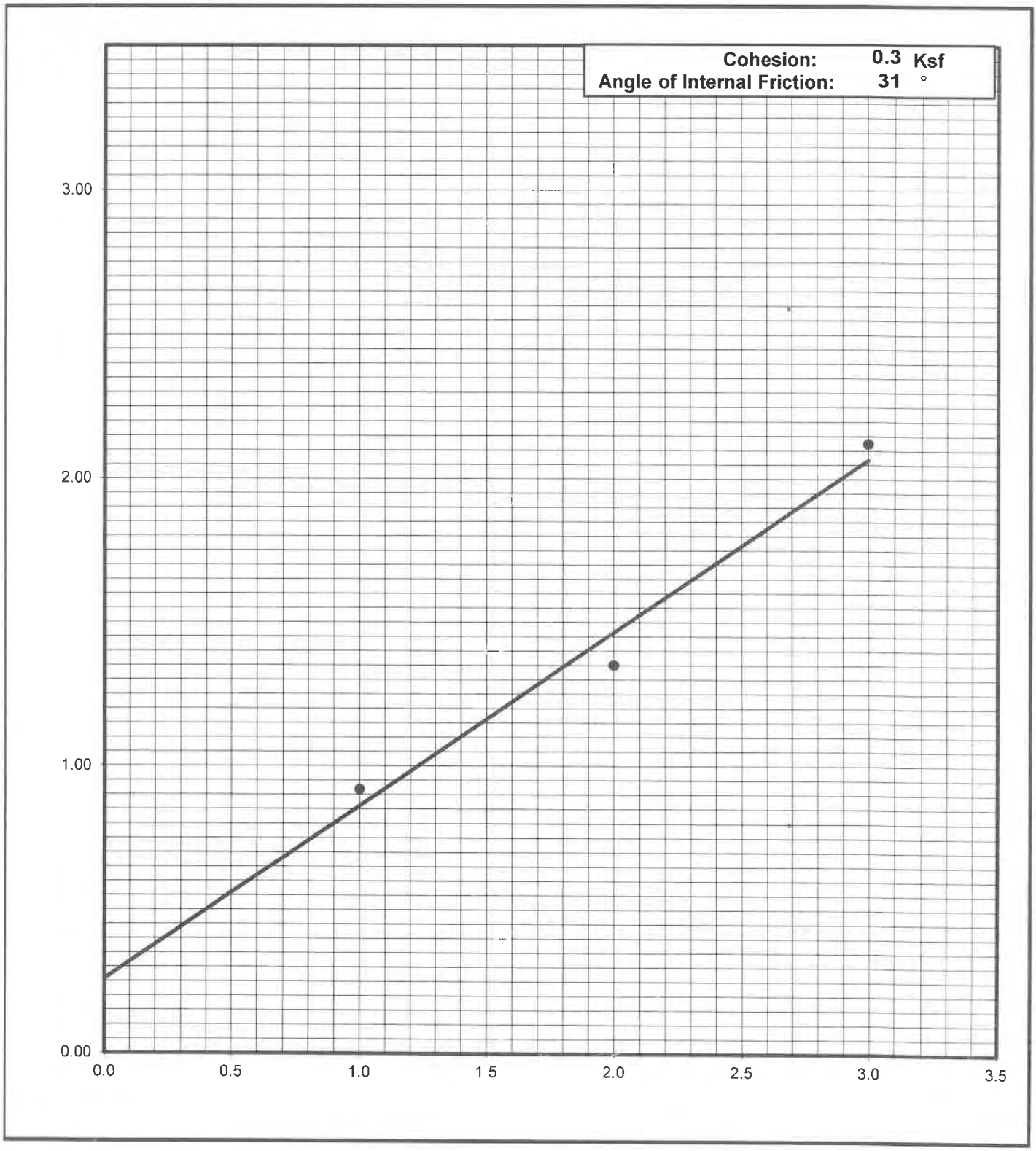
Project Number	Boring No. & Depth	Soil Type	Date
042-22060	B4 @ 2-2.5'	CL	2/16/2023



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Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

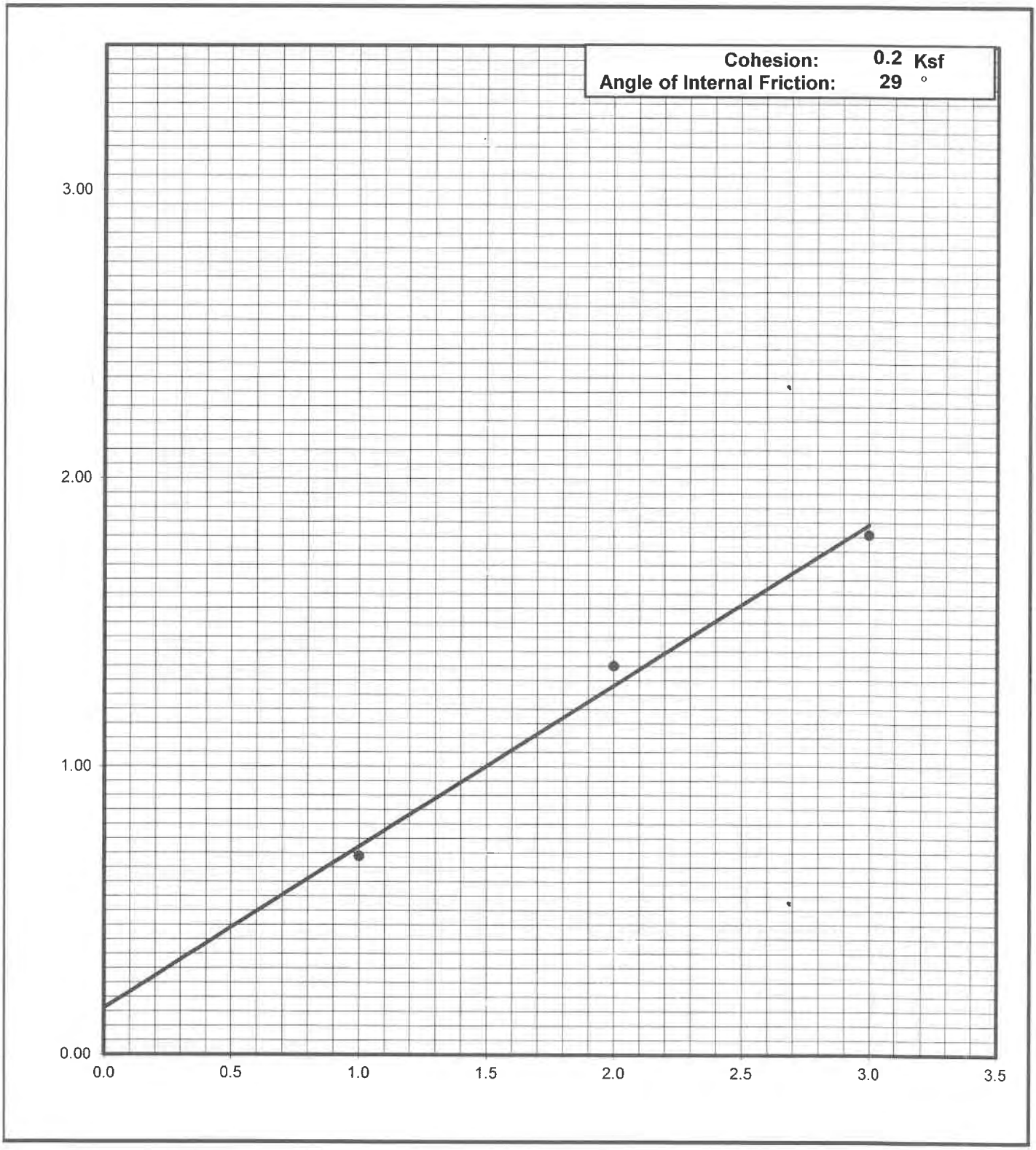
Project Number	Boring No. & Depth	Soil Type	Date
042-22060	B5 @ 5-5.5'	SC	2/16/2023



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Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

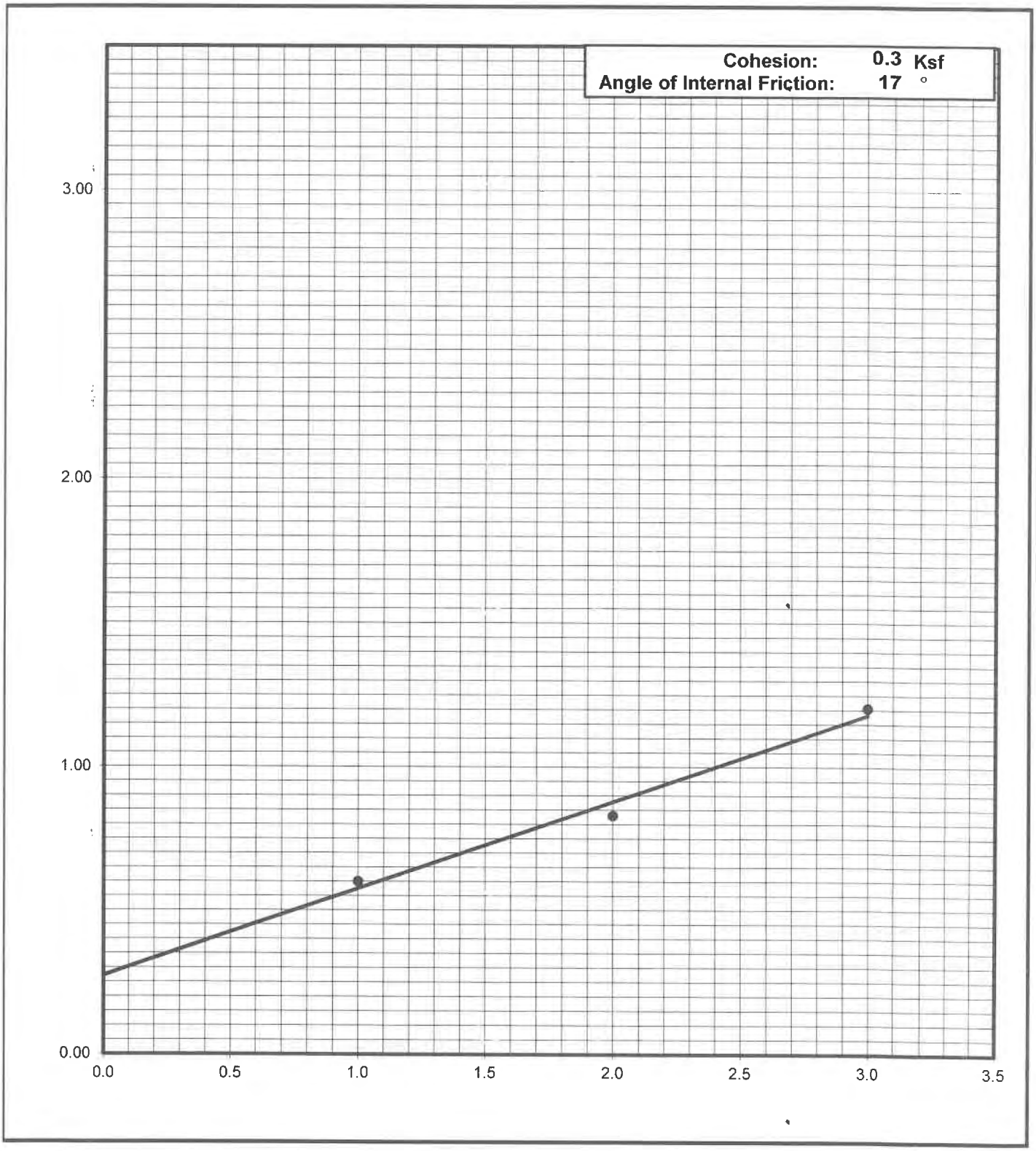
Project Number	Boring No. & Depth	Soil Type	Date
042-22060	B7 @ 2-2.5'	SC	2/16/2023



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Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
042-22060	B8 @ 5-5.5'	CL	2/16/2023



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Expansion Index Test

ASTM D - 4829

Project Number	: 042-22060
Project Name	: Sanders Ranch PSL#304480
Date	: 2/16/2023
Sample location/ Depth	: B2 @ 3-4'
Sample Number	: X1
Soil Classification	: CL

Trial #	**1**	**2**	**3**
Weight of Soil & Mold, gms	753.8		
Weight of Mold, gms	367.0		
Weight of Soil, gms	386.8		
Wet Density, Lbs/cu.ft.	116.7		
Weight of Moisture Sample (Wet), gms	200.0		
Weight of Moisture Sample (Dry), gms	179.2		
Moisture Content, %	11.6		
Dry Density, Lbs/cu.ft.	104.5		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	51.2		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	0	--	--	--	--	0.0549

Expansion Index $_{measured}$ = 54.9

Expansion Index = 55

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

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Expansion Index Test

ASTM D - 4829

Project Number	: 042-22060
Project Name	: Sanders Ranch PSL#304480
Date	: 2/16/2023
Sample location/ Depth	: B6 @ 3-4'
Sample Number	: X3
Soil Classification	: SC

Trial #	**1**	**2**	**3**
Weight of Soil & Mold, gms	765.5		
Weight of Mold, gms	367.0		
Weight of Soil, gms	398.5		
Wet Density, Lbs/cu.ft.	120.2		
Weight of Moisture Sample (Wet), gms	200.0		
Weight of Moisture Sample (Dry), gms	182.5		
Moisture Content, %	9.6		
Dry Density, Lbs/cu.ft.	109.7		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	48.3		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	0	--	--	--	--	0.0287

Expansion Index $_{measured}$ = 28.7

Expansion Index = 29

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

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Expansion Index Test

ASTM D - 4829

Project Number	: 042-22060
Project Name	: Sanders Ranch PSL#304480
Date	: 2/16/2023
Sample location/ Depth	: B8 @ 3-4'
Sample Number	: X4
Soil Classification	: CL

Trial #	1	2	3
Weight of Soil & Mold, gms	742.6		
Weight of Mold, gms	367.2		
Weight of Soil, gms	375.4		
Wet Density, Lbs/cu.ft.	113.2		
Weight of Moisture Sample (Wet), gms	200.0		
Weight of Moisture Sample (Dry), gms	178.4		
Moisture Content, %	12.1		
Dry Density, Lbs/cu.ft.	101.0		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	48.9		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	0	--	--	--	--	0.0856

Expansion Index $_{measured}$ = 85.6

Expansion Index = **86**

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

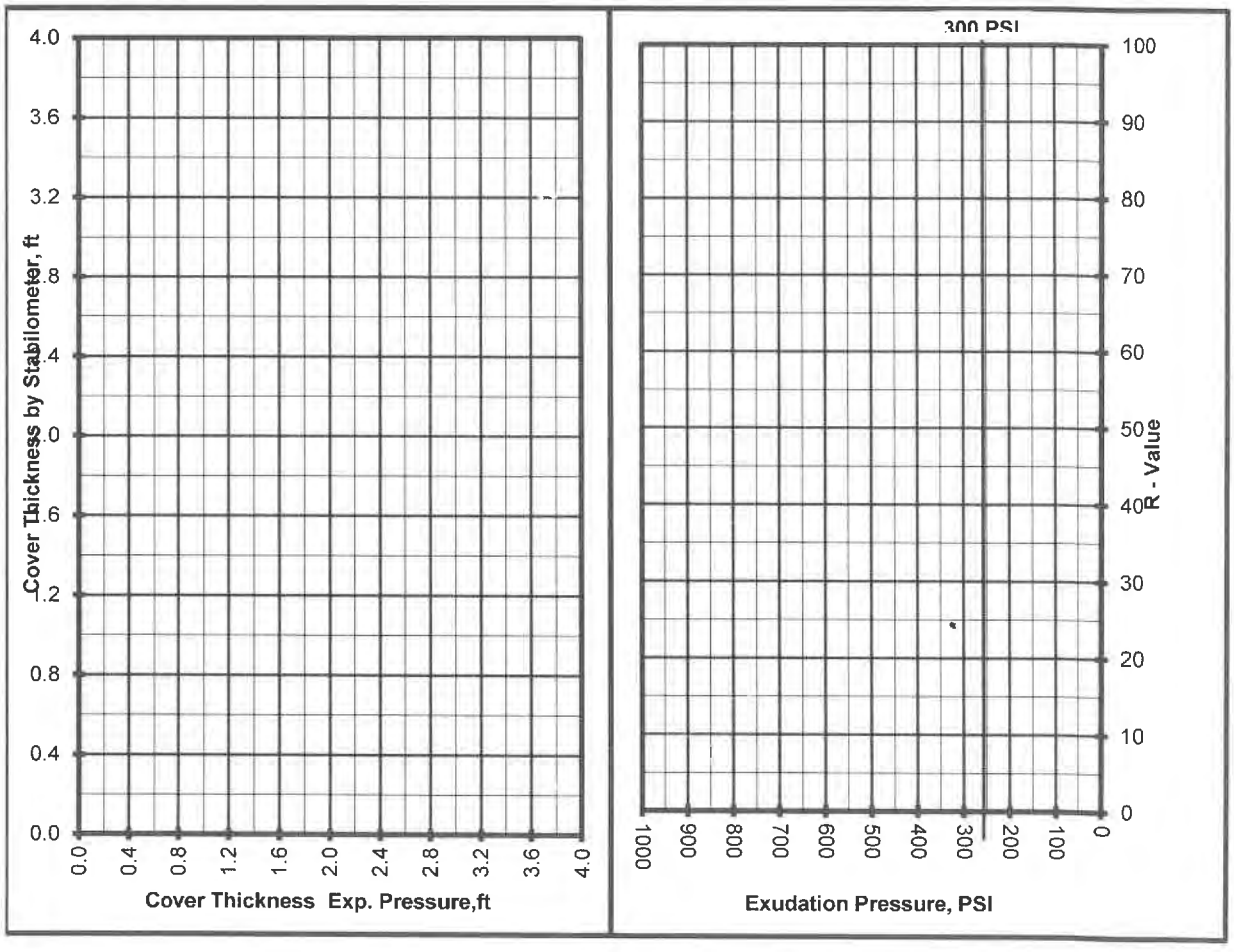
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R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	042-22060
Project Name	:	Sanders Ranch PSL#304480
Date	:	1/26/2023
Sample Location/Curve Number	:	RV#1
Soil Classification	:	CL

TEST	A	B	C
Percent Moisture @ Compaction, %			
Dry Density, lbm/cu.ft.	R - Value less than 5 Sample Exuded from bottom of Mold During test		
Exudation Pressure, psi			
Expansion Pressure, (Dial Reading)			
Expansion Pressure, psf			
Resistance Value R			

R - Value at 300 PSI Exudation Pressure	**< 5**
R - Value by Expansion Pressure	

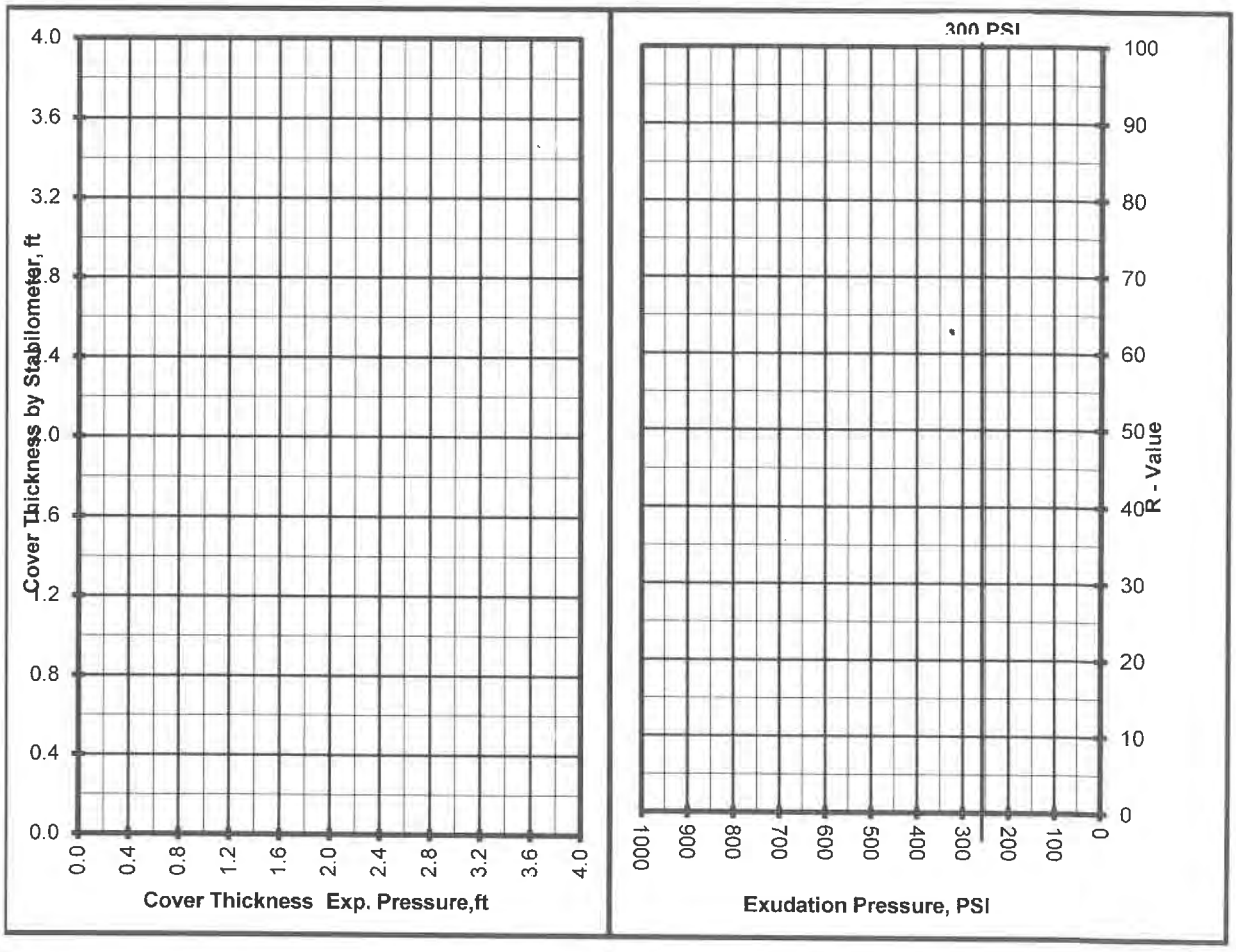


R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	042-22060
Project Name	:	Sanders Ranch PSL#304480
Date	:	1/26/2023
Sample Location/Curve Number	:	RV#2
Soil Classification	:	CL

TEST	A	B	C
Percent Moisture @ Compaction, %			
Dry Density, lbm/cu.ft.	R - Value less than 5 Sample Exuded from bottom of Mold During test		
Exudation Pressure, psi			
Expansion Pressure, (Dial Reading)			
Expansion Pressure, psf			
Resistance Value R			

R - Value at 300 PSI Exudation Pressure	< 5
R - Value by Expansion Pressure	

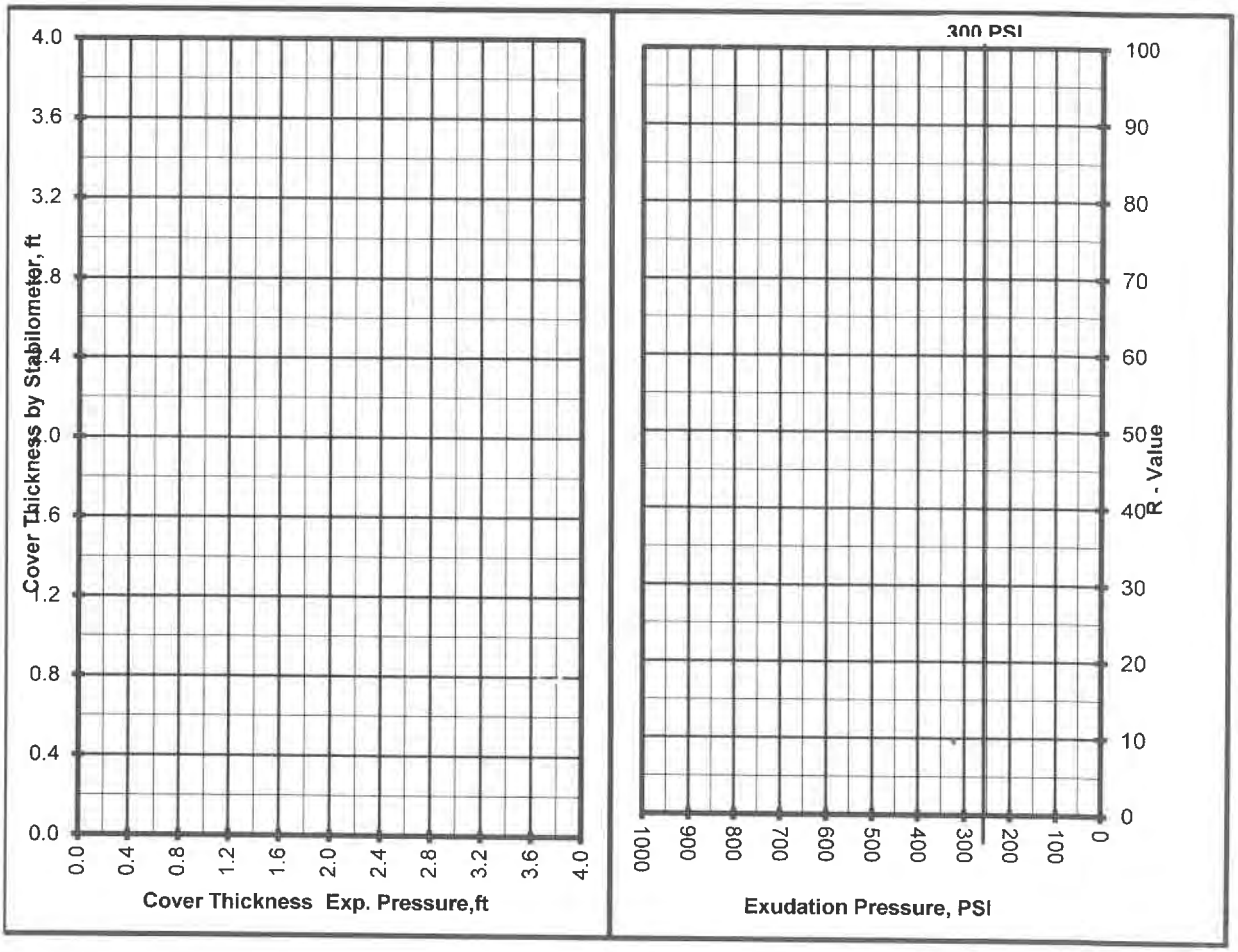


R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	042-22060
Project Name	:	Sanders Ranch PSL#304480
Date	:	1/26/2023
Sample Location/Curve Number	:	RV#3
Soil Classification	:	CL

TEST	A	B	C
Percent Moisture @ Compaction, %			
Dry Density, lbm/cu.ft.	R - Value less than 5 Sample Exuded from bottom of Mold During test		
Exudation Pressure, psi			
Expansion Pressure, (Dial Reading)			
Expansion Pressure, psf			
Resistance Value R			

R - Value at 300 PSI Exudation Pressure	**< 5**
R - Value by Expansion Pressure	

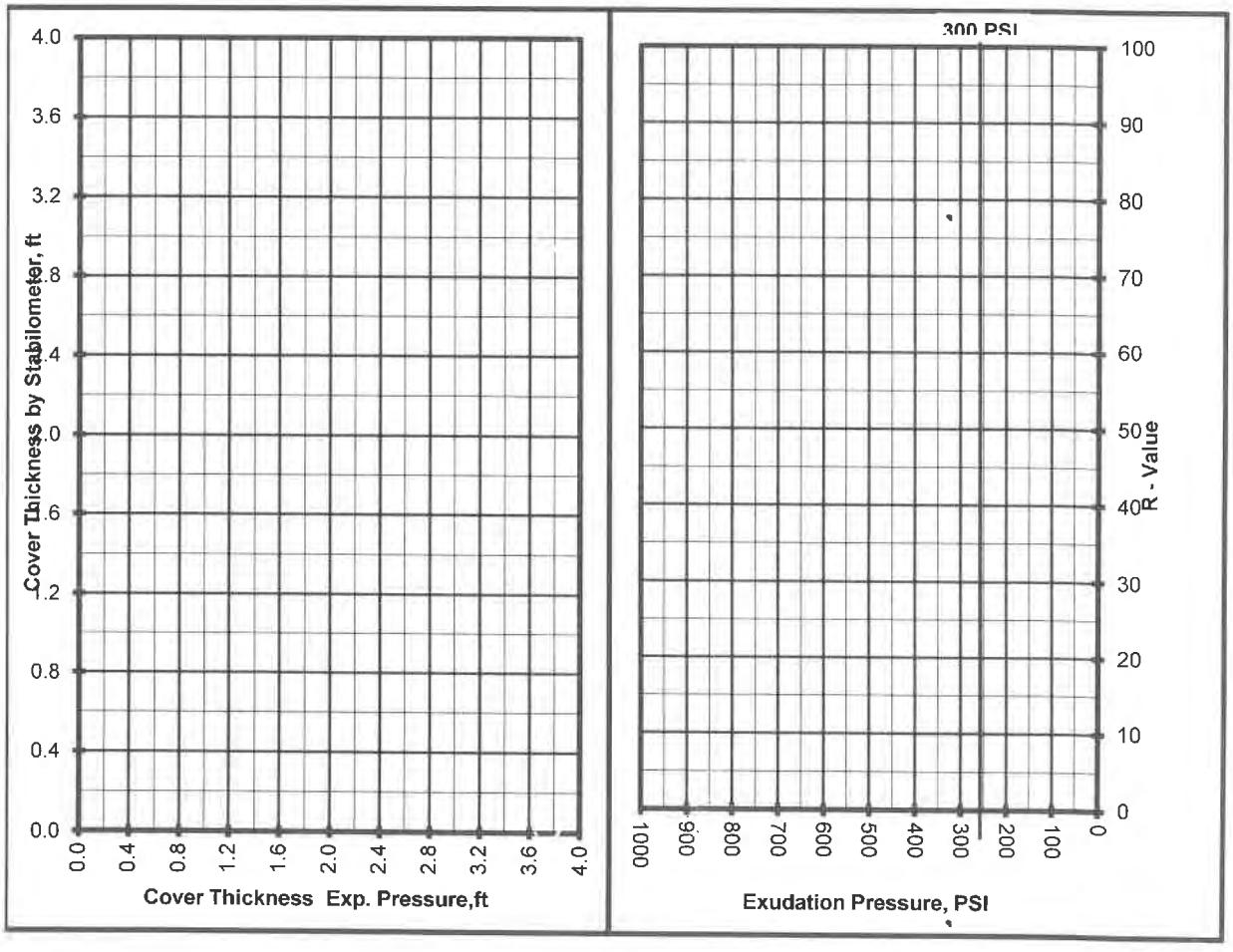


R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	042-22060
Project Name	:	Sanders Ranch PSL#304480
Date	:	1/26/2023
Sample Location/Curve Number	:	RV#4
Soil Classification	:	CL

TEST	A	B	C
Percent Moisture @ Compaction, %			
Dry Density, lbm/cu.ft.	R - Value less than 5 Sample Exuded from bottom of Mold During test		
Exudation Pressure, psi			
Expansion Pressure, (Dial Reading)			
Expansion Pressure, psf			
Resistance Value R			

R - Value at 300 PSI Exudation Pressure	< 5
R - Value by Expansion Pressure	



Structural Design Report

Structure:	107'-0" Lattice Tower (Concrete Pad, Cabinet & Generator Anchorage & H-Frame)
Carrier:	Verizon
Site #:	304480
Site Name:	Sanders Ranch
Address:	100 Sanders Ranch Road, Moraga, CA 94566
Coordinates:	37.823804°, -122.114476°
County:	Contra Coasta County
Jurisdiction:	Town of Moraga
LETS #:	S2-SCVO-027
Date:	February 28, 2023

Result

Concrete Pad:	**19'-0" X 19'-0" Concrete Pad**
Cabinet Anchorage:	**(4) 1/2" Dia. Hilti Kwik Bolt**
Generator Anchorage:	**(4) 1/2" Dia. Hilti Kwik Bolt**
H-Frame:	**(3) 3.0" STD. X 5'-6" Long Pipes & (3) 9'-9" Long Unistrut**
H-Frame Anchor Bolt:	**(4) 5/8" Dia. Hilti Kwik Bolts TZ**
H-Frame Base Plate:	**PL 8x8x1/2"**
Water Tank:	**24" Thick Pad w/ (8)-1/2" Dia. HY-TZ Bolt**

REGISTERED PROFESSIONAL ENGINEER
MADHAN KUMAR KANTHA SAMY
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA

03/03/2023

Aleida Acosta
Design Engineer

Madhan Kumar K, MS, PE
Director of Engineering

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Generator Anchorage Calculation ……...Annexed

H-Frame Design ……...Annexed

Water Tank Pad Design ……...Annexed

Anchor Bolt Design ……...Annexed

Structural Drawing ……...Annexed

Grading Plan ……Annexed

ANALYSIS SUMMARY:

We have completed the Structural Design of the proposed Concrete Pad, H-Frame, & Water Tank Pad Design to determine their ability to support the equipment proposed by SAC Wireless on behalf of Verizon Wireless.

Table 1 summarizes the design criteria used for our structural analysis & Table 2 summarizes proposed equipment loading. Attached is a copy of the structural calculations.

DESIGN INFORMATION:

The structural design was based on the following documentation:

1. Geotech Report by Krazan & Associates, Inc., dated February 21, 2023.
2. Construction Drawings by SAC A Nokia Company dated February 04, 2023.

ANALYSIS CRITERIA:

The proposed Concrete Pad & H-Frame have been designed per the following requirements:

Table 1 – Design Criteria

Criterion	Information Used
Codes & Referenced Standards	ASCE 7-22 2022 California Building Code ACI 318-14 TIA-222-H AISC Steel Construction 15th Edition
Jurisdiction	Town of Moraga
Wind Speed (No Ice)	92 mph nominal (3 second gust)
Exposure Category	C
Risk Category	II

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APPURTENANCES:

Table 2 - Proposed Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Items	Item Manufacturer	Item Model	Number of Feed Lines	Feed Line
On Concrete Pad	7.5	4	Generic	Service Light	-	-
	4.25	1	Generic	Generator Doc Box		
		1	Generic	Shutdown Switch		
	4.0	1	Generic	Telco Box		
		1	Generic	Electrical Meters Bank		
		2	Generic	Raycap		
		3	Generic	RRUS		
	3.75	1	Generic	Misc. Cabinet		
		1	Generic	Power Cabinet		
		1	Generic	Battery Cabinet		
	3.25	1	Generic	Generator		
	2.75	1	Generic	Intersect Cabinet		
		3	Generic	H-Frame		
	2.00	1	Generic	Fire Extinguisher		
	1.25	3	Generic	RRUS		

ASSUMPTIONS AND LIMITATIONS:

1. This report is based solely on the information supplied to us as listed in the "Design Information" section of this report, and the results, in turn, are only as accurate as data extracted from this information. This report is considered void if any of the listed information or assumptions stated herein is inaccurate.
2. The proposed structures and associated components, including any modifications to them, will be installed in accordance with original design drawings and are in satisfactory condition to carry their full design capacity. The structure configuration, member sizes and material grades are as given in our attached analysis output.
3. Any existing modifications not listed in "Design Information" section of this report have not been considered in the analysis.
4. The potential may exist that the existing site conditions may not align with those assumed or anticipated. An altered field condition discovered during the installation of the Cabinet should be brought to the attention of LETS America, Inc., for subsequent consideration, analysis, and possible revision approach.

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5. No materials evaluation, inspection, or monitoring of the proposed structure was performed by LETS America, Inc., for this structural review associated with the site modification for SAC Wireless (Site 304480) in Moraga, CA. Please advise if you have any questions and/or comments regarding the information contained within.

DISCLAIMER:

LETS America, Inc., makes no warranties, expressed or implied, in connection with this report, and disclaims any liability arising from material and fabrication of this Equipment Concrete Pad, Ice Bridge & Ice Shield Structure. LETS America, Inc., will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of LETS America, Inc., pursuant to this report will be limited to the total fee received for preparation of this report.

CONCLUSION:

The proposed 19'-0" X 19'-0" Concrete Slab has sufficient capacity to carry the proposed loads.
Our analysis has determined that (4) 1/2" Dia. Hilti Kwik Bolt (2) per side will needed to attach proposed Cabinet to proposed Concrete Pad.
Our analysis has determined that (4) 1/2" Dia. Hilti Kwik Bolt (2) per side will needed to attach proposed Generator to proposed Concrete Pad.
The proposed (2) 3.0" Std. X 5'-6" Long Pipes & (3) 9'-9" Long Unistrut of H-Frame has sufficient capacity to carry the proposed loads.
The proposed 5/8" Dia. Hilti Kwik Bolts TZ has sufficient capacity to carry the proposed loads on H-Frame.
The proposed PL 8 X 8 X 1/2" Base Plate has sufficient capacity to carry the proposed loads on H-Frame.
The proposed 10'-0" x 10'-0" x 2'-0" Concrete Slab has sufficient capacity to carry the proposed Water tank.
Our analysis has determined that (8) 1/2" Dia. Hilti Kwik Bolt (2) per side will be needed to attach the proposed water tank.

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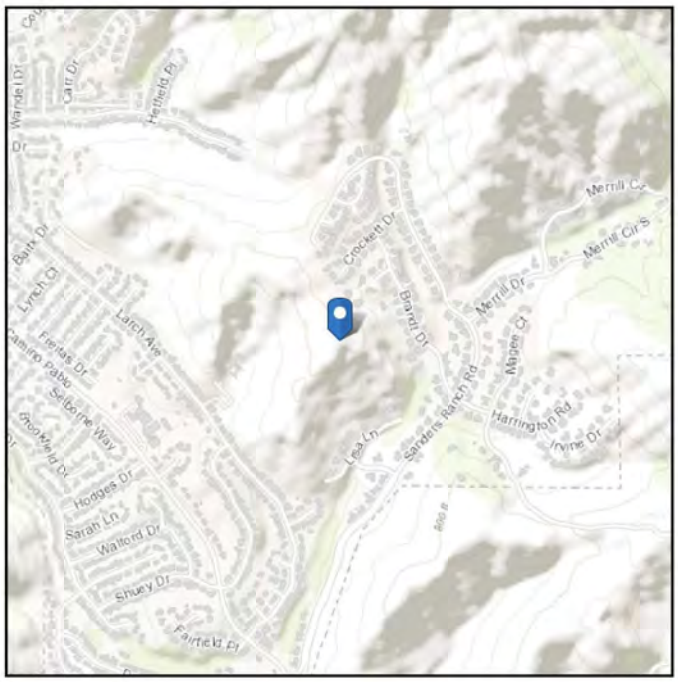
STRUCTURAL DESIGN

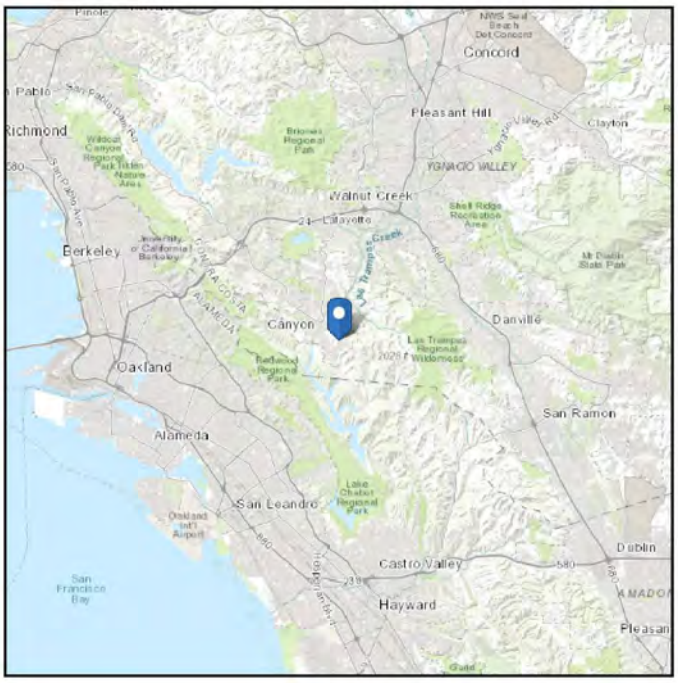
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ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-22	**Latitude:**	37.823804
Risk Category:	II	**Longitude:**	-122.114476
Soil Class:	D - Stiff Soil	**Elevation:**	846.69 ft (NAVD 88)





Wind

Results:

Wind Speed	92 Vmph
10-year MRI	64 Vmph
25-year MRI	70 Vmph
50-year MRI	74 Vmph
100-year MRI	79 Vmph
300-year MRI	87 Vmph
700-year MRI	92 Vmph
1,700-year MRI	99 Vmph
3,000-year MRI	103 Vmph
10,000-year MRI	113 Vmph
100,000-year MRI	129 Vmph
1,000,000-year MRI	147 Vmph

Data Source: ASCE/SEI 7-22, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Fri Feb 03 2023

Seismic Parameters – 2022 California Building Code

The Site Class per Section 1613 of the 2022 California Building Code (2022 CBC) and ASCE 7-16, Chapter 20 is based upon the site soil conditions. It is our opinion that a Site Class D is most consistent with the subject site soil conditions. For seismic design of the structures based on the seismic provisions of the 2022 CBC, we recommend the following parameters:

Seismic Item	Value	CBC Reference
Site Class	D	Section 1613.2.2
Site Coefficient F_a	1.200	Table 1613.2.3 (1)
S_s	1.839	Section 1613.2.1
S_{MS}	2.207	Section 1613.2.3
S_{DS}	1.472	Section 1613.2.4
Site Coefficient F_v	1.700	Table 1613.2.3 (2)
S_1	0.692	Section 1613.2.1
S_{M1}	1.176	Section 1613.2.3
S_{D1}	0.784	Section 1613.2.4
T_S	0.533	Section 1613.2

* Based on Equivalent Lateral Force (ELF) Design Procedure being used.

*Geotech Report by Krazan & Associates, Inc., dated February 21, 2023.

Seismic Load Calculation

Seismic Force to Nonstructural Components Calculations As Per ASCE 7-22 Section 13

Design Coefficients

Site Class: D
Importance Factor: 1.00 (ASCE 7-22, Table 1.5-2)
Risk Category: II (ASCE 7-22, Table 1.5-1)

S_{DS}:	1.472	(ASCE 7-22 Eq 11.4-3)			
A_p:	1.000	(ASCE 7-22 Table 13.6-1)			
Z:	3.3 ft	(Rad Center)	H:	6.5 ft	(Overall Height)
H_f:	1	(ASCE 7-22 Section 13.3.1.1)	R_{po} :	1.5	(ASCE 7-22 Table 13.6-1)
R_μ :	1	(ASCE 7-22 Section 13.3.1.2)	Ω_0 :	2	(ASCE 7-22 Table 15.4-2)
R:	1.25	(ASCE 7-22 Table 15.4-2)	C_{AR} :	2.2	(ASCE 7-22 Table 13.6-1)
I_e :	1	(ASCE 7-22 Table 1.5-2)	I_p :	1	(ASCE 7-22 Section 13.1.3)

Seismic Design Force (F_p) Calculation

F_p:	0.864	W_p	(ASCE 7-22 Eq 13.3-1)
$F_{p\ Max}$:	2.355	W_p	(ASCE 7-22 Eq 13.3-2)
$F_{p\ Min}$:	0.442	W_p	(ASCE 7-22 Eq 13.3-3)

$$Fpmin \leq Fp \leq Fpmax$$

F_p to use: 0.864 W_p W_p: Component Operating Weight

The Horizontal seismic design force shall be calculated as

$$F_p = 0.4SDSIpWp\left(\frac{H_f}{R_\mu}\right)\left(\frac{C_{AR}}{R_{po}}\right)$$

F_p = 0.864 W_p

CONCRETE PAD

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Concrete Pad Calculation

LETS AMERICA Engineers & Architects

Concrete Pad Check for the Proposed Appurtenances

S.No	Name of the Appurtenance	Weight (lbs)	Quantity	Total Weight (lbs)
1	Battery Cabinet	3,000.0	1	3000
2	Power Cabinet	1,853.0	1	1853
3	Misc. Cabinet	1,853.0	1	1853
4	Generator	3,000.0	1	3000
5	Service Light	8.5	4	34
6	Intersect Cabinet	250.0	1	250
7	Telco Cabinet	300.0	1	300
8	Electrical Meter	50.0	1	50
9	Fire Extinguisher	5.0	1	5
10	Raycap	32.0	2	64
11	Radios	75.0	3	225
12	Radios	70.0	3	210
13	H-Frame	176.7	1	177
14	H-Frame	110.5	2	221
15	Generator Doc Box	50.0	1	50
16	Shutdown Switch	50.0	1	50
			Total =	11342

Soil Bearing Check:

(As per Krazan & Associates, Inc., dated February 21,2023)

Soil Bearing Capacity = 2925 psf

Total Weight = 11342 lbs

Pad Dimension= 19' X 19'

Appurtenance Load= 10172 lbs/(19' X 19')

= 31.418 psf

Concrete Pad= 150 pcf x 0.5 ft

= 75 psf

Total Load= Concrete pad + Appurtenance load

Total Load= 106.42 psf

Soil Bearing Capacity > Total Load

Minimum Steel Requirements Check:

Concrete Pad Thickness= 6 in

Concrete Pad Unit Width= 12 in

Minimum Steel Requirements= .0018 x 6" x 12"

= 0.1296 in^2

Reinforcements Provided= #4 bars @ 12" o.c.

= 0.2 in^2

Provided Steel > Required Steel

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CABINET ANCHORAGE CALCULATION

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CABINET OVERTURNING AND ANCHOR BOLT DESIGN

Site Name: Sanders Ranch
Site ID: 304480
Design By: RAM

DESIGN PARAMETERS:

Site Class:	D		Codes:	IBC 2021
Risk Category:	II			2022 CBC
Nominal Wind Speed:	92	mph		

CABINET INFORMATION:

We=	575	lbs	*We-Weight of empty Cabinet*
Wf=	3000	lbs	*Wf-Weight of full Cabinet*
L=	2.75	ft	*L-Length of the Cabinet*
H=	7.50	ft	*H-Height of the Cabinet*
w=	2.47	ft	*w-Width of the Cabinet*

SEISMIC LOAD CALCULATION:

S_{DS} =	1.472	R_μ =	1	R=	1.25	I_e=	1
a_p=	1	H_f =	1			Ω_0 =	2
I_p=	1	C_{AR}=	1			R_{po} =	1.5

$$F_p = 0.4 S_{DS} I_p W_f \left[\frac{H_f}{R_\mu}\right]\left[\frac{C_{AR}}{R_{po}}\right] =$$ 1177.6 lbs ASCE 7-22 (Tab-13.3-1)

$$F_{p\,(Max)} = 1.6 S_{DS} I_p W_f =$$ 7065.6 lbs ASCE 7-22 (Tab-13.3-2)

$$F_{p\,(Min)} = 0.3 S_{DS} I_p W_f =$$ 1324.8 lbs ASCE 7-22 (Tab-13.3-3)

F_p is not required to be taken as greater than (13.3-2) and F_p shall not be taken as less than (13.3-3)

$F_p =$ 1324.8 lbs

WIND LOAD CALCULATION:

Wind Speed =	92	mph	Zg =	900
Exposure =	C		α =	9.5
K_{zt} =	1.0		Kz =	0.85
K_d =	0.85			
G =	0.85			
Ke =	0.97			

F = $q_z K_d G C_f A_f$ lbs ASCE 7-22 (Tab-13.3-3)

q_z = $0.00256*Kzt*Kz*Ke*V^2$ ASCE 7-22 (Tab-13.3-3)

q_z =	15.33	psf
C_f =	1.59	
A_f =	20.6	ft^2
F =	428	lbs

CABINET OVERTURNING AND ANCHOR BOLT DESIGN

Site Name: Sanders Ranch
Site ID: 304480
Design By: RAM

OVERTURNING MOMENT:

$$M_{OTM(W)} = F\left(\frac{1}{2}H\right) \qquad M_{OTM(s)} = F_p\left(\frac{1}{2}H\right)$$

M_{OTM} (S)=	6624	lb-ft
M_{OTM} (W)=	2142	lb-ft

RESISTING MOMENT:

$$M_R = W_e\left(\frac{1}{2}\mathrm{w}\right)$$

M_R =	710	lb-ft

LOAD COMBINATIONS:

LC1: 1.2D+1.0W	*ASCE 7-22 Section 2.3*
LC2: 1.2D+1.0E	*D-Dead Load*
LC3: 0.9D+1.0W	*W-Wind Load*
LC4: 0.9D+1.0E	*E-Seismic Load*

CALCULATION FOR MOMENT:

$$M = M_{OTM} - M_R$$

M_{LC1} =	1290	lb-ft	
M_{LC2} =	5772	lb-ft	
M_{LC3} =	1503	lb-ft	
M_{LC4} =	5985	lb-ft	<----GOVERNS
Uplift force (T*) =	M/w		*Positive Direction load
T* =	2423	lbs	represents the Tension Force
No. of bolts accounts for Tension =	2		
Force per Bolt =	1212	lbs < 6880 lbs	
SHEAR FORCE :			
Shear Force (F) =	1325	lbs	
No. of bolts accounts for Shear =	4		
Force per Bolt =	331.20	lbs < 3180 lbs	

Use (4) 1/2" DIA. Hilti Kwik Bolts TZ Stainless Steel anchors (2 per side) with 3.25 Inch Min Embedment.

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GENERATOR ANCHORAGE CALCULATION

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GENERATOR OVERTURNING AND ANCHOR BOLT DESIGN

Site Name: Sanders Ranch
Site ID: 304480
Design By: RAM

DESIGN PARAMETERS:

Site Class:	D		Codes:	IBC 2021
Risk Category:	II			2022 CBC
Nominal Wind Speed:	92	mph		

GENERATOR INFORMATION:

We=	1455	lbs	*We-Weight of empty Generator*
Wf=	3000	lbs	*Wf-Weight of full Generator*
L=	4.84	ft	*L-Length of the Generator*
H=	7.42	ft	*H-Height of the Generator*
w=	2.87	ft	*w-Width of the Generator*

SEISMIC LOAD CALCULATION:

S_{DS} =	1.472	R_μ =	1	R=	1.25	I_e=	1
a_p=	1	H_f =	1			Ω_0 =	2
I_p=	1	C_{AR}=	1			R_{po} =	1.5

$$F_p = 0.4 S_{DS} I_p W_f \left[\frac{H_f}{R_\mu}\right]\left[\frac{C_{AR}}{R_{po}}\right] =$$ 1177.6 lbs ASCE 7-22 (Tab-13.3-1)

$$F_{p\,(Max)} = 1.6 S_{DS} I_p W_f =$$ 7065.6 lbs ASCE 7-22 (Tab-13.3-2)

$$F_{p\,(Min)} = 0.3 S_{DS} I_p W_f =$$ 1324.8 lbs ASCE 7-22 (Tab-13.3-3)

F_p is not required to be taken as greater than (13.3-2) and F_p shall not be taken as less than (13.3-3)

$F_p =$ 1324.8 lbs

WIND LOAD CALCULATION:

Wind Speed =	92	mph	Zg =	900
Exposure =	C		α =	9.5
K_{zt} =	1.0		Kz =	0.85
K_d =	0.85			
G =	0.85			
Ke =	0.97			

F = $q_z K_d G C_f A_f$ lbs ASCE 7-22 (Tab-13.3-3)

q_z = $0.00256 * Kzt * Kz * Ke * V^2$ ASCE 7-22 (Tab-13.3-3)

q_z =	15.33	psf
C_f =	1.52	
A_f =	35.9	ft^2
F =	711	lbs

GENERATOR OVERTURNING AND ANCHOR BOLT DESIGN

Site Name: Sanders Ranch
Site ID: 304480
Design By: RAM

OVERTURNING MOMENT:

$$M_{OTM(W)} = F\left(\frac{1}{2}H\right) \qquad M_{OTM(s)} = F_p\left(\frac{1}{2}H\right)$$

M_{OTM} (S)=	6624	lb-ft
M_{OTM} (W)=	3555	lb-ft

RESISTING MOMENT:

$$M_R = W_e\left(\frac{1}{2}\mathrm{w}\right)$$

M_R =	2088	lb-ft

LOAD COMBINATIONS:

LC1: 1.2D+1.0W	*ASCE 7-22 Section 2.3*
LC2: 1.2D+1.0E	*D-Dead Load*
LC3: 0.9D+1.0W	*W-Wind Load*
LC4: 0.9D+1.0E	*E-Seismic Load*

CALCULATION FOR MOMENT:

$$M = M_{OTM} - M_R$$

M_{LC1} =	1049	lb-ft	
M_{LC2} =	4118	lb-ft	
M_{LC3} =	1676	lb-ft	
M_{LC4} =	4745	lb-ft	<----GOVERNS
Uplift force (T*) =	M/w		*Positive Direction load
T* =	1653	lbs	represents the Tension Force
No. of bolts accounts for Tension =	2		
Force per Bolt =	827	lbs < 6880 lbs	
SHEAR FORCE :			
Shear Force (F) =	1325	lbs	
No. of bolts accounts for Shear =	4		
Force per Bolt =	331.20	lbs < 3180 lbs	

Use (4) 1/2" DIA. Hilti Kwik Bolts TZ Stainless Steel anchors (2 per side) with 3.25 Inch Min Embedment.

TABLE 4—DESIGN INFORMATION, STAINLESS STEEL KB-TZ

DESIGN INFORMATION	Symbol	Units	Nominal anchor diameter											
			3/8		1/2				5/8			3/4		
Anchor O.D.	d_a	in. (mm)	0.375 (9.5)		0.5 (12.7)				0.625 (15.9)			0.75 (19.1)		
Effective min. embedment[1]	h_{ef}	in. (mm)	2 (51)		2 (51)		3 1/4 (83)		3 1/8 (79)	4 (102)		3 3/4 (95)		4 3/4 (121)
Min. member thickness	h_{min}	in. (mm)	4 (102)	5 (127)	4 (102)	6 (152)	6 (152)	8 (203)	5 (127)	6 (152)	8 (203)	6 (152)	8 (203)	8 (203)
Critical edge distance	c_{ac}	in. (mm)	4 3/8 (111)	3 7/8 (98)	5 1/2 (140)	4 1/2 (114)	7 1/2 (191)	6 (152)	7 (178)	8 7/8 (225)	6 (152)	10 (254)	7 (178)	9 (229)
Min. edge distance	c_{min}	in. (mm)	2 1/2 (64)		2 7/8 (73)		2 1/8 (54)		3 1/4 (83)	2 3/8 (60)		4 1/4 (108)		4 (102)
	for $s \geq$	in. (mm)	5 (127)		5 3/4 (146)		5 1/4 (133)		5 1/2 (140)	5 1/2 (140)		10 (254)		8 1/2 (216)
Min. anchor spacing	s_{min}	in. (mm)	2 1/4 (57)		2 7/8 (73)		2 (51)		2 3/4 (70)	2 3/8 (60)		5 (127)		4 (102)
	for $c \geq$	in. (mm)	3 1/2 (89)		4 1/2 (114)		3 1/4 (83)		4 1/8 (105)	4 1/4 (108)		9 1/2 (241)		7 (178)
Min. hole depth in concrete	h_o	in. (mm)	2 5/8 (67)		2 5/8 (67)		4 (102)		3 3/4 (98)	4 3/4 (121)		4 1/2 (117)		5 3/4 (146)
Min. specified yield strength	f_y	lb/in^2 (N/mm^2)	92,000 (634)		92,000 (634)				92,000 (634)			76,125 (525)		
Min. specified ult. Strength	f_{uta}	lb/in^2 (N/mm^2)	115,000 (793)		115,000 (793)				115,000 (793)			101,500 (700)		
Effective tensile stress area	$A_{se,N}$	in^2 (mm^2)	0.052 (33.6)		0.101 (65.0)				0.162 (104.6)			0.237 (152.8)		
Steel strength in tension	N_{sa}	lb (kN)	5,968 (26.6)		11,554 (51.7)				17,880 (82.9)			24,055 (107.0)		
Steel strength in shear	V_{sa}	lb (kN)	4,720 (21.0)		6,880 (30.6)				9,870 (43.9)			15,711 (69.9)		
Pullout strength in tension, seismic[2]	$N_{p,eq}$	lb (kN)	2,340 (10.4)		2,735 (12.2)		NA		NA	5,840 (26.0)		8,110 (36.1)		NA
Steel strength in shear, seismic[2]	$V_{sa,eq}$	lb (kN)	2,825 (12.6)		6,880 (30.6)				9,350 (41.6)			12,890 (57.3)		
Pullout strength uncracked concrete[3]	$N_{p,uncr}$	lb (kN)	2,630 (11.7)		NA		5,760 (25.6)		NA			NA		12,040 (53.6)
Pullout strength cracked concrete[3]	$N_{p,cr}$	lb (kN)	2,340 (10.4)		3,180 (14.1)		NA		NA	5,840 (26.0)		8,110 (36.1)		NA
Anchor category[4]			1		2				1					
Effectiveness factor k_{uncr} uncracked concrete			24											
Effectiveness factor k_{cr} cracked concrete[5]			17		24		17		17	17		24		17
$\Psi_{C,N} = k_{uncr}/k_{cr}$[6]			1.0											
Strength reduction factor ϕ for tension, steel failure modes[7]			0.75											
Strength reduction factor ϕ for shear, steel failure modes[7]			0.65											
Strength reduction ϕ factor for tension, concrete failure modes, Condition B[8]			0.65		0.55		0.65							
Coefficient for pryout strength, k_{cp}			1.0				2.0							
Strength reduction ϕ factor for shear, concrete failure modes, Condition B[8]			0.70											
Axial stiffness in service load range[9]	β_{uncr}	lb/in.	120,000											
	β_{cr}	lb/in.	90,000											

For **SI:** 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa For pound-inch units: 1 mm = 0.03937 inches.

[1]See Fig. 2.
[2]See Section 4.1.8 of this report. NA (not applicable) denotes that this value does not control for design.
[3]For all design cases $\Psi_{c,P}$ =1.0. NA (not applicable) denotes that this value does not control for design. See Section 4.1.4 of this report.
[4]See ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable.
[5]See ACI 318-14 17.4.2.2 or ACI 318-11 D.5.2.2, as applicable.
[6]For all design cases $\Psi_{c,N}$ =1.0. The appropriate effectiveness factor for cracked concrete (k_{cr}) or uncracked concrete (k_{uncr}) must be used.
[7]The KB-TZ is a ductile steel element as defined by ACI 318 D.1.
[8]For use with the load combinations of ACI 318-14 Section 5.3 or ACI 318-11 Section 9.2, as applicable. Condition B applies where supplementary reinforcement in conformance with ACI 318-14 17.3.3(c) or ACI 318-11 D.4.3(c), as applicable, is not provided, or where pullout or pryout strength governs. For cases where the presence of supplementary reinforcement
can be verified, the strength reduction factors associated with Condition A may be used.
[9]Mean values shown, actual stiffness may vary considerably depending on concrete strength, loading and geometry of application.

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304480
February 28, 2023

H-FRAME DESIGN

112 S. Kyrene Rd., Ste. 1, Chandler, AZ 85226 | LETS America, Inc. (a SAR Group Company)
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Horizontal Seismic Design Force (F_p): 0.864 W_P

Support Node	Max Reaction (kip)	Support Node	X-Direction Load (kips)	Z-Direction Load (kips)
N5	0.022	N5	0.019	0.019
N6	0.066	N6	0.057	0.057
N7	0.091	N7	0.079	0.079
N8	0.062	N8	0.054	0.054
N9	0.096	N9	0.083	0.083
N10	0.059	N10	0.051	0.051
N19	0.067	N19	0.058	0.058
N20	0.142	N20	0.123	0.123
N21	0.140	N21	0.121	0.121

Sanders Ranch
304480
February 28, 2023

Load Calculation

LETS AMERICA Engineers & Architects

Mount Height: 2.8 ft
Nominal Wind Speed: 92.0 mph

Wind Parameters

Gust Effect Factor Gh:	0.85	I:	1	K_e:	0.97
K_z:	0.85	q_z:	17.80	Z_s:	839
K_{zt}:	1.00	C/D:	84.82	C/D_{iz}:	84.82
K_d:	0.85				

Appurtenances Wind Load Calculation

Wind Load on Appurtenances = $q_z * C_a * G_h * A$ TIA-222-H (Section 2.6.11.2) C_a= 1.216

= 15.43 psf

Appurtenances

Model	Weight (lbs)	H (in)	W (in)	D (in)
Telco Box	300.0	44.0	26.0	15.0
Intersect Cabinet	250.0	59.0	29.0	12.3
Service Light	8.5	9.6	6.7	4.5

Mount Members

Member	W (in)	D_C (in)
Pipe 3.0" STD	3.5	3.5
P1000	1.6	3.3

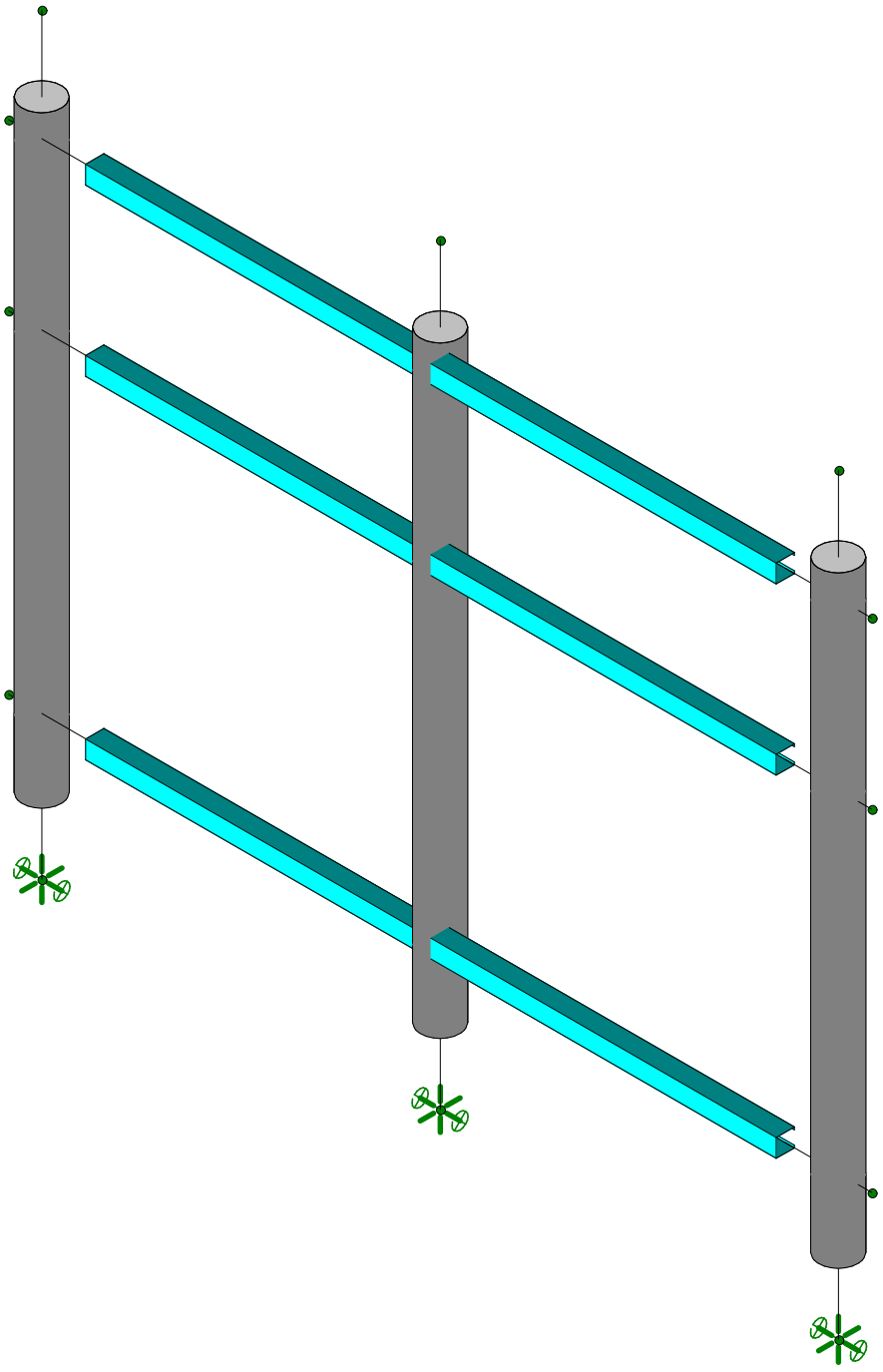
Load Calculation

Appurtenances

S.No	Appurtenance	Elevation (ft)	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Front Wind Load (kips)	Side Wind Load (kips)
1	Telco Box	7.80	0	100%	0%	0.144	0.000
2	Intersect Cabinet	6.16	0	100%	100%	0.216	0.100
3	Service Light	5.67	0	100%	100%	0.008	0.005

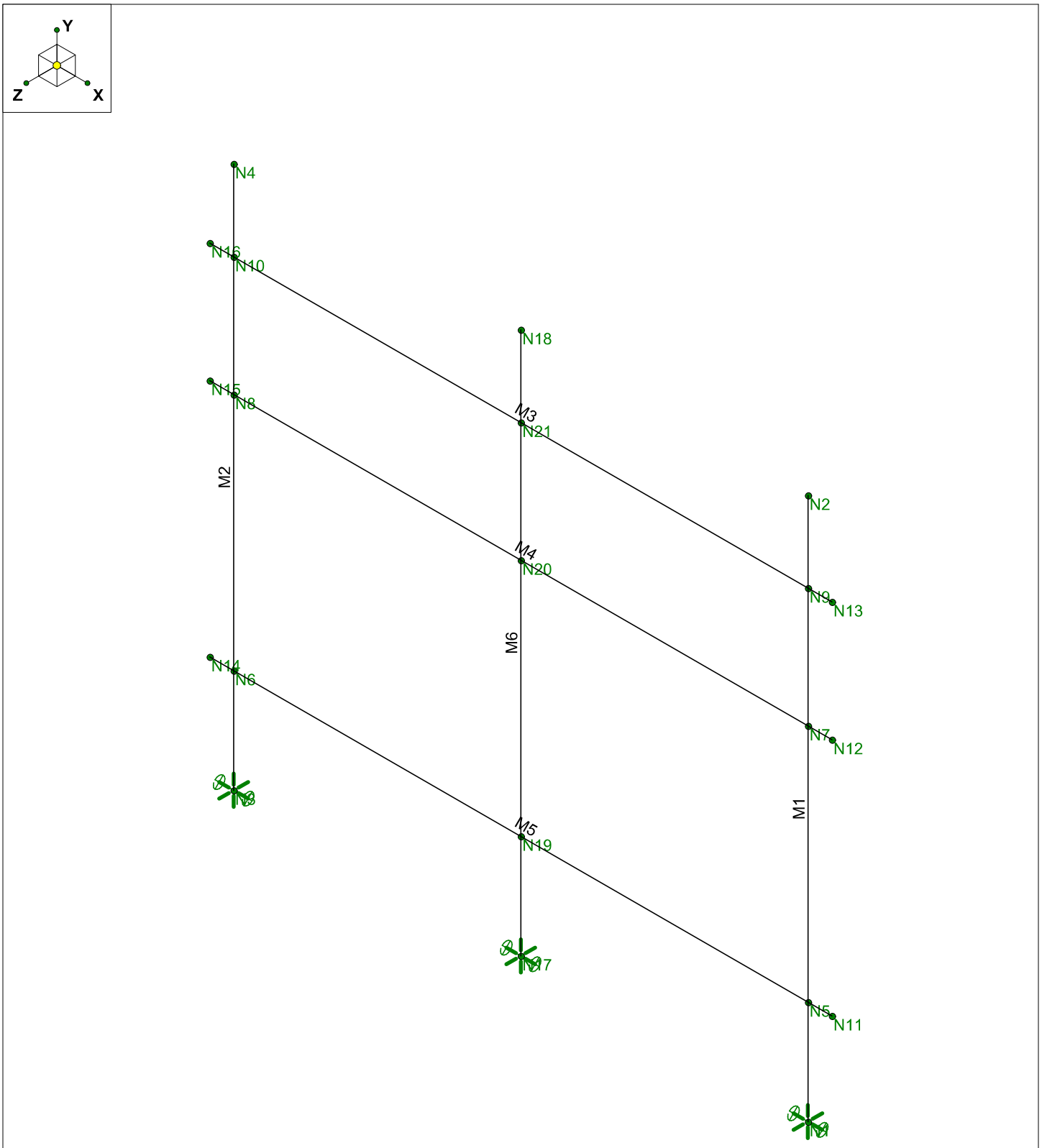
Mount Members

Member	Front Wind Load (k/ft)	Side Wind Load (k/ft)
Pipe 3.0" STD	0.005	0.005
P1000	0.004	0.000



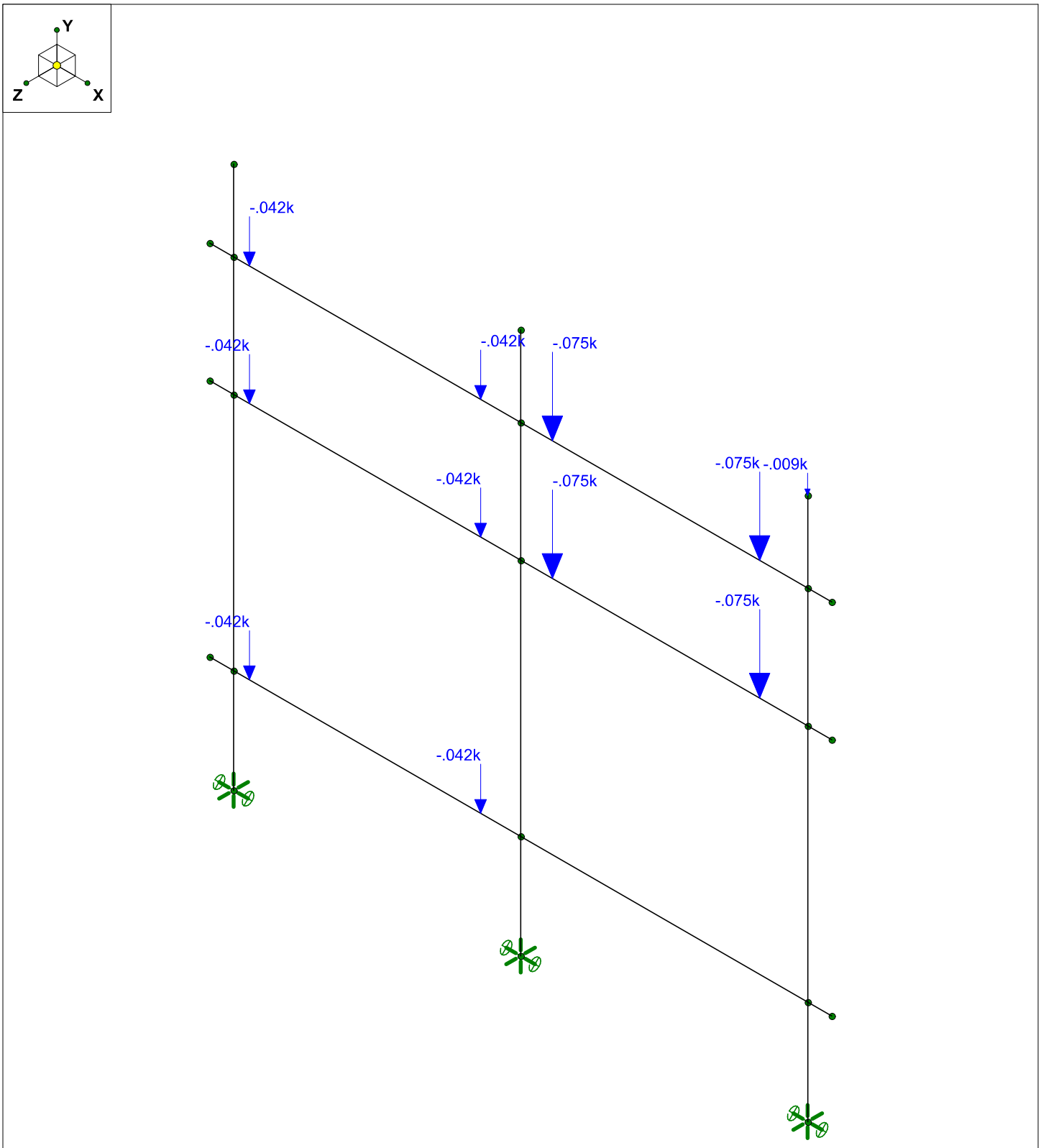
Envelope Only Solution

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RAM		Feb 28, 2023 at 10:41 AM
S2-SCVO-027		304480.R3D



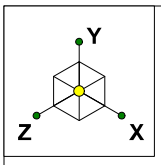
Envelope Only Solution

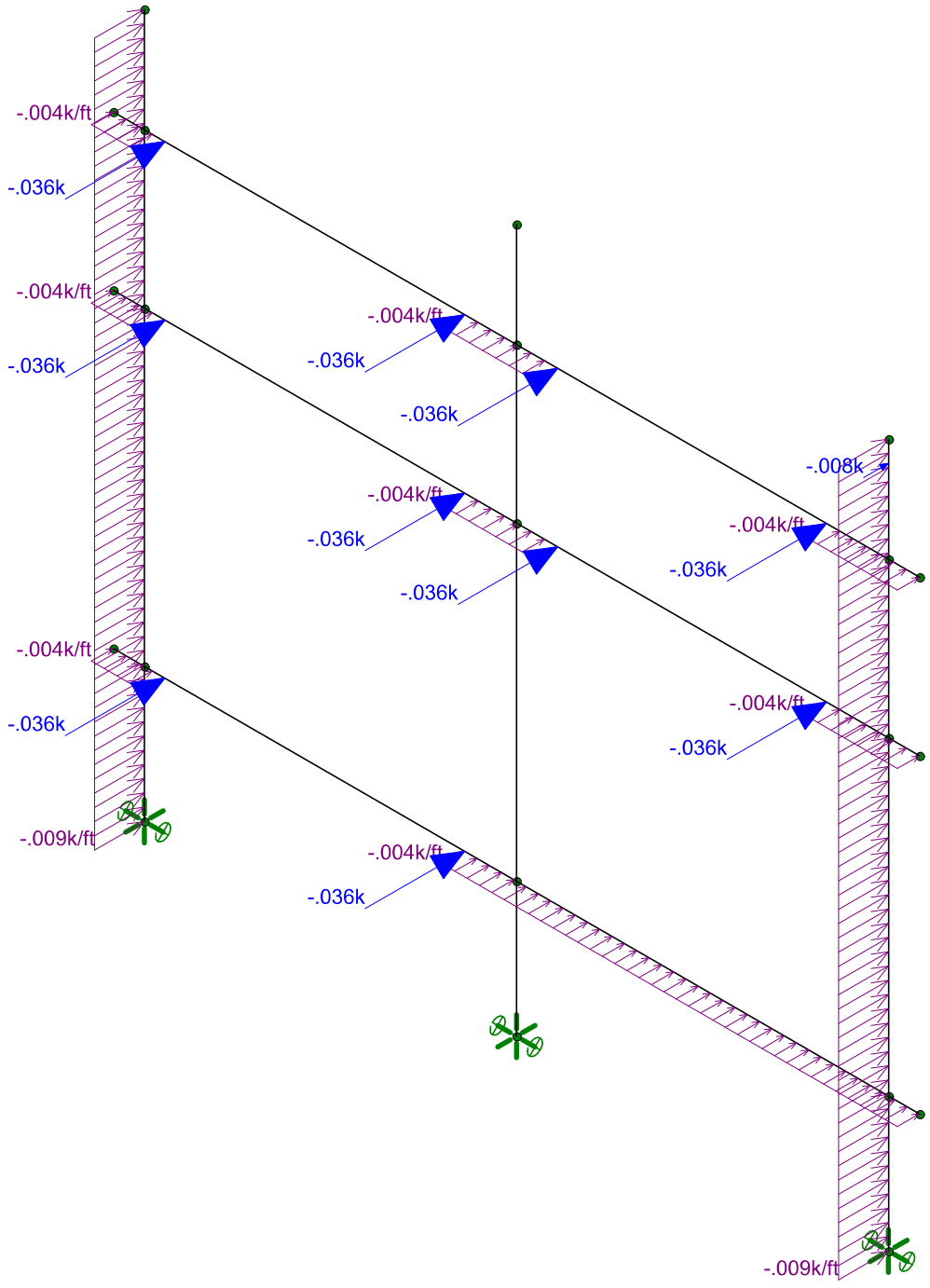
LETS America, Inc.	304480 - H-Frame	SK - 2
RAM		Feb 28, 2023 at 10:42 AM
S2-SCVO-027		304480.R3D



Loads: BLC 1, Dead Load
Envelope Only Solution

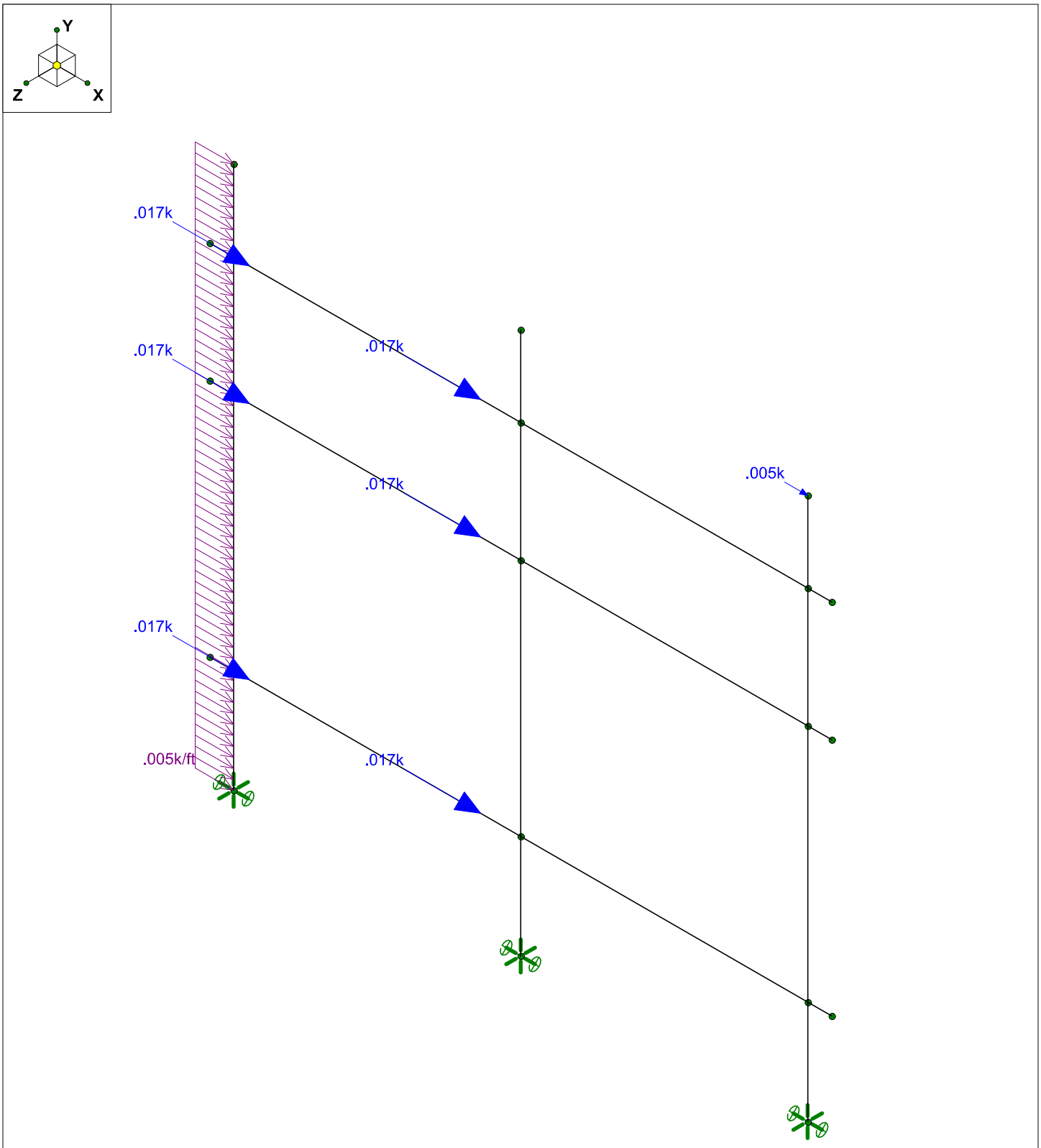
LETS America, Inc.	304480 - H-Frame	SK - 3
RAM		Feb 28, 2023 at 10:42 AM
S2-SCVO-027		304480.R3D





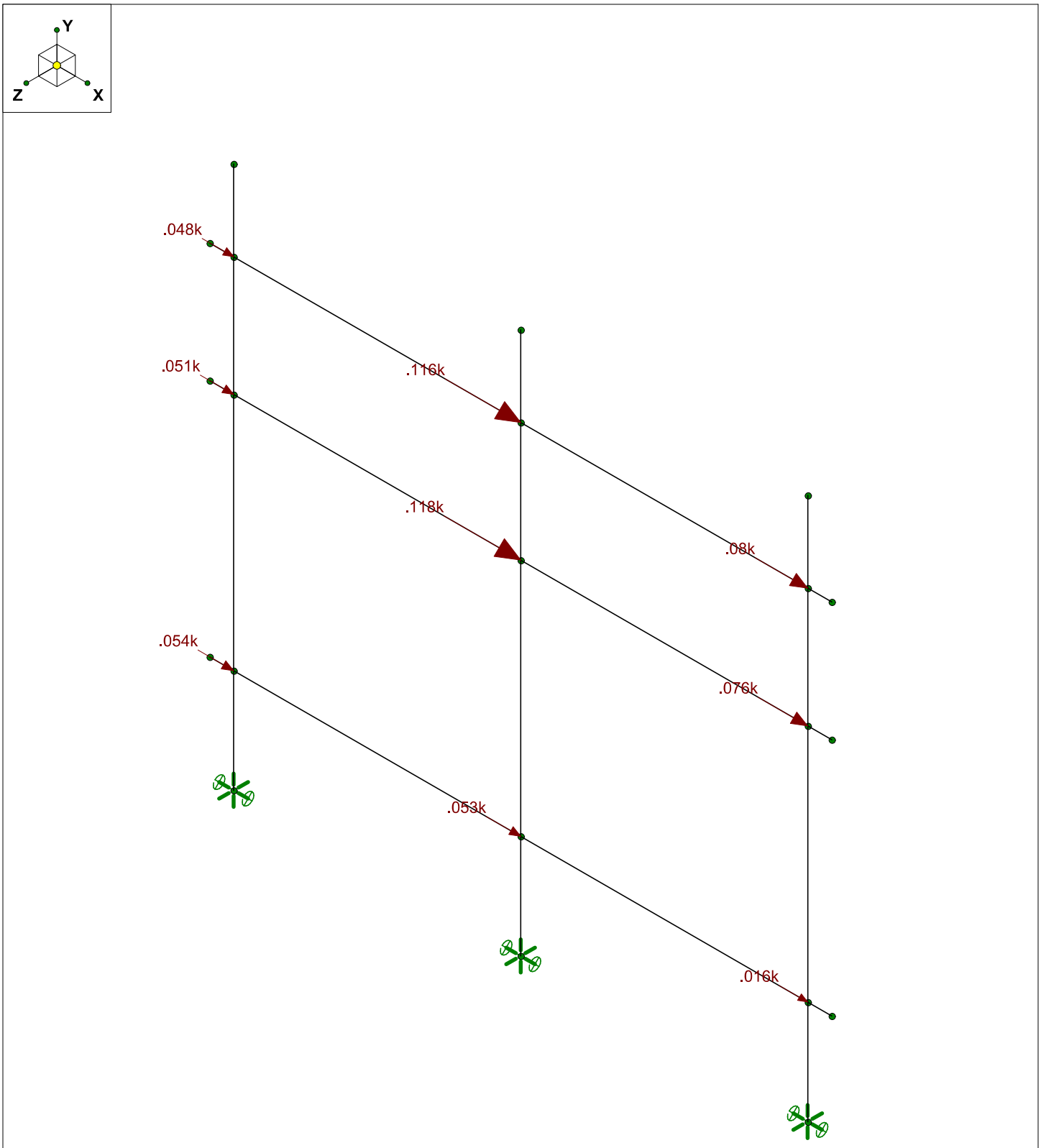
Loads: BLC 2, Front Wind Load
Envelope Only Solution

LETS America, Inc.	304480 - H-Frame	SK - 4
RAM		Feb 28, 2023 at 10:42 AM
S2-SCVO-027		304480.R3D



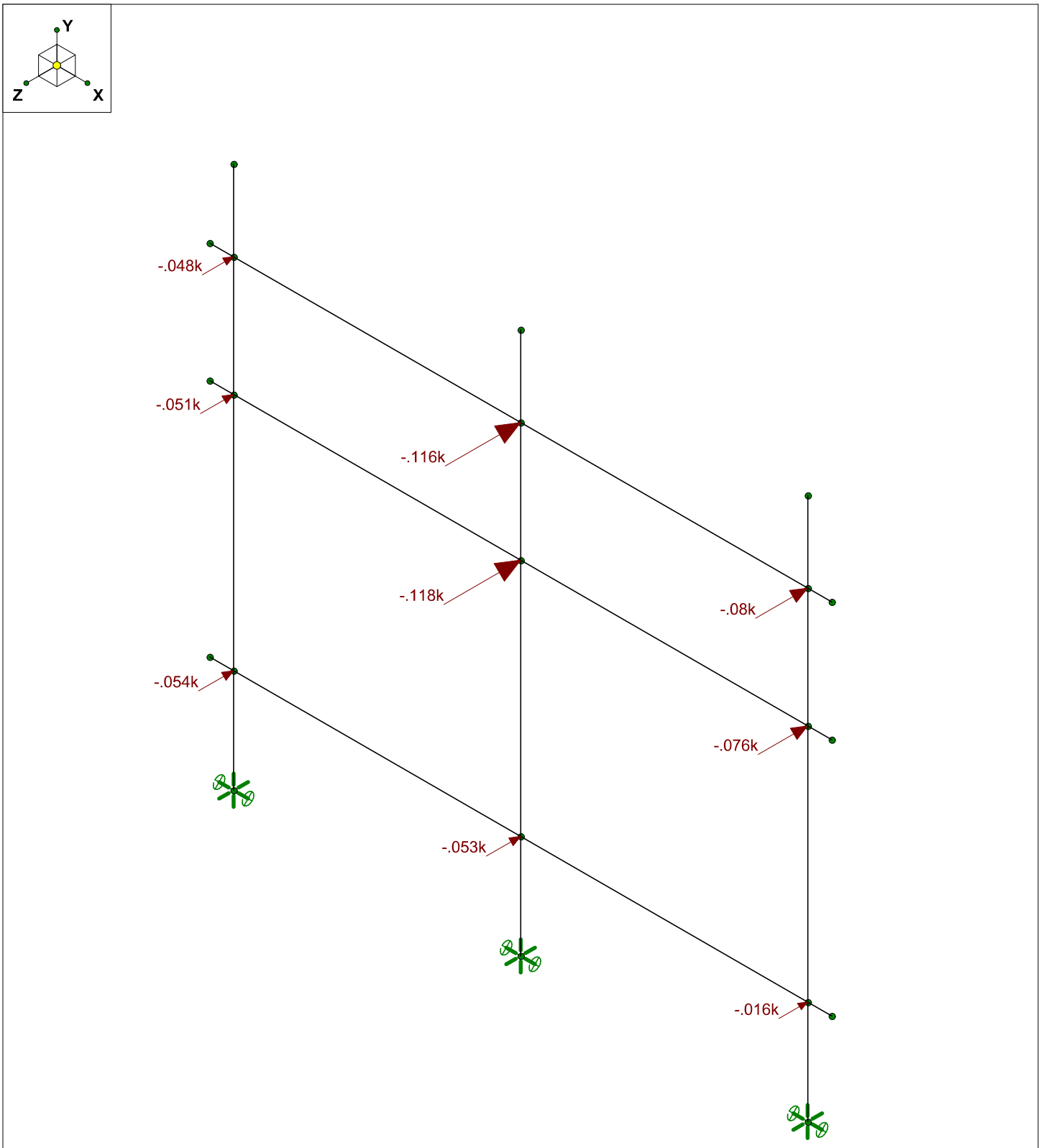
Loads: BLC 3, Side Wind Load
Envelope Only Solution

LETS America, Inc.	304480 - H-Frame	SK - 5
RAM		Feb 28, 2023 at 10:43 AM
S2-SCVO-027		304480.R3D



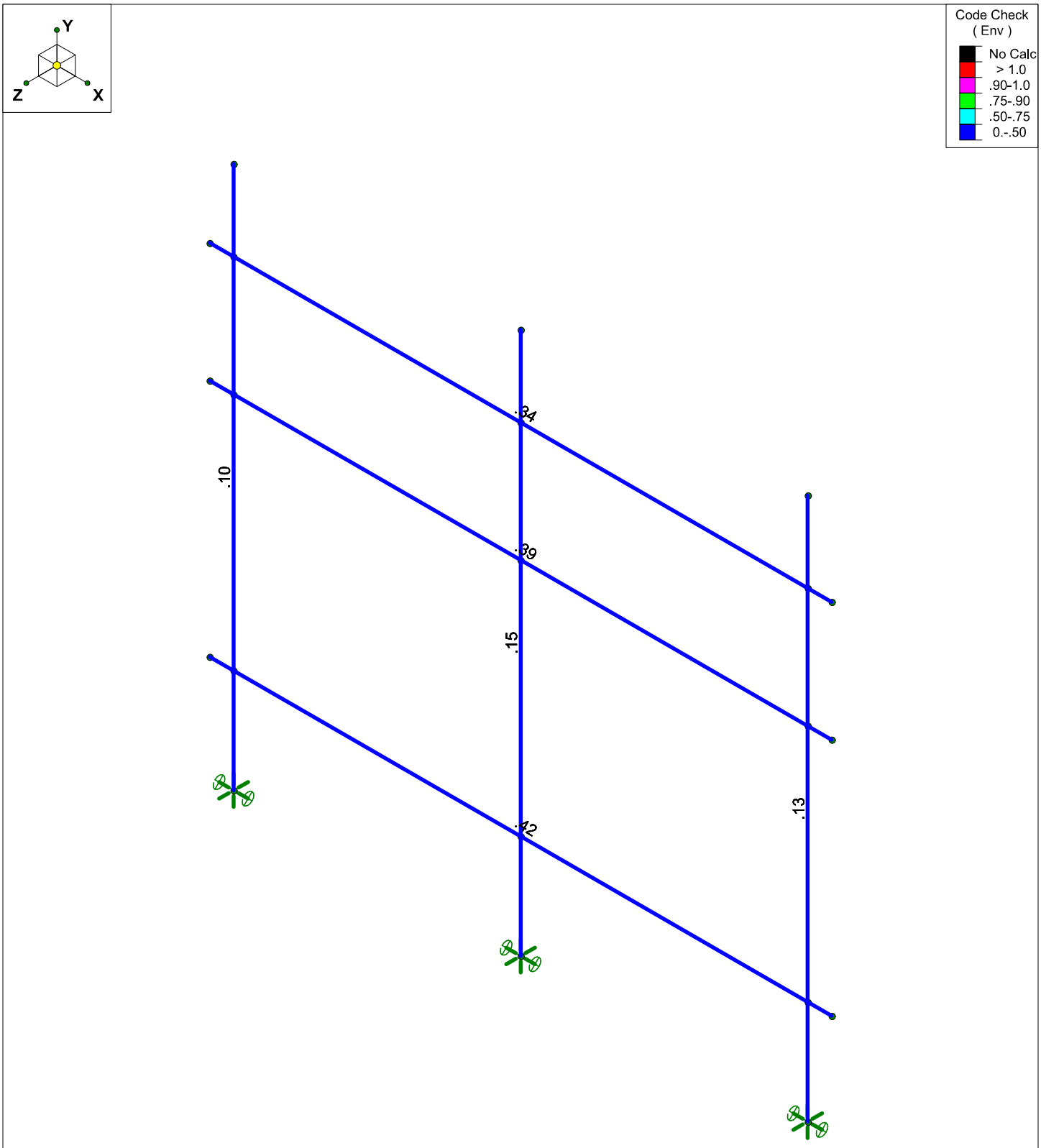
Loads: BLC 4, Seismic Load X
Envelope Only Solution

LETS America, Inc.	304480 - H-Frame	SK - 6
RAM		Feb 28, 2023 at 10:43 AM
S2-SCVO-027		304480.R3D



Loads: BLC 5, Seismic Load Z
Envelope Only Solution

LETS America, Inc.	304480 - H-Frame	SK - 7
RAM		Feb 28, 2023 at 10:43 AM
S2-SCVO-027		304480.R3D



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

LETS America, Inc.	304480 - H-Frame	SK - 8
RAM		Feb 28, 2023 at 10:43 AM
S2-SCVO-027		304480.R3D

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	1
Ct Exp. Z	1
SD1	3
SDS	3
S1	3
TL (sec)	3
Risk Cat	I or II
Drift Cat	High Drift Design
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Material Takeoff

	Material	Size	Pieces	Length[ft]	Weight[LB]
1	Hot Rolled Steel				
2	A53 Gr.B	PIPE_3.0	3	17	119.814
3	Total HR Steel		3	17	119.814
4					
5	Cold Formed Steel				
6	A570 Gr.33	CS1.625x1.625	3	19.5	32.182
7	Total CF Steel		3	19.5	32.182

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[lb/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[lb/ft...	Yield[ksi]	Fu[ksi]
1	A570 Gr.33	29500	11346	.3	.65	490	33	52

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe_3.0	PIPE_3.0	Column	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	P1000	CS1.625x1.625	Beam	None	A570 Gr.33	Typical	.485	.134	.193	.002

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	10.375	0	0	0	
2	N2	10.375	5.67	0	0	
3	N3	4.375	0	0	0	
4	N4	4.375	5.67	0	0	
5	N5	10.375	1.083	0	0	
6	N6	4.375	1.083	0	0	
7	N7	10.375	3.5833	0	0	
8	N8	4.375	3.5833	0	0	
9	N9	10.375	4.83	0	0	
10	N10	4.375	4.83	0	0	
11	N11	10.625	1.083	0	0	
12	N12	10.625	3.5833	0	0	
13	N13	10.625	4.83	0	0	
14	N14	4.125	1.083	0	0	
15	N15	4.125	3.5833	0	0	
16	N16	4.125	4.83	0	0	
17	N17	7.375	0	0	0	
18	N18	7.375	5.67	0	0	
19	N19	7.375	1.083	0	0	
20	N20	7.375	3.5833	0	0	
21	N21	7.375	4.83	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction		
2	N3	Reaction	Reaction	Reaction	Reaction		
3	N17	Reaction	Reaction	Reaction	Reaction		

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Pipe_3.0	Column	Pipe	A53 Gr.B	Typical
2	M2	N3	N4			Pipe_3.0	Column	Pipe	A53 Gr.B	Typical
3	M3	N16	N13		180	P1000	Beam	None	A570 Gr.33	Typical
4	M4	N15	N12		180	P1000	Beam	None	A570 Gr.33	Typical
5	M5	N14	N11		180	P1000	Beam	None	A570 Gr.33	Typical
6	M6	N17	N18			Pipe_3.0	Column	Pipe	A53 Gr.B	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Pipe_3.0	5.67	2.5	2.5	2.5	2.5		1	1		Lateral
2	M2	Pipe_3.0	5.67	2.5	2.5	2.5	2.5		1	1		Lateral
3	M6	Pipe_3.0	5.67	2.5	2.5	2.5	2.5		1	1		Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-torque[ft]	Kyy	Kzz	Cb	R	a[ft]	Funct...
1	M3	P1000	6.5	3	3	3	3		1	1				Lateral
2	M4	P1000	6.5	3	3	3	3		1	1				Lateral
3	M5	P1000	6.5	3	3	3	3		1	1				Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Dead Load	None		-1			11			
2	Front Wind Load	None					11	10		
3	Side Wind Load	None					7	1		
4	Seismic Load X	None				9				
5	Seismic Load Z	None				9				

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	Dead 1.4D	Yes	Y		1	1.4																				
2	1.2D + 1W (0 Deg)	Yes	Y		1	1.2	2	1	3																	
3	1.2D + 1W (30 Deg)	Yes	Y		1	1.2	2	.866	3	.5																
4	1.2D + 1W (60 Deg)	Yes	Y		1	1.2	2	.5	3	.866																
5	1.2D + 1W (90 Deg)	Yes	Y		1	1.2	2		3	1																
6	1.2D + 1W (120 Deg)	Yes	Y		1	1.2	2	-.5	3	.866																
7	1.2D + 1W (150 Deg)	Yes	Y		1	1.2	2	-.866	3	.5																
8	1.2D + 1W (180 Deg)	Yes	Y		1	1.2	2	-1	3																	
9	1.2D + 1W (210 Deg)	Yes	Y		1	1.2	2	-.866	3	-.5																
10	1.2D + 1W (240 Deg)	Yes	Y		1	1.2	2	-.5	3	-.866																
11	1.2D + 1W (270 Deg)	Yes	Y		1	1.2	2		3	1																
12	1.2D + 1W (300 Deg)	Yes	Y		1	1.2	2	.5	3	-.866																
13	1.2D + 1W (330 Deg)	Yes	Y		1	1.2	2	.866	3	-.5																
14	0.9D + 1W (0 Deg)	Yes	Y		1	.9	2	1	3																	
15	0.9D + 1W (30 Deg)	Yes	Y		1	.9	2	.866	3	.5																
16	0.9D + 1W (60 Deg)	Yes	Y		1	.9	2	.5	3	.866																
17	0.9D + 1W (90 Deg)	Yes	Y		1	.9	2		3	1																
18	0.9D + 1W (120 Deg)	Yes	Y		1	.9	2	-.5	3	.866																
19	0.9D + 1W (150 Deg)	Yes	Y		1	.9	2	-.866	3	.5																
20	0.9D + 1W (180 Deg)	Yes	Y		1	.9	2	-1	3																	
21	0.9D + 1W (210 Deg)	Yes	Y		1	.9	2	-.866	3	-.5																
22	0.9D + 1W (240 Deg)	Yes	Y		1	.9	2	-.5	3	-.866																
23	0.9D + 1W (270 Deg)	Yes	Y		1	.9	2		3	1																
24	0.9D + 1W (300 Deg)	Yes	Y		1	.9	2	.5	3	-.866																
25	0.9D + 1W (330 Deg)	Yes	Y		1	.9	2	.866	3	-.5																
26	1.2D + EX	Yes	Y		1	1.2					4	1														
27	0.9D + EX	Yes	Y		1	.9					4	1														

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
28	1.2D - EX	Yes	Y		1	1.2					4	-1												
29	0.9D - EX	Yes	Y		1	.9					4	-1												
30	1.2D + EZ	Yes	Y		1	1.2							5	1										
31	0.9D + EZ	Yes	Y		1	.9							5	1										
32	1.2D - EZ	Yes	Y		1	1.2							5	-1										
33	0.9D - EZ	Yes	Y		1	.9							5	-1										

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	.17	28	.603	26	.185	30	.743	30	0	33	0	33
2		min	-.161	27	-.189	29	-.185	32	-.743	32	0	1	0	1
3	N3	max	.174	28	.586	28	.167	2	.581	30	0	33	0	33
4		min	-.168	27	-.202	27	-.167	8	-.581	32	0	1	0	1
5	N17	max	.271	29	.464	1	.262	31	.872	30	0	33	0	33
6		min	-.286	26	.298	27	-.262	33	-.872	32	0	1	0	1
7	Totals:	max	.613	29	.995	1	.612	31						
8		min	-.613	26	.639	14	-.612	32						

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1	M1	1	max	.603	26	.163	27	.185	30	0	33	.743	32	0	33
2			min	-.189	29	-.169	28	-.185	32	0	1	-.743	30	0	1
3		2	max	.44	26	.148	26	.172	30	.018	2	.485	32	.004	12
4			min	-.051	29	-.136	29	-.172	32	-.018	8	-.485	30	-.003	17
5		3	max	.428	26	.148	26	.172	30	.018	2	.241	32	.195	29
6			min	-.06	29	-.136	29	-.172	32	-.018	8	-.241	30	-.211	26
7		4	max	.21	26	.058	26	.09	30	.013	2	.052	32	.134	29
8			min	-.017	29	.013	29	-.09	32	-.013	8	-.052	30	-.15	26
9		5	max	.012	1	.005	11	0	30	0	33	0	33	0	33
10			min	.008	14	-.004	10	0	32	0	1	0	1	0	1
11	M2	1	max	.586	28	.167	27	.167	2	0	33	.581	32	0	33
12			min	-.202	27	-.176	28	-.167	8	0	1	-.581	30	0	1
13		2	max	.367	28	.133	27	.126	30	.027	32	.359	32	.002	29
14			min	-.105	27	-.144	28	-.126	32	-.027	30	-.359	30	-.012	26
15		3	max	.355	28	.133	27	.126	30	.027	32	.18	32	.205	28
16			min	-.114	27	-.144	28	-.126	32	-.027	30	-.18	30	-.199	27
17		4	max	.168	28	.008	27	.068	30	.024	32	.04	32	.144	28
18			min	-.048	27	-.034	28	-.068	32	-.024	30	-.04	30	-.136	27
19		5	max	0	33	0	26	0	30	0	33	0	33	0	33
20			min	0	1	0	28	0	32	0	1	0	1	0	1
21	M3	1	max	0	33	0	33	0	33	0	33	0	33	0	33
22			min	0	1	0	1	0	1	0	1	0	1	0	1
23		2	max	.044	26	.097	27	.02	32	0	30	.006	8	.016	26
24			min	-.019	29	-.103	28	-.02	30	0	32	-.006	2	-.012	29
25		3	max	.104	28	.149	26	.035	20	0	30	.037	32	-.025	33
26			min	.029	15	-.198	28	-.035	14	0	32	-.037	30	-.182	28
27		4	max	.104	28	.096	27	.01	30	0	8	.009	8	.021	28
28			min	-.033	27	-.105	28	-.01	32	0	2	-.009	2	-.008	27
29		5	max	0	33	0	33	0	33	0	33	0	33	0	33

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
30			min	0	1	0	1	0	1	0	1	0	1	0	1
31	M4	1	max	0	33	0	33	0	33	0	33	0	33	0	33
32			min	0	1	0	1	0	1	0	1	0	1	0	1
33		2	max	.06	29	.115	27	.007	32	0	30	.007	8	.017	26
34			min	-.076	26	-.122	28	-.007	30	0	32	-.007	2	-.014	29
35		3	max	.016	23	.167	26	.04	20	0	30	.016	32	-.025	33
36			min	-.081	28	-.216	28	-.04	14	0	32	-.016	30	-.21	28
37		4	max	.022	27	.114	27	.006	30	0	8	.009	8	.023	28
38			min	-.081	28	-.123	28	-.006	32	0	2	-.009	2	-.01	27
39		5	max	0	33	0	33	0	33	0	33	0	33	0	33
40			min	0	1	0	1	0	1	0	1	0	1	0	1
41	M5	1	max	0	33	0	33	0	33	0	33	0	33	0	33
42			min	0	1	0	1	0	1	0	1	0	1	0	1
43		2	max	.02	27	.146	27	.014	30	0	30	.008	8	.022	26
44			min	-.023	28	-.153	28	-.014	32	0	32	-.008	2	-.018	29
45		3	max	.03	23	.198	26	.045	2	0	30	.019	2	-.011	33
46			min	-.028	10	-.153	28	-.045	8	0	32	-.019	8	-.237	26
47		4	max	.002	23	.148	27	.01	8	0	8	.008	8	.021	28
48			min	-.02	10	-.15	28	-.01	2	0	2	-.008	2	-.019	27
49		5	max	0	33	0	33	0	33	0	33	0	33	0	33
50			min	0	1	0	1	0	1	0	1	0	1	0	1
51	M6	1	max	.464	1	.288	26	.262	30	0	33	.872	32	0	33
52			min	.298	27	-.272	29	-.262	32	0	1	-.872	30	0	1
53		2	max	.387	1	.212	26	.192	30	.017	32	.524	32	.073	26
54			min	.249	17	-.213	28	-.192	32	-.017	30	-.524	30	-.07	29
55		3	max	.373	1	.212	26	.192	30	.017	32	.251	32	.233	28
56			min	.24	17	-.213	28	-.192	32	-.017	30	-.251	30	-.227	27
57		4	max	.187	1	.189	27	.086	30	.015	32	.05	32	.178	28
58			min	.12	17	-.235	28	-.086	32	-.015	30	-.05	30	-.173	27
59		5	max	0	33	0	26	0	30	0	33	0	33	0	33
60			min	0	1	0	28	0	32	0	1	0	1	0	1

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn...	phi*Mn...	Cb	Eqn
1	M1	PIPE_3.0	.131	0	32	.011	1.122		32	63.06	65.205	5.749	5.749	1	H1-1b
2	M2	PIPE_3.0	.103	0	32	.012	1.122		32	63.06	65.205	5.749	5.749	1	H1-1b
3	M6	PIPE_3.0	.155	0	32	.015	0		26	63.06	65.205	5.749	5.749	1	H1-1b

Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks

	Member	Shape	Code...	Loc[ft]	LC	Shea...	Loc[ft]	Dir	LC	phi*Pn[...	phi*Tn[...	phi*Mn...	phi*Mn...	phi*...	phi*...	Cb	Eqn
1	M3	CS1.625x1.625	.337	3.25	28	.147	3.25	y	28	6.361	14.404	.41	.599	1.347	2.694	1	H2-1
2	M4	CS1.625x1.625	.386	3.25	28	.161	3.25	y	28	6.361	14.404	.41	.599	1.347	2.694	1	H2-1
3	M5	CS1.625x1.625	.423	3.25	26	.153	.271	y	28	6.361	14.404	.41	.599	1.347	2.694	1	H2-1

ANCHOR BOLT DESIGN – H-FRAME

5/8" DIA. Hilti Kwik Bolt TZ:

*Allowable Shear = 9870 lbs

Max. Shear (Per Risa Model) = 271/4 = 67.75 lbs per screw

67.75 lbs < 9870 lbs, Hence OK

*Allowable Tension = 5840 lbs

Max Tension (Per Risa Model) = 603/4 = 150.75 lbs per screw

150.75 lbs < 5840 lbs, Hence OK

Check:

$$\left(\frac{PULL_{max}}{T_{allowable}}\right) + \left(\frac{SHEAR_{max}}{S_{allowable}}\right) = 0.033127 < 1, \text{ Hence OK}$$

TABLE 4—DESIGN INFORMATION, STAINLESS STEEL KB-TZ

DESIGN INFORMATION	Symbol	Units	Nominal anchor diameter											
			3/8		1/2			5/8			3/4		
Anchor O.D.	d_a	in. (mm)	0.375 (9.5)		0.5 (12.7)			0.625 (15.9)			0.75 (19.1)		
Effective min. embedment[1]	h_{ef}	in. (mm)	2 (51)		2 (51)		3 1/4 (83)	3 1/8 (79)		4 (102)	3 3/4 (95)		4 3/4 (121)
Min. member thickness	h_{min}	in. (mm)	4 (102)	5 (127)	4 (102)	6 (152)	6 (152)	8 (203)	5 (127)	6 (152)	8 (203)	6 (152)	8 (203)	8 (203)
Critical edge distance	c_{ac}	in. (mm)	4 3/8 (111)	3 7/8 (98)	5 1/2 (140)	4 1/2 (114)	7 1/2 (191)	6 (152)	7 (178)	8 7/8 (225)	6 (152)	10 (254)	7 (178)	9 (229)
Min. edge distance	c_{min}	in. (mm)	2 1/2 (64)		2 7/8 (73)		2 1/8 (54)	3 1/4 (83)		2 3/8 (60)	4 1/4 (108)		4 (102)
	for $s \geq$	in. (mm)	5 (127)		5 3/4 (146)		5 1/4 (133)	5 1/2 (140)		5 1/2 (140)	10 (254)		8 1/2 (216)
Min. anchor spacing	s_{min}	in. (mm)	2 1/4 (57)		2 7/8 (73)		2 (51)	2 3/4 (70)		2 3/8 (60)	5 (127)		4 (102)
	for $c \geq$	in. (mm)	3 1/2 (89)		4 1/2 (114)		3 1/4 (83)	4 1/8 (105)		4 1/4 (108)	9 1/2 (241)		7 (178)
Min. hole depth in concrete	h_o	in. (mm)	2 5/8 (67)		2 5/8 (67)		4 (102)	3 3/4 (98)		4 3/4 (121)	4 1/2 (117)		5 3/4 (146)
Min. specified yield strength	f_y	lb/in^2 (N/mm^2)	92,000 (634)		92,000 (634)			92,000 (634)			76,125 (525)		
Min. specified ult. Strength	f_{uta}	lb/in^2 (N/mm^2)	115,000 (793)		115,000 (793)			115,000 (793)			101,500 (700)		
Effective tensile stress area	$A_{se,N}$	in^2 (mm^2)	0.052 (33.6)		0.101 (65.0)			0.162 (104.6)			0.237 (152.8)		
Steel strength in tension	N_{sa}	lb (kN)	5,968 (26.6)		11,554 (51.7)			17,880 (32.9)			24,055 (107.0)		
Steel strength in shear	V_{sa}	lb (kN)	4,720 (21.0)		6,880 (30.6)			9,670 (43.9)			15,711 (69.9)		
Pullout strength in tension, seismic[2]	$N_{p,eq}$	lb (kN)	2,340 (10.4)		2,735 (12.2)		NA	NA		5,840 (26.0)	8,110 (36.1)		NA
Steel strength in shear, seismic[2]	$V_{sa,eq}$	lb (kN)	2,825 (12.6)		6,880 (30.6)			9,350 (41.6)			12,890 (57.3)		
Pullout strength uncracked concrete[3]	$N_{p,uncr}$	lb (kN)	2,630 (11.7)		NA		5,760 (25.6)	NA			NA		12,040 (53.6)
Pullout strength cracked concrete[3]	$N_{p,cr}$	lb (kN)	2,340 (10.4)		3,180 (14.1)		NA	NA		5,840 (26.0)	8,110 (36.1)		NA
Anchor category[4]			1		2			1					
Effectiveness factor k_{uncr} uncracked concrete			24										
Effectiveness factor k_{cr} cracked concrete[5]			17		24		17	17		17	24		17
$\Psi_{C,N} = k_{uncr}/k_{cr}$[6]			1.0										
Strength reduction factor ϕ for tension, steel failure modes[7]			0.75										
Strength reduction factor ϕ for shear, steel failure modes[7]			0.65										
Strength reduction ϕ factor for tension, concrete failure modes, Condition B[8]			0.65		0.55		0.65						
Coefficient for pryout strength, k_{cp}			1.0				2.0						
Strength reduction ϕ factor for shear, concrete failure modes, Condition B[8]			0.70										
Axial stiffness in service load range[9]	β_{uncr}	lb/in.	120,000										
	β_{cr}	lb/in.	90,000										

For **SI:** 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa For pound-inch units: 1 mm = 0.03937 inches.

[1]See Fig. 2.
[2]See Section 4.1.8 of this report. NA (not applicable) denotes that this value does not control for design.
[3]For all design cases $\Psi_{c,P}$ =1.0. NA (not applicable) denotes that this value does not control for design. See Section 4.1.4 of this report.
[4]See ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable.
[5]See ACI 318-14 17.4.2.2 or ACI 318-11 D.5.2.2, as applicable.
[6]For all design cases $\Psi_{c,N}$ =1.0. The appropriate effectiveness factor for cracked concrete (k_{cr}) or uncracked concrete (k_{uncr}) must be used.
[7]The KB-TZ is a ductile steel element as defined by ACI 318 D.1.
[8]For use with the load combinations of ACI 318-14 Section 5.3 or ACI 318-11 Section 9.2, as applicable. Condition B applies where supplementary reinforcement in conformance with ACI 318-14 17.3.3(c) or ACI 318-11 D.4.3(c), as applicable, is not provided, or where pullout or pryout strength governs. For cases where the presence of supplementary reinforcement
can be verified, the strength reduction factors associated with Condition A may be used.
[9]Mean values shown, actual stiffness may vary considerably depending on concrete strength, loading and geometry of application.

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. H

Site Data

Site Name: *Sanders Ranch*
Site #: *304480*

Base Reactions		
TIA Revision:		
Factored Moment, Mu:	0.872	ft-kips
Factored Axial, Pu:	0.603	kips
Factored Shear, Vu:	0.216	kips

Plate Data		
W=Side:	8	in
Thick:	0.5	in
Grade:	36	ksi
Clip Distance:	0	in

Pole Data		
Diam:	3.5	in
Thick:	0.25	in
Grade:	55	ksi
# of Sides:	0	"0" IF Round

Base Plate Results Flexural Check

Base Plate Stress:	0.7	ksi
PL Design Bending Strength, Φ*Fy:	32.4	ksi
Base Plate Stress Ratio:	2.0%	**Pass**

Sanders Ranch
304480
February 28, 2023

WATER TANK DESIGN

112 S. Kyrene Rd., Ste. 1, Chandler, AZ 85226 | LETS America, Inc. (a SAR Group Company)
Tel: (480) 961-9151 | Fax: (480) 961-9151 | www.LETSinc.com

Load Calculation

Water Tank Dia. = 102 in

Height = 92 in

Tank Capacity = 3000 Gallon (11356.20 kg or 25036.13 lbs)

Weight of Empty Water Tank = 380 lbs

Total Tank weight = 0.380 kips + 25.036 kips
= 25.416 kips

Dead Load in ksf = $\frac{25.416}{\pi d^2/4}$
= $\frac{25.416}{\pi * 8.5^2/4}$
= 0.448 ksf

Wind Pressure = q_z*G*C_f (AWWA D100)

q_z = 0.00256 K_z*I*V^2

I = 1.15

G = 1.0

Cf = 0.6

V = 9.2

K_z = 1.09

Wind Pressure = $0.00256*1.09*1.15*92^2$
= 27.16
= 27.16*1*0.6
= 16.29 psf

Wind Load in ksf = 16.29 * Area of shaft
= $16.29 * (2\pi rh)/2$
= $16.29 * (2\pi * 51 * 92)/2$
= 16.29 * 102.311 ft^2
= 1666.65 lbs
= 1.666 kips

Seismic Load = Fp*Dead Load
= 0.864*0.448
= 0.3871

The above values are taken from Page 19 of AWWA D100

f_c = 3000 psi

General Footing

Project File: s2-scvo-027_.ec6

DESCRIPTION: 24" Thick. Concrete Slab

Code References

Calculations per ACI 318-14, IBC 2021, CBC 2022, ASCE 7-22
Load Combinations Used : ASCE 7-22

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	150.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.925	ksf
Soil Density	=	127.20	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	0.150	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Increases based on footing Depth

Footing base depth below soil surface	=	0.50	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

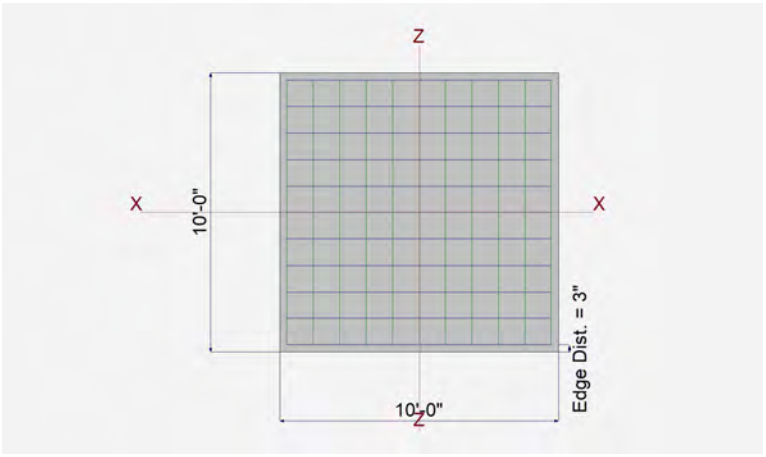
Width parallel to X-X Axis	=	10.0	ft
Length parallel to Z-Z Axis	=	10.0	ft
Footing Thickness	=	24.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0	in



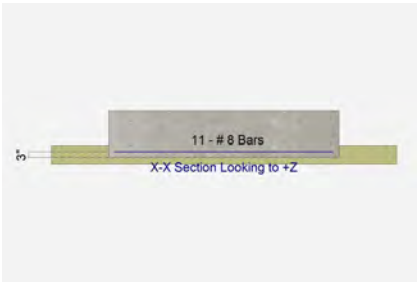
Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		11.0
Reinforcing Bar Size	=	#	8
Bars parallel to Z-Z Axis			
Number of Bars	=		11.0
Reinforcing Bar Size	=	#	8

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation — n/a

# Bars required within zone	n/a
# Bars required on each side of zone	n/a





Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	0.4480							k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=					1.666			k
V-z	=						0.3871		k

General Footing

Project File: s2-scvo-027_.ec6

DESCRIPTION: 24" Thick. Concrete Slab

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.1082	Soil Bearing	0.3164 ksf	2.925 ksf	+D+0.60W about Z-Z axis
PASS	168.550	Overturning - X-X	0.5419 k-ft	91.344 k-ft	+0.60D+0.70E
PASS	45.690	Overturning - Z-Z	1.999 k-ft	91.344 k-ft	+0.60D+0.60W
PASS	5.483	Sliding - X-X	0.9996 k	5.481 k	+0.60D+0.60W
PASS	20.227	Sliding - Z-Z	0.2710 k	5.481 k	+0.60D+0.70E
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.000853	Z Flexure (+X)	0.06720 k-ft/ft	78.789 k-ft/ft	+1.20D
PASS	0.000853	Z Flexure (-X)	0.06720 k-ft/ft	78.789 k-ft/ft	+1.20D
PASS	0.000853	X Flexure (+Z)	0.06720 k-ft/ft	78.789 k-ft/ft	+1.20D
PASS	0.000853	X Flexure (-Z)	0.06720 k-ft/ft	78.789 k-ft/ft	+1.20D
PASS	0.000857	1-way Shear (+X)	0.07040 psi	82.158 psi	+1.20D
PASS	0.000857	1-way Shear (-X)	0.07040 psi	82.158 psi	+1.20D
PASS	0.000857	1-way Shear (+Z)	0.07040 psi	82.158 psi	+1.20D
PASS	0.000857	1-way Shear (-Z)	0.07040 psi	82.158 psi	+1.20D
PASS	0.001795	2-way Punching	0.2949 psi	164.317 psi	+1.20D

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.925	n/a	0.0	0.3045	0.3045	n/a	n/a	0.104
X-X, +D+0.60W	2.925	n/a	0.0	0.3045	0.3045	n/a	n/a	0.104
X-X, +D+0.450W	2.925	n/a	0.0	0.3045	0.3045	n/a	n/a	0.104
X-X, +0.60D+0.60W	2.925	n/a	0.0	0.1827	0.1827	n/a	n/a	0.062
X-X, +D+0.70E	2.925	n/a	0.2136	0.3013	0.3077	n/a	n/a	0.105
X-X, +D+0.5250E	2.925	n/a	0.1602	0.3021	0.3069	n/a	n/a	0.105
X-X, +0.60D+0.70E	2.925	n/a	0.3560	0.1795	0.1859	n/a	n/a	0.064
Z-Z, D Only	2.925	0.0	n/a	n/a	n/a	0.3045	0.3045	0.104
Z-Z, +D+0.60W	2.925	0.7879	n/a	n/a	n/a	0.2926	0.3164	0.108
Z-Z, +D+0.450W	2.925	0.5909	n/a	n/a	n/a	0.2956	0.3134	0.107
Z-Z, +0.60D+0.60W	2.925	1.313	n/a	n/a	n/a	0.1708	0.1946	0.067
Z-Z, +D+0.70E	2.925	0.0	n/a	n/a	n/a	0.3045	0.3045	0.104
Z-Z, +D+0.5250E	2.925	0.0	n/a	n/a	n/a	0.3045	0.3045	0.104
Z-Z, +0.60D+0.70E	2.925	0.0	n/a	n/a	n/a	0.1827	0.1827	0.062

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	None	0.0 k-ft	Infinity	OK
X-X, +D+0.450W	None	0.0 k-ft	Infinity	OK
X-X, +0.60D+0.60W	None	0.0 k-ft	Infinity	OK
X-X, +D+0.70E	0.5419 k-ft	152.240 k-ft	280.917	OK
X-X, +D+0.5250E	0.4065 k-ft	152.240 k-ft	374.556	OK
X-X, +0.60D+0.70E	0.5419 k-ft	91.344 k-ft	168.550	OK
Z-Z, D Only	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.60W	1.999 k-ft	152.240 k-ft	76.150	OK
Z-Z, +D+0.450W	1.499 k-ft	152.240 k-ft	101.534	OK
Z-Z, +0.60D+0.60W	1.999 k-ft	91.344 k-ft	45.690	OK
Z-Z, +D+0.70E	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.5250E	None	0.0 k-ft	Infinity	OK
Z-Z, +0.60D+0.70E	None	0.0 k-ft	Infinity	OK

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
X-X, D Only	0.0 k	9.135 k	No Sliding	OK
X-X, +D+0.60W	0.9996 k	9.135 k	9.138	OK
X-X, +D+0.450W	0.7497 k	9.135 k	12.184	OK

General Footing

Project File: s2-scvo-027_.ec6

DESCRIPTION: 24" Thick. Concrete Slab

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
X-X, +0.60D+0.60W	0.9996 k	5.481 k	5.483	OK
X-X, +D+0.70E	0.0 k	9.135 k	No Sliding	OK
X-X, +D+0.5250E	0.0 k	9.135 k	No Sliding	OK
X-X, +0.60D+0.70E	0.0 k	5.481 k	No Sliding	OK
Z-Z, D Only	0.0 k	9.135 k	No Sliding	OK
Z-Z, +D+0.60W	0.0 k	9.135 k	No Sliding	OK
Z-Z, +D+0.450W	0.0 k	9.135 k	No Sliding	OK
Z-Z, +0.60D+0.60W	0.0 k	5.481 k	No Sliding	OK
Z-Z, +D+0.70E	0.2710 k	9.135 k	33.711	OK
Z-Z, +D+0.5250E	0.2032 k	9.135 k	44.948	OK
Z-Z, +0.60D+0.70E	0.2710 k	5.481 k	20.227	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D	0.06720	+Z	Bottom	0.5184	AsMin	0.8690	78.789	OK
X-X, +1.20D	0.06720	-Z	Bottom	0.5184	AsMin	0.8690	78.789	OK
Z-Z, +1.20D	0.06720	-X	Bottom	0.5184	AsMin	0.8690	78.789	OK
Z-Z, +1.20D	0.06720	+X	Bottom	0.5184	AsMin	0.8690	78.789	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.20D	0.07 psi	0.07 psi	0.07 psi	0.07 psi	0.07 psi	82.16 psi	0.00	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.20D	0.29 psi	164.32 psi	0.001795	OK

Sanders Ranch
304480
February 28, 2023

ANCHOR BOLT DESIGN

112 S. Kyrene Rd., Ste. 1, Chandler, AZ 85226 | LETS America, Inc. (a SAR Group Company)
Tel: (480) 961-9151 | Fax: (480) 961-9151 | www.LETSinc.com

WATER TANK OVERTURNING AND ANCHOR BOLT DESIGN

Site Name: Sanders Ranch
Site ID: 304480
Design By: RAM

DESIGN PARAMETERS:

Site Class:	D		Codes:	IBC 2021
Risk Category:	II			2022 CBC
Nominal Wind Speed:	92	mph		

Water Tank INFORMATION:

We=	380	lbs	*We-Weight of empty Water Tank*
Wf=	25036.13	lbs	*Wf-Weight of full Water Tank*
D=	8.50	ft	*D-Diameter of the Water Tank*
H=	7.67	ft	*H-Height of the Water Tank*

SEISMIC LOAD CALCULATION:

S_{DS} =	1.472	R_μ =	1	R=	1.25	I_e=	1
a_p=	1	H_f =	1			Ω_0 =	2
I_p=	1	C_{AR}=	1			R_{po} =	1.5

$$F_p = 0.4 S_{DS} I_p W_f \left[\frac{H_f}{R_\mu}\right]\left[\frac{C_{AR}}{R_{po}}\right] =$$ 9827.5 lbs ASCE 7-22 (Tab-13.3-1)

$$F_{p\,(Max)} = 1.6 S_{DS} I_p W_f =$$ 58965.1 lbs ASCE 7-22 (Tab-13.3-2)

$$F_{p\,(Min)} = 0.3 S_{DS} I_p W_f =$$ 11056.0 lbs ASCE 7-22 (Tab-13.3-3)

F_p is not required to be taken as greater than (13.3-2) and F_p shall not be taken as less than (13.3-3)

$$F_p =$$ 11056.0 lbs

WIND LOAD CALCULATION:

Wind Speed =	92	mph	Zg =	900
Exposure =	C		α =	9.5
K_z =	1.1			
I =	1.15			
G =	1.00			
F =	q_h G C_f A_s	lbs	ASCE 7-22 (Tab-13.3-3)	
q_h =	0.00256*Kz*I*V^2		ASCE 7-22 (Tab-13.3-3)	
q_h =	27.16	psf		
C_f =	0.60			
A_s =	65.2	ft^2	*As*= L*H	
F =	1062	lbs		

WATER TANK OVERTURNING AND ANCHOR BOLT DESIGN

Site Name: Sanders Ranch
Site ID: 304480
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OVERTURNING MOMENT:

$$M_{OTM(W)} = F\left(\frac{1}{2}H\right) \qquad M_{OTM(s)} = F_p\left(\frac{1}{2}H\right)$$

M_{OTM} (S)=	42400	lb-ft
M_{OTM} (W)=	4073	lb-ft

RESISTING MOMENT:

$$M_R = W_e\left(\frac{1}{2}\mathrm{w}\right)$$

M_R =	1615	lb-ft

LOAD COMBINATIONS:

LC1: 1.2D+1.0W	*ASCE 7-22 Section 2.3*
LC2: 1.2D+1.0E	*D-Dead Load*
LC3: 0.9D+1.0W	*W-Wind Load*
LC4: 0.9D+1.0E	*E-Seismic Load*

CALCULATION FOR MOMENT:

$$M = M_{OTM} - M_R$$

M_{LC1} =	2135	lb-ft	
M_{LC2} =	40462	lb-ft	
M_{LC3} =	2619	lb-ft	
M_{LC4} =	40946	lb-ft	<----GOVERNS
Uplift force (T*) =	M/w		*Positive Direction load
T* =	4817	lbs	represents the Tension Force
No. of bolts accounts for Tension =	4		
Force per Bolt =	1204.30	lbs < 8345 lbs	(Bolt capacity values taken from ESR-4266)
SHEAR FORCE :			
Shear Force (F) =	11056	lbs	
No. of bolts accounts for Shear =	8		
Force per Bolt =	1381.99	lbs < 5500 lbs	(Bolt capacity values taken from ESR-4266)

Use (8) 1/2" DIA. Hilti Kwik Bolts TZ Stainless Steel anchors (2 per connection) with 3.25 Inch Min Embedment.

TABLE 5—HILTI STAINLESS STEEL KB-TZ2 DESIGN INFORMATION FOR HAMMER AND CORE DRILLED INSTALLATIONS, TENSION

Design parameter	Symbol	Units	Nominal anchor diameter (in)												
			1/4	3/8			1/2			5/8			3/4		
Effective min. embedment [1]	h_{ef}	in.	1-1/2	1-1/2	2	2-1/2	2	2-1/2	3-1/4	2-3/4	3-1/4	4	3-1/4	3-3/4	4-3/4
		(mm)	(38)	(38)	(51)	(64)	(51)	(64)	(83)	(70)	(83)	(102)	(83)	(95)	(121)
Tension, steel failure modes															
Strength reduction factor for steel in tension [2]	$\Phi_{sa,N}$	-	0.75	0.75			0.75			0.75			0.75		
Min. specified yield strength	f_y	lb/in^2	100,900	96,300			96,300			91,600			84,100		
		(N/mm^2)	(696)	(664)			(664)			(632)			(580)		
Min. specified ult. strength	f_{uta}	lb/in^2	122,400	120,100			120,400			114,600			100,500		
		(N/mm^2)	(844)	(828)			(830)			(790)			(693)		
Effective tensile stress area	$A_{se,N}$	In^2	0.024	0.051			0.099			0.164			0.239		
		(mm^2)	(15.4)	(33.2)			(63.6)			(106.0)			(154.4)		
Steel strength in tension	N_{sa}	lb	2,920	6,180			11,870			18,835			24,045		
		(kN)	(13.0)	(27.5)			(52.8)			(83.8)			(107.0)		
Tension, concrete failure modes															
Anchor category	-	-	3	1			1			1			1		
Strength reduction factor for concrete and pullout failure in tension, (Condition B – supplementary reinforcement not present)[3,8]	$\Phi_{c,N}$, $\Phi_{p,N}$	-	0.45	0.65			0.65			0.65			0.65		
Effectiveness factor for uncracked concrete	k_{uncr}	-	24	24			24			24			24	27[6]	24
Effectiveness factor for cracked concrete	k_{cr}	-	17	21		17	17	21	17	21		17	21	21[6]	21
Modification factor for anchor resistance, tension, uncracked concrete [4]	$\Psi_{c,N}$	-	1.0	1.0			1.0			1.0			1.0		
Critical edge distance	c_{ac}	in.	4	4-1/2	5-1/2	4-1/8	5-1/2	6-1/4	7-1/2	10	6-1/2	8-3/4	12	10	10
		(mm)	(102)	(114)	(140)	(105)	(140)	(159)	(191)	(254)	(165)	(222)	(305)	(254)	(254)
Pullout strength uncracked concrete [5]	$N_{p,uncr}$	lb	1,570	N/A	N/A	4,185	3,380	4,010	5,500	4,085	6,015	8,050	N/A	N/A	N/A
		(kN)	(7.0)			(18.6)	(15.0)	(17.8)	(24.5)	(18.2)	(26.8)	(35.8)			
Pullout strength cracked concrete [5]	$N_{p,cr}$	lb	670	N/A	N/A	N/A	N/A	N/A	N/A[7]	N/A	N/A	N/A	N/A	N/A	8,795
		(kN)	(3.0)												(39.1)
Pullout strength seismic [5]	$N_{p,eq}$	lb	670	N/A	N/A	N/A	N/A	N/A	N/A[7]	N/A	N/A	N/A	N/A	N/A	8,795
		(kN)	(3.0)												(39.1)
Normalization factor, uncracked concrete	n_{uncr}	-	0.39	N/A	N/A	0.37	0.46	0.50	0.50	0.50	0.42	0.47	N/A	N/A	N/A
Normalization factor, cracked concrete, seismic	n_{cr}	-	0.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.50
Tension, axial stiffness															
Axial stiffness in service load range	β_{uncr}	lb/in.	166,490	175,800			137,145			153,925			342,680		
	β_{cr}	lb/in.	33,805	79,860			97,985			69,625			75,715		

For **SI:** 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa For pound-inch units: 1 mm = 0.03937 inches.

[1] Figure 2 of this report illustrates the installation parameters.
[2] The KB-TZ2 is considered a ductile steel element in accordance with ACI 318 (-19 and -14) 2.3 or ACI 318-11 D.1.
[3] For use with the load combinations of ACI 318 (-19 and -14) Section 5.3, ACI 318-11 Section 9.2 or 2021 IBC Section 1605.1 or 2018, 2015, 2012 IBC Section 1605.2. Condition B (supplementary reinforcement not present) applies where supplementary reinforcement in conformance with ACI 318-19 Table 17.5.3(b) or (c), ACI 318-14 section 17.3.3 (c) or ACI 318-11 Section 4.3 (c) is not provided, or where pryout strength governs. For cases where the presence of supplementary reinforcement can be verified, the resistance modification factors associated with Condition A (supplementary reinforcement present) for concrete breakout failure may be used.
[4] For all design cases, $\Psi_{c,N}$ = 1.0. The appropriate effectiveness factor for cracked concrete (k_{cr}) or uncracked concrete (k_{uncr}) must be used.
[5] For all design cases, $\Psi_{c,P}$ = 1.0. Tabular value for pullout strength is for a concrete compressive strength of 2,500 psi (17.2 MPa). Pullout strength for concrete compressive strength greater than 2,500 psi (17.2 MPa) may be increased by multiplying the tabular pullout strength by (f'c / 2,500)^n for psi, or (f'c / 17.2)^n for MPa, where n is given as n_{uncr} for uncracked concrete and n_{cr} for cracked concrete.NA (not applicable) denotes that pullout strength does not need to be considered for design.
[6] For core drill installations, k_{uncr} = 24 and k_{cr} = 17 for 3/4-inch diameter anchors installed at 3 3/4 inches (95 mm) effective embedment.
[7] For core drill installations, $N_{p,cr}$ = 4245 lb (18.9 kN) and $N_{p,eq}$ = 4245lb (18.9 kN) for 1/2-inch diameter anchors installed at 3 3/4 inches (95 mm) effective embedment.
[8] The supplementary reinforcement classifications "Condition A" and "Condition B" have been replaced by ACI 318-19 Table 17.5.3 (c).

TABLE 6—HILTI CARBON STEEL KB-TZ2 DESIGN INFORMATION FOR HAMMER AND CORE DRILLED INSTALLATIONS, SHEAR

Design parameter	Symbol	Units	Nominal anchor diameter (in)													
			1/4	3/8			1/2				5/8			3/4		
Anchor O.D.	d_a	in.	0.250	0.375			0.500				0.625			0.750		
		(mm)	(6.4)	(9.5)			(12.7)				(15.9)			(19.1)		
Effective min. embedment [1]	h_{ef}	in.	1-1/2	1-1/2	2	2-1/2	1-1/2	2	2-1/2	3-1/4	2-3/4	3-1/4	4	3-1/4	3-3/4	4-3/4
		(mm)	(38)	(38)	(51)	(64)	(38)	(51)	(64)	(83)	(70)	(83)	(102)	(83)	(95)	(121)
Shear, steel failure modes																
Strength reduction factor for steel in shear [2]	$\Phi_{sa,V}$	-	0.65	0.65			0.65				0.65			0.65		
Steel strength in shear	V_{sa}	lb	1,345	3,225	3,385		5,535		6,875		10,255			13,805		
		(kN)	(6.0)	(14.4)	(15.1)		(24.6)		(30.6)		(45.6)			(61.4)		
Steel strength in shear, seismic	$V_{sa,eq}$	lb	1,345	3,225	3,385		5,535		6,875		10,255			13,805		
		(kN)	(6.0)	(14.4)	(15.1)		(24.6)		(30.6)		(45.6)			(61.4)		
Shear, concrete failure modes																
Strength reduction factor for concrete breakout and pryout failure in shear, (Condition B – supplementary reinforcement not present) [3,4]	$\Phi_{c,V}$, $\Phi_{p,V}$	-	0.70	0.70			0.70				0.70			0.70		
Load bearing length of anchor in shear	l_e	in.	1-1/2	1-1/2	2	2-1/2	1-1/2	2	2-1/2	3-1/4	2-3/4	3-1/4	4	3-1/4	3-3/4	4-3/4
		(mm)	(38)	(38)	(51)	(64)	(38)	(51)	(64)	(83)	(70)	(83)	(102)	(83)	(95)	(121)
Coefficient for pryout strength	k_{cp}	-	1	1	1	2	1	1	2	2	2	2	2	2	2	2

For **SI:** 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa For pound-inch units: 1 mm = 0.03937 inches.

[1] Figure 2 of this report illustrates the installation parameters.
[2] The KB-TZ2 is considered a ductile steel element in accordance with ACI 318 (-19 and -14) 2.3 or ACI 318-11 D.1.
[3] For use with the load combinations of ACI 318 (-19 and -14) Section 5.3, ACI 318-11 Section 9.2 or 2021 IBC Section 1605.1 or 2018, 2015, 2012 IBC Section 1605.2. Condition B (supplementary reinforcement not present) applies where supplementary reinforcement in conformance with ACI 318-19 Table 17.5.3(b) or (c), ACI 318-14 section 17.3.3 (c) or ACI 318-11 Section 4.3 (c) is not provided, or where pryout strength governs. For cases where the presence of supplementary reinforcement can be verified, the resistance modification factors associated with Condition A (supplementary reinforcement present) for concrete breakout failure may be used.
[4]The supplementary reinforcement classifications “Condition A” and “Condition B” have been replaced by ACI 318-19 Table 17.5.3 (c).

TABLE 7—HILTI STAINLESS STEEL KB-TZ2 DESIGN INFORMATION FOR HAMMER AND CORE DRILLED INSTALLATIONS, SHEAR

Design parameter	Symbol	Units	Nominal anchor diameter													
			1/4	3/8			1/2				5/8			3/4		
Anchor O.D.	d_a	in.	0.250	0.375			0.500				0.625			0.750		
		(mm)	(6.4)	(9.5)			(12.7)				(15.9)			(19.1)		
Effective min. embedment [1]	h_{ef}	in.	1-1/2	1-1/2	2	2-1/2	2	2-1/2	3-1/4	2-3/4	3-1/4	4	3-1/4	3-3/4	4-3/4	
		(mm)	(38)	(38)	(51)	(64)	(51)	(64)	(83)	(70)	(83)	(102)	(83)	(95)	(121)	
Shear, steel failure modes																
Strength reduction factor for steel in shear [2]	$\Phi_{sa,V}$	-	0.65	0.65			0.65			0.65			0.65			
Steel strength in shear	V_{sa}	lb	1,460	4,615	4,885		8,345			12,355			16,560			
		(kN)	(6.5)	(20.5)	(21.7)		(37.1)			(55.0)			(73.7)			
Steel strength in shear, seismic	$V_{sa,eq}$	lb	1,110	4,615	4,885		8,345			12,355			13,470			
		(kN)	(4.9)	(20.5)	(21.7)		(37.1)			(55.0)			(59.9)			
Shear, concrete failure modes																
Strength reduction factor for concrete breakout and pryout failure in shear, (Condition B– supplementary reinforcement not present) [3,4]	$\Phi_{c,V}$, $\Phi_{p,V}$	-	0.7	0.7			0.7			0.7			0.7			
Load bearing length of anchor in shear	l_e	in.	1-1/2	1-1/2	2	2-1/2	2	2-1/2	3-1/4	2-3/4	3-1/4	4	3-1/4	3-3/4	4-3/4	
		(mm)	(38)	(38)	(51)	(64)	(51)	(64)	(83)	(70)	(83)	(102)	(83)	(95)	(121)	
Coefficient for pryout strength	k_{cp}	-	1	1	1	2	1	2	2	2	2	2	2	2	2	

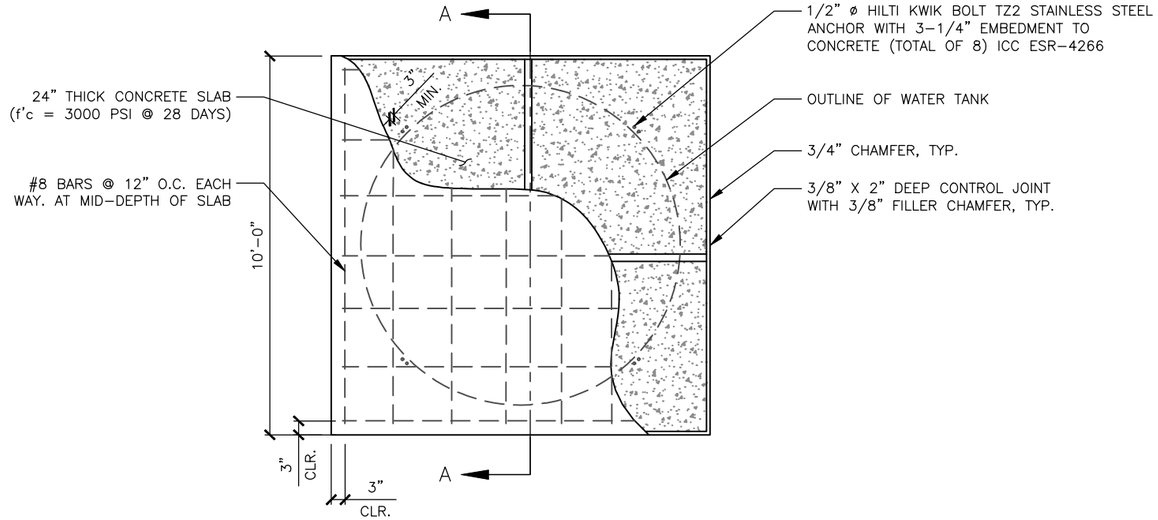
For **SI:** 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa For pound-inch units: 1 mm = 0.03937 inches.

[1] Figure 2 of this report illustrates the installation parameters.
[2] The KB-TZ2 is considered a ductile steel element in accordance with ACI 318 (-19 and -14) 2.3 or ACI 318-11 D.1.
[3] For use with the load combinations of ACI 318 (-19 and -14) Section 5.3, ACI 318-11 Section 9.2 or 2021 IBC Section 1605.1 or 2018, 2015, 2012 IBC Section 1605.2. Condition B (supplementary reinforcement not present) applies where supplementary reinforcement in conformance with ACI 318-19 Table 17.5.3(b) or (c), ACI 318-14 section 17.3.3 (c) or ACI 318-11 Section 4.3 (c) is not provided, or where pryout strength governs. For cases where the presence of supplementary reinforcement can be verified, the resistance modification factors associated with Condition A (supplementary reinforcement present) for concrete breakout failure may be used.
[4]The supplementary reinforcement classifications “Condition A” and “Condition B” have been replaced by ACI 318-19 Table 17.5.3 (c).

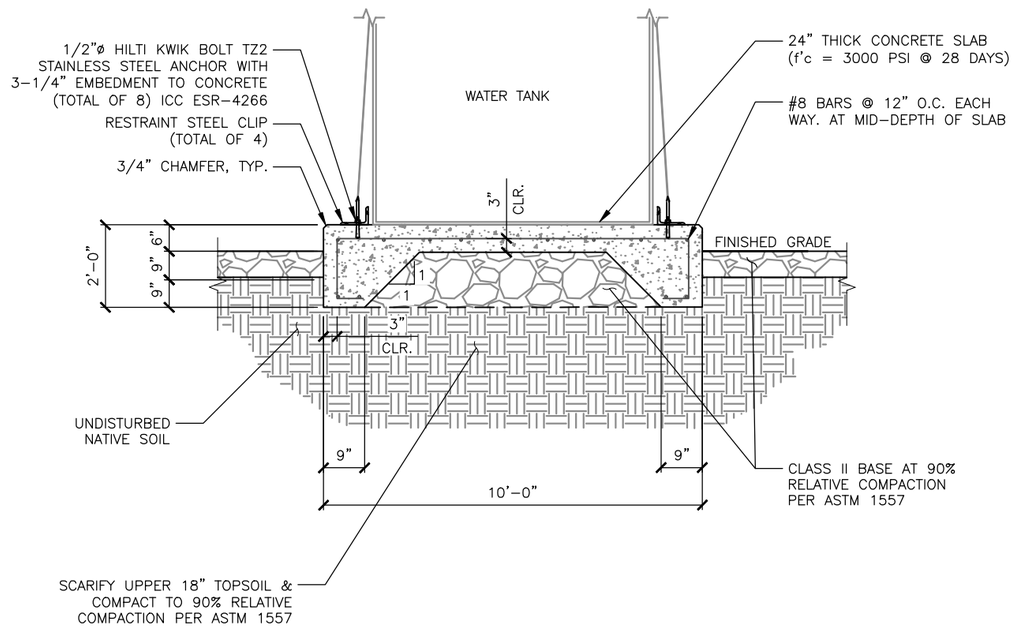
Sanders Ranch
304480
February 28, 2023

STRUCTURAL DRAWING

112 S. Kyrene Rd., Ste. 1, Chandler, AZ 85226 | LETS America, Inc. (a SAR Group Company)
Tel: (480) 961-9151 | Fax: (480) 961-9151 | www.LETSinc.com



PLAN



WATER TANK CONCRETE PAD DETAIL

SCALE N.T.S.

CARRIER:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

PLANS PREPARED FOR:

SAC WIRELESS
A NOKIA COMPANY

5015 SHOREHAM PL
SUITE 150
SAN DIEGO, CA 92122
WWW.SACW.COM
619.736.3766

PLANS PREPARED BY:

LETS AMERICA
Engineers & Architects
112 S. Kyrene Rd., Suite 1, Chandler, AZ 85226
602-526-7272 - AE@LETSinc.com - www.LETSinc.com
LETS PROJ. #: S2-SCVO-027

REVISIONS

REV.	DATE	ISSUED FOR	INITIALS
0	02/28/23	CONSTRUCTION SET	MKR

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

MADHAN KUMAR KANTHA SAMY
REGISTERED PROFESSIONAL ENGINEER
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA

DATE 03/03/2023

"I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA"

SANDERS RANCH
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE

STRUCTURAL DRAWING

SHEET NUMBER

S-1

Sanders Ranch
304480
February 28, 2023

GRADING PLAN

112 S. Kyrene Rd., Ste. 1, Chandler, AZ 85226 | LETS America, Inc. (a SAR Group Company)
Tel: (480) 961-9151 | Fax: (480) 961-9151 | www.LETSinc.com

GRADING & EROSION CONTROL LEGEND

1590 – EXISTING CONTOUR GRADES

EXISTING / PROPOSED – PROPOSED SPOT ELEVATIONS

– EXISTING DRAINAGE PATH

PROPOSED VERIZON MISC CABINET

PROPOSED VERIZON TELCO CABINET

PROPOSED VERIZON SERVICE LIGHT

PROPOSED VERIZON INTERSECT CABINET

E: 838.66
P: 838.79

E: 838.02
P: 838.03

PROPOSED VERIZON CHAIN–LINK FENCE

PROPOSED VERIZON POWER CABINET

PROPOSED VERIZON (3) RADIOS (4449) AND (3) RADIOS (8843) ON PROPOSED H–FRAME

E: 839.32
P: 839.55

E: 837.60
P: 837.84

PROPOSED VERIZON 4'–0" WIDE ACCESS GATE

PROPOSED VERIZON (2) RAYCAP (RVZDC–6627–PF–48) ON PROPOSED H–FRAME

E: 839.22
P: 839.47

PROPOSED VERIZON GPS ANTENNA

PROPOSED VERIZON FIRE EXTINGUISHER

E: 836.62
P: 837.65

E: 838.86
P: 839.32

PROPOSED VERIZON BATTERY CABINET

E: 837.32
P: 838.41

E: 838.22
P: 839.17

PROPOSED VERIZON GENERATOR

PROPOSED VERIZON ELECTRICAL METER

837 836 835 834 833 832 831 830 829 828 827 826 825 843 842 841 840 839 838

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" x 36". SCALE IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES

GRADING PLAN

40' 0 20' 40'

SCALE: 1" = 40'-0" (22x34)
(OR) 1/2" = 40'-0" (11x17)

1

NORTH

PLAN PREPARED FOR

verizon

10740 NALL AVE, SUITE 400
OVERLAND PARK, KS 66211
PHONE: (913) 344 2800

CLIENT:

SAC
A Nokia company
5015 SHOREHAM PLACE, STE. 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3766

PLAN PREPARED BY:

LETS AMERICA
Engineers & Architect
112 S. Kyrene Rd., Suite 1, Chandler, AZ 85226
602-526-7272 - AE@LETSinc.com - www.LETSinc.com
LETS PROJ. # S2-SCVO-027

REVISIONS

REV.	DATE	ISSUED FOR	INT
0	02/28/23	CONSTRUCTION SET	RAM

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

REGISTERED PROFESSIONAL ENGINEER
MADHAN KUMAR KAVITHA SAMY
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA

DATE: 03/03/2023

"I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA"

304480
SANDERS RANCH
100 SANDERS RANCH ROAD, MORAGA, CA 94566.
CONTRA COASTA COUNTY

SHEET TITLE

GRADING PLAN

SHEET NUMBER

A-1

Retaining Wall Design Report

Structure: 107'-3" Lattice Tower (Retaining Wall)

Carrier: Verizon Wireless

Site #: 304480

Site Name: Sanders Ranch

Address: 100 Sanders Ranch Road, Moraga, CA 94566

Coordinates: 37.823804°, -122.114476°

County: Contra Costa County

Jurisdiction: Town of Moraga

LETS #: S2-SCVO-027

Date: February 28, 2023

Aleida Acosta
Design Engineer

Madhan Kumar K, MS, PE
Director of Engineering

REGISTERED PROFESSIONAL ENGINEER
MADHAN KUMAR KANTHA SAMY
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA

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Sanders Ranch
304480
February 28, 2023

RETAINING WALL DESIGN

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Seismic Load Calculation

LETS AMERICA Engineers & Architects

Seismic Force to Nonstructural Components Calculations As Per ASCE 7-22 Section 13

Design Coefficients

Site Class: D
Importance Factor: 1.00 (ASCE 7-22, Table 1.5-2)
Risk Category: II (ASCE 7-22, Table 1.5-1)

S_{DS}:	1.472	(ASCE 7-22 Eq 11.4-3)			
A_p:	1.000	(ASCE 7-22 Table 13.6-1)			
Z:	1.6 ft	(Rad Center)	H:	3.3 ft	(Overall Height)
H_f:	1	(ASCE 7-22 Section 13.3.1.1)	R_{po} :	1.5	(ASCE 7-22 Table 13.6-1)
R_μ :	1	(ASCE 7-22 Section 13.3.1.2)	Ω_0 :	2	(ASCE 7-22 Table 15.4-2)
R:	1.25	(ASCE 7-22 Table 15.4-2)	C_{AR} :	2.2	(ASCE 7-22 Table 13.6-1)
I_e :	1	(ASCE 7-22 Table 1.5-2)	I_p :	1	(ASCE 7-22 Section 13.1.3)

Seismic Design Force (F_p) Calculation

F_p:	0.864	W_p	(ASCE 7-22 Eq 13.3-1)
$F_{p\ Max}$:	2.355	W_p	(ASCE 7-22 Eq 13.3-2)
$F_{p\ Min}$:	0.442	W_p	(ASCE 7-22 Eq 13.3-3)

$$Fpmin \leq Fp \leq Fpmax$$

F_p to use: 0.864 W_p W_p: Component Operating Weight

The Horizontal seismic design force shall be calculated as

$$F_p = 0.4SDSIpWp\left(\frac{H_f}{R_\mu}\right)\left(\frac{C_{AR}}{R_{po}}\right)$$

F_p = 0.864 W_p

Sanders Ranch
304480
February 28, 2023

Wall Load Calculation

LETS AMERICA Engineers & Architects

Wind Force $F = q_z * G * C_f * A$ (ASCE 7-22 Section 29.3.1)

$K_z = 0.85$ (ASCE 7-22 Table 26.10-1)

$K_e = (e^{-0.0000362*410}) = 0.970$ (ASCE 7-22 Table 26.9-1)

(Z_g = Ground Elevation Above Sea Level = 846.69 ft)

$K_d = 0.85$ (ASCE 7-22 Table 26.6-1)

$V = 92$ mph (From ASCE 7 Hazard Report)

$K_{Zt} = 1$ (ASCE 7-22 Section 26.8.1)

$q_z = 0.00256*0.85*0.9698*0.85*1*92^2$

$q_z = 15.1822$ psf

B/s = 1/3.25= 0.307 s/h = 1

$C_f = 1.680$ (Case A & Case B)

$G = 0.85$

$F = qz * G * Cf$

$= 15.423*0.85*1.680$

$= 21.68$ lb/ft^2

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_1'-6"

Code Reference

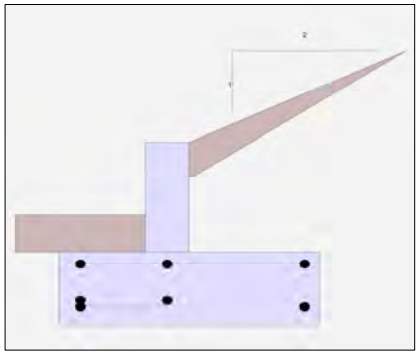
Calculations per ACI 318-14, IBC 2021, CBC 2022, ASCE 7-22
Load Combinations Used : ASCE 7-22

Criteria

Retained Height	=	1.50 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	2.00
Height of Soil over Toe	=	6.00 in
Water height over heel	=	0.0 ft

Soil Data

Allow Soil Bearing	=	2,925.0 psf
Equivalent Fluid Pressure Method		
Active Heel Pressure	=	35.0 psf/ft
	=	
Passive Pressure	=	225.0 psf/ft
Soil Density, Heel	=	105.00 pcf
Soil Density, Toe	=	105.00 pcf
Footing||Soil Friction	=	0.300
Soil height to ignore for passive pressure	=	12.00 in



Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	100.0
NOT Used for Sliding & Overturning		

Lateral Load Applied to Stem

Lateral Load	=	75.0 #/ft
...Height to Top	=	1.50 ft
...Height to Bottom	=	0.50 ft
Load Type	=	Wind (W) (Strength Level)
Wind on Exposed Stem (Strength Level)	=	21.7 psf

Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type		Spread Footing
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

Earth Pressure Seismic Load

Method : Uniform		
Multiplier Used	=	0.864
(Multiplier used on soil density)		
Uniform Seismic Force	=	2.808
Total Seismic Force	=	9.126

Stem Weight Seismic Load

F_p / W_p Weight Multiplier	=	0.200 g	Added seismic base force 15.8 lbs

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_1'-6"

Design Summary

Wall Stability Ratios			
Overturning	=	4.63	OK
Sliding	=	1.64	OK
Global Stability	=	6.77	
Total Bearing Load	=	910 lbs	
...resultant ecc.	=	2.27 in	
Eccentricity within middle third			
Soil Pressure @ Toe	=	418 psf	OK
Soil Pressure @ Heel	=	188 psf	OK
Allowable	=	2,925 psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	650 psf	
ACI Factored @ Heel	=	293 psf	
Footing Shear @ Toe	=	0.6 psi	OK
Footing Shear @ Heel	=	5.5 psi	OK
Allowable	=	75.0 psi	
Sliding Calcs			
Lateral Sliding Force	=	252.0 lbs	
less 100% Passive Force	-	140.6 lbs	
less 100% Friction Force	-	273.1 lbs	
Added Force Req'd	=	0.0 lbs	OK
....for 1.5 Stability	=	0.0 lbs	OK

Vertical component of active lateral soil pressure IS NOT considered in the calculation of soil bearing

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.000
Wind, W	1.600
Seismic, E	1.000

Stem Construction

		Bottom		
		Stem OK		
Design Height Above Ftg	ft =	0.00		
Wall Material Above "Ht"	=	Concrete		
Design Method	=	SD	SD	SD
Thickness	=	6.00		
Rebar Size	=	# 4		
Rebar Spacing	=	16.00		
Rebar Placed at	=	3 in		
Design Data				
fb/FB + fa/Fa	=	**0.083**		
Total Force @ Section				
Service Level	lbs =			
Strength Level	lbs =	186.1		
Moment....Actual				
Service Level	ft-# =			
Strength Level	ft-# =	159.7		
Moment.....Allowable	=	1,905.5		
Shear.....Actual				
Service Level	psi =			
Strength Level	psi =	5.2		
Shear.....Allowable	psi =	75.0		
Anet (Masonry)	in2 =			
Wall Weight	psf =	75.0		
Rebar Depth 'd'	in =	3.00		
Masonry Data				
f'm	psi =			
Fs	psi =			
Solid Grouting	=			
Modular Ratio 'n'	=			
Equiv. Solid Thick.	=			
Masonry Block Type	=			
Masonry Design Method	=	ASD		
Concrete Data				
f'c	psi =	2,500.0		
Fy	psi =	60,000.0		

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_1'-6"

Concrete Stem Rebar Area Details

Bottom Stem	Vertical Reinforcing	Horizontal Reinforcing	
As (based on applied moment) :	0.0132 in2/ft		
(4/3) * As :	0.0177 in2/ft	Min Stem T&S Reinf Area 0.216 in2	
200bd/fy : 200(12)(3)/60000 :	0.12 in2/ft	Min Stem T&S Reinf Area per ft of stem Height : 0.144 in2/ft	
0.0018bh : 0.0018(12)(6) :	0.1296 in2/ft	Horizontal Reinforcing Options :	
	==========	One layer of :	Two layers of :
Required Area :	0.1296 in2/ft	#4@ 16.67 in	#4@ 33.33 in
Provided Area :	0.15 in2/ft	#5@ 25.83 in	#5@ 51.67 in
Maximum Area :	0.4064 in2/ft	#6@ 36.67 in	#6@ 73.33 in

Footing Data

Toe Width	=	1.00 ft
Heel Width	=	2.00
Total Footing Width	=	3.00
Footing Thickness	=	12.00 in
Key Width	=	8.00 in
Key Depth	=	0.00 in
Key Distance from Toe	=	1.00 ft

f'c = 2,500 psi Fy = 60,000 psi
Footing Concrete Density = 150.00 pcf
Min. As % = 0.0018
Cover @ Top 2.00 @ Btm.= 3.00 in

Footing Design Results

		Toe		Heel	
Factored Pressure	=	650		293 psf	
Mu' : Upward	=	305		0 ft-#	
Mu' : Downward	=	202		486 ft-#	
Mu: Design	=	104	OK	486 ft-#	OK
phiMn	=	9,850		11,029 ft-#	
Actual 1-Way Shear	=	0.60		5.48 psi	
Allow 1-Way Shear	=	75.00		75.00 psi	
Toe Reinforcing	=	# 4 @ 9.26 in			
Heel Reinforcing	=	# 4 @ 9.25 in			
Key Reinforcing	=	None Spec'd			
Footing Torsion, Tu	=	0.00 ft-lbs			
Footing Allow. Torsion, phi Tu	=	0.00 ft-lbs			

If torsion exceeds allowable, provide supplemental design for footing torsion.

Other Acceptable Sizes & Spacings

Toe: #4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.77 in, #8@ 36.57 in, #9@ 46.29 in, #10@ 58.79 in

Heel: #4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.77 in, #8@ 36.57 in, #9@ 46.29 in, #10@ 58.79 in

Key: No key defined

Min footing T&S reinf Area 0.78 in2
Min footing T&S reinf Area per foot 0.26 in2 /ft

If one layer of horizontal bars:	If two layers of horizontal bars:
#4@ 9.26 in	#4@ 18.52 in
#5@ 14.35 in	#5@ 28.70 in
#6@ 20.37 in	#6@ 40.74 in

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_1'-6"

Summary of Overturning & Resisting Forces & Moments

Item		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#		.....RESISTING..... Force lbs	Distance ft	Moment ft-#
HL Act Pres (ab water tbl)		184.8	1.08	200.2	Soil Over HL (ab. water tbl)	236.3	2.25	531.6
HL Act Pres (be water tbl)					Soil Over HL (bel. water tbl)		2.25	531.6
Hydrostatic Force					Water Table			
Buoyant Force	=				Sloped Soil Over Heel	= 59.1	2.50	147.7
Surcharge over Heel	=				Surcharge Over Heel	=		
Surcharge Over Toe	=				Adjacent Footing Load	=		
Adjacent Footing Load	=				Axial Dead Load on Stem	=		
Added Lateral Load	=	45.0	2.00	90.0	* Axial Live Load on Stem	=		
Load @ Stem Above Soil	=		2.50		Soil Over Toe	= 52.5	0.50	26.3
Seismic Earth Load	=	6.4	1.63	10.4	Surcharge Over Toe	=		
Seismic Stem Self Wt	=	15.8	1.75	27.6	Stem Weight(s)	= 112.5	1.25	140.6
					Earth @ Stem Transitions	=		
Total	=	252.0	**O.T.M.** =	328.2	Footing Weight	= 450.0	1.50	675.0
					Key Weight	=	1.33	
					Vert. Component	=		
					Total =	910.3 lbs	**R.M.=**	1,521.1

Resisting/Overturning Ratio = **4.63**

Vertical Loads used for Soil Pressure = 910.3 lbs

* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.

If seismic is included, the OTM and sliding ratios may be 1.1 per section 1807.2.3 of IBC.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Sliding Resistance.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Overturning Resistance.

Tilt

Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus	250.0	pci
Horizontal Defl @ Top of Wall (approximate only)	0.006	in

The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_1'-6"

Rebar Lap & Embedment Lengths Information

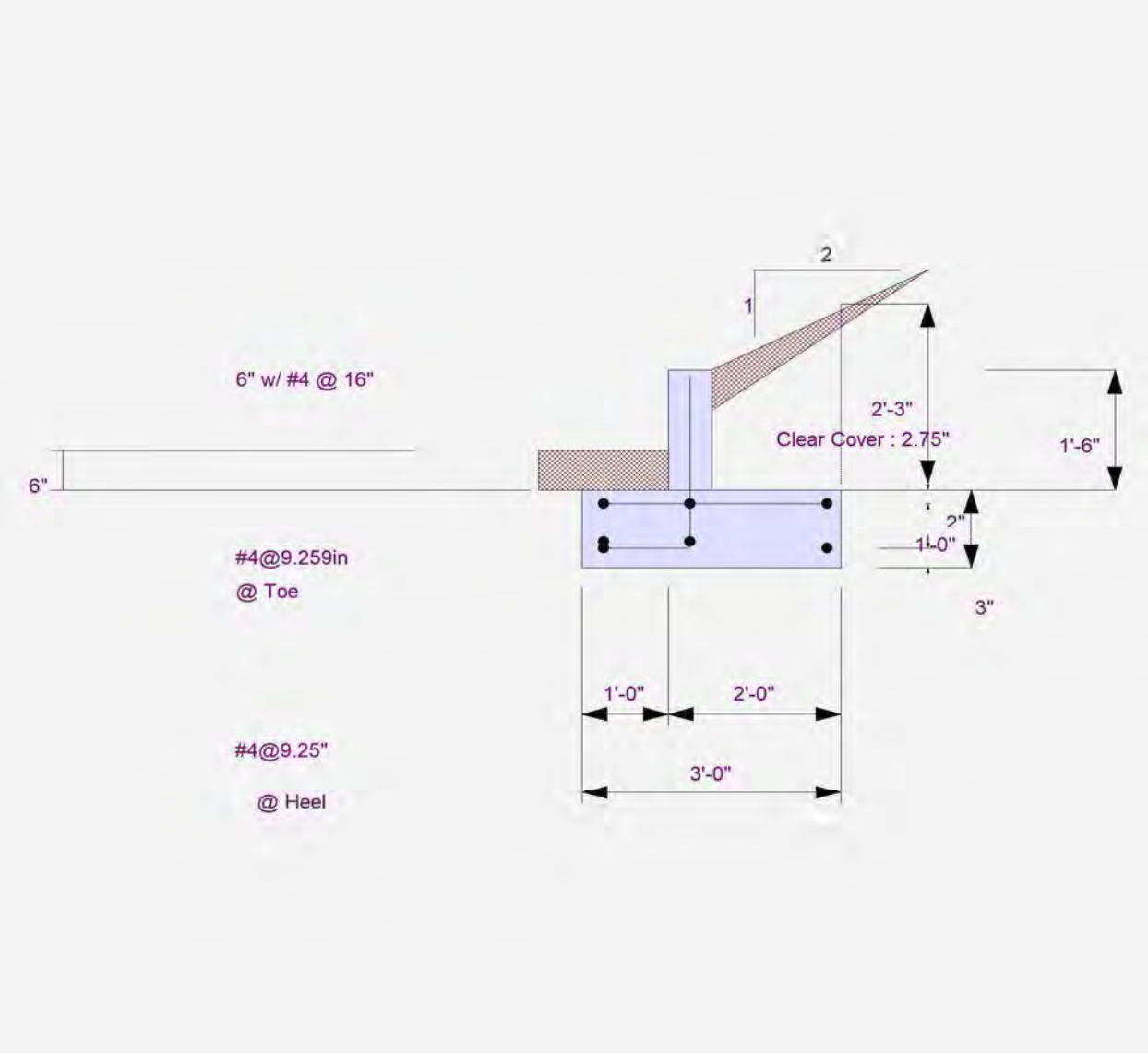
Stem Design Segment: Bottom
Stem Design Height: 0.00 ft above top of footing

Lap Splice length for #4 bar specified in this stem design segment (25.4.2.3a) =	18.72 in
Development length for #4 bar specified in this stem design segment =	14.40 in
Hooked embedment length into footing for #4 bar specified in this stem design segment =	7.26 in
As Provided =	0.1500 in2/ft
As Required =	0.1296 in2/ft

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

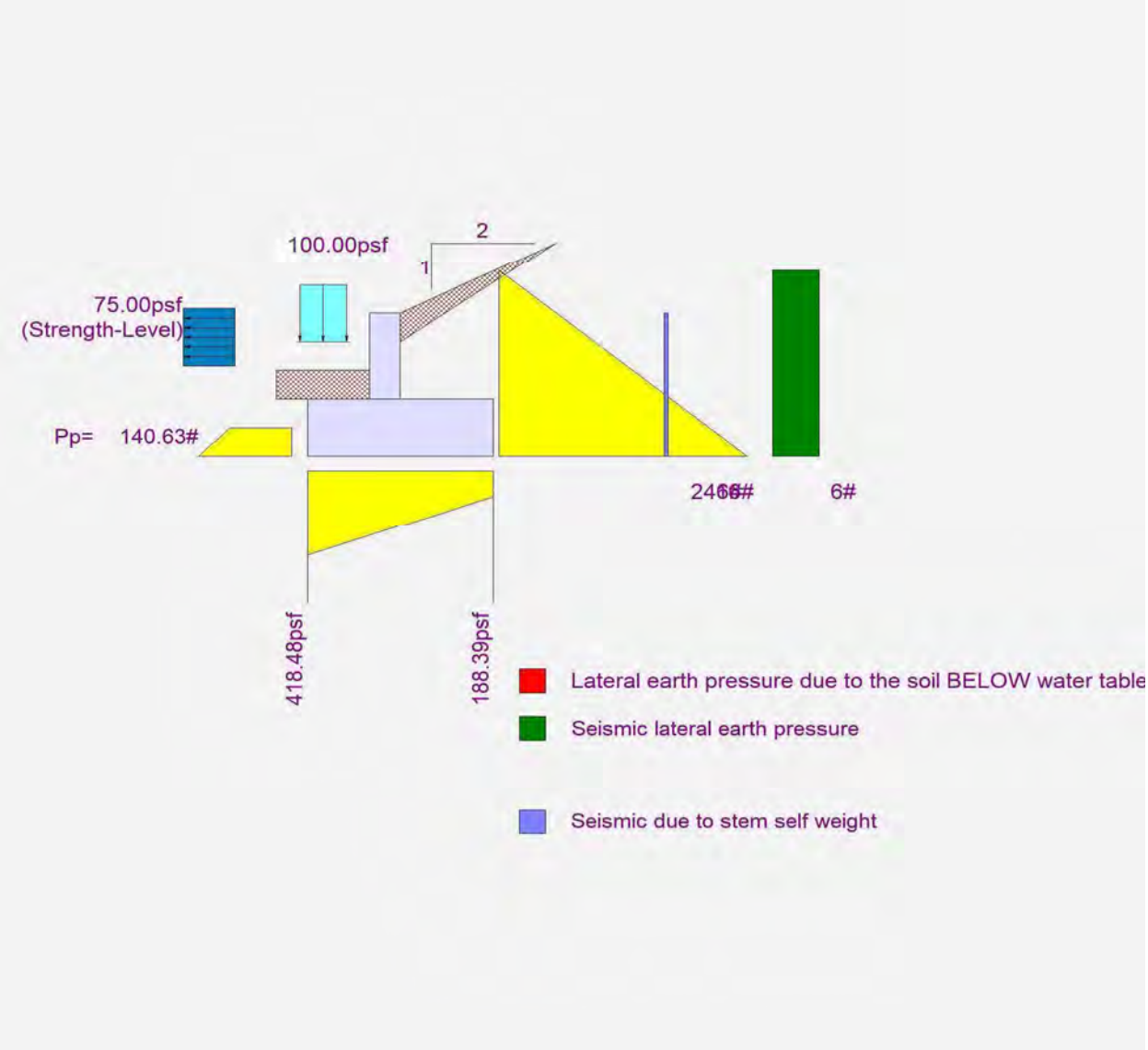
DESCRIPTION: Concrete wall_1'-6"



Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_1'-6"



Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_1'-6"

Code Reference

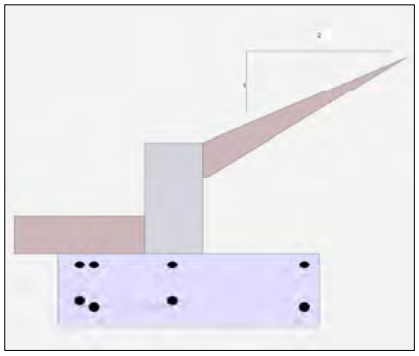
Calculations per ACI 318-14, IBC 2021, CBC 2022, ASCE 7-22

Criteria

Retained Height	=	1.50 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	2.00
Height of Soil over Toe	=	6.00 in
Water height over heel	=	0.0 ft

Soil Data

Allow Soil Bearing	=	2,925.0 psf
Equivalent Fluid Pressure Method		
Active Heel Pressure	=	35.0 psf/ft
	=	
Passive Pressure	=	225.0 psf/ft
Soil Density, Heel	=	105.00 pcf
Soil Density, Toe	=	105.00 pcf
Footing||Soil Friction	=	0.300
Soil height to ignore for passive pressure	=	12.00 in



Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	100.0
NOT Used for Sliding & Overturning		

Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

Earth Pressure Seismic Load

Method : Uniform

Multiplier Used	=	0.864

(Multiplier used on soil density)

Lateral Load Applied to Stem

Lateral Load	=	75.0 #/ft
...Height to Top	=	1.50 ft
...Height to Bottom	=	0.50 ft
Load Type	=	Wind (W) (Strength Level)
Wind on Exposed Stem (Strength Level)	=	21.7 psf

Uniform Seismic Force	=	2.736
Total Seismic Force	=	8.664

Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type		Spread Footing
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Stem Weight Seismic Load

F_p / W_p Weight Multiplier = 0.200 g

Added seismic base force 0.0 lbs

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_1'-6"

Design Summary

Wall Stability Ratios

Overturning	=	4.60	OK
Sliding	=	1.63	OK
Global Stability	=	7.00	

Total Bearing Load	=	759	lbs
...resultant ecc.	=	1.79	in

Eccentricity within middle third

Soil Pressure @ Toe	=	328 psf	OK
Soil Pressure @ Heel	=	178 psf	OK
Allowable	=	2,925 psf	

Soil Pressure Less Than Allowable

ACI Factored @ Toe	=	520 psf	
ACI Factored @ Heel	=	282 psf	
Footing Shear @ Toe	=	0.6 psi	OK
Footing Shear @ Heel	=	0.9 psi	OK
Allowable	=	75.0 psi	

Sliding Calcs

Lateral Sliding Force	=	226.6 lbs	
less 100% Passive Force	-	140.6 lbs	
less 100% Friction Force	-	227.8 lbs	
Added Force Req'd	=	0.0 lbs	OK
....for 1.5 Stability	=	0.0 lbs	OK

Vertical component of active lateral soil pressure IS NOT considered in the calculation of soil bearing

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.000
Seismic, E	1.000

Stem Construction

		Bottom		
		Stem OK		
Design Height Above Ftg	ft =	0.00		
Wall Material Above "Ht"	=	Masonry		
Design Method	=	ASD	SD	SD
Thickness	=	8.00		
Rebar Size	=	# 4		
Rebar Spacing	=	32.00		
Rebar Placed at	=	Center		
Design Data				
fb/FB + fa/Fa	=	**0.153**		
Total Force @ Section				
Service Level	lbs =	88.5		
Strength Level	lbs =	186.1		
Moment....Actual				
Service Level	ft-# =	67.8		
Strength Level	ft-# =	159.7		
Moment.....Allowable	=	442.0		
Shear.....Actual				
Service Level	psi =	1.0		
Strength Level	psi =	5.2		
Shear.....Allowable	psi =	47.1		
Anet (Masonry)	in2 =	91.50		
Wall Weight	psf =	0.0		
Rebar Depth 'd'	in =	3.81		
Masonry Data				
f'm	psi =	1,750		
Fs	psi =	20,000		
Solid Grouting	=	Yes		
Modular Ratio 'n'	=	18.41		
Equiv. Solid Thick.	in =	7.63		
Masonry Block Type	=			
Masonry Design Method	=	ASD		
Concrete Data				
f'c	psi =			
Fy	psi =			

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_1'-6"

Footing Data

Toe Width	=	1.00 ft
Heel Width	=	2.00
Total Footing Width	=	3.00
Footing Thickness	=	12.00 in
Key Width	=	8.00 in
Key Depth	=	0.00 in
Key Distance from Toe	=	1.00 ft

f'c = 2,500 psi Fy = 60,000 psi
Footing Concrete Density = 150.00 pcf
Min. As % = 0.0018
Cover @ Top 2.00 @ Btm.= 3.00 in

Footing Design Results

		Toe	Heel	
Factored Pressure	=	520	282 psf	
Mu' : Upward	=	247	282 ft-#	
Mu' : Downward	=	269	469 ft-#	
Mu: Design	=	-22 OK	187 ft-#	OK
phiMn	=	9,850	11,029 ft-#	
Actual 1-Way Shear	=	0.55	0.89 psi	
Allow 1-Way Shear	=	75.00	75.00 psi	
Toe Reinforcing	=	# 4 @ 9.26 in		
Heel Reinforcing	=	# 4 @ 9.25 in		
Key Reinforcing	=	None Spec'd		
Footing Torsion, Tu	=	0.00 ft-lbs		
Footing Allow. Torsion, phi Tu	=	0.00 ft-lbs		

If torsion exceeds allowable, provide supplemental design for footing torsion.

Other Acceptable Sizes & Spacings

Toe: #4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.77 in, #8@ 36.57 in, #9@ 46.29 in, #10@ 58.79 in

Heel: #4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.77 in, #8@ 36.57 in, #9@ 46.29 in, #10@ 58.79 in

Key: No key defined

Min footing T&S reinf Area 0.78 in2
Min footing T&S reinf Area per foot 0.26 in2 /ft

If one layer of horizontal bars:	If two layers of horizontal bars:
#4@ 9.26 in	#4@ 18.52 in
#5@ 14.35 in	#5@ 28.70 in
#6@ 20.37 in	#6@ 40.74 in

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_1'-6"

Summary of Overturning & Resisting Forces & Moments

Item		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#		.....RESISTING..... Force lbs	Distance ft	Moment ft-#
HL Act Pres (ab water tbl)		175.5	1.06	185.2	Soil Over HL (ab. water tbl)	210.0	2.33	490.0
HL Act Pres (be water tbl)					Soil Over HL (bel. water tbl)		2.33	490.0
Hydrostatic Force					Water Table			
Buoyant Force	=				Sloped Soil Over Heel	= 46.7	2.56	119.3
Surcharge over Heel	=				Surcharge Over Heel	=		
Surcharge Over Toe	=				Adjacent Footing Load	=		
Adjacent Footing Load	=				Axial Dead Load on Stem	=		
Added Lateral Load	=	45.0	2.00	90.0	* Axial Live Load on Stem	=		
Load @ Stem Above Soil	=		2.50		Soil Over Toe	= 52.5	0.50	26.3
Seismic Earth Load	=	6.1	1.58	9.6	Surcharge Over Toe	=		
Seismic Stem Self Wt	=				Stem Weight(s)	=		
					Earth @ Stem Transitions	=		
Total	=	226.6	**O.T.M.** =	284.8	Footing Weight	= 450.0	1.50	675.0
					Key Weight	=	1.33	
					Vert. Component	=		
					Total =	759.2 lbs	**R.M.=**	1,310.5

Resisting/Overturning Ratio = **4.60**

Vertical Loads used for Soil Pressure = 759.2 lbs

* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.

If seismic is included, the OTM and sliding ratios may be 1.1 per section 1807.2.3 of IBC.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Sliding Resistance.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Overturning Resistance.

Tilt

Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus	250.0	pci
Horizontal Defl @ Top of Wall (approximate only)	0.005	in

The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.

DESCRIPTION: Masonry Wall_1'-6"

Rebar Lap & Embedment Lengths Information

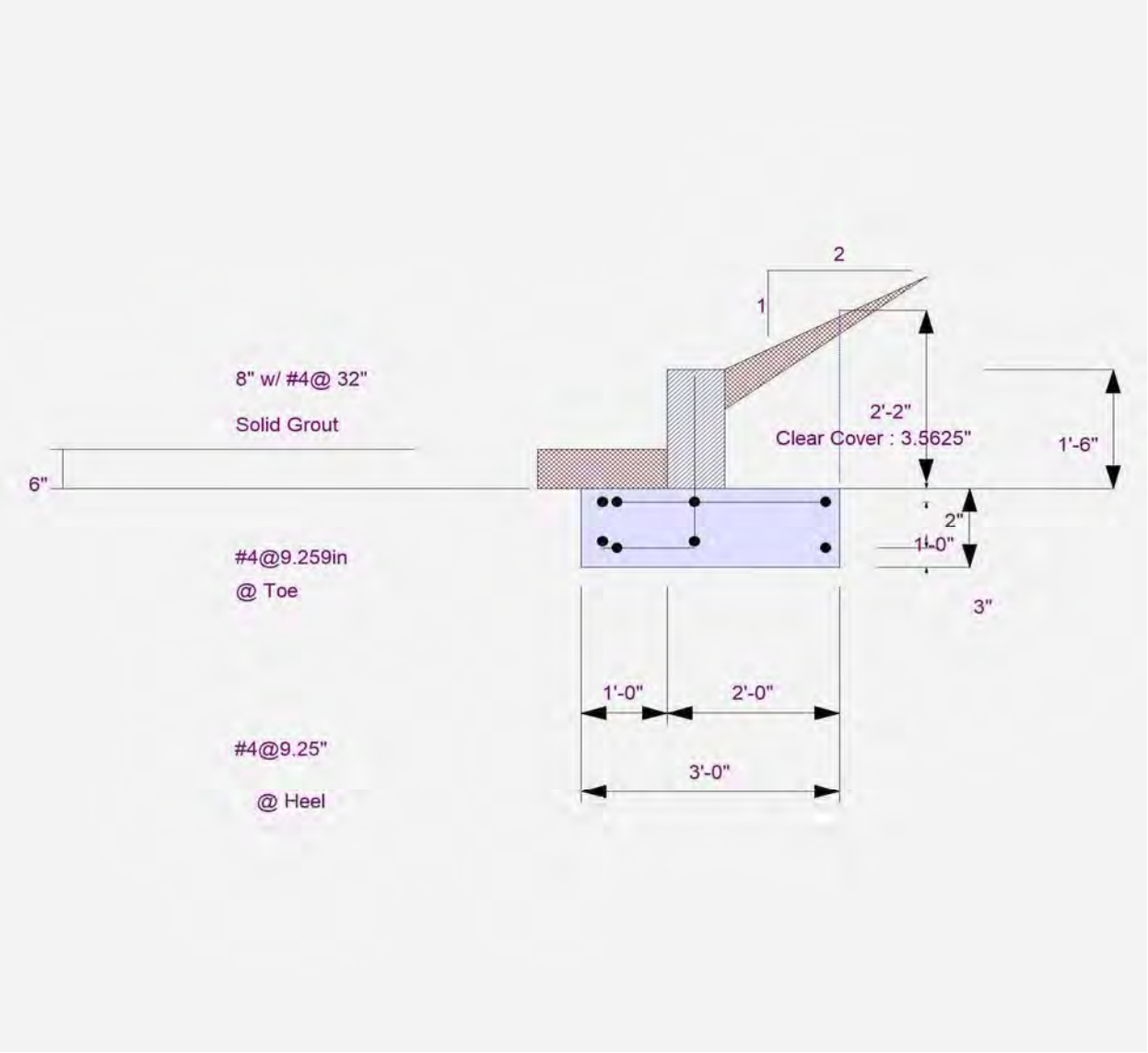
Stem Design Segment: Bottom
Stem Design Height: 0.00 ft above top of footing
Calculated Rebar Stress, fs = 3066.08 psi

Lap Splice length for #4 bar specified in this stem design segment (25.4.2.3a) =	20.00 in
Development length for #4 bar specified in this stem design segment =	12.00 in
Hooked embedment length into footing for #4 bar specified in this stem design segment =	6.00 in
As Provided =	0.0750 in2/ft
As Required =	0.0119 in2/ft

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

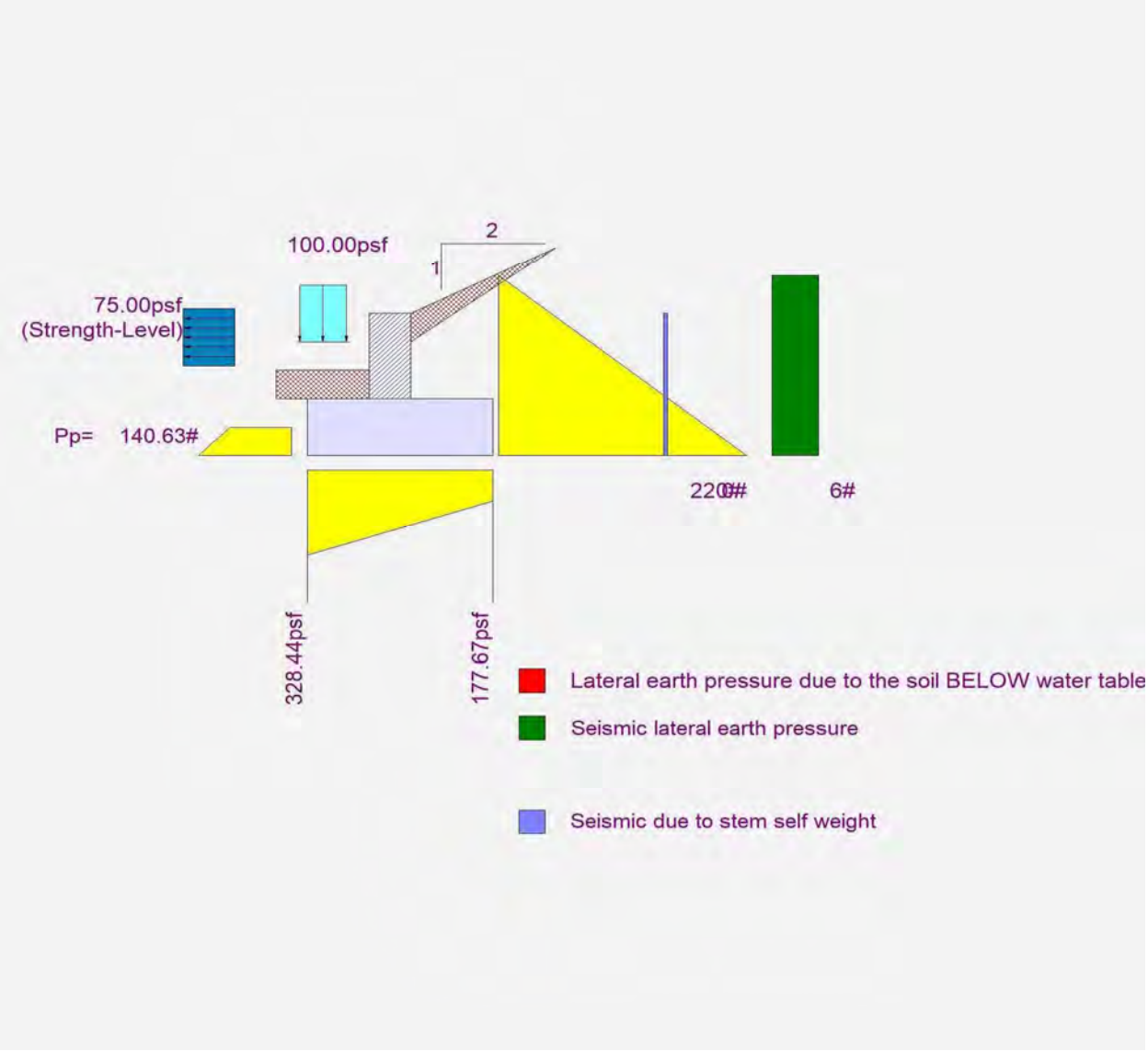
DESCRIPTION: Masonry Wall_1'-6"



Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_1'-6"



Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_3'-3" to 1'-0"

Code Reference

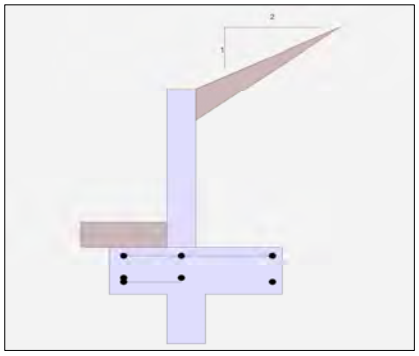
Calculations per ACI 318-14, IBC 2021, CBC 2022, ASCE 7-22

Criteria

Retained Height	=	3.26 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	2.00
Height of Soil over Toe	=	6.00 in
Water height over heel	=	0.0 ft

Soil Data

Allow Soil Bearing	=	2,925.0 psf
Equivalent Fluid Pressure Method		
Active Heel Pressure	=	35.0 psf/ft
	=	
Passive Pressure	=	225.0 psf/ft
Soil Density, Heel	=	105.00 pcf
Soil Density, Toe	=	105.00 pcf
Footing||Soil Friction	=	0.300
Soil height to ignore for passive pressure	=	12.00 in



Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	100.0
NOT Used for Sliding & Overturning		

Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

Earth Pressure Seismic Load

Method : Uniform

Multiplier Used	=	0.864
(Multiplier used on soil density)		

Stem Weight Seismic Load

Lateral Load Applied to Stem

Lateral Load	=	75.0 #/ft
...Height to Top	=	3.25 ft
...Height to Bottom	=	0.50 ft
Load Type	=	Wind (W) (Strength Level)
Wind on Exposed Stem (Strength Level)	=	21.7 psf

Uniform Seismic Force	=	4.329
Total Seismic Force	=	21.686

F_p / W_p Weight Multiplier = 0.200 g

Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type		Spread Footing
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Added seismic base force 34.2 lbs

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_3'-3" to 1'-0"

Design Summary

Wall Stability Ratios

Overturning	=	2.01	OK
Sliding	=	1.66	OK
Global Stability	=	3.67	

Total Bearing Load	=	1,420	lbs
...resultant ecc.	=	7.64	in
Eccentricity outside middle third			
Soil Pressure @ Toe	=	1,096 psf	OK
Soil Pressure @ Heel	=	0 psf	OK
Allowable	=	2,925 psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	1,642 psf	
ACI Factored @ Heel	=	0 psf	
Footing Shear @ Toe	=	3.2 psi	OK
Footing Shear @ Heel	=	8.4 psi	OK
Allowable	=	75.0 psi	

Sliding Calcs

Lateral Sliding Force	=	612.4	lbs
less 100% Passive Force	-	590.6	lbs
less 100% Friction Force	-	425.9	lbs
Added Force Req'd	=	0.0	lbs OK
....for 1.5 Stability	=	0.0	lbs OK

Vertical component of active lateral soil pressure IS NOT considered in the calculation of soil bearing

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.000
Wind, W	1.600
Seismic, E	1.000

Stem Construction

		Bottom		
		Stem OK		
Design Height Above Ftg	ft =	0.00		
Wall Material Above "Ht"	=	Concrete		
Design Method	=	SD	SD	SD
Thickness	=	6.00		
Rebar Size	=	# 4		
Rebar Spacing	=	16.00		
Rebar Placed at	=	3 in		
Design Data				
fb/FB + fa/Fa	=	**0.484**		
Total Force @ Section				
Service Level	lbs =			
Strength Level	lbs =	579.0		
Moment....Actual				
Service Level	ft-# =			
Strength Level	ft-# =	923.6		
Moment.....Allowable	=	1,905.5		
Shear.....Actual				
Service Level	psi =			
Strength Level	psi =	16.1		
Shear.....Allowable	psi =	75.0		
Anet (Masonry)	in2 =			
Wall Weight	psf =	75.0		
Rebar Depth 'd'	in =	3.00		

Masonry Data

f'm	psi =	
Fs	psi =	
Solid Grouting	=	
Modular Ratio 'n'	=	
Equiv. Solid Thick.	=	
Masonry Block Type	=	
Masonry Design Method	=	ASD

Concrete Data

f'c	psi =	2,500.0
Fy	psi =	60,000.0

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_3'-3" to 1'-0"

Concrete Stem Rebar Area Details

Bottom Stem	Vertical Reinforcing	Horizontal Reinforcing	
As (based on applied moment) :	0.0765 in2/ft		
(4/3) * As :	0.1021 in2/ft	Min Stem T&S Reinf Area 0.469 in2	
200bd/fy : 200(12)(3)/60000 :	0.12 in2/ft	Min Stem T&S Reinf Area per ft of stem Height : 0.144 in2/ft	
0.0018bh : 0.0018(12)(6) :	0.1296 in2/ft	Horizontal Reinforcing Options :	
	==========	One layer of :	Two layers of :
Required Area :	0.1296 in2/ft	#4@ 16.67 in	#4@ 33.33 in
Provided Area :	0.15 in2/ft	#5@ 25.83 in	#5@ 51.67 in
Maximum Area :	0.4064 in2/ft	#6@ 36.67 in	#6@ 73.33 in

Footing Data

Toe Width	=	1.00 ft
Heel Width	=	2.00
Total Footing Width	=	3.00
Footing Thickness	=	12.00 in
Key Width	=	8.00 in
Key Depth	=	12.00 in
Key Distance from Toe	=	1.00 ft

f'c = 2,500 psi Fy = 60,000 psi
Footing Concrete Density = 150.00 pcf
Min. As % = 0.0018
Cover @ Top 2.00 @ Btm.= 3.00 in

Footing Design Results

		Toe		Heel	
Factored Pressure	=	1,642		0	psf
Mu' : Upward	=	716		0	ft-#
Mu' : Downward	=	202		735	ft-#
Mu: Design	=	514	OK	735	ft-# OK
phiMn	=	9,850		11,029	ft-#
Actual 1-Way Shear	=	3.22		8.39	psi
Allow 1-Way Shear	=	75.00		75.00	psi

Toe Reinforcing = # 4 @ 9.26 in
Heel Reinforcing = # 4 @ 9.25 in
Key Reinforcing = None Spec'd
Footing Torsion, Tu = 0.00 ft-lbs
Footing Allow. Torsion, phi Tu = 0.00 ft-lbs

If torsion exceeds allowable, provide supplemental design for footing torsion.

Other Acceptable Sizes & Spacings

Toe: #4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.77 in, #8@ 36.57 in, #9@ 46.29 in, #10@ 58.79 in

Heel: #4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.77 in, #8@ 36.57 in, #9@ 46.29 in, #10@ 58.79 in

Key: phiMn = phi*5'lambda*sqrt(fc)*Sm

Min footing T&S reinf Area 0.78 in2
Min footing T&S reinf Area per foot 0.26 in2 /ft

If one layer of horizontal bars:	If two layers of horizontal bars:
#4@ 9.26 in	#4@ 18.52 in
#5@ 14.35 in	#5@ 28.70 in
#6@ 20.37 in	#6@ 40.74 in

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_3'-3" to 1'-0"

Summary of Overturning & Resisting Forces & Moments

Item		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#		.....RESISTING..... Force lbs	Distance ft	Moment ft-#
HL Act Pres (ab water tbl)		439.3	1.67	733.6	Soil Over HL (ab. water tbl)	513.5	2.25	1,155.3
HL Act Pres (be water tbl)					Soil Over HL (bel. water tbl)		2.25	1,155.3
Hydrostatic Force					Water Table			
Buoyant Force	=				Sloped Soil Over Heel	= 59.1	2.50	147.7
Surcharge over Heel	=				Surcharge Over Heel	=		
Surcharge Over Toe	=				Adjacent Footing Load	=		
Adjacent Footing Load	=				Axial Dead Load on Stem	=		
Added Lateral Load	=	123.8	2.88	355.8	* Axial Live Load on Stem	=		
Load @ Stem Above Soil	=		4.26		Soil Over Toe	= 52.5	0.50	26.3
Seismic Earth Load	=	15.2	2.51	38.0	Surcharge Over Toe	=		
Seismic Stem Self Wt	=	34.2	2.63	90.0	Stem Weight(s)	= 244.5	1.25	305.6
					Earth @ Stem Transitions	=		
Total	=	612.4	**O.T.M.** =	1,217.4	Footing Weight	= 450.0	1.50	675.0
					Key Weight	= 100.0	1.33	133.3
					Vert. Component	=		
					Total =	1,419.5 lbs	**R.M.=**	2,443.1

Resisting/Overturning Ratio = **2.01**

Vertical Loads used for Soil Pressure = 1,419.5 lbs

* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.

If seismic is included, the OTM and sliding ratios may be 1.1 per section 1807.2.3 of IBC.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Sliding Resistance.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Overturning Resistance.

Tilt

Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus	250.0	pci
Horizontal Defl @ Top of Wall (approximate only)	0.033	in

The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_3'-3" to 1'-0"

Rebar Lap & Embedment Lengths Information

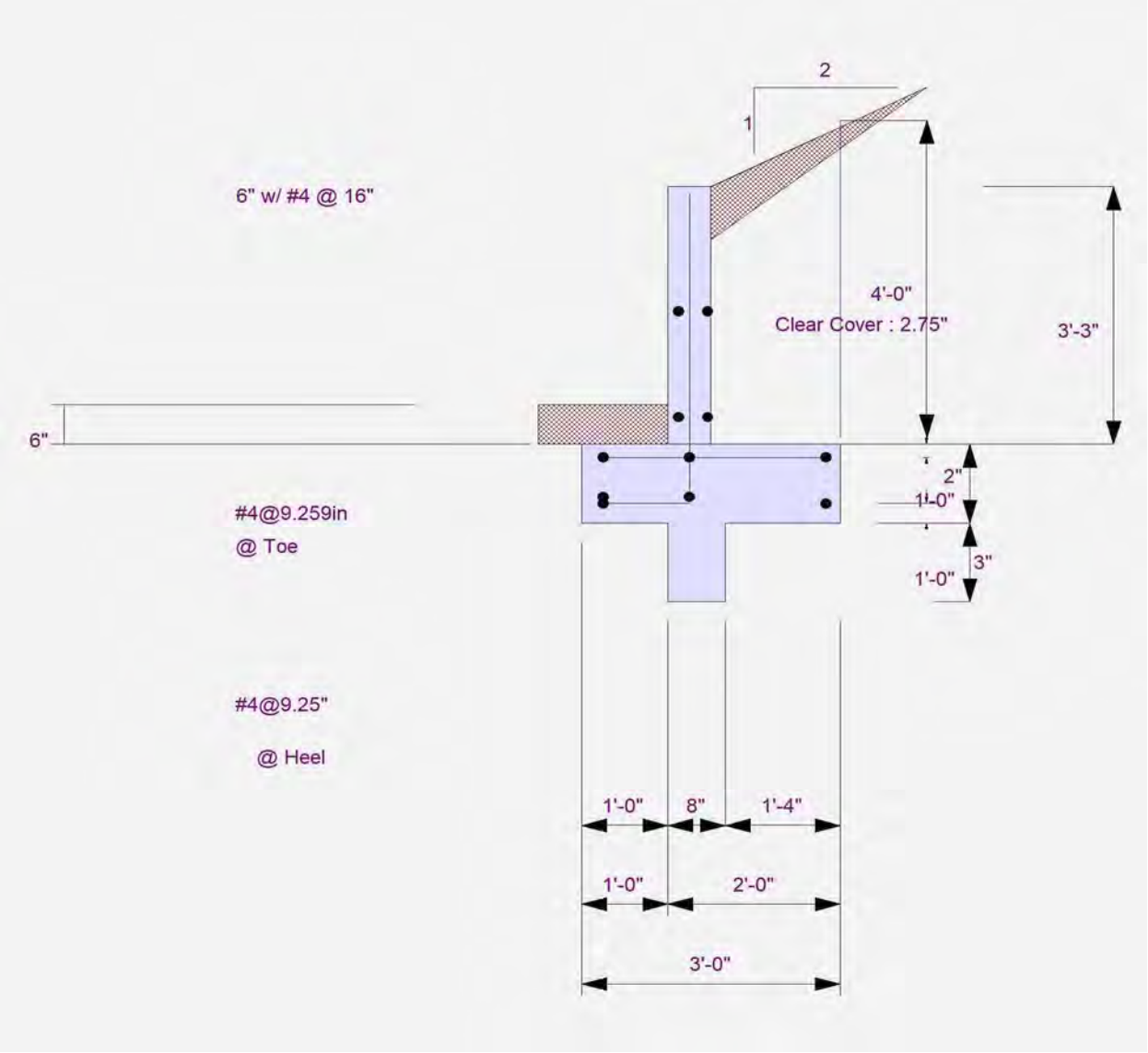
Stem Design Segment: Bottom
Stem Design Height: 0.00 ft above top of footing

Lap Splice length for #4 bar specified in this stem design segment (25.4.2.3a) =	18.72 in
Development length for #4 bar specified in this stem design segment =	14.40 in
Hooked embedment length into footing for #4 bar specified in this stem design segment =	7.26 in
As Provided =	0.1500 in2/ft
As Required =	0.1296 in2/ft

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

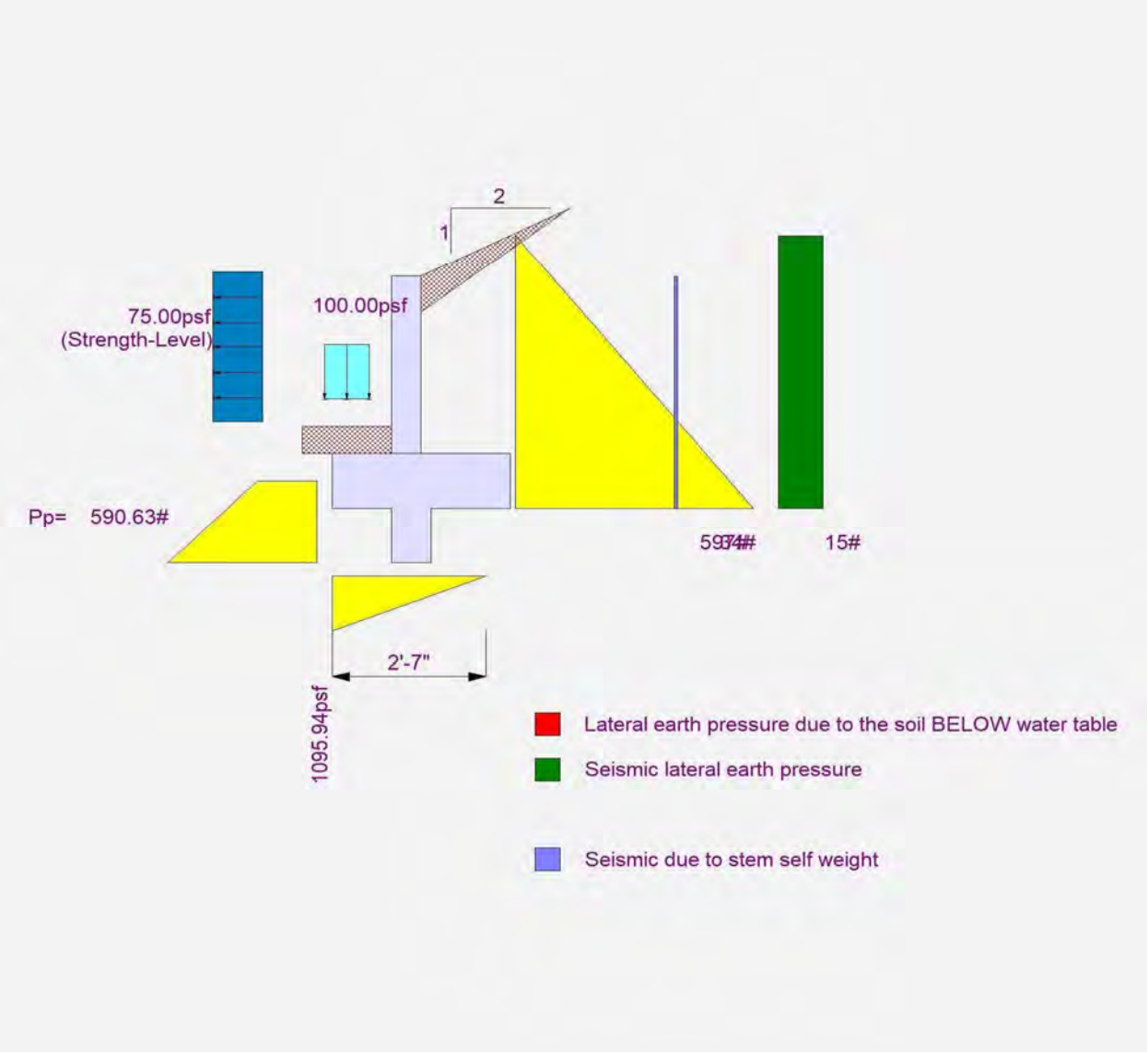
DESCRIPTION: Concrete wall_3'-3" to 1'-0"



Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Concrete wall_3'-3" to 1'-0"



Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_3'-3" to 1'-0"

Code Reference

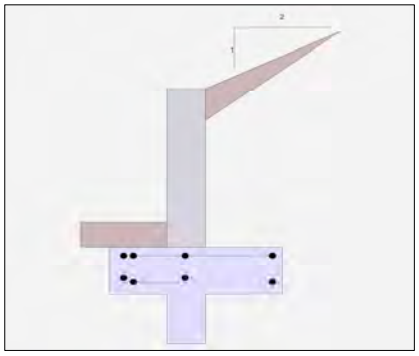
Calculations per ACI 318-14, IBC 2021, CBC 2022, ASCE 7-22

Criteria

Retained Height	=	3.26 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	2.00
Height of Soil over Toe	=	6.00 in
Water height over heel	=	0.0 ft

Soil Data

Allow Soil Bearing	=	2,925.0 psf
Equivalent Fluid Pressure Method		
Active Heel Pressure	=	35.0 psf/ft
	=	
Passive Pressure	=	225.0 psf/ft
Soil Density, Heel	=	105.00 pcf
Soil Density, Toe	=	105.00 pcf
Footing||Soil Friction	=	0.300
Soil height to ignore for passive pressure	=	12.00 in



Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	100.0
NOT Used for Sliding & Overturning		

Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

Earth Pressure Seismic Load

Method : Uniform

Multiplier Used	=	0.864

(Multiplier used on soil density)

Lateral Load Applied to Stem

Lateral Load	=	75.0 #/ft
...Height to Top	=	3.26 ft
...Height to Bottom	=	0.50 ft
Load Type	=	Wind (W) (Strength Level)
Wind on Exposed Stem (Strength Level)	=	21.7 psf

Uniform Seismic Force	=	4.257
Total Seismic Force	=	20.971

Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type		Spread Footing
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Stem Weight Seismic Load

F_p / W_p Weight Multiplier = 0.200 g

Added seismic base force 0.0 lbs

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_3'-3" to 1'-0"

Design Summary

Wall Stability Ratios

Overturning	=	1.85	OK
Sliding	=	1.64	OK
Global Stability	=	3.74	

Total Bearing Load	=	1,106 lbs	
...resultant ecc.	=	7.93 in	
Eccentricity outside middle third			
Soil Pressure @ Toe	=	879 psf	OK
Soil Pressure @ Heel	=	0 psf	OK
Allowable	=	2,925 psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	1,341 psf	
ACI Factored @ Heel	=	0 psf	
Footing Shear @ Toe	=	6.4 psi	OK
Footing Shear @ Heel	=	5.7 psi	OK
Allowable	=	75.0 psi	

Sliding Calcs

Lateral Sliding Force	=	563.6 lbs	
less 100% Passive Force	-	590.6 lbs	
less 100% Friction Force	-	331.7 lbs	
Added Force Req'd	=	0.0 lbs	OK
....for 1.5 Stability	=	0.0 lbs	OK

Vertical component of active lateral soil pressure IS NOT considered in the calculation of soil bearing

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.000
Seismic, E	1.000

Stem Construction

		Bottom		
		Ratio > 1.0		
Design Height Above Ftg	ft =	0.00		
Wall Material Above "Ht"	=	Masonry		
Design Method	=	ASD	SD	SD
Thickness	=	8.00		
Rebar Size	=	# 4		
Rebar Spacing	=	32.00		
Rebar Placed at	=	Center		
Design Data				
fb/FB + fa/Fa	=	**1.036**		
Total Force @ Section				
Service Level	lbs =	324.1		
Strength Level	lbs =	186.1		
Moment....Actual				
Service Level	ft-# =	458.2		
Strength Level	ft-# =	159.7		
Moment.....Allowable	=	442.0		
Shear.....Actual				
Service Level	psi =	3.5		
Strength Level	psi =	5.2		
Shear.....Allowable	psi =	47.1		
Anet (Masonry)	in2 =	91.50		
Wall Weight	psf =	0.0		
Rebar Depth 'd'	in =	3.81		

Masonry Data

f'm	psi =	1,750
Fs	psi =	20,000
Solid Grouting	=	Yes
Modular Ratio 'n'	=	18.41
Equiv. Solid Thick.	in =	7.63
Masonry Block Type	=	
Masonry Design Method	=	ASD

Concrete Data

f'c	psi =	
Fy	psi =	

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_3'-3" to 1'-0"

Footing Data

Toe Width	=	1.00 ft
Heel Width	=	2.00
Total Footing Width	=	3.00
Footing Thickness	=	12.00 in
Key Width	=	8.00 in
Key Depth	=	12.00 in
Key Distance from Toe	=	1.00 ft

f'c = 2,500 psi Fy = 60,000 psi
Footing Concrete Density = 150.00 pcf
Min. As % = 0.0018
Cover @ Top 2.00 @ Btm.= 3.00 in

Footing Design Results

		Toe	Heel	
Factored Pressure	=	1,341	0	psf
Mu' : Upward	=	582	55	ft-#
Mu' : Downward	=	269	716	ft-#
Mu: Design	=	313 OK	661	ft-# OK
phiMn	=	9,850	11,029	ft-#
Actual 1-Way Shear	=	6.38	5.71	psi
Allow 1-Way Shear	=	75.00	75.00	psi
Toe Reinforcing	=	# 4 @ 9.26 in		
Heel Reinforcing	=	# 4 @ 9.25 in		
Key Reinforcing	=	None Spec'd		
Footing Torsion, Tu	=		0.00	ft-lbs
Footing Allow. Torsion, phi Tu	=		0.00	ft-lbs

If torsion exceeds allowable, provide supplemental design for footing torsion.

Other Acceptable Sizes & Spacings

Toe: #4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.77 in, #8@ 36.57 in, #9@ 46.29 in, #10@ 58.79 in

Heel: #4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.77 in, #8@ 36.57 in, #9@ 46.29 in, #10@ 58.79 in

Key: phiMn = phi*5'lambda*sqrt(fc)*Sm

Min footing T&S reinf Area	0.78	in2
Min footing T&S reinf Area per foot	0.26	in2 /ft

If one layer of horizontal bars:	If two layers of horizontal bars:
#4@ 9.26 in	#4@ 18.52 in
#5@ 14.35 in	#5@ 28.70 in
#6@ 20.37 in	#6@ 40.74 in

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

DESCRIPTION: Masonry Wall_3'-3" to 1'-0"

Summary of Overturning & Resisting Forces & Moments

Item		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#		.....RESISTING..... Force lbs	Distance ft	Moment ft-#
HL Act Pres (ab water tbl)		424.8	1.64	697.6	Soil Over HL (ab. water tbl)	456.4	2.33	1,064.9
HL Act Pres (be water tbl)					Soil Over HL (bel. water tbl)		2.33	1,064.9
Hydrostatic Force					Water Table			
Buoyant Force	=				Sloped Soil Over Heel	= 46.7	2.56	119.3
Surcharge over Heel	=				Surcharge Over Heel	=		
Surcharge Over Toe	=				Adjacent Footing Load	=		
Adjacent Footing Load	=				Axial Dead Load on Stem	=		
Added Lateral Load	=	124.2	2.88	357.7	* Axial Live Load on Stem	=		
Load @ Stem Above Soil	=		4.26		Soil Over Toe	= 52.5	0.50	26.3
Seismic Earth Load	=	14.7	2.46	36.2	Surcharge Over Toe	=		
Seismic Stem Self Wt	=				Stem Weight(s)	=		
					Earth @ Stem Transitions	=		
					Footing Weight	= 450.0	1.50	675.0
					Key Weight	= 100.0	1.33	133.3
					Vert. Component	=		
Total	=	563.6	**O.T.M.** =	1,091.4	**Total =**	1,105.6 lbs	**R.M.=**	2,018.8

Resisting/Overturning Ratio = **1.85**

Vertical Loads used for Soil Pressure = 1,105.6 lbs

* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.

If seismic is included, the OTM and sliding ratios may be 1.1 per section 1807.2.3 of IBC.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Sliding Resistance.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Overturning Resistance.

Tilt

Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus	250.0	pci
Horizontal Defl @ Top of Wall (approximate only)	0.027	in

The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.

DESCRIPTION: Masonry Wall_3'-3" to 1'-0"

Rebar Lap & Embedment Lengths Information

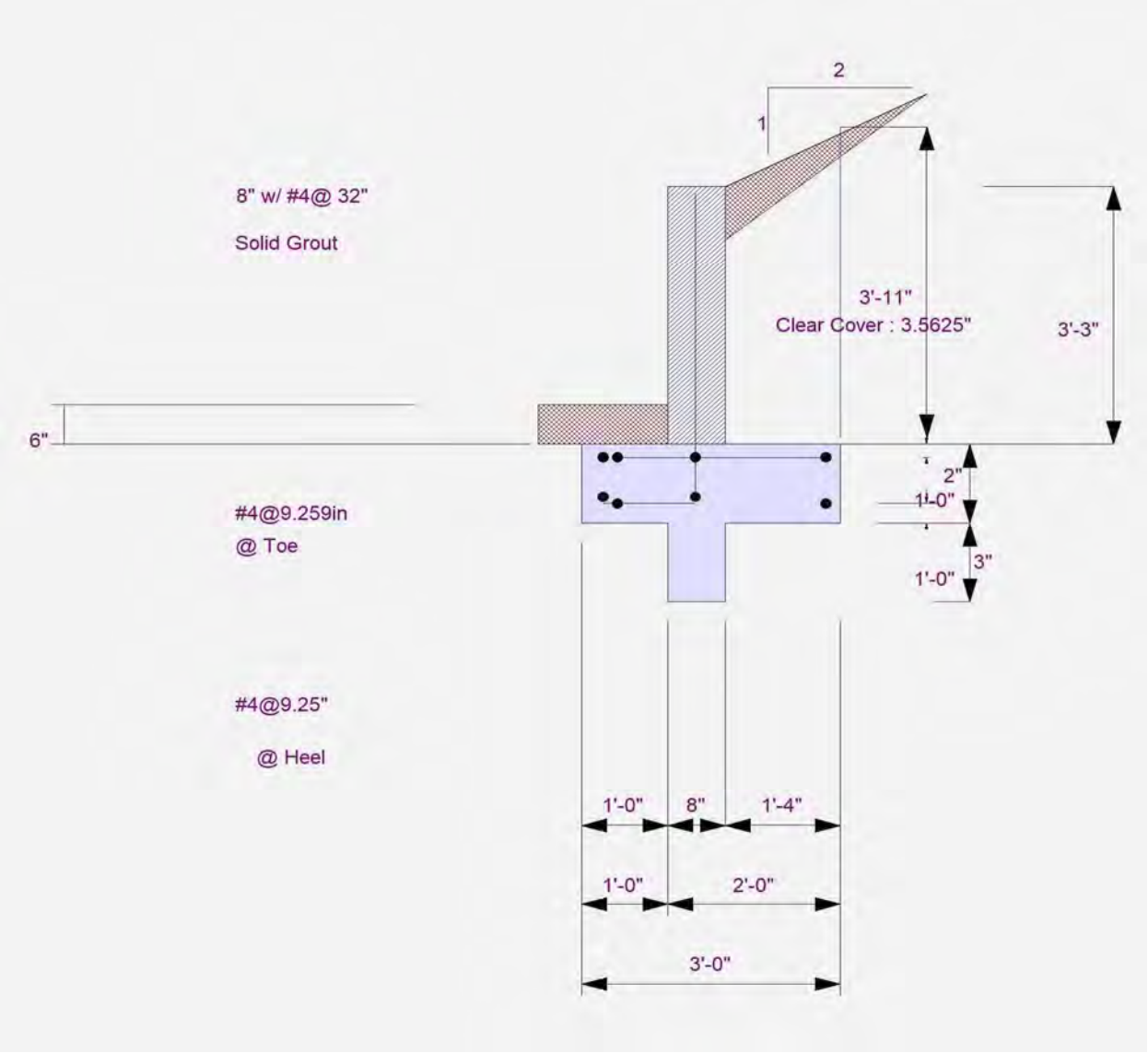
Stem Design Segment: Bottom
Stem Design Height: 0.00 ft above top of footing
Calculated Rebar Stress, fs = 20732.22 psi

Lap Splice length for #4 bar specified in this stem design segment (25.4.2.3a) =	31.10 in
Development length for #4 bar specified in this stem design segment =	31.10 in
Hooked embedment length into footing for #4 bar specified in this stem design segment =	6.00 in
As Provided =	0.0750 in2/ft
As Required =	0.0808 in2/ft

Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

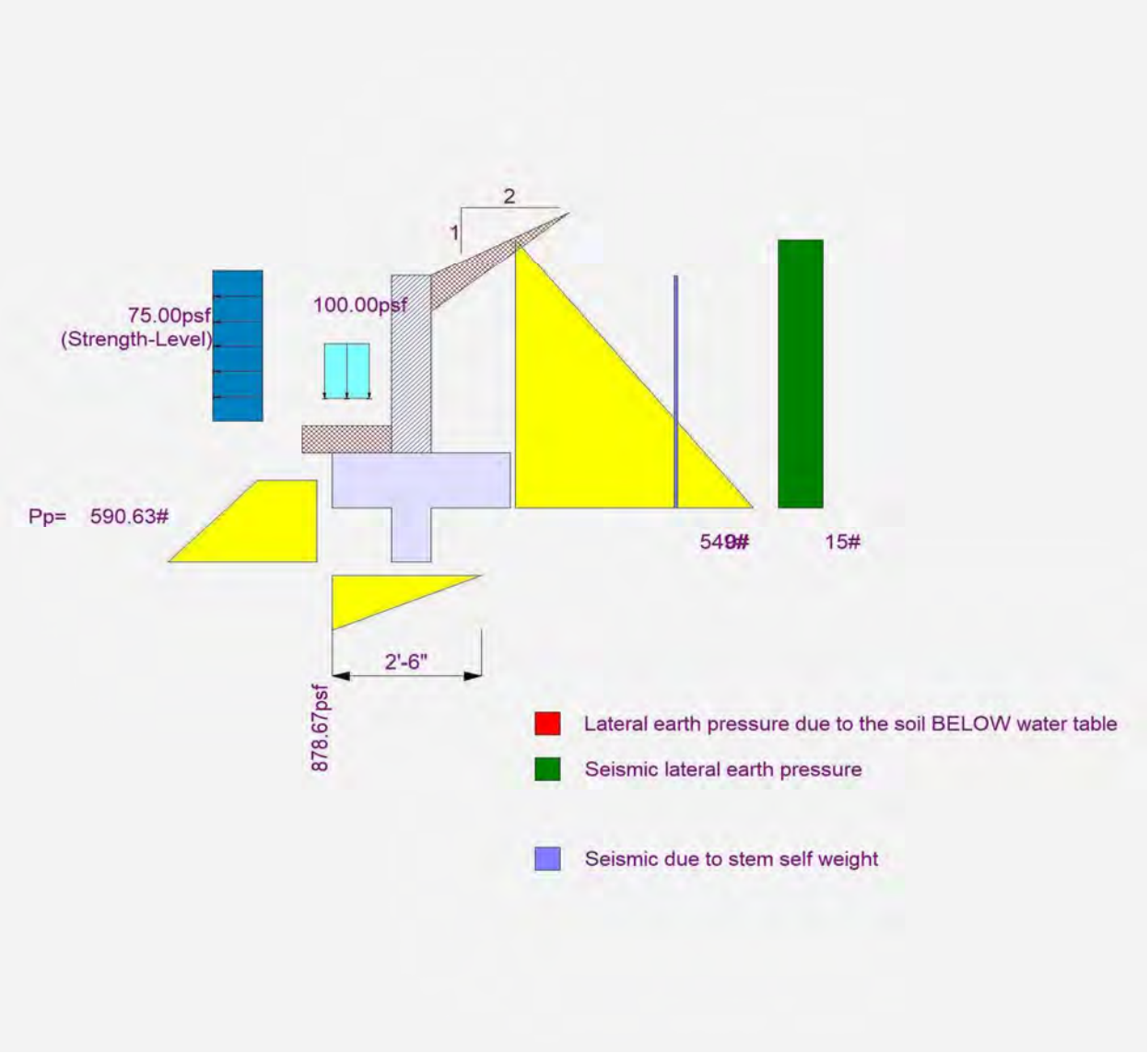
DESCRIPTION: Masonry Wall_3'-3" to 1'-0"

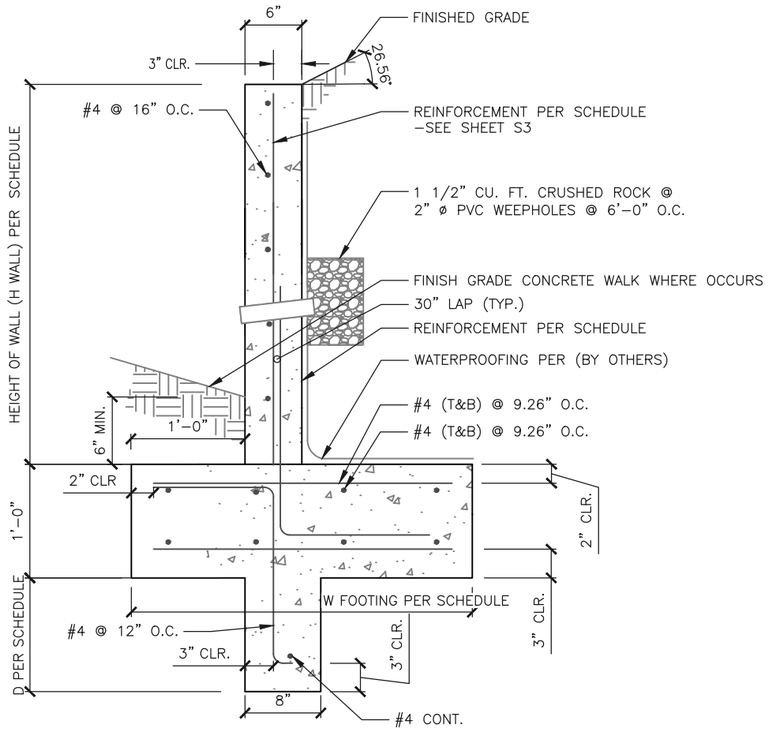


Cantilevered Retaining Wall

Project File: s2-scvo-027_.ec6

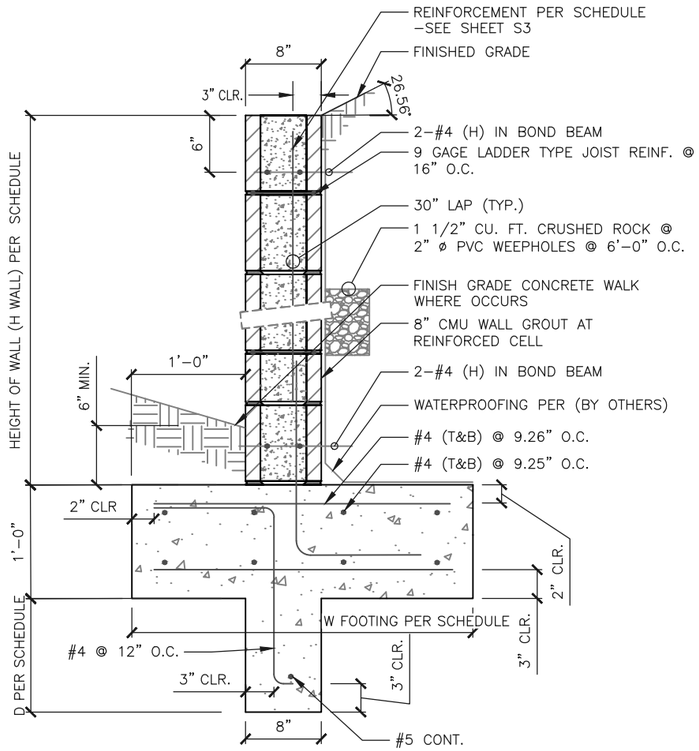
DESCRIPTION: Masonry Wall_3'-3" to 1'-0"





NOTES:
1. NO SPECIAL INSPECTIONS ARE REQUIRED FOR WALL & FOOTING.
2. CONCRETE F'C=3,000 PSI (DESIGN STRENGTH 2500 PSI).
3. REINFORCING STEEL FY=60 KSI.

CONCRETE RETAINING WALL | SCALE N.T.S. | 2



NOTES:
1. NO SPECIAL INSPECTIONS ARE REQUIRED FOR WALL & FOOTING PERIODS.
2. CONCRETE F'C=3,000 PSI (DESIGN STRENGTH 2500 PSI).
3. REINFORCING STEEL FY=60 KSI.
4. CMU F'M=1750 PSI.

CMU RETAINING WALL | SCALE N.T.S. | 1

CARRIER:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

PLANS PREPARED FOR:

AE DESIGN GROUP, INC.
5015 SHOREHAM PL
SUITE 150
SAN DIEGO, CA 92122
WWW.SACW.COM
619.736.3766

PLANS PREPARED BY:

LETS AMERICA
Engineers & Architects
112 S. Kyrene Rd., Suite 1, Chandler, AZ 85226
602-526-7272 - AE@LETSinc.com - www.LETSinc.com
LETS PROJ. #: S2-SCV0-027

REVISIONS

REV.	DATE	ISSUED FOR	INITIALS
0	02/28/23	CONSTRUCTION SET	MAN

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

REGISTERED PROFESSIONAL ENGINEER
MADHAN KUMAR KANTHA SAMY
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA

03/03/2023

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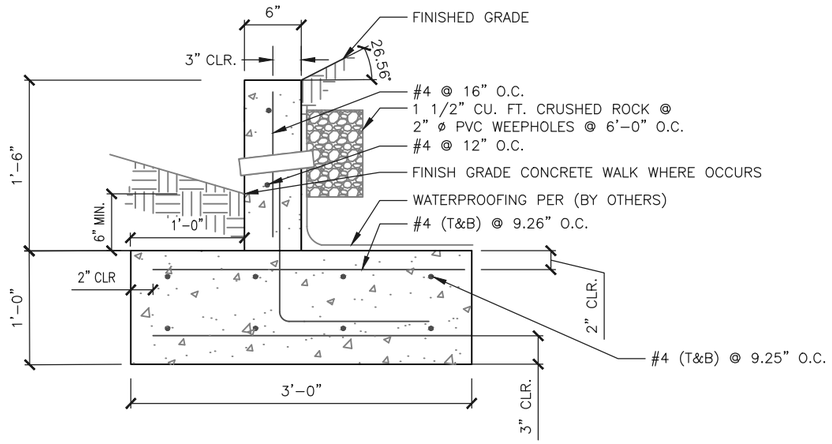
SANDERS RANCH
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE

STRUCTURAL DRAWINGS

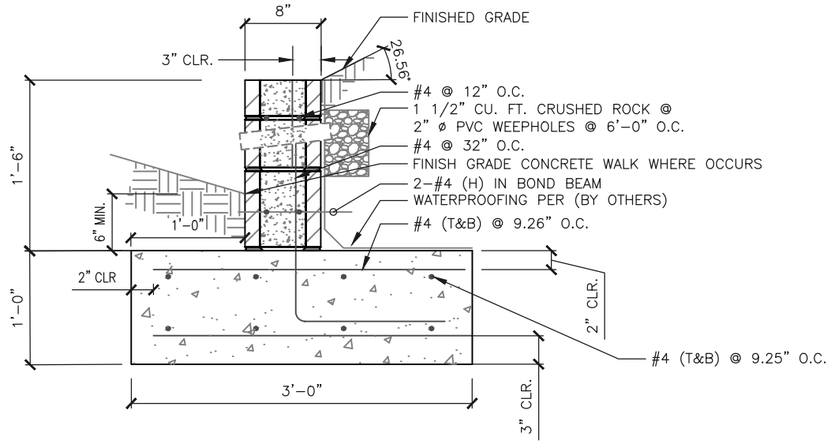
SHEET NUMBER

S-1



NOTES:
1. NO SPECIAL INSPECTIONS ARE REQUIRED FOR WALL & FOOTING.
2. CONCRETE F'C=3,000 PSI (DESIGN STRENGTH 2500 PSI).
3. REINFORCING STEEL FY=60 KSI.

CONCRETE RETAINING WALL 1'-6" | SCALE N.T.S. | 2



NOTES:
1. NO SPECIAL INSPECTIONS ARE REQUIRED FOR WALL & FOOTING.
2. CONCRETE F'C=3,000 PSI (DESIGN STRENGTH 2500 PSI).
3. REINFORCING STEEL FY=60 KSI.
4. CMU F'M=1750 PSI.

CMU RETAINING WALL 1'-6" | SCALE N.T.S. | 1

CARRIER:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

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SANDERS RANCH
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE

STRUCTURAL DRAWINGS

SHEET NUMBER

S-2

CONCRETE RETAINING WALL SCHEDULE				
STEM INFO			FOOTING INFO	"D" SHEAR KEY DEPTH
HEIGHT (H WALL)	"T" WALL THK.	VERTICAL REBAR	"W" FOOTING	
1'–6"	6"	#4 @ 16" O.C.	3'–0"	–
3'–3" TO 1'–0"	6"	#4 @ 16" O.C.	3'–0"	1'–0"

MASONRY RETAINING WALL SCHEDULE				
STEM INFO			FOOTING INFO	"D" SHEAR KEY DEPTH
HEIGHT (H WALL)	"T" WALL THK.	VERTICAL REBAR	"W" FOOTING	
1'–6"	8"	#4 @ 32" O.C.	3'–0"	–
3'–3" TO 1'–0"	8"	#4 @ 32" O.C.	3'–0"	1'–0"

SOIL NOTES:
1. ALLOWABLE BEARING PRESSURE 2925 PSF.
2. SOIL UNIT WEIGHT 105 PCF.
3. SOIL/FOOTING FRICTION CO–EFFICIENT 0.3.
4. ACTIVE SOIL PRESSURE 35 PSF/FT.
5. PASSIVE SOIL PRESSURE 225 PSF/FT.

NOT USED

SCALE N.T.S.

2

CONCRETE AND MASONRY RETAINING WALL SCHEDULE

SCALE N.T.S.

1

CARRIER:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

PLANS PREPARED FOR:

AE DESIGN GROUP, INC.

5015 SHOREHAM PL
SUITE 150
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PLANS PREPARED BY:

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REVISIONS

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0	02/28/23	CONSTRUCTION SET	MAN

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77991
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STATE OF CALIFORNIA

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SANDERS RANCH
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE

CONCRETE AND MASONRY RETAINING WALL SCHEDULE

SHEET NUMBER

S-3



Preliminary Drainage Report for:

Sanders Ranch Cell Site

100 Sanders Ranch Road, Moraga, CA

JD ESIGN
& CONSULTING ENGINEERS

JDESIGN
& CONSULTING ENGINEERS

EXECUTIVE SUMMARY

November 15, 2022

The purpose of this drainage report is to analyze the existing and proposed site conditions, provide methods and processes used in that analysis, and provide conclusions regarding the impact or non-impact to drainage facilities or structures downstream of the project.

The widely accepted Rational Method was used per Contra Costa County Flood Control District Hydrology Standards to determine site hydrologic values for existing and proposed conditions. The hydrology calculations were then used to determine site hydraulics and pipe sizing.

This report concludes the proposed project access road, cellular tower, equipment, and proposed drainage culvert causes no significant impact to facilities or structures downstream of the project.

The Appendices contain supporting exhibits, documentation, and calculations for this conclusion.



JD Christiansen, PE; CA PE #C89629

JDESIGN
& CONSULTING ENGINEERS

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2.0 EXISTING CONDITIONS 5
2.1 Existing Land Uses 5
2.2 Existing Site Drainage 5
2.3 Existing Hydraulics 5
2.4 Existing Soils Data 5
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APPENDIX C C
APPENDIX D ..... D

1.0 PROJECT DESCRIPTION

The proposed project is a Cellular tower site and equipment with an access road to be located within an existing PG&E electrical transmission tower at approximately 100 Sanders Ranch Road, Moraga, CA. (see Figure 1: Vicinity Map).

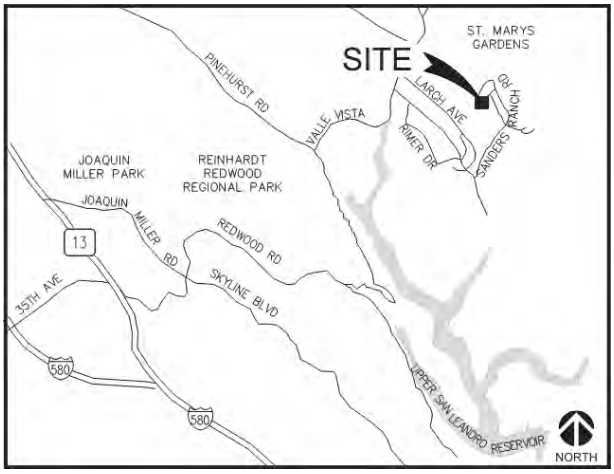


Figure 1: Vicinity Map

The proposed project is a Verizon Wireless unmanned wireless telecommunications facility consisting of a 19'x19' equipment area under an existing PG&E tower, an access road approximately 1,300 feet long with a fire truck turnaround and underground water tank for fire control. The entire developed area is approximately 0.76-acres on a parcel totaling 100.97-acres.

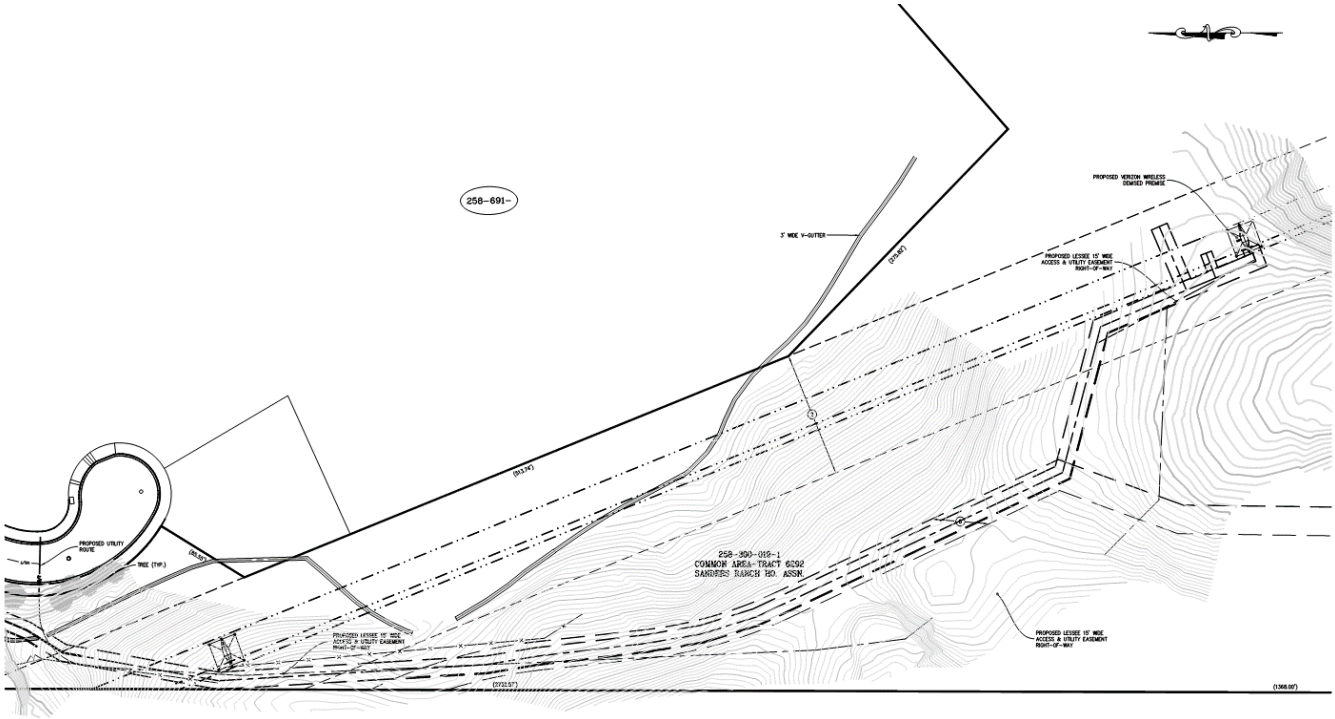


Figure 2: Proposed Site Plan

2.0 EXISTING CONDITIONS

2.1 Existing Land Uses

The site is currently undeveloped, vacant land. The site is currently zoned in the City of Moraga as MOSO-Moraga Open Space District. The project is bordered on the south and east by residential homes in the Sanders Ranch subdivision and on the west and north by MOSO zoned parcels.

2.2 Existing Site Drainage

Drainage patterns are generally steep slopes (>30%) running from the ridgeline located west of the project to the east/northeast. An existing concrete drainage channel along the western edge of the Sanders Ranch subdivision runs at slopes of 4-10%, passes through an existing pipe culvert and finally into an existing area drain inlet; this inlet is the outfall of the site. There is a single existing drainage watershed affected by the proposed development. The shed is observed from topographic data to have sheet flow which flows across the site for approximately 300 feet where it then becomes concentrated into the shallow concrete channel northeast of the site.

See Appendix A for Pre-project drainage patterns and drainage areas.

2.3 Existing Hydraulics

There is a single pipes culvert on the site which runs in line with the existing concrete channel. The pipe was observed to be an HDPE corrugated plastic pipe approximately 12" in diameter running under an existing driveway/gate access area. See Appendix A for Pre-project drainage patterns and drainage areas.

2.4 Existing Soils Data

According to the NRCS Web Soil Survey obtained on November 14, 2022, the soils on site are predominantly Los Osos clay loam (Unified Soil Classification LhF) The Los Osos series is typically found on mountain slopes (30-50% slopes), running approximately 30-45" deep to bedrock. Qualities of this soil type are well-drained very high runoff class, moderately low to moderately high water transmittal, and Hydrologic Soil Group D.

The geotechnical report prepared by Terradyne Engineering, Inc. on May 10, 2021, for SAC Wireless, LLC, is consistent with the USCS designation with the same general qualities described in the NRCS Web Soil Survey (see Appendix B for NRCS Web Soil Survey).

2.5 Groundwater

The geotechnical investigation revealed groundwater encountered during field exploration on 4-7-2021.

3.0 PROPOSED CONDITIONS

3.1 Proposed Land Use

It is understood based on information provided that the project consists of construction of approximately 1,300 feet gravel access route for access to the communication equipment at 100 Sanders Ranch, Moraga, Contra Costa County, California (APN 2583-000-19) The project will disturb less than 1-acre of land and most of the project will be pervious material except for some concrete pads and equipment located under the PG&E electrical transmission tower.

3.2 Proposed Site Drainage

Drainage of the site is proposed to result in no impact to downstream drainage structures or facilities. The project proposes maintaining existing drainage patterns except where the roadway re-routes a small portion (approximately 0.187 acres) of open area into the existing channel.

See Appendix A for Post-project drainage patterns and drainage areas.

4.0 HYDROLOGIC & HYRDRAULIC ANALYSIS

The hydrologic analysis of the project followed the Contract Costa County Flood Control District Hydrology Standards as described on the website. The Rational Method was used first to analyze the existing hydrology and determine the existing runoff flow rate from the site and second to analyze the proposed project runoff flow rate. The hydraulic analysis consisted of routing the flow through proposed surface and subsurface features using Mannings Equation. No detention was required for this project.

4.1 Methodology

Hydrology calculations for the project were prepared using Contra Costa County Flood Control District Hydrology Standards and calculations are provided in the appendices. The site is less than 200 acres, and the proposed drainage system is not complex. A single pipe culvert is proposed on-site for the access roadway to pass over the proposed concrete channel.

- Hydrologic and Hydraulic calculations performed according to CCCFCD Hydrology Standards.
- Rational Method was used ($Q=C_fiA$)
- Weighted Runoff coefficients (C-values) of 0.3 for open areas were applied per CCCFCD standards.
- A weighted average was used to calculate C-values for drainage areas containing both pervious and impervious surfaces.
- IDF curves were created for the project using the CCCFCD standard process and isohyets. (see Appendix C).
- A separate Tc was calculated for each drainage area.
- The Tc calculated for a drainage area was used in the IDF curves to determine the intensity for the watershed
- Existing drainage areas were developed from topographic data provided by a topographic survey and publicly available LiDAR data sets.
- Proposed drainage areas were developed from surface design data in AutoCAD Civil 3D.
- Design calculations were performed for 10-year and 100-year storms.
- Drop inlets and pipe network were analyzed for capacity of the 100-year storm.
- A bypass analysis was not conducted for inlets, and bypass flows were not added to downstream features.
- Culvert was sized using Manning's Equation.

4.2 Existing Conditions and Results

The existing drainage channel along the east of the project is the only existing drainage feature receiving runoff from this project. Runoff for the existing drainage shed was calculated to be 0.20 cfs for 10-year storm and 0.28 cfs for 100-year storm. See Appendix A for the pre-construction hydrology and Appendix C for calculation and inputs.

4.3 Proposed Conditions and Results

The drainage for the proposed project drains into the concrete drainage channel along the east of the project. Runoff for the proposed drainage shed was calculated to be 0.24 cfs for 10-year storm and 0.34 cfs for 100-year storm. The net increase over existing flows were determined to be not significant. See Appendix A for the post-construction hydrology and Appendix C for calculation and inputs.

4.3.1 Site Hydrology

The post construction drainage areas were determined using the existing and proposed grading contours. A table summarizing the areas, runoff coefficients, time of concentration, intensities, and calculated flow rates for each area for both 10-year and 100-year storms is shown in Appendix C.

4.3.2 Site Hydraulics

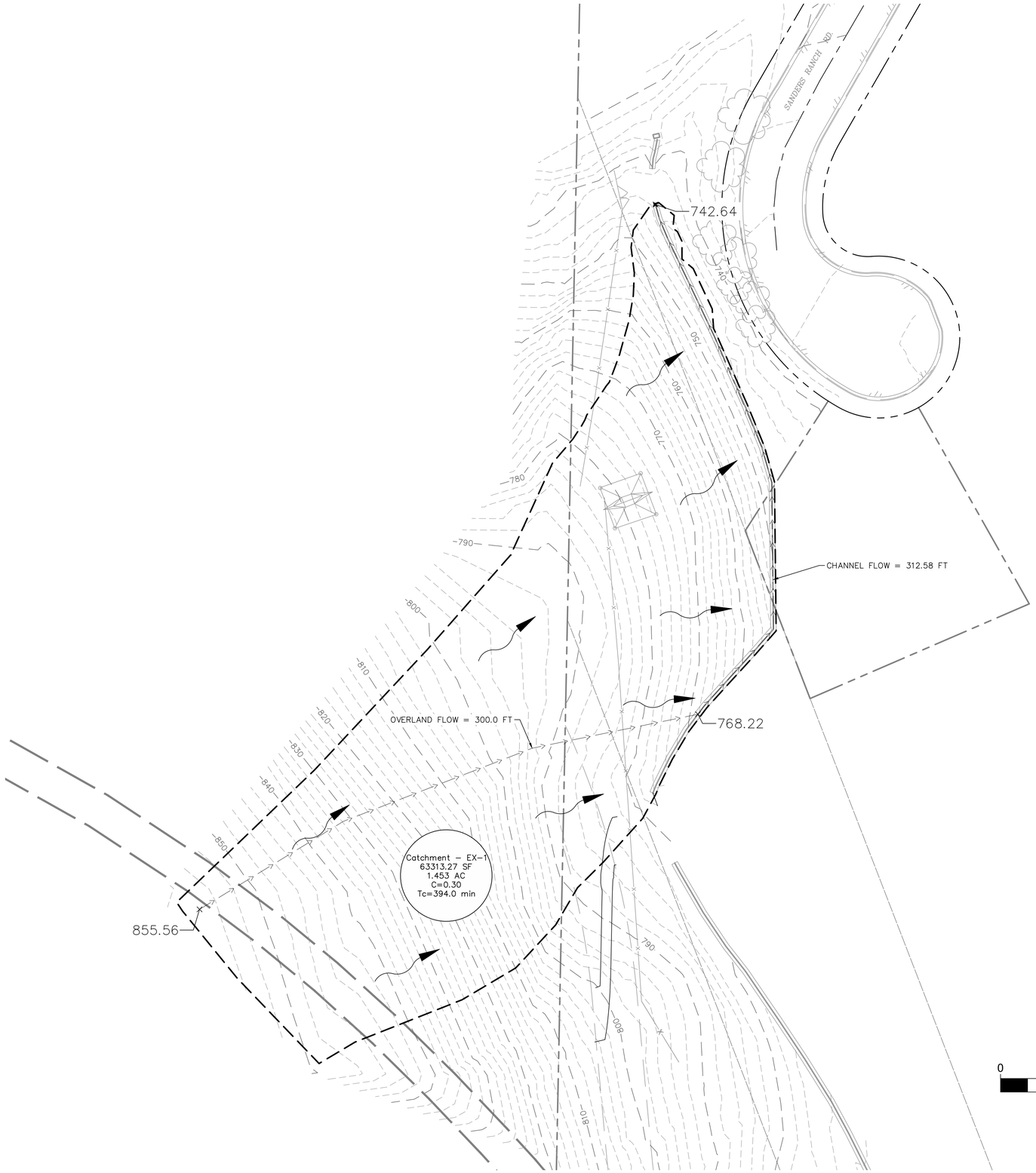
The on-site storm drainage system consists of the existing concrete lined channel and a single pipe culvert to convey site drainage to the existing outfall area drain inlet. Conveyance hydraulic calculations were performed using Hydraflow Express software which applies energy-based methodology and the FHWA Hydraulic Design Series #5 (Hydraulic Design of Highway Culverts, 3rd Edition). The flow from the proposed condition was used along with the proposed pipe criteria to determine the hydraulic grade line and flow condition and therefore a pipe size sufficient to carry the 100-year flow. A printout of the Hydraflow Express information can be found in Appendix D.

5.0 CONCLUSIONS

It is our conclusion that the development of the access route and tower on this site, while slightly raising the flows into the existing channel (Q), the amount of increased flow so small (.06 cfs for 100-year storm) it is the opinion of the Engineer of Record it will have no significant drainage impact downstream of the site. The existing on-site channeling of the storm water is sufficient and will properly convey the runoff.

APPENDIX A

Hydrology Maps



LEGEND:

- EXISTING PROPERTY LINE
- ROADWAY CENTERLINE
- DRAINAGE AREA BOUNDARY
- RIGHT-OF-WAY LINE
- HYDRAULICALLY MOST DISTANT FLOW PATH
- FLOW DIRECTION ARROW
- DA-## / #.### AC — DRAINAGE AREA INFORMATION

PRE-PROJECT AREA EX-1 HYDROLOGY CALCULATIONS

Existing Conditions

Sheet Flow

Surface	Short Grass (prairie)	
Manning, n (for sheet flow)	0.15	*From TR-55 Manual Table 3-1*
Flow Length, L (ft)	300	
Mean Seasonal Precipitation (in)	29.0	*CCCFCWCD Isohyet Map*
Slope, S (ft/ft)	0.291	
T_t (hr)	6.55	*Kerby Equation (per CCCFCWCD)*

Concrete Channel Flow

Surface	Concrete	
Flow Length, L (ft)	312.58	
Slope, S (ft/ft)	0.082	
Average Velocity, V (ft/s)	12.37	*Calculated from Mannings Equation*
Tt (hr)	0.007	*Calculated from Velocity being a function of length/time*

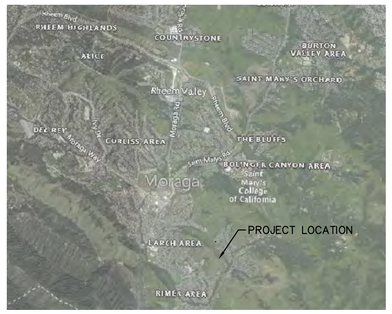
Time of Concentration

Total, T_t (hr):	6.553	393.17 min	*Σ of Sheet Flow and Concentrated flow*

Peak Flow

Rainfall Intensity (10 Year), *i* (in/hr)	0.45	*From City of Williams Design Standards, Appendix C*
Rainfall Intensity (100 Year), *i* (in/hr)	0.65	
Runoff Coeficient(10 Year), C	0.3	*Open Area (per CCCFCD Standard Runoff Coefficients)*
Runoff Coeficient(100 Year), C	0.3	
Catchment Area, A (ac)	1.453	*From Hydrology Exhibit*

Peak Flow Rate, Q_{10} (cfs)	0.20
Peak Flow Rate, Q_{100} (cfs)	0.28



VICINITY MAP
SCALE: 1"=5000'

0 60 120 Feet
SCALE: 1"=30'

PROJECT:
SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:
verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:
A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL. SUITE 150
SAN DIEGO, CA 92122
www.saow.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:
REGISTERED PROFESSIONAL ENGINEER
JIA CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA

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ENGINEERING FIRM:
J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:
EXISTING HYDROLOGY

SHEET NUMBER:
C1.7



LEGEND:

- EXISTING PROPERTY LINE
- ROADWAY CENTERLINE
- DRAINAGE AREA BOUNDARY
- RIGHT–OF–WAY LINE
- HYDRAULICALLY MOST DISTANT FLOW PATH
- FLOW DIRECTION ARROW
- DA-## / #.### AC — DRAINAGE AREA INFORMATION

POST-PROJECT AREA A-1 HYDROLOGY CALCULATIONS

Existing Conditions

Sheet Flow

Surface	Short Grass (prairie)	
Manning, n (for sheet flow)	0.15	*From TR-55 Manual Table 3-1*
Flow Length, L (ft)	227.8	
Mean Seasonal Precipitation (in)	29.0	*CCCFCWCD Isohyet Map*
Slope, S (ft/ft)	0.321	
T_t (hr)	5.63	*Kerby Equation (per CCCFCWCD)*

Concrete Channel Flow

Surface	Concrete	
Flow Length, L (ft)	363.12	
Slope, S (ft/ft)	0.092	
Average Velocity, V (ft/s)	13.70	*Calculated from Mannings Equation*
Tt (hr)	0.007	*Calculated from Velocity being a function of length/time*

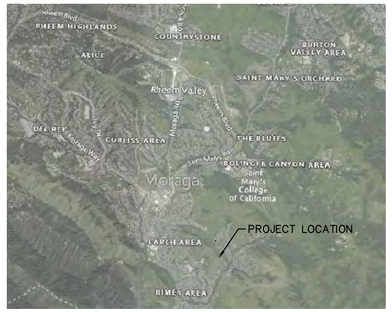
Time of Concentration

Total, T_t (hr):	5.634	338.04 min	*Σ of Sheet Flow and Concentrated flow*

Peak Flow

Rainfall Intensity (10 Year), *i* (in/hr)	0.48	*From City of Williams Design Standards, Appendix C*
Rainfall Intensity (100 Year), *i* (in/hr)	0.70	
Runoff Coeficient(10 Year), C	0.3	*Open Area (per CCCFCD Standard Runoff Coefficients)*
Runoff Coeficient(100 Year), C	0.3	
Catchment Area, A (ac)	1.640	*From Hydrology Exhibit*

Peak Flow Rate, Q_{10} (cfs)	0.24
Peak Flow Rate, Q_{100} (cfs)	0.34



VICINITY MAP
SCALE: 1"=5000'

0 60 120 Feet

SCALE: 1"=30'

PROJECT:

SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:

verizon

2785 MITCHELL DRIVE, BLDG 9
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SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:

REGISTERED PROFESSIONAL ENGINEER
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ENGINEERING FIRM:

J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:

PROPOSED HYDROLOGY

SHEET NUMBER:

C1.8

Plotted: Jul 11, 2022 - 9:42:47 AM By: JDChristia
Drawing: C:\J1 Projects\22007001 Sanders Ranch\CAD\Civil\Sanders Ranch Hydrology.dwg

APPENDIX B

NRCS Web Soil Survey Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Contra Costa County, California

Sanders Ranch



November 14, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Soil Survey Area: Contra Costa County, California
Survey Area Data: Version 19, Aug 31, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 25, 2019—Apr 29, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LhF	Los Osos clay loam, 30 to 50 percent slopes	46.0	100.0%
Totals for Area of Interest		**46.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Contra Costa County, California

LhF—Los Osos clay loam, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: 2yrgf
Elevation: 250 to 1,440 feet
Mean annual precipitation: 16 to 30 inches
Mean annual air temperature: 58 to 61 degrees F
Frost-free period: 283 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Los osos and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Los Osos

Setting

Landform: Mountain slopes, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

A - 0 to 10 inches: clay loam
Bt1 - 10 to 20 inches: clay
Bt2 - 20 to 32 inches: clay
Cr - 32 to 42 inches: bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 24 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R015XD035CA - STEEP FINE LOAMY
Hydric soil rating: No

Minor Components

Alo

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Los osos, soil slips

Percent of map unit: 3 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lodo

Percent of map unit: 3 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Millsholm

Percent of map unit: 2 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Altamont

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Diablo

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LhF	Los Osos clay loam, 30 to 50 percent slopes	D	46.0	100.0%
Totals for Area of Interest			**46.0**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

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Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

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Custom Soil Resource Report
Map—Hydrologic Soil Group



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

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Major Roads

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Background

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For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

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APPENDIX C

Hydrology Calculation Data

122°15′ 122°00′ 121°45′

38°00′ 37°45′

Basic map reproduced by permission of the California State Automobile Association, copyright owner.

PROJECT LOCATION
~29.0" ISOHYET

Legend

These layers were added in 2010 and do not reflect an update to the original 2.5" interval isohyets.

- County Boundary
- 0.50" Isohyets
- 0.25" Isohyets

ISOHYETS SHOWN IN INCHES
ISOHYETS SHOWN IN MILLIMETERS

CONTRA COSTA COUNTY PUBLIC WORKS DEPARTMENT

CONTRA COSTA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

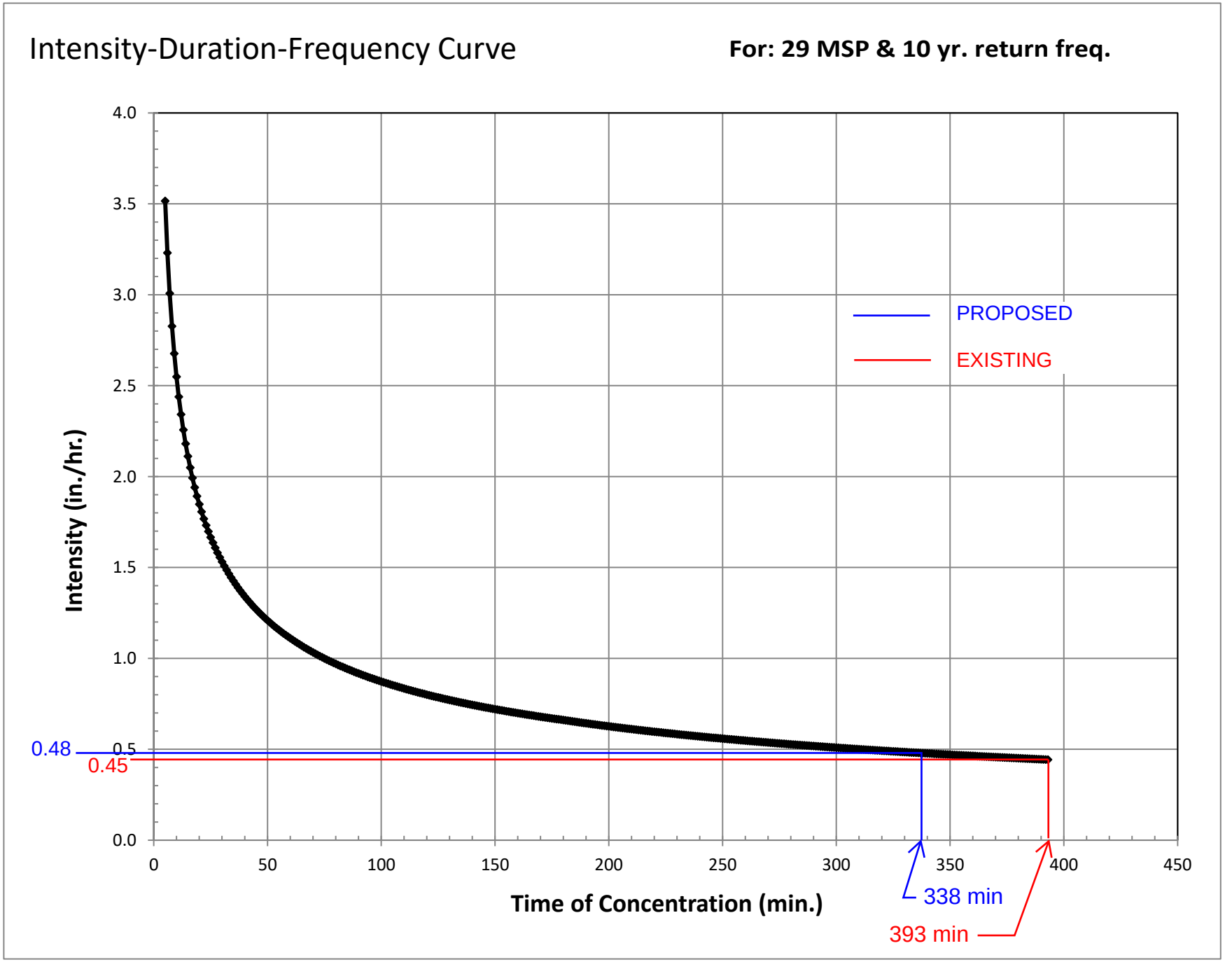
MEAN SEASONAL ISOHYETS COMPILED FROM PRECIPITATION RECORDS 1879 - 1973

DESIGNED: P. W.	CHECKED: L. H.	DRAWING NUMBER: B-166
DRAWN: L. L. H.	DATE: 12-77	

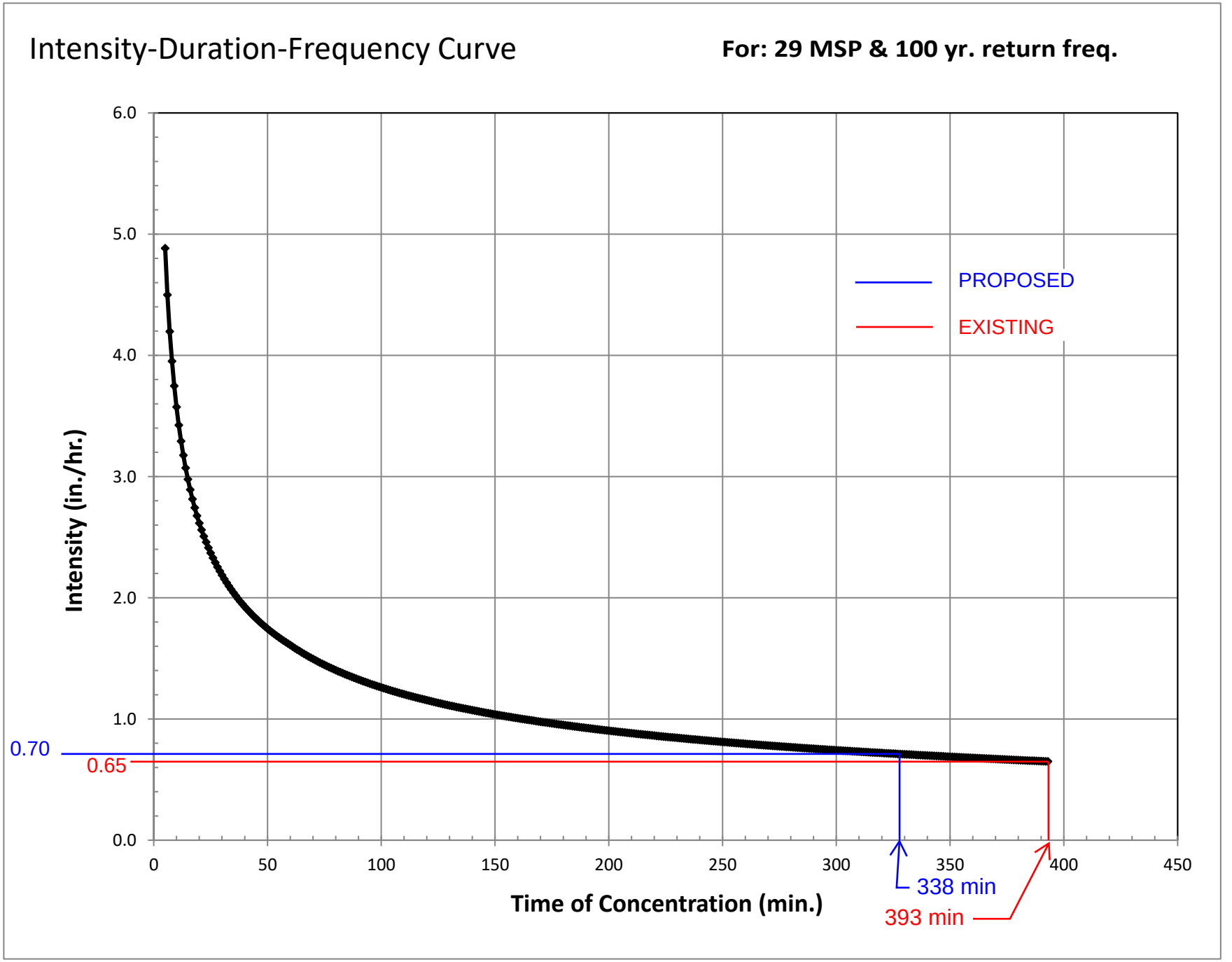
0.25" & 0.50" ISOHYETS ADDED 01-2010 | BY: MB

Time values are set to null() so they don't plot if time is beyond limit set on first sheet.

Plot Limit = 393



Time values are set to null() so they don't plot if time is beyond limit set on first sheet.
Plot Limit = 393



PRE-PROJECT AREA EX-1 HYDROLOGY CALCULATIONS

Existing Conditions			
Sheet Flow			
Surface	Short Grass (prairie)		
Manning, n (for sheet flow)	0.15		*From TR-55 Manual Table 3-1*
Flow Length, L (ft)	300		
Mean Seasonal Precipitation (in)	29.0		*CCCFCWCD Isohyet Map*
Slope, S (ft/ft)	0.291		
T_t (hr)	6.55		*Kerby Equation (per CCCFCWCD)*
Concrete Channel Flow			
Surface	Concrete		
Flow Length, L (ft)	312.58		
Slope, S (ft/ft)	0.082		
Average Velocity, V (ft/s)	12.37		*Calculated from Mannings Equation*
Tt (hr)	0.007		*Calculated from Velocity being a function of length/time*
Time of Concentration			
Total,T_t (hr):	6.553	393.17 min	*Σ of Sheet Flow and Concentrated flow*

Peak Flow		
Rainfall Intensity (10 Year), *i* (in/hr)	0.45	*From City of Williams Design Standards, Appendix C*
Rainfall Intensity (100 Year), *i* (in/hr)	0.65	
Runoff Coeficient(10 Year), C	0.3	*Open Area (per CCCFCD Standard Runoff Coefficients)*
Runoff Coeficient(100 Year), C	0.3	
Catchment Area, A (ac)	1.453	*From Hydrology Exhibit*

Peak Flow Rate, Q_{10} (cfs)	0.20
Peak Flow Rate, Q_{100} (cfs)	0.28

Time of Concentration:

Sheet-flow:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}S^{0.4}}$$

T_t = sheet Flow Travel Time (in-hr)

n = Overland-Flow Roughness Coefficient

L= Length of Overland-Flow Path (ft)

P_2 = 2-yr 24-hr Rainfall depth (in-in)

S_o = Slope (ft/ft)

Shallow Concentrated Flow:

$$V = 16.1345\sqrt{S_o}$$

V = Shallow-Concentrated Flow Velocity (ft/s)

S_o = Slope (ft/ft)

POST-PROJECT AREA A-1 HYDROLOGY CALCULATIONS

Existing Conditions

Sheet Flow

Surface	Short Grass (prairie)	
Manning, n (for sheet flow)	0.15	*From TR-55 Manual Table 3-1*
Flow Length, L (ft)	227.8	
Mean Seasonal Precipitation (in)	29.0	*CCCFCWCD Isohyet Map*
Slope, S (ft/ft)	0.321	
T_t (hr)	5.63	*Kerby Equation (per CCCFCWCD)*

Concrete Channel Flow

Surface	Concrete	
Flow Length, L (ft)	363.12	
Slope, S (ft/ft)	0.092	
Average Velocity, V (ft/s)	13.70	*Calculated from Mannings Equation*
Tt (hr)	0.007	*Calculated from Velocity being a function of length/time*

Time of Concentration

Total,T_t (hr):	5.634	338.04	min	*Σ of Sheet Flow and Concentrated flow*

Peak Flow

Rainfall Intensity (10 Year), *i* (in/hr)	0.48	*From City of Williams Design Standards, Appendix C*
Rainfall Intensity (100 Year), *i* (in/hr)	0.70	
Runoff Coeficient(10 Year), C	0.3	*Open Area (per CCCFCD Standard Runoff Coefficients)*
Runoff Coeficient(100 Year), C	0.3	
Catchment Area, A (ac)	1.640	*From Hydrology Exhibit*

Peak Flow Rate, Q_{10} (cfs)	0.24
Peak Flow Rate, Q_{100} (cfs)	0.34

Time of Concentration:

Sheet-flow:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}S^{0.4}}$$

T_t = sheet Flow Travel Time (in-hr)

n = Overland-Flow Roughness Coefficient

L= Length of Overland-Flow Path (ft)

P_2 = 2-yr 24-hr Rainfall depth (in-in)

S_o = Slope (ft/ft)

Shallow Concentrated Flow:

$$V = 16.1345\sqrt{S_o}$$

V = Shallow-Concentrated Flow Velocity (ft/s)

S_o = Slope (ft/ft)

APPENDIX D

Pipe Culvert Calculations

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Nov 15 2022

Sanders Ranch Culvert

Invert Elev Dn (ft)	=	738.27
Pipe Length (ft)	=	59.24
Slope (%)	=	9.45
Invert Elev Up (ft)	=	743.87
Rise (in)	=	12.0
Shape	=	Circular
Span (in)	=	12.0
No. Barrels	=	1
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Groove end projecting (C)
Coeff. K,M,c,Y,k	=	0.0045, 2, 0.0317, 0.69, 0.2

Embankment

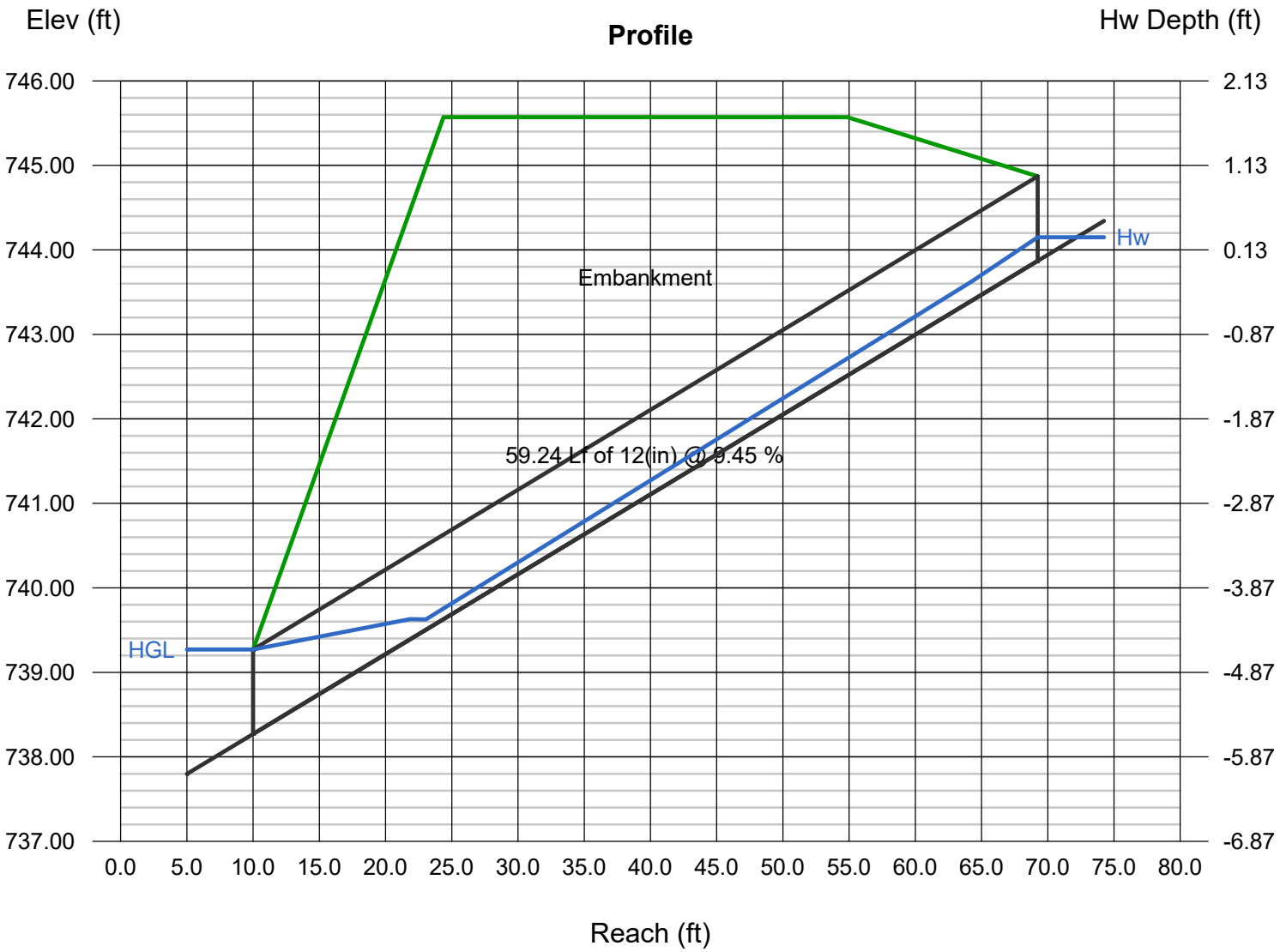
Top Elevation (ft)	=	745.57
Top Width (ft)	=	30.50
Crest Width (ft)	=	20.00

Calculations

Qmin (cfs)	=	0.34
Qmax (cfs)	=	0.34
Tailwater Elev (ft)	=	Crown

Highlighted

Qtotal (cfs)	=	0.34
Qpipe (cfs)	=	0.34
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	0.43
Veloc Up (ft/s)	=	2.34
HGL Dn (ft)	=	739.27
HGL Up (ft)	=	744.11
Hw Elev (ft)	=	744.15
Hw/D (ft)	=	0.28
Flow Regime	=	Inlet Control



ENC Fencing Installation Guide

Fibergrate
Composite Structures

Building the World to Last®

HIGH PERFORMANCE **COMPOSITE SOLUTIONS**



ENC Fencing Installation Guide

SUGGESTED TOOL LIST



- ☐ **48" Spirit Level**
- ☐ **Laser level**
- ☐ **25 ft tape measure**
- ☐ **4 ft straight edge**
- ☐ **Chalk line**
- ☐ **Equipment for drilling post holes and mixer for concrete**
- ☐ **7.5" diameter circular saw with masonry, carbide grit, or diamond grit blade.**
- ☐ **Drill motor with 5/16", 7/16" and ¾" diameter masonry or diamond grit drill bits**
- ☐ **SAE Sockets and rachets or power tools for installing bolts**
- ☐ **Surveying and measuring equipment for laying out fence posts**
- ☐ **2" x 4" wood shoring and C-clamps for securing posts during foundation cure**
- ☐ **Come along and wire cutting tools for installing barbed wire (if specified)**

NOTE: Cuts and drilled holes must be sealed to maintain corrosion protection.

INSTALLATION INSTRUCTIONS:



1. Immediately upon receiving the shipment, inspect all materials and check against the packing list for missing items or for damaged materials. Contact Fibergrate at 800-527-4043 to report any issues with the shipment.
2. Read and review all drawings to fully understand the scope of the project, the installation details, and the basic layout. Contact Fibergrate at the number above if there are questions or issues with installing the fence per the drawings.
3. Lay out post locations using survey equipment to achieve the most accurate possible layout. Dimensions on the drawings are to the centerline of the line posts and to their outside face. Dimensions are to the outside face of the corner posts.
4. Excavate for the foundations to the depth and diameter required. Post embedment in the concrete foundation can be located on the installation drawings. Typical post embedment into the foundation is 1'-11 7/8". A 3'-6" post embedment is required for the 6" x 6" x 3/8" sq. tube posts at the two leaf vehicular gates and the posts adjacent to them used for bracing.
5. Standard line posts (4", 6", or 8" wide flange beams) and corner posts (6" x 6" x 3/8" angle) are supplied in a length of 9'-11 7/8". Allow for 8' of post to extend above ground for the installation of the fencing panels. Posts for standard vehicular gates are supplied at a length of 11'-6". Post embedment and therefore length may vary based on project requirements.
6. Install line posts, corner posts, and gate posts at the locations indicated on the drawings. Be careful to install any specially fabricated corner posts or gate posts at the correct locations and orientation. Set posts by temporarily bracing them in the excavated holes and filling the holes with concrete. Brace posts so that they are plumb in both directions and ensure that the post to post spacing is accurate to within a ±1/4 inch tolerance. Wood bracing should be clamped to the FRP posts with C-clamps – do not use temporary screws or nails into FRP members. Allow concrete to adequately cure prior to continuing with the installation process.
7. Before the concrete cures, install any horizontal and diagonal bracing at the gate posts using the stainless steel hardware indicated in the erection details. Tighten all bolts finger tight during the assembly process, then go back and fully tighten them after all braces are installed. Tighten bolts to a 'snug tight' condition – after the members are in contact, tighten the bolts as tightly as you can with a wrench by hand. Double check plumb and location of posts prior to allowing the concrete to fully cure.
8. Temporarily clamp the fencing panels in place and back drill 7/16" diameter holes in the center of the fence panel cells as indicated in the elevations and details for installation of the square fence panel clips. Use single clips at the corner posts and the interior of fence panels where indicated. Use two fence panel clips at abutments falling on the center of line posts. Install fence panel clips with the 3/8" diameter galvanized carriage bolts, nuts, and washers supplied. F-clips are used to secure the horizontal panel abutments between line posts as indicated in the drawings. Install all fence panel clips finger tight and full tighten only after all fence panels are installed to allow for small adjustments.
9. For fence panels that require cutting, refer to the 'Guide to Fabrication' on page 4 for specific cutting and sealing procedures.



10. For fences on sloped ground, install the fence panels with the panels oriented horizontally and with the combined 8' height on the down slope end of the panel. Trim the bottom edge of the lower most fence panel to conform to the bottom edge of the slope. The top of the uppermost panel will be horizontal and uncut. Installing the panels this way will result in a 'stair-step' upper edge of the fence panels.
11. Personnel gates are pre-assembled. Install by temporarily clamping in place with the top of the gate aligned with the top of the gate post and leaving a 2" gap at the bottom. The face mounted hinges attach to the outer face of the gate posts and the door swings outward – reference the detail on the drawings. Back drill the posts using a 5/16" diameter drill bit using the hinge holes as a template. Install the hinges using the ¼" diameter countersunk head stainless steel bolts provided.
12. Vehicular gates are not pre-assembled. Assemble the vehicular gate leaves following the drawings provided. Assemble the angle frame and X-braces with all bolts finger tight and ensure squareness by measuring the diagonal out to out dimension of the frame and adjusting until the two diagonal measurements are equal. When the diagonal measurements are equal, torque all bolts to a snug tight condition. Install the gate fence panels following the procedure given under (8) above. Install the top and bottom strap hinges in the locations using the 3/8" diameter carriage bolts provided. Leave the middle strap hinge off until after the gates are hung.
13. Install the top and bottom hook bolts in the 6" x 6" x 3/8" square tube posts with the hooks pointing upward. Install the hooks with a washer and nut on both the inside and outside of the square tube and with the centerline of the pivot 3" from the face of the square tube. Do not install the center hook bolt until after the gate leaves are hung.
14. Lubricate the pivot portion of the hook bolts using axle grease or white lithium grease (not provided) and hang the gate leaves. Adjust the hook bolts as required until a uniform gap of 1" exists between the two gate leaves. Torque down the nuts on the hook bolts to lock secure them in place.
15. Thread one nut and washer onto the middle hook bolt, threading it so that the washer is 3" from the centerline of the pivot. Lubricate the pivot portion of the middle hook bolt as above and slip the middle strap hinge over it. Install this assembly into the square tube post and the gate with the hook of the bolt pointed downward. This will prevent the gate leaves from being lifted off of the hook bolts as a mode of forced entry. Install the strap hinge bolts and the washer/nut on the hook bolt and adjust so that there is no binding as the gate is opened and closed.
16. Steps 16-20 are for fence installations with barbed wire. At line posts, install two 15" Universal Barb Arms as follows. Drill a 7/16" diameter hole at the centerline of the post web located 15/16" down from the cut end of the post. Interleaf the ends of the barb arms and slide them over the web of the post and secure using a 3/8" x 1-1/2" long carriage bolt as shown in the detail. The barb arms are at 45 degrees from the horizontal, one facing inward and one facing outward.
17. At pedestrian gates and the inside and outside edges of vehicular gates, barbed wire is connected to the vertical gate angles which are extended 12" above the top of the gate. The barbed wire connection consists of three ¼" diameter x 1" long zinc plated eye bolts, installed in 5/16" diameter holes drilled at equal spacings into the leg of the angle which faces the outside of the fence.
18. Barb arms at the midpoint of vehicular gate leaves are installed using two 4" x 4" x ½" x 4" long angle clips bolted into the top angle of the gate using two 3/8" x 2" hex head bolts for each angle. The barb arm connected to one angle faces inward at 45 degrees from horizontal and the other barb arm faces outward. Barb arms are secured to the angles using a single 3/8" x 2-1/4" carriage bolt which passes through both.
19. For barbed wire installations, the 6" x 6" x 3/8" corner posts are supplied long enough to be 12" above the top of the fence panels. The barbed wire is connected to six ¼" diameter x 1" long zinc plated eye bolts are installed in 5/16" diameter holes drilled at equal spacings into the two legs of the post, three eye bolts on each side.
20. The barbed wire is threaded and tensioned using the same procedure as steel fencing.

SHIPPING PRACTICES

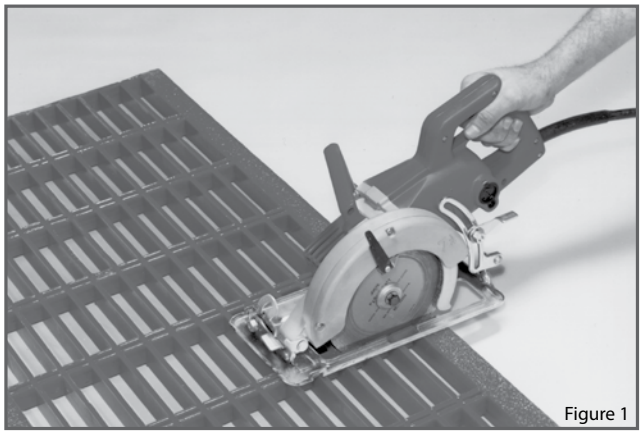
1. Grating to be shipped as full panels (4'x12') for field cutting and notching (by others).
2. All posts are shipped in stock 20' lengths to be field cut to length and drilled (by others)
3. Field attach grating (by others).
4. Gates - field drill the posts for field assembly (by others). Gates are to be shipped unassembled. Gates will require field assembly (by others).
5. Post bracing to be shipped in 20' stock lengths to be field cut to length and drilled (by others).
6. Approximately 10% additional grating panels, post material, barbed wire, bayonets, hardware, and grating clips to be shipped.

ENC Fencing Installation Guide

GUIDE TO FABRICATION

Fabrication Tips

A major advantage of using Fibergrate Composite Structures' fiberglass products is the ease of fabrication — sawing, grinding, drilling and machining is similar to working with wood, metals and plastics. If possible, perform fabrication "on-site" to increase accuracy. Be sure to allow for saw kerf (usually 3/16") when performing take-offs and layouts. For a nice looking installation, cut panels, so bars of adjoining panels are aligned and leave a solid bar on all sides.


Figure 1

Recommended Safety Practices

Prior to cutting Fibergrate products, take the following steps:

1. Carefully read the Safety Data Sheet (SDS), formerly MSDS. If you do not have an SDS, contact Fibergrate prior to fabricating. Individuals with respiratory ailments should not fabricate FRP products. (*SDS can be downloaded at fibergrate.com*)
2. Observe common safety precautions when using cutting tools. Always wear gloves when handling Fibergrate products. Wear approved safety glasses or goggles to protect your eyes and a respirator (mask) to reduce inhalation of dust. We recommend the use of a NIOSH/MSHA approved mask for dust with a permissible exposure limit (PEL) of not less than 0.1 mg/M^3.
3. Dust from cutting FRP products can cause skin irritation. Wear clothing to reduce dust from coming into contact with skin. If cutting products causes difficulty in breathing or excessive skin irritation, stop immediately and consult a physician.
4. Observe common safety precautions when using the epoxy coating or sealing kit. Read and follow instructions provided with the coating or enclosed in the kit prior to using. Always wear personal protective equipment when working with FRP products or using a protective coating or sealing kit. Do not allow resin or catalyst to come in contact with skin.


Figure 2

Tools Required

1. Power saw with a masonry or diamond blade for cement board products (Figure 1); use a circular saw for straight cuts, a jig saw for circular cuts. For large fabrication jobs, use a diamond grit blade.
2. Sawhorses or platform for supporting products while cutting (Figure 2).
3. Tape measure, straight-edge and chalk-line or felt-tip pen for marking cuts.
4. Use Aervoe Epoxy 403 Clear coating (Figure 3) to seal edges after cutting*. Alternate products to use for sealing Corvex & Vi-Corr gratings are: Devcon 2-Ton Epoxy or 5 Minute Epoxy. For Corvex resins only: Rustoleum Lacquer 1906 Clear, Helmsman Spar Urethane, Krylon-Crystal Clear protective coating.



Figure 3


Figure 4

**Fibergrate's previous seal kit (Figure 4) is still available with minimum order quantity requirements.*

Procedures

1. Support panel securely so it will not flex or shift during cutting.
2. Mark cuts clearly and carefully. Avoid splitting 1/4" and 5/16" bars. Molded construction allows "stubs" to support weight.
3. Cut from the smooth side (bottom) of a grit-top panel.
4. Use even, steady pressure when cutting. Excessive pressure may cause heat and/or ragged edges. Replace dull blades to prevent heat buildup.
5. Use an epoxy sealer to coat all cut or sanded surfaces. This is recommended to prevent corrosive chemicals from reaching exposed glass fibers. Carefully read and follow the instructions provided on the epoxy coating or those included with the sealing kit.

ENC Fencing Installation Guide

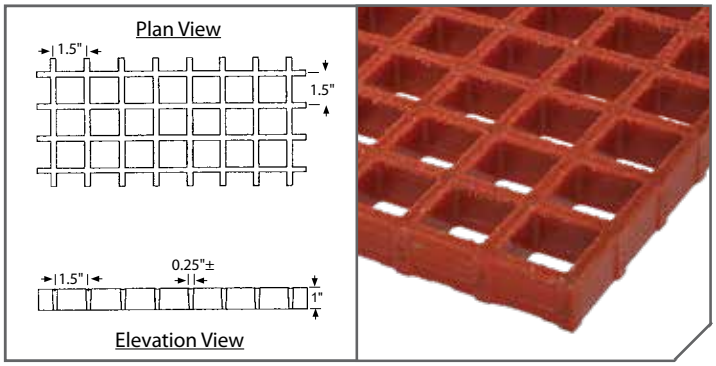
Fibergrate Composite Structures Inc. manufactures fiberglass reinforced plastic (FRP) products that combine corrosion resistance, strength, durability, safety, and low maintenance to provide a longer lasting solution for industrial and commercial applications. Fibergrate's variety of products lines are often used in conjunction with one another to create a complete FRP solution that will meet customer and industry requirements. Fibergrate® molded grating and Dynaform® structural shapes are used to construct screening and non conductive security fencing systems. These systems are designed to provide protection and security around electrical equipment, machinery, and other areas that require a non-magnetic, thermally and electrically non conductive system.

PANEL DATA

Product*	Depth	Mesh	Panel Sizes	Color	Resin
Fibergrate® Molded Grating	1"	1-1/2" x 1-1/2"	3' x 10', 4' x 8', 4' x 12'	Dark Gray	Corvex®
Micro-Mesh® Molded Grating	1"	3/4" x 3/4"	4' x 12'	Dark Gray	Corvex®

1" Deep x 1-1/2" Square Mesh

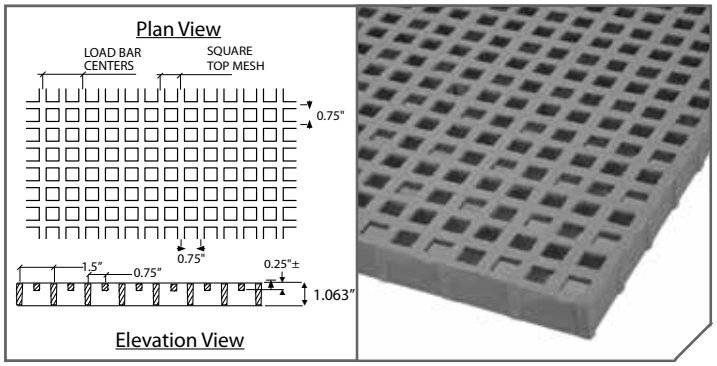
# of Bars/ Ft of Width	Load Bar Width	Open Area	Load Bar Centers	Approximate Weight
8	1/4"	70%	1-1/2"	2.5 psf



Section Properties per Ft of Width: A = 1.71 IN^2 I = 0.14 IN^4 S= 0.29 IN^3

1" Deep x 3/4" Micro-Mesh®

# of Bars/ Ft of Width	Load Bar Width	Open Area	Load Bar Centers	Approximate Weight
8	1/4"	44.4%	1-1/2"	2.9 psf

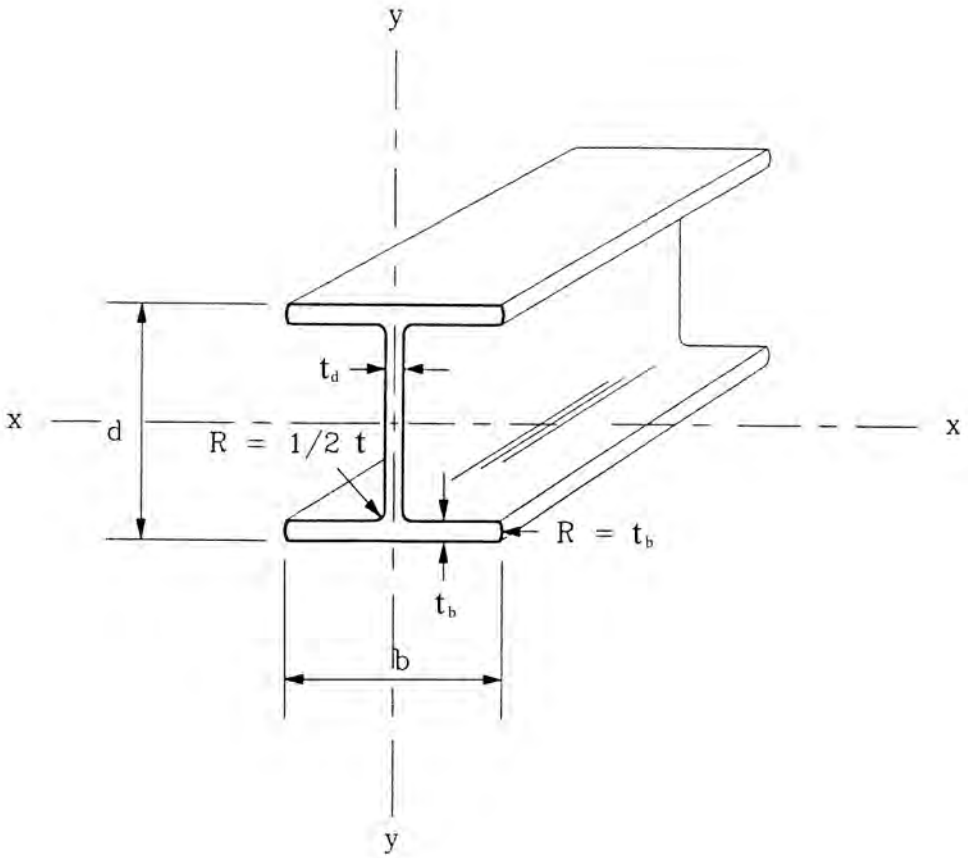


Section Properties per Ft of Width: A =2.34 IN^2 I=0.23 IN^4 S=0.37 IN^3

POST DATA

Wide Flange Shapes

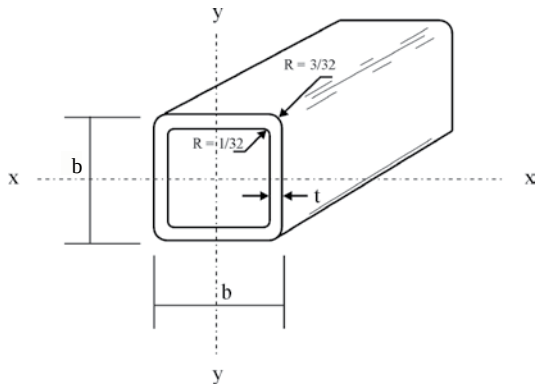
SECTION DIMENSIONS					SECTION PROPERTIES					
					X - X			Y - Y		
d	b	t	A	Wt.	I	S	r	I	S	r
in.	in.	in.	$in.^2$	lb./ft.	$in.^4$	$in.^3$	in.	$in.^4$	$in.^3$	in.
6	6	.25	4.39	3.40	28.28	9.43	2.54	9.01	3.00	1.43
6	6	.375	6.48	4.90	40.17	13.39	2.49	13.52	4.51	1.44
8	8	.375	8.73	6.49	99.19	24.80	3.37	32.03	8.01	1.92
8	8	.5	11.51	8.70	126.96	31.74	3.32	42.74	10.69	1.93



POST DATA - *CONTINUED*

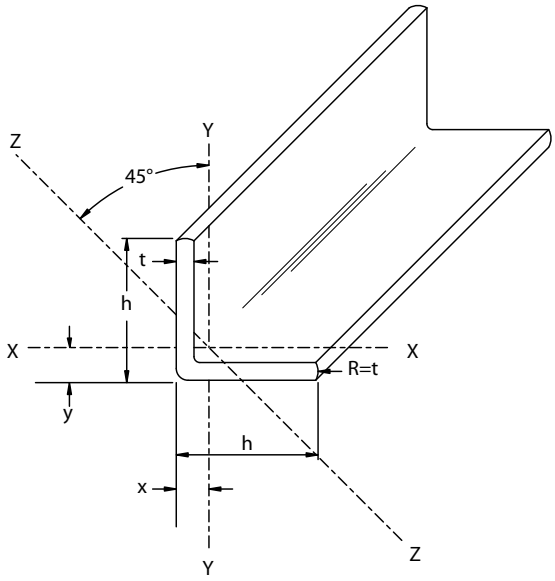
Square Tubes

SECTION DIMENSIONS				SECTION PROPERTIES		
b	t	A	Wt.	I	S	r
in.	in.	$in.^2$	lb./ft.	$in.^4$	$in.^3$	in.
4	.25	3.74	2.83	8.82	4.41	1.53
6	.375	8.236	6.57	42.991	14.33	2.284



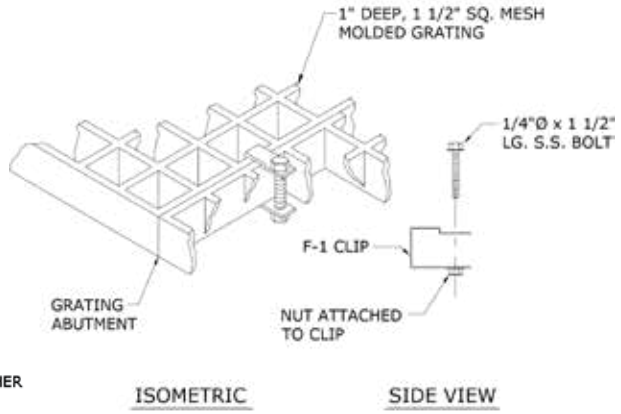
Equal Leg Angle

SECTION DIMENSIONS				SECTION PROPERTIES					
DEPTH	WALL			X - X / Y - Y				Z - Z	
h	t	A	Wt.	I	S	r	x or y	I	r
in.	in.	$in.^2$	lb./ft.	$in.^4$	$in.^3$	in.	in.	$in.^4$	in.
6	3/8	4.34	3.03	15.23	3.49	1.87	1.64	6.07	1.18

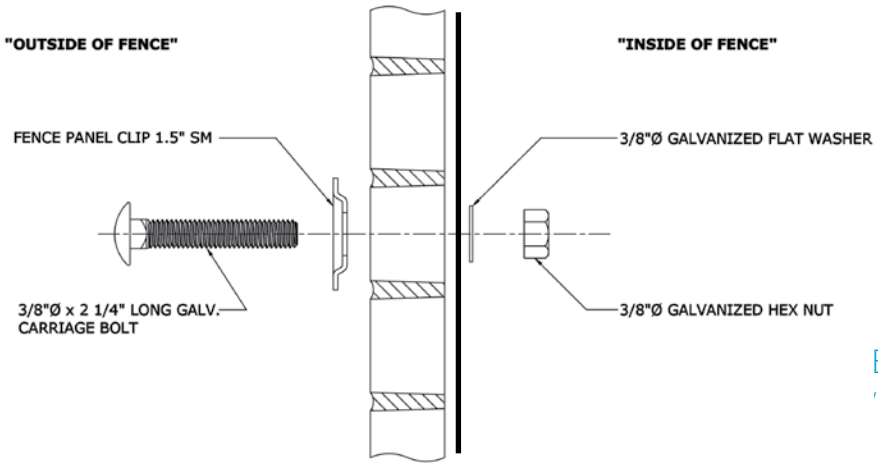


ENC Fencing Installation Guide

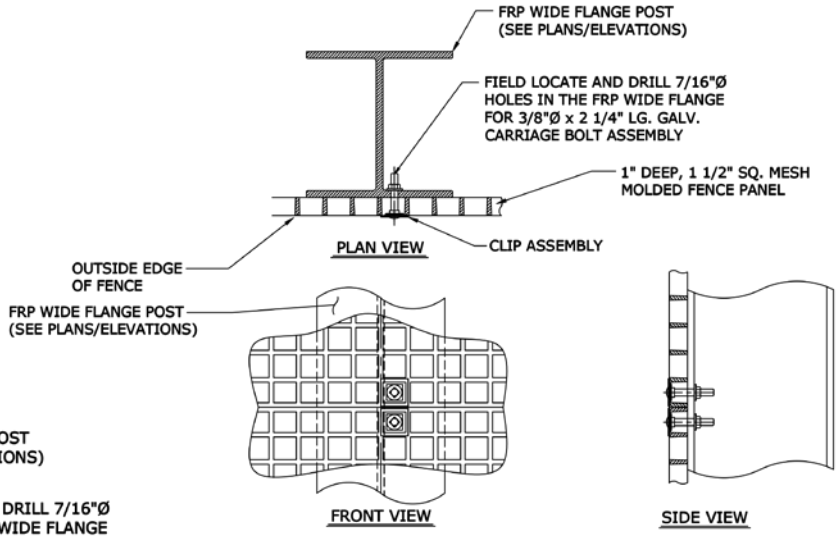
F-1 PANEL ABUTMENT CLIP
Shown with 1" Deep, 1-1/2 Square Mesh molded Fence Panel



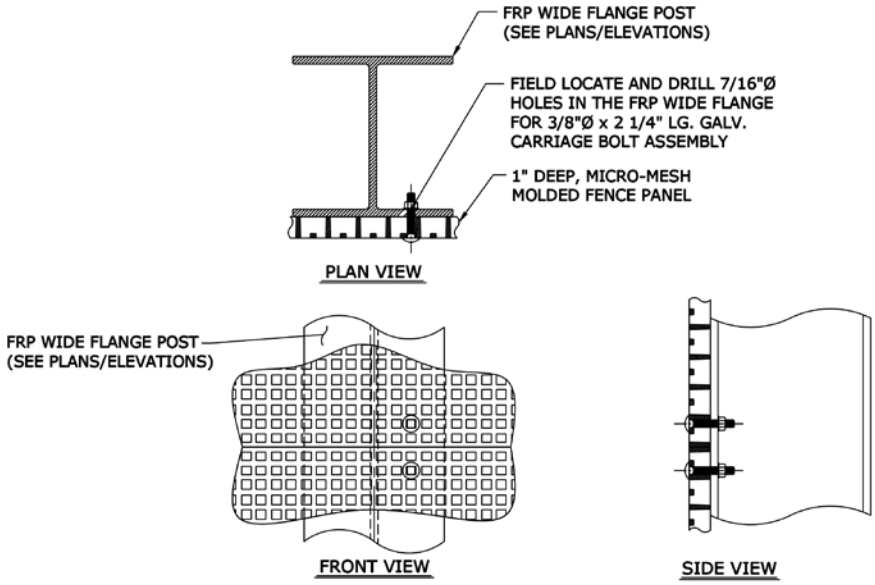
EXPLODED VIEW -CLIP ASSEMBLY
PN 710860.1



E CONNECTION WITH LINE POST
ith 1" Deep, 1-1/2" Square Mesh Molded Fence Panel

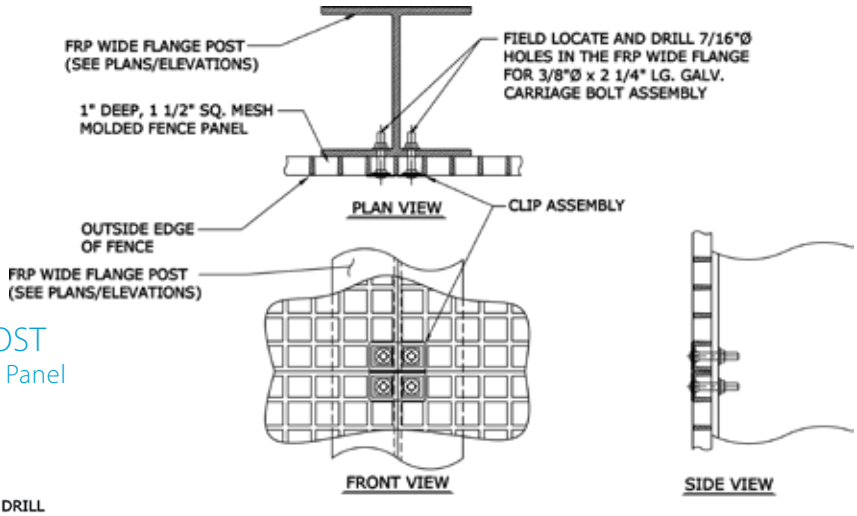


MIDDLE CONNECTION WITH LINE POST
Shown with 1" Deep, Micro-Mesh Molded Fence Panel



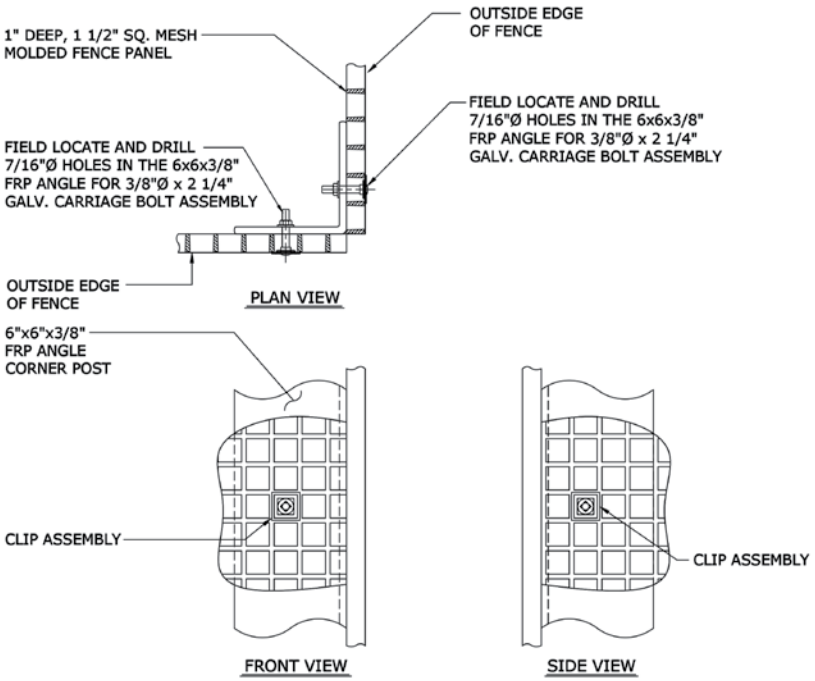
SPLICE CONNECTION WITH LINE POST

Shown with 1" Deep, 1-1/2 Square Mesh Molded Fence Panel



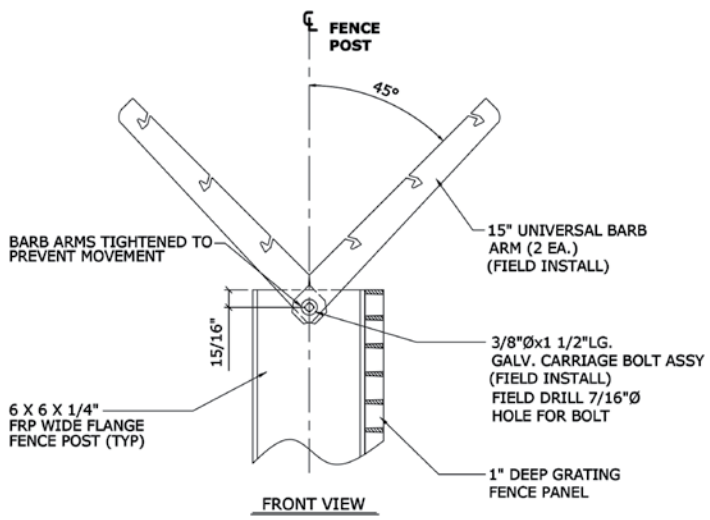
CORNER CONNECTION WITH A6 CORNER POST

Shown with 1" Deep, 1-1/2 Square Mesh Molded Fence Panel



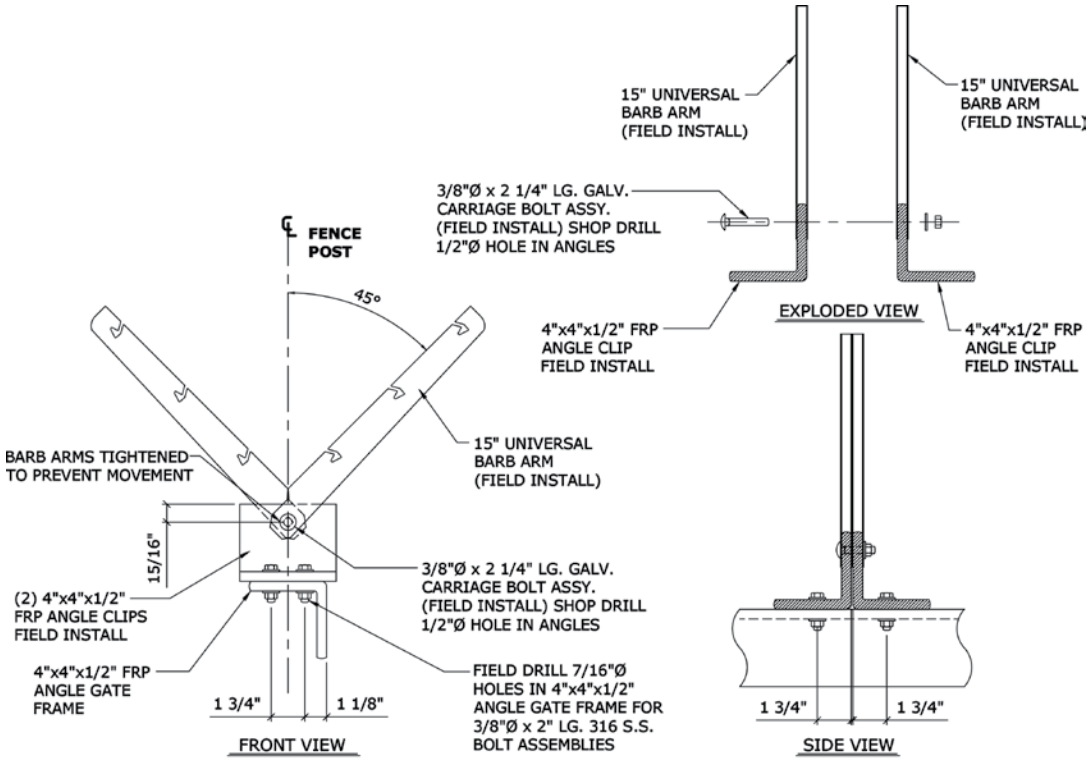
DETAIL - 15" UNIVERSAL BARB ARM TO W6 FENCE POST

Shown with: 6 x 6 x 1/4" FRP Wide Flange



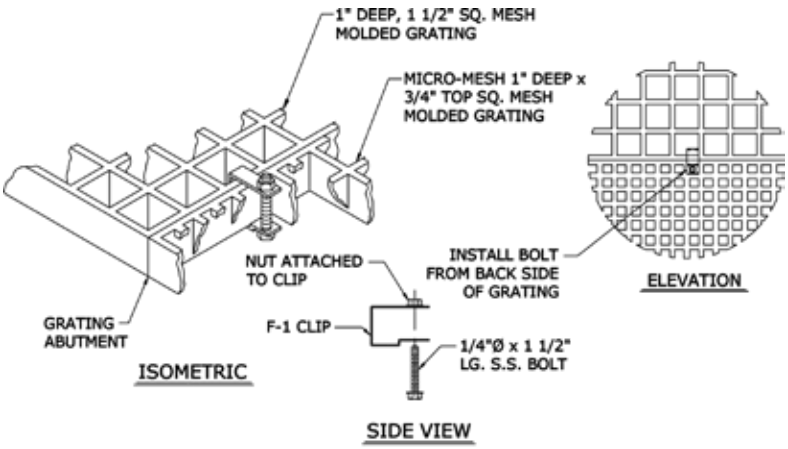
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DETAIL - 15" UNIVERSAL BARB ARM CONNECTION AT TOP OF GATE

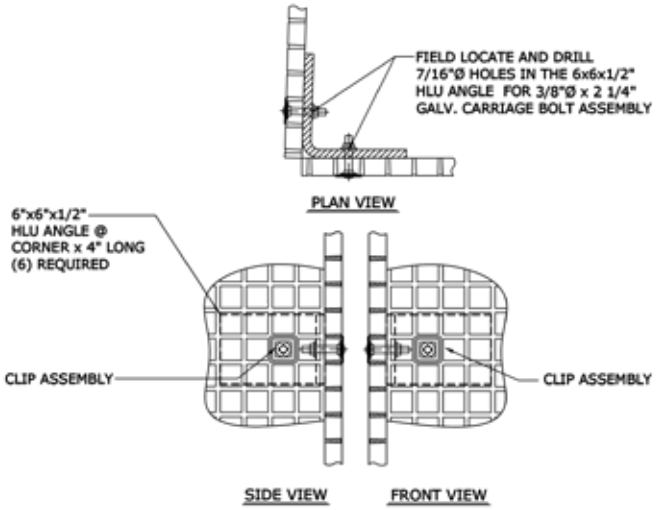


F-1 PANEL ABUTMENT CLIP

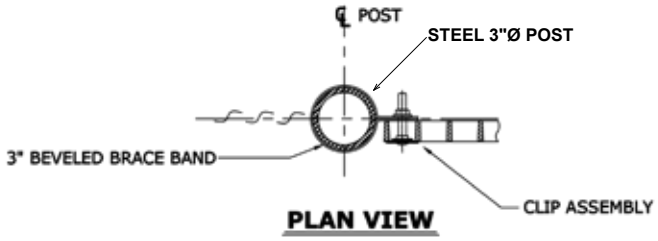
Shown with 1" Deep, 1-1/2" Square Mesh Molded Fence Panel & 1" Deep Micro-Mesh Panel



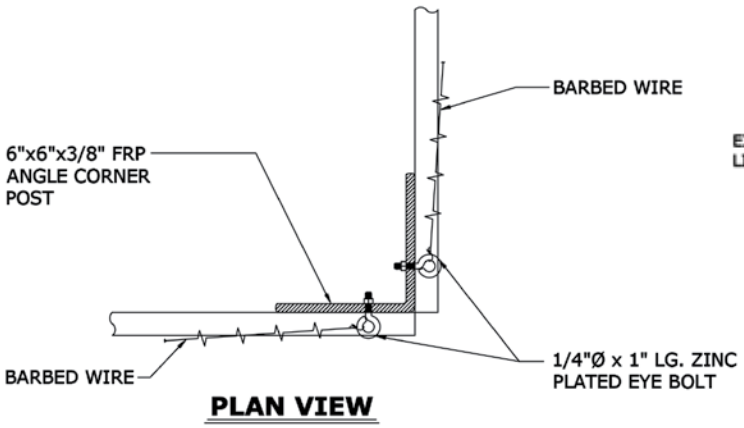
CORNER CONNECTION WITH 6" X 6" X 1/2" NON-90° ANGLE CLIPS

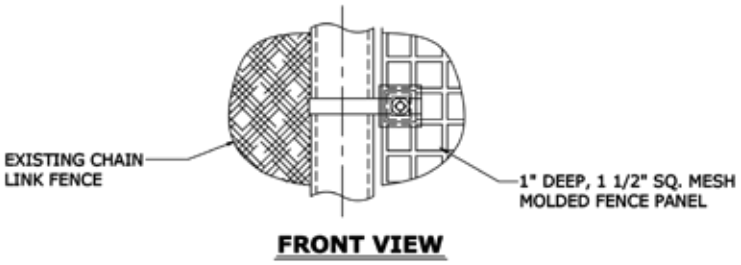


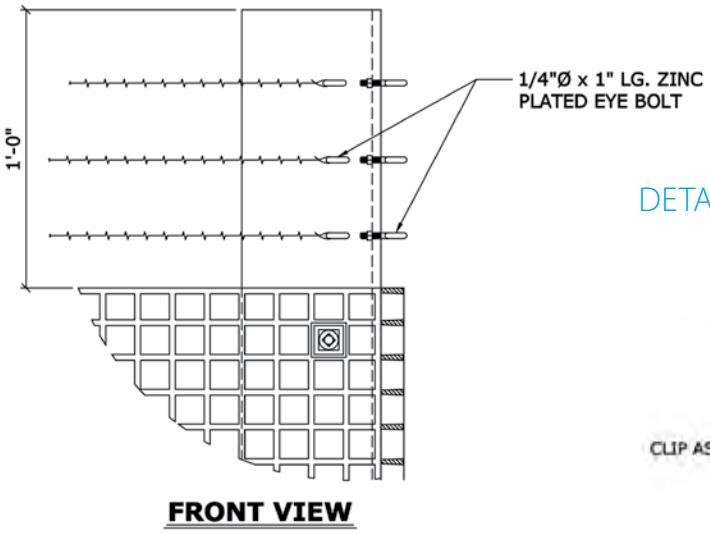
DETAIL - CONNECTION TO STEEL 3"Ø POST



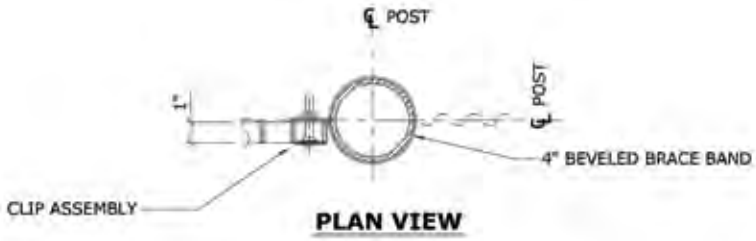
DETAIL - BARBED WIRE AT 6" ANGLE CORNER COLUMN

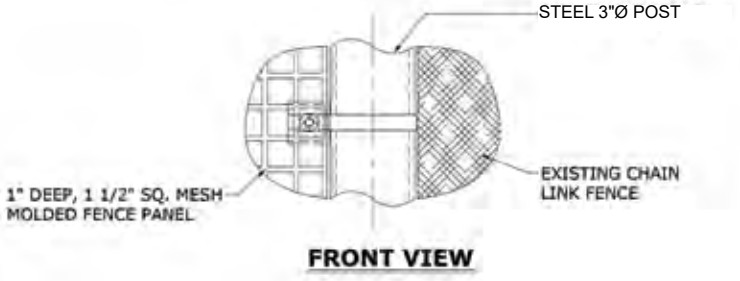






DETAIL - CONNECTION TO STEEL 4"Ø POST





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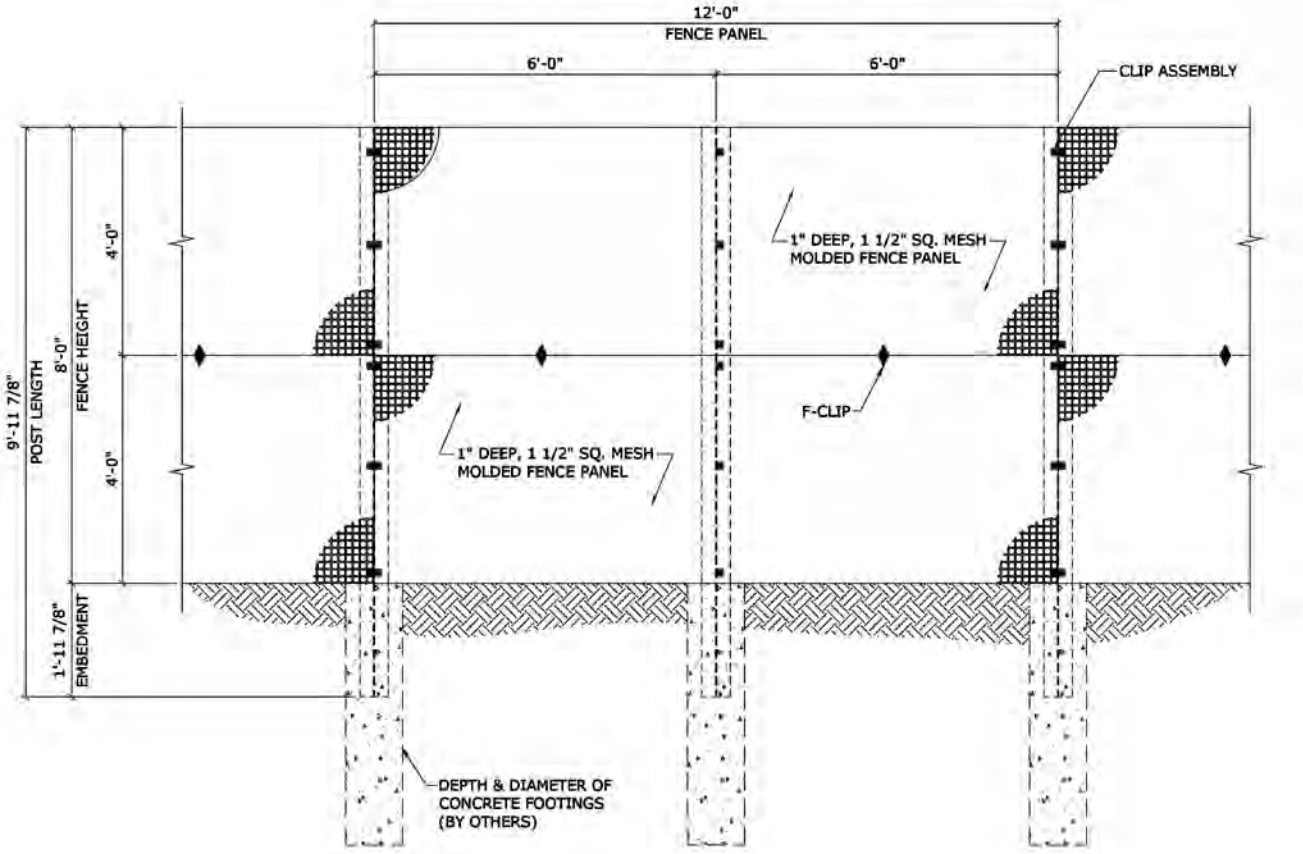
STANDARD CONSTRUCTION ELEVATIONS

	FRP POST SELECTION						
	WIND SPEED (MPH)						
FENCE HEIGHT	90	100	110	120	130	140	150
8 FT	W6	W6	W6	W6A	W6A	W8	W8
10 FT	W6A	W8	W8	W8	W8	W8A	W8A

Design based on ASCE7-16 using Exposure C, and Category III
Maximum post spacing: 6 ft
Maximum post deflection: H/60

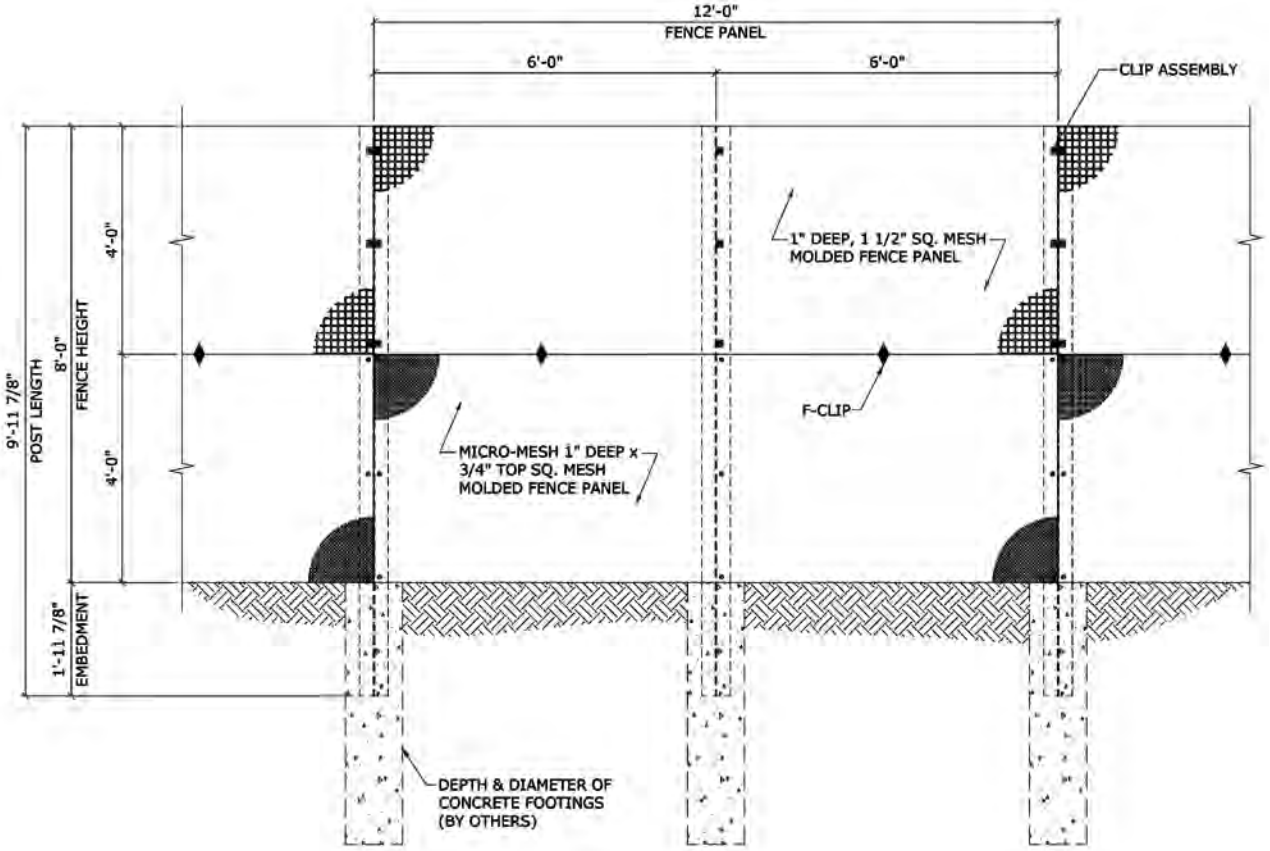
W6 = WF6x6x1/4"
W6A = WF6x6x3/8"
W8 = WF8x8x3/8"
W8A = WF8x8x1/2"

FENCE ELEVATION, 8' HEIGHT,2' EMBED, 1" DEEP 1.5" SQUARE MESH BOTH PANELS

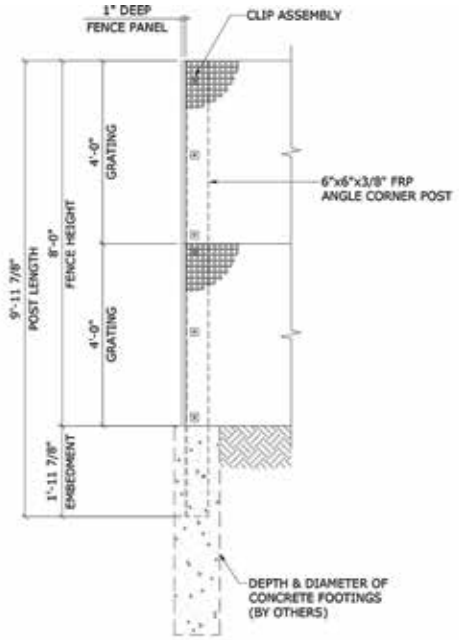


ENC Fencing Installation Guide

FENCE ELEVATION, 8' HEIGHT, 2' EMBED, 1" DEEP 1.5" SQUARE MESH UPPER PANEL/ 1" MICRO-MESH LOWER

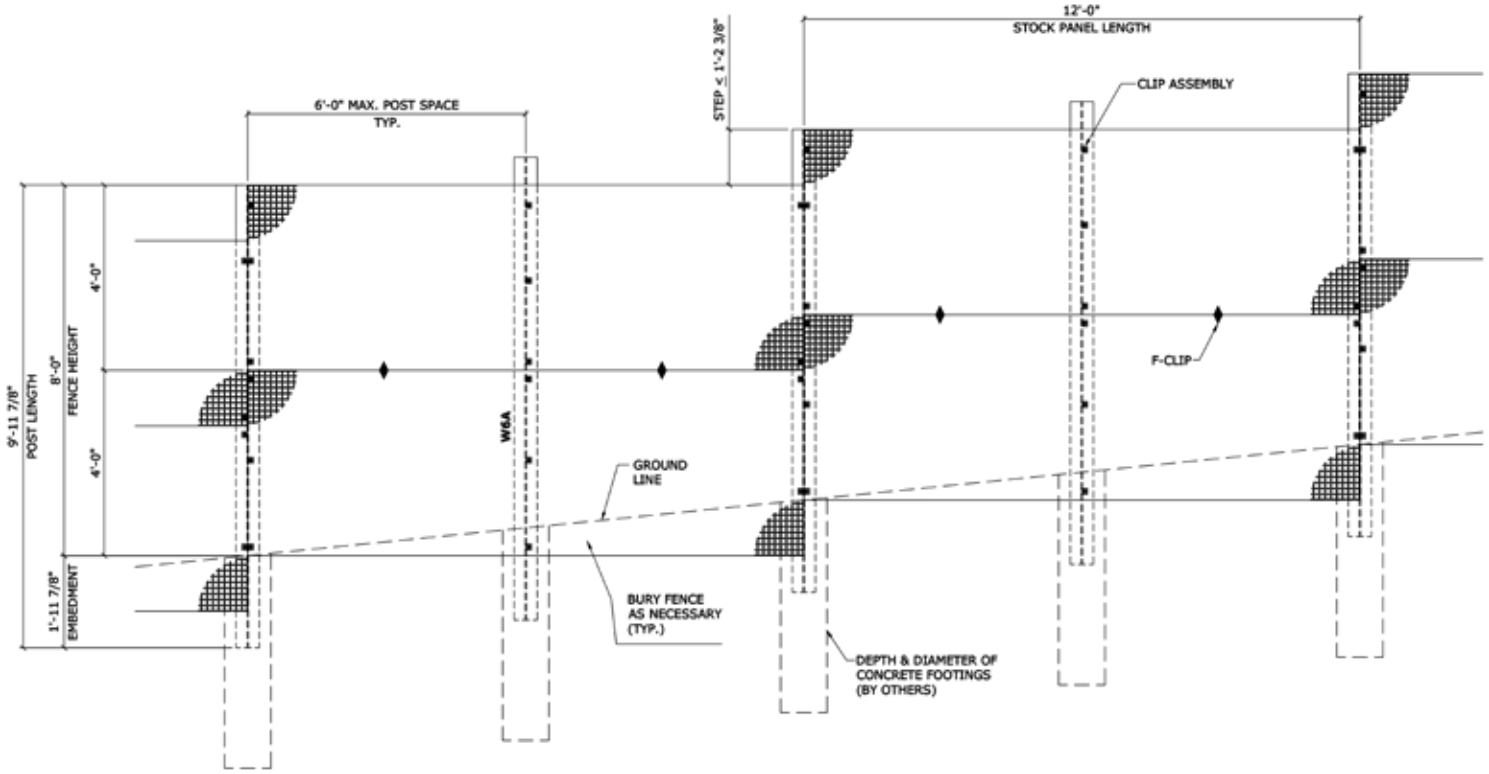


ELEVATION VIEW - 90 DEGREE CORNER WITH 6" X 6" X 3/8" FRP ANGLE POST

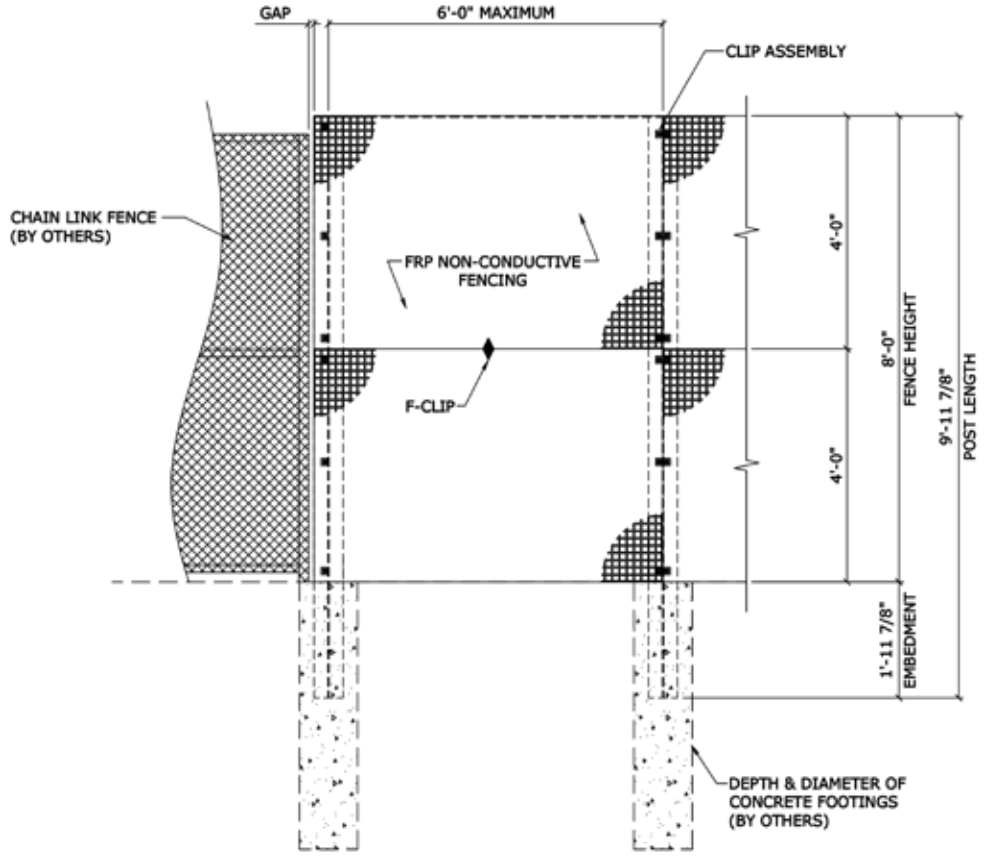


ENC Fencing Installation Guide

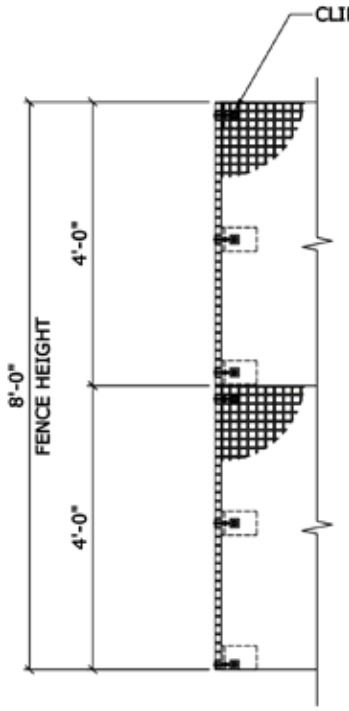
EXAMPLE FENCE ELEVATION SHOWING METHODS TO 'STAIR STEP' PANELS ON SLOPED INSTALLATIONS



ELEVATION VIEW - NON-CONDUCTIVE FENCE TO CHAIN LENGTH FENCE WITH GAP

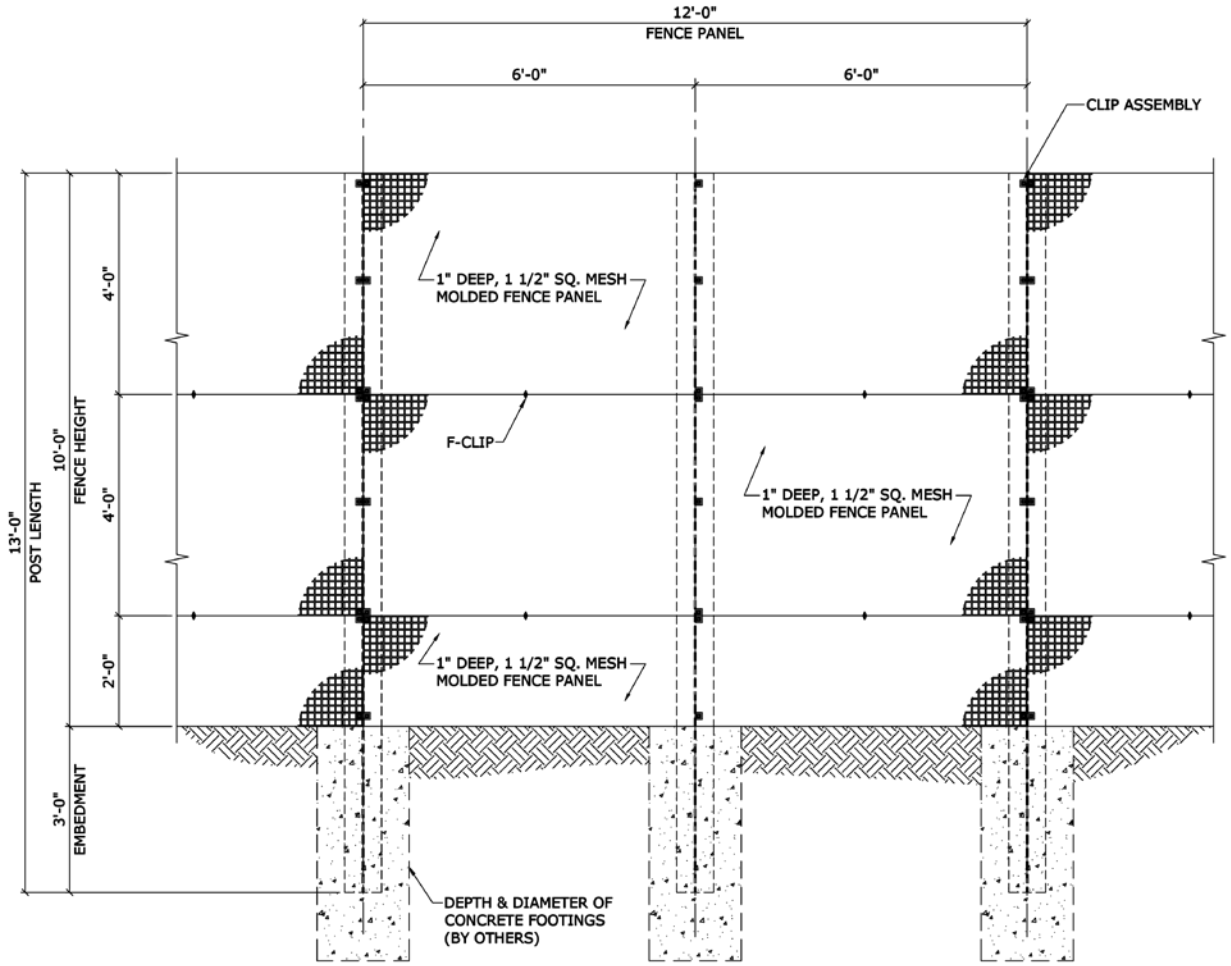


ELEVATION VIEW - NON 90 DEGREE CORNER WITH 6" X 6" X 1/2" HLU ANGLE CLIPS



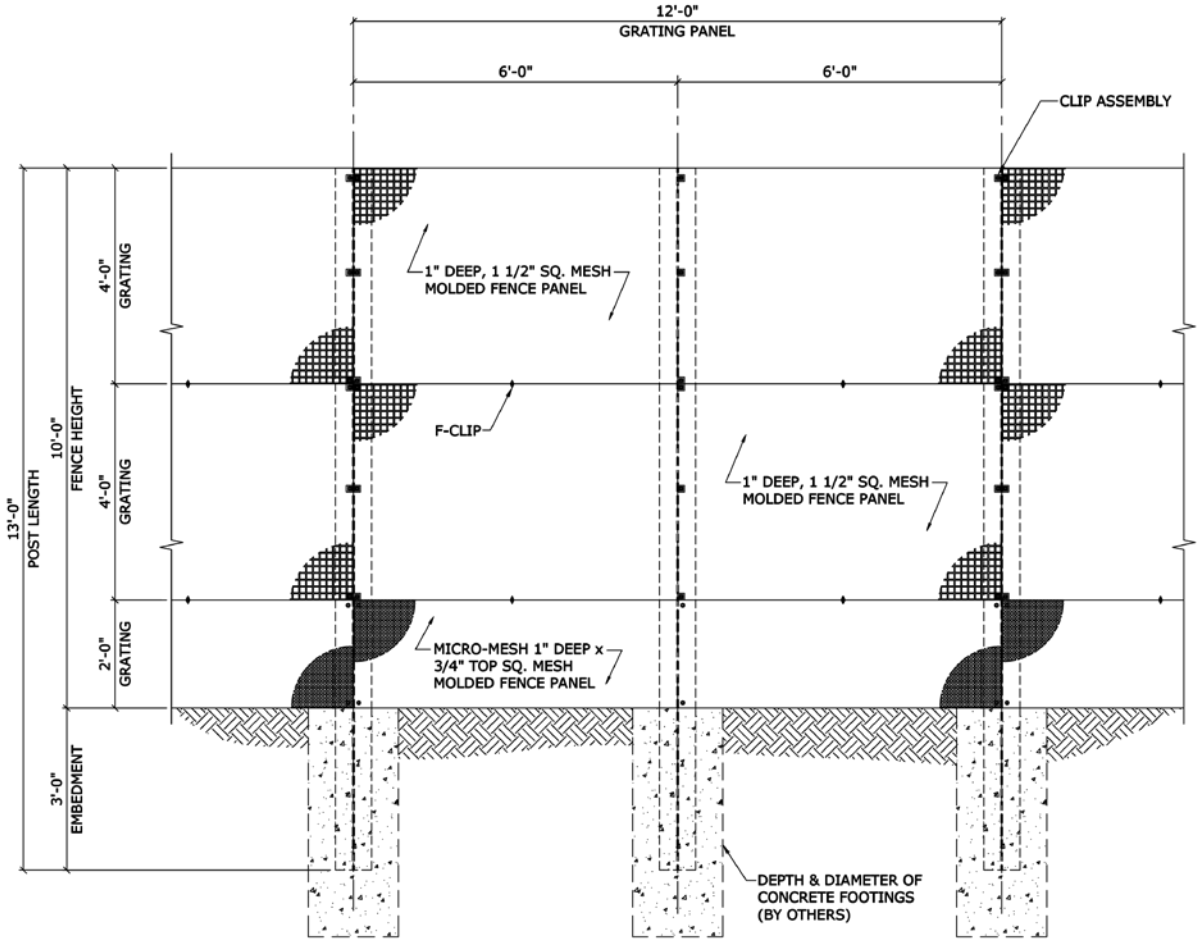
ENC Fencing Installation Guide

FENCE ELEVATION, 10' HEIGHT, 3' EMBED, 1" DEEP 1.5" SQUARE MESH ALL PANELS

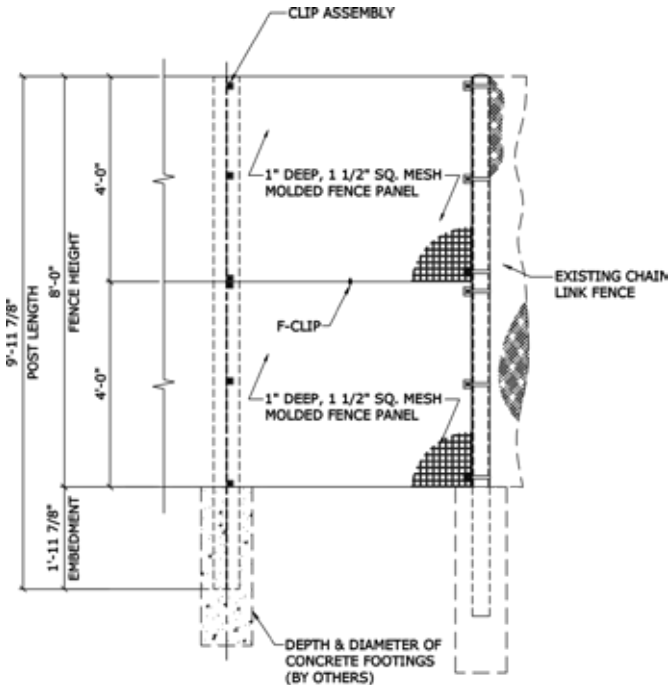


ENC Fencing Installation Guide

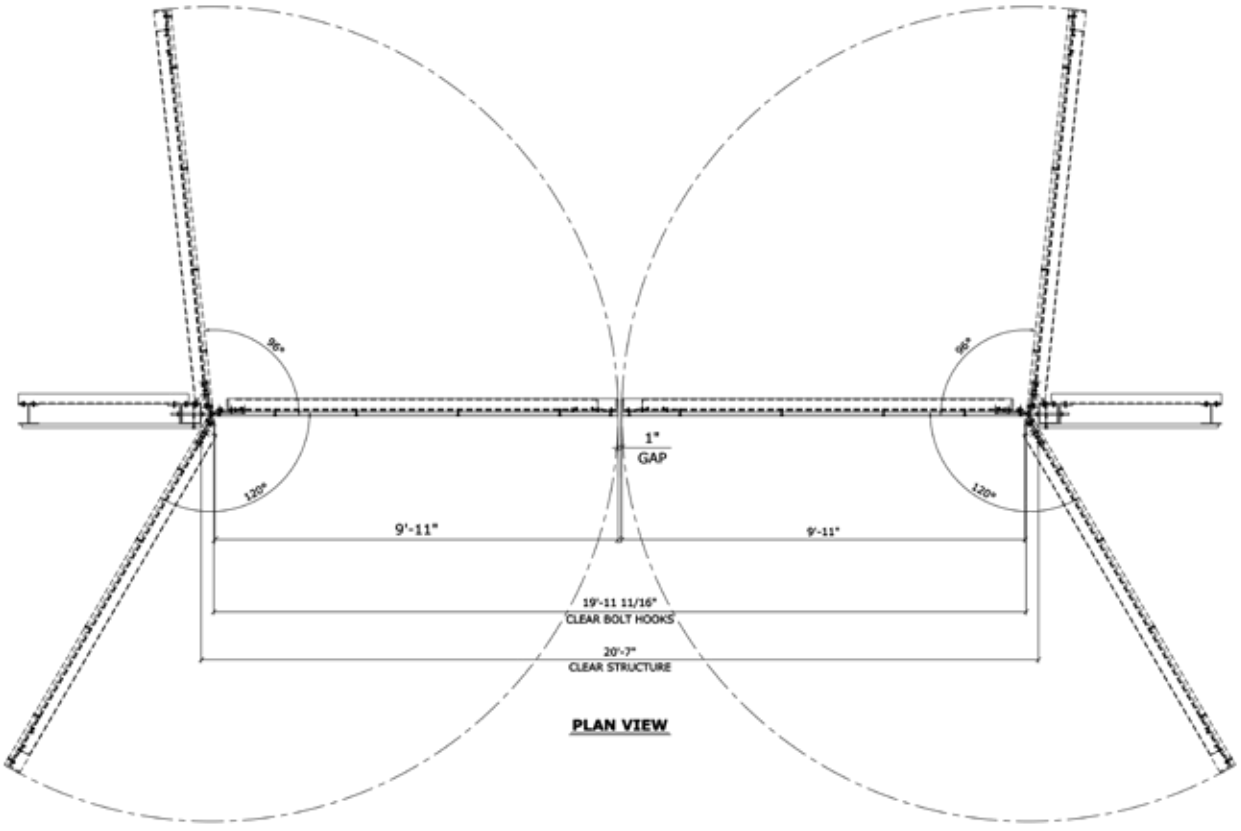
FENCE ELEVATION, 10' HEIGHT,3' EMBED 1" DEEP 1.5" SQUARE MESH UPPER PANELS/ 1" MICRO-MESH LOWER



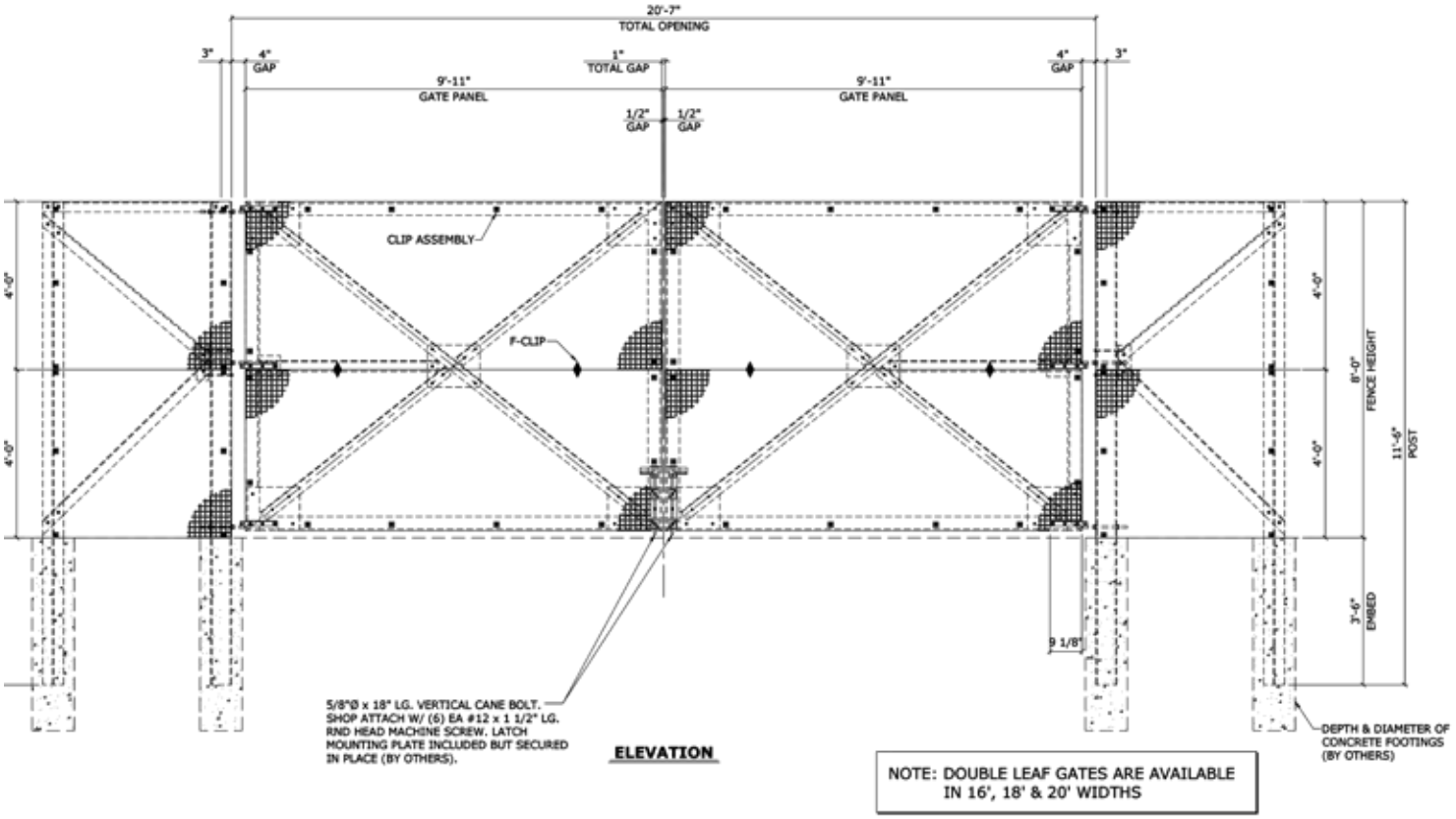
ELEVATION VIEW - NON-CONDUCTIVE FENCE TO CHAIN LENGTH FENCE CONNECTION



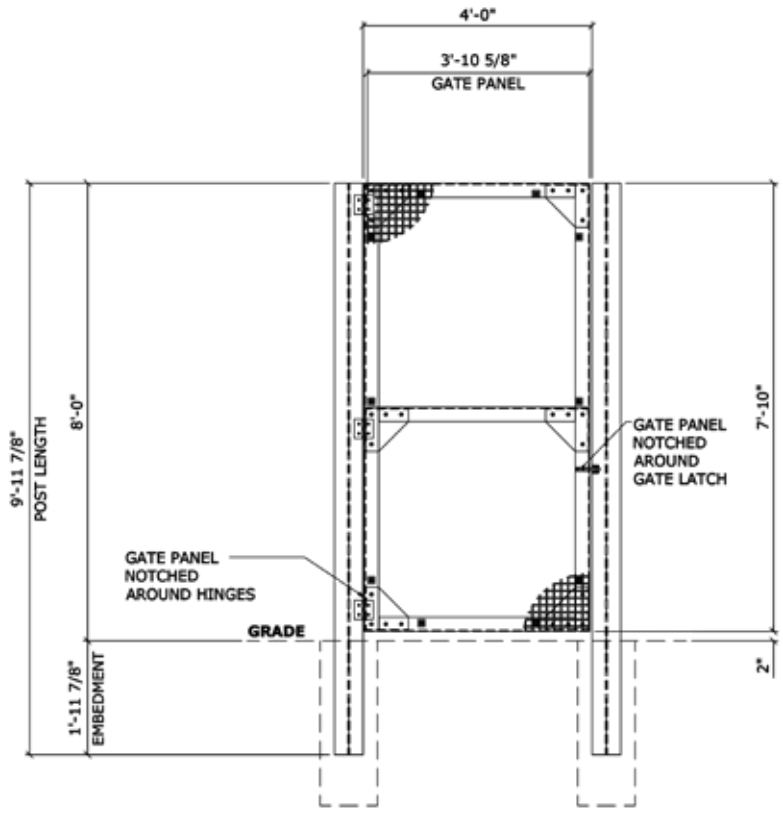
PLAN VIEW - 20' DOUBLE LEAF FRP GATE



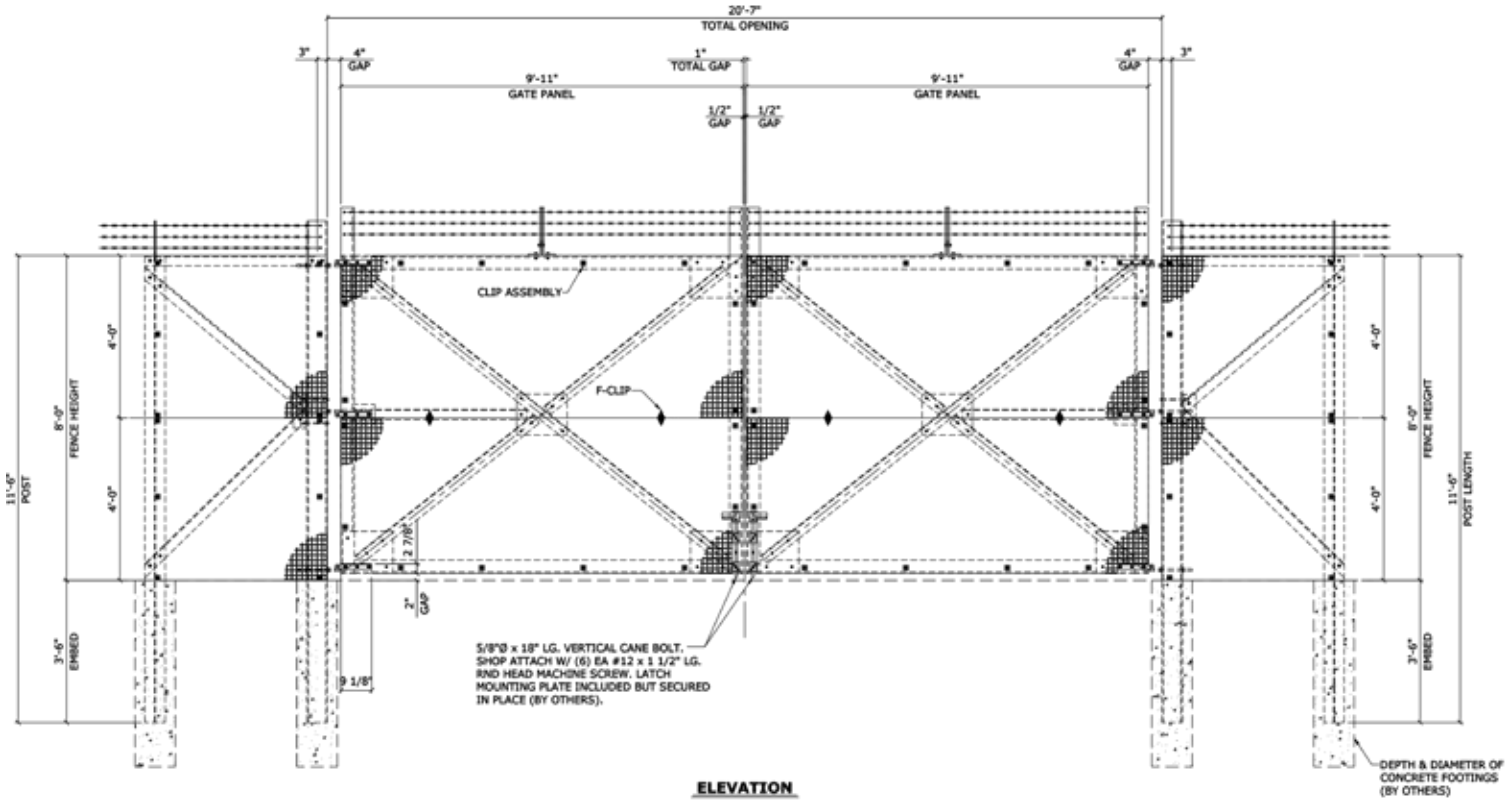
ELEVATION VIEW - 20' DOUBLE LEAF FRP GATE



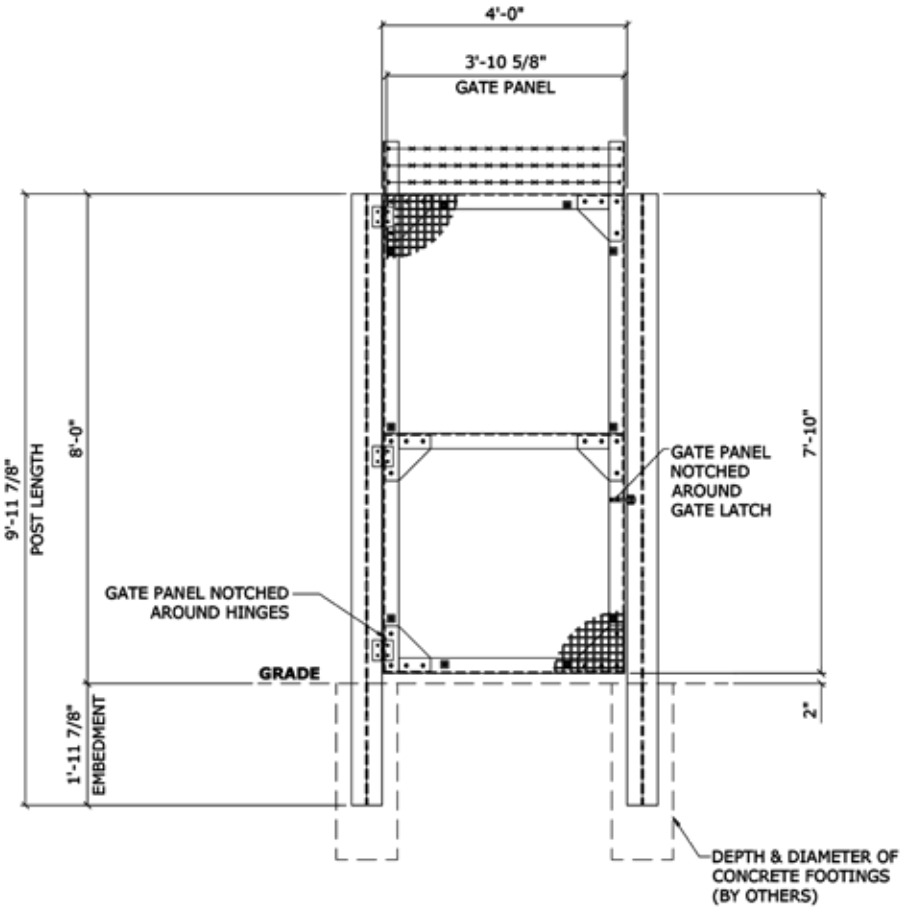
ELEVATION VIEW - 4' PEDESTRIAN GATE



DETAIL - 20' DOUBLE LEAF FRP GATE W/ BARBED WIRE



ELEVATION VIEW - 4' PEDESTRIAN GATE WITH BARBED WIRE



ENGINEERING SPECIFICATION - FIBERGRATE® FRP FENCE SYSTEM

SECTION 32 31 32

PART 1 GENERAL

1.1 SCOPE OF WORK

This section to include the supply and installation of a fiberglass reinforced plastic (FRP) Fence System as shown on the Contract Drawings.

1.2 REFERENCES

A. The latest revision of the publications listed below form a part of this specification to the extent referenced herein.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) Test Methods:

ASTM D-149 Standard Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

ASTM D-638 Tensile Properties of Plastics

ASTM D-696 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics

ASTM D-790 Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

ASTM D-2344 Short Beam Strength of Polymer Matrix Composite Materials and Their Laminates

ASTM D-2583 Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor

ASTM F-711 – Standard Specification for Fiberglass-Reinforced Plastic (FRP) Rod and Tube Used in Live Line Tools (Ref for Test Apparatus Only)

1.3 SUBMITTALS

A. Submit shop drawings of the FRP Fence System clearly showing material sizes, types, styles, part or catalog numbers, and details. Shop drawings should include installation instructions for the system.

B. Submit the manufacturer's published literature, certificates of compliance, and other information to support compliance with project requirements.

C. If requested, submit sample pieces of each item specified herein for acceptance by the owner.

1.4 QUALITY ASSURANCE

A. All items to be provided under this Section shall be furnished manufacturers having a minimum of ten (10) years experience in the design and manufacture fiberglass reinforced plastic systems.

B. Manufacturer shall offer a 3-year limited warranty on all FRP products against defects in materials and workmanship.

C. To insure system integrity and compatibility, all fencing materials, including fence panels, posts, and gates shall come from a single source.

D. Manufacturer shall be certified to the ISO 9001standard.

E. Manufacturer shall provide proof of certification from at least two other quality assurance programs for its facilities or products (DNV, ABS, USCG, and AARR).

F. Manufacturer shall provide proof, via independent testing less than six months old, which materials proposed as a

ENGINEERING SPECIFICATION - FIBERGRATE® FRP FENCE SYSTEM - *cont.*

solution, do not contain heavy metals in amounts greater than that allowed by current EPA requirements.

1.5 PRODUCT DELIVERY AND STORAGE

A. Delivery of Materials: Manufactured materials shall be delivered in original, unbroken pallets, packages, containers, or bundles bearing the label of the manufacturer.

B. Storage of Products: All materials shall be carefully handled to prevent damage. Materials shall be stored in such a manner to provide adequate drainage, ventilation and other weather-related damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. FRP Fence System shall be Fibergrate® as manufactured by

Fibergrate Composite Structures Inc.
5151 Belt Line Road, Suite 1212
Dallas, Texas 75254-7028 USA
(800) 527 4043 (972) 250 1530 Fax
Website: www.fibergrate.com
E-mail: info@fibergrate.com

2.2 MOLDED FRP FENCE PANELS

A. Fence panels shall be of a one piece molded construction with tops and bottoms of bearing bars and cross bars in the same plane. Panels shall have a square mesh pattern providing bidirectional strength. Panels shall be reinforced with continuous roving of equal number of layers in each direction. The top layer of reinforcement shall be no more than 1/8" below the top surface of the grating so as to provide maximum stiffness and prevent resin chipping of unreinforced surfaces.

B. Percentage of glass shall not exceed 35% by weight to achieve maximum impact resistance.

C. After molding, no dry glass fibers shall be visible on any surface. All bars shall be smooth and uniform with no evidence of fiber orientation irregularities, interlaminar voids, porosity, resin rich or resin starved areas.

D. Grating bar intersections are to be filleted to a minimum radius of 1/16" to eliminate local stress concentrations and the possibility of resin cracking at these locations.

E. Resin system: The resin system used in the manufacture of the fence panels shall be Corvex®. Color to be dark gray.

F. Fence panels to be 1" deep, 1-1/2" x 1-1/2" square mesh or 1" deep, 3/4" x 3/4"" Micro-Mesh®, with the load bars oriented parallel to the edges of the panels.

G. All cut edges shall be sanded smooth and sealed according to the manufacturer's recommendations.

H. 1" deep, 1-1/2" x 1-1/2" square mesh fence panels to be installed using 3/8" dia. ASTM A307 galvanized carriage bolts with 1.5" square x 0.060" thick 316 SS fitted washers. 1" deep, 3/4" x 3/4"" Micro-Mesh® fence panels are to be installed with 3/8" dia. ASTM A307 galvanized carriage bolts fitted directly through the openings in the grating mesh. In all instances, the round head of the carriage bolt is to be fitted to the outside of the fence to prevent unauthorized disassembly.

2.3 PULTRUDED FRP LINE AND CORNER POSTS

A. Line and corner posts are to be manufactured by the pultrusion process with a glass content minimum of 45%, maximum of 55% by weight. The structural shapes shall be composed of fiberglass reinforcement and resin in qualities, quantities, properties, arrangements and dimensions as necessary to meet the design requirements and dimensions as specified in the Contract Documents.

ENGINEERING SPECIFICATION - FIBERGRATE® FRP FENCE SYSTEM - *cont.*

B. Fiberglass reinforcement shall be a combination of continuous roving, continuous strand mat, and surfacing veil in sufficient quantities as needed by the application and/or physical properties required.

C. Post resin shall be DYNAFORM® ISO-FR, fire retardant isophthalic polyester with a tested flame spread rating of 25 or less per ASTM E 84 Tunnel Test. Line post color to be dark gray.

D. All finished surfaces of FRP items and fabrications shall be smooth, resin rich, free of voids and without dry spots, cracks, crazes or unreinforced areas. All glass fibers shall be well covered with resin to protect against their exposure due to wear or weathering.

E. Line posts shall be 4" x 4" x ¼" or 6" x 6" x ¼" wide flange sections as specified on the project drawings.

F. Corner Posts shall be 6" x 6" x 3/8" angles or as specified on the project drawings.

G. Posts are to have the minimum longitudinal mechanical and physical properties as listed below:

Property	ASTM Method	Value	Units
Tensile Strength	D-638	30,000 (206)	psi (MPa)
Tensile Modulus	D-638	2.5 x 10^6 (17.2)	psi (GPa)
Flexural Strength	D-790	30,000 (206)	psi (MPa)
Flexural Modulus	D-790	1.8 x 10^6 (12.4)	psi (GPa)
Flexural Modulus (Full Section)	N/A	2.8 x 10^6 (19.3)	psi (GPa)
Short Beam Shear (Transverse)	D-2344	4,500 (31)	psi (MPa)
Shear Modulus (Transverse)	N/A	4.5 x 10^5 (3.1)	psi (GPa)
Coefficient of Thermal Expansion	D-696	4.4 x 10^{-6} (8.0 x 10^{-6})	in/in/°F (cm/cm/°C)
Dielectric Strength (Lengthwise)	D-149	35	kV/inch
Dielectric Strength (Perpendicular to Face)	D-149	200	volts/mil
Flame Spread	E-84	25 or less	N/A

2.3 ELECTRICAL PERFORMANCE OF FRP MATERIALS

A. 2-inch-wide x 72-inch-long strips of the line post and molded fence panels are to be tested using a the 'hot stick' test rack as described in ASTM D-711 with the electrodes set at 12 inches on center.

B. In the dry condition, each sample must be capable of resisting a 95 kV potential with a current leakage of 2 milliamps or less.

C. Testing as described above must be conducted on samples of materials of the same configuration and composition as those to be used in the fence. Testing is to be conducted at a N. A. I. L. (National Association of Independent Laboratories) lab accredited for testing high voltage personnel protective equipment.

2.4 PERSONNEL GATES

A. Personnel gates are to be factory fabricated and assembled using the FRP fence panels listed above, 3" x 3" x ¼" FRP angles, and ¼" thick FRP plate gussets. Maximum personnel gate width is 4'-0".

B. Personnel gate is to be mounted to the line post with three each 4" x 4" stainless steel surface mount hinges.

C. Personnel gate is to be equipped with a stainless steel, lockable gate latch.

ENGINEERING SPECIFICATION - FIBERGRATE® FRP FENCE SYSTEM - *cont.*

2.5 VEHICULAR GATES

A. Vehicular gates are to be factory fabricated and assembled using FRP fence panels and FRP structural shapes to conform to the design requirements of the project. Maximum two leaf gate width is 20'-0" supplied in two leaves of 10'-0" each.

B. Both the active and inactive leaf is to be equipped with a 5/8" padlockable vertical cane bolt for fixing the gate in the closed position.

C. The gate leaves are to be equipped with adjustable hinges to allow for adjustment of the gap between the leaves to eliminate the effects of soil settlement.

D. Accommodation for locking the gate leaves together is to be provided as specified by the owner.

PART 3 EXECUTION

3.1 INSPECTION

A. The owner's representative shall field verify all site dimensions and conditions and verify that they match the shop drawings of the FRP fence.

B. Shop inspection is authorized as required by the Owner and shall be at Owner's expense. If a shop inspection is required, the fabricator shall give ample notice to Contractor prior to the beginning of any fabrication work so that an inspection may be conducted.

3.2 INSTALLATION

A. The contractor shall install the FRP Fence system in accordance with manufacturer's installation drawings that have been released for construction.

B. Erect the FRP Line Posts with the embedment as indicated on the installation drawings. Posts are to be installed plumb and at the spacing indicated on the drawings. For posts embedded in concrete, insure that concrete has come to sufficient cure before installing the fence panels.

C. Erect the FRP Fence Panels following the installation drawings, field cutting the full-sized panels are required to fit the installation. Connect the FRP Fence Panels to the FRP Line Posts using the connection hardware provided following the details in the installation drawings.

D. Erect the Personnel and Vehicular Gates as detailed on the installation drawings. Adjust hinges, latches, and cane bolts as required to achieve a free swinging, securely latching installation.

ENC Fencing Installation Guide

PROJECT PHOTOS







PROJECT PHOTOS







Fibergrate Products & Services



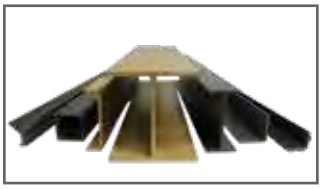
Fibergrate® Molded Grating

Fibergrate® molded gratings are designed to provide the ultimate in reliable performance, even in the most demanding conditions. Fibergrate offers the widest selection in the market with multiple resins and more than twenty grating configurations available in many panel sizes and surfaces.



Safe-T-Span® Pultruded Industrial & Pedestrian Gratings

Combining corrosion resistance, long-life and low maintenance, Safe-T-Span® provides unidirectional strength for industrial and pedestrian pultruded grating applications.



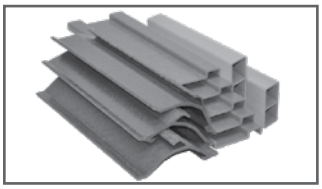
Dynaform® Structural Shapes

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ATTACHMENT F

RF-EME Report

WATERFORD

Radio Frequency Emissions Compliance Report For Verizon Wireless

Site Name:	**Sanders Ranch**	**Site Structure Type:**	**Self-Support Tower**
Address:	**100 Sanders Ranch Road**	**Latitude:**	**37.823808**
	Moraga, CA 94566	**Longitude:**	**-122.11445**
Report Date:	**July 26, 2022**	**Project:**	**Modification**

Compliance Statement

Based on information provided by Verizon Wireless and predictive modeling, the Sanders Ranch installation proposed by Verizon Wireless will be compliant with Radiofrequency Radiation Exposure Limits of 47 C.F.R. §§ 1.1307(b)(3) and 1.1310. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings. As predicted RF power densities will not exceed the FCC General Population limits, no mitigation action other than restricting access to the tower is required to achieve or maintain compliance.

Certification

I, David C. Cotton, Jr., am the reviewer and approver of this report and am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation, specifically in accordance with FCC's OET Bulletin 65. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

REGISTERED PROFESSIONAL ENGINEER
DAVID CHARLES COTTON, JR.
NO. 18838
2022-Aug-01
ELECTRICAL
STATE OF CALIFORNIA

David Charles Cotton, Jr.
Registered Professional Engineer (Electrical)
State of California, 18838

General Summary

The compliance framework is derived from the Federal Communications Commission (FCC) Rules and Regulations for preventing human exposure in excess of the applicable Maximum Permissible Exposure ("MPE") limits. At any location at this site, the power density resulting from each transmitter may be expressed as a percentage of the frequency-specific limits and added to determine if 100% of the exposure limit has been exceeded. The FCC Rules define two tiers of permissible exposure differentiated by the situation in which the exposure takes place and/or the status of the individuals who are subject to exposure. General Population / Uncontrolled exposure limits apply to those situations in which persons may not be aware of the presence of electromagnetic energy, where exposure is not employment-related, or where persons cannot exercise control over their exposure. Occupational / Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure. Based on the criteria for these classifications, the FCC General Population limit is considered to be a level that is safe for continuous exposure time. The FCC General Population limit is 5 times more restrictive than the Occupational limits.

In situations where the predicted MPE exceeds the General Population threshold in an accessible area as a result of emissions from multiple transmitters, FCC licensees that contribute greater than 5% of the aggregate MPE share responsibility for mitigation.

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Table 1: FCC Limits

Frequency (MHz)	*Limits for General Population/ Uncontrolled Exposure*		*Limits for Occupational/ Controlled Exposure*	
	Power Density (mW/cm^2)	Averaging Time (minutes)	Power Density (mW/cm^2)	Averaging Time (minutes)
30-300	0.2	30	1	6
300-1500	f/1500	30	f/300	6
1500-100,000	1.0	30	5.0	6

f=Frequency (MHz)

Based on the computational guidelines set forth in FCC OET Bulletin 65, Waterford Consultants, LLC has developed software to predict the overall Maximum Permissible Exposure possible at any location given the spatial orientation and operating parameters of multiple RF sources. The power density in the Far Field of an RF source is specified by OET-65 Equation 5 as follows:

$$S = \frac{EIRP}{4 \cdot \pi \cdot R^2} \ (\mathrm{mW/cm^2})$$

where EIRP is the Effective Radiated Power relative to an isotropic antenna and R is the distance between the antenna and point of study. Additionally, consideration is given to the manufacturers' horizontal and vertical antenna patterns as well as radiation reflection. At any location, the predicted power density in the Far Field is the spatial average of points within a 0 to 6-foot vertical profile that a person would occupy. Near field power density is based on OET-65 Equation 20 stated as

$$S = \left(\frac{180}{\theta_{BW}}\right) \cdot \frac{100 \cdot P_{in}}{\pi \cdot R \cdot h} \ (\mathrm{mW/cm^2})$$

where P_{in} is the power input to the antenna, θ_{BW} is the horizontal pattern beamwidth and h is the aperture length.

Some antennas employ beamforming technology where RF energy allocated to each customer device is dynamically directed toward their location. In the analysis presented herein, predicted exposure levels are based on all beams at full utilization (i.e. full power) simultaneously focused in any direction. As this condition is unlikely to occur, the actual power density levels at ground and at adjacent structures are expected to be less that the levels reported below. These theoretical results represent maximum-case predictions as all RF emitters are assumed to be operating at 100% duty cycle.

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Analysis

Verizon Wireless proposes the following installation at this location:

- (6) NEW VERIZON WIRELESS 6' TALL PANEL ANTENNS
- (3) NEW VERIZON WIRELESS AIR 6449 ANTENNAS
- (1) NEW VERIZON WIRELESS 2' MICROWAVE ANTENNAS
- (6) NEW VERIZON WIRELESS RADIOS, (2) PER SECTOR, (ERIXSSON 4449 & 8843)

The antennas will be mounted on a 115'-7" self-support tower with centerlines 112, 45 & 35 feet above ground level. Proposed antenna operating parameters are listed in Appendix A. Other appurtenances such as GPS antennas, RRUs and hybrid cable below the antennas are not sources of RF emissions. No other antennas are known to be operating in the vicinity of this site.



Figure 1: Antenna Locations

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Power density decreases significantly with distance from any antenna. The panel-type antennas to be employed at this site are highly directional by design and the orientation in azimuth and mounting elevation, as documented, serves to reduce the potential to exceed MPE limits at any location other than directly in front of the antennas. For accessible areas at ground level, the maximum predicted power density level resulting from all Verizon Wireless operations is 38.594% of the FCC General Population limits. Incident at adjacent buildings depicted in Figure 1, the maximum predicted power density level resulting from all Verizon Wireless operations is 1.386% of the FCC General Population limits. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings. As predicted RF power densities will not exceed the FCC General Population limits, no mitigation action other than restricting access to the tower is required to achieve or maintain compliance.

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Appendix A: Operating Parameters Considered in this Analysis

Antenna #:	Carrier:	Manufacturer	Pattern:	Band (MHz):	Mech Az (deg):	Mech DT (deg):	H BW (deg):	Length (ft):	TPO (W):	Channels:	Loss (dB):	Gain (dBd):	ERP (W):	EIRP (W):	Rad Center (ft):
1	Verizon	JMA	MX06FIT665-02 06DT	700	60	0	67	5.9	40	2	0	11.95	1253	2056	112
1	Verizon	JMA	MX06FIT665-02 06DT	850	60	0	58	5.9	40	2	0	12.75	1507	2472	112
1	Verizon	JMA	MX06FIT665-02 04DT	1900	60	0	61	5.9	20	4	0	14.85	2444	4009	112
2	Verizon	JMA	MX06FIT665-02 06DT	700	60	0	67	5.9	40	2	0	11.95	1253	2056	112
2	Verizon	JMA	MX06FIT665-02 06DT	850	60	0	58	5.9	40	2	0	12.75	1507	2472	112
2	Verizon	JMA	MX06FIT665-02 04DT	2100	60	0	56	5.9	40	4	0	14.95	5002	8206	112
2	Verizon	JMA	MX06FIT665-02 04DT	2100	60	0	56	5.9	20	4	0	14.95	2501	4103	112
3	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	60	0	11	2.8	320	1	3	23.55	36320	59587	45
4	Verizon	JMA	MX06FIT665-02 06DT	700	195	0	67	5.9	40	2	0	11.95	1253	2056	112
4	Verizon	JMA	MX06FIT665-02 06DT	850	195	0	58	5.9	40	2	0	12.75	1507	2472	112
4	Verizon	JMA	MX06FIT665-02 04DT	1900	195	0	61	5.9	20	4	0	14.85	2444	4009	112
5	Verizon	JMA	MX06FIT665-02 06DT	700	195	0	67	5.9	40	2	0	11.95	1253	2056	112
5	Verizon	JMA	MX06FIT665-02 06DT	850	195	0	58	5.9	40	2	0	12.75	1507	2472	112
5	Verizon	JMA	MX06FIT665-02 04DT	2100	195	0	56	5.9	40	4	0	14.95	5002	8206	112
5	Verizon	JMA	MX06FIT665-02 04DT	2100	195	0	56	5.9	20	4	0	14.95	2501	4103	112
6	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	195	0	11	2.8	320	1	6	23.55	18203	29864	45
7	Verizon	JMA	MX06FIT665-02 06DT	700	300	0	67	5.9	40	2	0	11.95	1253	2056	112
7	Verizon	JMA	MX06FIT665-02 06DT	850	300	0	58	5.9	40	2	0	12.75	1507	2472	112
7	Verizon	JMA	MX06FIT665-02 04DT	1900	300	0	61	5.9	20	4	0	14.85	2444	4009	112
8	Verizon	JMA	MX06FIT665-02 06DT	700	300	0	67	5.9	40	2	0	11.95	1253	2056	112
8	Verizon	JMA	MX06FIT665-02 06DT	850	300	0	58	5.9	40	2	0	12.75	1507	2472	112
8	Verizon	JMA	MX06FIT665-02 04DT	2100	300	0	56	5.9	40	4	0	14.95	5002	8206	112
8	Verizon	JMA	MX06FIT665-02 04DT	2100	300	0	56	5.9	20	4	0	14.95	2501	4103	112
9	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	300	0	11	2.8	320	1	3	23.55	36320	59587	45
10	Verizon	ANDREW	VHLP2-18	18000	347.2	0	2.1	2	0.2	1	0	37	1002	1644	35

Notes: Table depicts recommended operating parameters for Verizon Wireless proposed operations.

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ATTACHMENT G

Noise Study

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July 21, 2022

SAC Wireless
540 West Madison Street, 8th Floor
Chicago, IL 60661

Re: **Noise Assessment Letter**
Verizon Sanders Ranch Site
100 Sanders Ranch Road
Moraga, CA 94566

Sanders Ranch is a proposed Verizon telecommunications macro site located in Town of Moraga, CA. Verizon is proposing to add a pre-manufactured equipment cabinet with a door mounted heat exchanger and a new emergency backup generator. Based on our review of the project drawings and technical specifications, the following is a summary of our noise assessment of the proposed equipment.

Town of Moraga, Exterior noise limits
Sustained over five-minute noise shall not exceed the 55 dB during daytime hours and 50 Db during nighttime hours (beginning one hour after sunset) inside of a residence with all windows and doors closed.

NOISE ANALYSIS

Of the supporting equipment planned for this project, Table 1 below presents the primary noise sources of concern.

Table 1 – Supporting Equipment Noise Data

Noise Source	Equipment Type	Make	Model	Size	Manufacturer's Published Noise Data (dBA)	Noise Data Reference Distance (ft)
A	Heat Exchanger	Charles Industries	6000W HX	--	65	5
B	Generator	Generac	SDC20	20 KW	65 (1)	23

[1] Sound pressure is based on Gen Set with Level 2 sound attenuated enclosure, full-load operating conditions.

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Our review of the package did not reveal any other significant noise sources. The equipment is proposed to be installed on private property behind an 8' high composite fence. Ambient noise is not considered in this study.

To properly present this assessment, our noise modeling has assumed following scenarios: 1) Heat Exchanger on the pre-manufactured equipment cabinet runs continuously; 2) the generator is operating in the full load condition; 3) Ambient noise is not considered; 4) other existing on-site equipment creating noises are ignored and 5) other fencing/landscaping currently on site is not taken into consideration.

The site and its adjacent properties are located within the City limits of Moraga, CA and the telecommunication site will sit below an electric transmission tower within APN 258-300-019. The nearest adjacent residential property line is located to the North-East (APN 258-693-019). The measurement of sound shall be taken from the nearest private site's property line, towards the source of the sound, which equates to **226 ft** distance from cabinet heat exchanger to the property line and **230 ft** from the generator to property line.

Generator is for emergency backup during power failure conditions. Generator is exercised once a week for one half hour maximum during daytime hours only. A/C unit on the pre-manufactured cabinet can run continuously and will run during day and nighttime. Noise levels measurements per Table 1, calculated to the property line of the nearest residence, is as follows:

Noise Source 'A' – A/C Cabinet = 23.9 dBA
Noise Source 'B' – Generator = 35.4 dBA

Combined Sources **– Total of 35.7 dBA**

Based on Town of Moraga's noise standard, a noise level of **35.7 dBA** is considered acceptable during any time of the day or night. The combined anticipated level of the cabinet's A/C unit and the Generator both meet the city's standard even though only the A/C units are expected to run simultaneously at night. Noise levels were calculated to the property line and not the inside of the residence as stated in the standard. So as sound pressure levels attenuate with increasing distance from the sound source, noise levels at the residences are anticipated to be less than 50 dBAs, meeting the noise standards outlined in this report.

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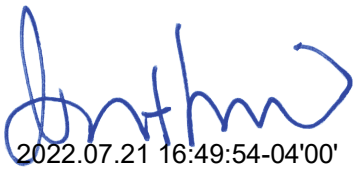
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CONCLUSION

Based on the project documentation, our noise assessment indicates that the proposed Verizon Telecommunications Facility complies with requirements mandated by Town of Moraga at all residences per stated noise metrics outlined in the requirements above. To avoid any misunderstanding, I hereby state that to the best of my knowledge, belief and professional judgment, this report represents an accurate appraisal of Verizon's equipment, based upon careful evaluation of Manufacturer's data to the extent reasonably possible.

Please reach out if I can be of further assistance.

Respectfully Submitted
For the Firm,



2022.07.21 16:49:54-04'00'
Robert J Lara,

ATTACHMENT H

Biological Resource Assessment

Biological Resource Assessment

FUZE #616519836 / 304480 / Sanders Ranch - C

100 Sanders Ranch Road
Moraga, Contra Costa County, CA 94566

EBI Project Number:
6120009273

March 12, 2021

Prepared By:
AJM Ecological Solutions, LLC
c/o EBI Consulting
21 B Street
Burlington, MA 01803

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C – SPECIAL STATUS PLANTS AND WILDLIFE
D – PLANTS & WILDLIFE OBSERVED
E – QUALIFICATIONS

1.0 INTRODUCTION

On September 9, 2020, AJM Ecological Solutions, LLC (AJM) completed a biological resource assessment (BRA) at 100 Sanders Ranch Road Moraga, California 94566 (Attachment A; Figure 1). The approximately 3.2-acre Biological Study Area (BSA) is located approximately 1.2 miles southeast of the town of Moraga, CA. The survey was performed at the request of EBI Consulting to meet compliance with Federal, State, and local jurisdictions to determine if the project could potentially affect sensitive biological resources located on or adjacent to the property. This report analyzes potential effects on sensitive biological resources and jurisdictional areas associated from the proposed project as described below.

1.1 Project Site and History

The Subject Property is located at 100 Sanders Ranch Road in Moraga, Contra Costa County, California. Moraga is located in northern California, and the Subject Property is approximately 1.2 miles southeast of downtown Moraga. The current tenancy is for planned residential use.

The Subject Property and surrounding areas were mostly undeveloped circa 1949 and likely used for cattle grazing or other agricultural use. Circa 1958, electrical power lines and the existing limited residential development after1959. Circa 1963, residential development began in the immediate area with the neighborhood north of the proposed lease area developed circa 1982.

Currently, the land supports PG&E electrical transmissions lines and associated lattice stanchions. The Moraga Trail intersects the property north to south and is located immediately west and parallels the proposed access route. The parcel supports a variety of natural communities including non-native grassland, oak woodlands, and scrub. Note the scrub community consists largely of coyote brush (*Baccharis pilularis*).

1.2 Project Description

The proposed project involves the installation of a new communications facility. Specifically, the proposed installation will consist of outdoor support equipment on a concrete pad within a fenced compound on a 19-foot by 19-foot lease area directly beneath an existing PG&E self-support power stanchion. Antennas will be collocated at a centerline height of 112 feet on a proposed 12-foot extension on the existing power stanchion. Including new appurtenances, the overall height of the tower will increase approximately 9 feet to a total height of approximately 116 feet. Access would be gained via a proposed 15-foot wide by roughly 1,300-foot access/utility easement emanating from Sanders Ranch Road. Utilities will be placed underground within the proposed access route.

2.0 REGULATORY COMPLIANCE

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Special Status Species

Special status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed and proposed species. In addition, California Department of Fish and Game (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue; U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern; and CDFW special status invertebrates are all considered special status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). In addition to regulations for special status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Under this legislation, destroying active nests, eggs, and young is illegal.

The California Rare Plant Ranking System (CRPR; formerly CNPS) identifies species ranked as 1A/1B and 2A/2B as special status plant species which must be considered under CEQA. Plants classified as Rank 3 under the CRPR, lack

necessary information for ranking but must still be considered under CEQA. Rank 4 plants have little or no protection under CEQA.

Critical Habitat

Critical habitat is a term defined and used in the Federal ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires that federal agencies consult with the USFWS to conserve listed species and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species, or adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species under the ESA "jeopardy standard." However, areas that are currently unoccupied by the species, but which are needed for the species' recovery, are protected by the prohibition against adverse modification of critical habitat.

2.2 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, and riparian habitat. These habitats are protected under federal regulations (such as the Clean Water Act), state regulations (such as the Porter-Cologne Act, the CDFW Streambed Alteration Program, and CEQA), or local ordinances or policies (City or County Tree Ordinances, Special Habitat Management Areas, and General Plan Elements).

Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act. "Waters of the U.S." are defined broadly as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands stated in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated for sufficient duration and depth to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high-water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into "Waters of the U.S." (Including wetlands) generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

Waters of the State

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope, but has special responsibility for wetlands, riparian areas, and headwaters. These water bodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. The RWQCB's jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. "Waters of the State" are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact "Waters of the State," are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit but does involve dredge or fill activities that may result in a discharge to "Waters of the State," the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term stream, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFW ESD 1994). Riparian is defined as, "on, or pertaining to, the banks

of a stream;" therefore, riparian vegetation is defined as, "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFW ESD 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its Natural Diversity Database (CNDDB; CDFW 2021). Sensitive plant communities are also identified by CDFW (2003, 2007) and, more recently, the List of Vegetation Alliances, December 28, 2009 (CDFW 2009). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, regulations or by the CDFW or USFWS must be considered and evaluated under CEQA (California Code of Regulations: Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in City or County General Plans or ordinances.

2.3 Habitat Conservation Plan

The project site does not fall within any Habitat Conservation Plan, regional or local, and will not have to follow any rules or regulations of any other Habitat Conservation Plan. The closest such plan is the East Contra Costa County Habitat Conservation Plan.

2.4 Regional and Local

The proposed project development will have to abide by all local and regional ordinances and regulations. Specifically, the following:

Contra Costa County General Plan

The purpose of the Contra Costa County General Plan is to express the broad goals and policies, and specific implementation measures, which will guide decisions on future growth, development, and the conservation of resources through the year 2020. The following are the applicable General Plan goals and policies most pertinent to the project with regard to protection and preservation of the natural resources in the area.

- **8-A.** To preserve and protect the ecological resources of the County.
- **8-B.** To conserve the natural resources of the County through control of the direction, extent

  and timing of urban growth.
- **8-D.** To protect ecologically significant lands, wetlands, plant, and wildlife habitats.
- **8-E**. To protect rare, threatened and endangered species of fish, wildlife, and plants, significant plant communities, and other resources which stand out as unique because of their scarcity, scientific value, aesthetic quality or cultural significance. Attempt to achieve a significant net increase in wetland values and functions within the County over the life of the General Plan. The definition of rare, threatened, and endangered includes those definitions provided by the Federal Endangered Species Act, the California Endangered Species Act, the California Native Plant Protection Act, and the California Environmental Quality Act.
- **8-1.** Resource utilization and development shall be planned within a framework of maintaining a healthy and attractive environment.
- **8-3.** Watersheds, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations shall be preserved and enhanced.
- **8-6.** Significant trees, natural vegetation, and wildlife populations generally shall be preserved.
- **8-7**. Important wildlife habitats which would be disturbed by major development shall be preserved, and corridors for wildlife migration between undeveloped lands shall be retained.
- **8-9.** Areas determined to contain significant ecological resources, particularly those containing endangered species, shall be maintained in their natural state and carefully regulated to the maximum legal extent. Acquisition of the most ecologically sensitive properties within the County by appropriate public agencies shall be encouraged.

• **8-10.** Any development located or proposed within significant ecological resource areas shall ensure that the resource is protected.

• **8-12**. Natural woodlands shall be preserved to the maximum extent possible in the course of land development.

• **8-13.** The critical ecological and scenic characteristics of rangelands, woodlands, and wildlands shall be recognized and protected.

• **8-14.** Development on hillsides shall be limited to maintain valuable natural vegetation, especially forests and open grasslands, and to control erosion. Development on open hillsides and significant ridgelines throughout the County shall be restricted, and hillsides with a grade of 26 percent or greater shall be protected through implementing zoning measures and other appropriate actions.

• **8-15.** Existing vegetation, both native and non-native, and wildlife habitat areas shall be retained in the major open space areas sufficient for the maintenance of a healthy balance of wildlife populations.

• **8-17.** The ecological value of wetland areas, especially the salt marshes and tidelands of the bay and delta, shall be recognized. Existing wetlands in the County shall be identified and regulated. Restoration of degraded wetland areas shall be encouraged and supported whenever possible.

• **8-21.** The planting of native trees and shrubs shall be encouraged in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native wildlife, and ensure that a maximum number and variety of well-adapted plants are sustained in urban areas.

• **8-22.** Applications of toxic pesticides and herbicides shall be kept at a minimum and applied in accordance with the strictest standards designed to conserve all the living resources of the County. The use of biological and other non-toxic controls shall be encouraged.

• **8-24.** The County shall strive to identify and conserve remaining upland habitat areas which are adjacent to wetlands and are critical to the survival and nesting of wetland species.

• **8-27.** Seasonal wetlands in grassland areas of the County shall be identified and protected.

• **8-28.** Efforts shall be made to identify and protect the County's mature native oak, bay, and buckeye trees.

• **9-A.** To preserve and protect the ecological, scenic, cultural/historic, and recreational resource lands of the county.

• **9-C.** To achieve a balance of open space and urban areas to meet the social, environmental, and economic needs of the county now and for the future.

Contra Costa County Municipal Code

• Chapter 82-1—65/35 Land Preservation Plan
  - Chapter 82-1 covers the implementation of the general plan and the various regulations regarding development in urban and undeveloped areas.

3.0 ASSESSMENT METHOD

Prior to the biological resources field survey, AJM Principal Ecologist, Mr. Tony Maguire, PWS, CWB® conducted a database records search to identify natural communities and previously recorded existence or potential occurrence of special-status biological resources (e.g., plant and animal species, and vegetation communities) within or in the vicinity of the BSA. Special-status species potentially relevant to the project are those that are federally and/or State-listed, proposed for listing, or candidate species for designation as threatened or endangered; species listed as species of concern by the California Department of Fish and Wildlife (CDFW, 2021), and/or plants with a California Rare Plant Ranking (CRPR) of 1B or 2B by the California Native Plant Society (CNPS).

AJM reviewed the following databases:

- The California Natural Diversity Data Base information (CNDDB) (Data download: February 2021). *AJM* reviewed species information within a 2-mile radius of the BSA.

- The CNPS Online Inventory of Rare and Endangered Plants of California (March 2021, CNPS Inventory 9 Quads).
- The United States Fish and Wildlife Service (USFWS) Information Planning and Consultation (IPaC) (Updated March 2021).
- The California Department of Fish and Wildlife (CDFW) Rarefind: USGS quad: Briones Valley (3712282), Clayton (3712188), Oakland East (3712272), Walnut Creek (3712281), Las Trampas Ridge (3712271), Diablo (3712178), San Leandro (3712262), Hayward (3712261), Dublin (3712168)
- National Wetland Inventory (NWI) (March 2021)
- Natural Resource Conservation Service – USDA - Web Soil Survey (March 2021)

3.1 Field Survey

AJM biologist surveyed the BSA on March 3, 2021 between the hours of 0800 – 1130 hrs. The survey occurred under partly cloudy skies, with west winds ranging from 0 -5 mph, and temperatures ranging between 59° – 65°.

Natural community boundaries were identified and noted on high-resolution aerial photograph. The following sections detail the methods utilized to define the Study Area.

3.2 Special Status Species

Potential occurrence of special-status species in the Study Area were evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special-status species focused 9 quadrants centered on Las Trampas Ridge (3712271). Data reviewed from the CDFW/CNDDB database, USFWS IPaC and the CNPS provided the survey baseline data.

3.2.1 Special Status Plant Species

Potential occurrence of special-status plants in the BSA were determined through a literature and database search (Attachment C).

The plant survey consisted of traversing the entire BSA and included an approximate 50-foot survey buffer. All observed plant species (Attachment B) were identified to the appropriate taxonomic level necessary to determine their rarity status. Plants were identified using the Jepson Manual (Hickam 1993), Jepson Manual, 2nd Edition (Baldwin et al. 2012), and Plants of the San Francisco Bay Region: Mendocino to Monterey (Beildleman, Linda H. (Revised, ed 2003). A Flora of Sonoma County (Best et al. 1996). Nomenclature follows Baldwin et al. (2012) unless otherwise noted.

Table 2 lists criteria for evaluating special-status plant and wildlife species potential for occurrence. Attachment C contains a table showing the special-status plant and wildlife species with the potential to occur in the BSA and/or the project vicinity (up to 2 miles).

Table 1: Criteria for evaluating special status plant and wildlife species potential for occurrence (PFO).

PFO	Criteria
Absent	Species is restricted to habitats or environmental conditions that do not occur in the study area.
Low	Historical records for this species do not exist in the study area, and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate	Either a historical record exists of the species in the study area and marginal habitat exists in the proposed work areas or the habitat requirements or environmental conditions associated with the species occur in the proposed work areas, but no historical records exist in the study area.
High	Both a historical record exists of the species and the habitat requirements and environmental conditions associated with the species occur in the study area.
Present	Species was detected in or near the study area during project surveys.

3.2.2 Special Status Wildlife Species

Potential occurrence of special-status wildlife in the BSA were determined through a literature and database search (Attachment C).

Records from the CNDDB (CDFW 2021), the California Department of Fish and Wildlife Rarefind (CDFW), and the USFWS IPaC (USFWS 2021) were reviewed to determine which special-status wildlife species have been documented within 2-miles of the BSA.

4.0 ENVIRONMENTAL SETTING

The following section is a review of the physical conditions and land-use history, as well as the existing vegetation types, within the BSA.

4.1 Land Use History

The Subject Property and surrounding areas were mostly undeveloped circa 1949 and likely used for cattle grazing or other agricultural use. Circa 1958, electrical power lines and the existing limited residential development after1959. Circa 1963, residential development began in the immediate area with the neighborhood north of the proposed lease area developed circa 1982.

Currently, the land supports PG&E electrical transmissions lines and associated lattice stanchions. The Moraga Trail intersects the property north to south and is located immediately west and parallels the proposed access route. The parcel supports a variety of natural communities including non-native grassland, oak woodlands, and scrub. Note the scrub community consists largely of coyote brush (*Baccharis pilularis*).

4.2 Soils

AJM reviewed the United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) Web Soil Survey (WSS) for the Project Site and immediate vicinity. According to EBI's review, soils at the Project Site consist of Los Osos clay, 30 to 50 percent slopes. This well drained soil supports a water table more than 80-inhces below the soil surface and a restrictive layer between 24-inches and 40-inches to paralithic rock. This soil is not listed as hydric by the NRCS (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/).

Native and naturalized vegetation associated with these soils include annual grasslands, with *Baccharis* scrub, and oak woodlands (USDA 2003).

4.3 Natural Communities

AJM mapped all vegetation communities within the BSA (Attachment A, Figure 2) and recorded all plant species observed (Attachment D). The status of these communities and plant species is discussed in Section 5.0. Vegetation communities and dominant plant species are described below.

Table 2: Biological Communities within the BSA.

Community Type	Survey Area	Impact Area
Non-native grasslands/herbaceous	2.86 acres	0.45 acre
Northern coyote brush scrub	0.23 acre	0.04 acre
Ornamental – Roadside planting	0.1 acre	NA
Total BSA	Approximately 3.19 acres	0.49 acre

[1]CNPS 2020
[2] MCV – Accessed 2020; Holland 1986
[3]Sawyer et al. 2009

Non-native grasslands: This vegetation community as described in the literature (Holland 1986, Sawyer et al. 2009) consists of dense to sparse cover of annual grasses with flowering culms. This community typically occurs on

fine textured, usually clay soils that is waterlogged during the winter rainy season and very dry during the summer and fall. Within the BSA, non-native grasslands comprise the majority of the semi-natural community.

Plants observed included Italian ryegrass (*Festuca perennis*), foxtail barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), western oat grass (*Avena occidentalis*), with the latter comprising the majority of the grasses. In addition, large areas of single species dominance occur throughout the BSA. These areas were predominantly occupied with fennel (*Foeniculum vulgare*), mustard (*Brassica nigra*), or bur chervil (*Anthriscus caucalis*). Intermixed within the non-native grasslands and herbaceous dominant areas included a poorly defined mixture of herbaceous vegetation includes pineapple weed (*Matricaria discoidea*), scarlet pimpernel (*Anagallis arvenis*), English plantain (*Plantago lanceolata*), bur clover (*Medicago polymorpha*), storksbill (*Erodium cicutarium*), Italian thistle (*Carduus pycnocephalus*), black mustard, carrot (*Daucus carota*), and California poppy (*Eschscholzia californica*).

Coyote brush scrub: This ecological system includes a variety of mixed and single-species-dominated shrublands that occur on windy exposed sites and typically represents the first stage of succession of scrub occupation of former grasslands sites. It is associated wtih northern coastal scrub but dominated by coyote brush.

Within the BSA, this community largely consisted of dense coyote bursh (*Baccharis pilularis*) and poison oak (*Toxicodendrun diversilobum)* largely lacking understory vegetation.

Ornamental: This vegetation community is not described in the literature (Holland 1986, Sawyer et al. 2009). However, as observed during the field visit, it consists of previously cleared and graded lands that have been planted with ornamental redwood trees (*Sequoia sempervirens*). The understory vegetation largely consists of managed ruderal herbaceous vegetation.

5.0 RESULTS

The following sections contain a description of BSA documented during *AJM's* assessments. Attachment A; Figure 2 shows the natural communities observed in the BSA. A list of all plant species observed within the Study Area is included in Attachment D. Representative photographs of the Study Area are included in Appendix B.

5.1 Environmental Setting

The 3.2-acre BSA primarily consists of non-native grassland and non-native invasive herbaceous lands with dense areas of coyote brush occurring along the edge of the BSA - outside the proposed project footprint. The proposed lease area is located within the PG&E power stanchion footprint and supports non-native grasses and forbs. The larger landscape is bound by residential developments west, south, east, and north of the Site with an approximate 800-foot wide wildlife corridor occurring northeast of the Site. This corridor leads to additional open space largely utilized for cattle grazing. No special status natural communities (e.g. – wetlands, seeps, streams, riparian, rock outcrops, serpentine soil, etc) were observed within the BSA.

5.2 Special Status Species

5.2.1 Special Status Plant Species

A total of 55 special-status plant species (Attachment C) have been documented within a nine-quad search of the BSA, of which no species have potential to occur within the BSA due to one or more of the following reasons:

- Hydrologic conditions (e.g. tidal, riverine) necessary to support the special-status plant species are not present in the BSA;
- Edaphic (soil) conditions (e.g. volcanic tuff, serpentine) necessary to support the special status plant species are not present in the BSA;
- Topographic conditions (e.g. north-facing slope, montane) necessary to support the special-status plant species are not present in the BSA;
- Unique pH conditions (e.g. alkali scalds) necessary to support the special-status plant species are not present in the BSA;
- Associated vegetation communities (e.g. interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the BSA;

- The Study Area is geographically isolated (e.g. below elevation, coastal environ) from the documented range of the special-status plant species.
- Prevalence of invasive non-native plant species.
- Land management practices (i.e. mowing, weeding, stockpiling)

5.2.2 Special Status Wildlife Species

A total of 44 special-status wildlife species have been documented within the greater vicinity of the BSA, of which three have the low potential to occur within the Study Area (Attachment C). Of the 44 special-status wildlife species that have been documented, 43 have no potential to occur within the BSA due to one or more of the following reasons:

- Aquatic habitats (e.g. rivers, ponds, estuaries) necessary to support the special-status wildlife species are not present in the BSA;
- Vegetation habitats (e.g. oak woodlands, old-growth Douglas fir-coast redwood) that provide nesting and/or foraging resources necessary support the special-status wildlife species are not present in the BSA;
- Structures or vegetation (e.g. old-growth trees) necessary to provide nesting or cover habitat to support the special-status wildlife species are not present in the BSA;
- Host plants (e.g. Harlequin lotus) necessary to provide larval and nectar resources for the special-status wildlife species are not present in the BSA;
- The Study Area is outside (e.g. north of, west of) of the special-status wildlife species documented nesting range.
- Prevalence of invasive non-native plant species.
- Land management practices (i.e. mowing, weeding)

5.2.3 Nesting Birds

Non-native grasslands provide suitable nesting habitat for passerine bird species protected under the MBTA.

Construction activities could disturb ground nesting and adjacent shrub nesting birds within and around the construction site. Potential impacts on special-status and migratory birds that could result from the construction and operation of the project include the destruction of eggs or occupied nests, mortality of young, and the abandonment of nests with eggs or young birds prior to fledging. If these species were found to be present, impacts to these species would be significant. The project would likely be required to conduct pre-construction nesting bird surveys to reduce impacts to nesting birds to a less than significant level.

5.3 Jurisdictional Waters and Wetlands

An assessment of potentially jurisdictional features was conducted as part of the literature review and reconnaissance-level survey for the project site. The project site does not contain any wetlands or other areas designated as waters of the US and no further studies or regulatory permitting would be required. Therefore, the project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA.

5.4 Habitat Conservation Plan

The project site does not fall within the coverage area of a habitat conservation plan or natural community conservation plan. The East Contra Costa County Habitat Conservation Plan area is the nearest habitat conservation plan area. Therefore, there would be no construction impact related to consistency with a conservation plan.

6.0 IMPACT ANALYSIS AND RECOMMENDATIONS

The following discussion addresses potential impacts to special-status biological resources resulting from the proposed project and recommends mitigation measures, where appropriate, to minimize those impacts to a level of "less than significant" under CEQA.

6.1 Special Status Wildlife

The California horned lark is ground nesting bird that will utilize bare soil openings within grassland communities. Although this species was not observed during the biological survey, there is a low potential for this CDFW 'watchlist' species to occur within the BSA.

7.0 MITIGATION MEASURES

Potential Impact 1: Construction associated with the proposed installation has the potential to impact breeding birds during the nesting season. Impacts to breeding birds are prohibited by the Migratory Bird Treaty Act (MBTA).

Mitigation Measure 1-1: The bird breeding season typically extends from February to August. Ideally, the clearing of vegetation and the initiation of construction can be done in the non-breeding season between September and January. If these activities cannot be done in the non-breeding season, a qualified biologist shall perform pre-construction breeding bird surveys within 14 days of the onset of construction or clearing of vegetation. If active breeding bird nests are observed, no ground disturbance activities shall occur within a minimum 100-foot exclusion zone. These exclusion zones may vary depending on species, habitat, and level of disturbance. The exclusion zone shall remain in place around the active nest until all young are no longer dependent upon the nest. A biologist should monitor the nest site weekly during the breeding season to ensure the buffer is sufficient to protect the nest site from potential disturbances.

PREPARER

AJM Principal Ecologist Mr. Anthony Maguire, PWS, CWB® prepared this report.

Respectfully Submitted,



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Principal Ecologist
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ATTACHMENT A
FIGURES

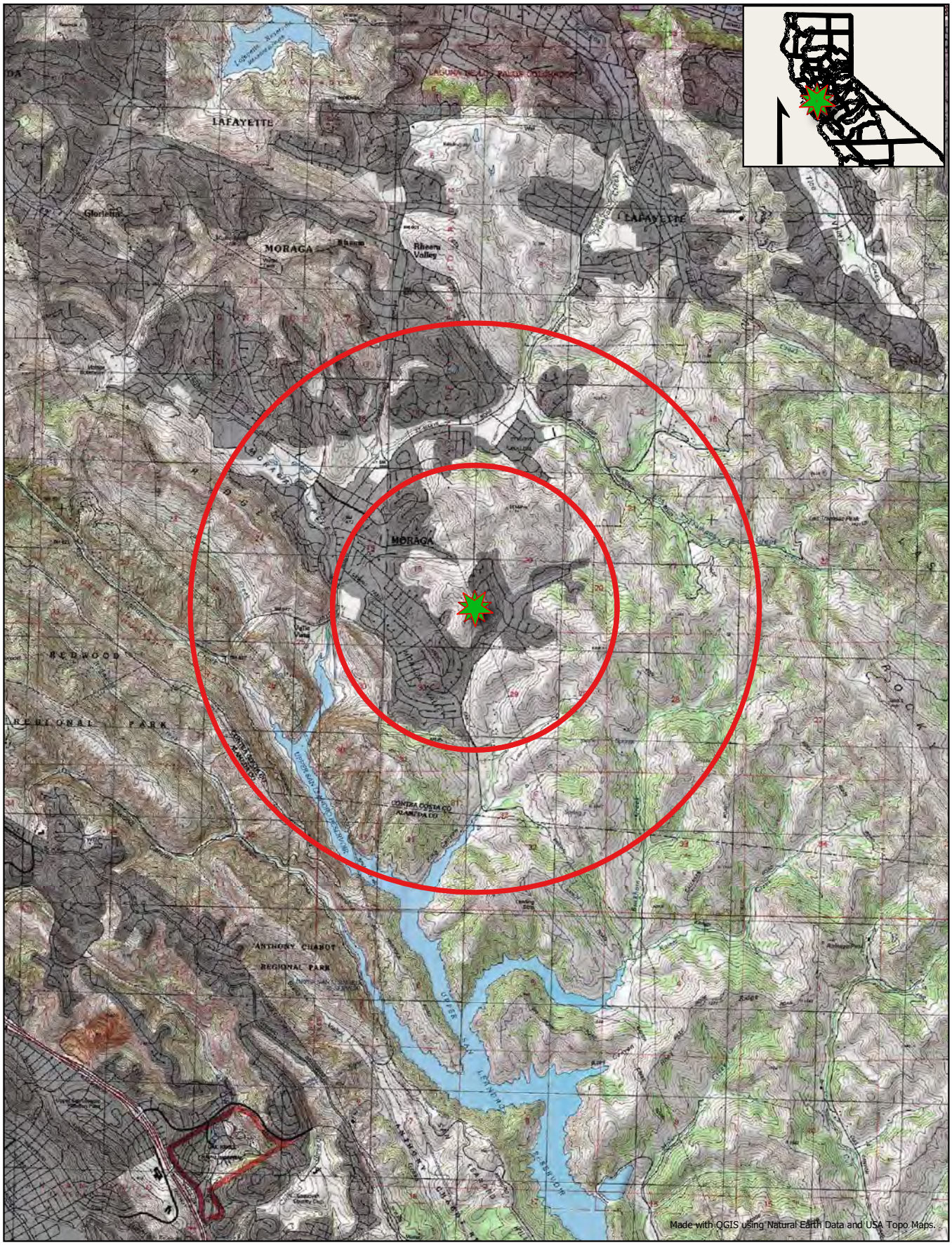


Figure 1. Location Map.
FUZE #616519836 / 304480 / Sanders Ranch - C
100 Sanders Ranch Road, Moraga, Contra Costa County, CA 94566
Lat: 37° 49' 25.7088" N
Long: 122° 06' 52.02" W

0 0.5 1 1.5 2 mi

1-Mile & 2-Mile Radius

Project Site

AJM Ecological Solutions, LLC



Figure 2. Biological Survey Area
FUZE #616519836 / 304480 / Sanders Ranch - C
100 Sanders Ranch Road, Moraga, Contra Costa County, CA 94566

50-Foot Survey Area

Access_Utility Route

N

0 200 400 600

AJM Ecological Solutions, LLC



Figure 2.a Natural community map
FUZE #616519836 / 304480 / Sanders Ranch - C
100 Sanders Ranch Road, Moraga, Contra Costa County, CA 94566

N

0 200 400 600

Non-native grasslands (2.86 ac)
Baccharis Scrub (0.23 ac)
Ornamental (0.1 ac)
50-Foot Survey Area
Access_Utility Route

AJM Ecological Solutions, LLC

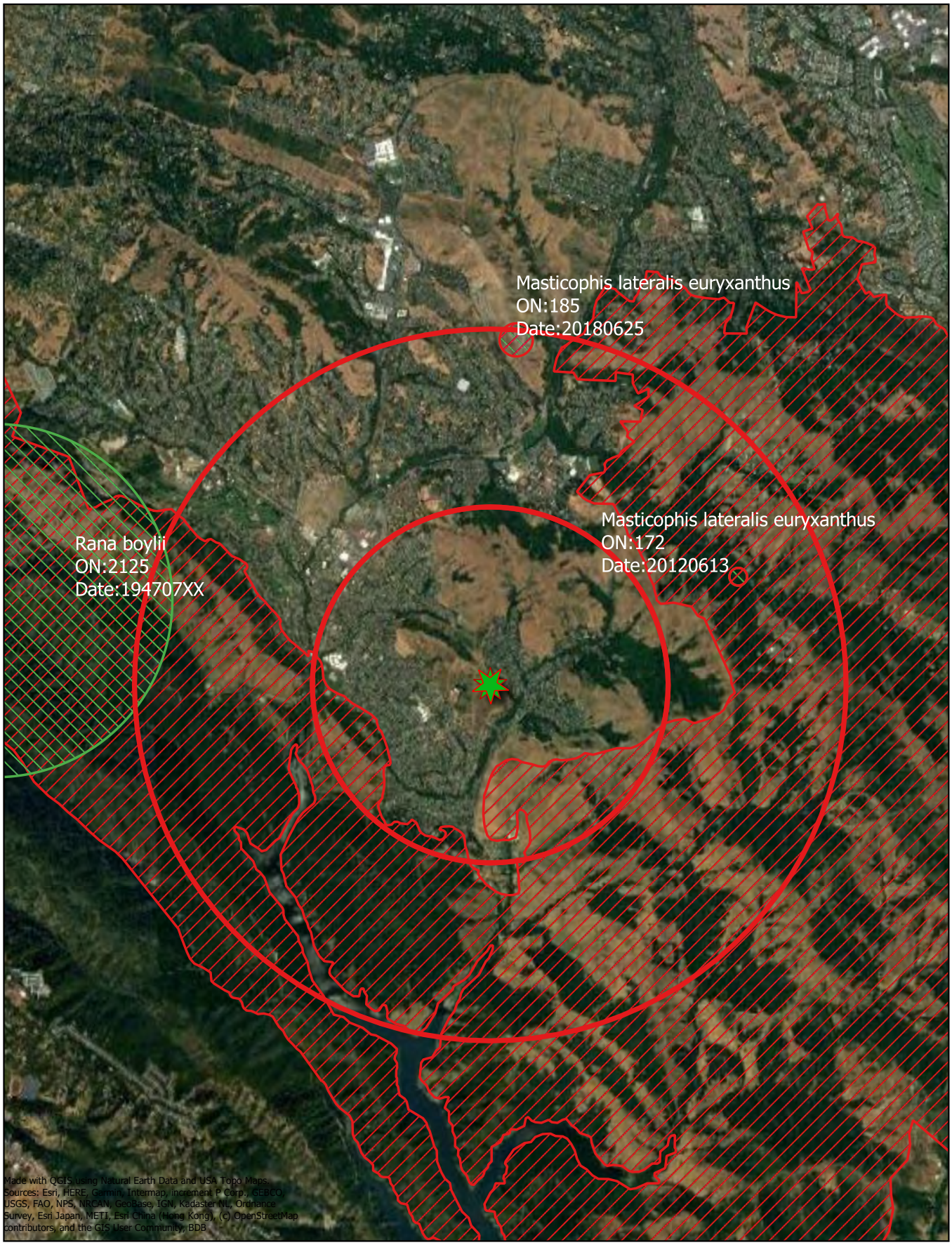


Figure 3. CNDDB Occurrence Map
FUZE #616519836 / 304480 / Sanders Ranch - C
100 Sanders Ranch Road, Moraga, Contra Costa County, CA

0 0.5 1 1.5 2 mi

N

1-Mile & 2-Mile Radius
Federally Protected Species
State Protected Species
Project Site
AWS Critical Habitat

AJM Ecological Solutions, LLC

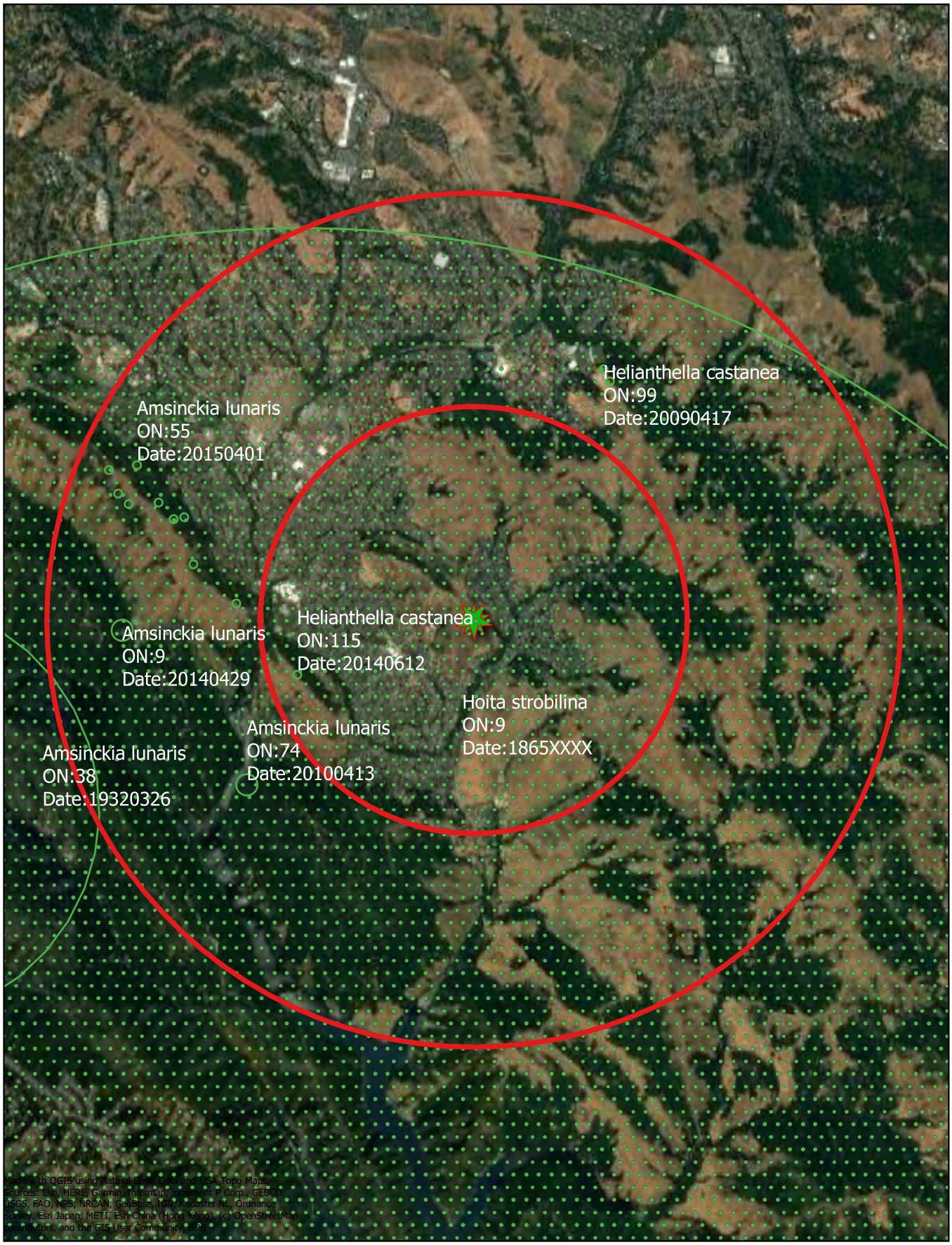


Figure 4. CNPS Rare Plant Occurrences
FUZE #616519836 / 304480 / Sanders Ranch - C
100 Sanders Ranch Road, Moraga, Contra Costa County, CA

0 0.5 1 1.5 2 mi

1-Mile & 2-Mile Radius
Project Site
CNPS Rare Plants

N

AJM Ecological Solutions, LLC

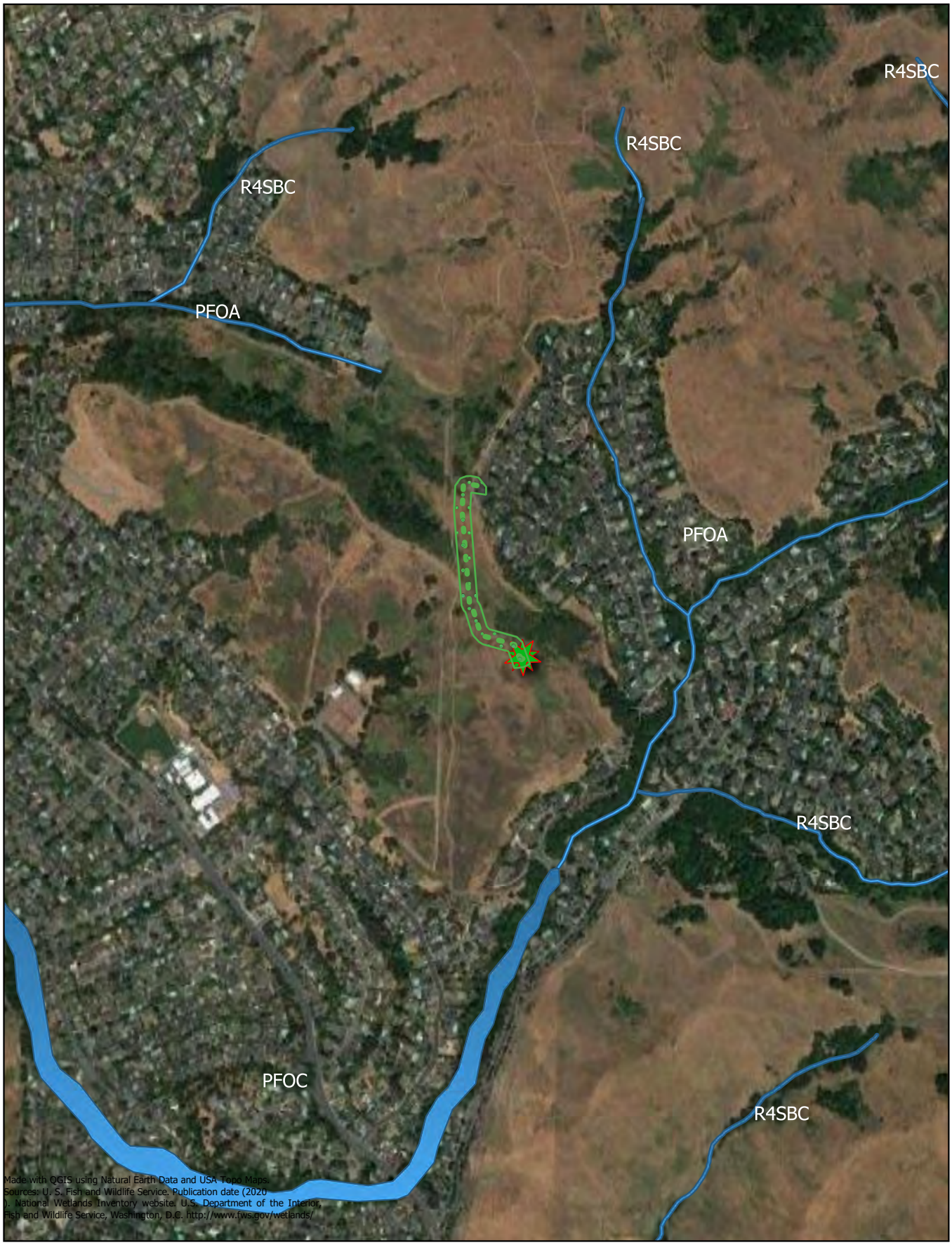


Figure 5. NWI Wetland Map
FUZE #616519836 / 304480 / Sanders Ranch - C
100 Sanders Ranch Road, Moraga, Contra Costa County, CA 94566

N

0 500 1,000 1,500 ft

50-Foot Survey Area
NWI Wetlands
Access_Utility Route
Project Site

AJM Ecological Solutions, LLC

Attachment B
Photographs



Photo 1. Looking west toward Site entrance from Sanders Ranch Road.



Photo 2. Looking SW along proposed access route.



Photo 3. Looking south along proposed access route.



Photo 4. Looking NE along proposed access route (typical).



Photo 5. Looking SE along proposed access route toward lease area.



Photo 6. Looking south along proposed access toward lease area.



Photo 7. Looking east toward proposed lease area.



Photo 8. Looking north toward proposed lease area.



Photo 9. Looking south toward proposed lease area.

Attachment C

Special Status Species Summary Table & Occurrence Probability

Species	Habitat	Status	Activity Period	Occurrence Probability
Plants				
Amsinckia lunaris Bent-flowered fiddleneck	This annual herb occurs on gravelly slopes, often serpentine within Foothill Woodland, Valley Grasslands between 50 – 800 m	US:- CA:- CRPR: 1B.2	Blooms March - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Arctostaphylos auriculata Mt. Diablo manzanita	This shrub occurs in sandstone chaparral near coast between 150 – 650 m	US:- CA:- CRPR: 1B.3	Blooms January - March	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Arctostaphylos pallida Pallid manzanita	This shrub occurs on siliceous shale slopes and ridges in chaparral, mixed evergreen forest and foothill woodlands between 200 – 460 m	US: FT CA: SE CRPR: 1B.1	Blooms December - March	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Astragalus tener var. Tener alkali milk-vetch	This annual herb occurs in playas, vernal pools, valley grasslands, and alkali sinks < 60 m	US: - CA: - CRPR: 1B.2	Blooms March - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Balsamorhiza macrolepis big-scale balsamroot	This perennial herb occurs in open grassy and rocky slopes < 1400 m	US: - CA: - CRPR: 1B.2	Blooms March - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Blepharizonia plumosa big tarplant	This annual herb occurs on dry slopes in valley grasslands < 500 m	US: - CA: - CRPR: 1B.1	Blooms July - October	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Calochortus pulchellus Mt. Diablo fairy-lantern	This perennial herb occurs in foothill woodlands and valley grasslands between 200 – 800 m	US: - CA: - CRPR: 1B.1	Blooms April - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Campanula exigua chaparral harebell	This annual herb occurs on talus slopes, generally serpentine soils in chaparral between 300 – 1250 m	US: - CA: - CRPR: 1B.2	Blooms May - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Centromadia parryi ssp. congdonii Congdon's tarplant	This annual herb occurs on terraces, swales, floodplains, valley grassland, and disturbed areas usually within wetlands < 300 m	US: - CA: - CRPR: 1B.1	Blooms May - October	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	This annual herb occurs in salt marsh coastal wetlands < 10 m	US: - CA: - CRPR: 1B.2	Blooms June - October	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Chorizanthe robusta var. robusta robust spineflower	This annual herb occurs in coastal opening and dunes between 10 – 300 m	US: FE- CA: - CRPR: 1B.1	Blooms April - September	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Cicuta maculata var. bolanderi Bolander's water-hemlock	This perennial herb occurs in coastal wetlands < 200 m	US: - CA: - CRPR: 2B.1	Blooms July - September	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.

Species	Habitat	Status	Activity Period	Occurrence Probability
Cirsium andrewsii Franciscan thistle	This perennial herb occurs in seeps, bluffs, ravines associated with coastal scrub, mixed evergreen forest, and wetland-riparian < 100 m	US: - CA: - CRPR: 1B.2	Blooms March - July	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Clarkia franciscana Presidio clarkia	This annual herb occurs on serpentine soils within coastal scrub and valley grasslands around 50 m	US: FE CA: SE CRPR: 1B.1	Blooms May - July	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Cordylanthus nidularius Mt. Diablo bird's-beak	This annual herb occurs on serpentine soils within chaparral between 600 – 800 m	US: - CA: - CRPR: 1B.1	Blooms July - August	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Delphinium californicum ssp. interius Hospital Canyon larkspur	This perennial herb usually occurs in wetlands within foothill woodlands between 300 – 1000 m	US: - CA: - CRPR: 1B.2	Blooms April - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Dirca occidentalis western leatherwood	This shrub occurs in riparian corridors associated with north coastal forest, closed-cone forest, mixed evergreen forest, foothill woodlands, and chaparral between 50 – 400 m	US: - CA: - CRPR: 1B.2	Blooms January - March	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Eriastrum ertterae Lime Ridge eriastrum	This annual herb occurs in hard packed sand adjacent to chaparral communities < 300 m	US: - CA: - CRPR: 1B.1	Blooms June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Eriogonum luteolum var. caninum Tiburon buckwheat	This annual herb occurs in serpentine soils associated with chaparral, coastal prairie, and valley grasslands < 700 m	US: - CA: - CRPR: 1B.2	Blooms May - September	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Eriogonum truncatum Mt. Diablo buckwheat	This annual herb occurs in sandy soils associated with northern coastal scrub, chaparral, and valley grasslands between 200 – 400 m	US: - CA: - CRPR: 1B.1	Blooms April - September	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Eryngium jepsonii Jepson's coyote-thistle	This perennial herb occurs in moist clay soils typical of wetlands < 500 m	US: - CA: - CRPR: 1B.2	Blooms April - August	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Extriplex joaquinana San Joaquin spearscale	This annual herb occurs in alkaline soils within meadows associated shadscale scrub and valley grasslands < 350 m	US: - CA: - CRPR: 1B.2	Blooms April - September	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Fissidens pauperculus minute pocket moss	This bryophyte occurs on moist soil banks	US: - CA: - CRPR: 1B.2	Year round	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Fritillaria liliacea fragrant fritillary	This perennial herb occurs in heavy soils, open hills/field near coast in northern coastal scrub, coastal prairie, valley grasslands, and wetland-riparian < 200 m	US: - CA: - CRPR: 1B.2	Blooms February - August	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Gilia millefoliata dark-eyed gilia	This annual herb occurs in stable coastal strand < 10 m	US: - CA: - CRPR: 1B.2	Blooms April - July	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Grimmia torenii Toren's grimmia	This bryophyte occurs on rocky substrates	US: - CA: - CRPR: 1B.3	Year round	**Absent**. Suitable habitat was not present within the BSA and this species was not

Species	Habitat	Status	Activity Period	Occurrence Probability
				observed during the biological survey.
Holocarpha macradenia Santa cruz tarplant	This annual herb occurs on clay soils associated with coastal prairie and valley grasslands < 200 m	US: FT CA: SE CRPR: 1B.1	Blooms June - October	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Helianthella castanea Diablo helianthella	This perennial herb occurs in openings within northern coastal scrub, foothill woodlands, and valley grasslands between 200 – 1300 m	US: - CA: - CRPR: 1B.2	Blooms March - June	**Absent.** A 2014 record of this species is documented roughly 0.85 miles west of the Site and a 2009 record is documented roughly 1.5 miles northeast of the Site. Marginal habitat is present. This species was not observed within the BSA during the appropriate bloom period.
Hesperolinon breweri Brewer's western flax	This annual herb occurs in foothill woodlands, chaparral, and valley grasslands occasionally in serpentine soils between 30 – 700 m	US: - CA: - CRPR: 1B.2	Blooms May - July	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Hoita strobilina Loma Prieta hoita	This perennial herb occurs in oak woodlands and chaparral < 600 m	US: - CA: - CRPR: 1B.2	Blooms May - July	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Isocoma arguta Carquinez goldenbush	This shrub occurs within alkaline soils in wetlands associated with valley grasslands < 20 m	US: - CA: - CRPR: 1B.1	Blooms August - December	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Lasthenia conjugens Contra Costa goldfields	This annual herb occurs vernal pools and wet meadows < 100 m	US: FE CA: - CRPR: 1B.1	Blooms March - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Madia radiata showy golden madia	This annual herb occurs foothill woodlands and valley grasslands occasionally on serpentine soils between 20 -1200 m	US: - CA: - CRPR: 1B.1	Blooms March - May	**Absent.** Marginally suitable habitat was present within the BSA – However, this species was not observed during the biological survey nor are there any records of this species within 2-miles.
Malacothamnus hallii Hall's bush-mallow	This shrub occur in open chaparral at < 760 m	US: - CA: - CRPR: 1B.2	Blooms May - September	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Meconella oregana Oregon meconella	This annual herb occurs in shady canyons < 1000 m	US: - CA: - CRPR: 1B.1	Blooms March - April	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Monolopia gracilens woodland woollythreads	This annual herb occurs serpentine grasslands, open grasslands, and oak woodlands between 100 – 1200 m	US: - CA: - CRPR: 1B.2	Blooms March - July	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Navarretia gowenii Lime Ridge navarretia	This perennial herb occurs in clay and serpentine soils between 200 – 300 m	US: - CA: - CRPR: 1B.1	Blooms May - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Oenothera deltoides ssp. howellii	This perennial herb occurs in sand dunes, bluffs, and coastal strand < 100 m	US: FE CA: SE CRPR: 1B.1	Blooms March - September	**Absent**. Suitable habitat was not present within the BSA and this species was not

Species	Habitat	Status	Activity Period	Occurrence Probability
Antioch Dunes evening-primrose				observed during the biological survey.
Phacelia phacelioides Mt. Diablo phacelia	This annual herb occurs on open rocky slopes in foothill woodlands and chaparral between 500 – 1400 m	US: - CA: - CRPR: 1B.2	Blooms April - May	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Plagiobothrys diffusus San Francisco popcornflower	This annual herb occurs in moist soils/seeps within coastal prairie and valley grasslands between 30 – 150 m	US: - CA: SE CRPR: 1B.1	Blooms March - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Plagiobothrys glaber hairless popcornflower	This annual herb occurs in saline wetlands, meadows, salt marsh in coastal areas < 100 m	US: - CA: - CRPR: 1A	Blooms March - May	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Polemonium carneum Oregon polemonium	This perennial herb occurs moist to dry open areas associated with northern coastal scrub, yellow pine forest, and coastal prairie < 1800 m	US: - CA: - CRPR: 2B.2	Blooms April - September	**Absent.** Marginally suitable habitat was present within the BSA – However, this species was not observed during the biological survey nor are there any records of this species within 2-miles.
Polygonum marinense Marin knotweed	This annual herb occurs in coastal salt marsh, brackish marsh, and swamps < 10 m	US: - CA: - CRPR: 3.1	Blooms May - August	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Sanicula marítima adobe sanicle	This perennial herb occurs in coastal grassy and open wet areas associated with chaparral, valley grasslands, and wetland-riparian around 150 m	US: - CA: Rare CRPR: 1B.1	Blooms February - May	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Sanicula saxatilis rock sanicle	This perennial herb occurs on rocky ridges in chaparral and valley grasslands between 900 – 1100 m	US: - CA: - CRPR: 1B.2	Blooms April - May	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Senecio aphanactis chaparral ragwort	This annual herb occurs in alkaline flats, dry rocky open areas between 10 – 150 m	US: - CA: - CRPR: 1B.2	Blooms January - April	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Spergularia macrotheca var. Longistyla long-styled sand-spurrey	This perennial herb occurs in alkaline marshes, mud flats, meadows and hot springs < 200 m	US: - CA: - CRPR: 1B.2	Blooms February - May	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Streptanthus albidus ssp. peramoenus Most beautiful jewelflower	This annual herb occurs on serpentine or metamorphic rocky soils with chaparral openings or steep woodlands between 150 – 1400 m	US: - CA: - CRPR: 1B.2	Blooms April - September	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Streptanthus hispidus Mt. Diablo jewelflower	This annual herb occurs in rocky chaparral and valley grasslands between 600 – 1200 m	US: - CA: - CRPR: 1B.3	Blooms March - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Stuckenia filiformis ssp. alpina slender-leaved pondweed	This perennial herb occurs in freshwater wetlands, shallow clear water lakes, and drainage canals between 300 – 2150 m	US: - CA: - CRPR: 2B.2	Blooms May - July	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Suaeda californica California seablite	This shrub occurs in coastal salt marsh < 5 m	US: FE CA: - CRPR: 1B.1	Blooms July - October	**Absent**. Suitable habitat was not present within the BSA and this species was not

Species	Habitat	Status	Activity Period	Occurrence Probability
				observed during the biological survey.
Trifolium hydrophilum saline clover	This annual herb occurs in salt marsh and open alkaline soils < 300 m	US: - CA: - CRPR: 1B.2	Blooms April - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Triquetrella californica coastal triquetrella	This bryophyte occurs between rocky opening in shallow soils	US: - CA: - CRPR: 1B.2	Year round	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Tropidocarpum capparideum caper-fruited tropidocarpum	This annual herb occurs on alkaline soils within valley grasslands low hills and valleys < 400 m	US: - CA: - CRPR: 1B.1	Blooms March - April	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Viburnum ellipticum oval-leaved viburnum	This shrub occurs in chaparral, yellow pine forest, and generally north facing slopes between 300 – 1400 m	US: - CA: - CRPR: 2B.3	Blooms May - June	**Absent**. Suitable habitat was not present within the BSA and this species was not observed during the biological survey.
Mammals				
Antrozous pallidus Pallid bat	Habitats include mountainous areas, intermontane basins, and lowland desert scrub; arid deserts and grasslands, often near rocky outcrops and water; in some areas, this species also inhabits open coniferous forest and woodland. Day roosts include crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees. Night roosts often or typically are in caves; buildings, under rock overhangs, and under bridges.	US: – CA: - CDFW: SSC	Year-round	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey.
Corynorhinus townsendii Townsend's big-eared bat	Habitat include forested regions and buildings, and in areas with a mosaic of woodland, grassland, and/or shrubland. Also known from limestone caves, lava tubes, and human-made structures in coastal lowlands, cultivated valleys, and nearby hills covered with mixed vegetation.	US: – CA: - CDFW: SSC	Year-round	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey
Eumops perotis californicus Western mastiff bat	Habitats include desert scrub to woodland. Forage in open areas. Roost in exfoliating rock slabs of vertical cliffs and rugged canyons. Live deep inside narrow crevices.	US: – CA: - CDFW: SSC	Year-round	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	Habitats include heavy chaparral; hardwood, conifer, and mixed forests, typically in densely wooded areas with heavy undergrowth; riparian woodlands. Builds house of debris on the ground or in a tree	US: – CA: - CDFW: SSC	Year round	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey
Nyctinomops macrotis Big free-tailed bat	Habitat includes rocky areas in rugged or hilly country in both lowland and highland areas. These bats roost primarily in vertical or horizontal crevices near the tops of cliffs, but sometimes they are found in buildings, caves, or occasionally tree cavities.	US: – CA: - CDFW: SSC	Birth in late spring or early summer	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey
Reithrodontomys raviventris salt-marsh harvest mouse	Habitat consists of salt and brackish marshes, where plants provide a dense mat of cover, ideally around 30-50 cm high with a high percentage (e.g., 60%) of Salicornia (pickleweed) and complex structure of Atriplex and other species.	US: FE CA: SE CDFW: FP	Breeds May - November	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey

Species	Habitat	Status	Activity Period	Occurrence Probability
	Needs access to refuge/cover on high ground, especially during highest tides in winter.			
Sorex vagrans halicoetes salt-marsh wandering shrew	Habitat consists of salt and brackish marshes. Needs access to refuge/cover on high ground, especially during highest tides in winter.	US: - CA: - CDFW: SSC	Breeds February – June; September	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey
Taxidea taxus American badger	Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert. Widely distributed in North America.	US: – CA: - CDFW: SSC	Year-round	**Absent**. Suitable habitat for this species were not present within the BSA and this species was not observed during the biological survey.
Vulpes macrotis mutica San Joaquin kit fox	Habitat includes alkali sink, valley grassland, and woodland, in valleys and adjacent gentle foothills. Multiple underground dens in dry soils are used throughout the year.	US: FE CA: SE CDFW: -	December - March	**Absent**. Suitable habitat for this species were not present within the BSA and this species was not observed during the biological survey.
Amphibians				
Ambystoma californiense California tiger salamander	Breeding occurs mainly December-February, after rains fill pools and ponds. In summer, CTS aestivate in small mammal burrows, leaf litter, or other moist sites within 1.6 miles of a water body.	US: FT CA: ST CDFW: WL	October - May	**Absent**. Suitable upland or wetland habitat for this species were not present within the BSA and this species was not observed during the biological survey.
Rana boylii foothill yellow-legged frog	Breeding occurs in pools of streams. Eggs usually are attached to gravel or rocks at pool or stream edges. Rarely move far away from streams	US: - CA: SE CDFW: SSC	March - June	**Absent**. Suitable upland or wetland habitat for this species were not present within the BSA and this species was not observed during the biological survey. This species was last documented in 1947 over 2-miles northwest of the biological survey.
Rana draytonii California red-legged frog	This species usually occurs in or near quiet permanent water of streams, marshes, ponds, lakes, and other quiet bodies of water supporting emergent vegetation. In summer, frogs aestivate in small mammal burrows, leaf litter, or other moist sites within 2 miles of a water body. Species disperses through a variety of habitat including valley grasslands, chaparral, sage scrub, and oak woodlands.	US: - CA: - CDFW: SSC	October - May	**Absent**. Suitable upland or wetland habitat for this species were not present within the BSA and this species was not observed during the biological survey. There are no occurrence records of this species within 2-miles of the biological survey.
Reptiles				
Anniella pulchra Northern California legless lizard	This legless lizard burrows in loose soil, especially in semi-stabilized sand dunes and in other areas with sandy soil, including habitats vegetated with oak or pine-oak woodland, or chaparral	US: - CA: - CDFW: SSC	Early spring – July	**Absent**. Suitable upland or wetland habitat for this species were not present within the BSA and this species was not observed during the biological survey.
Emys marmorata western pond turtle	Habitat includes permanent and intermittent waters of rivers, creeks, small lakes and ponds (including human-made stock ponds and sewage-treatment ponds, marshes, unlined irrigation canals, and reservoirs	US: - CA: - CDFW: SSC	June - August	**Absent**. Suitable upland or wetland habitat for this species were not present within the BSA and this species was not observed during the biological survey.
Masticophis lateralis uryxanthus Alameda whipsnake	This species inhabits chaparral foothills, sage scrub shrublands with scattered grassy patches, rocky canyons and watercourses, and nearby habitats.	US:FT CA: ST CDFW: -	March - June	**Absent**. No suitable habitat for this species is present within the BSA; This species was documented 2-miles

Species	Habitat	Status	Activity Period	Occurrence Probability
	Underground or under cover when inactive. This species also does not have a large disperse range, generally staying within close proximity to chaparral and sage scrub habitat.			north in 2018 and 1.5 east in 2012. Intervening lands and lack of suitable scrub habitat would prevent this species from dispersing into the area.
Phrynosoma blainvillii Coast horned lizard	Habitat include scrubland, grassland, coniferous woods, and broadleaf woodlands; areas with sandy soil, scattered shrubs, and ant colonies; in areas with native chaparral vegetation, and in sites with porous soils relatively free of organic debris.	US: – CA: - CDFW: SSC	Year-round, diurnal and crepuscular activity	**Absent**. Suitable upland or wetland habitat for this species were not present within the BSA and this species was not observed during the biological survey.
Birds				
Cooper's hawk ***Accipiter cooperii***	Mature pine, hardwood groves, and riparian cottonwoods and sycamores.	US: – CA: - CDFW: WL	Breeding April - June	**Absent.** Suitable habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Accipiter striatus sharp-shinned hawk	Occurs in riparian forest, conifers, hardwoods, mixed woodlands, and old fields	US: – CA: - CDFW: WL	Breeding April - may	**Absent.** Suitable nesting habitat for this species was not presentwithin the BSA, and this species was not observed during the biological survey.
Agelaius tricolor Tricolored blackbird	Open country in western Oregon, California, and northwestern Baja California. Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs and forages in grassland and cropland habitats. Seeks cover for roosting in emergent wetland vegetation, especially cattails and tules,	US: – CA: SSC (breeding) MSCP: C	Year-round	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Aquila chrysaetos golden eagle	Golden eagles generally inhabit open and semi-open country such as prairies, sagebrush, arctic and alpine tundra, savannah or sparse woodland, and barren areas, especially in hilly or mountainous regions, in areas with sufficient mammalian prey base and near suitable nesting sites	US: – CA: - CDFW: FP	January - April	**Absent**. Suitable nesting habitat for this species was not present within the BSA and this species nor suitable burrows were observed during the biological survey.
Athene cunicularia Burrowing owl	Usually occupies ground squirrel burrows in open, dry grasslands, agricultural and range lands, railroad rights-of way, and margins of highways, golf courses, and airports. Often utilizes man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles. They avoid thick, tall vegetation, brush, and trees, but may occur in areas where brush or tree cover is less than 30 percent.	US: – CA: SSC CDFW: SSC	Year-round	**Absent**. Suitable nesting habitat for this species was not present within the BSA and this species nor suitable burrows were observed during the biological survey.
Branta hutchinsii leucopareia cackling (=Aleutian Canada) goose	During migration and on wintering grounds, the geese are commonly found in marshes, pastures and grass crops, harvested agriculture fields and flood-irrigated and non-irrigated land. Breeding on Aleutian Islands	US: Delisted CA: - CDFW: WL	April - July	**Absent**. Suitable habitat for this species was not present within the BSA and this species nor suitable burrows were observed during the biological survey.
Buteo regalis ferruginous hawk	Occurs in open country, primarily prairies, plains and badlands; sagebrush, saltbush-greasewood shrubland, periphery of pinyon-juniper and other woodland, desert. Breeding occurs in native grassland and shrubland and rocky habitats	US: – CA: SSC CDFW: WL	February - October	**Absent**. Suitable nesting habitat for this species was not present within the BSA and this species nor suitable burrows were observed during the biological survey.

Species	Habitat	Status	Activity Period	Occurrence Probability
Buteo swainsoni Swainson's hawk	Riparian nesting trees, agricultural fields, and open shrublands within relatively close proximity.	US: – CA: ST CDFW: -	Breeding March - September	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Charadrius nivosus nivosus Western Snowy Plover	Beaches, dry mud or salt flats, and sandy shores of rivers, lakes, and ponds	US: FT CA: – CDFW: SSC	March - September	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey.
Circus hudsonius northern harrier	Occurs in marshes, coastal prairie, agricultural lands, and fallow lands. Nest are constructed on the ground, mounds of dirt or vegetation.	US: - CA: – CDFW: SSC	Late spring	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Coturnicops noveboracensis yellow rail	Occurs and breeds in emergent wetlands, grass or sedge marshes and wet meadows in freshwater situations.	US: - CA: – CDFW: SSC	April - July	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Elanus leucurus White-tailed kite	Nests in trees, often near a marsh, sually 6-15 m above the ground in branches near the top of a tree.	US: – CA: - CDFW: FP	Year-round	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Eremophila alpestris actia California horned lark	Grassland, tundra, sandy regions, areas with scattered low shrubs, desert playas, grazed pastures, stubble fields, open cultivated areas, and rarely open areas in forest.	US: – CA: - CDFW: WL	Breeding June - August	**Low**. Suitable habitat was observed within the BSA; this species was not observed during the biological survey and there are no records of this species within 2-miles of the BSA.
Falco mexicanus prairie falcon	Typically nests in pot hole or well-sheltered ledge on rocky cliff or steep earth embankment, 10 to more than 100 meters above base. Nests typically are placed on south-facing aspects, with overhangs offering some protection from solar radiation	US: - CA: – CDFW: WL	Breeding March - August	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Falco peregrinus anatum American peregrine falcon	Occur in open situations from tundra, moorlands, steppe, and seacoasts, especially where there are suitable nesting cliffs, to mountains, open forested regions, and human population centers.	US: Delisted CA: Delisted CDFW: FP	Breeding March - May	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Geothlypis trichas sinuosa saltmarsh common yellowthroat	Occurs and breeds in marshes and adjacent riparian lands.	US: - CA: – CDFW: SSC	Breeding March - July	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Haliaeetus leucocephalus bald eagle	Occurs and breeds in coastal areas, bays, rivers, lakes, reservoirs, or other bodies of water that reflect the general availability of primary food sources including fish, waterfowl, or seabirds	US: Delisted CA: SE CDFW: FP	Breeding October - May	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Laterallus jamaicensis coturniculus California black rail	Occurs in salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps.	US: – CA: ST CDFW: FP	Breeding April - August	**Absent**. Suitable habitat was not observed within the BSA and this species was not observed during the biological survey.

Species	Habitat	Status	Activity Period	Occurrence Probability
Melospiza melodia maxillaris Suisun song sparrow	Suisun Song Sparrows are associated primarily with tidal channels, especially in marshes where Pickleweed dominates and Gumplant lines the channels	US: - CA: - CDFW: SSC	Breeding March - May	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Melospiza melodia pusillula Alameda song sparrow	Occur and breed in tidal salt and brackish marsh	US: - CA: - CDFW: SSC	Breeding March - May	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Rynchops niger black skimmer	Occurs in coastal shorelines, islands, occasionally found in large lakes.	US: - CA: - CDFW: SSC	Breeding April - September	**Absent**. Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Setophaga petechia Yellow warbler	Occurs in open scrub, second-growth woodland, thickets, farmlands, and gardens, especially near water; riparian woodlands, especially of willows.	US: – CA: - CDFW: SSC	Summer in California	**Absent.** Suitable nesting habitat for this species was not present within the BSA, and this species was not observed during the biological survey.
Sterna antillarum browni California Least Tern	Seacoasts, beaches, bays, estuaries, lagoons, lakes, and rivers. Also nest on dredge spoils and barrier islands.	US: FE CA: SE CDFW: FP	Breeding May - August	**Absent**. Suitable habitat was not observed within the BSA and this species was not observed during the biological survey.
Crustaceans				
Branchinecta lynchi Vernal pool fairy shrimp	This species inhabits vernal pools and similar ephemeral wetlands. It is most commonly found in grassed or mud bottomed pools or basalt flow depression pools in unplowed grasslands	US: FT CA: NL CDFW	Seasonally following rains; typically January through April	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey.
Insects				
Crotch bumble bee ***Bombus crotchii***	Open grasslands and scrub habitats; food plants include *Asclepias*, *Chaenactis*, *Lupinus*, *Medicago, Phacelia*, and *Salvia*. Nesting occurs underground in holes made by other animals or in hollow logs, or tree cavity.	US: – CA: CE CDFW: –	April – August (underground nest)	**Low**. Potentially suitable foraging habitat for this species was present within the BSA. However, no nests were observed during the biological survey. In-flight individuals may traverse the BSA in search of food. There are no records of this species within 2-miles.
Bombus occidentalis western bumble bee	Occurs in open coniferous, deciduous and mixed-wood forests, wet and dry meadows, montane meadows and prairie grasslands, meadows bordering riparian zones, and along roadsides in taiga adjacent to wooded areas, urban parks, gardens and agricultural areas, subalpine habitats and more isolated natural areas. Nesting occurs underground in holes made by other animals or in hollow logs, or tree cavity.	US: – CA: CE CDFW: –	February – November (underground nest)	**Low**. Potentially suitable foraging habitat for this species was present within the BSA. However, no nests were observed during the biological survey. In-flight individuals may traverse the BSA in search of food. There are no records of this species within 2-miles.
Callophrys mossii bayensis San Bruno Elfin butterfly	The San Bruno elfin inhabits rocky outcrops and cliffs in coastal scrub on the San Francisco peninsula. The San Bruno elfin is restricted to a few small populations, the largest of which occurs on San Bruno Mountain. Its habitat has been diminished by quarrying, off-road recreation, and urban development..	US: FE CA: CE CDFW: –	Breeding February - April	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey.

Species	Habitat	Status	Activity Period	Occurrence Probability
	Grazing may have encouraged the growth of exotic plants in the area.			
Euphydryas editha bayensis Bay checkerspot butterfly	Occurs near serpentine-derived soil. The primary larvae host plant is dwarf plantain (*Plantago erecta*). The larvae require a second host plant when the plantain dries up. Under these conditions, the larvae move to purple owl's clover (*Castilleja densiflora or C. exserta*)	US: FT CA: - CDFW: –	Breeding February - May	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey.
Fishes				
Hypomesus transpacificus Delta Smelt	This euryhaline species inhabits open waters of bays, tidal rivers, channels, and sloughs; it rarely occurs in water with salinity of more than 10-12 ppt; when not spawning, it tends to concentrate where salt water and freshwater mix (salinity about 2 ppt) and zooplankton populations are dense. Spawning occurs in freshwater (sometimes in slightly brackish water), primarily in tidal dead-end sloughs and channel edgewaters.	US: FT CA: SE CDFW: –	December - July	**Absent**. Suitable habitat for this species was not present within the BSA and this species was not observed during the biological survey.

US: Federal Classification
FE = Federally Endangered; FT= Federally threatened; CE=Candidate Endangered;
- No applicable classification

CA: State Classifications
SE = State Endangered; ST = State Threatened; SR = State Rare; SSC=California Department of Fish & Wildlife Special Concern Species of Special Concern; FP= California Department of Fish & Wildlife Fully Protected species; WL= California Department of Fish & Wildlife Watch List species; SP = Special Plant. Refers to any other plant monitored by the NDDB regardless of its legal protection status.
- No applicable classification

California Native Plant Society System:
1B = Rare or Endangered in California and elsewhere
2B = Rare, Endangered or Threatened in California, but more common elsewhere
3 = Plants about which more information is needed. A Review List
.1 = Seriously endangered in California (over 80% of occurrences threatened)
.2 = Moderately threatened in California (20-80% occurrences threatened)
Note: California Rare Plant Ranks are assigned by a committee of government agency and non-governmental botanical experts and are not official State designations of rarity status.

Attachment D
Plants and Wildlife Observed

The following vascular plant and wildlife species were observed within the BSA by *AJM* during the general biological resources survey.

Common Name	Scientific Name
Plants	
Anthriscus caucalis	bur chervil
Avena barbata	Slender oat
Baccharis pilularis	coyote brush
Brassica nigra	Black mustard
Bromus diandrus	ripgut brome
Carduus pycnocephalus	Italian thistle
Croton setiger	Turkey-mullein
Daucus carota	Carrot
Erodium botrys	Broad leaf filaree
Erodium brachycarpum	Short fruited filaree
Erodium cicutarium	storksbill
Eschscholzia californica	California poppy
Foeniculum vulgare	Fennel
Gnaphalium palustre	Cudweed
Hordeum murinum	foxtail barley
Meticago lupulina	Black medic
Lysimachia arvensis	Scarlet pimpernel
Matricaria discoidea	pineapple weed
Plantago lanceolata	English plantain
Toxicodendrun diversilobum	poison oak
Mammals	
Canis latrans	Coyote
Odocoileus hemionus	black tailed deer
Otospermophilus beecheyi	California ground squirrel
Sylvilagus bachmani	Brush rabbit
Thomomys talpoides	Pocket gopher
Birds	
Buteo jamaicensis	Red-tailed hawk
Callipepla californica	California quail
Cathartes aura	Turkey vulture
Corvus corax	Common raven
Cyanocitta stelleri	Steller's jay
Melospiza melodia	Song sparrow
Melozone crissalis	California towhee
Psaltriparus minimus	Bushtit
Turdus migratorius	American robin
Reptiles	
Sceloporus occidentalis	Western fence lizard

Attachment E
Qualifications

AJM Ecological Solutions, LLC
P.O. Box 641534
San Francisco, CA 94164
Tel: (650) 833-9592
www.ajm-eco.com

SUMMARY OF EXPERIENCE

Mr. Anthony Maguire PWS, CWB® started AJM Ecological Solutions, LLC (AJM) in January 2020 and is excited to use his 20+ years' experience to help conserve natural resources while assisting clients meet their permitting needs.

Mr. Maguire earned a Bachelor of Science in Wildlife Management from Humboldt State University in 1999. His research focused primarily on avian and mammalian behavior/ecology, plant taxonomy, and wildlife survey techniques. In his final semester at Humboldt State, Mr. Maguire published a short communication in the Wilson Bulletin and later co-authored a paper, based on his senior thesis, presented at the Proceedings of the 2003 International Canada Goose Symposium. Mr. Maguire has since conducted wildlife and vegetation surveys in both terrestrial and submerged environments throughout the west and southeastern parts of the U.S. In the process, he has become a certified Professional Wetland Scientist (PWS) and a Certified Wildlife Biologist (CWB®).

AJM offers a wide variety of project experience including botanical/wildlife surveys, Part 107 sUAS certified inspections, natural community mapping (terrestrial, submerged), NEPA/CEQA permitting, mitigation design, multi-year mitigation monitoring plans, and wetland delineations. The following summarizes Mr. Maguire's achievements.

EDUCATION

Bachelors of Science, Wildlife Biology, December 1999
Humboldt State University, Arcata, CA
Associate of Science, Biology, December 1997
Canada College, Redwood City, CA

PROFESSIONAL AFFILIATIONS

The Wildlife Society
Society of Wetland Scientists
California Native Plant Society

PROFESSIONAL REGISTRATIONS

Professional Wetland Scientist (PWS) – No. 1900
Certified Wildlife Biologist (CWB®)
FAA Part 107 Certified – No. 4284408

PUBLICATIONS

Black et al. 2003. Site Selection and Foraging Behavior of Aleutian Canada Geese in a Newly Colonized Spring Staging Area. Proceedings of the 2003 International Canada Goose Symposium.

Maguire, A. 2000. Whimbrel Attacked by a Peregrine Falcon and Killed by a Common Raven in Northern California. Wilson Bulletin 112(3), 2000, pp. 429-430.

SPECIALIZED TRAINING COURSES:

San Joaquin Kit Fox Workshop, October 7 -10, 2019 (TWS)
Intro to Desert Tortoise and Field Techniques Workshop, November 2-3, 2018 (DTC)
Riparian Ecology and Plant Identification Workshop, August 28 - 30 2017 (CNPS)
Western Burrowing Owl Workshop, July 2016 (Elkhorn Slough National Estuarine Research Reserve)
Regional Supplemental Wetland Delineation Training, September 2014 (Richard Chinn Environmental Training, Inc.)
Biology and Conservation of the Alameda Striped Racer, May 2014 (Alameda County Resource Conservation District)
Managing Habitats for the California Red-legged Frog, November 2013 (Elkhorn Slough National Estuarine Research Reserve)
California Tiger Salamander Training, April 2013 (Elkhorn Slough National Estuarine Research Reserve)
Introduction to California Grasslands and Grass Identification, May 2012 (Pepperwood Preserve)
Habitat Conservation Planning from Tahoe to the Bay (tenth annual workshop**),** November 2012 (Northern California Conservation Planning Partners)
California Red Legged Frog Survey Training, April 2012 (Elkhorn Slough National Estuarine Research

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Reserve)
Plant Taxonomy Workshop – Composites, August 2011 (Regional Park Botanical Garden)
Advanced CEQA Workshop, February 2011 (Association of Environmental Professionals)
Planning, Site Selection, and Hydrology Models for Constructed Wetlands, February 2008 (Wetland Training Institute, Inc.)
Florida Wetlands, November 2007 (Continuing Legal Education, International)
Advanced Jurisdictional Hydrology, October 2006 (Wetland Training Institute, Inc.)
Wetland Creation and Restoration, June 2005 (Ohio State University, William J. Mitsch and Roy R. "Robin" Lewis)
Hydric Soils and Whole Landscape Hydrology, October 2004 (University of Florida, Wade Hurt)
USACE Wetland Delineation and Management Training Program, September 2002 (Richard Chinn Environmental Training, Inc.)
Prescription Burn Certification Course, October1 - 5 2001 (U.S. Department of Forestry)

Representative Experience

- Black Mountain Generator Add-on, San Diego, CA (2020) – Prepared Biological Report conforming to the San Diego guidelines for projects within Multi Habitat Planning Area (MHPA). Responsible for mapping natural communities at the proposed site including buffers. Mapped natural communities and documented wildlife along 2-mile access route.

- PA-39 CDFW Lake and Streambed Alteration Agreement, Irvine, CA (Ongoing) – Responsible for mapping natural communities within the property, conducting avian nest surveys specifically including the California coastal gnatcatcher. Met with the CDFW to discuss riparian impacts, mitigation options, and construction monitoring activities. Developed construction monitoring protocol, on-site mitigation design, and a 5-year monitoring plan to ensure mitigation success.

- Communication Tower Projects (2012-2019) – Worked for Envirobusiness Inc (EBI) as the senior biologist. Oversaw the biological components to satisfy NEPA/CEQA requirements for thousands of new tower installations as well as upgrades to existing towers. Conducted special status species surveys for a wide variety of plants and animals along the west coast including WA, OR, CA, NV. Completed jurisdictional wetland delineations, evaluated hundreds of avian nests, conducted pre-construction clearance surveys, construction monitoring and facilitated environmental awareness training to work crews to reduce the likelihood of any ESA violations. In addition, responsibilities included contracting other wildlife professionals across the U.S. and reviewing all reports for accuracy and completeness.

- Pacific Commons/Warm Springs Monitoring, Fremont, CA (2011) – Conducted annual vernal pool and grassland vegetation surveys within the 875-acre property. Surveys included mapping natural communities, documenting vegetation species, counts, and cover; and documenting special status species within the adjacent grasslands.

- SDG&E Sunrise Powerlink Project (2011) – Conducted pre-construction avian nest surveys, conducted pre-construction site clearing, monitored construction activities. In duration of work, invaluable hours were spent identifying plants in the field, documenting wildlife tracks and scat, and observing wildlife behavior.

- Dry Fermentation Anaerobic Digestion Facility (2011) - Delineated wetlands within a 42.76-acre portion of the San Jose Water Pollution Control Plant. Also identified and mapped natural communities occurring within the site. Established hydrology monitoring using Indicator of reduction in soils (IRIS) tubes at wetland mitigation site.

- Florida Inland Navigation District (FIND), Indian River County, Florida (2009 multi-year) — Role within this U.S. Army Corps of Engineers (COE) and FIND sponsored dredged material management

areas (DMMA) project included coordinating with and assisting the COE with the Florida Department of Environmental Protection (FDEP) permit application. Responsibilities specifically included delineating onsite wetlands, preparing the Unified Mitigation Assessment Method (UMAM) data forms, designing a 6.4-acre mangrove mitigation site, and developing a three-year mitigation monitoring plan On behalf of the COE; portions of the permit application was presented to the State.

- FIND Nassau DMMA Site NA-1 (2009) — Delineated wetlands within a 35.5-acre portion of the proposed Crane Island Dredged Material Management Area NA-1. Also identified and mapped natural communities, conducted wetland delineations, and prepared UMAM.

- St. Lucie County Erosion District, Fort Pierce Beach Nourishment Project (2005 – 2007) — Role in this multi-year beach nourishment project included permit preparation and management of the biological components of the project. Responsibilities included meeting with the FDEP to discuss various issues associated with monitoring, preparing the scope of work for biological sub consultants, writing two biological monitoring plans, and preparing the year-end reports for the County, State, and Federal review. The four-year monitoring plan included monitoring the beach nourishment area, an adjacent site to assess downdrift effects, a control area, and a mitigation site. This plan also provided a contingency monitoring plan and a contingency mitigation plan.

- Fort Pierce Beach Nourishment Project (2007) — Prepared biological monitoring plan for St. Lucie County Erosion District. This plan included monitoring the beach nourishment area, an adjacent site to assess downdrift effects, a control area, and a mitigation site. Monitoring included the benthic assemblage of nearshore hardbottom habitats, marine turtle use of nearshore and onshore habitat, and shorebird nesting. This plan also provided a contingency monitoring plan and a contingency mitigation plan.

- Florida Inland Navigation District, MSA 434 (2006) — Conducted 30-day post-construction inspection and mapping of 250,000 plants within and along the newly developed dredged material management site MSA 434.

- Jones Creek Restoration Project, Jupiter Inlet District (JID), Palm Beach County (2005) — Role in this project included coordinating and preparing a Joint Environmental Resource Permit (ERP) application for State and Federal review. A submerged resource survey in and near the proposed project area was conducted and sediment samples were collected for lab analysis. Core boring sample results were evaluated and consequently led to assistance in redesigning the restoration site to avoid re-suspending contaminated sediments. Responsibilities also included coordinating and providing the responses to the FDEP. These responses addressed concerns from the NMFS, USFWS, FFWCC, and the COE.

- Florida Inland Navigation District IR-2 (2005) — Designed 6.4-acre mangrove mitigation site to offset wetland impacts incurred during the construction of the dredged material management site IR-2. Conducted JD wetland delineation for the 123-acre parcel, identified and mapped natural communities, prepared UMAM forms for the mitigation and impact areas located within the project area. Prepared and submitted permit applications.

- Jupiter Inlet District (JID) (2004) — Conducted submerged and emergent natural resource survey for the 450-acre Loxahatchee River Central Embayment, Palm Beach County, Florida. Prepared report documenting natural resource (i.e. seagrass and mangrove) conditions within the entire embayment to support the JID bi-annual monitoring requirements.

- Volusia County NEPA Document Preparation (2003) — Prepared Environmental Assessments for Florida Inland Navigation District (FIND) dredged material management sites SL-2, V-6, and DU-3 in St. Lucie, Volusia, and Duval Counties, Florida. Field work included JD wetland delineations, gopher

tortoise surveys, champion tree survey, and natural community mapping.

- Florida Inland Navigation District, SJ-1 Monitoring Services (2002) — Conducted first-year salt marsh mitigation area monitoring. Monitoring included an evaluation of vegetative community development and sub surface hydrologic data.

- Ponce DeLeon Inlet Section 1135 Ecosystem Restoration (2001 - multi-year) — Prepared U.S. Fish and Wildlife Coordination Act Report (CAR) for Ponce de Leon, Volusia County, Florida. Prepared biological portions of the Environmental Assessment. Specific items included the preparation of Essential Fish Habitat report and the gathered and interpreted essential regulatory documentation required for NEPA compliance. Developed and selected alternative restoration plans. Compiled ArcGIS data for habitat evaluations.

- Point Reyes Bird Observatory (2001) – Captured and banded song birds using mist nets, monitored nests, recorded species and pair distribution by songs/calls; conducted point counts, spot mapping, and vegetation surveys; documented avian ethology and assisted with video nest monitoring and review.

- Hoopa Valley Indian Reservation (1996) – Conducted endangered species surveys of the marbled murrelet and spotted owl, capture, measure, and band spotted owls; identified various forest species by songs/calls, located nests, and banded juveniles; conducted vegetation surveys at spotted owl nest locations, established survey routes and points using topo, compass, and altimeter.

ATTACHMENT I

Public Comment

From:	Bill Flowers
To:	Planning; Afshan Hamid; Town Clerk
Subject:	: Support for Verizon Wireless network enhancements in Sanders Ranch
Date:	Thursday, March 16, 2023 5:46:45 PM

Dear Planning Commission, Planning Director Hamid, and Moraga Town Council:

Please accept this email of support for the completion of the Verizon Wireless Network in Sanders Ranch.

Thank you,

Earl Flowers
5 Julianna Ct
Moraga, CA 94556

From: Bourdet, Jodie
To: Planning; Afshan Hamid; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Tuesday, March 21, 2023 7:37:53 AM

Dear Planning Commission, Planning Director Hamid, and Moraga Town Council:
I am writing to voice my strong support for improving access to cellular phone and data services in Sanders Ranch, where I have lived since 2000.

The complete absence of wireless signal in Sanders Ranch is a significant public safety issue that must be rectified. Remember the wildfire in the middle of the night in Sanders Ranch a few years ago, which happened during a PG&E blackout. As a result of the blackout and no wireless signal, there was no way for anyone to reach us to let us know we were being evacuated other than our departing neighbors honking their car horns and the police going door to door. The smoke was very thick at our house before we realized what was happening. With the absence of wireless signal, there is also no way for Sanders Ranch residents to contact emergency services, or to get other reports from police or fire departments or PG&E, during a power outage. It is your responsibility to ensure that residents of Moraga are safe under all foreseeable circumstances, and because power outages are not only foreseeable but to be expected, you must ensure that wireless cellular phone and data services are available in Sanders Ranch.

Best regards,

Jodie Bourdet
17 Sanders Ranch Road
Moraga, CA 94556
jbourdet@cooley.com

Jodie Bourdet
Cooley LLP
Three Embarcadero Center, 20th Floor
San Francisco, CA 94111
+1 415 693 2054 office
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From: Judy Vared
To: Planning
Subject: Cell service in Sanders Ranch
Date: Tuesday, March 14, 2023 4:31:14 PM

March 14, 2023

Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commissioners,
I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which
an application is currently under review and pending your final approval. I encourage the prompt and
unanimous approval of this application so the project can be completed before our next wildfire season
arrives in a few months. My entire family strongly supports this project for the following reasons:
1. Public Safety:
a. Coverage: This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have no mobile phone coverage whatsoever. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
a. Evacuation: Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
a. Fewer Accidents: We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. Economic:
a. Remote Work: This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
a. Property Values: This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.

a. Productivity Enhancements: Food delivery, contractors, package delivery vehicles and

visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.

a. Power Outages: Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader
South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our
HOA) have come together in advance of this application to address potential and shared community
concerns that may have existed, particularly as it relates to specific project siting and associated visual
impacts.. We ask that the Commission promptly approve Verizon's application so construction of this
critical infrastructure may commence as soon as possible.

Thank you,

Judy and Richard Vared
5 Magee Ct. Moraga, CA 94556
judy.vared@gmail.com
925 708-0067

From:	Joseph Fitzgerald
To:	Planning; Afshan Hamid; Town Clerk
Subject:	Enthusiastic Support for Verizon Wireless network enhancements in Sanders Ranch
Date:	Wednesday, March 15, 2023 12:57:20 PM

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
   a. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
   b. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
   c. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
   a. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
   b. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
   c. Productivity Enhancements: Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or

running their errands in town.

d. Power Outages: Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,

Joseph Fitzgerald
Homeowner
56 Merrill Circle N
Moraga, CA 94556
415-519-2115
fitzgerald.joseph@gmail.com

From:	Claire Stephenson
To:	Brian Horn
Subject:	Fwd: Support for Verizon Wireless network enhancements in Sanders Ranch
Date:	Thursday, March 16, 2023 1:27:09 PM

Forwarding since Planning Director Hamid is out of office.

---------- Forwarded message ---------
From: **Claire Stephenson** <clairestephenson25@gmail.com>
Date: Thu, Mar 16, 2023 at 1:24 PM
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
To: <planning@moraga.ca.us>, <ahamid@moraga.ca.us>, <townclerk@moraga.ca.us>

Dear Planning Commission, Planning Director Hamid, and Moraga Town Council:

Our family moved to Moraga in 2021. My husband and I left San Francisco for the personal safety, natural beauty, strong community, and top-ranked schools of Moraga, and we couldn't be more pleased with our decision.

However, I have never felt more UNSAFE than when we have planned and unplanned power outages and I am left with zero cellular connectivity. I have three children, ages 3, 2, and 6 months old. It is unsafe and, frankly, unacceptable in the year 2023 to be living in the San Francisco Bay Area without cell service at one's home.

When friends express interest in moving to Moraga, I tell them to think twice. Large swaths of the town are unlivable due to the lack of cell service.

When I think about our family's long-term future, it unfortunately does not include the town of Moraga unless cellular improvements are made as soon as possible. I will not risk my children's safety in the event of an evacuation or other emergency and be caught flat-footed without cell service.

Please accept this email of support for the completion of the Verizon Wireless Network in Sanders Ranch.

Thank you,

Claire Stephenson

28 Merrill Circle South
clairestephenson25@gmail.com
913-226-9282

--

Claire Hannah Stephenson
(913) 226-9282

--

Claire Hannah Stephenson
(913) 226-9282

From: Angela Chiu
To: Planning; Afshan Hamid; Town Clerk
Subject: Fwd: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Monday, March 20, 2023 4:37:40 PM

March 20, 2023

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season
arrives in a few months. My entire family strongly supports this project for the following reasons:

1. Public Safety:
a. Coverage: This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have no mobile phone coverage whatsoever. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
b. Evacuation: Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
c. Fewer Accidents: We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. Economic:
a. Remote Work: This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
b. Property Values: This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
c. Productivity Enhancements: Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.
d. Power Outages: Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders

Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community
concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,
Angela Chiu
10 Teodora Ct, Moraga, CA 94556

SANDERS RANCH HOMEOWNERS ASSOCIATION
315 DIABLO ROAD, SUITE 221, DANVILLE, CA 94526
2 SANDERS RANCH RD, MORAGA, CA 94556

TOWN OF MORAGA
PLANNING
DEPARTMENT
MAR 20 REC'D
2023
RECEIVED

March 14, 2023

Town of Moraga
Planning Commission
329 Rheem Bl
Moraga, CA 94556

Re: SUPPORT FOR Verizon Cell Site Application – Sanders Ranch

Dear Commissioners:

As you know, the Sanders Ranch Homeowners Association consists of 273 homes and approximately 1000 Moraga residents in the southeast corner of Moraga.

We enthusiastically support Verizon's planned cell site on the existing PG&E tower in the open space between Sanders Ranch and Larch Av, and encourage your expeditious approval of their application as submitted.

Our HOA has worked with Verizon for the past several years to bring this critical telecommunications and safety infrastructure to Sanders Ranch and south Moraga at-large. The work of a dedicated Cellular Committee has included community outreach and open discussions/updates during our quarterly Board meetings. This Committee and the HOA have worked diligently, openly and transparently with Verizon to (1) identify and select a location that is not in close proximity to homes and (2) design site characteristics that address possible visual or auditory impact in the surrounding area.

We believe the application is reflective of our HOA's and community's needs and input, and thank you for working toward a timely approval.

Sincerely,

/s/ SANDERS RANCH HOMEOWNERS ASSOCIATION

Copies To:
Afshan Hamid, Planning Director
Jon King, Chief of Police
Dave Winnacker, MOFD Fire Chief
Jeff Isaacs, MOFD Fire Marshal

From: Billie Cummings
To: Planning
Subject: in favor of Sanders Ranch Cell tower
Date: Sunday, March 19, 2023 10:54:37 AM

Billie Cummings
38 Sanders Ranch Rd.
Moraga, CA 94556

March 19, 2023

Dear Moraga Planning Commission:

I am so excited about the possibility of a Verizon cell tower going in in Sanders Ranch! We really need better communications with the outside world. How else are we going to get foolproof notice of emergencies in the area, especially those that require us to evacuate. I was blissfully asleep when the last fire occurred in Sanders Ranch and was only woken by my neighbor pounding on my door. Thank goodness I knew a neighbor.

As I understand, Verizon will just be adding their equipment to the existing PG and E tower or pole, so there is no problem of creating a forest out of separate cell phone towers.

I look forward to not having areas where my phone can't complete a call.

Thank you for your help with this. Please give the OKAY!

Billie Cummings

14 March 2023

Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    a. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    b. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    c. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    a. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    b. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
    c. Productivity Enhancements: Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.
    d. Power Outages: Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,
Junaid Mohiuddin

Chairman, SRHOA Telecom Committee
15 Merrill Drive, Moraga, CA 94556

March 23, 2023

Dear Planning commissioners and Town Council,

I was born in Moraga in 1967, back when you could still tie your horse up at Moraga establishments. I came back to Moraga in 2005 when I moved into Sanders Ranch, on 3 Brandt Drive. Back then I had to give up my Version cell plan for lack of any coverage, in favor of an AT&T plan, with extremely limited coverage. I'm talking about 1 to 2 bars on a good day.

There are many hats I could wear when writing this letter; first, I am writing as a local realtor, working at Abio Properties in Lafayette, buying and selling in Lamorinda since 2006. Cell phones use is ubiquitous in our daily lives, both for work and for home life and for the most part cell coverage in Moraga is mediocre, and as mentioned above, in Sanders Ranch it is spotty at best. When showing properties to prospective buyers in Moraga, I can see the lack of coverage creeping into the home buying process. Questions like, "how can I live with no coverage? how can I conduct my day-to-day business? And what would happen in an emergency, how do we communicate?" are not uncommon, and "well I can't live here than" are anecdotal outcomes that any realtor working this area could tell.

Now putting on my Moraga Sanders Ranch resident hat. Living thru the last few seasons of power outages showed me how vulnerable our community really is to a communication blackout. During the evacuation I at least still had one bar on my phone; a good part of Sanders Ranch had none. Fortunately, this didn't turn out to be a huge emergency, but it could of, and I for one would like to think that we as a community are doing all we can to make emergency communications a priority.

I have followed the progress of the SR cell phone committee since its inception and know the amount of time and thought they put into devising a suitable solution. For these reasons I would ask that the town support this project and do what they can to reasonably accelerate the process.

Thank you for your consideration and time.

Larry Jacobs
Realtor & resident
3 Brandt Drive, Moraga
Larry@abioproperties.com
925.788.1362

Brian Horn

Subject: FW: Verizon Wireless at Sanders Ranch

From: Caitlin Olmstead <caitlin.olmstead@gmail.com>
Sent: Saturday, April 8, 2023 5:07 PM
To: Afshan Hamid <ahamid@moraga.ca.us>; Planning <planning@moraga.ca.us>
Subject:

Dear Planning Commissioners and Planning Director Hamid,

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

- Coverage: This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have no mobile phone coverage whatsoever. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.

- Evacuation: Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.

- Fewer Accidents: We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

- Power Outages: Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,

Caitlin Warner

6 carey ct, Moraga

Tuesday, March 14, 2023

Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commission, Planning Director Hamid, and Moraga Town Council:

I'm writing this afternoon to express our full support for the completion of the Verizon Wireless Network addition in the Sanders Ranch community. In my opinion, it is absolutely critical to have this new service added and implemented as quickly as possible. It is almost unfathomable that in 2023, a community within the confines of an actual township or city (i.e. Moraga) would have any issues with obtaining and maintaining consistent, good cellular service of any kind. In addition to being just plain inconvenient to have dropped calls, no cell service, and having the park on Camino Pablo to finish a call before entering the "dead zone," the lack of cellular service is a safety hazard. The safety impact is dramatically and significantly evident with regards to fire safety, wind issues, power outages, and coyotes in the area. And, again, it's 2023 and there should be no reason at all a community such as Sanders Ranch, as a part of a much broader community of Moraga, does not have adequate and complete cellular service in any and all areas of said community.

Please accept this email of support for the completion of the Verizon Wireless Network in Sanders Ranch.

Thank you,



Luke Parsons

12 Crockett Dr., Moraga CA 94556

LukeWestParsons@gmail.com

(302) 245-2122

From: Mel Ahlborn
To: Planning; Town Clerk; Afshan Hamid
Subject: Please approve the Verizon tower for Sanders Ranch
Date: Tuesday, March 14, 2023 4:01:04 PM

Mel and Paul Ahlborn
55 Sanders Ranch Road, Moraga Ca 94556

We are tax-paying residents of Moraga for 23 years.

Thank you

--
Mel Ahlborn

illumination.studio

Confidentiality Notice: This e-mail message, including any attachments, is covered by the Electronic Communications Privacy Act, 18 U.S.C. 2510-2521, is confidential, and may be legally privileged for the sole use of intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited.

From: Chuck McGinnis
To: Planning; Afshan Hamid; Town Clerk
Subject: Proposed Verizon Network Enhancement in Sanders Ranch
Date: Tuesday, March 21, 2023 10:23:47 AM

Dear Planning Commissioners, Planning Director Hamid and Town Council

My family and I moved to Moraga in 1980. We have been residents for more than 40 years. In 1985 we were one of the earliest residents of the new Sanders Ranch subdivision, where we designed and built a new home on Lamp Court. We love Moraga and we love the way that Sanders Ranch has matured into a safe and welcoming community.

Unfortunately, with the growing dependence on cell phone service and internet connectivity, with the increased number of PG&E power outages, and with the growing risk of extreme weather events like fire, flooding or mountain slides, I no longer feel as safe as we have been in the past. I feel at risk. At my home location, along with my neighbors, cell phone service is marginal at best and non-existent most of the time. This has created much inconvenience and much risk of failed communication with the Town, with utilities and with our HOA. Critical safety notices have not been received. In fact, during PG&E power outages, all communications are lost. It is during these periods that we most need dependable Verizon cell service which would be provided by the proposed cell system infrastructure improvement. The expanded service will also benefit perhaps a thousand other citizens in southern Moraga.

I'm pretty sure that the safety of Moraga residents is paramount to the Moraga Town Council.

I have paid close attention to the efforts of the Sanders Ranch Cell Phone Sub Committee over the last 5+ years. This is not a big project. By using an existing PG&E transmission tower, and existing right of way access, the impacts to both Sanders Ranch residents and those in surrounding areas will be minimal. Safety will be substantially improved.

For these reasons, I strongly urge the Planning Commission and the Town Council to help protect the safety of the Moraga citizens in this area by expediting the approval of this project.

I thank you in advance for your consideration.

Charles R. McGinnis
3 Lamp Court
Moraga, CA 94556
cmcginnis915@gmail.com
(925) 239-9519

From: Mike McGonigle
To: Planning; Town Clerk; Afshan Hamid
Subject: Sanders Ranch Cell Service
Date: Wednesday, March 15, 2023 12:56:45 PM

Hello -

I am writing to you today to offer full support for cell service antennas to be installed in Sanders Ranch. Besides the usual inconvenience that we all share by not having reception throughout Sanders Ranch, I point to two critical times where it was needed, but not available.

1. In the fire that occurred a couple years back in the early morning in Sanders Ranch, it was impossible to contact emergency services, friends, family, etc. which was extremely stress inducing and, quite frankly, very scary as we scrambled to evacuate our house
2. When my elderly mother (a Moraga resident outside of Sanders Ranch) was dying, my siblings couldn't get a hold of me in the middle of the night to tell me that she had passed and that I needed to get there asap. I had to rely on the voicemail message notification to deliver that news

While I recognize that both of the above are extreme cases - they are real life of examples where cell coverage was critical....not just a minor inconvenience.

Mike McGonigle
51 Sanders Ranch Road

Email: planning@moraga.ca.us, ahamid@moraga.ca.us, townclerk@moraga.ca.us

3/17/2023

Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    1. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    2. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    3. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    1. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    2. **Property Values:** This project will help all South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.

From: Ken Obata
To: Planning; Afshan Hamid; Town Clerk
Cc: Ken Obata
Subject: Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Monday, May 22, 2023 9:35:40 AM

May 22, 2023

Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

<!--[if !supportLists]-->1. <!--[endif]--> **Public Safety:**

<!--[if !supportLists]-->1. <!--[endif]--> **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.

<!--[if !supportLists]-->2. <!--[endif]--> **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.

<!--[if !supportLists]-->3. <!--[endif]--> **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

<!--[if !supportLists]-->2. <!--[endif]--> **Economic:**

<!--[if !supportLists]-->1. <!--[endif]--> **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.

<!--[if !supportLists]-->2. <!--[endif]--> **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East

Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.

<!--[if !supportLists]--**3.** <!--[endif]--**Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.

<!--[if !supportLists]--**4.** <!--[endif]--**Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

And please, feel free to reach out to me, or to any others that have requested to support this proposal, if there are any further questions &/or concerns that you may have.

Thanks!

Ken Obata
21 Merrill Drive
Moraga, CA 94556
kenobata@yahoo.com
510.378.3586

From:	Bill Edwards
To:	Planning; Afshan Hamid; Town Clerk
Cc:	Bill Edwards
Subject:	Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date:	Friday, March 17, 2023 11:39:24 AM

Dear Planning Commission, Planning Director Hamid, and Moraga Town Council:

As you are probably now well aware, there are areas within the Sanders Ranch neighborhood that do not get cell signal coverage. While this is a nuisance most of the time, it's a life safety issue in emergency situations. As I understand it, completing Verizon's Wireless Network in Sanders Rnnch will reduce or eliminate this serious issue.

For this reason, please accept this email of support for the completion of the Verizon Wireless Network in Sanders Ranch.

Thank you,

William (Bill) Edwards

44 Sanders Ranch Road

Moraga, CA 94556

wredwards56@gmail.com

From: Dov Zimring
To: Planning; Town Clerk; Afshan Hamid
Subject: Support for cellular coverage in Sanders Ranch
Date: Tuesday, March 21, 2023 12:54:20 PM

Dear Planning Director Hamid, Planning Commission, and Moraga Town Council:

We moved to Moraga in April of 2021 and are grateful for nearly every aspect of the town. The one issue we did not anticipate was lack of cell service at our home and the surrounding neighborhood. We live in Sanders Ranch and have experienced power outages, concerns of fires and the recent flooding. Having no ability to call each other or call 911 for help in the event of an emergency is extremely unsettling.

The Sanders Ranch HOA Board has been working with Verizon to address this and we understand the project will be reviewed by the Planning Commission soon. Please accept this email of support for the completion of the Verizon Wireless Network in Sanders Ranch.

Thank you,
Dov Zimring
9 Shannon Ct, Moraga, CA 94556
dov.zimring@gmail.com
805-705-8813

From:	Elizabeth Kalpakjian
To:	Afshan Hamid; Town Clerk; Planning
Subject:	Support for Verizon Wireless network enhancements in Sanders Ranch
Date:	Tuesday, March 14, 2023 3:32:06 PM

March 14, 2023

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    a. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    b. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    c. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    a. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    b. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
    c. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.
    d. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

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Thank you,
Elizabeth and Norayr Kalpakjian
86 Sanders Ranch Road
elizabethkalpakjian@gmail.com

From:	Robert Gatmaitan
To:	Planning; Afshan Hamid; Town Clerk
Subject:	Support for Verizon Wireless network enhancements in Sanders Ranch
Date:	Tuesday, March 14, 2023 9:58:28 PM

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for all of the following reasons which have impacted our family directly:

1. **Public Safety:**
    a. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    b. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    c. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    a. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
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    c. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while

walking around the block or running their errands in town.

d. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - willallow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soonas possible.

Thank you,

Robert and Carol Gatmaitan
45 Sanders Ranch Rd
Moraga, CA 94556

From: Casey Giovanelli
To: Planning; Afshan Hamid; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Tuesday, March 14, 2023 4:47:37 PM

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    1. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    2. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    3. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    1. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    2. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
    3. Productivity Enhancements: Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or

running their errands in town.

4. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Casey Giovanelli
6 Hastings Ct., Moraga

From: kitling sit
To: Planning; Afshan Hamid; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Monday, April 3, 2023 1:36:04 PM

4/3/23

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    1. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    1. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    1. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    1. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    1. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.

1. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.
1. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,
Kitling Sit
21 Merrill Dr., Moraga CA 94556
kitlingsit@yahoo.com
(925)-360-6341

From: Alex Smith <arsmith9@gmail.com>
Sent: Tuesday, April 4, 2023 2:00 PM
To: Planning <planning@moraga.ca.us>; Town Clerk <townclerk@moraga.ca.us>; Afshan Hamid <ahamid@moraga.ca.us>
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commission, Planning Director Hamid, and Moraga Town Council:

I had the privilege of growing up in Moraga and returned back last March after living in San Francisco for the past 12 years. My husband and I purchased a beautiful home in Sanders Ranch and welcomed a baby girl in June of 2022.

While we are thrilled to live in such a beautiful town, it has been incredibly stressful and inconvenient to live in a community with no cellular service. There have been several instances in which I have needed to call my husband while on a walk with our baby, and I am unable to reach him. Now that we have a family, it is imperative that I can reach him in case of an emergency. In 2023 it is hard to believe that a Bay Area town does not have adequate cellular coverage. I appreciate your help in pushing this through.

Please accept this email of support for the completion of the Verizon Wireless Network in Sanders Ranch.

Thank you,

Alexandra Smith
10 Crockett Drive, Moraga
ARSmith9@gmail.com

From: lfellman@earthlink.net
To: Afshan Hamid; Planning; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Friday, March 24, 2023 12:34:02 PM

Dear Aftshan Hamid, Planning Director, Planning Commissioners, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    1. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    1. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    1. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    1. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    1. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
    1. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get

lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.

1. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our Sanders Ranch HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,

Lesli Fellman

7 Lamp Court
Moraga, CA 94556
415-710-3334
lfellman@earthlink.net

From: Jonathan
To: Planning; Town Clerk; Afshan Hamid
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Thursday, March 16, 2023 4:06:10 PM

Dear Planning Commission, Planning Director Hamid, and Moraga Town Council:

As a resident of Moraga, and specifically Sanders Ranch, I'd like to voice my strong support for this project. The lack of cellular coverage around my home is often frustrating and concerning should an emergency situation arise. I'd like for Verizon Wireless to be able to complete their work to improve cellular coverage in the area as soon as possible.

Thank you,

Jonathan Salcedo
79 Sanders Ranch Rd, Moraga, CA 94556

From: Lisa Young
To: Afshan Hamid; Town Clerk; Planning
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Wednesday, March 15, 2023 3:09:35 PM

March 15, 2023

Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

<!--[if !supportLists]-->1. <!--[endif]-->**Public Safety:**

<!--[if !supportLists]-->1. <!--[endif]-->**Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.

<!--[if !supportLists]-->2. <!--[endif]-->**Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.

<!--[if !supportLists]-->3. <!--[endif]-->**Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

<!--[if !supportLists]-->2. <!--[endif]-->**Economic:**

<!--[if !supportLists]-->1. <!--[endif]-->**Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.

<!--[if !supportLists]-->2. <!--[endif]-->**Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East

Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.

<!--[if !supportLists]--**3.** <!--[endif]--**Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.

<!--[if !supportLists]--**4.** <!--[endif]--**Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,

Lisa Wang
Sean Wang
Russell Wang
16 Brandt Dr Moraga, CA 94556
925-388-3190

From:	Maria Weaver
To:	Planning; Town Clerk; Afshan Hamid
Subject:	Support for Verizon Wireless network enhancements in Sanders Ranch
Date:	Sunday, March 19, 2023 9:47:10 AM

Dear Planning Commissioners, Planning Director Hamid, and Town Council:
I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and
unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. Public Safety:
a. Coverage: This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have no mobile phone coverage whatsoever. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
a. Evacuation: Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
a. Fewer Accidents: We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. Economic:
a. Remote Work: This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
a. Property Values: This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.

a. Productivity Enhancements: Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.
a. Power Outages: Very recently, the December and January storms created a 3-day power

outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader
South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our
HOA) have come together in advance of this application to address potential and shared community
concerns that may have existed, particularly as it relates to specific project siting and associated visual
impacts.. We ask that the Commission promptly approve Verizon's application so construction of this
critical infrastructure may commence as soon as possible.

Thank you,
The Weaver Family
9 Sanders Ranch Rd
mariakweaver@gmail.com

From: Don Wen
To: Planning; Afshan Hamid; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Wednesday, March 15, 2023 10:14:31 PM

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

<!--[if !supportLists]-->1. <!--[endif]--> **Public Safety:**

<!--[if !supportLists]-->1. <!--[endif]--> **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.

<!--[if !supportLists]-->2. <!--[endif]--> **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019, there was a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. I heard from neighbors that the evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.

<!--[if !supportLists]-->3. <!--[endif]--> **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

<!--[if !supportLists]-->2. <!--[endif]--> **Economic:**

<!--[if !supportLists]-->1. <!--[endif]--> **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.

<!--[if !supportLists]-->2. <!--[endif]--> **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.

3. <!--[endif]--> **Productivity Enhancements:** Food delivery, contractors, package

delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town. Often, I have to pull over near CP Elementary School to finish my call because it will get dropped when I approach Sanders Ranch's gate, which also burns gas.

<!--[if !supportLists]-->**4.** <!--[endif]-->**Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,
Don Wen

2 Crockett Drive, Moraga
Mobile 510-495-5100
(but don't call me when I am at home because I currently don't have proper cell coverage)

From: PATRICIA SALVATI
To: Planning; Afshan Hamid; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Tuesday, March 14, 2023 3:56:05 PM

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    a. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    b. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    c. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    a. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    b. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
    c. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their

truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.

d. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - willallow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

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Thank you,

Patricia Salvati
36 Merrill circle south, Moraga, 94556
Paby7@yahoo.com

Sent from my iPhone

From:	Harlan Chiu
To:	Planning; Afshan Hamid; Town Clerk
Subject:	Support for Verizon Wireless network enhancements in Sanders Ranch
Date:	Monday, March 20, 2023 4:34:22 PM

March 20, 2023

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. Public Safety:
a. Coverage: This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have no mobile phone coverage whatsoever. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
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b. Property Values: This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
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d. Power Outages: Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders

Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

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concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,
Harlan Chiu
10 Teodora Ct, Moraga, CA 94556
harlan.chiu@gmail.com
925-451-6866

--
Harlan Chiu
harlan.chiu@gmail.com

From: Ed Huber
To: Afshan Hamid; Planning; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Monday, March 27, 2023 11:01:31 AM

Dear Planning Commission, Planning Director Hamid, and Moraga Town Council:

Please accept this email of support for the completion of the Verizon Wireless Network in Sanders Ranch. As a long time resident, we continue to suffer from poor cell service in our neighborhood. Not only does this represent an inconvenience, but during the wild fires a couple of years ago, this created a very significant safety issue - as many of the safety alerts are delivered via cell calls/texts.

Thank you,

Ed and Stacey Huber
80 Sanders Ranch Roach
Moraga, CA
Ehuber3@gmail.com

--

Ed Huber
Vice President and General Manager
The Clorox Company
O: 510-271-3207 C: 510-325-7385

From: Jackie Novick
To: Town Clerk; Planning
Cc: Afshan Hamid
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Tuesday, March 14, 2023 4:55:52 PM

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    a. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    b. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    c. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    a. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    b. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
    c. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.
    d. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soonas possible.

Thank you.
Jacqueline Novick
8 Teodora Ct.
Moraga, CA 94556
(925) 247-0989

From: Rebecca Ricksen
To: Afshan Hamid; Planning; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Friday, March 17, 2023 7:23:09 AM

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

This opinion is based on nearly 17 years as a Moraga homeowner. I love living here, but the spotty cellular service has been a safety hazard and a challenge for that entire time. The October 2019 service outage + fire evacuation combination led to a police officer going door to door evacuating me and the neighbors - let's keep our safety officers and residents out of harm's way. Please approve the cellular network enhancement project under review in Sanders Ranch. Thank you for considering!

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    a. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    b. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    c. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    a. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    b. **Property Values:** This project will help all of South Moraga maintain

property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.

c. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.

d. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - willallow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soonas possible.

Thank you,

Rebecca Ricksen
33 Sanders Ranch Rd.
Moraga, CA 94556
Rebecca.ricksen@gmail.con
510-847-8268

From: wdsteelman@gmail.com
To: Planning; Afshan Hamid; Town Clerk
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch
Date: Wednesday, March 15, 2023 8:16:54 AM

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    1. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    1. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    1. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    1. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    1. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
    1. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get

lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.

1. **Power Outages:** Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts.. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,
William & Sara Steelman

5 Crockett Drive. Moraga CA 94556

From: Billy Blau
To: Planning; Town Clerk; Afshan Hamid
Subject: Verizon Network - Sanders Ranch
Date: Tuesday, March 21, 2023 8:16:54 PM

All - I have lived in Moraga for 10 years, and just moved to Sanders Ranch 9 months ago. I am a hybrid worker (I work from home and sometimes the office), and have been flummoxed by the lack of Verizon cell service in Sanders Ranch. This has caused me many issues while trying to work from home, but also a major inconvenience for people coming to try and visit and their service cuts out and they get lost trying to find my house, and can't call me because there is no service.

We live in Moraga, cell service should be available to 100% of the homes period. I strongly urge you to allow this project to move forward, I can't see a reason why this would be blocked when it causes significant issues with a fair number of Moraga residents. This is also a safety issue, when the power goes out (as it does a lot these days), I have no options for communications because my phone only works on my home wifi network.

This seems like an easily solvable issue, please make the appropriate decisions so we can all live in Moraga as all the other residents get to, with working cell phone serivce.

Thank you,

Billy Blau
415 971 4805

March 15, 2023

Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commissioners, Planning Director Hamid, and Town Council:

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

1. **Public Safety:**
    1. **Coverage:** This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have **no mobile phone coverage whatsoever**. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.
    2. **Evacuation:** Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.
    3. **Fewer Accidents:** We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

2. **Economic:**
    1. **Remote Work:** This post-pandemic world of hybrid work environments has us working from home and relying heavily on multiple forms of broadband connectivity, often concurrently, in order to conduct critical business. The same goes for our children who increasingly use digital collaboration tools to complete homework assignments after school and on weekends.
    2. **Property Values:** This project will help all of South Moraga maintain property values and a reputation as a highly desirable East Bay community in which to live and work since most professionals moving to the area use cellular connectivity as a major criterion in their decisions to move here.
    3. **Productivity Enhancements:** Food delivery, contractors, package delivery vehicles and visitors inevitably lose their cellular signals when entering southern Moraga and get lost, drive in circles burning gas loudly with their truck engines, etc. Many residents cannot even take conference calls while walking around the block or running their errands in town.

Brian Horn

Subject: FW: Support for Verizon Wireless network enhancements in Sanders Ranch

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From: Ross Warner <rdwarner9@gmail.com>
Sent: Saturday, April 8, 2023 9:00 AM
To: Planning <planning@moraga.ca.us>
Cc: Afshan Hamid <ahamid@moraga.ca.us>
Subject: Support for Verizon Wireless network enhancements in Sanders Ranch

Dear Planning Commissioners and Planning Director Hamid,

I enthusiastically support Verizon Wireless's network enhancement project in Sanders Ranch for which an application is currently under review and pending your final approval. I encourage the prompt and unanimous approval of this application so the project can be completed before our next wildfire season arrives in a few months. My entire family strongly supports this project for the following reasons:

- Coverage: This enhancement will provide critical connectivity to almost 300 homes in Sanders Ranch (in addition to a thousand more across southern Moraga and to users of Rancho Laguna Park and adjacent hiking trails) that today have no mobile phone coverage whatsoever. This is a matter of public safety. This cellular enhancement will enable any mobile phone on any network to place emergency 911 calls per FCC federal mandate.

- Evacuation: Given the fire risk and geography of our town, mobile connectivity services are essential for emergency evacuations. For example, in October 2019 we unfortunately experienced a 2 AM wildfire event in Sanders Ranch that was made even more frightening by the lack of mobile connectivity. The evacuation of homes was severely impeded and slowed by the need to conduct time consuming door to door notification compared to instantaneous CWS mobile notification. Further, Sanders Ranch residents overwhelmingly rely on VoIP calling via Internet which was inoperable due to a concurrent PG&E power shut down (PSPS) event.

- Fewer Accidents: We frequently encounter lost and distracted contractors, delivery trucks and food delivery vehicles driving the wrong direction or contrary to traffic controls due to a lack of GPS/map connectivity, resulting in close calls with other traffic, cyclists and pedestrians.

- Power Outages: Very recently, the December and January storms created a 3-day power outage (due to a flooded transformer), leaving a large portion of Sanders Ranch without power and communications capability. Having reliable cellular service with backup power - as do most all other neighborhoods in Moraga and elsewhere - will allow us to experience less disruption in our lives and be less impacted by the frequent unplanned and planned power outages.

Overall, the proposed cellular service will significantly improve safety and quality of life for the broader South Moraga community. Key stakeholders for this project (i.e. MOFD, Moraga Police, Verizon, our HOA) have come together in advance of this application to address potential and shared community
concerns that may have existed, particularly as it relates to specific project siting and associated visual impacts. We ask that the Commission promptly approve Verizon's application so construction of this critical infrastructure may commence as soon as possible.

Thank you,

Ross Warner
6 Carey Ct
Moraga, CA, 94556
rdwarner9@gmail.com

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Luke <wordpress@improveyourwireless.com> Wed, Apr 5, 2023 at 3:57 PM
Reply-To: lukewestparsons@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Luke Parsons lukewestparsons@gmail.com

Phone number: 3022452122

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

I'm writing this afternoon to express our full support for the completion of the Verizon Wireless Network addition in the Sanders Ranch community. In my opinion, it is absolutely critical to have this new service added and implemented as quickly as possible. It is almost unfathomable that in 2023, a community within the confines of an actual township or city (i.e. Moraga) would have any issues with obtaining and maintaining consistent, good cellular service of any kind. In addition to being just plain inconvenient to have dropped calls, no cell service, and having the park on Camino Pablo to finish a call before entering the "dead zone," the lack of cellular service is a safety hazard. The safety impact is dramatically and significantly evident with regards to fire safety, wind issues, power outages, and coyotes in the area. And, again, it's 2023 and there should be no reason at all a community such as Sanders Ranch, as a part of a much broader community of Moraga, does not have adequate and complete cellular service in any and all areas of said community.
Please accept this email of support for the completion of the Verizon Wireless Network in Sanders Ranch.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Charlotte and Joseph <wordpress@improveyourwireless.com> Wed, Apr 5, 2023 at 1:47 PM
Reply-To: lisa_osterling@hotmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Charlotte and Joseph Fitzgerald lisa_osterling@hotmail.com

Phone number:

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

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This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Lisa <wordpress@improveyourwireless.com> Wed, Apr 5, 2023 at 1:44 PM
Reply-To: lisaosterling@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Lisa Osterling Fitzgerald lisaosterling@gmail.com

Phone number:

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless's network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

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verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Lisa <wordpress@improveyourwireless.com> Tue, Apr 4, 2023 at 9:57 PM
Reply-To: lisa.b.coe@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Lisa Villarosa lisa.b.coe@gmail.com

Phone number:

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

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This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Joseph <wordpress@improveyourwireless.com> Tue, Apr 4, 2023 at 6:57 PM
Reply-To: fitzgerald.joseph@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Joseph Fitzgerald fitzgerald.joseph@gmail.com

Phone number: 4155192115

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

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verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Kathryn <wordpress@improveyourwireless.com> Tue, Apr 4, 2023 at 1:13 PM
Reply-To: kathi.centerwall@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Kathryn Centerwall kathi.centerwall@gmail.com

Phone number: 9259976003

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

I did not have cell service during a fire evacuation. I was so upset as to how dangerous this is that I pay almost $100 a month for a landline that I don't want or need except for emergency services. I personally heard the police chief state that cellular service in Sanders Ranch is a safety priority. Please approve the new Verizon cellular tower so that we can have the same level of safety and service as the rest of the town.

In addition, all day long, Sanders Ranch homeowners are pulled over to the side on Camino Pablo to finish their calls because they know they will loose service as they approach the community.

My cellular service in my home is non existent. I can only use my cellular phone via the internet and calls are OFTEN dropped. It is VERY frustrating.

For the safety and convenience I the Sanders Ranch community, I urge you to quickly approve the cellular tower and make us more safe before fire season.

Regards
Kathryn Centerwall (52 year Moraga resident)
90 Sanders Ranch Rd
Moraga, CA 94556

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

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This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Alicia <wordpress@improveyourwireless.com> Tue, Apr 4, 2023 at 7:22 AM
Reply-To: aliciaokupeesq@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Alicia Okupe aliciaokupeesq@gmail.com

Phone number: 6509248782

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

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This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Mark <wordpress@improveyourwireless.com> Tue, Apr 4, 2023 at 6:37 AM
Reply-To: mdfenske@yahoo.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Mark Fenske mdfenske@yahoo.com

Phone number:

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Moksha <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 11:16 PM
Reply-To: moksha85@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Moksha Adyanthaya moksha85@gmail.com

Phone number: 5202458207

City: San Francisco

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Jerry <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 9:47 PM
Reply-To: jerrywong100@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Jerry Wong jerrywong100@gmail.com

Phone number: 650-228-4561

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
My schedule may not allow me to attend a public meeting. Please accept this email as a show of my strong support for Verizon Wireless’s network enhancements.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Peter <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 7:06 PM
Reply-To: pmicciche@comcast.net
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Peter Micciche pmicciche@comcast.net

Phone number: 925 899 1460

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Or create your own message:

I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga. Today 2 important calls from our local hospital dropped and were lost. I had to drive to a location with a stronger signal to complete the call.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Lynda <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 6:49 PM
Reply-To: lyndacole@mac.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Lynda Cole lyndacole@mac.com

Phone number: 925 330-4361

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Or create your own message:

Because of the exceptionally poor cell phone reception at my house in Sanders Ranch, I have both a cell phone and a land line. I deeply resent the extra expense I have to incur because of this situation and I am angry that this situation still exists even though I have lived in Sanders Ranch for over 30 years. It is time that this situation be rectified. Thank you.

Lynda Cole

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Mel <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 6:36 PM
Reply-To: ahlborn.mel@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Mel Ahlborn ahlborn.mel@gmail.com

Phone number: 9256994456

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Linda <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 5:18 PM
Reply-To: linokupe@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Linda Okupe linokupe@gmail.com

Phone number: 5309021294

City: Davis

ZIP code: 95618

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Oluyemi <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 5:11 PM
Reply-To: otokupe@yahoo.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Oluyemi Okupe otokupe@yahoo.com

Phone number: 5304003948

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
My schedule may not allow me to attend a public meeting. Please accept this email as a show of my strong support for Verizon Wireless’s network enhancements.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Rolf <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 4:37 PM
Reply-To: rolf.theisen@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Rolf Theisen rolf.theisen@gmail.com

Phone number: 4157947259

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Ron& Kathi <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 4:27 PM
Reply-To: rc@crsrealestate.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Ron& Kathi Centerwall rc@crsrealestate.com

Phone number: 925-963-9670

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Nicole <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 3:51 PM
Reply-To: nantomarchi@mac.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Nicole Antommarchi nantomarchi@mac.com

Phone number: 4152445710

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Tyler <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 3:44 PM
Reply-To: tyler.deshazer@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Tyler DeShazer tyler.deshazer@gmail.com

Phone number: 7074809670

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Marcia <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 3:40 PM
Reply-To: mpaustin@comcast.net
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Marcia Austin mpaustin@comcast.net

Phone number:

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Eduardo <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 2:18 PM
Reply-To: loscarranza@icloud.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Eduardo Carranza loscarranza@icloud.com

Phone number: 4153281254

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Elizabeth <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 2:00 PM
Reply-To: jbmagagna@comcast.net
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Elizabeth Magagna jbmagagna@comcast.net

Phone number: 707-230-4443

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Will <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 1:54 PM
Reply-To: will.mitchell@yahoo.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Will MItchell will.mitchell@yahoo.com

Phone number: 9253601602

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Robert <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 1:37 PM
Reply-To: mjcalonico@aol.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Robert Welch mjcalonico@aol.com

Phone number: 7144230782

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Mary <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 1:35 PM
Reply-To: mjcalonico@aol.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Mary Welch mjcalonico@aol.com

Phone number: 7144230782

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Hi,

Please move this forward. Our phone service in sanders ranch is not reliable and it is necessary to improve the situation to protect us in case of an emergency.

Thank you,
Robert & Mary Welch

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Katie <wordpress@improveyourwireless.com> Mon, Apr 3, 2023 at 1:31 PM
Reply-To: kalautz@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Katie B kalautz@gmail.com

Phone number:

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

I have 1.5 year old twins and when the power goes out I have no way of calling emergency services or anyone for that matter using my cell unless I leave Sanders Ranch. My cell calls are constantly dropping and it is beyond frustrating and scary when you are unable to make a call and keep a connection.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch."

1 message

Dov <wordpress@improveyourwireless.com> Sat, Mar 25, 2023 at 1:15 PM
Reply-To: dov.zimring@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Dov Zimring dov.zimring@gmail.com

Phone number: 8057058813

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch."

1 message

Junaid <wordpress@improveyourwireless.com> Sat, Mar 25, 2023 at 12:45 PM
Reply-To: jgmohiuddin@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Junaid Mohiuddin jgmohiuddin@gmail.com

Phone number: 408-393-2945

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Shant <wordpress@improveyourwireless.com> Fri, Apr 7, 2023 at 7:38 PM
Reply-To: sahagopian@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Shant Hagopian sahagopian@gmail.com

Phone number:

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Ross <wordpress@improveyourwireless.com> Sat, Apr 8, 2023 at 9:08 AM
Reply-To: RDWARNER9@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Ross Warner RDWARNER9@GMAIL.COM

Phone number: 9253600925

City: MORAGA

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Stuart <wordpress@improveyourwireless.com> Sat, Apr 8, 2023 at 1:23 PM
Reply-To: stuartpark@comcast.net
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Stuart Park stuartpark@comcast.net

Phone number: 5103333236

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Andrew <wordpress@improveyourwireless.com> Sat, Apr 8, 2023 at 3:18 PM
Reply-To: amayne@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Andrew Harter amayne@gmail.com

Phone number:

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Carol <wordpress@improveyourwireless.com> Mon, Apr 10, 2023 at 10:16 AM
Reply-To: carjpeng@gmail.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Carol Peng-Fitzpatrick carjpeng@gmail.com

Phone number: 3476938247

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Gilbert <wordpress@improveyourwireless.com> Mon, Apr 10, 2023 at 3:42 PM
Reply-To: gjensen007@comcast.net
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Gilbert Jensen gjensen007@comcast.net

Phone number: 9258762766

City: Moraga

ZIP code: 94556-2820

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Please support Verizon Wireless’s network enhancements in Sanders Ranch and South Moraga. This is important for my family and friends. We want to be able to use our cell phones during emergencies and for 911 calls.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Matthew <wordpress@improveyourwireless.com> Mon, Apr 10, 2023 at 9:39 PM
Reply-To: mphitz@yahoo.com
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Matthew Fitzpatrick mphitz@yahoo.com

Phone number: 4153850168

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Valerie <wordpress@improveyourwireless.com> Sat, Apr 15, 2023 at 8:23 AM
Reply-To: mvmilner@comcast.net
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Valerie Milner mvmilner@comcast.net

Phone number: 925-586-6195

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
I support improved coverage for everyday use and emergencies. I have personally experienced dropped calls, data delays or poor cell phone reception in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

verizon

Stroup, Jeremy <jeremy.stroup@verizonwireless.com>

[E] Verizon "Verizon Wireless's network enhancements in Sanders Ranch and South Moraga."

1 message

Mark <wordpress@improveyourwireless.com> Sat, Apr 15, 2023 at 8:43 AM
Reply-To: mark.milner@comcast.net
To: supportwireless@verizonwireless.com, jeremy.stroup@verizonwireless.com

From: Mark Milner mark.milner@comcast.net

Phone number: 925-876-7599

City: Moraga

ZIP code: 94556

Subject: Verizon Wireless's network enhancements in Sanders Ranch and South Moraga.

Message Body:
Or create your own message:

The fire that occurred in the Sanders Ranch area in October, 2019 and the related poor evacuation notice was dramatic evidence of the poor cell service available in Sanders Ranch. This emergency was only the most public display of the issue, however. We regularly face poor and dropped connections, slow texting of any type of file beyond written text, slow receipt of texts and calls, extremely limited ability to use the cell system as a hotspot if Comcast cable is down, and the inability of friends, vendors, contractors and others to connect to any cell service. Our community, as well as those in the Larch Avenue and Rimer Avenue areas, deserve better. While we love the semi-rural nature of our town we desperately need to improve the cell infrastructure to meet the increasing demands of our technology driven lives. For the sake of safety, working from home, convenience, competition, home values, and improved livability please support Verizon's network enhancements in Sanders Ranch and South Moraga.

Keep me informed of issues that impact the Verizon Wireless network in Sanders Ranch and South Moraga., I would consider attending a public hearing. Please send me more information.

--
This e-mail was sent from a contact form on Verizon https://improveyourwireless.com/

ATTACHMENT J

Verizon Wireless Attorney Letter

MACKENZIE & ALBRITTON LLP
155 SANSOME STREET, SUITE 800
SAN FRANCISCO, CALIFORNIA 94104

TELEPHONE 415 / 288-4000
FACSIMILE 415 / 288-4010

September 25, 2023

VIA EMAIL

Chair Ben Helber
Vice Chair Brenda Luster
Commissioners Marcus Bode, Alexis Mapel,
Nicholas Polsky, Graham Thiel, and Eric Lentell
Planning Commission
Town of Moraga
329 Rheem Boulevard
Moraga, California 94556

Re: Verizon Wireless Applications UP-06-22, HDP-02-22, GR-02-22, DRB-03-22
Wireless Telecommunications Facility, Sanders Ranch Road
Planning Commission Agenda October 3, 2023

Dear Chair Helber, Vice Chair Luster and Commissioners:

We write on behalf of Verizon Wireless to request that you approve its proposed wireless facility located on an existing PG&E electric transmission tower (the "Proposed Facility"). Verizon Wireless worked with PG&E and the Sanders Ranch Homeowners Association to design a facility that will pose minimal visual impact while providing new, reliable wireless service where lacking in southern Moraga. The Proposed Facility complies with the wireless facility standards of the Moraga Municipal Code (the "Code") and satisfies the findings for a use permit, hillside development permit, and grading permit. Both the Proposed Facility and the new access road have been approved by the Moraga-Orinda Fire District. The draft mitigated negative declaration prepared pursuant to the California Environmental Quality Act ("CEQA") confirms that the project will result in less than significant environmental impacts with recommended mitigation measures.

Verizon Wireless chose the Proposed Facility location after the Sanders Ranch HOA requested improved service for its residents following an October 2019 fire near St. Mary's College, during which the neighborhood was evacuated. The Proposed Facility will also serve other areas of southern Moraga, and it will enable residents, regardless of their service provider, to call 911 during an emergency. We urge you to approve the Proposed Facility.

I. Project Description

The Proposed Facility has been thoughtfully designed to minimize any impact on the surrounding area. The existing PG&E lattice transmission tower is 107.3 feet in

height, located on a 100-acre common area property owned by the Sanders Ranch HOA. Verizon Wireless proposes to mount six panel antennas on an eight-foot lattice extension above the PG&E transmission tower, resulting in a total height of 115 feet 7 inches. On the tower legs below the electric conductors, Verizon Wireless will mount three small panel antennas, six radios and two surge suppressors at 45 feet, as well as one small microwave dish antenna at 35 feet. Verizon Wireless will install associated network equipment on a 19-by-19 foot concrete slab below the tower, including a standby generator to provide continued service during emergencies. The equipment area will be surrounded by an eight-foot composite fence. PG&E will install a transformer on an approximately 4-by-4.5 foot concrete pad north of the tower, surrounded by protective bollards. Also north of the tower, Verizon Wireless will install a 3,000-gallon water tank 7.6 feet tall on a 10-by-10-foot concrete pad, as required by the Fire District.

To provide safe access to the Proposed Facility for workers and emergency personnel, Verizon Wireless will construct a new 1,330-foot long access road connecting to Sanders Ranch Road to the north, as well as a fire truck turnaround next to the water tank. New underground utility connections will be routed under the new road. Verizon Wireless's new access road will not cross the Old Moraga Ranch trail, which is located on private parcels to the west under different ownership.

Photosimulations of the Proposed Facility are attached as Exhibit A. A radio frequency exposure compliance report prepared by Waterford Consultants, attached as Exhibit B, confirms that the Proposed Facility will comply with Federal Communications Commission ("FCC") radio frequency exposure guidelines. A noise compliance report, also prepared by Waterford Consultants and attached as Exhibit C, confirms that the Proposed Facility will comply with the Town's noise limits.

II. The Proposed Facility Satisfies All Requirements for Approval.

The Proposed Facility complies with all Code requirements. Wireless facilities are permitted in any zone with approval of a conditional use permit. Code § 8.144.080(A). Placed on an existing PG&E transmission tower instead of a new tower, the Proposed Facility meets the Code's requirement to collocate with existing utility facilities if that is possible and minimizes overall visual impact. Code §§ 8.144.020(definition of "collocation"), 8.144.030(D). Due to the Proposed Facility's location in an OS-M MOSO open space zone, the Planning Commission must make special findings, as described further below.

The Code prohibits antennas and equipment closer than 300 feet from a residential structure, and closer than 100 from a residential property line. Code § 8.144.030(I). The Proposed Facility exceeds both of these required setbacks. The project plans confirm that the PG&E tower is located 379 feet from the closest residence northeast, and 214 feet from the closest residential property line northeast.

The Proposed Facility also satisfies the findings for a conditional use permit. Code § 8.12.120. Of note, it is appropriate to the specific location and will not encourage marginal development in the neighborhood, because antennas will be placed on existing utility infrastructure, with a height increase of less than 8 percent above the existing 107.3-foot PG&E tower. The Town has previously approved a similar wireless facility on a PG&E tower in the OS-M zone, northeast of Fay Hill Road (UP 08-2020). The Proposed Facility will not be detrimental to public health, safety or general welfare because it will comply with the FCC's radio frequency exposure guidelines and Town noise limits, and the Moraga-Orinda Fire District has approved the wireless equipment and access road. In fact, the Proposed Facility will provide an important public benefit by providing new, reliable wireless service where lacking in southern Moraga, benefitting residents and emergency service personnel.

Use of the existing PG&E tower avoids the need for a new tower in Moraga, thereby minimizing visual impacts, protecting scenic resources, and maintaining semi-rural feel, as required by the findings for a hillside development permit. Code § 8.136.050. Verizon Wireless's proposal will also protect biological and other environmental resources as confirmed by the draft mitigated negative declaration. The Proposed Facility satisfies the design review findings because the small equipment components placed on existing utility infrastructure will not detract from the Town's character and spaciousness, will not make the environment less desirable, and will not be of inferior quality. Code § 8.72.080(B).

As to the grading permit, Verizon Wireless's detailed plans and reports for the access road and other improvements confirm compliance with required standards, including no detriment to public safety. Code § 14.12.030. The geotechnical engineering report by Krazan & Associates, Inc. includes recommendations for soils preparation, excavation, cuts and fills, as well as erosion control measures such as new vegetation. Reports by LETS America, Inc. confirm the structural sufficiency of the proposed concrete pads and retaining walls. With respect to stormwater runoff, the drainage report by JD Design & Consulting Engineers concludes that the tower and access road will have no significant drainage impact downstream.

In sum, the Proposed Facility complies with all Town requirements for approval.

III. The Proposed Facility Satisfies the Special Findings for Wireless Facilities in the OS-M MOSO Open Space Zone.

The Code requires special findings because the Proposed Facility will be located in the OS-M MOSO open space zone with an average slope exceeding 20 percent and the access road will cross a minor ridgeline. The Planning Commission must find that there is no other optimal location for Verizon Wireless to provide adequate coverage, and that requiring compliance with certain OS-M zone development standards would violate federal law. Code §§ 8.144.060(A), (B).

According to the federal Telecommunications Act, a local government's denial of a wireless facility permit constitutes an effective prohibition of service if the wireless provider shows that it has a "significant gap" in service, and that a proposed facility is the "least intrusive means" to fill the gap based on the land use values embodied in local regulations. *See* 47 U.S.C. § 332(c)(7)(B)(i)(II); *see* also *T-Mobile USA, Inc. v. City of Anacortes,* 572 F.3d 987 (9th Cir. 2009). If a provider proves both elements, the local government *must* approve the facility, even if there is substantial evidence for denial under the local code, because the provider has demonstrated that denial would "have the effect of prohibiting the provision of personal wireless services." *Id.* at 999.

There is a significant gap in Verizon Wireless service coverage in the southern Moraga area, as described in the *Statement of Verizon Wireless Radio Frequency Design Engineer Stefano Iachella* attached as Exhibit D. Reliable in-building service is lacking in surrounding residential areas, and there is no reliable in-vehicle service along local roadways. In some areas, there a complete lack of reliable service. Optimally located on a tall structure at a high elevation, the Proposed Facility will provide new Verizon Wireless service coverage to surrounding residential areas and roadways.

The *Alternatives Analysis* attached as Exhibit E confirms that the Proposed Facility is the least intrusive feasible alternative to fill the Significant Gap. The Proposed Facility satisfies the Code's requirement to collocate new facilities, which includes collocation on utility structures, and therefore avoids construction of a new tower in an open space area, which would be more intrusive. Code §§ 8.144.020 (definition of "Collocation"), 8.144.030(D).

Requiring strict compliance with OS-M zone standards would lead to a prohibition of service in violation of the Telecommunications Act. Prohibiting facilities in the OS-M zone would disqualify the option of collocating on the PG&E tower that supports the Proposed Facility, as well as other PG&E towers to the north in the OS-M zone described in the *Alternatives Analysis*. Placement in surrounding lower-elevation residential zones would be barred due to a similar Code prohibition as well as the absolute setbacks of 300 feet from residential structures and 100 feet from residential property lines. Code §§ 8.144.030(I). 8.144.050. The closest business and commercial areas are one mile north, beyond the service gap area.

In sum, the Verizon Wireless engineer's statement and the Alternatives Analysis provide the evidence to allow the Planning Commission to find that there is no other optimal location that can provide adequate coverage, and to permit the Proposed Facility in the OS-M MOSO open space zone.

IV. The Proposed Facility Will Result in Less than Significant Environmental Impacts with Mitigation.

In compliance with CEQA, Town staff prepared an initial study and draft mitigated negative declaration, which confirm that the Proposed Facility will result in

less than significant environmental impacts with recommended mitigation measures. The only mitigation measures required address temporary impacts during the construction phase, including implementation of Krazan & Associates' grading recommendations, control of dust emissions, surveying and protection of any bird nests, and consultation with archeologists or tribal representatives if fossils or cultural resources are encountered during construction. The draft mitigated negative declaration found no significant ongoing environmental impacts after construction.

Conclusion

Verizon Wireless has worked diligently to design a wireless facility placed on existing infrastructure that will pose minimal visual impact to the surrounding area. The Proposed Facility complies with all requirements of the Moraga Municipal Code, and it satisfies the findings for a use permit, hillside development permit, and grading permit. Providing new reliable, wireless service is essential for local residents, visitors, and emergency personnel. We urge you to approve the Proposed Facility.

Very truly yours,

Paul B. Albritton

cc: Denise Bazzano, Esq.
Brian Horn

Schedule of Exhibits

Exhibit A: Photosimulations
Exhibit B: RF Exposure Compliance Report by Waterford Consultants
Exhibit C: Noise Compliance Report by Waterford Consultants
Exhibit D: Statement of Verizon Wireless RF Engineer Stefano Iachella
Exhibit E: Alternatives Analysis

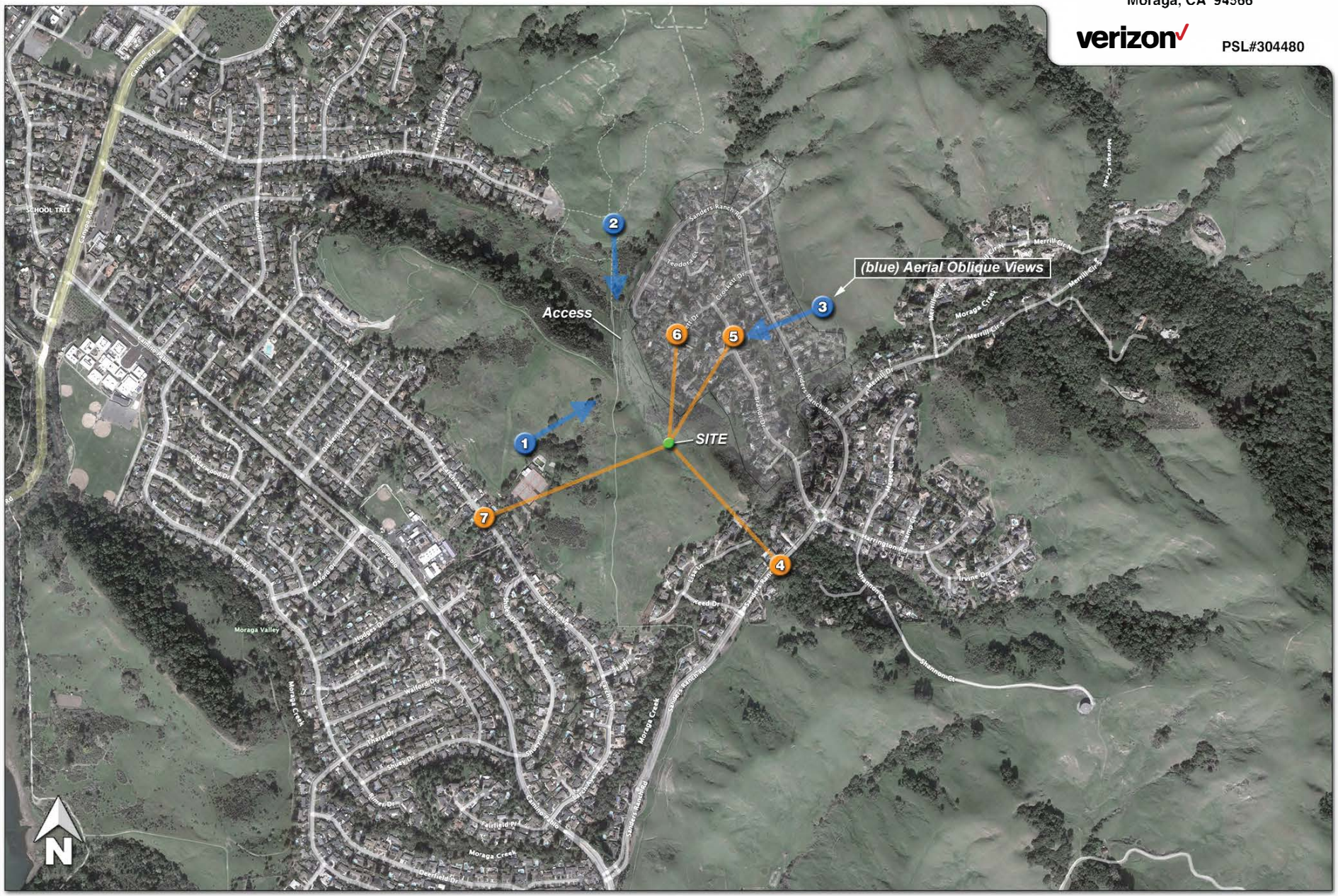
Exhibit A

Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

PSL#304480

Aerial map showing the drone viewpoints for the photosimulations.



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Version Date: August 14, 2023



Photosimulation of the view looking northeast from an aerial viewpoint above the ridge, looking toward Sanders Ranch.

Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

PSL#304480



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Photosimulation of the view looking due south from above the Old Moraga Ranch Trail.



Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

PSL#304480

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Version Date: August 14, 2023

Photosimulation of the view looking due south from above the Old Moraga Ranch Trail.



Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

PSL#304480

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Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

Photosimulation of the view looking to the southwest from above Sanders Ranch.

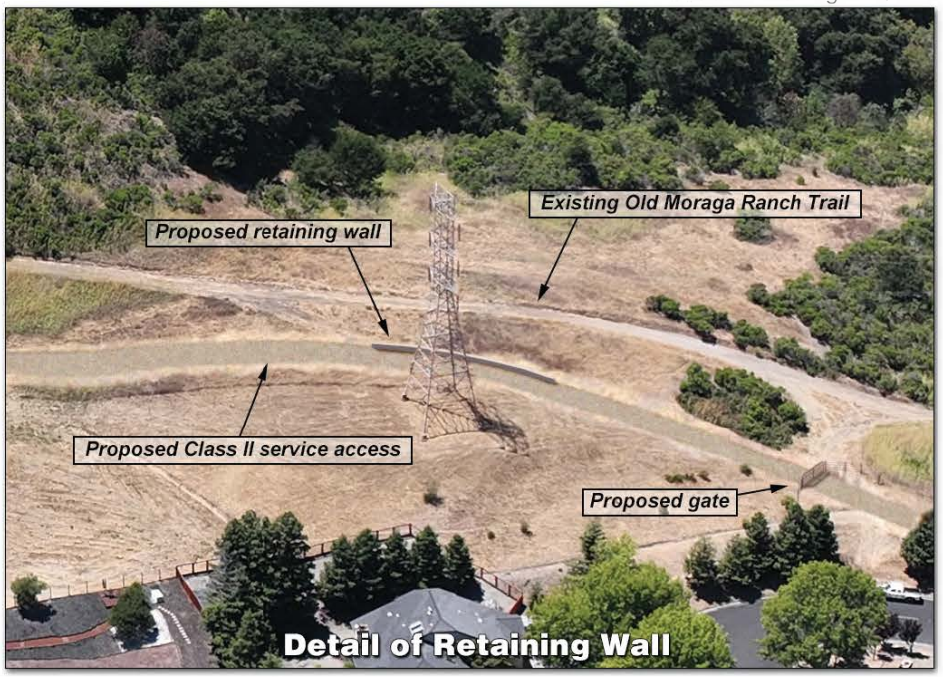
verizon PSL#304480



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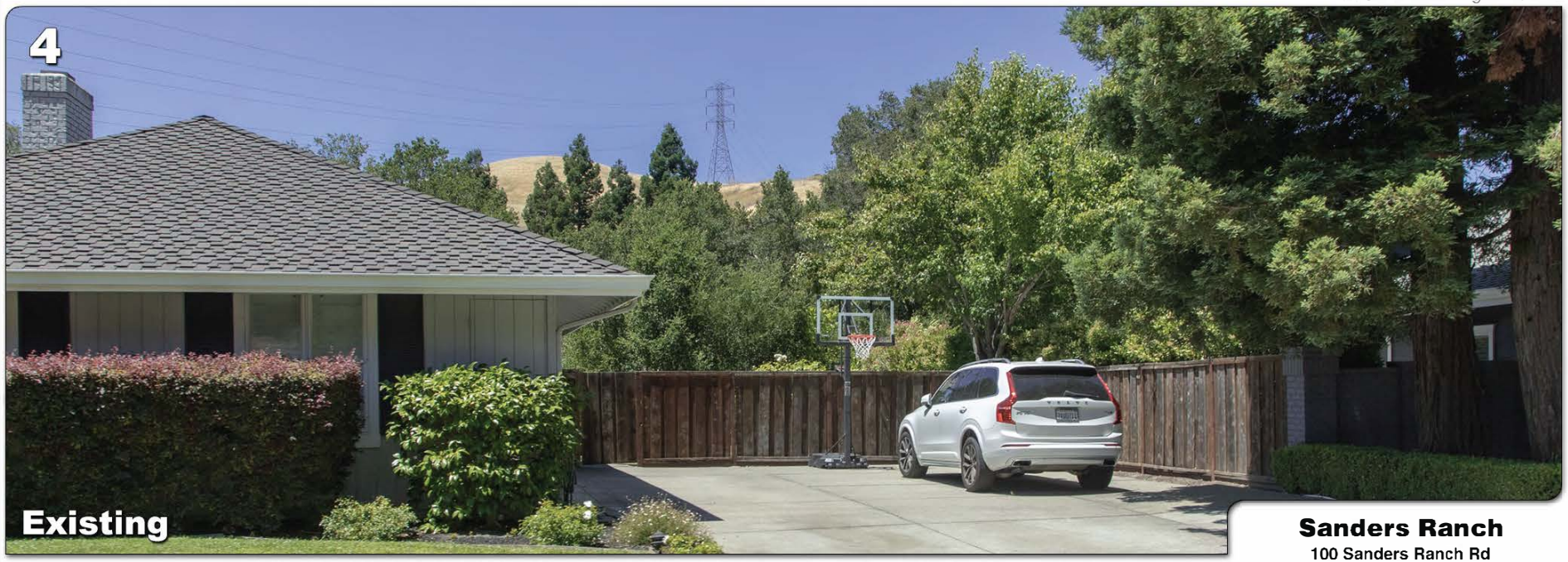


Photosimulation with zoom detail callouts of the view looking to the southwest from above Sanders Ranch.



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Photosimulation of the view looking northwest from Sanders Ranch Road.

Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

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Photosimulation of the view looking southwest from Brandt Drive at Hastings Court.

Sanders Ranch
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Moraga, CA 94566

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Version Date: August 14, 2023



Photosimulation of the view looking south at the end of Crockett Drive.

Sanders Ranch
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Moraga, CA 94566

verizon

PSL#304480



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Sanders Ranch
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Moraga, CA 94566

verizon

PSL#304480

Photosimulation of the view looking east-northeast from a drone above Larch Ave, at the closed tennis club.



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Exhibit B

Radio Frequency Emissions Compliance Report For Verizon Wireless

Site Name:	**Sanders Ranch**	**Site Structure Type:**	**Self-Support Tower**
Address:	**100 Sanders Ranch Road**	**Latitude:**	**37.823808**
	Moraga, CA 94566	**Longitude:**	**-122.11445**
Report Date:	**July 26, 2022**	**Project:**	**Modification**

Compliance Statement

Based on information provided by Verizon Wireless and predictive modeling, the Sanders Ranch installation proposed by Verizon Wireless will be compliant with Radiofrequency Radiation Exposure Limits of 47 C.F.R. §§ 1.1307(b)(3) and 1.1310. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings. As predicted RF power densities will not exceed the FCC General Population limits, no mitigation action other than restricting access to the tower is required to achieve or maintain compliance.

Certification

I, David C. Cotton, Jr., am the reviewer and approver of this report and am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation, specifically in accordance with FCC's OET Bulletin 65. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

General Summary

The compliance framework is derived from the Federal Communications Commission (FCC) Rules and Regulations for preventing human exposure in excess of the applicable Maximum Permissible Exposure ("MPE") limits. At any location at this site, the power density resulting from each transmitter may be expressed as a percentage of the frequency-specific limits and added to determine if 100% of the exposure limit has been exceeded. The FCC Rules define two tiers of permissible exposure differentiated by the situation in which the exposure takes place and/or the status of the individuals who are subject to exposure. General Population / Uncontrolled exposure limits apply to those situations in which persons may not be aware of the presence of electromagnetic energy, where exposure is not employment-related, or where persons cannot exercise control over their exposure. Occupational / Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure. Based on the criteria for these classifications, the FCC General Population limit is considered to be a level that is safe for continuous exposure time. The FCC General Population limit is 5 times more restrictive than the Occupational limits.

In situations where the predicted MPE exceeds the General Population threshold in an accessible area as a result of emissions from multiple transmitters, FCC licensees that contribute greater than 5% of the aggregate MPE share responsibility for mitigation.

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Table 1: FCC Limits

Frequency (MHz)	*Limits for General Population/ Uncontrolled Exposure*		*Limits for Occupational/ Controlled Exposure*	
	Power Density (mW/cm^2)	**Averaging Time (minutes)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
30-300	0.2	30	1	6
300-1500	f/1500	30	f/300	6
1500-100,000	1.0	30	5.0	6

f=Frequency (MHz)

Based on the computational guidelines set forth in FCC OET Bulletin 65, Waterford Consultants, LLC has developed software to predict the overall Maximum Permissible Exposure possible at any location given the spatial orientation and operating parameters of multiple RF sources. The power density in the Far Field of an RF source is specified by OET-65 Equation 5 as follows:

$$S = \frac{EIRP}{4 \cdot \pi \cdot R^2} \ (\mathrm{mW/cm^2})$$

where EIRP is the Effective Radiated Power relative to an isotropic antenna and R is the distance between the antenna and point of study. Additionally, consideration is given to the manufacturers' horizontal and vertical antenna patterns as well as radiation reflection. At any location, the predicted power density in the Far Field is the spatial average of points within a 0 to 6-foot vertical profile that a person would occupy. Near field power density is based on OET-65 Equation 20 stated as

$$S = \left(\frac{180}{\theta_{BW}}\right) \cdot \frac{100 \cdot P_{in}}{\pi \cdot R \cdot h} \ (\mathrm{mW/cm^2})$$

where P_{in} is the power input to the antenna, θ_{BW} is the horizontal pattern beamwidth and h is the aperture length.

Some antennas employ beamforming technology where RF energy allocated to each customer device is dynamically directed toward their location. In the analysis presented herein, predicted exposure levels are based on all beams at full utilization (i.e. full power) simultaneously focused in any direction. As this condition is unlikely to occur, the actual power density levels at ground and at adjacent structures are expected to be less that the levels reported below. These theoretical results represent maximum-case predictions as all RF emitters are assumed to be operating at 100% duty cycle.

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Analysis

Verizon Wireless proposes the following installation at this location:

- (6) NEW VERIZON WIRELESS 6' TALL PANEL ANTENNS
- (3) NEW VERIZON WIRELESS AIR 6449 ANTENNAS
- (1) NEW VERIZON WIRELESS 2' MICROWAVE ANTENNAS
- (6) NEW VERIZON WIRELESS RADIOS, (2) PER SECTOR, (ERIXSSON 4449 & 8843)

The antennas will be mounted on a 115'-7'' self-support tower with centerlines 112, 45 & 35 feet above ground level. Proposed antenna operating parameters are listed in Appendix A. Other appurtenances such as GPS antennas, RRUs and hybrid cable below the antennas are not sources of RF emissions. No other antennas are known to be operating in the vicinity of this site.



Figure 1: Antenna Locations

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Power density decreases significantly with distance from any antenna. The panel-type antennas to be employed at this site are highly directional by design and the orientation in azimuth and mounting elevation, as documented, serves to reduce the potential to exceed MPE limits at any location other than directly in front of the antennas. For accessible areas at ground level, the maximum predicted power density level resulting from all Verizon Wireless operations is 38.594% of the FCC General Population limits. Incident at adjacent buildings depicted in Figure 1, the maximum predicted power density level resulting from all Verizon Wireless operations is 1.386% of the FCC General Population limits. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings. As predicted RF power densities will not exceed the FCC General Population limits, no mitigation action other than restricting access to the tower is required to achieve or maintain compliance.

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Appendix A: Operating Parameters Considered in this Analysis

Antenna #:	Carrier:	Manufacturer	Pattern:	Band (MHz):	Mech Az (deg):	Mech DT (deg):	H BW (deg):	Length (ft):	TPO (W):	Channels:	Loss (dB):	Gain (dBd):	ERP (W):	EIRP (W):	Rad Center (ft):
1	Verizon	JMA	MX06FIT665-02 06DT	700	60	0	67	5.9	40	2	0	11.95	1253	2056	112
1	Verizon	JMA	MX06FIT665-02 06DT	850	60	0	58	5.9	40	2	0	12.75	1507	2472	112
1	Verizon	JMA	MX06FIT665-02 04DT	1900	60	0	61	5.9	20	4	0	14.85	2444	4009	112
2	Verizon	JMA	MX06FIT665-02 06DT	700	60	0	67	5.9	40	2	0	11.95	1253	2056	112
2	Verizon	JMA	MX06FIT665-02 06DT	850	60	0	58	5.9	40	2	0	12.75	1507	2472	112
2	Verizon	JMA	MX06FIT665-02 04DT	2100	60	0	56	5.9	40	4	0	14.95	5002	8206	112
2	Verizon	JMA	MX06FIT665-02 04DT	2100	60	0	56	5.9	20	4	0	14.95	2501	4103	112
3	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	60	0	11	2.8	320	1	3	23.55	36320	59587	45
4	Verizon	JMA	MX06FIT665-02 06DT	700	195	0	67	5.9	40	2	0	11.95	1253	2056	112
4	Verizon	JMA	MX06FIT665-02 06DT	850	195	0	58	5.9	40	2	0	12.75	1507	2472	112
4	Verizon	JMA	MX06FIT665-02 04DT	1900	195	0	61	5.9	20	4	0	14.85	2444	4009	112
5	Verizon	JMA	MX06FIT665-02 06DT	700	195	0	67	5.9	40	2	0	11.95	1253	2056	112
5	Verizon	JMA	MX06FIT665-02 06DT	850	195	0	58	5.9	40	2	0	12.75	1507	2472	112
5	Verizon	JMA	MX06FIT665-02 04DT	2100	195	0	56	5.9	40	4	0	14.95	5002	8206	112
5	Verizon	JMA	MX06FIT665-02 04DT	2100	195	0	56	5.9	20	4	0	14.95	2501	4103	112
6	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	195	0	11	2.8	320	1	6	23.55	18203	29864	45
7	Verizon	JMA	MX06FIT665-02 06DT	700	300	0	67	5.9	40	2	0	11.95	1253	2056	112
7	Verizon	JMA	MX06FIT665-02 06DT	850	300	0	58	5.9	40	2	0	12.75	1507	2472	112
7	Verizon	JMA	MX06FIT665-02 04DT	1900	300	0	61	5.9	20	4	0	14.85	2444	4009	112
8	Verizon	JMA	MX06FIT665-02 06DT	700	300	0	67	5.9	40	2	0	11.95	1253	2056	112
8	Verizon	JMA	MX06FIT665-02 06DT	850	300	0	58	5.9	40	2	0	12.75	1507	2472	112
8	Verizon	JMA	MX06FIT665-02 04DT	2100	300	0	56	5.9	40	4	0	14.95	5002	8206	112
8	Verizon	JMA	MX06FIT665-02 04DT	2100	300	0	56	5.9	20	4	0	14.95	2501	4103	112
9	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	300	0	11	2.8	320	1	3	23.55	36320	59587	45
10	Verizon	ANDREW	VHLP2-18	18000	347.2	0	2.1	2	0.2	1	0	37	1002	1644	35

Notes: Table depicts recommended operating parameters for Verizon Wireless proposed operations.

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Exhibit C

July 21, 2022

SAC Wireless
540 West Madison Street, 8th Floor
Chicago, IL 60661

Re: **Noise Assessment Letter**
Verizon Sanders Ranch Site
100 Sanders Ranch Road
Moraga, CA 94566

Sanders Ranch is a proposed Verizon telecommunications macro site located in Town of Moraga, CA. Verizon is proposing to add a pre-manufactured equipment cabinet with a door mounted heat exchanger and a new emergency backup generator. Based on our review of the project drawings and technical specifications, the following is a summary of our noise assessment of the proposed equipment.

Town of Moraga, Exterior noise limits
Sustained over five-minute noise shall not exceed the 55 dB during daytime hours and 50 Db during nighttime hours (beginning one hour after sunset) inside of a residence with all windows and doors closed.

NOISE ANALYSIS

Of the supporting equipment planned for this project, Table 1 below presents the primary noise sources of concern.

Table 1 – Supporting Equipment Noise Data

Noise Source	Equipment Type	Make	Model	Size	Manufacturer's Published Noise Data (dBA)	Noise Data Reference Distance (ft)
A	Heat Exchanger	Charles Industries	6000W HX	--	65	5
B	Generator	Generac	SDC20	20 KW	65 (1)	23

[1] Sound pressure is based on Gen Set with Level 2 sound attenuated enclosure, full-load operating conditions.

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Our review of the package did not reveal any other significant noise sources. The equipment is proposed to be installed on private property behind an 8' high composite fence. Ambient noise is not considered in this study.

To properly present this assessment, our noise modeling has assumed following scenarios: 1) Heat Exchanger on the pre-manufactured equipment cabinet runs continuously; 2) the generator is operating in the full load condition; 3) Ambient noise is not considered; 4) other existing on-site equipment creating noises are ignored and 5) other fencing/landscaping currently on site is not taken into consideration.

The site and its adjacent properties are located within the City limits of Moraga, CA and the telecommunication site will sit below an electric transmission tower within APN 258-300-019. The nearest adjacent residential property line is located to the North-East (APN 258-693-019). The measurement of sound shall be taken from the nearest private site's property line, towards the source of the sound, which equates to **226 ft** distance from cabinet heat exchanger to the property line and **230 ft** from the generator to property line.

Generator is for emergency backup during power failure conditions. Generator is exercised once a week for one half hour maximum during daytime hours only. A/C unit on the pre-manufactured cabinet can run continuously and will run during day and nighttime. Noise levels measurements per Table 1, calculated to the property line of the nearest residence, is as follows:

Noise Source 'A' – A/C Cabinet = 23.9 dBA
Noise Source 'B' – Generator = 35.4 dBA

Combined Sources **– Total of 35.7 dBA**

Based on Town of Moraga's noise standard, a noise level of **35.7 dBA** is considered acceptable during any time of the day or night. The combined anticipated level of the cabinet's A/C unit and the Generator both meet the city's standard even though only the A/C units are expected to run simultaneously at night. Noise levels were calculated to the property line and not the inside of the residence as stated in the standard. So as sound pressure levels attenuate with increasing distance from the sound source, noise levels at the residences are anticipated to be less than 50 dBAs, meeting the noise standards outlined in this report.

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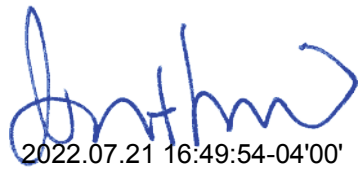
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Frederick, MD 21703
(703) 596-1022 Office
(540) 242-3195 Fax
www.waterfordconsultants.com

CONCLUSION

Based on the project documentation, our noise assessment indicates that the proposed Verizon Telecommunications Facility complies with requirements mandated by Town of Moraga at all residences per stated noise metrics outlined in the requirements above. To avoid any misunderstanding, I hereby state that to the best of my knowledge, belief and professional judgment, this report represents an accurate appraisal of Verizon's equipment, based upon careful evaluation of Manufacturer's data to the extent reasonably possible.

Please reach out if I can be of further assistance.

Respectfully Submitted
For the Firm,



2022.07.21 16:49:54-04'00'
Robert J Lara,

Exhibit D

2785 Mitchell Drive
Walnut Creek, CA 94598

October 31, 2022

To: Moraga Planning Department

From: Stefano Iachella, Radio Frequency Design Engineer
Verizon Wireless Network Engineering Department

Subject: Statement in Support of Verizon Wireless's Proposed Facility
100 Sanders Ranch Road

Executive Summary

Verizon Wireless has identified a significant gap in service in southern Moraga. This area currently receives inadequate service from distant existing Verizon Wireless facilities: the Rheem Valley facility 2.5 miles north, and the Moraga Way facility in Orinda 3.0 miles northwest, both on PG&E transmission towers. While the closest existing facility is the Moraga facility 0.9 miles north, it is located beyond the crest of a hill. The Rossmore facility 3.3 miles east and the Oakland Hills facilities over 3.5 miles west cannot serve the gap due to great distance and intervening topography. There are no facilities in the vacant area to the south.

Due to the distance from the existing facilities and intervening topography, there is a gap in reliable service coverage and a lack of strong dominant signal in the southern Moraga area, resulting in slow data speeds and unreliable service.

In the Moraga area, the vast majority of Verizon Wireless's bandwidth is in the mid-band AWS, PCS and C-Band frequencies, with a smaller amount in the low-band 700 MHz and 850 MHz frequencies. The low-band frequencies travel farther and are essential for providing reliable coverage to a target service area to ensure that customers can access the network. Mid-band frequencies supplement coverage and provide additional data capacity. Together, reliable low-band and mid-band service are important for residents, visitors, users in transit, and contact with emergency response personnel.

I describe below the significant gap in coverage that Verizon Wireless seeks to remedy (the "Significant Gap"). To provide reliable coverage and strong dominant signal, the Significant Gap must be remedied through construction of a new facility on an existing PG&E lattice transmission tower (the "Proposed Facility").

Verizon Wireless Bandwidth by Frequency – Moraga Area

	Band	FCC Designation	Frequency Band	Bandwidth	Percent of Total Bandwidth
Low-band	700 MHz	UHF Low Band	700 MHz	22 MHz	12.08 %
	850 MHz	Cellular	850 MHz	20 MHz	10.99 %
Mid-band	PCS	Personal Communications Service	1900 MHz	20 MHz	10.99 %
	AWS	Advanced Wireless Service	2100 MHz	60 MHz	32.97 %
	C-Band	C-Band	3700 MHz	60 MHz	32.97 %

Verizon Wireless Services

Verizon Wireless provides personal wireless services, a category of "telecommunications services," which include voice services that allow users of mobile, handheld telephones to place and receive calls to other mobile and landline telephone users through the national, switched telephone network using conventional telephone numbers. This includes the ability of such users to connect to emergency personnel by dialing 911. Verizon Wireless's network also provides information services through its wireless facilities, which will include the Proposed Facility. These information services include wireless broadband, mobile data networks, and connection to the internet, which Verizon Wireless provides using the same infrastructure as its personal wireless services.

Coverage Gap

Verizon Wireless is experiencing a gap in its service coverage in the southern Moraga area. Reliable 700 MHz in-building service is lacking in residential areas west and east of Canyon Road south of Sanders Drive, the residential areas farther south along Larch Avenue and Camino Pablo, and the Sanders Ranch neighborhood.

Reliable 700 MHz in-vehicle service is lacking on a 1.2-mile stretch of Camino Pablo east of Dickenson Drive extending to Rancho Laguna Park (with 4,725 vehicle trips per day), a 1.0-mile stretch of Larch Avenue east of Lynch Court extending to Camino Pablo (with 1,280 vehicle trips per day), and the entire 1.4-mile stretch of Sanders Ranch Road east of Camino Pablo. *Town of Moraga Engineering and Traffic Surveys for Speed Limits,* March 2013.

Within these areas, there is also a lack of reliable AWS service, including a near-complete lack of AWS service in residential areas along Larch Avenue and Camino Pablo. In the southern portion of the gap, in areas near the junction of Camino Pablo and Sanders Ranch Road, there is no reliable service whatsoever in any frequency band.

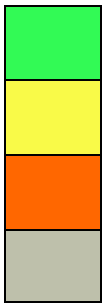
To remedy the Significant Gap, Verizon Wireless must place a new facility to ensure reliable network service. The Proposed Facility will provide new, reliable

700 MHz service where lacking in the residential areas along Canyon Road, Larch Avenue and Camino Pablo, as well as the Sanders Ranch neighborhood. It will also provide new, reliable 700 MHz in-vehicle service to local roadways where lacking, as described above. Additionally, the Proposed Facility will provide new reliable AWS service within the gap area. In total, the Proposed Facility will provide reliable in-building coverage above -85 dBm to an area of 4.2 square miles with a population of 3,700.

A graphic description of the coverage gap is shown on the following coverage map, followed by a map showing the improved coverage to be provided by the Proposed Facility. Maps have been prepared for each the 700 MHz and AWS frequency bands. With similar frequencies, the low-band 700 MHz and 850 MHz bands have similar propagation characteristics, as do the mid-band PCS, AWS and C-Band bands.

Referenced signal receive power (RSRP) is a measurement of signal level in decibel milliwatts (dBm), which is a negative number that decreases due to distance and other factors.

The RSRP coverage thresholds on the coverage maps are:



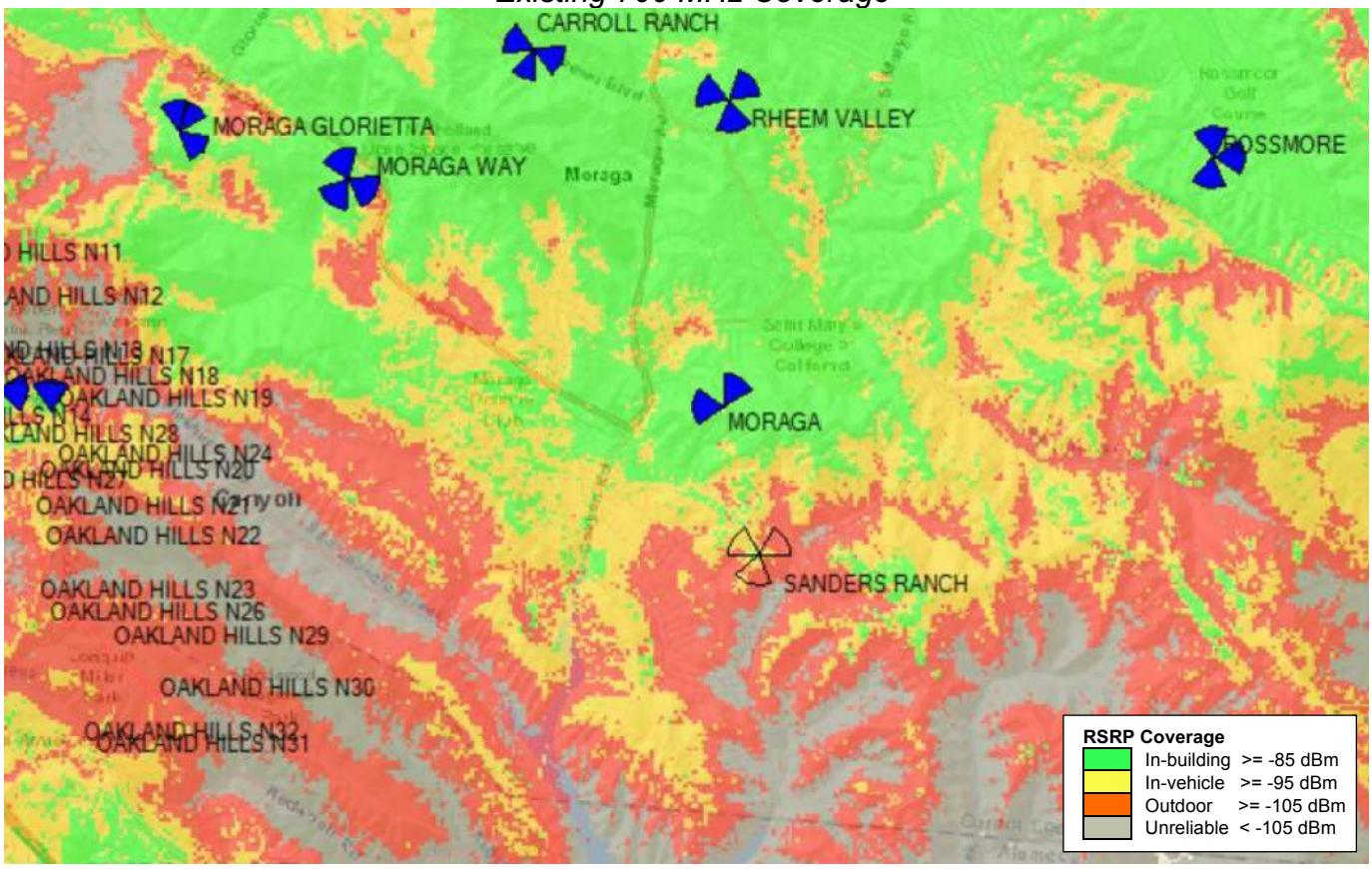
In-building >= -85 dBm. Green depicts good coverage that meets or exceeds thresholds for reliable network coverage in homes and vehicles.

In-vehicle >= -95 dBm. Yellow depicts reliable in-vehicle coverage only.

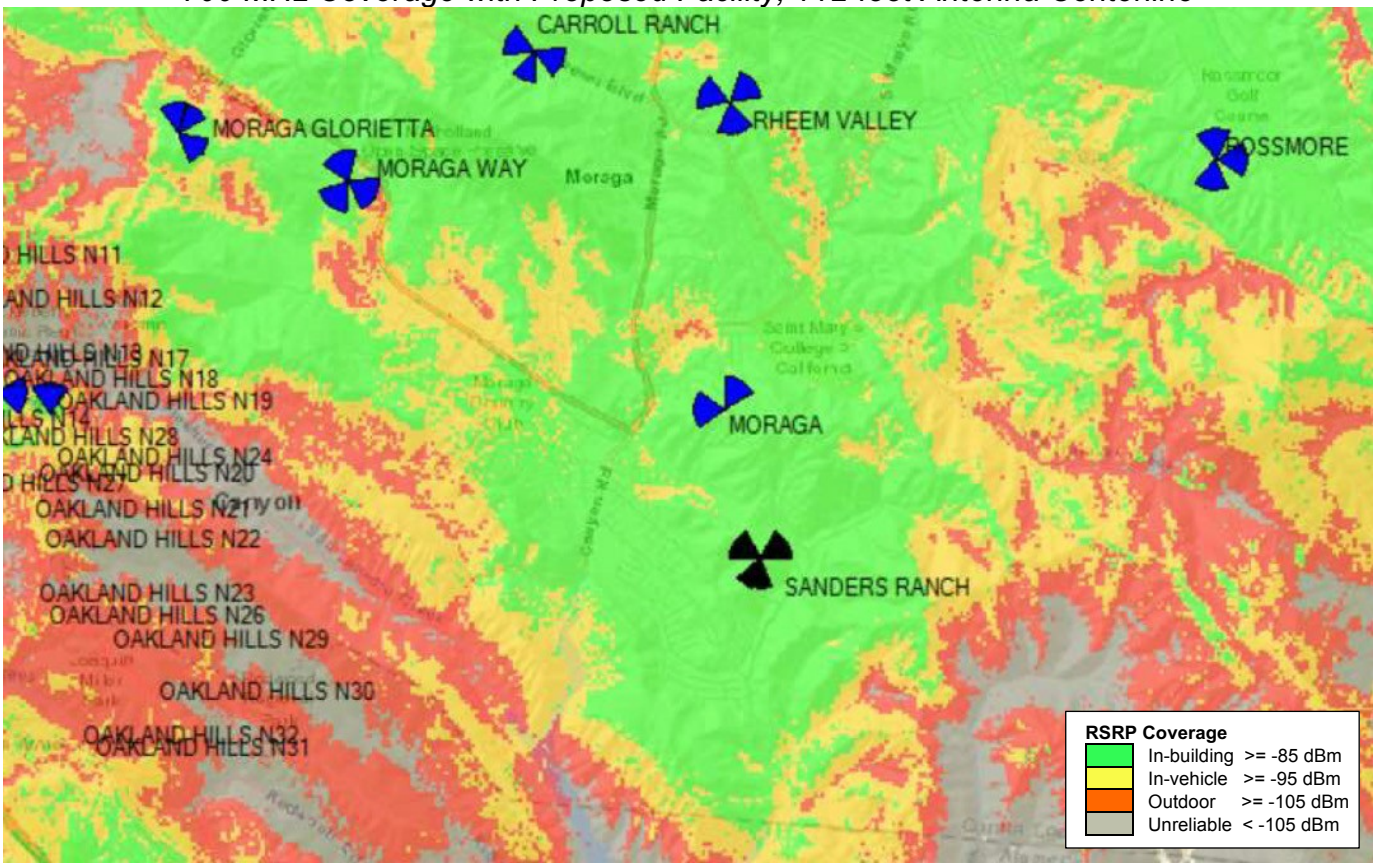
Outdoor >= -105 dBm. Red depicts reliable outdoor service only.

Unreliable < -105 dBm. Gray depicts unreliable service levels.

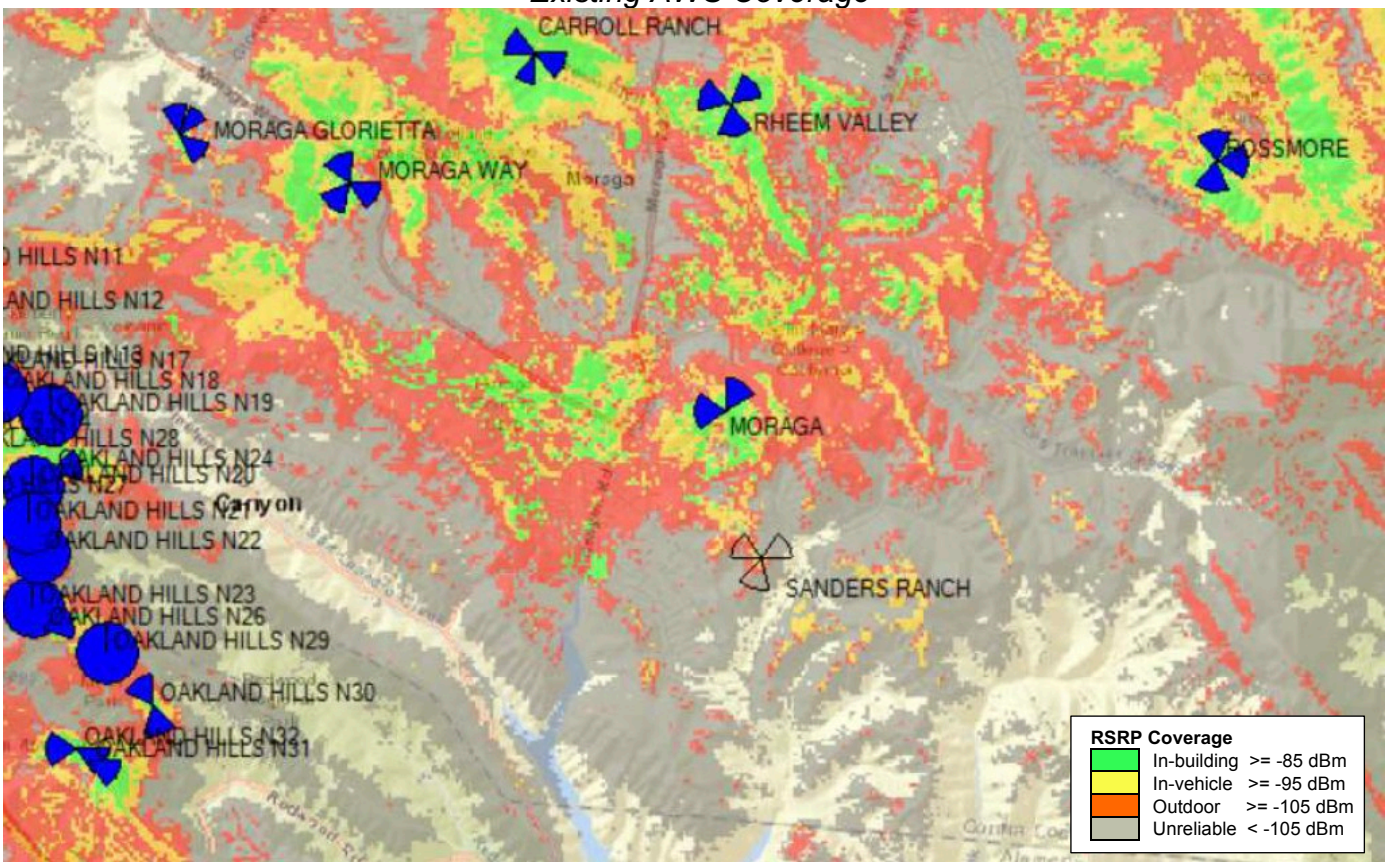
Existing 700 MHz Coverage



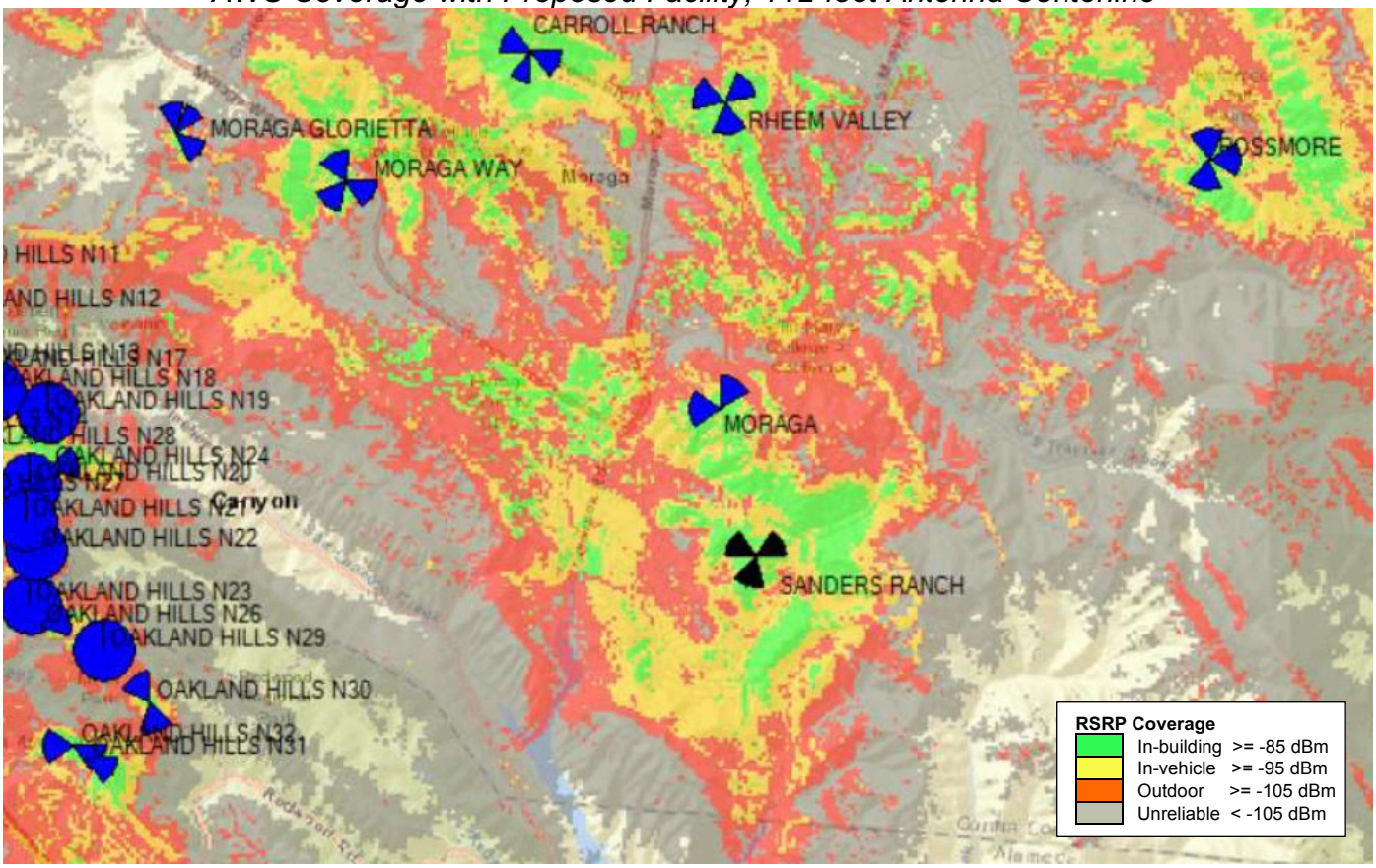
700 MHz Coverage with Proposed Facility, 112-foot Antenna Centerline



Existing AWS Coverage



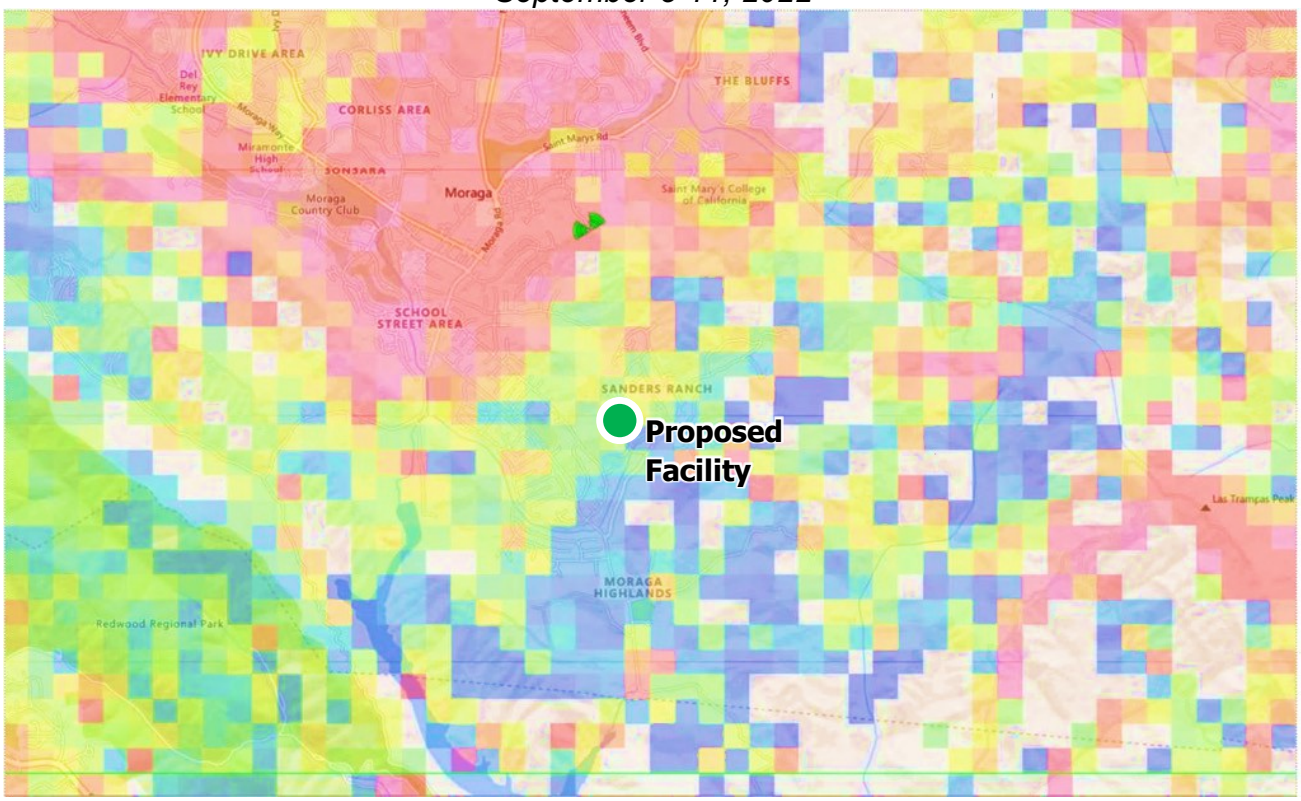
AWS Coverage with Proposed Facility, 112-foot Antenna Centerline

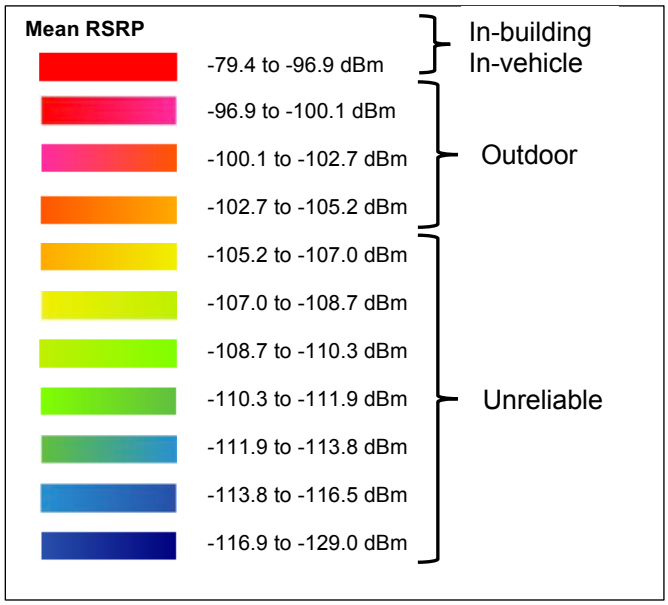


The following map shows the average RSRP of Verizon Wireless signal received by user devices in the Moraga area from Monday, September 5 through Sunday, September 11, 2022. The devices report the RSRP to the network, and Verizon Wireless uses its TrueCall tool to analyze this data and optimize system performance.

In this case, dark red indicates reliable in-building and in-vehicle service levels, red and orange indicate outdoor service, and yellow, green and blue indicate unreliable service. The map shows how service levels are unreliable in the gap area, including areas along Larch Avenue and Camino Pablo as well as the Sanders Ranch neighborhood.

RSRP Average Signal Level Reported by User Devices
September 5-11, 2022





Dominant Signal

As described above, the identified gap area receives inadequate service from existing Verizon Wireless facilities that provide only weak dominant signal to the area, primarily due to distance. "Dominant signal" indicates which Verizon Wireless facility provides the strongest signal to user devices at a particular location. This is apparent in the following best server maps, which depict the areas of dominant signal for each facility. Signal from each facility is shown in a different color. The maps are prepared for each the low-band 700 MHz and mid-band AWS frequencies.

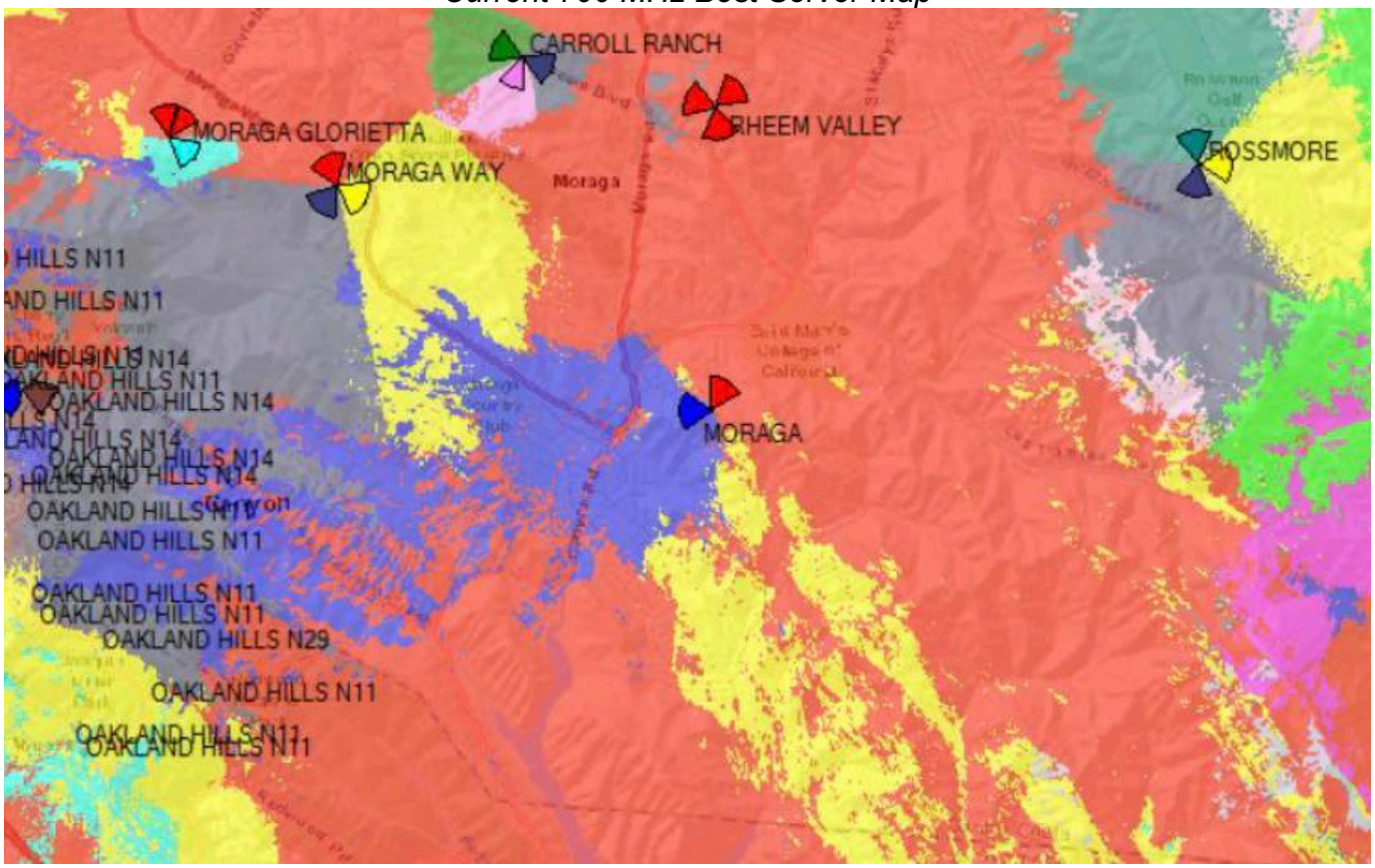
Although dominant, the signal from the distant existing Verizon Wireless facilities is weak in much of gap area. Notably, the Rheem Valley facility 2.5 miles north of the Proposed Facility (shown in red on the 700 MHz map) serves a very large area, including much of the gap. The Moraga Way facility 3.0 miles northwest (shown in yellow) also serves portions of the gap. Dominant signal from these two facilities is intermixed in much of the gap area, including the location of the Proposed Facility and its surroundings. This demonstrates weak dominant signal, which compromises system performance, including for network users in transit.

At times of high traffic volume, the coverage area of the surrounding Verizon Wireless facilities shrinks to accommodate an increasing number of mobile devices closer to each facility. As a result, the coverage gap area expands and is exacerbated during times of high customer usage. The contraction of coverage during times of high usage has become more relevant as the demand for wireless services has increased rapidly over time. According to CTIA's *2022 Annual Survey Highlights*, mobile wireless data traffic almost quadrupled from 2016 to 2021.

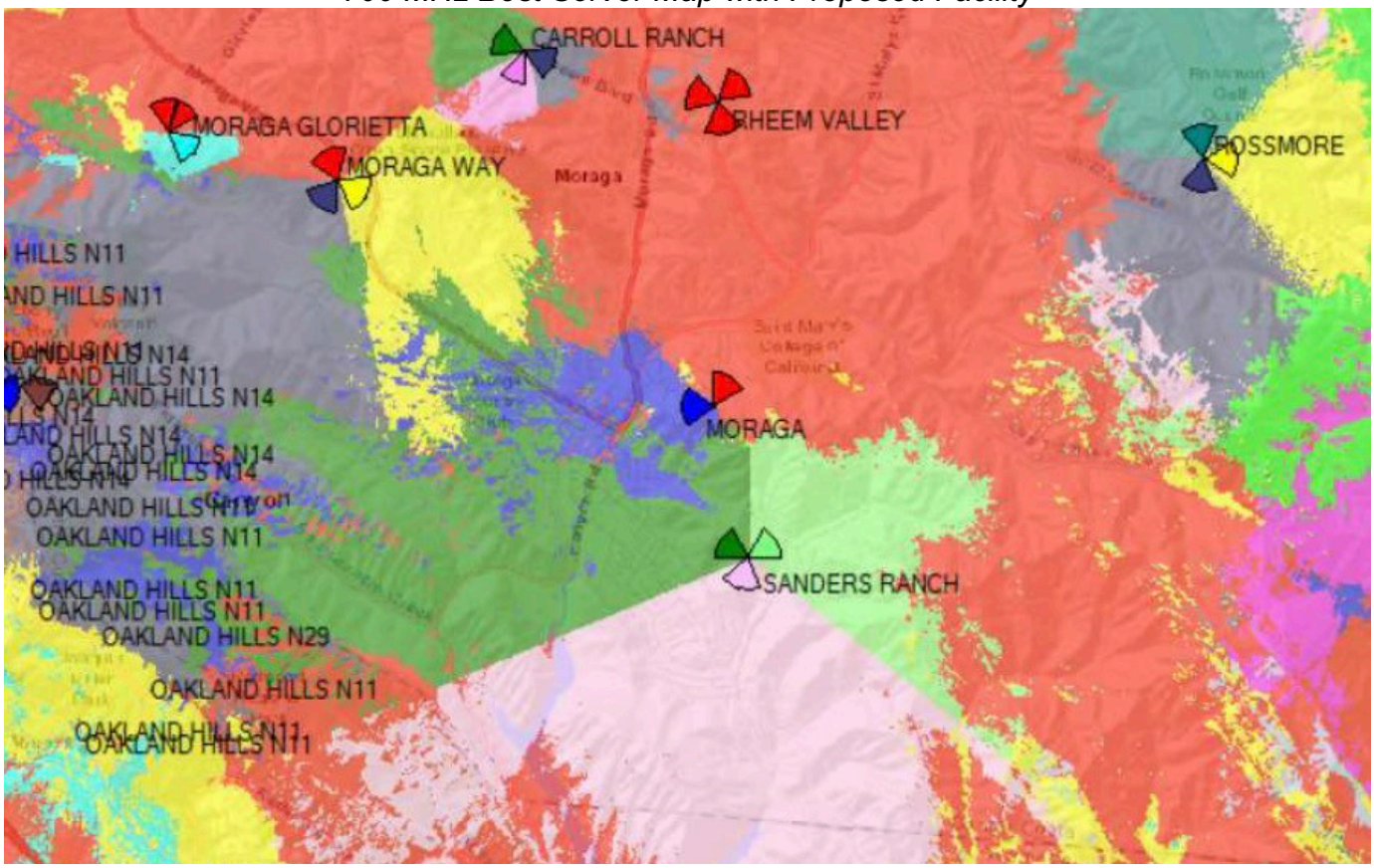
The lack of strong, reliable dominant signal degrades network performance, resulting in unreliable service, particularly during busy hours. This affects the reliability of Verizon Wireless service for residents, workers and visitors as well as for critical communications with emergency service personnel. According to the National Emergency Number Association, there are an estimated 240 million 911 calls each year nationwide, with 80 percent or more from wireless devices in many areas. In emergencies, first responder agencies increasingly rely on dependable Verizon Wireless service.

As shown on the second best server map, the Proposed Facility is strategically located to provide strong, new dominant signal to the gap area (shown in shades of light green, pink, and dark green on the 700 MHz map). It will provide new dominant signal to surrounding residential areas currently served by the distant Rheem Valley and Moraga Way facilities, relieving the demand on those facilities so they can devote their resources to users closer to their locations. This will improve signal quality and overall network performance in the greater vicinity.

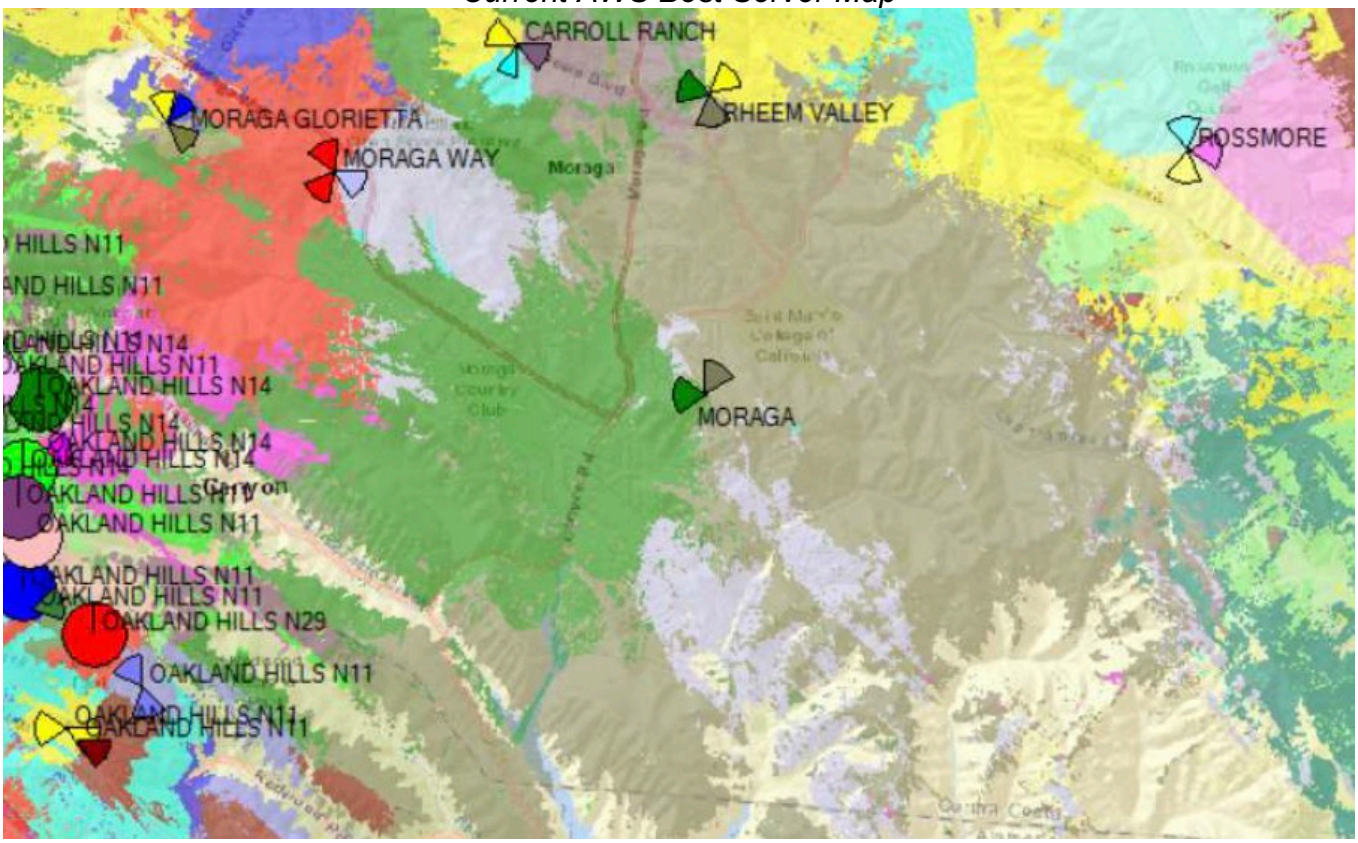
Current 700 MHz Best Server Map



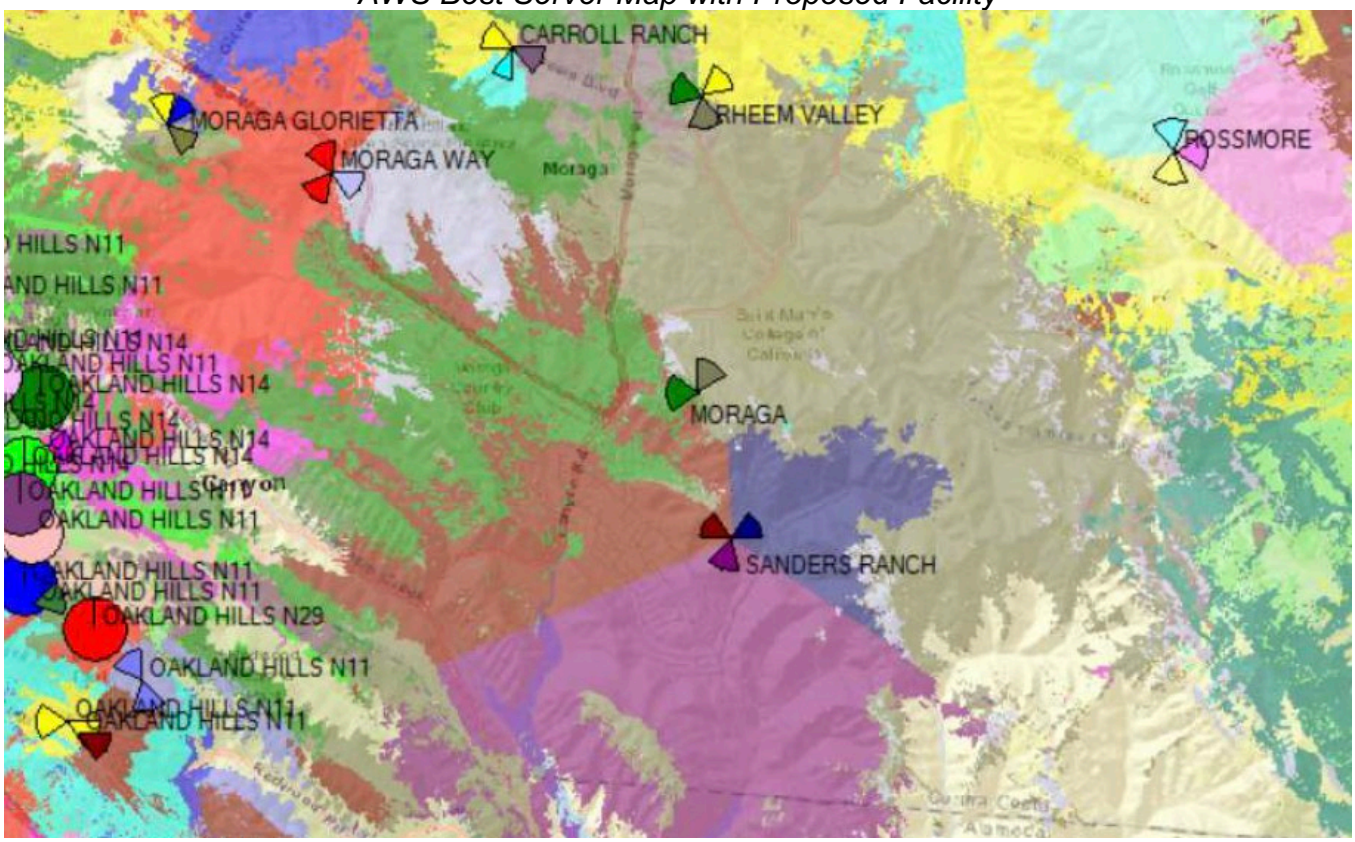
700 MHz Best Server Map with Proposed Facility



Current AWS Best Server Map



AWS Best Server Map with Proposed Facility



Conclusion

As the Verizon Wireless network matures, the network must be supplemented with more sites closer to customers, in large measure due to the increase in usage of the network. New wireless technology requires facilities closer to customers, and this service cannot be provided adequately by the distant existing facilities that provide only weak signal to the gap area. These network challenges have led to the Significant Gap in Verizon Wireless coverage in southern Moraga. Verizon Wireless must deploy the Proposed Facility to provide reliable service coverage to network customers.

Please feel free to contact me with any questions or comments regarding Verizon Wireless's proposed facilities.

Respectfully submitted,



Stefano Iachella
RF Design Engineer
Network Engineering Department
Verizon Wireless

My responsibilities include engineering and design of cellular wireless communications facility networks. I have over 26 years of experience in the cellular wireless industry, with proficiency in various planning, design and optimization tasks for wireless networks. I received my Bachelor's Degree in Electrical Engineering & Computer Science (EECS) from UC Berkeley and a Master's Degree in Electrical Engineering Communications from San Francisco State University.

Exhibit E

Alternatives Analysis

Sanders Ranch

Sanders Ranch Road, Moraga



March 9, 2023

Summary of Site Evaluations
Conducted by Verizon Wireless

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Map of Alternatives

I. Executive Summary

Verizon Wireless must fill and significant gap in service in the southern Moraga area. Based on the review of five alternatives set forth in the following analysis, Verizon Wireless believes that placing antennas on an existing PG&E lattice transmission tower (the "Proposed Facility") constitutes the least intrusive feasible alternative to serve the identified gap in network service based on the values expressed in the Moraga Municipal Code (the "Code").

II. Significant Gap

There is a significant gap in Verizon Wireless network service in the southern Moraga area. This includes a lack of reliable in-building coverage in residential areas west and east of Canyon Road south of the Sanders Drive intersection, areas farther south along Larch Avenue and Camino Pablo, and the Sanders Ranch neighborhood. In-vehicle service is lacking along local roadways, including significant stretches of Larch Avenue and Camino Pablo as well as the entire length of Sanders Ranch Road. In the southern portion of the gap, there is no reliable coverage whatsoever. (Collectively, the "Significant Gap").

To remedy the Significant Gap, Verizon Wireless must place a new facility to ensure reliable network service. The Proposed Facility will provide new, reliable in-building coverage in residential areas and reliable in-vehicle service along local roadways where lacking. The Significant Gap and the Proposed Facility coverage are more fully described in the *Statement of Verizon Wireless Radio Frequency Design Engineer Stefano Iachella* (the "RF Engineer's Statement").

III. Methodology

Once a significant gap has been determined, Verizon Wireless seeks to identify a location and design that will provide required network service through the "least intrusive means" based upon the values expressed by local regulations. In addition to seeking the least intrusive alternative, sites proposed by Verizon Wireless must be feasible. To this end, Verizon Wireless reviews the available height, equipment space, radio frequency propagation, proximity to end users, elevation, local topography, environmental impacts and other factors such as a willing landlord in completing its site analysis.

Code Requirements

The Code requires a description of the site selection process, including coverage objectives and alternatives. Code § 8.144.030(H). Wireless facilities are permitted in all zones upon approval of a conditional use permit. Code § 8.144.080.

The Code requires collocation with existing facilities if possible and aesthetically desirable, encouraging collocation with utility poles or other structures if that would minimize overall visual impact. Code § 8.144.030(D). Collocation is defined to include placement on utility facilities and structures. Code § 8.144.020.

Siting in business or commercial districts is encouraged. Code § 8.144.040. Siting in residential districts is prohibited unless there is no alternative to provide adequate coverage. Code § 8.144.050. The Code prohibits antennas and equipment closer than 300 feet from a residential structure, and closer than 100 from a residential property line. Code § 8.144.030(I).

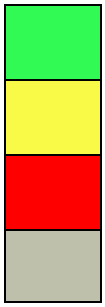
In open space and MOSO open space districts, wireless facilities may not be located within 500 feet of a major ridgeline, on the crest of minor ridgelines over 800 feet in elevation, at a location where an antenna silhouette would be visible above the ridge as viewed from lower-elevation public views, or on slopes over 20 percent in MOSO open space, unless there is no other optimal location to provide adequate coverage and strict compliance would violate federal law. Code §§ 8.144.060(A), (B).

Coverage Map Explanation

Coverage maps are provided to illustrate why certain alternatives could not serve the Significant Gap. Coverage maps depict the anticipated level of signal, and therefore the projected coverage provided by a wireless facility at a given location. The coverage maps in this analysis have been prepared using the low-band 700 MHz frequency band, which provides the broadest coverage.

Referenced signal receive power (RSRP) is a measurement of signal level in decibel milliwatts (dBm), which is a negative number that decreases due to distance and other factors.

The RSRP coverage thresholds are:



In-building >= -85 dBm. Green depicts good coverage that meets or exceeds thresholds for reliable network coverage in homes and in vehicles.

In-vehicle >= -95 dBm. Yellow depicts reliable in-vehicle coverage only.

Outdoor >= -105 dBm. Red depicts reliable outdoor service only.

Unreliable < -105 dBm. Gray indicates unreliable service levels.

IV. Analysis

Summary

Following the Code's direction, Verizon Wireless first investigated opportunities to collocate on existing wireless facilities or utility structures. The closest existing wireless carrier facilities are 0.9 miles north of the Proposed Facility and include Verizon Wireless's Moraga facility.

Within the gap area, Verizon Wireless readily identified an existing utility structure available for collocation, a PG&E lattice transmission tower on a non-residential property near the center of the gap. There are already numerous wireless facilities collocated on PG&E towers within Moraga and the surrounding communities. Verizon Wireless also reviewed the two PG&E towers to the north of the Proposed Facility and one to the south, as well as an East Bay Municipal Utility District ("EBMUD") water tank, but those alternatives were either prohibited by the Code or infeasible to serve the Significant Gap.

Verizon Wireless did not consider the closest business and commercial area, which is located one mile northwest of the Proposed Facility at the intersection of Canyon Road and Moraga Way, beyond the gap area.

By locating in the OS-M–MOSO open space zone, Verizon Wireless avoided siting in a residential zone, and the Proposed Facility exceeds the required setbacks from residences and residential property lines. Because the Proposed Facility satisfies the Code's preference to collocate on an existing structure, Verizon Wireless did not consider placement of a new tower, which would be more intrusive.

Collocations with Existing Wireless Facilities

Verizon Wireless first investigated collocation with existing wireless facilities, but found no wireless carrier facilities within the gap area. As noted, the closest existing wireless carrier facilities are clustered near the EBMUD Carter water tank 0.9 miles north of the Proposed Facility, beyond the gap area. This is the location of Verizon Wireless's existing Moraga facility, which cannot serve the Significant Gap, as described in the RF Engineer's Statement.

Collocations with Existing Utility Structures

Verizon Wireless next considered collocating on existing utility structures, readily identifying the following option, and reviewing four additional alternatives.

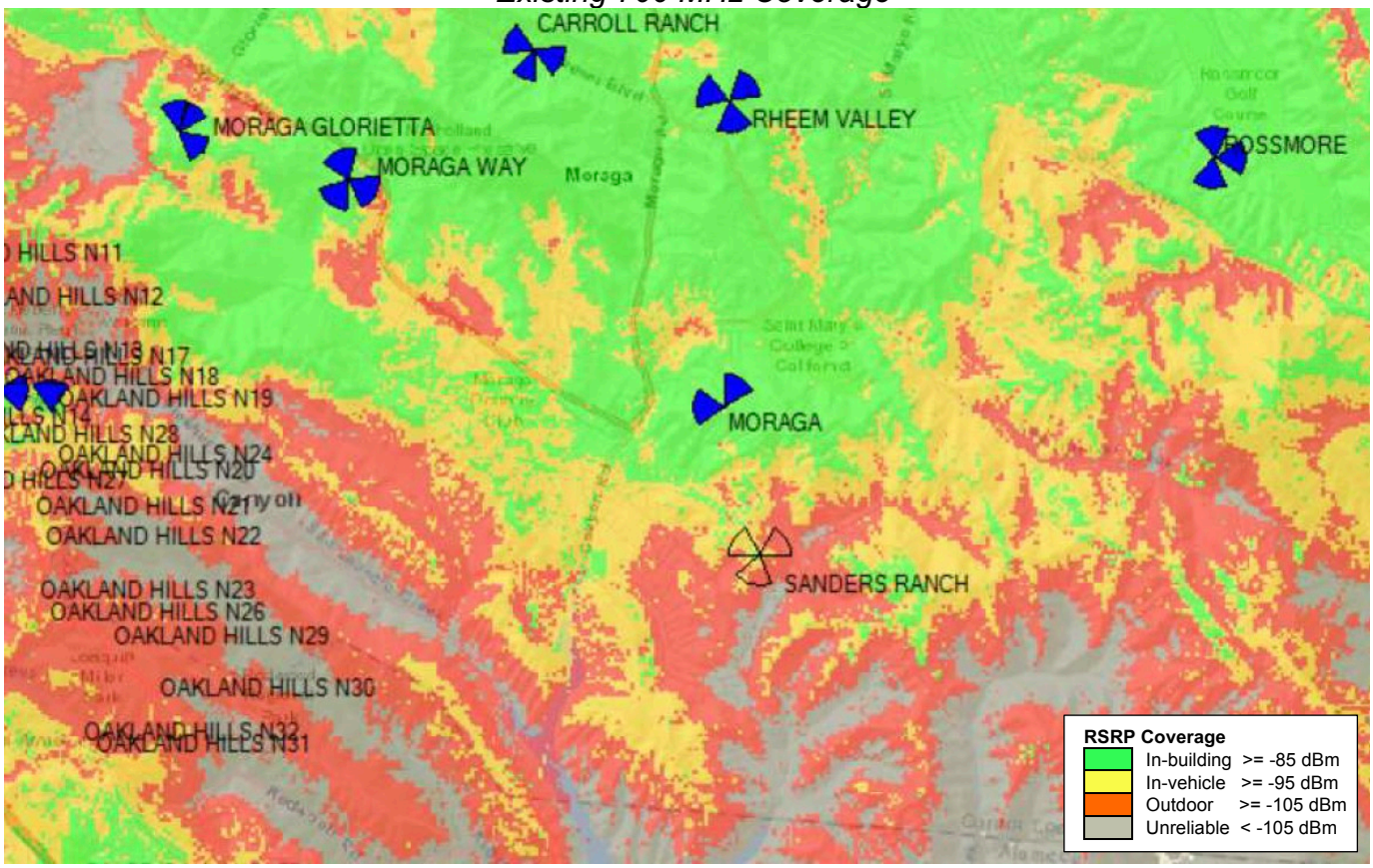
1. Proposed Facility
Address: Sanders Ranch Road, APN 258-300-019
Zoning: OS-M – MOSO Open Space
Elevation: 838 Feet



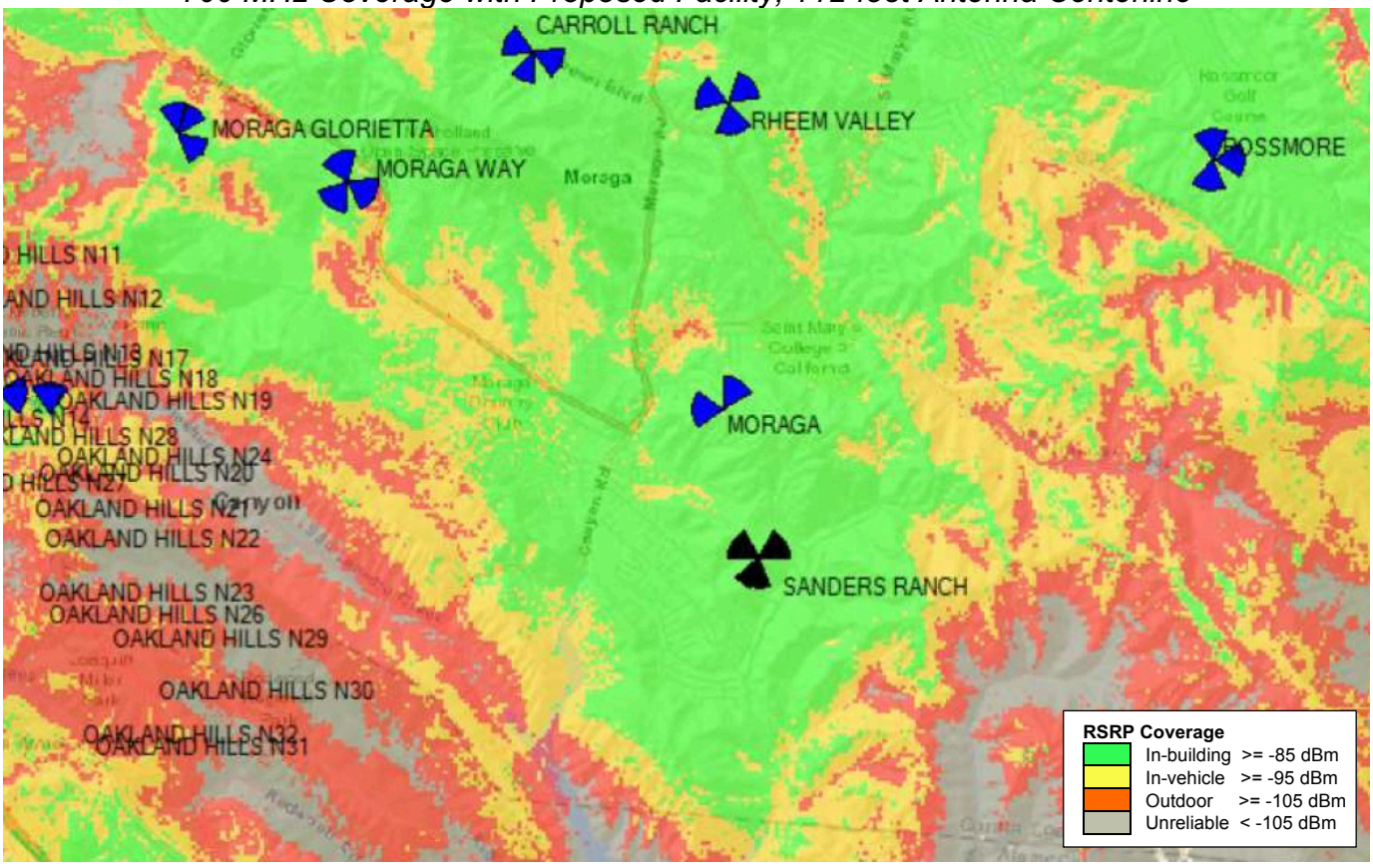
The Proposed Facility has been thoughtfully designed to minimize any impact to the surrounding community. Verizon Wireless proposes to mount six panel antennas on an eight-foot lattice extension above an existing 107.3-foot PG&E transmission tower, for a total height of 115 feet 7 inches. On the tower legs below electric conductors, Verizon Wireless will mount three additional panel antennas at 45 feet, and one small microwave antenna at 35 feet. Verizon Wireless will place associated network equipment on a concrete slab below the tower, including a standby generator that will provide continued service during emergencies. The equipment area will be surrounded by an eight-foot composite fence. Utility connections will be routed underground along a new access road. These improvements will be located entirely within a 100-acre property which is a designated common area owned by the Sanders Ranch Homeowners Association.

With panel antennas placed at 112-foot and 45-foot centerlines at this elevated location, the Proposed Facility will provide new, reliable Verizon Wireless service to the Significant Gap, as shown in the coverage maps below. A detailed comparison of existing and proposed coverage is found in the RF Engineer's Statement. This is Verizon Wireless's preferred location and design for the Proposed Facility.

Existing 700 MHz Coverage



700 MHz Coverage with Proposed Facility, 112-foot Antenna Centerline



2. PG&E Tower to North #1

Address: Sanders Ranch Road, APN 258-300-019
Zoning: OS-M – MOSO Open Space
Elevation: 785 Feet



Verizon Wireless considered this PG&E transmission tower located 0.2 miles northwest of the Proposed Facility on the same parcel, but approximately 85 feet lower in elevation. This tower is located within 110 feet of the nearest residence to the east at 102 Sanders Ranch Road, and within 60 feet of that residential property line. The Code prohibits antennas and equipment closer than 300 feet from a residential structure and 100 feet from a residential property line. Because it could not meet either of these setbacks, a facility at this location would be prohibited by the Code, and cannot be considered a less intrusive alternative to the Proposed Facility.

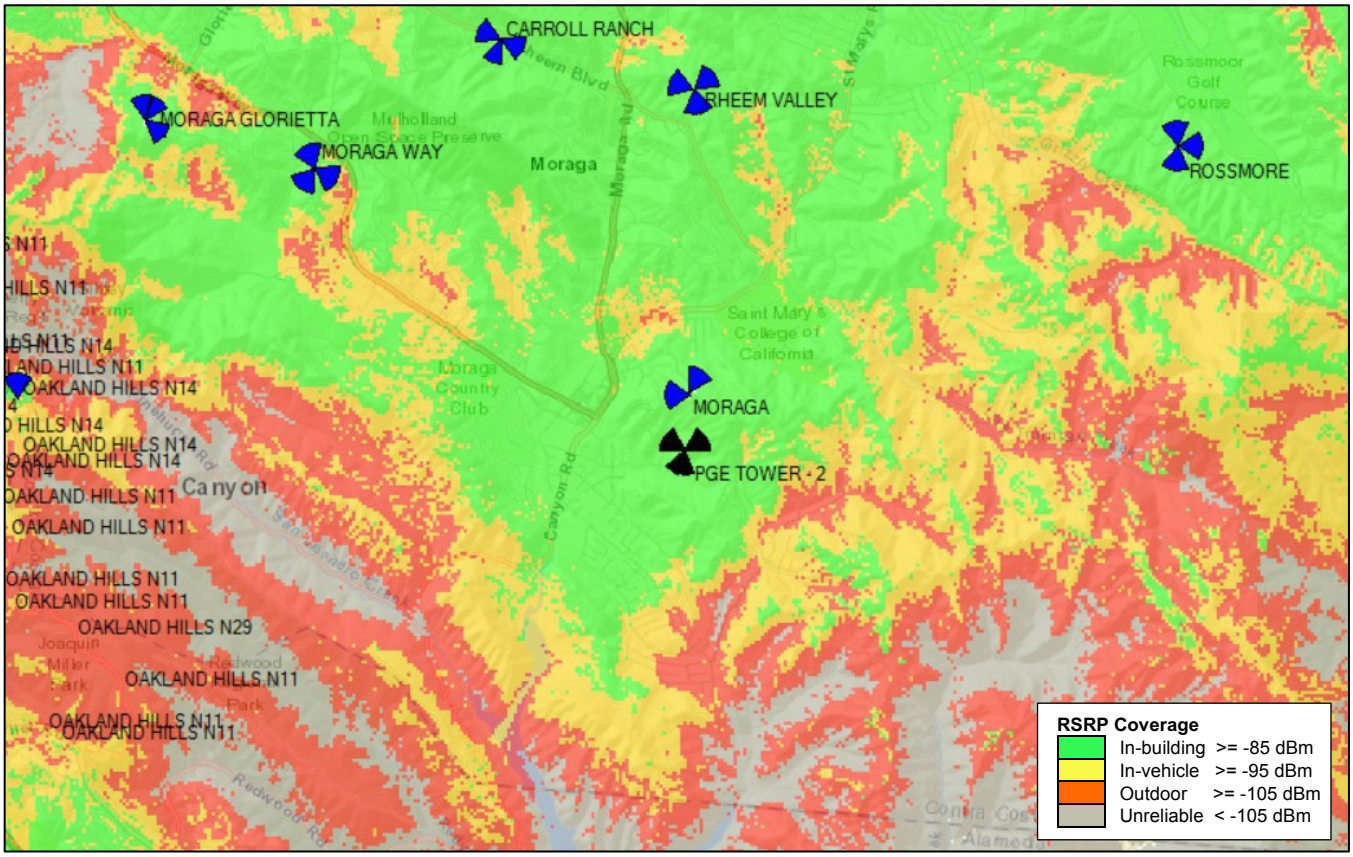
3. PG&E Tower to North #2

Address: East of Hetfield Place, APN 258-160-062
Zoning: OS-M – MOSO Open Space
Elevation: 720 Feet



Verizon Wireless considered this PG&E transmission tower located on a 132-acre property 0.6 miles northwest of the Proposed Facility and approximately 118 feet lower in elevation. This PG&E tower is only 0.3 miles south of Verizon Wireless's existing Moraga facility, which is located on the same parcel. Verizon Wireless RF engineers determined that a facility at this location cannot serve the Significant Gap, largely because signal would be blocked by terrain to the south, including the ridge where the Proposed Facility will be located. As shown on the following map, coverage would be lacking in residential areas along Larch Avenue, Camino Pablo and Rimer Drive south of Eileen Court and Sarah Lane. This is not a feasible alternative to the Proposed Facility.

Coverage from Facility at PG&E Tower to North #2
112-foot Antenna Centerline



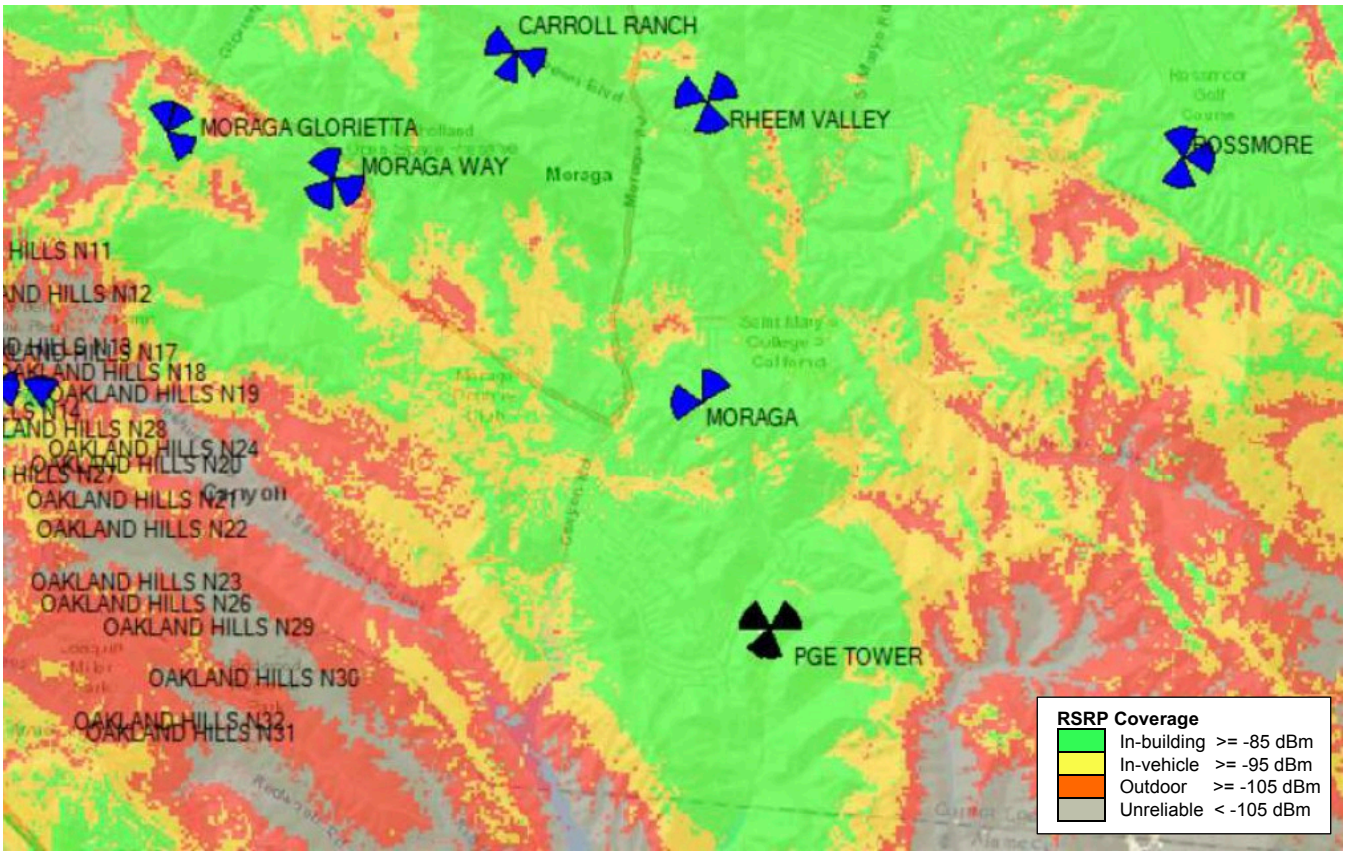
4. PG&E Tower to South

Address: Shannon Court, APN 258-300-005
Zoning: A-2 (Contra Costa County)
Elevation: 815 Feet



Verizon Wireless considered this PG&E transmission tower located on a 338-acre EBMUD property in unincorporated Contra Costa County, 0.5 miles southeast of the Proposed Facility and approximately 25 feet lower in elevation. A wireless facility at this location would require a new access road and underground utilities of similar length to the Proposed Facility, likely extending east across undeveloped terrain to Shannon Court. Verizon Wireless RF engineers determined that a facility at this location south of the coverage objective cannot fully serve the identified Significant Gap, in part because signal would be blocked by terrain to the northwest, including the ridge where the Proposed Facility will be located. As shown on the following map, in-building coverage from this alternative would be deficient in the residential area west of Canyon Road south of its intersection with Sanders Drive, as well in the eastern portion of the Sanders Ranch neighborhood. As compared to the Proposed Facility, this alternative would provide 12 percent less in-building coverage (a reduction of 0.5 square miles in critical areas), and it would serve 30 percent less population (a decrease of 1,120 residents). Accordingly, this is not a viable alternative to the Proposed Facility.

Coverage from Facility at PG&E Tower to South
112-foot Antenna Centerline



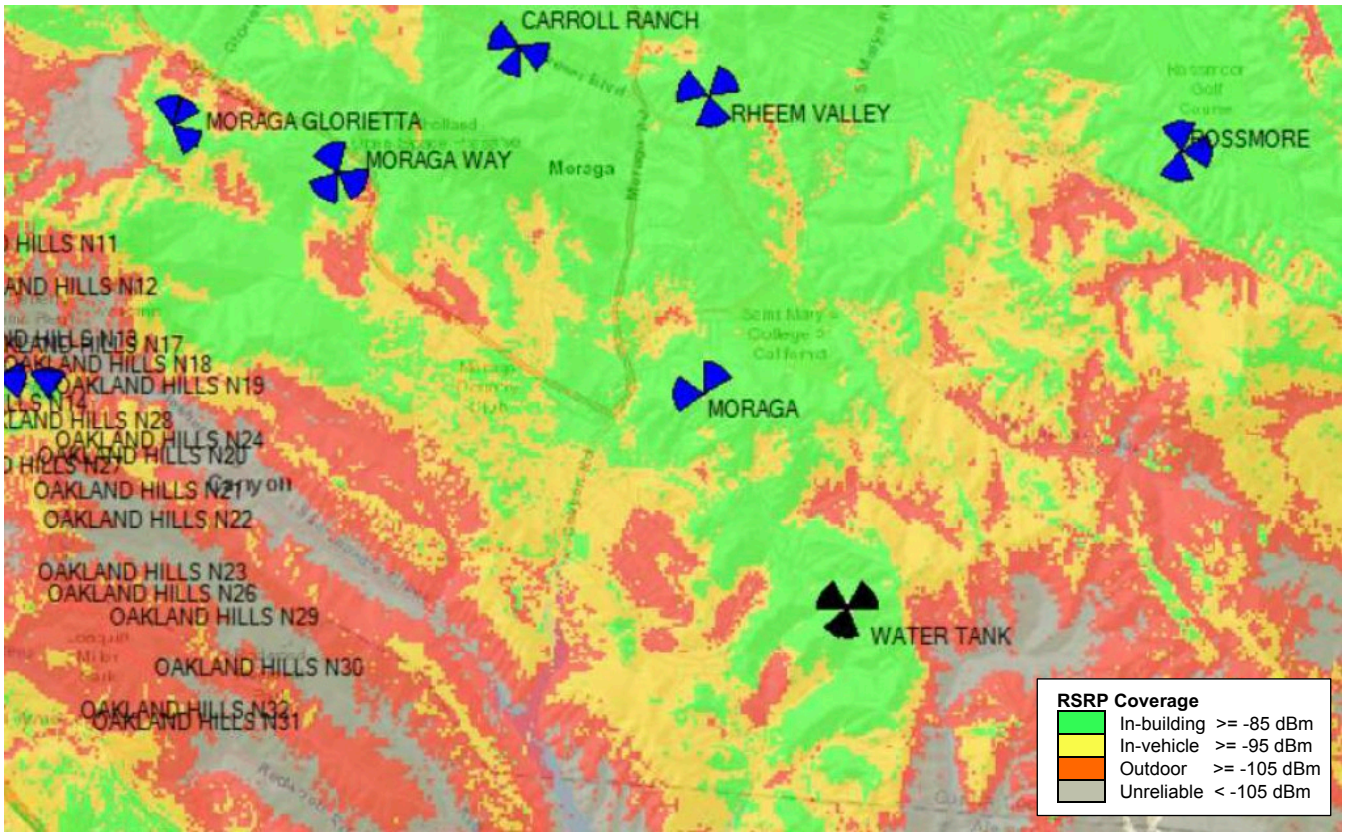
5. EBMUD Arroyo Water Tank

Address: Shannon Court, APN 258-310-002
Zoning: A-2 (Contra Costa County)
Elevation: 925 Feet



Verizon Wireless considered this water tank site located on a 69-acre EBMUD property in unincorporated Contra Costa County, 0.75 miles southeast of the Proposed Facility and approximately 90 feet greater in elevation. Verizon Wireless RF engineers determined that a facility collocated on the water tank at this location southeast of the coverage objective cannot serve the Significant Gap, largely because signal would be blocked by terrain to the west, including the ridge where the Proposed Facility will be located. As shown on the following map, coverage would be lacking in most of the residential areas along Canyon Road south of Sanders Drive, and areas along Larch Avenue and Camino Pablo. This is not a feasible alternative to the Proposed Facility.

Coverage from Facility at EBMUD Arroyo Water Tank
30-foot Antenna Centerline



V. Conclusion

Verizon Wireless has considered five specific alternatives to fill the Significant Gap in service in the southern Moraga area. Based upon the values expressed in the Moraga Municipal Code, the Proposed Facility clearly constitutes the least intrusive feasible location for Verizon Wireless's new facility.

verizon

Sanders Ranch Facility

Alternative Site Locations



ATTACHMENT K

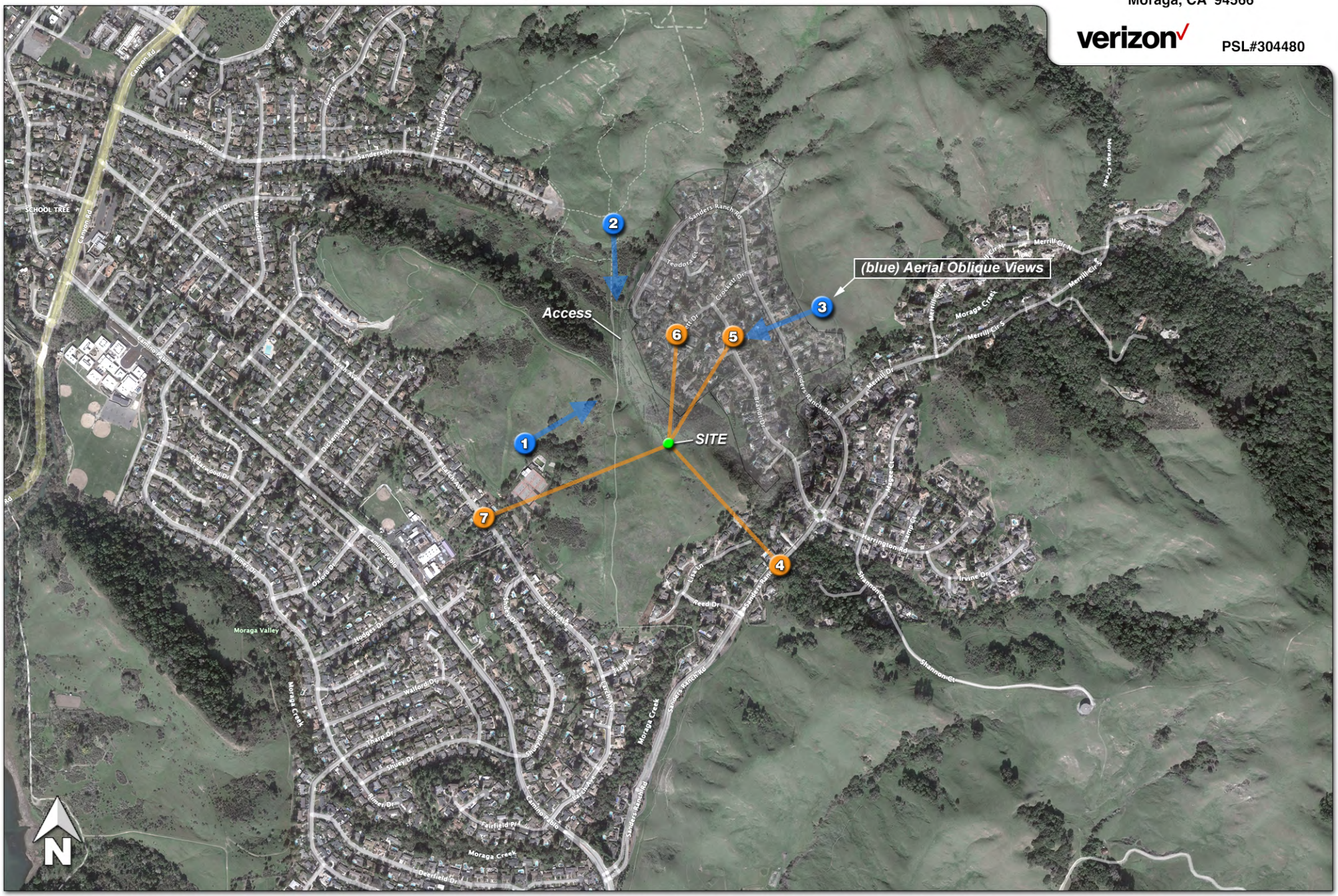
Photo Simulations

Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

PSL#304480

Aerial map showing the drone viewpoints for the photosimulations.



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Photosimulation of the view looking northeast from an aerial viewpoint above the ridge, looking toward Sanders Ranch.

Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

PSL#304480



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Photosimulation of the view looking due south from above the Old Moraga Ranch Trail.



Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

PSL#304480

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Photosimulation of the view looking due south from above the Old Moraga Ranch Trail.





Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

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3



Photosimulation of the view looking to the southwest from above Sanders Ranch.

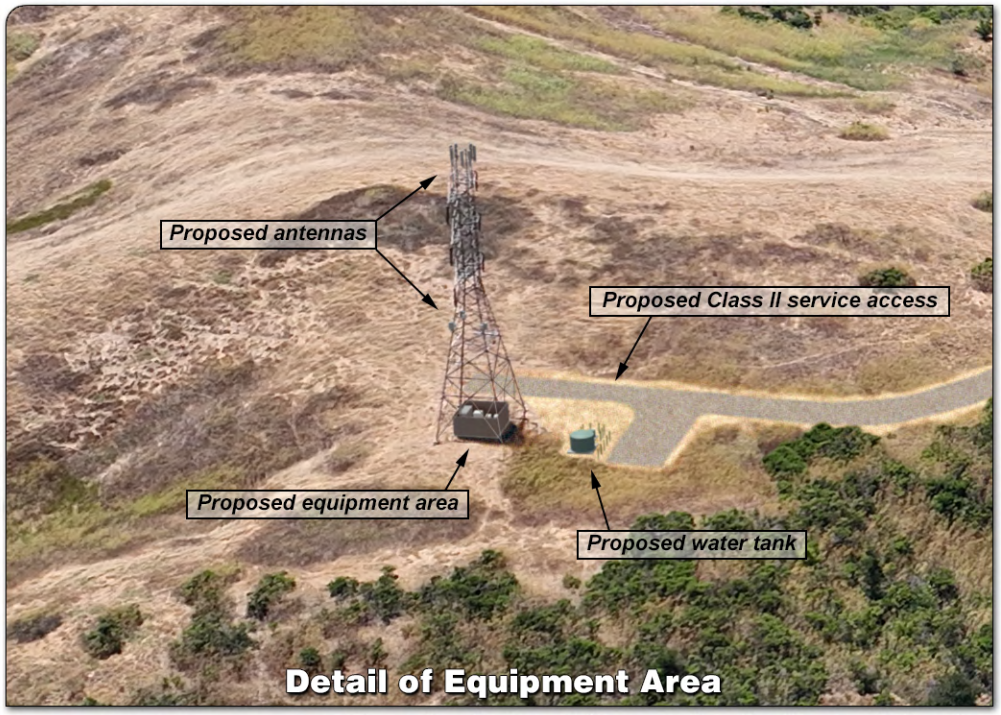
Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

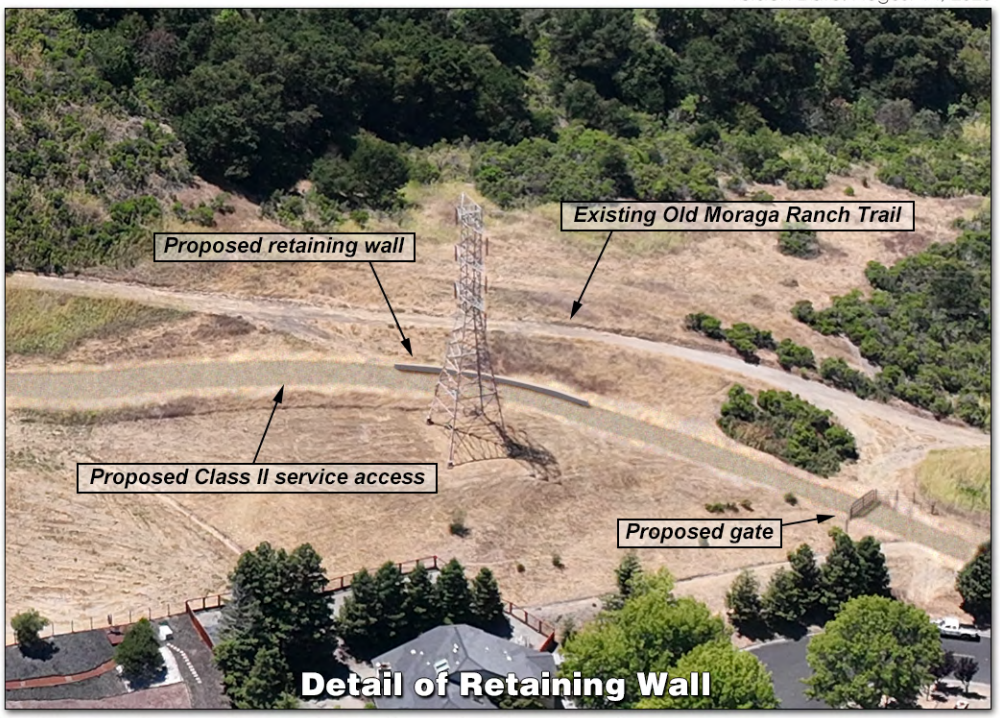
verizon

PSL#304480



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Photosimulation with zoom detail callouts of the view looking to the southwest from above Sanders Ranch.



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Photosimulation of the view looking northwest from Sanders Ranch Road.

Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

verizon

PSL#304480



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5



Photosimulation of the view looking southwest from Brandt Drive at Hastings Court.

Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

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PSL#304480



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Sanders Ranch
100 Sanders Ranch Rd
Moraga, CA 94566

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PSL#304480

Photosimulation of the view looking south at the end of Crockett Drive.



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Sanders Ranch
100 Sanders Ranch Rd
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Photosimulation of the view looking east-northeast from a drone above Larch Ave, at the closed tennis club.

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ATTACHMENT L

Project Plans

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MORAGA-ORINDA FIRE DISTRICT

REVIEWED AND ACCEPTED. APPROVAL OF THIS PLAN DOES NOT AUTHORIZE OR APPROVE ANY OMISSION OR DEVIATION FROM APPLICABLE REGULATIONS. FINAL APPROVAL IS SUBJECT TO FIELD INSPECTIONS. ONE SET OF APPROVED PLANS SHALL BE AVAILABLE ON THE PROJECT SITE FOR THE INSPECTION.

REVIEW BY: Scott McMillan 03/03/2023

SANDERS RANCH
PSL # 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

FIRE NOTE

A SEPARATE MOFD PERMIT IS REQUIRED FOR THE GENERATOR.

1. Both the MOFD approved plans and the Building Department approved plans shall be on site for the Fire District inspections.
2. The proposed 3,000-gallon water tank and generator will require separate permits and plans. Please submit permit applicati and plans to MOFD using the following link: https://www.mofd.org/business/submitting-plans
3. Vegetation management will be the responsibility of the landowner or Verizon not MOF
4. A Fire District/Verizon lock shall be added to the new gate immediately off the Sanders Rd entering on to the new access road.

811 Know what's below. Call before you dig.

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN CALIFORNIA (NORTH & CENTRAL) , CALL USA NORTH 811
TOLL FREE: 1-800-227-2600 OR
www.usanorth811.org
CALIFORNIA STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

PROJECT TEAM

SITE ACQUISITION
SAC WIRELESS, LLC.
333 UNIVERSITY AVE
SUITE 200
SACRAMENTO, CA 95825
CONTACT: MICHELLE FERNANDES
TELEPHONE: (916) 337-4133
MICHELLE.FERNANDES@SACW.COM

PLANNING
SAC WIRELESS, LLC.
333 UNIVERSITY AVE
SUITE 200
SACRAMENTO, CA 95825
CONTACT: MICHELLE FERNANDES
TELEPHONE: (916) 337-4133
MICHELLE.FERNANDES@SACW.COM

ARCHITECT:
SAC AE DESIGN GROUP, INC
NESTOR POPOWYCH, AIA
9020 ACTIVITY RD.
SAN DIEGO, CA 92126
CONTACT: FARAH ALI
TELEPHONE: (858) 205-9629
FARAH.ALI@SACW.COM

SURVEYOR:
SMITHCO SURVEYING ENGINEERING
P.O. BOX 81626
BAKERSFIELD, CA 93380
CONTACT: GREG SMITH, PLS
TELEPHONE: (661) 393-1217
GSMITH@SMITHCO.NET

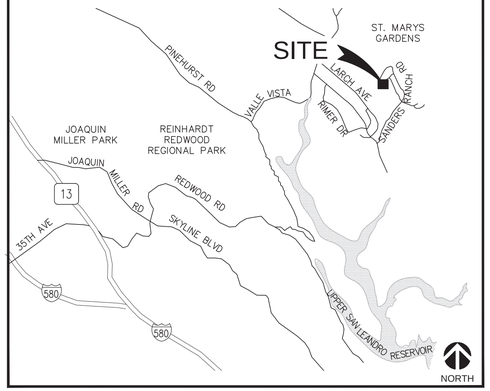
UTILITY COORDINATOR:
SAC WIRELESS, LLC.
333 UNIVERSITY AVE
SUITE 200
SACRAMENTO, CA 95825
CONTACT: MIKE DICKSON
TELEPHONE: (707) 592-6476
MIKE.DICKSON@SACW.COM

ENGINEER OF RECORD:
LETS AMERICA, INC.
112 S. KYRENE RD., STE. 1
CHANDLER, AZ 85226
MADHAN KUMAR K, MS, PE
TEIEPHONE: (480) 961-9151
FAX: (480) 961-9151
WWW.LETSINC.COM
1

GEOTECHNICAL ENGINEER:
KRAZAN & ASSOCIATES, INC.
215 W. DAKOTA AVENUE
CLOVIS, CA 93612
DAVID R. JAROSZ, II
TELEPHONE: (559) 348-2200
WWW.KRAZAN.COM
1

CIVIL ENGINEER:
JDESIGN & CONSULTING ENGINEERS
15016 LAGO DRIVE
RANCHO MURIETA, CA 95683
JD CHRISTIANSEN
TEIEPHONE: (405) 650-3711
EMAIL: JDC@JDCENGINEERS.COM
1

VICINITY MAP



PROJECT SUMMARY

APPLICANT/LESSEE
verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598
OFFICE: (925) 279-6000

ASSESSOR'S PARCEL NUMBER
258-300-019-1

APPLICANT'S REPRESENTATIVE
SAC WIRELESS, LLC.
333 UNIVERSITY AVE
SUITE 200
SACRAMENTO, CA 95825
CONTACT: MICHELLE FERNANDES
TELEPHONE: (916) 337-4133
MICHELLE.FERNANDES@SACW.COM

PROPERTY OWNER:
OWNER: SANDERS RANCH HOMEOWNERS ASSOCIATION
ADDRESS: 315 DIABLO RD DANVILLE, CA 94556
PHONE: (408) 393-2945
EMAIL: jgmohiuddin@gmail.com

PROPERTY INFORMATION:
SITE NAME: SANDERS RANCH
SITE NUMBER: 304480
SITE ADDRESS: 100 SANDERS RANCH ROAD MORAGA, CA 94566
JURISDICTION: TOWN OF MORAGA

CONSTRUCTION INFORMATION
AREA OF CONSTRUCTION: 19'-0" x 19'-0" = 361 SQ FT
OCCUPANCY: U
TYPE OF CONSTRUCTION: V-B
CURRENT ZONING: MOSO- MORAGA OPEN SPACE DISTRICT
ACCESSIBILITY REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. ACCESSIBILITY NOT REQUIRED.

PROJECT DESCRIPTION

THIS PROJECT IS A VERIZON WIRELESS UNMANNED TELECOMMUNICATION WIRELESS FACILITY. IT WILL CONSIST OF THE FOLLOWING:

- NEW VERIZON WIRELESS 19'-0" x 19'-0" LEASE AREA
- NEW VERIZON WIRELESS 8'-0" TALL COMPOSITE FENCE
- NEW VERIZON WIRELESS OUTDOOR EQUIPMENT ON NEW VERIZON WIRELESS 19-0"X19'-0" CONCRETE PAD
- NEW VERIZON WIRELESS 20KW AC COMPACT GENERAC STANDBY GENERATOR W/80 GALLON DIESEL TANK (UL2085)
- (1) NEW VERIZON WIRELESS GPS ANTENNA
- (1) NEW VERIZON WIRELESS ELECTRICAL METER, INTERSECT CABINET & TELCO BOX ON NEW H-FRAME
- NEW VERIZON WIRELESS 8'-0" TALL COMPOSITE FENCE W/4' WIDE ACCESS GATE
- (1) NEW VERIZON WIRELESS 12'-0" TALL TOP HAT EXTENSION ON TOP OF EXISTING PG&E LATTICE TOWER
- (6) NEW VERIZON WIRELESS 6' TALL PANEL ANTENNAS
- (3) NEW VERIZON WIRELESS AIR 6449 ANTENNAS
- (1) NEW VERIZON WIRELESS 2' Ø MICROWAVE ANTENNA
- (6) NEW VERIZON WIRELESS RADIOS, (2) PER SECTOR, (ERICSSON 4449 & 8843)
- (4) NEW VERIZON WIRELESS RAYCAPS 6627
- (2) NEW VERIZON WIRELESS 12x24 HYBRID CABLES
- (36) NEW VERIZON WIRELESS COAX CABLES RUN FROM RADIOS BELOW CONDUCTORS TO ANTENNAS ABOVE CONDUCTORS, (16) 7/8", (20) 1/2"
- (1) PG&E GENERATOR DOC BOX, SES BOX & PG&E SHUTDOWN SWITCH MOUNTED ON NEW H-FRAME
- NEW STEP DOWN TRANSFORMER ON NEW 3'-0" X 4'-4" CONCRETE PAD PER PG&E GREENBOOK MANUAL
- NEW 3000-GALLON GREEN PLASTIC WATER STORAGE TANK PER NFPA 1142 W/HOSE CONNECTION ON NEW 10'-0" X 10'-0" CONCRETE PAD BY VERIZON WIRELESS 1

DRIVING DIRECTIONS

FROM: 2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

TO: 100 SANDERS RANCH ROAD
MORAGA, CA 94566

1. HEAD SOUTHWEST ON MITCHELL DR
2. TURN LEFT ONTO N WIGET LN
3. TURN RIGHT ONTO YGNACIO VALLEY RD
4. YGNACIO VALLEY RD TURNS RIGHT AND BECOMES HILLSIDE AVE
5. TURN RIGHT ONTO THE 24 W RAMP TO OAKLAND
6. TAKE EXIT 13 TOWARD CENTRAL LAFAYETTE
7. USE THE RIGHT LANE TO TURN RIGHT ONTO DEER HILL RD
8. TURN RIGHT ONTO FIRST ST
9. TURN RIGHT ONTO MT DIABLO BLVD
10. USE THE LEFT 2 LANES TO TURN LEFT CONTINUE ONTO CANYON RD
11. TURN LEFT ONTO CAMINO PABLO
12. TURN LEFT ONTO SANDERS RANCH RD (PARTIAL RESTRICTED USAGE ROAD)
13. AT THE TRAFFIC CIRCLE, CONTINUE STRAIGHT TO STAY ON SANDERS RANCH RD

GENERAL CONTRACTOR NOTES

DO NOT SCALE DRAWINGS IF NOT FULL SIZE (24 X 36)

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME.

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. ALL WORK SHALL CONFORM TO 2022 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2022 CALIFORNIA ADMINISTRATIVE CODE
- 2022 CALIFORNIA BUILDING CODES
- 2022 CALIFORNIA ELECTRICAL CODE
- 2022 CALIFORNIA FIRE CODE AS MODIFIED BY THE MOFD
- CITY & COUNTY ORDINANCES 1

SHEET	DESCRIPTION	
T-1	TITLE SHEET	1
T-2	NOTES, LEGEND, ABBREVIATIONS & SPECIAL INSPECTIONS	1
T-3	GENERAL NOTES & SPECIFICATIONS	1
T-4	WARNING SIGNAGE & NOTES	1
C-1	SITE SURVEY	11
C-2	SITE SURVEY	11
C-3	SITE SURVEY	11
C-4	SITE SURVEY	11
C-5	SITE SURVEY	11
A-1	OVERALL SITE PLAN, SITE PLAN & ENLARGED SITE PLAN	1
A-1.1	ENLARGED SITE PLAN	1
A-2	EQUIPMENT & ANTENNA LAYOUTS	1
A-2.1	ANTENNA LAYOUT	
A-3	NORTH & EAST ELEVATIONS	1
A-4	SOUTH & WEST ELEVATIONS	1
A-5	EQUIPMENT ELEVATIONS	1
A-6	VERIZON WIRELESS EQUIPMENT LAYOUT, COLOR CODE & BATTERIES SPECIFICATIONS	1
A-7	DETAILS	1
A-8	DETAILS	1
A-9	DETAILS	1
A-10	GENERATOR SPECIFICATIONS FOR REFERENCE	1
A-11	GENERATOR SPECIFICATIONS FOR REFERENCE	1
A-12	WATER TANK CONCRETE PAD, ANCHORAGE DETAILS & SPECIFICATION	1
S-1	STRUCTURAL PLAN, SECTION & DETAILS	1
E-1	PG&E CONSTRUCTION SKETCH	
E-2	1-LINE DIAGRAM, PANEL SCHEDULE & UTILITY NOTES	1
G-1	PG&E GROUNDING REQUIREMENTS	1
G-2	PG&E GROUNDING REQUIREMENTS	1

ZONING DRAWINGS

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

SAC
A Nokia company
9020 ACTIVITY RD.
SAN DIEGO, CA 92126
www.sacw.com
619.736.3766

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS PROPRIETARY & CONFIDENTIAL TO VERIZON WIRELESS

ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED

verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA
02/22/2023

SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
TITLE SHEET

T-1

NOT USED

1

GENERAL FIRE NOTES:

1. BUILDINGS UNDERGOING CONSTRUCTION, ALTERATION, OR DEMOLITION SHALL BE IN ACCORDANCE WITH 2022 CFC SCHAPTER 33.
2. ADDRESS SHALL BE PROVIDED FOR ALL EXISTING & EXISTING BUILDINGS IN A POSITION AS TO BE PLAINLY VISIBLE & LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. [2022 CFC SECTION 505.1]
3. DECORATIVE MATERIALS SHALL BE MAINTAINED IN A FLAME-RETARDANT CONDITION. [2022 CFC SECTION 807.1]
4. PORTABLE FIRE EXTINGUISHERS:
   AT LEAST ONE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 2-A-10B:C SHALL BE PROVIDED WITHIN 75 FEET MAXIMUM TRAVEL DISTANCE FOR EACH 6,000 SQUARE FEET OR PORTION THEREOF ON EACH FLOOR. [2022 CFC SECTION 906.1.1 & SECTION 906.3.1)]

STORM WATER QUALITY NOTES CONSTRUCTION BMP'S:

NOTES 1-5 BELOW REPRESENT KEY MINIMUM REQUIREMENTS FOR CONSTRUCTION BMP'S

1. SUFFICIENT BMP'S MUST BE INSTALLED TO PREVENT SILT, MUD OR OTHER CONSTRUCTION DEBRIS FROM BEING TRACKED INTO THE ADJACENT STREET(S) OR STORM WATER CONVEYANCE SYSTEM DUE TO CONSTRUCTION VEHICLES OR ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ANY SUCH DEBRIS THAT MAY BE IN THE STREET AT THE END OF EACH WORK DAY OR AFTER A STORM EVENT THAT CAUSES A BREECH IN THE INSTALLED CONSTRUCTION BMP'S.
2. A CONCRETE WASHOUT SHALL BE PROVIDED ON ALL PROJECTS WHICH PROPOSE THE CONSTRUCTION OF ANY CONCRETE IMPROVEMENTS THAT ARE TO BE POURED INTO PLACE ON THE SITE.
3. ALL EROSION/SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED IN WORKING ORDER AT ALL TIMES.
4. ALL SLOPES THAT ARE CREATED OR DISTURBED BY CONSTRUCTION ACTIVITY MUST BE PROTECTED AGAINST EROSION & SEDIMENT TRANSPORT AT ALL TIMES.
5. THE STORAGE OF ALL CONSTRUCTION MATERIALS & EQUIPMENT MUST BE PROTECTED AGAINST ANY POTENTIAL RELEASE OF POLLUTANTS INTO THE ENVIRONMENT.

NOTES

2

- NEW ANTENNA
- EXISTING ANTENNA
- GROUND ROD
- GROUND BUS BAR
- MECHANICAL GRND. CONN.
- CADWELD
- GROUND ACCESS WELL
- ELECTRIC BOX (E)
- TELEPHONE BOX (T)
- LIGHT POLE
- FND. MONUMENT
- SPOT ELEVATION
- SET POINT
- REVISION

- PROPERTY/LEASE LINE
- CENTERLINE
- MATCH LINE
- WORK POINT
- GROUND CONDUCTOR
- GRID REFERENCE (X)
- DETAIL REFERENCE (X / X-X)
- ELEVATION REFERENCE (X / X-X)
- SECTION REFERENCE (X / X-X)
- WOOD CONT.
- WOOD BLOCKING

- (E) MASONRY
- CONCRETE
- EARTH
- GRAVEL
- GROUT OR PLASTER
- PLYWOOD
- SAND
- STEEL
- EXISTING CHAIN-LINK FENCING (X)
- NEW CHAIN-LINK FENCING
- WROUGHT IRON FENCING
- WOOD FENCING

- E — ELECTRICAL CONDUIT (POWER)
- OH/E — OVERHEAD ELECTRICAL (POWER)
- UG/E — UNDERGROUND ELECTRICAL (POWER)
- T — TELEPHONE CONDUIT
- OH/T — OVERHEAD TELCO
- UG/T — UNDERGROUND TELCO
- E/T — ELECTRICAL / TELCO CONDUIT (POWER & FIBER)
- OH/ET — OVERHEAD POWER & TELCO
- UG/ET — UNDERGROUND POWER & TELCO
- CC — COAXIAL CABLE
- F — FIBER / HYBRID

LEGEND

3

ABBREVIATION	DEFINITION
A.B.	ANCHOR BOLT
ABV.	ABOVE
ACCA	ANTENNA CABLE COVER ASSEMBLY
ADD'L	ADDITIONAL
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
ALUM.	ALUMINUM
ALT.	ALTERNATE
ANT.	ANTENNA
APPRX.	APPROXIMATE(LY)
ARCH.	ARCHITECT(URAL)
AWG.	AMERICAN WIRE GAUGE
BLDG.	BUILDING
BLK.	BLOCK
BLKG.	BLOCKING
BM.	BEAM
B.N.	BOUNDARY NAILING
BTCW.	BARE TINNED COPPER WIRE
B.O.F.	BOTTOM OF FOOTING
B/U	BACK-UP CABINET
CAB.	CABINET
CANT.	CANTILEVER(ED)
C.I.P.	CAST IN PLACE
CLG.	CEILING
CLR.	CLEAR
COL.	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION(OR)
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
d	PENNY (NAILS)
DBL.	DOUBLE
DEPT.	DEPARTMENT
D.F.	DOUGLAS FIR
DIA.	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
DWG.	DRAWING(S)
DWL.	DOWEL(S)
EA.	EACH
EL.	ELEVATION
ELEC.	ELECTRICAL
ELEV.	ELEVATOR
EMT.	ELECTRICAL METALLIC TUBING
E.N.	EDGE NAIL
ENG.	ENGINEER
EQ.	EQUAL
EXP.	EXPANSION
EXST.(E)	EXISTING
EXT.	EXTERIOR

ABBREVIATION	DEFINITION
FAB.	FABRICATION(OR)
F.F.	FINISH FLOOR
F.G.	FINISH GRADE
FIN.	FINISH(ED)
FLR.	FLOOR
FDN.	FOUNDATION
F.O.C.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUD
F.O.W.	FACE OF WALL
F.S.	FINISH SURFACE
FT.(')	FOOT(FEET)
FTG.	FOOTING
G.	GROWTH (CABINET)
GA.	GAUGE
GI.	GALVANIZE(D)
G.F.I.	GROUND FAULT CIRCUIT INTERRUPTER
GLB.(GLU-LAM)	GLUE LAMINATED BEAM
GPS	GLOBAL POSITIONING SYSTEM
GRND.	GROUND
HDR.	HEADER
HGR.	HANGER
HT.	HEIGHT
ICGB.	ISOLATED COPPER GROUND BUS
IN.(")	INCH(ES)
INT.	INTERIOR
LB.(#)	POUND(S)
L.B.	LAG BOLTS
L.F.	LINEAR FEET (FOOT)
L.	LONG(ITUDINAL)
MAS.	MASONRY
MAX.	MAXIMUM
M.B.	MACHINE BOLT
MECH.	MECHANICAL
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTL.	METAL
(N)	NEW
NO.(#)	NUMBER
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OPNG.	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PLY.	PLYWOOD
P.O.C.	POINT OF CONNECTION
PPC	POWER PROTECTION CABINET
PRC	PRIMARY RADIO CABINET
P.S.F.	POUNDS PER SQUARE FOOT

ABBREVIATION	DEFINITION
P.S.I.	POUNDS PER SQUARE INCH
P.T.	PRESSURE TREATED
PWR.	POWER (CABINET)
QTY.	QUANTITY
RAD.(R)	RADIUS
REF.	REFERENCE
REINF.	REINFORCEMENT(ING)
REQ'D.	REQUIRED
RGS.	RIGID GALVANIZED STEEL
SCH.	SCHEDULE
SHT.	SHEET
SIM.	SIMILAR
SPEC.	SPECIFICATION(S)
SQ.	SQUARE
S.S.	STAINLESS STEEL
STD.	STANDARD
STL.	STEEL
STRUC.	STRUCTURAL
TEMP.	TEMPORARY
THK.	THICK(NESS)
T.N.	TOE NAIL
T.O.A.	TOP OF ANTENNA
T.O.C.	TOP OF CURB
T.O.F.	TOP OF FOUNDATION
T.O.P.	TOP OF PLATE (PARAPET)
T.O.S.	TOP OF STEEL
T.O.W.	TOP OF WALL
TYP.	TYPICAL
U.G.	UNDER GROUND
U.L.	UNDERWRITERS LABORATORY
U.N.O.	UNLESS NOTED OTHERWISE
V.I.F.	VERIFY IN FIELD
W	WIDE(WIDTH)
W/	WITH
WD.	WOOD
W.P.	WEATHERPROOF
WT.	WEIGHT
℄	CENTERLINE
ℙ	PLATE

ABBREVIATIONS

4

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

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LICENSED ARCHITECT
NESTOR T. POPOWYCH
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RENEWAL 4-30-23
STATE OF CALIFORNIA

02/22/2023

SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:

NOTES, LEGEND & ABBREVIATIONS

T-2

1

GENERAL

1. THIS FACILITY IS AN UNMANNED CELLULAR TELEPHONE EQUIPMENT FACILITY. THE OCCUPANCY CLASSIFICATION IS U [2022 CBC, PART 2, VOLUME 1, CHAP. SECTION 312.1].
2. THIS FACILITY IS EXEMPT FROM HANDICAP REQUIREMENTS PER 2022 CBC CHAP 11B SECTION 11B-203.5 THIS FACILITY IS NON-OCCUPIABLE SPACE & ENTERED ONLY BY SERVICE PERSONNEL. THIS SPACE IS NOT FOR HUMAN OCCUPANCY.
3. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS & DIMENSIONS PRIOR TO SUBMITTING HIS BID. ANY DISCREPANCIES, CONFLICTS OR OMISSIONS SHALL BE REPORTED TO THE ARCHITECT/ENGINEER PRIOR TO SUBMITTING BIDS, & PROCEEDING WITH ANY WORK.
4. THE CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES AS THEY MAY BE DISCOVERED IN THE PLANS, SPECIFICATIONS, & NOTES PRIOR TO STARTING CONSTRUCTION. INCLUDING BUT NOT LIMITED BY DEMOLITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY ERRORS, OMISSION, OR INCONSISTENCY AFTER THE START OF CONSTRUCTION WHICH HAS NOT BEEN BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER & SHALL INCUR ANY EXPENSES TO RECTIFY THE SITUATION. THE METHOD OF CORRECTION SHALL BE APPROVED BY THE ARCHITECT OR THE ARCHITECT/ENGINEER RESPONSIBLE OF THE PROJECT.
5. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR HAS THE RESPONSIBILITY TO LOCATE ALL EXISTING UTILITIES, WHETHER OR NOT SHOWN ON THE PLANS, & TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR OR SUBCONTRACTOR SHALL BEAR THE EXPENSE OF REPAIRING OR REPLACING ANY DAMAGE TO THE UTILITIES CAUSED DURING THE EXECUTION OF THE WORK. CONTACT USA DIG ALERT @ 800-227-2600
6. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL AREAS FROM DAMAGE WHICH MAY OCCUR DURING CONSTRUCTION. ANY DAMAGE TO NEW OR EXISTING SURFACES, STRUCTURES OR EQUIPMENT SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF THE PROPERTY OWNER. THE CONTRACTOR SHALL BEAR THE EXPENSE OF REPAIRING OR REPLACING ANY DAMAGED AREAS.
7. A COPY OF THE APPROVED PLANS SHALL BE KEPT IN A PLACE SPECIFIED BY THE GOVERNING AGENCY, & BY LAW SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL CONSTRUCTION SETS REFLECT THE SAME INFORMATION AS THE APPROVED PLANS. THE CONTRACTOR SHALL ALSO MAINTAIN ONE SET OF PLANS AT THE SITE FOR THE PURPOSE OF DOCUMENTING ALL AS-BUILT CHANGES, REVISIONS, ADDENDA, OR CHANGE ORDERS. THE CONTRACTOR SHALL FORWARD THE AS-BUILT/HIRED DRAWINGS TO THE ARCHITECT OR THE ARCHITECT/ENGINEER RESPONSIBLE OF THE PROJECT AT THE CONCLUSION OF THE PROJECT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE THE WORK IS IN PROGRESS UNTIL THE JOB IS COMPLETE.
9. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY POWER, WATER, & TOILET FACILITIES AS REQUIRED BY THE PROPERTY OWNER OR GOVERNING AGENCY.
10. THE CONTRACTOR & SUBCONTRACTOR SHALL COMPLY WITH ALL LOCAL & STATE REGULATIONS INCLUDING ALL OSHA REQUIREMENTS.
11. WHEN REQUIRED STORAGE OF MATERIALS OCCURS, THEY SHALL BE EVENLY DISTRIBUTED OVER THE FLOOR OR ROOF SO AS NOT TO EXCEED THE DESIGNED LIVE LOADS FOR THE STRUCTURE. TEMPORARY SHORING OR BRACING SHALL BE PROVIDED WHERE THE STRUCTURE OR SOIL HAS NOT ATTAINED THE DESIGN STRENGTH FOR THE CONDITIONS PRESENT.
12. THE CONTRACTOR SHALL SUPERVISE & COORDINATE ALL WORK, USING HIS PROFESSIONAL KNOWLEDGE & SKILLS. HE IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES & SEQUENCING & COORDINATING ALL PORTIONS OF THE WORK UNDER THE PROJECT.
13. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN & PAY FOR ALL PERMITS, LICENSES & INSPECTIONS WITH RESPECT TO THE WORK TO COMPLETE THE PROJECT. BUILDING PERMIT APPLICATIONS SHALL BE FILED BY THE OWNER OR AUTHORIZED AGENT. CONTRACTOR SHALL OBTAIN THE PERMIT & MAKE FINAL PAYMENT OF SAID DOCUMENT.
14. ALL DIMENSIONS TAKE PRECEDENCE OVER SCALE. DRAWINGS ARE NOT TO BE SCALED UNDER ANY CIRCUMSTANCES.
15. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BLOCKING, BACKING, FRAMING, HANGERS OR SUPPORTS FOR INSTALLATION OF ITEMS INDICATED ON THE DRAWINGS.
16. THE CONTRACTOR SHALL PROVIDE THE FIRE MARSHALL OR U.L APPROVED MATERIALS TO FILL/SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.
17. NEW CONSTRUCTION ADDED TO EXISTING CONSTRUCTION SHALL BE MATCHED IN FORM, TEXTURE, MATERIAL & PAINT COLOR EXCEPT AS NOTED IN THE PLANS.
18. THE CONTRACTOR IS TO PROVIDE PORTABLE FIRE EXTINGUISHERS HAVING A MINIMUM 2A:10-B:C RATING WITHIN 75FT. OF TRAVEL TO ALL PORTIONS OF THE CONSTRUCTION AREA.
19. MATERIALS TESTING SHALL BE TO THE LATEST STANDARDS AVAILABLE AS REQUIRED BY THE LOCAL GOVERNING AGENCY RESPONSIBLE FOR APPROVING THE RESULTS.
20. ALL GENERAL NOTES & STANDARD DETAILS ARE THE MINIMUM REQUIREMENTS TO BE USED IN CONDITIONS WHICH ARE NOT SPECIFICALLY SHOWN OTHERWISE.
21. ALL DEBRIS & REFUSE IS TO BE REMOVED FROM THE PROJECT. PREMISES SHALL BE LEFT IN A CLEAN BROOM FINISHED CONDITION AT ALL TIMES.
22. BUILDING INSPECTORS AND/OR OTHER BUILDING OFFICIALS ARE TO BE NOTIFIED PRIOR TO ANY GRADING & CONSTRUCTION EFFORT AS MANDATED BY THE GOVERNING AGENCY.
23. ALL SYMBOLS & ABBREVIATIONS ARE CONSIDERED CONSTRUCTION INDUSTRY STANDARDS. IF A CONTRACTOR HAS A QUESTION REGARDING THEIR EXACT MEANING THE ARCHITECT OR THE ARCHITECT/ENGINEER RESPONSIBLE OF THE PROJECT SHALL BE NOTIFIED FOR CLARIFICATIONS.

SPECIFICATIONS

SITEWORK

1. THE PREPARATION OF THE SITE FOR CONSTRUCTION SHALL INCLUDE THE REMOVAL OF ALL BROKEN CONCRETE, TREE TRUNKS & ANY OTHER DEBRIS THAT WOULD BE DAMAGING TO THE FOOTINGS OF THE NEW STRUCTURE.
2. BACKFILLING AT NEW TRENCHES SHALL BE OF CLEAN, STERILE SOIL HAVING A SAND EQUIVALENT OF 30 OR GREATER. BACKFILLING SHALL BE DONE IN 8 INCH LAYERS, MOISTURE CONDITIONED & PROPERLY COMPACTED TO SPECIFIED COMPACTION PERCENTAGE PER ASTM D1557 (90% MIN.). ADEQUATE DRAINAGE SHALL BE PROVIDED SUCH THAT NO PONDING OCCURS AFTER THESE RECOMMENDATIONS ARE APPROVED BY THE PROJECT MANAGER & ARCHITECT OR THE ARCHITECT/ENGINEER RESPONSIBLE OF THE PROJECT.
3. ALL FOUNDATION FOOTINGS SHALL EXTEND INTO & BEAR AGAINST NATURAL UNDISTURBED SOIL OR APPROVED COMPACTED FILL. FOOTINGS SHALL EXTEND INTO SOIL DEPTH INDICATED ON DETAILS.
4. SHOULD ANY LOOSE FILL, EXPANSIVE SOIL, GROUND WATER OR ANY OTHER DANGEROUS CONDITIONS BE ENCOUNTERED DURING THE EXCAVATION FOR THE NEW FOUNDATION, THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER OR OWNER'S REPRESENTATIVE & ALL FOUNDATION WORK SHALL CEASE IMMEDIATELY.

CONCRETE

REINFORCEMENT

1. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS OTHERWISE NOTED. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES CLASS "B" & ALL HOOKS SHALL BE STANDARD U.N.O.
2. LOW HYDROGEN WELDING RODS SHALL BE USED FOR ALL WELDING OF REINFORCING BARS.
3. BARS NOTED "CONT.", TYPICAL WALL REINFORCING, & VERTICAL COLUMN REINFORCING SHALL HAVE A MINIMUM SPLICE EQUAL 50 BAR DIAMETERS LAP, OR 12" WHICHEVER IS GREATER.
4. REINFORCING SHALL BE SPLICED ONLY AS SHOWN OR NOTED. SPLICE AT OTHER LOCATIONS SHALL BE APPROVED BY THE ARCHITECT/ENGINEER.
5. SPLICES IN ADJACENT HORIZONTAL WALL REINFORCING BARS SHALL BE STAGGERED 4'-0" MINIMUM UNLESS OTHERWISE NOTED.
6. ALL REINFORCING, ANCHOR BOLTS & OTHER INSERTS SHALL BE SECURED IN PLACE PRIOR TO PLACING CONCRETE OR GROUTING MASONRY.
7. #5 OR LARGER REINFORCING BARS SHALL NOT BE RE-BENT WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER.
8. PROVIDE THE FOLLOWING MINIMUM PROTECTIVE COVERING OF CONCRETE:

BELOW GRADE (UNFORMED)	3"	CLEAR
BELOW GRADE (FORMED)	2"	CLEAR
WALLS	1"	CLEAR
COLUMNS	1 1/2"	CLEAR
BEAMS & GIRDERS	1 1/2"	CLEAR
STRUCTURAL SLAB (ABOVE GRADE)	3/4"	CLEAR

CONCRETE

1. STRUCTURAL FILL & BACKFILL SHOULD CONSIST OF A NON-EXPANSIVE GRANULAR MATERIAL APPROVED BY THE GEOTECHNICAL ENGINEER & PLACED IN UNIFORM 6" LIFTS.
2. STRUCTURAL FILL PLACED FOR SUPPORT OF FOUNDATION SHALL BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY FROM ASTM D698 (STANDARD PROCTOR).
3. STRUCTURAL FILL UNDERNEATH FOUNDATIONS & SLABS SHALL BE COMPACTED WITH A SMOOTH VIBRATORY COMPACTION DEVICE PRIOR TO CONCRETE PLACEMENT.
4. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH CURRENT ACI 318.
5. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2500 PSI. UNLESS OTHERWISE SPECIFIED. WATER CEMENTITIOUS MATERIAL/RATIO & AIR CONTENT SHALL COMPLY WITH ACI 318 SECTION 19.3.
6. CEMENT FOR CONCRETE OR MASONRY MORTAR SHALL BE TYPE V "PORTLAND CEMENT" & CONFORM TO ASTM C-150 STANDARDS. UNLESS OTHERWISE SPECIFIED IN GEOTECHNICAL REPORT OR IN THE DRAWINGS.
7. AGGREGATE FOR CONCRETE SHALL CONFORM TO ASTM C-33 STANDARDS.
8. CONCRETE SHALL BE DEPOSITED IN ACCORDANCE WITH 318 SECTION 26.5.2 RECOMMENDED PRACTICE FOR CONSOLIDATION OF CONCRETE.
9. COLD WEATHER & HOT WEATHER CONCRETE PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 318 SECTION 19.3, & SECTIONS 26.5.4 & 26.5.5.
10. AFTER PLACEMENT, THE CONCRETE SHALL BE COVERED WITH A PLASTIC VAPOR BARRIER FOR A 4 TO 7 DAY INITIAL CURING PERIOD.
11. A MINIMUM OF THREE CONCRETE TEST CYLINDERS SHALL BE TAKEN. ONE SHALL BE TESTED AT 7 DAYS, ONE AT 28 DAYS, & ONE HOLD CYLINDER. UNLESS OTHERWISE SPECIFIED BY GOVERNING AGENCY.
12. FLOOR SLABS SHALL CONFORM TO ASTM C-38 STANDARDS & SHALL BE 3 1/2 INCHES MINIMUM THICK - SEE FOUNDATION PLANS FOR REINFORCEMENT, BASE, UNDERLAYMENT, VAPOR BARRIER OR OTHER SPECIFIC REQUIREMENTS.
13. FLOOR SLABS SHALL BE LEVEL OR TRUE SLOPES AS SHOWN ON DRAWINGS. TOLERANCE: 1/8 INCH IN 10 FEET.
14. TOP OF CONCRETE SLAB TO BE 6" MINIMUM ABOVE FINISH GRADE. UNLESS OTHERWISE SPECIFIED IN THE DRAWINGS
15. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" CHAMFER.
16. ALL EXTERIOR CONCRETE WALLS, PORCHES & PLATFORMS ON SITE TO HAVE A ROCK SALT FINISH. (U.O.N.)
17. CONTRACTOR SHALL BE RESPONSIBLE FOR ACCURATE PLACEMENT OF ALL ROUGH HARDWARE & ALL ITEMS OF OTHER TRADES REQUIRED TO BE EMBEDDED IN CONCRETE WORK.

METALS

STRUCTURAL FRAMING SYSTEM & EQUIPMENT

1. CABLE LADDERS AT INTERIOR SPACES WHERE INDICATED SHALL BE 1-1/2" SOLID BAR STRINGERS TYPE
2. ALL UNISTRUT SHALL BE P1000 (1-5/8").
3. MICROFLECT SHALL BE B 1 1 1 8 (U.N.O.) TO MATCH CABLE TRAY.
4. CABLE CONDUIT ON ROOF TOP & OUTDOOR APPLICATIONS, SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
5. ALL ANTENNA SPECS. PER RF DATA SHEET.

STRUCTURAL METAL

1. ALL STRUCTURAL STEEL SHALL COMPLY WITH MOST RECENT ASTM A-36 STANDARDS.
2. ALL CONNECTIONS & FABRICATIONS SHALL COMPLY WITH MOST RECENT A.I.S.C. SPECIFICATIONS.
3. ALL WELDING SHALL BE PERFORMED BY OPERATORS WHO HAVE BEEN RECENTLY QUALIFIED AS PRESCRIBED IN MOST RECENT "QUALIFICATION PROCEDURE" OF THE AMERICAN WELDING SOCIETY.
4. USE ALL MEANS NECESSARY TO PROTECT STRUCTURAL STEEL BEFORE, DURING & AFTER INSTALLATION & TO PROTECT THE INSTALLED WORK & MATERIALS OF ALL OTHER TRADES.
5. IN THE EVENT OF DAMAGE IMMEDIATELY MAKE ALL REPAIRS & REPLACEMENTS NECESSARY TO THE APPROVAL OF & AT NO ADDITIONAL COST TO THE OWNER.
6. HIGH-STRENGTH BOLTS SHALL COMPLY WITH ASTM A-325 N. BEARING TYPE CONNECTION WITH THREADS INCLUDED IN SHEAR PLANE. OTHER MACHINE BOLTS & ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307
7. WELDS SHALL BE MADE WITH ASTM-233, E-70 SERIES ELECTRODES FOR STEEL TO STEEL CONNECTIONS. WELDING OF REINFORCING BARS SHALL BE DONE WITH ELECTRODES AS APPROVED BY A CERTIFIED TESTING LABORATORY.
8. ALL FRAMING CONNECTORS SUCH AS CONCRETE ANCHORS, HOLD-DOWNS, POST BASES, FRAMING CAP, HANGER & OTHER MISCELLANEOUS STRUCTURAL METALS SHALL BE AS MANUFACTURED BY SIMPSON STRONG TIE CO. OR APPROVED EQUIVALENT.
9. ALL EXTERIOR STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE WEATHER SHALL BE HOT-DIP GALVANIZING AFTER FABRICATION.
10. ALL WELDING DONE AFTER GALVANIZING SHALL BE PROTECTED WITH TWO (2) COATS OF "GALVANIZED" OR "GALVALOY"

ELECTRICAL

1. REFER TO DRAWINGS FOR SITE SPECIFIC INFORMATION
2. ALL INTERIOR SEISMIC UNISTRUT SHALL BE GROUNDED WITH #6 STRANDED COPPER WITH GREEN JACKET. ALL CONNECTIONS TO BE DOUBLE LUG.
3. BEFORE STARTING TRENCHING, THE CONTRACTOR SHALL VERIFY LOCATION & DEPTH OF ALL EXISTING LINES AFFECTED BY THE CONTRACT & IMMEDIATELY NOTIFY THE PROJECT MANAGER IF ANY REROUTING OF EXISTING LINES IS NECESSARY.

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

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SAN DIEGO, CA 92126
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619.736.3766

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WALNUT CREEK, CA 94598

LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA

02/22/2023

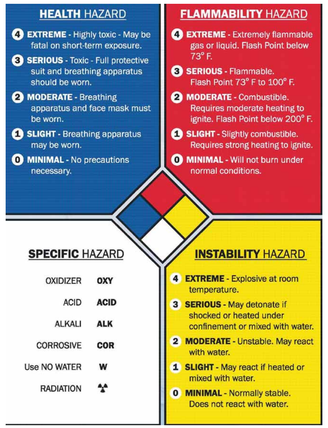
SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
GENERAL NOTES & SPECIFICATIONS

T-3 1

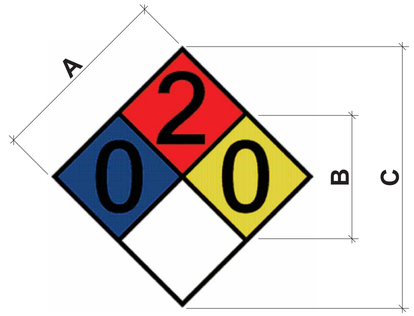
NFPA SIGNAGE

4



A SIGN SIZE (IN)	B LETTER SIZE (IN)	C HEIGHT & WIDTH (IN)
1.0	.04	1.4
2.5	1.0	3.5
5.0	2.0	7.1
7.5	3.0	10.6
10.0	4.0	14.1
12.0	4.75	16.9
15.0	6.0	21.2
18.0	7.2	25.5
24.0	9.6	33.9
30.0	12.0	42.4

NFPA SIGN & LETTER DIMENSION REFERENCE



REQUIRED NFPA SIGNAGE

WARNING / EMERGENCY CONTACT SIGNAGE

3

IN CASE OF
EMERGENCY
CALL
1-866-400-6040

SITE NUMBER: 304480
SITE NAME: SANDERS RANCH

EMERGENCY CONTACT SIGNAGE

DANGER

DIESEL FUEL
NO SMOKING
NO OPEN FLAMES

NOTE:
PLEASE GET THE APPROVAL FROM VERIZON WIRELESS BEFORE FABRICATION

WARNING SIGNAGE AT EQUIPMENT ENCLOSURE DOOR

2

IN CASE OF
EMERGENCY
CALL
1-800-264-6620

SITE NO: 304480

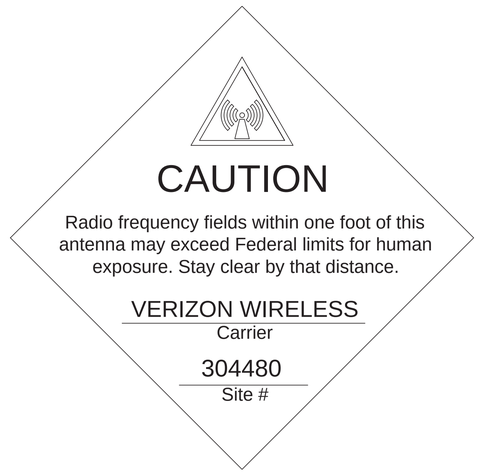
verizonwireless

SANDERS RANCH

NOC WEST 1-800-264-6620



TYPICAL NOTICE SIGN | TYPICAL CAUTION SIGN | TYPICAL WARNING SIGN



TYPICAL CAUTION SIGN

WARNING SIGNAGE

1

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

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02/22/2023

SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
WARNING SIGNAGE & NOTES

T-4

NOTES

OWNER(S): COMMON AREA–TRACT 6292 / SANDERS RANCH HO ASSN

APN: 258–300–019–1

THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY OF ANY PARCEL OF LAND, NOR DOES IT IMPLY OR INFER THAT A BOUNDARY SURVEY WAS PERFORMED. THIS IS A SPECIALIZED TOPOGRAPHIC MAP WITH PROPERTY AND EASEMENTS BEING A GRAPHIC DEPICTION BASED ON INFORMATION GATHERED FROM VARIOUS SOURCES OF RECORD AND AVAILABLE MONUMENTATION. PROPERTY LINES AND LINES OF TITLE WERE NEITHER INVESTIGATED NOR SURVEYED AND SHALL BE CONSIDERED APPROXIMATE ONLY. NO PROPERTY MONUMENTS WERE SET.

THE EASEMENTS (IF ANY) THAT APPEAR ON THIS MAP HAVE BEEN PLOTTED BASED SOLELY ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT BY: FIRST AMERICAN TITLE INSURANCE COMPANY, FILE NO. 6096040, DATED NOVEMBER 19, 2019. WITHIN SAID TITLE REPORT THERE ARE THIRTEEN (13) EXCEPTIONS LISTED, TEN (10) OF WHICH ARE EASEMENTS AND THREE (3) OF WHICH CAN NOT BE PLOTTED.

THE UNDERGROUND UTILITIES (IF ANY) THAT APPEAR ON THIS MAP HAVE BEEN LOCATED BY FIELD OBSERVATION. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES STATE THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE.

THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD RATE MAP FOR COMMUNITY NO. 060637, PANEL NO. 0428F DATED JUNE 16, 2009 SHOWS THAT THE LOCATION OF THIS SITE FALLS WITHIN ZONE X, WHICH ARE AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THE LATITUDE AND LONGITUDE AT THE LOCATION AS SHOWN WAS DETERMINED BY GPS OBSERVATIONS.

LAT. 37° 49' 25.71" N. NAD 83
LONG. 122° 06' 52.02" W. NAD 83
ELEV. 838.4' NAVD 88 (BASIS OF DRAWING)

The information shown above meets or exceeds the requirements set forth in FAA order 8260.19D for 1–A accuracy (± 20' horizontally and ± 3' vertically). The horizontal datum (coordinates) are expressed as degrees, minutes and seconds, to the nearest hundredth of a second. The vertical datum (heights) are expressed in feet and decimals thereof and are determined to the nearest 0.1 foot.

LESSOR'S PROPERTY LEGAL DESCRIPTION PER TITLE REPORT:

REAL PROPERTY IN THE TOWN OF MORAGA, COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL C, AS SHOWN ON THAT CERTAIN MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH", WHICH MAP WAS FILED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA ON MAY 30, 1985, IN BOOK 289 OF MAPS PAGE(S) 33–45. EXCEPTING THEREFROM THAT PORTION GRANTED TO J. B. POTTS, ET UX RECORDED JANUARY 11, 1996 INSTRUMENT NO. 1996– 5182 OF OFFICIAL RECORDS.

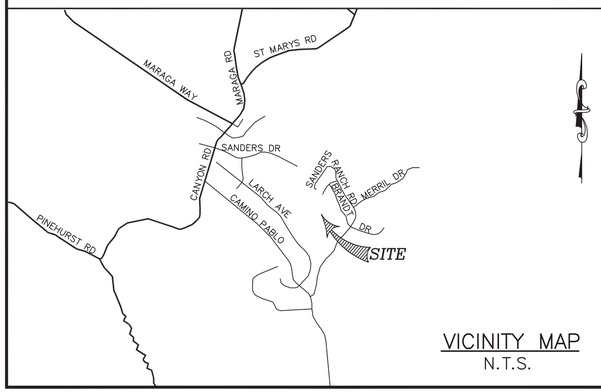
APN: 258–300–019

EASEMENT(S) PER TITLE REPORT:

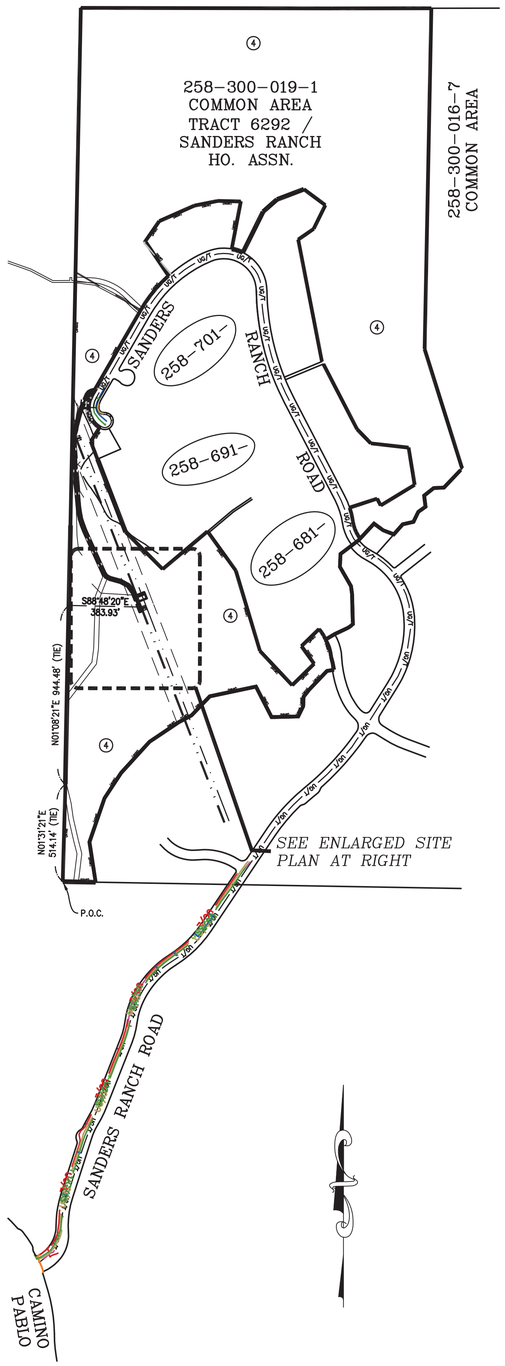
SEE SHEET C–5.

LEGAL DESCRIPTIONS:

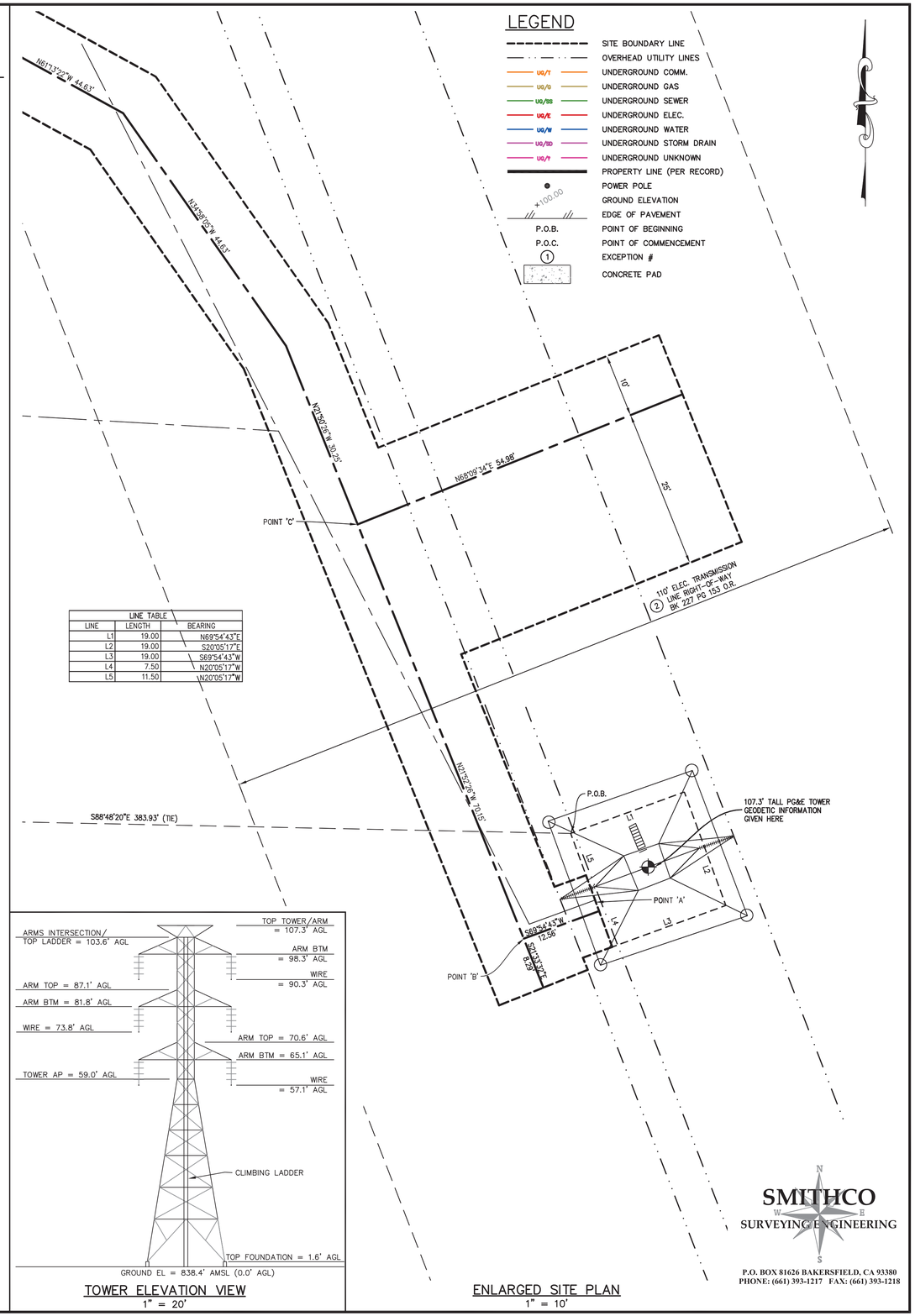
SEE SHEET C–5.



VICINITY MAP
N.T.S.



OVERALL SITE MAP
1" = 400'



LINE TABLE		
LINE	LENGTH	BEARING
L1	19.00	N69°54'43"E
L2	19.00	S20°05'17"E
L3	19.00	S69°54'43"W
L4	7.50	N20°05'17"W
L5	11.50	N20°05'17"W

ENLARGED SITE PLAN
1" = 10'

TOWER ELEVATION VIEW
1" = 20'

LEGEND

- SITE BOUNDARY LINE
- OVERHEAD UTILITY LINES
- UG/T — UNDERGROUND COMM.
- UG/G — UNDERGROUND GAS
- UG/SS — UNDERGROUND SEWER
- UG/E — UNDERGROUND ELEC.
- UG/W — UNDERGROUND WATER
- UG/SD — UNDERGROUND STORM DRAIN
- UG/Y — UNDERGROUND UNKNOWN
- PROPERTY LINE (PER RECORD)
- POWER POLE
- ×100.00 — GROUND ELEVATION
- EDGE OF PAVEMENT
- P.O.B. — POINT OF BEGINNING
- P.O.C. — POINT OF COMMENCEMENT
- (1) — EXCEPTION #
- CONCRETE PAD

ISSUE STATUS

REV	DATE	DESCRIPTION	BY
0	02/07/20	PRELIMINARY	DL
6	10/11/22	UPDATE	CJ
7	10/12/22	REVISIONS	CJ
8	10/20/22	REVISIONS	CJ
9	11/08/22	ADDITIONAL TOPO	EJ
10	12/19/22	REVISIONS	EJ
11	02/07/23	REVISIONS	CJ
12	03/28/23	REVISIONS	EJ

SMITHCO JOB NO.: 82–1335

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SAC AE DESIGN GROUP, INC.
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SAN DIEGO, CA 92122
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03/28/2023

304480
SANDERS
RANCH

100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA
COUNTY

SHEET TITLE:
SITE SURVEY
FOR EXAMINATION ONLY

C-1

SMITHCO
SURVEYING & ENGINEERING
P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218

LEGEND

- SITE BOUNDARY LINE
- OVERHEAD UTILITY LINES
- UG/T — UNDERGROUND COMM.
- UG/G — UNDERGROUND GAS
- UG/SS — UNDERGROUND SEWER
- UG/E — UNDERGROUND ELEC.
- UG/W — UNDERGROUND WATER
- UG/SD — UNDERGROUND STORM DRAIN
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- +100.00 — GROUND ELEVATION
- EDGE OF PAVEMENT
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PHONE: (661) 393-1217 FAX: (661) 393-1218

258-300-019-1
COMMON AREA
TRACT 6292 /
SANDERS RANCH
HO. ASSN.
(4)

SANDERS RANCH ROAD — 56'

PROPOSED LESSEE UTILITY ROUTE

258-681-

258-691-

258-701-

SEE SHEET C - 4

(102.87') (130.00') (114.19') (137.09') (163.00') (41.00') (50.00') (60.00') (140.88') (247.95') (180.91') (443.23') (245.82') (249.04') (60.61') (100.00') (69.39') (55.69')

(255.00') (123.88') (125.43') (39.95') (139.92') (215.00') (245.04')

SITE ACCESS

PERALTA CT. — 56'

(522.94')

APPROXIMATE LOCATION

PROPOSED LESSEE UTILITY ROUTE

APPROXIMATE LOCATION

ACCESS & UTILITY ROUTE
1" = 100'

PG&E VAULT #T-12994
U/G WATER LINE PAINT MARK
U/G SEWER LINE PAINT MARK
CCCSD SEWER MANHOLE
U/G ELEC LINE PAINT MARK
U/G COMM. LINE PAINT MARK
CCCSD SEWER MANHOLE
TREE (TYP.)
U/G GAS LINE PAINT MARK
N75°04'38"E 16.78'
N62°07'02"E 14.24'
N36°11'49"E 14.24'
N23°14'13"E 79.89'
STORM DRAIN
N18°37'33"E 32.76'
13.6' WIDE BARBED WIRE GATE
4' TALL BARBED WIRE FENCE
N09°43'33"E 19.95'
N16°49'40"E 34.13'
EXISTING PG&E TOWER
N02°11'30"W 133.26'
N03°51'03"W 97.17'
N05°14'25"W 144.84'
4' TALL BARBED WIRE FENCE
N09°58'33"W 63.88'
N19°26'49"W 63.88'
N24°10'58"W 245.92'
3' WIDE V-GUTTER
3.5' WIDE V-GUTTER
(85.55') (195.38') (513.74') (275.82')
OVERHEAD POWER LINES
OVERHEAD POWER LINES
EXISTING PG&E TRANS. TOWER 107.3' TALL
N61°13'22"W 44.63'
N74°21'01"W 59.73'
N36°43'28"W 22.48'
N61°48'30"W 22.48'

(2732.87') (1368.00')

258-300-019-1
COMMON AREA
TRACT 6292 /
SANDERS RANCH
HO. ASSN.
(4)

ISSUE STATUS

REV	DATE	DESCRIPTION	BY
0	02/07/20	PRELIMINARY	DL
6	10/11/22	UPDATE	CJ
7	10/12/22	REVISIONS	CJ
8	10/20/22	REVISIONS	CJ
9	11/08/22	ADDITIONAL TOPO	EJ
10	12/19/22	REVISIONS	EJ
11	02/07/23	REVISIONS	CJ
12	03/28/23	REVISIONS	EJ

SMITHCO JOB NO.: 82-1335

A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3766

PROPRIETARY INFORMATION

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2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

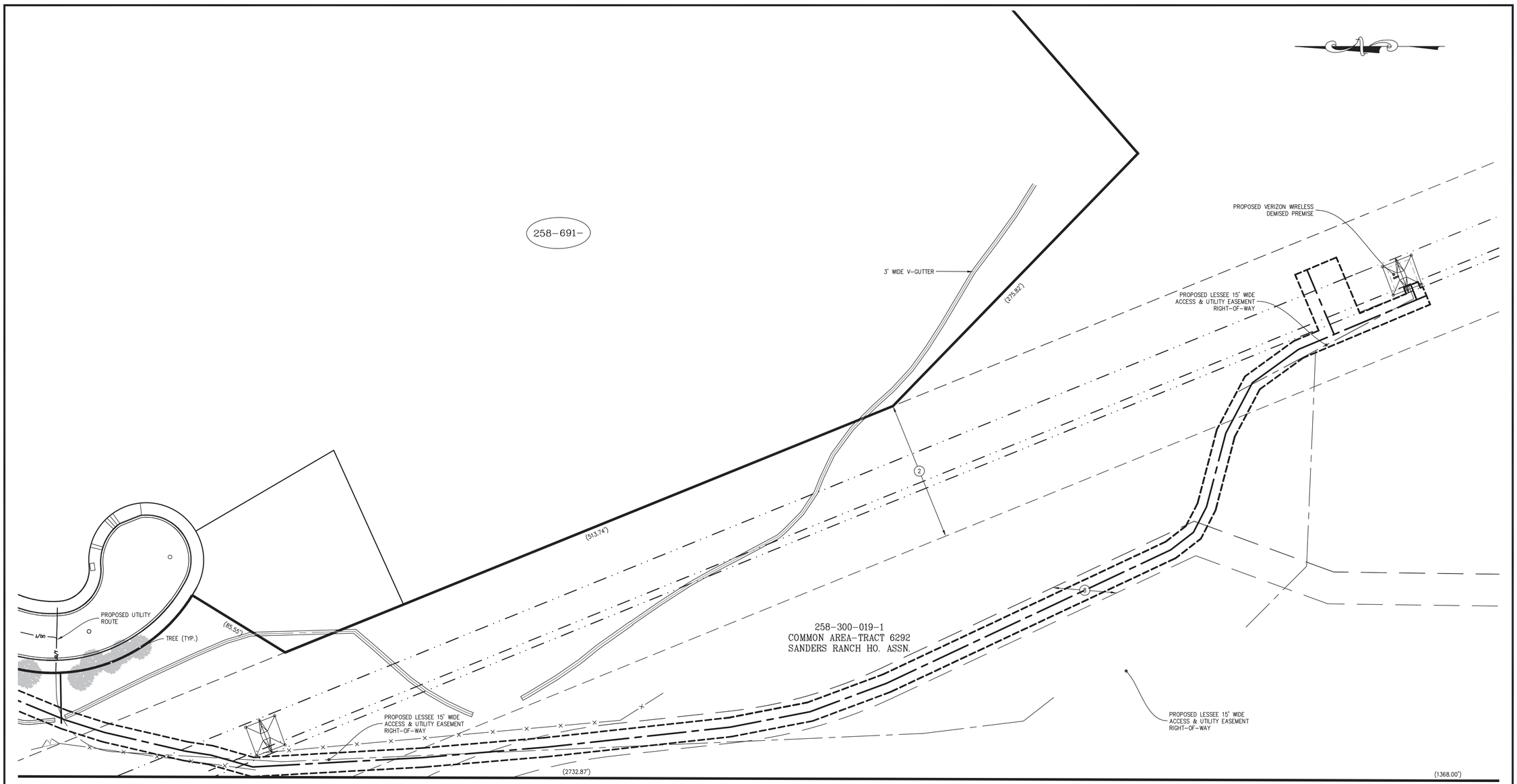
LICENSED LAND SURVEYOR
Christopher A. Jones
No. 9052
STATE OF CALIFORNIA
03/28/2023

304480
SANDERS
RANCH

100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA
COUNTY

SHEET TITLE:
SITE SURVEY
FOR EXAMINATION ONLY

C-2



SITE PLAN
1" = 40'

SMITHCO
SURVEYING & ENGINEERING

P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218

ISSUE STATUS

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11	02/07/23	REVISIONS	CJ
12	03/28/23	REVISIONS	EJ

SMITHCO JOB NO.: 82-1335

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2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED LAND SURVEYOR
Natagnao Aiafi
9052
STATE OF CALIFORNIA
03/28/2023

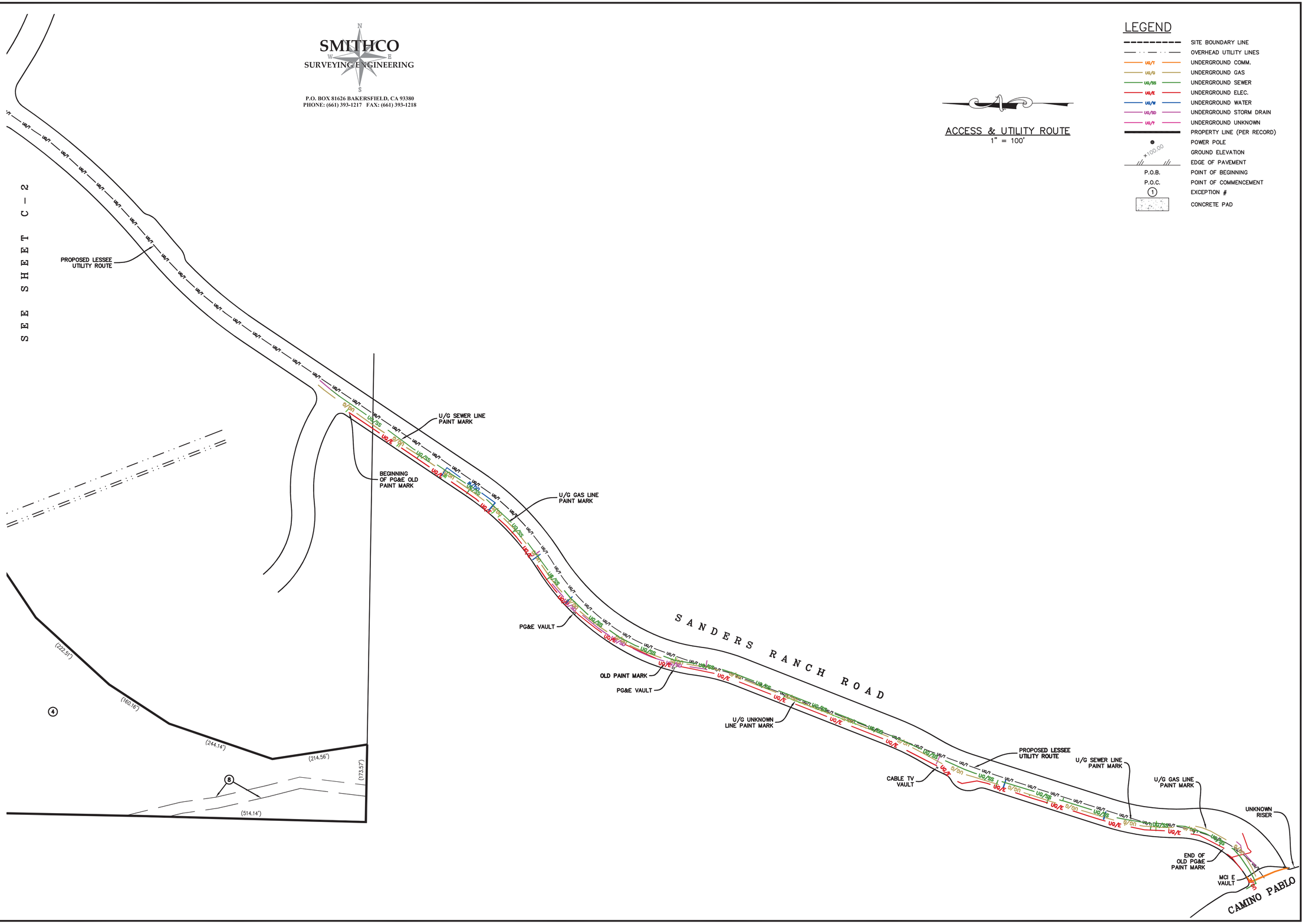
304480 SANDERS RANCH

100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA
COUNTY

SHEET TITLE:
SITE SURVEY
FOR EXAMINATION ONLY

C-3

SMITHCO
SURVEYING & ENGINEERING
P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218



ACCESS & UTILITY ROUTE
1" = 100'

LEGEND

- SITE BOUNDARY LINE
- OVERHEAD UTILITY LINES
- UG/T UNDERGROUND COMM.
- UG/G UNDERGROUND GAS
- UG/SS UNDERGROUND SEWER
- UG/E UNDERGROUND ELEC.
- UG/W UNDERGROUND WATER
- UG/SD UNDERGROUND STORM DRAIN
- UG/? UNDERGROUND UNKNOWN
- PROPERTY LINE (PER RECORD)
- POWER POLE
- +100.00 GROUND ELEVATION
- EDGE OF PAVEMENT
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT
- (1) EXCEPTION #
- CONCRETE PAD

ISSUE STATUS

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7	10/12/22	REVISIONS	CJ
8	10/20/22	REVISIONS	CJ
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10	12/19/22	REVISIONS	EJ
11	02/07/23	REVISIONS	CJ
12	03/28/23	REVISIONS	EJ

SMITHCO JOB NO.: 82-1335

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SAC AE DESIGN GROUP, INC.
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SAN DIEGO, CA 92122
www.sacw.com
619.736.3768

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2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED LAND SURVEYOR
Aniagnan Aiyo
No. 9052
STATE OF CALIFORNIA
03/28/2023

304480 SANDERS RANCH

100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA COUNTY

SHEET TITLE:
SITE SURVEY
FOR EXAMINATION ONLY

C-4

EASEMENT(S) PER TITLE REPORT:

2. AN EASEMENT FOR LINES OF POLE AND TOWER PURPOSES AND INCIDENTAL PURPOSES, RECORDED MARCH 19, 1930 AS BOOK 227, PAGE 153 OF OFFICIAL RECORDS.
IN FAVOR OF: WESTERN POWER COMPANY OF CALIFORNIA
AFFECTS: AS DESCRIBED THEREIN
*** PLOTTED AS SHOWN HEREON ***

3. COVENANTS, CONDITIONS, RESTRICTIONS, EASEMENTS, ASSESSMENTS, LIENS, CHARGES, TERMS AND PROVISIONS IN THE DOCUMENT RECORDED DECEMBER 21, 1983 AS INSTRUMENT NO. 1983–186921 OF OFFICIAL RECORDS, WHICH PROVIDE THAT A VIOLATION THEREOF SHALL NOT DEFEAT OR RENDER INVALID THE LIEN OF ANY FIRST MORTGAGE OR DEED OF TRUST MADE IN GOOD FAITH AND FOR VALUE, BUT DELETING ANY COVENANT, CONDITION, OR RESTRICTION INDICATING A PREFERENCE, LIMITATION OR DISCRIMINATION BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, GENETIC INFORMATION, GENDER, GENDER IDENTITY, GENDER EXPRESSION, SOURCE OF INCOME (AS DEFINED IN CALIFORNIA GOVERNMENT CODE § 12955(P)) OR ANCESTRY, TO THE EXTENT SUCH COVENANTS, CONDITIONS OR RESTRICTIONS VIOLATION 42 U.S.C. § 3604(C) OR CALIFORNIA GOVERNMENT CODE § 12955. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS.
A DECLARATION OF ANNEXATION RECORDED JUNE 19, 1985 AS INSTRUMENT NO. 1985–78638 OF OFFICIAL RECORDS, BUT DELETING ANY COVENANT, CONDITION, OR RESTRICTION INDICATING A PREFERENCE, LIMITATION OR DISCRIMINATION BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, GENETIC INFORMATION, GENDER, GENDER IDENTITY, GENDER EXPRESSION, SOURCE OF
INCOME (AS DEFINED IN CALIFORNIA GOVERNMENT CODE § 12955(P)) OR ANCESTRY, TO THE EXTENT SUCH COVENANTS, CONDITIONS OR RESTRICTIONS VIOLATION 42 U.S.C. § 3604(C) OR CALIFORNIA GOVERNMENT CODE § 12955. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED JUNE 09, 1992 AS INSTRUMENT NO. 1992–145677 OF OFFICIAL RECORDS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED OCTOBER 14, 1999 AS INSTRUMENT NO. 1999–271611 OF OFFICIAL RECORDS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED FEBRUARY 14, 2003 AS INSTRUMENT NO. 2003–54907 OF OFFICIAL RECORDS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED JANUARY 04, 2011 AS INSTRUMENT NO. 2011–11201 OF OFFICIAL RECORDS.
*** NOT PLOTTABLE–BLANKET IN NATURE ***

4. AN EASEMENT SHOWN OR DEDICATED ON THE MAP AS REFERRED TO IN THE LEGAL DESCRIPTION FOR: RECREATIONAL FACILITIES, PARKING, UTILITIES, DRAINAGE, INGRESS, EGRESS, SCENIC & STORM DRAIN AND INCIDENTAL PURPOSES.
THE LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION.
*** PLOTTED AS SHOWN HEREON ***

5. AN EASEMENT FOR THE RIGHT FROM TIME TO TIME TO CONSTRUCT, INSTALL, INSPECT, MAINTAIN, REPLACE, REMOVE, AND USE FACILITIES AND INCIDENTAL PURPOSES, RECORDED JANUARY 14, 1986 AS INSTRUMENT NO. 1986–6336 OF OFFICIAL RECORDS.
IN FAVOR OF: PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION
AFFECTS: AS DESCRIBED THEREIN
*** PLOTTED AS SHOWN HEREON ***

6. AN EASEMENT FOR RIGHT OF WAY FOR THE PURPOSE OF LAYING DOWN, CONSTRUCTING, RECONSTRUCTING, REMOVING, REPLACING, REPAIRING, MAINTAINING, OPERATING AND INCIDENTAL PURPOSES, RECORDED JUNE 25, 1986 AS INSTRUMENT NO. 1986–98750 OF OFFICIAL RECORDS.
IN FAVOR OF: EAST BAY MUNICIPAL UTILITY DISTRICT, A POLITICAL CORPORATION
AFFECTS: AS DESCRIBED THEREIN
*** PLOTTED AS SHOWN HEREON ***

7. AN EASEMENT FOR RIGHT OF WAY AND INCIDENTAL PURPOSES, RECORDED OCTOBER 06, 1986 AS INSTRUMENT NO. 1986–175278 OF OFFICIAL RECORDS.
IN FAVOR OF: SMITH & WALLACE DEVELOPMENT CO., A GENERAL PARTNERSHIP
AFFECTS: AS DESCRIBED THEREIN
*** NOT PLOTTABLE–BLANKET IN NATURE ***

8. AN EASEMENT FOR RIDING AND HIKING TRAIL PURPOSES AND INCIDENTAL PURPOSES, RECORDED APRIL 23, 1987 AS INSTRUMENT NO. 1987–87116 OF OFFICIAL RECORDS.
IN FAVOR OF: EAST BAY REGIONAL PARK DISTRICT
AFFECTS: AS DESCRIBED THEREIN
*** PLOTTED AS SHOWN HEREON ***

9. THE EFFECT OF A DOCUMENT ENTITLED "CERTIFICATE OF LOT LINE ADJUSTMENT", RECORDED SEPTEMBER 04, 1987 AS INSTRUMENT NO. 1987–188353 OF OFFICIAL RECORDS.
THE REQUIREMENT THAT DEEDS ARE RECORDED TO PERFECT LOT LINE ADJUSTMENT.
*** PLOTTED AS SHOWN HEREON ***

10. AN EASEMENT FOR THE RIGHT FROM TIME TO TIME TO CONSTRUCT, RECONSTRUCT, INSTALL, INSPECT, MAINTAIN, REPLACE, REMOVE, AND USE FACILITIES AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 17, 1992 AS INSTRUMENT NO. 1992–234307 OF OFFICIAL RECORDS.
IN FAVOR OF: PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION
AFFECTS: AS DESCRIBED THEREIN
*** APPROXIMATE LOCATION SHOWN HEREON ***

11. AN EASEMENT FOR A NON–EXCLUSIVE EASEMENT IN GROSS AND RIGHT–OF–WAY TO CONSTRUCT, USE, MAINTAIN, OPERATE, ALTER, ADD TO, REPAIR, REPLACE, RECONSTRUCT, INSPECT AND REMOVE AT ANY TIME AND FROM TIME TO TIME A BROADBAND COMMUNICATION SYSTEM (HEREINAFTER REFERRED TO AS THE "COMPANY WIRING") CONSISTING OF WIRES, UNDERGROUND CONDUITS, CABLES, PEDESTALS, VAULTS, AND INCLUDING BUT NOT LIMITED TO ABOVE GROUND ENCLOSURES, MARKERS AND CONCRETE PADS OR OTHER APPURTENANT FIXTURES AND EQUIPMENT NECESSARY OR USEFUL FOR DISTRIBUTING BROADBAND SERVICES AND OTHER LIKE COMMUNICATION, IN, ON, OVER, UNDER, ACROSS THE PROPERTY AND INCIDENTAL PURPOSES, RECORDED FEBRUARY 02, 2018 AS INSTRUMENT NO. 2018–0017368 OF OFFICIAL RECORDS.
IN FAVOR OF: COMCAST OF CALIFORNIA I, INC., ITS SUCCESSORS AND ASSIGNS
AFFECTS: AS DESCRIBED THEREIN
TERMS AND PROVISIONS CONTAINED IN THE ABOVE DOCUMENT.
*** NOT PLOTTABLE–BLANKET IN NATURE ***

PROPOSED VERIZON WIRELESS DEMISED PREMISE DESCRIPTION:

BEING A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWESTERLY MOST CORNER OF SAID PARCEL C; THENCE ALONG THE WEST LINE OF SAID PARCEL C, N 01°31'21" E (SHOWN ON SAID MAP AS N 01°30'52" E), A DISTANCE OF 514.14 FEET TO AN ANGLE POINT THEREON; THENCE CONTINUING ALONG SAID WEST LINE, N 01°08'21" E (SHOWN ON SAID MAP AS N 01°07'52" E), A DISTANCE OF 944.48; THENCE LEAVING SAID WEST LINE, S 88°48'20" E, A DISTANCE OF 383.93 FEET TO THE POINT OF BEGINNING;

COURSE 1) THENCE N 69°54'43" E, A DISTANCE OF 19.00 FEET;
COURSE 2) THENCE S 20°05'17" E, A DISTANCE OF 19.00 FEET;
COURSE 3) THENCE S 69°54'43" W, A DISTANCE OF 19.00 FEET;
COURSE 4) THENCE N 20°05'17" W, A DISTANCE OF 7.50 FEET TO POINT 'A';
COURSE 5) THENCE CONTINUING N 20°05'17" W, A DISTANCE OF 11.50 FEET TO THE POINT OF BEGINNING.

CONTAINING 361 SQUARE FEET, MORE OR LESS.

PROPOSED LESSEE ACCESS & UTILITY EASEMENT RIGHT–OF–WAY DESCRIPTION:

A 12.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 6.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE DESCRIBED POINT 'A';

COURSE 1) THENCE S 69°54'43" W, A DISTANCE OF 12.65 FEET TO POINT 'B' AND TO THE TERMINUS OF THIS DESCRIPTION.

TOGETHER WITH A 15.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 7.50 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE DESCRIBED POINT 'B';

COURSE 1) THENCE S 21°33'32" W, A DISTANCE OF 8.29 FEET TO THE TERMINUS OF THIS DESCRIPTION.

ALSO TOGETHER WITH A 15.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 7.50 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE DESCRIBED POINT 'B';

COURSE 2) THENCE N 21°52'26" W, A DISTANCE OF 70.15 FEET TO POINT 'C';
COURSE 3) THENCE N 21°50'26" W, A DISTANCE OF 30.25 FEET;
COURSE 4) THENCE N 34°58'05" W, A DISTANCE OF 44.63 FEET;
COURSE 5) THENCE N 61°13'22" W, A DISTANCE OF 44.63 FEET;
COURSE 6) THENCE N 74°21'01" W, A DISTANCE OF 59.73 FEET;
COURSE 7) THENCE N 61°48'30" W, A DISTANCE OF 22.48 FEET;
COURSE 8) THENCE N 36°43' 28" W, A DISTANCE OF 22.48 FEET;
COURSE 9) THENCE N 24°10'58" W, A DISTANCE OF 245.92 FEET;
COURSE 10) THENCE N 19°26'49" W, A DISTANCE OF 63.88 FEET;
COURSE 11) THENCE N 09°58'33" W, A DISTANCE OF 63.88 FEET;
COURSE 12) THENCE N 05°14'25" W, A DISTANCE OF 144.84 FEET;
COURSE 13) THENCE N 03°51'03" W, A DISTANCE OF 97.17 FEET;
COURSE 14) THENCE N 02°11'30" W, A DISTANCE OF 133.26 FEET;
COURSE 15) THENCE N 16°49'40" E, A DISTANCE OF 34.13 FEET;
COURSE 16) THENCE N 09°43'33" E, A DISTANCE OF 19.95 FEET;
COURSE 17) THENCE N 14°00'54" E, A DISTANCE OF 65.24 FEET;
COURSE 18) THENCE N 18°37'33" E, A DISTANCE OF 32.76 FEET;
COURSE 19) THENCE N 23°14'13" E, A DISTANCE OF 79.69 FEET;
COURSE 20) THENCE N 36°11'49" E, A DISTANCE OF 14.24 FEET;
COURSE 21) THENCE N 62°07'02" E, A DISTANCE OF 14.24 FEET;
COURSE 22) THENCE N 75°04'38" E, A DISTANCE OF 16.78 FEET TO THE RIGHT–OF–WAY OF SANDERS RANCH ROAD AND TO THE TERMINUS OF THIS DESCRIPTION.

ALSO TOGETHER WITH A 35.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 10.00 FEET ON THE NORTHWEST AND 25.00 FEET ON THE SOUTHEAST SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE MENTIONED POINT 'C':

COURSE 1) THENCE N 68°09'34" E, A DISTANCE OF 54.98 FEET TO THE TERMINUS OF THIS DESCRIPTION.

ALSO TOGETHER WITH A TRIANGULAR SHAPED PARCEL OF LAND BOUNDED ON THE SOUTH BY THE NORTHERLY LINE OF THE ABOVE DESCRIBED STRIP NO. 2, AND BOUNDED ON THE NORTHEAST BY THE NORTHWESTERLY LINE OF THE ABOVE DESCRIBED STRIP NO. 1, AND BOUNDED ON THE NORTHWEST BY THE ARC OF A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 20.00 FEET, SAID CURVE BEING TANGENT TO SAID NORTHERLY AND NORTHWESTERLY LINES.

ALSO TOGETHER WITH A TRIANGULAR SHAPED PARCEL OF LAND BOUNDED ON THE NORTH BY THE SOUTHERLY LINE OF THE ABOVE DESCRIBED STRIP NO. 2, AND BOUNDED ON THE SOUTHEAST BY THE NORTHWESTERLY LINE OF THE ABOVE DESCRIBED STRIP NO. 1, AND BOUNDED ON THE SOUTHWEST BY THE ARC OF A CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 20.00 FEET, SAID CURVE BEING TANGENT TO SAID SOUTHERLY AND NORTHWESTERLY LINES.

ALSO TOGETHER WITH A ROUTE FROM THE POINT OF TERMINUS OF THE ABOVE SAID STRIP NO. 2, ALONG SANDERS RANCH ROAD, AS SAID ROAD IS DEPICTED ON SUBDIVISION 6291, FILED IN BOOK 289, PAGES 33–45 AND SUBDIVISION 6143, FILED IN BOOK 267, PAGES 22–35, CONTRA COSTA RECORDS, TO CAMINO PABLO ROAD.

ISSUE STATUS

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SMITHCO JOB NO.: 82–1335

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2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED LAND SURVEYOR
Antagahan Ajos
No. 9053
STATE OF CALIFORNIA

03/28/2023

304480
SANDERS
RANCH

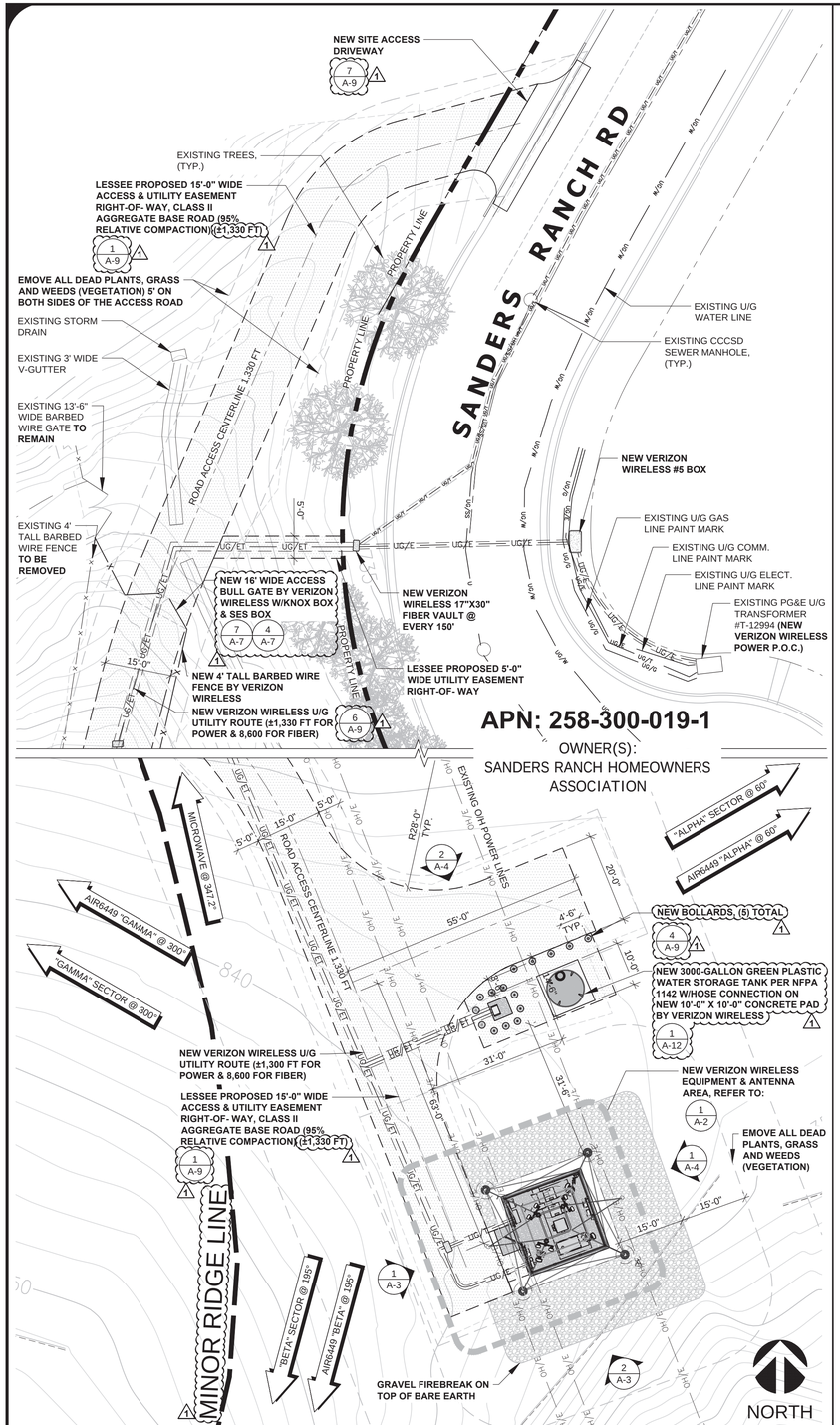
100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA
COUNTY

SHEET TITLE:

SITE SURVEY

FOR EXAMINATION ONLY

C-5

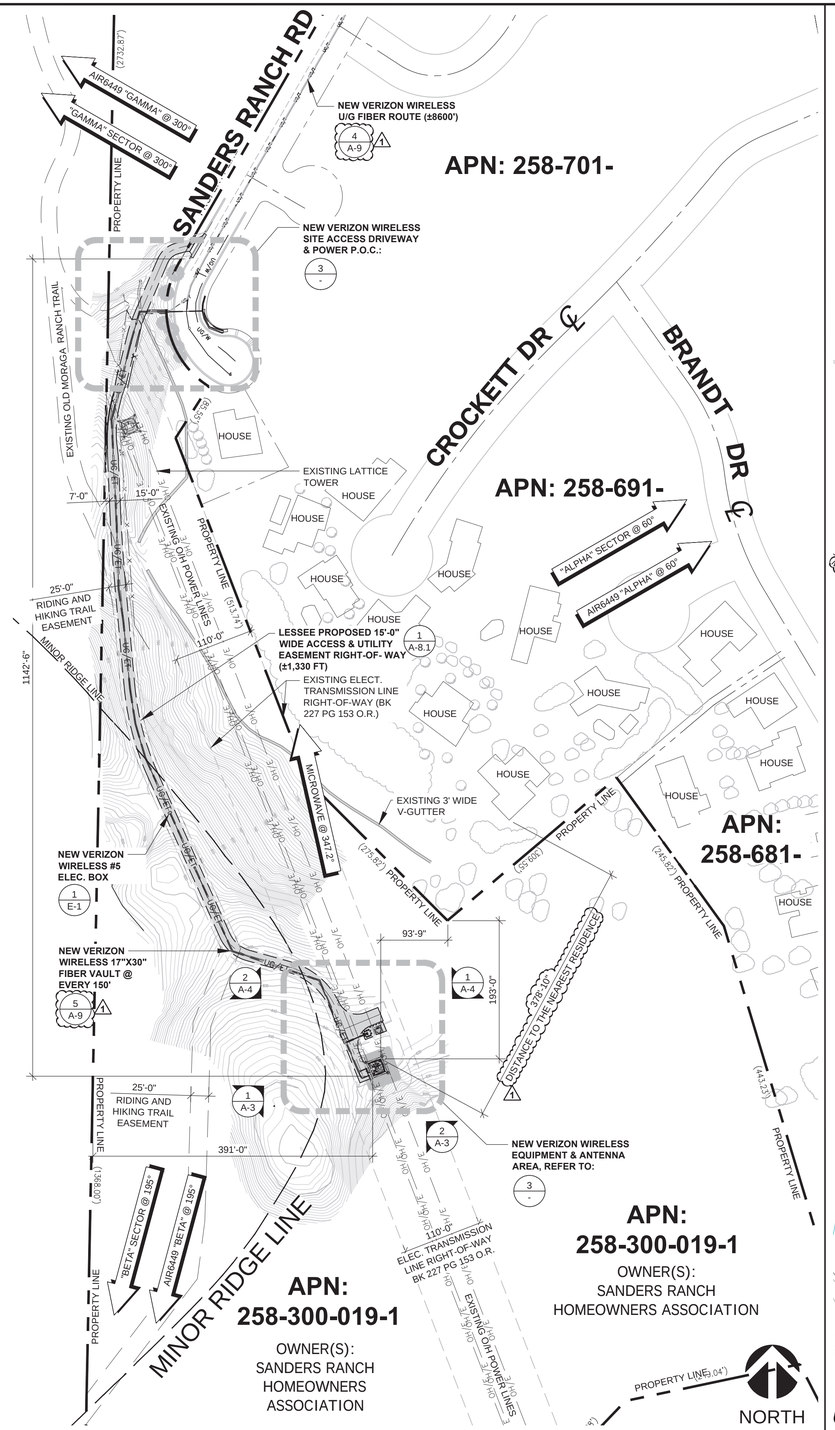


ENLARGED SITE PLAN

0 4' 8' 16'

SCALE: 1/16" = 1'-0" (24x36)
(OR) 1/32" = 1'-0" (11x17)

3

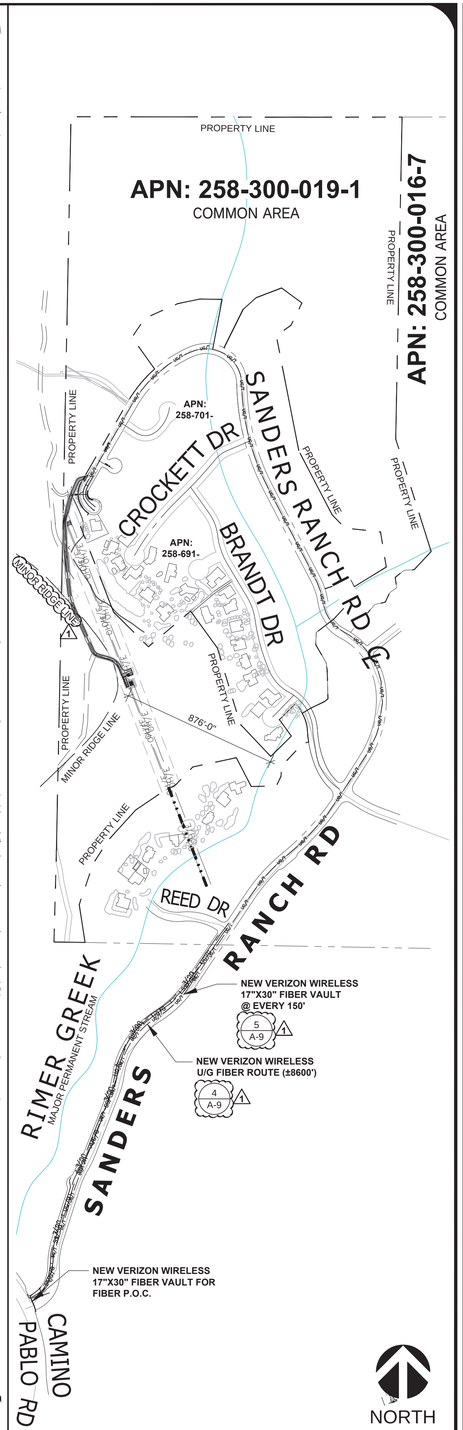


SITE PLAN

100' 0 50' 100'

SCALE: 1" = 100'-0" (24x36)
(OR) 1/2" = 100'-0" (11x17)

2



OVERALL SITE PLAN

SCALE: 1" = 400'-0" (24x36)
(OR) 1/2" = 400'-0" (11x17)

1

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

A Nokia company
9020 ACTIVITY RD.
SAN DIEGO, CA 92126
www.sacw.com
619.736.3766

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2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA

02/22/2023

SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
OVERALL SITE PLAN, SITE PLAN & ENLARGED SITE PLAN

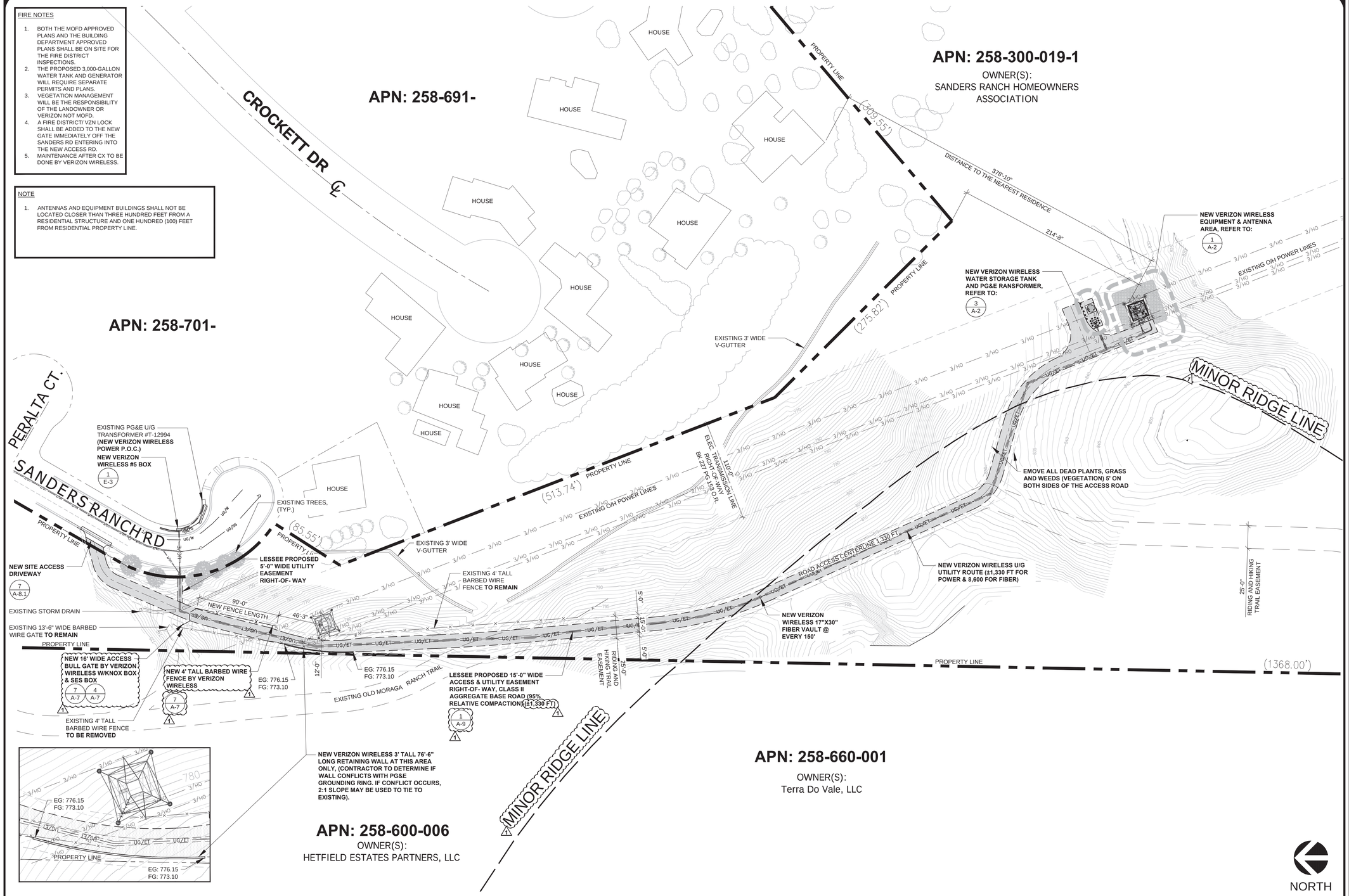
A-1

FIRE NOTES

1. BOTH THE MOFD APPROVED PLANS AND THE BUILDING DEPARTMENT APPROVED PLANS SHALL BE ON SITE FOR THE FIRE DISTRICT INSPECTIONS.
2. THE PROPOSED 3,000-GALLON WATER TANK AND GENERATOR WILL REQUIRE SEPARATE PERMITS AND PLANS.
3. VEGETATION MANAGEMENT WILL BE THE RESPONSIBILITY OF THE LANDOWNER OR VERIZON NOT MOFD.
4. A FIRE DISTRICT/ VZN LOCK SHALL BE ADDED TO THE NEW GATE IMMEDIATELY OFF THE SANDERS RD ENTERING INTO THE NEW ACCESS RD.
5. MAINTENANCE AFTER CX TO BE DONE BY VERIZON WIRELESS.

NOTE

1. ANTENNAS AND EQUIPMENT BUILDINGS SHALL NOT BE LOCATED CLOSER THAN THREE HUNDRED FEET FROM A RESIDENTIAL STRUCTURE AND ONE HUNDRED (100) FEET FROM RESIDENTIAL PROPERTY LINE.



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WALNUT CREEK, CA 94598

LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA
02/22/2023

SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

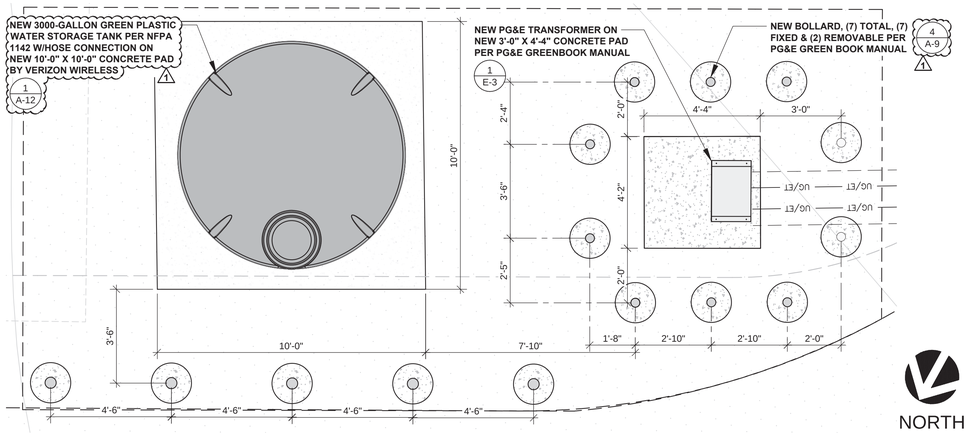
SHEET TITLE:
ENLARGED SITE PLAN

A-1.1

ENLARGED SITE PLAN

50' 0 25' 50'

SCALE: 1" = 50'-0" (24x36)
(OR) 1/2" = 50'-0" (11x17)

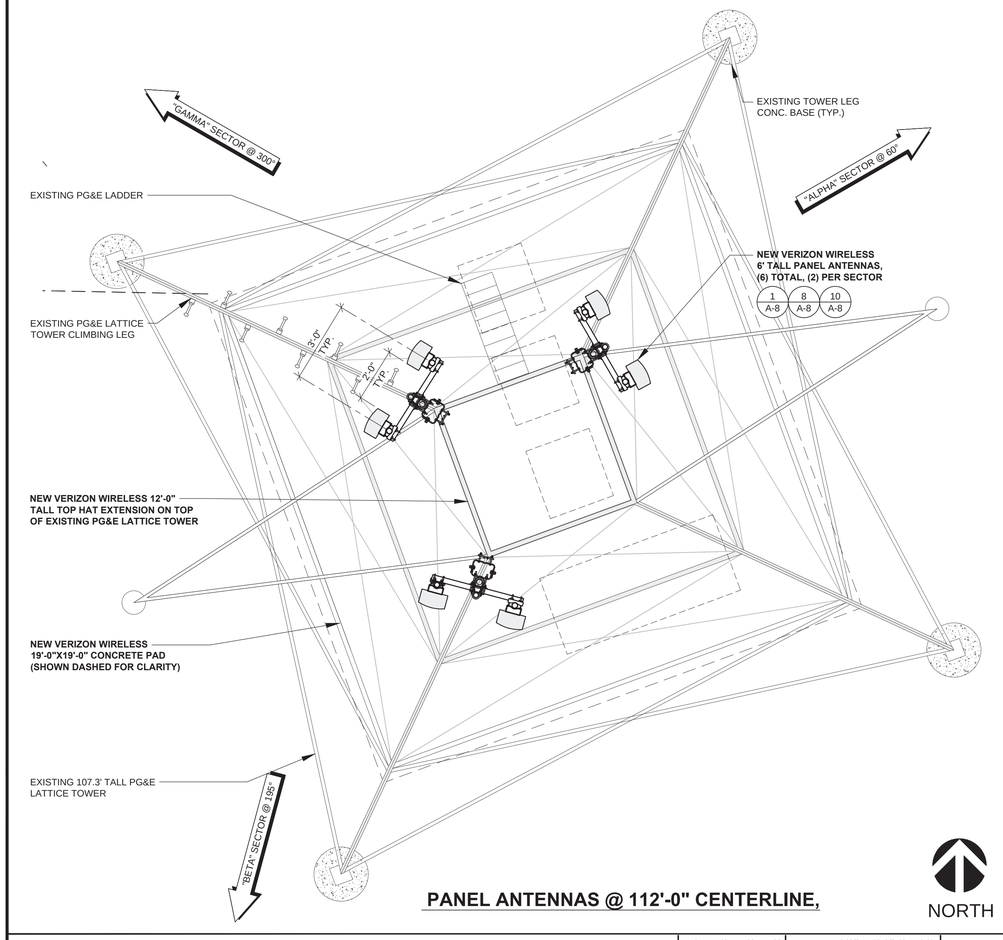


WATER STORAGE TANK & PG&E TRANSFORMER LAYOUT

0 1' 2' 3'

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)

3



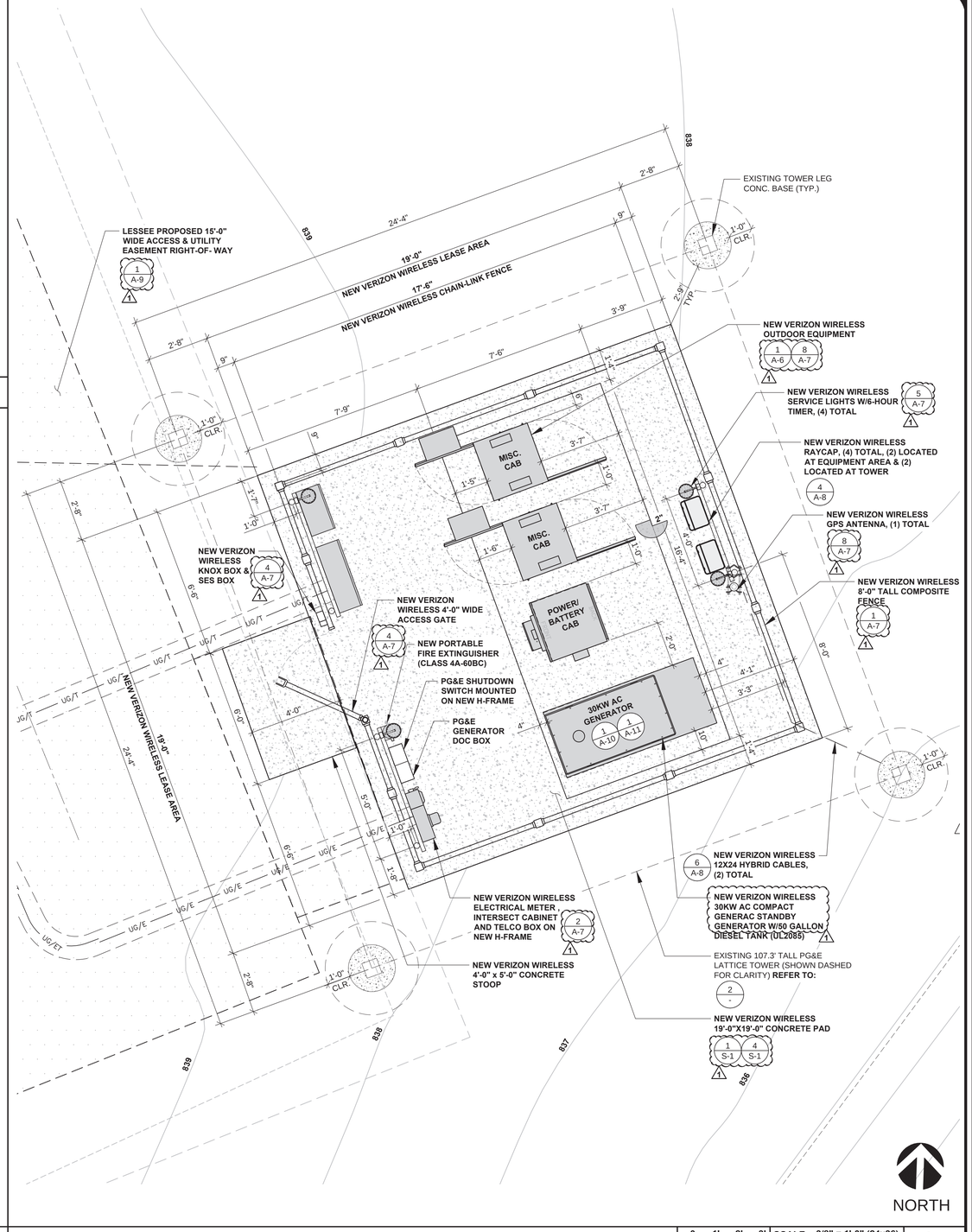
PANEL ANTENNAS @ 112'-0" CENTERLINE,

PANEL ANTENNA LAYOUT

0 1' 2' 3'

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)

2



EQUIPMENT LAYOUT

0 1' 2' 3'

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)

1

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
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www.sacw.com
619.736.3766

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C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA

02/22/2023

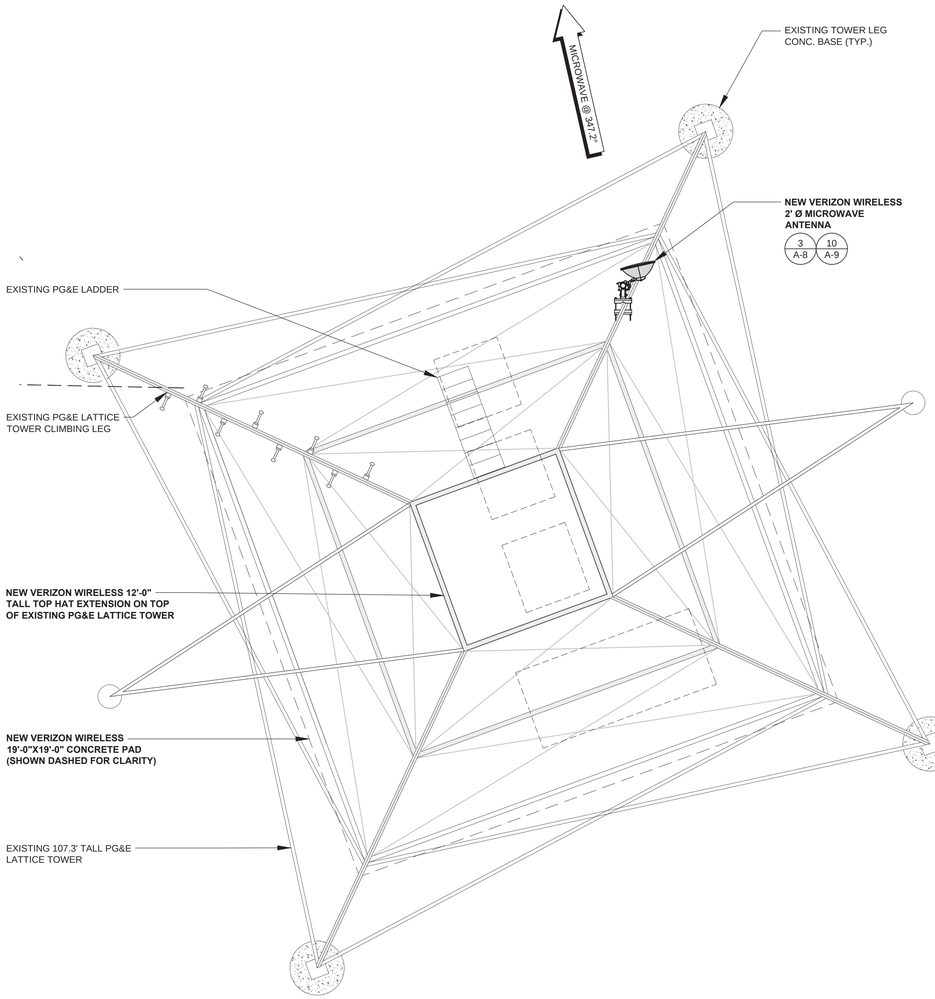
SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:

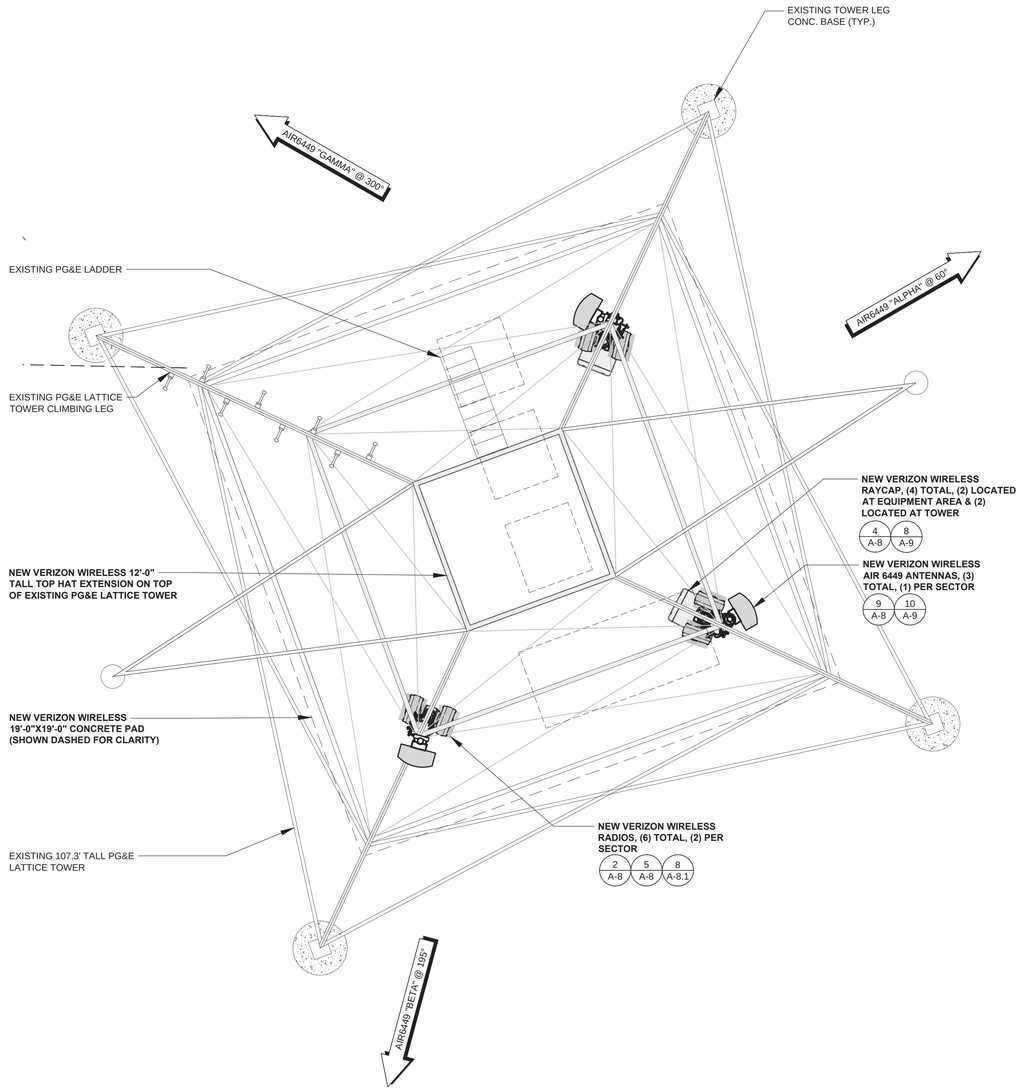
EQUIPMENT & ANTENNA LAYOUTS

A-2



MICROWAVE ANTENNA @ 35'-0" CENTERLINE

NORTH



SUB6 ANTENNAS & RADIOS @ 45'-0" CENTERLINE

NORTH

MICROWAVE ANTENNA LAYOUT | 0 1' 2' 3' | SCALE: 3/8" = 1'-0" (24x36) (OR) 3/16" = 1'-0" (11x17) | 2

6449 ANTENNAS & RADIOS LAYOUT | 0 1' 2' 3' | SCALE: 3/8" = 1'-0" (24x36) (OR) 3/16" = 1'-0" (11x17) | 1

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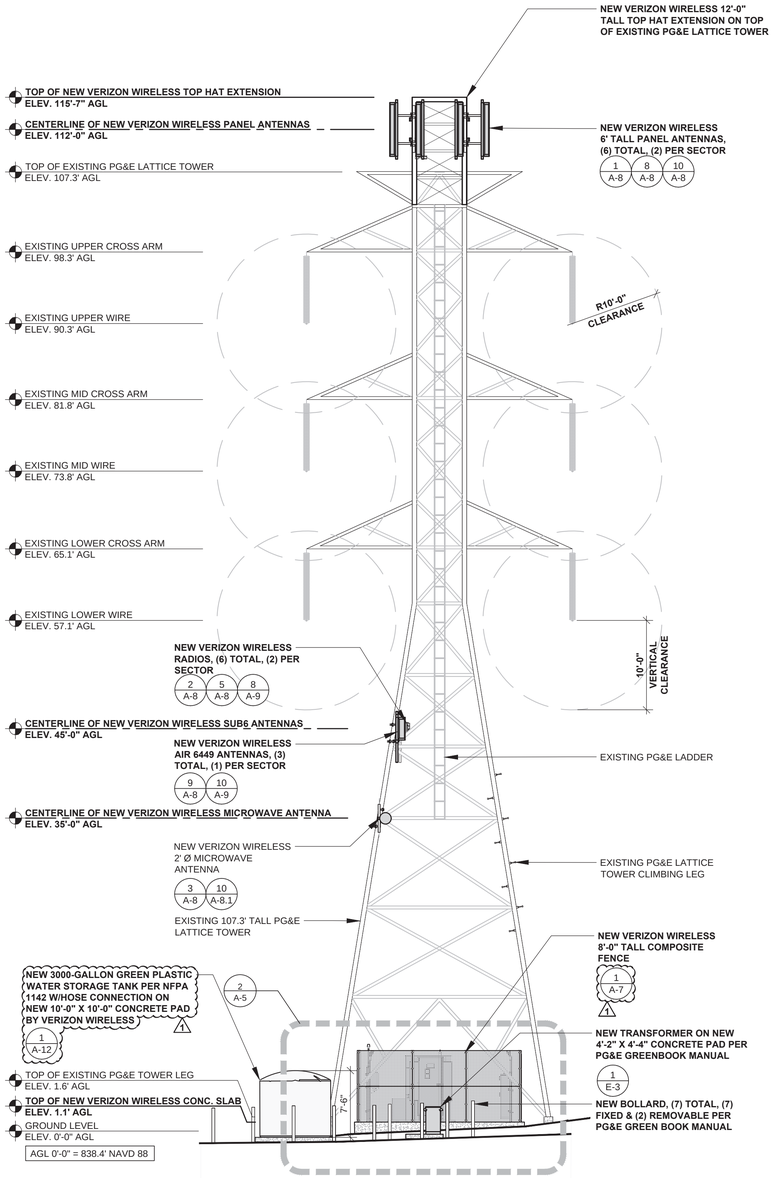
SHEET TITLE:

ANTENNA LAYOUTS

A-2.1

NOTE:

ANTENNAS TO BE A NON-REFLECTIVE FINISH.

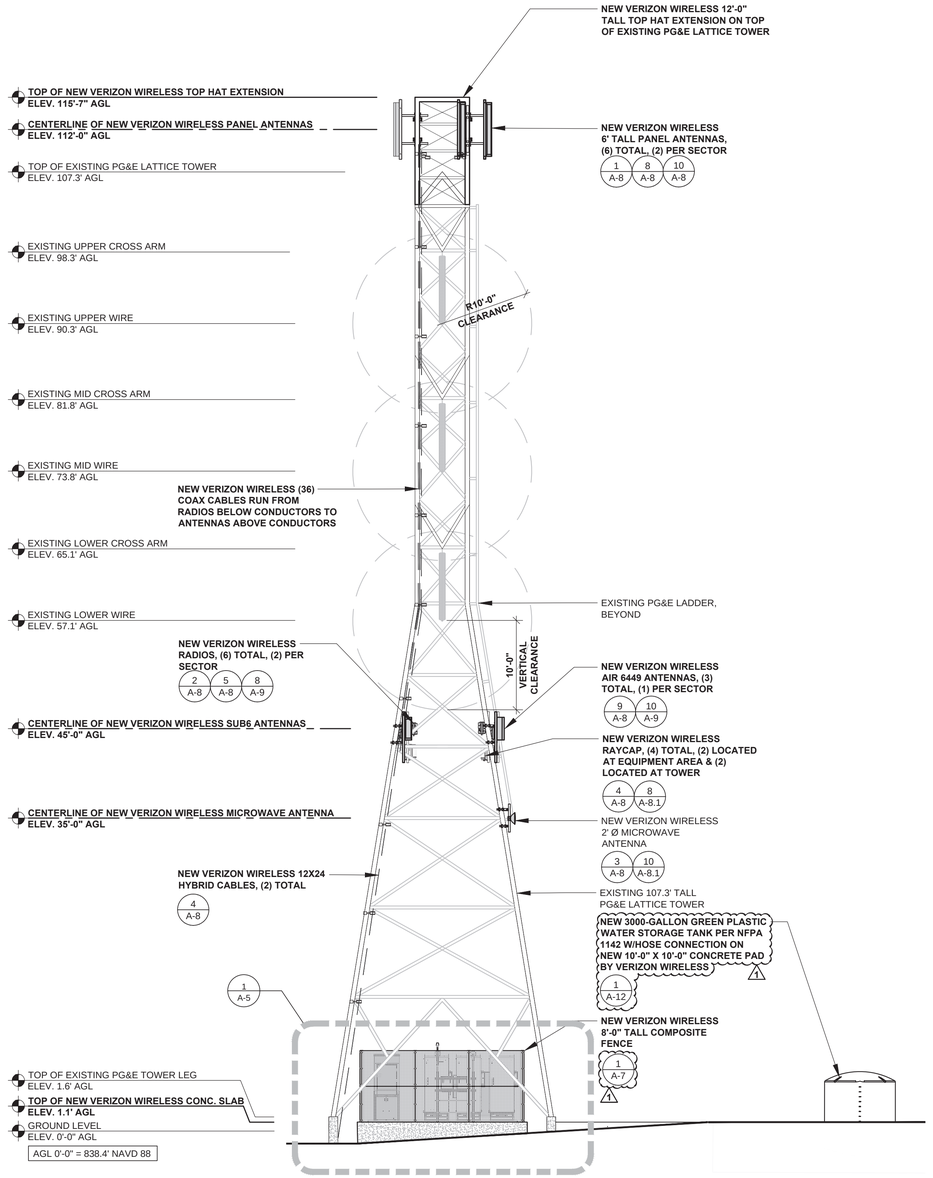


NORTHWEST ELEVATION

0 2' 4' 8'

SCALE: 1/8" = 1'-0" (24x36)
(OR) 1/16" = 1'-0" (11x17)

1



NORTHEAST ELEVATION

0 2' 4' 8'

SCALE: 1/8" = 1'-0" (24x36)
(OR) 1/16" = 1'-0" (11x17)

2

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LICENSED ARCHITECT
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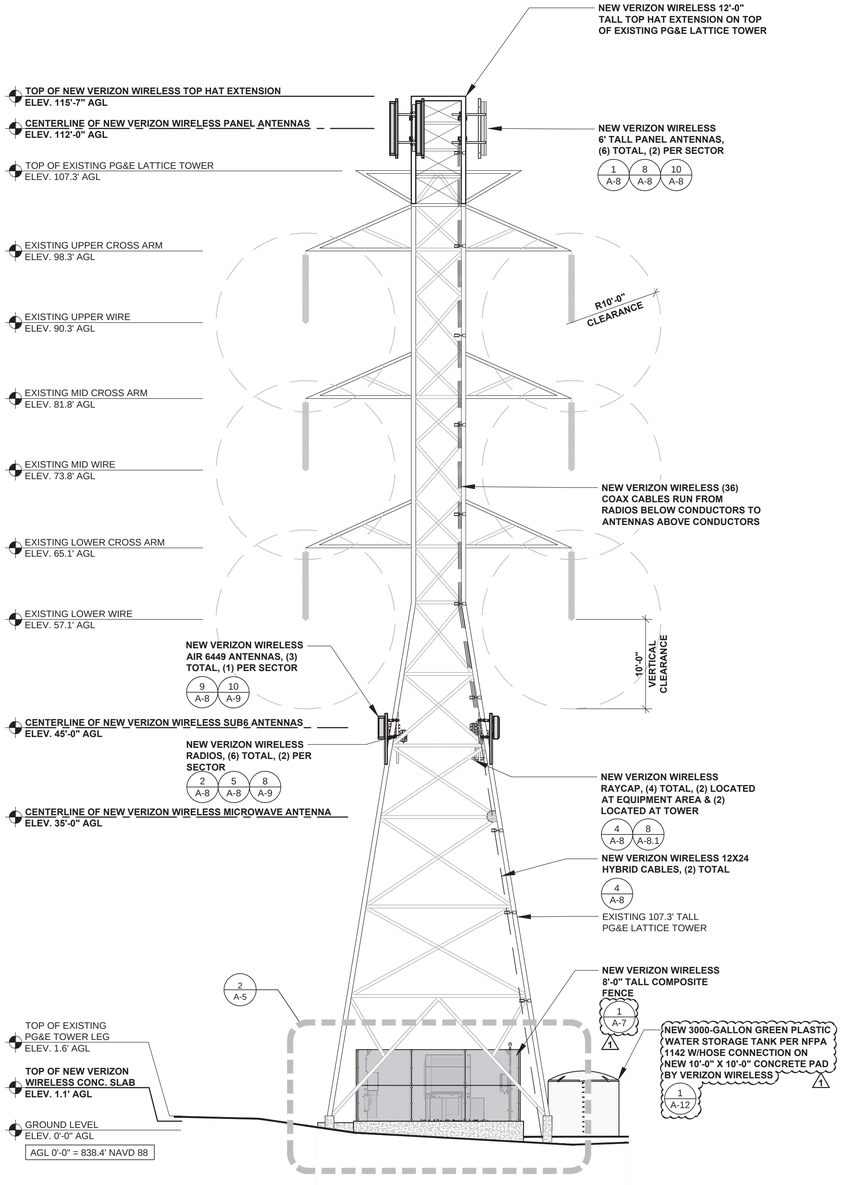
SHEET TITLE:

NORTHWEST & NORTHEAST ELEVATIONS

A-3

NOTE:

ANTENNAS TO BE A NON-REFLECTIVE FINISH.

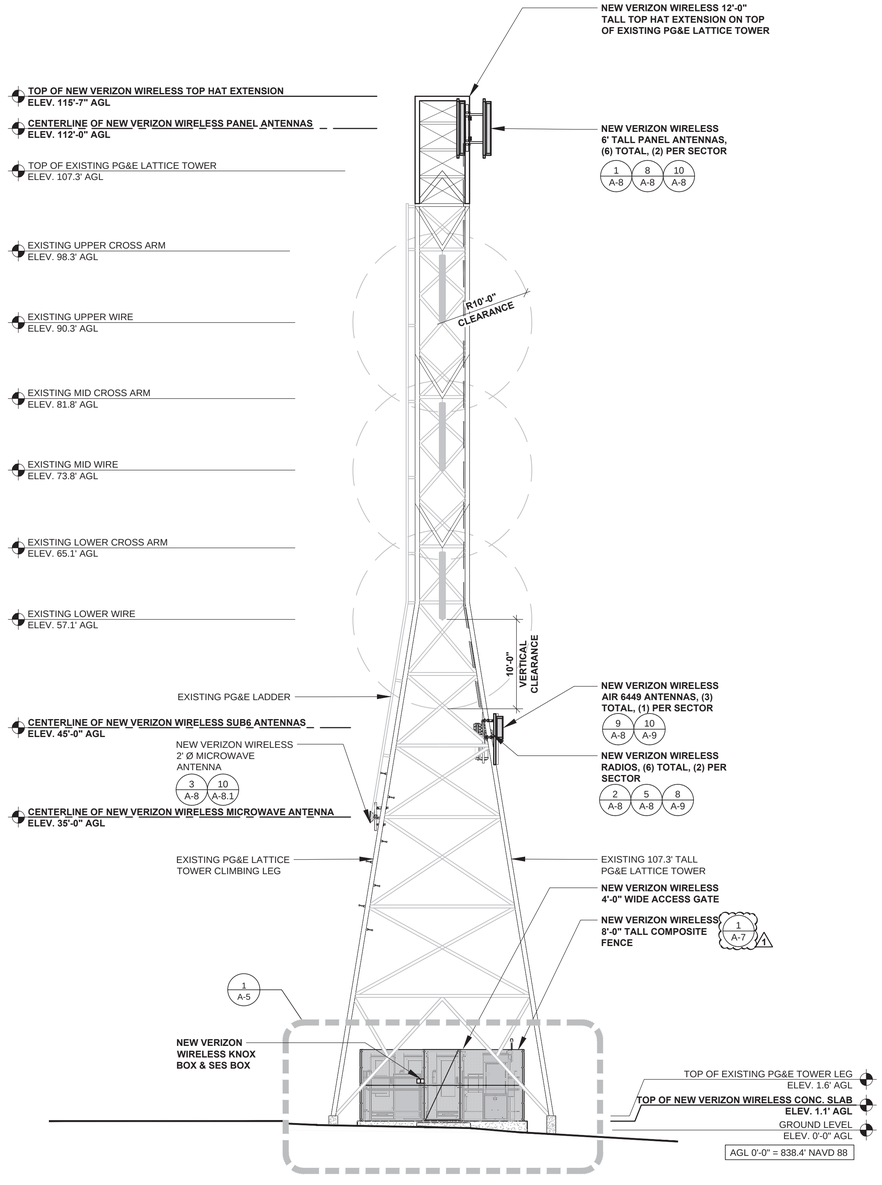


SOUTHEAST ELEVATION

0 2' 4' 8'

SCALE: 1/8" = 1'-0" (24x36)
(OR) 1/16" = 1'-0" (11x17)

1



SOUTHWEST ELEVATION

0 2' 4' 8'

SCALE: 1/8" = 1'-0" (24x36)
(OR) 1/16" = 1'-0" (11x17)

2

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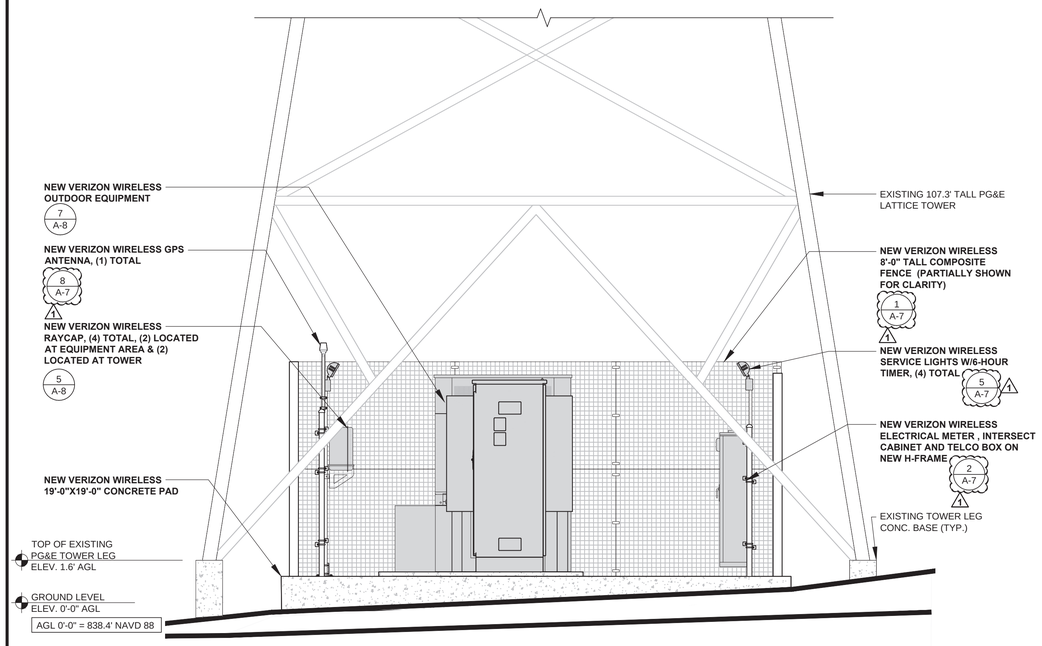
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SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
SOUTHEAST & SOUTHWEST ELEVATIONS

A-4

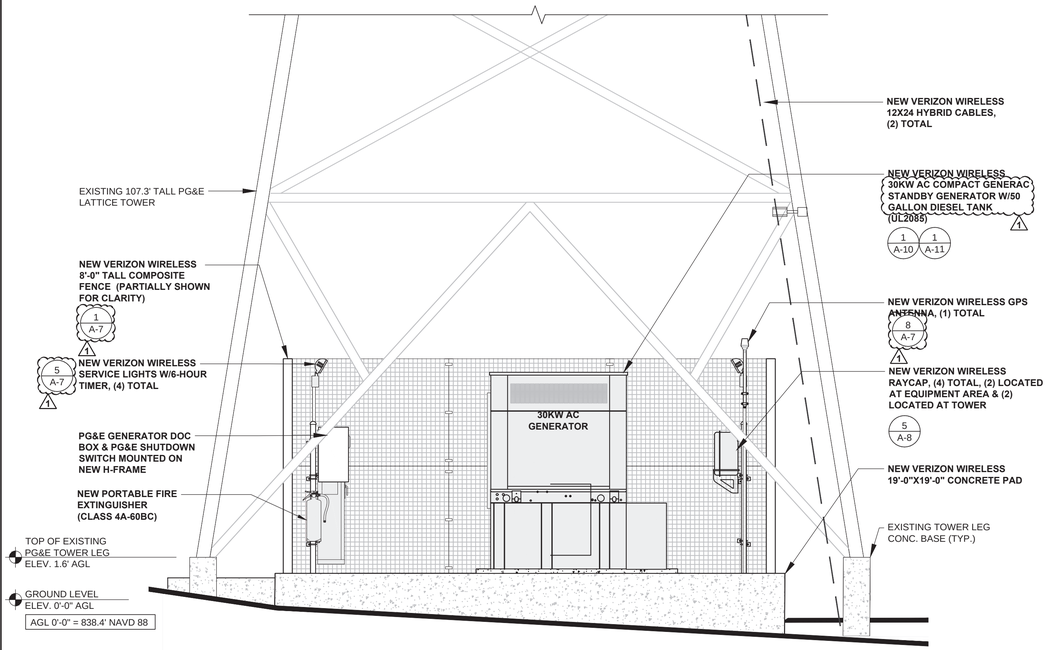


NORTHWEST EQUIPMENT ELEVATION

0 1' 2' 3'

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)

4

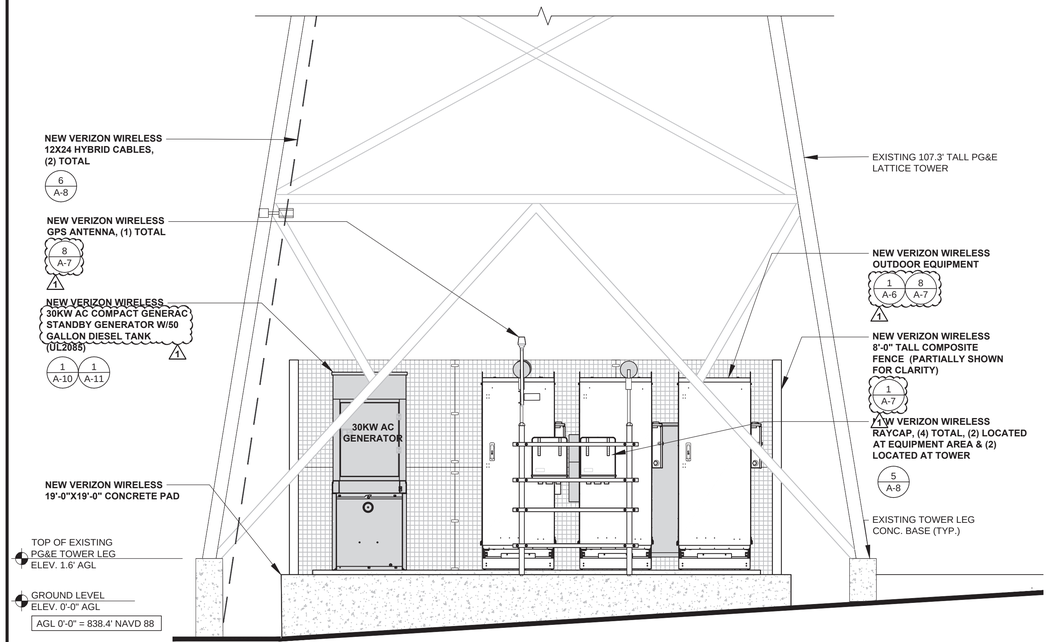


SOUTHEAST EQUIPMENT ELEVATION

0 1' 2' 3'

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)

2

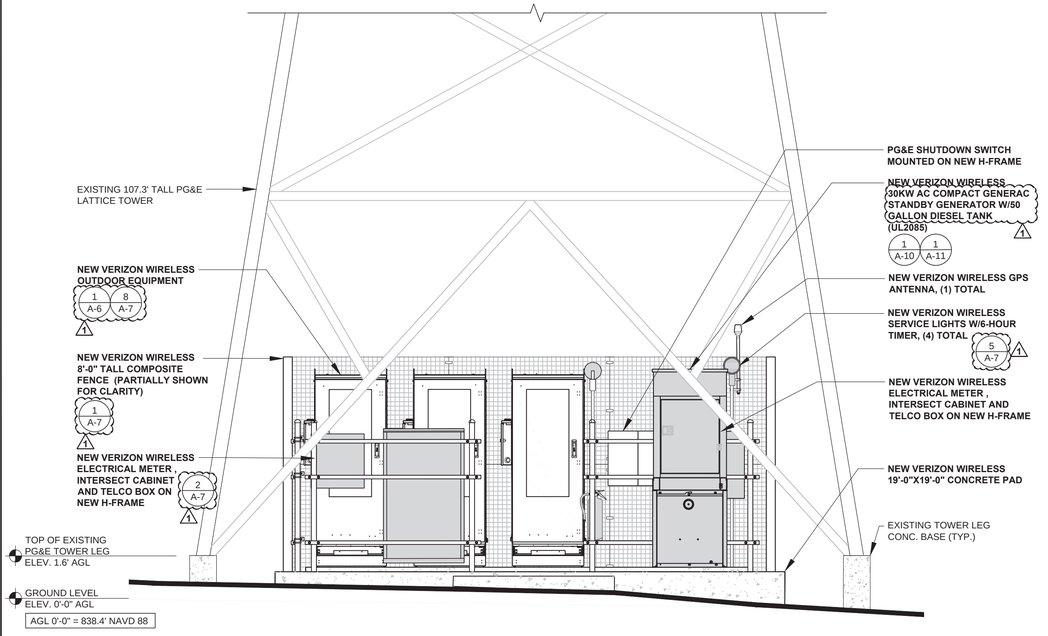


NORTHEAST EQUIPMENT ELEVATION

0 1' 2' 3'

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)

3



SOUTHWEST EQUIPMENT ELEVATION

0 1' 2' 3'

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)

1

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LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA

02/22/2023

SANDERS RANCH PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:

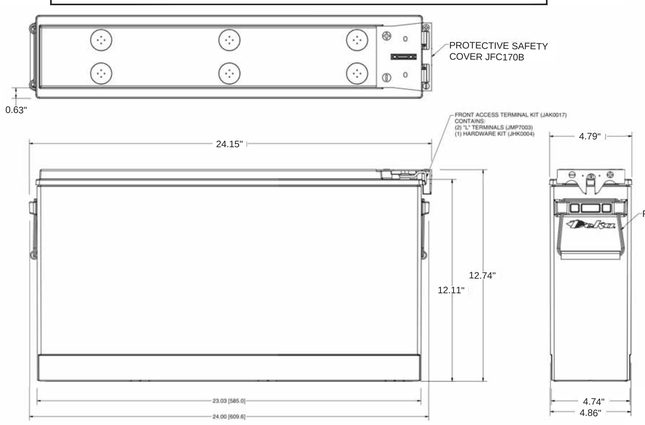
EQUIPMENT ELEVATIONS

A-5

BATTERY INFO

BRAND	MODEL#	ELECTROLYTE CAPACITY/BATERRY (IN GALLONS)	TOTAL BATTERIES ON SITE	TOTAL ELECTROLYTE ON SITE (IN GALLONS)
DEKA FAHRENHEIT	HT200ET	2.59	12	31.08

TOTAL ELECTROLYTE FOR 12 BATTERIES ON SITE: 31.08 GALLONS
4 BATTERIES/1 STRING = 48V DC AT 190A AMP-HOUR
12 BATTERIES = 3 STRINGS= TOTAL AMP-HOURS ON SITE: 190 * 3 = 570 AMP-HOURS
TOTAL KILO-WATT-HOUR ON SITE = 570 * 48 = 27.36 kWh < 70 kWh → O.K





BATTERIES SPECIFICATIONS, TOTAL ELECTROLYTE, AND DC POWER TOTAL CAPACITY (IN kWh)

SCALE N.T.S. | 3

First Color

	Alpha
	Beta
	Gamma

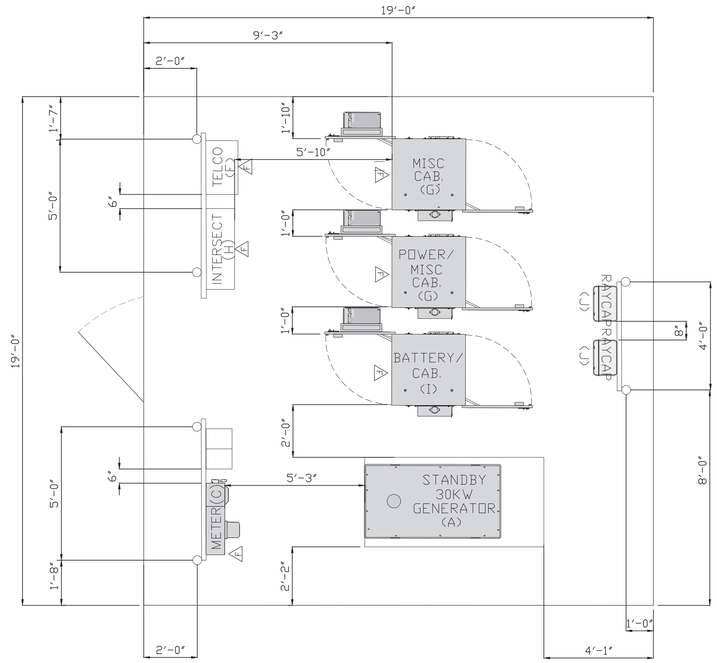
Second Color

	700 LTE
	850
	AWS 2100
	PCS 1900
	AWS3
	5G 28GHz
	5G 39GHz
	CBRA 3.5GHz
white	LAA 5GHz
	Combo of 700 and 850
	Combo of PCS and AWS
Branch/Leg 1 gets one strip of the band color	
Branch/Leg 2 gets two strip of the band color	
Branch/Leg 3 gets thtthree strip of the band color	
Branch/Leg 4 gets four strip of the band color	

Tag only	GPS

ANTENNA COLOR CODE

SCALE N.T.S. | 2



PROPOSED OUTDOOR EQUIPMENT LAYOUT

SCALE: 1/4"=1'-0"

SYM	WIDTH	DEPTH	HEIGHT	WEIGHT
A	2'-9"	5'-1"	7'-0"	3000 LBS
C	7"	5 1/2"	1'-8"	50 LBS
D	1'-1"	1'-0"	1'-6"	75 LBS
E	2'-8"	3'-6"	6'-2"	790 LBS
F	2'-2"	1'-3"	3'-8"	300 LBS
G	2'-7"	2'-7"	7'-6"	1,853 LBS
H	2'-5"	1'-0 1/3"	4'-11"	250 LBS
I	2'-7"	2'-7"	7'-6"	3,000 LBS
J	15.73"	10.25"	19.18"	32 LBS

SHEET 1 | ISSUE X

SITE NAME: **SANDERS RANCH** SITE NUMBER: **304480**

REV 0

NORTH

VERIZON WIRELESS EQUIPMENT LAYOUT

SCALE N.T.S. | 1

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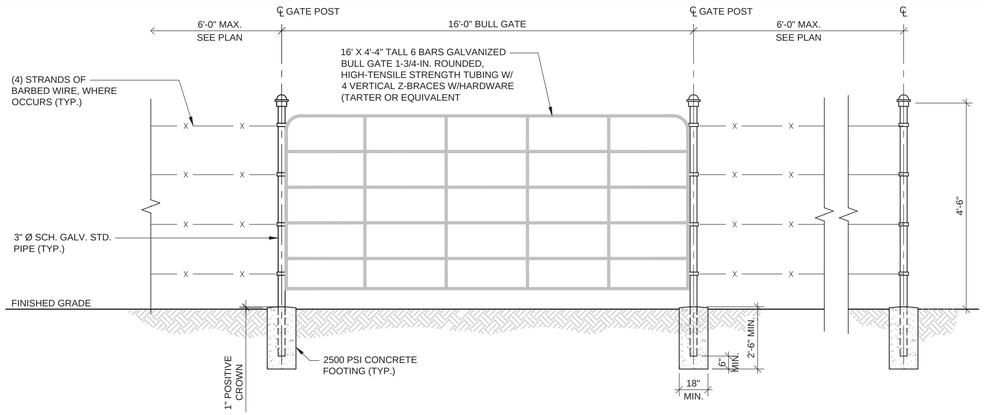
02/22/2023

SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
VERIZON WIRELESS EQUIPMENT LAYOUT, COLOR CODE & BATTERIES SPECIFICATIONS

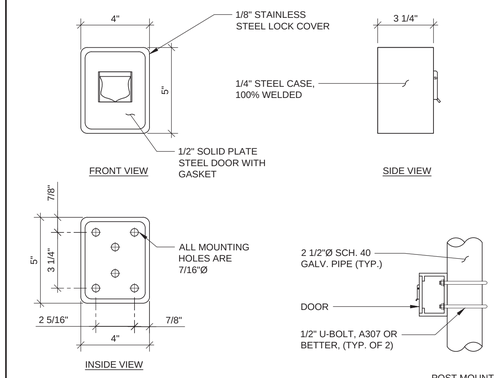
A-6

4



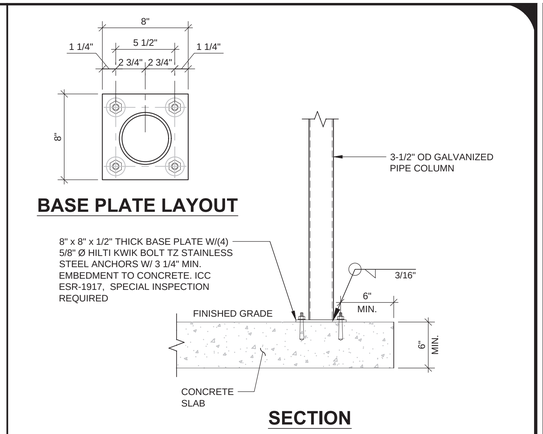
NEW BARBED WIRE FENCE & BULL GATE DETAIL

SCALE	
N.T.S.	7



KNOX BOX DETAIL (POST MOUNT)

SCALE	
N.T.S.	4

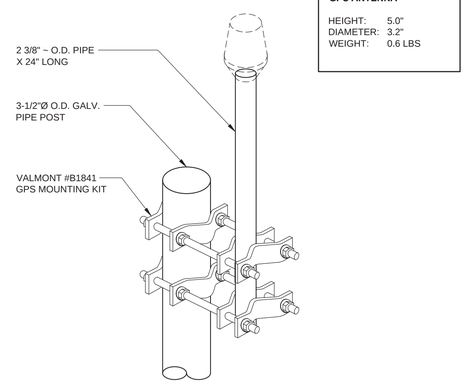


ANCHORING DETAILS

SCALE	
N.T.S.	3

NOT USED

SCALE	
N.T.S.	9

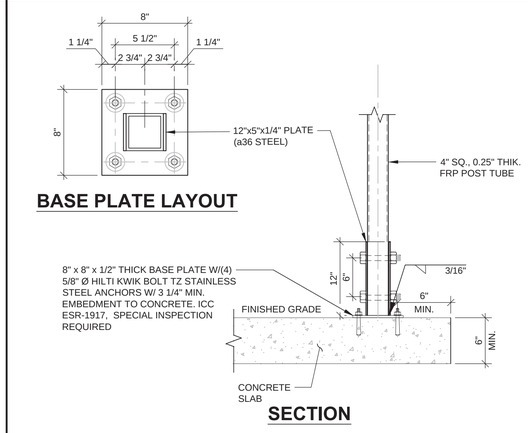


GPS ANTENNA

HEIGHT:	5.0"
DIAMETER:	3.2"
WEIGHT:	0.6 LBS

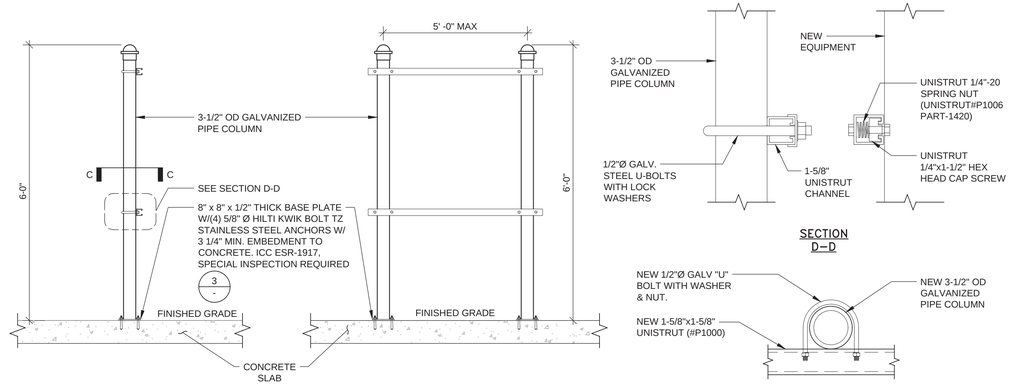
GPS ANTENNA DETAIL

SCALE	
N.T.S.	8



ANCHORING DETAILS

SCALE	
N.T.S.	6

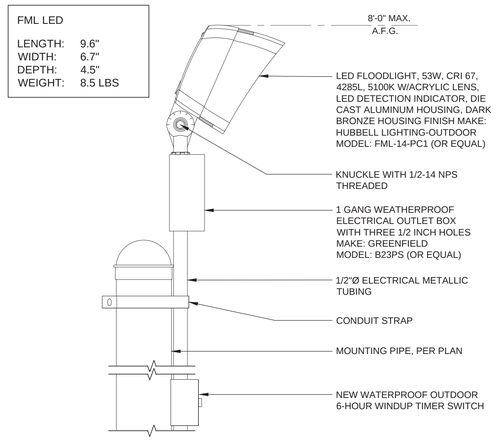


H-FRAME DETAIL

SCALE	
N.T.S.	2

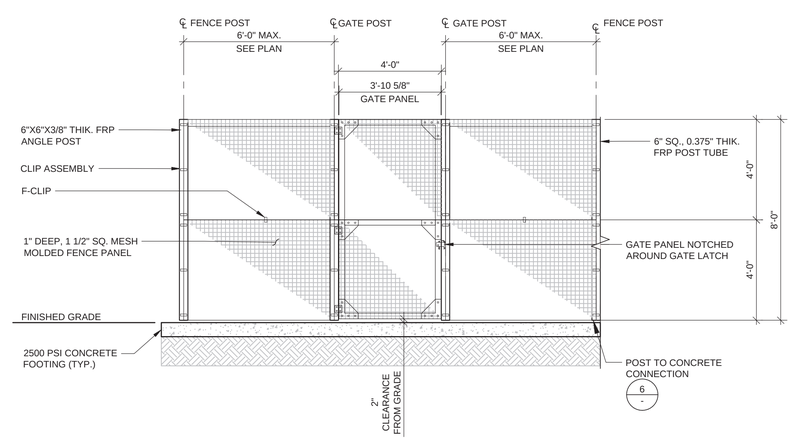
FML LED

LENGTH:	9.6"
WIDTH:	6.7"
DEPTH:	4.5"
WEIGHT:	8.5 LBS



SERVICE TECH. LIGHT DETAIL

SCALE	
N.T.S.	5



COMPOSITE FENCE W/ SINGLE GATE DETAIL

SCALE	
N.T.S.	1

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MORAGA, CA 94566

SHEET TITLE:

DETAILS

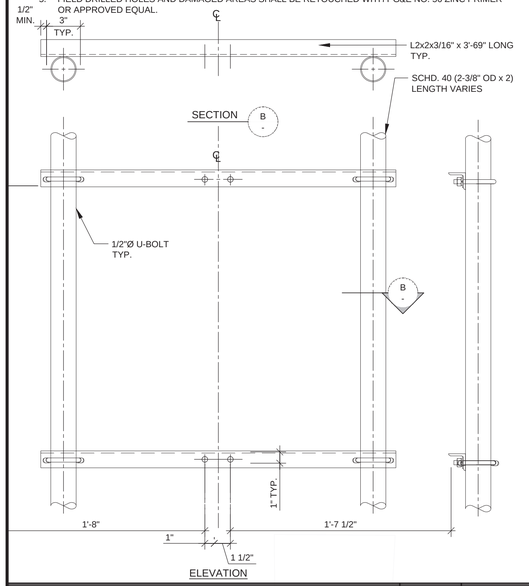
A-7

4

NOT USED

SCALE N.T.S. 11

GENERAL NOTES:
1. MATERIALS AND FABRICATION SHALL CONFORM TO PG&E ENGINEERING STANDARD, LATEST EDITION.
2. PIPES SHALL BE (2") STANDARD SCHEDULE 40, (2-3/8" OD), GALVANIZED. ANGLES AND PLATES SHALL BE ASTM A36.
3. BOLTS SHALL BE (1/2") A325 WITH HEAVY HEX NUTS, GALVANIZED AND HOLES SHALL BE 9/16"Ø.
4. ALL STEEL SHALL BE GALVANIZED AFTER FABRICATION.
5. FIELD DRILLED HOLES AND DAMAGED AREAS SHALL BE RETOUCHED WITH PG&E NO. 56 ZINC PRIMER OR APPROVED EQUAL.

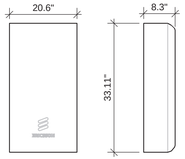


ANTENNA "H" BRACKET MOUNT

SCALE N.T.S. 10

MOUNTING BRACKET PROVIDED W/ ANTENNA (TYP.)
NEW 2" GALVANIZED STEEL PIPE (TYP.)
PIPE MOUNTING KIT (TYP.)
MOUNTING BRACKET PROVIDED W/ ANTENNA (TYP.)
6449 ANTENNA

ERICSSON AIR6449B41, B77D, B78M, B43
LENGTH: 33.11"
WIDTH: 20.6"
DEPTH: 8.3"
WEIGHT: 103.6 LBS



AIR 6449 - ANTENNA

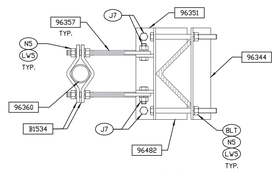
SCALE N.T.S. 9

PARTS LIST

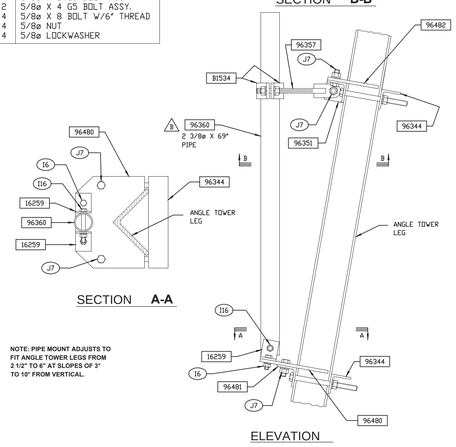
MARK	DESCRIPTION	QTY
141419	BRKT WELDMENT	2
139402	TUBE STEEL	2
139408	BRKT WELDMENT	2
141418	ANGLE	2
139411	ANGLE	2
B1534	FORMED PLATE	2

HARDWARE LIST

SYM	QTY	DESCRIPTION
A5	8	1/2ø X 1 1/2 SET SCREW
J7	4	5/8ø X 1 3/4 G5 BOLT ASSY.
J8	4	5/8ø X 2 G5 BOLT ASSY.
J16	2	5/8ø X 4 G5 BOLT ASSY.
BLT	4	5/8ø X 8 BOLT W/6" THREAD
N5	4	5/8ø NUT
LW5	4	5/8ø LOCKWASHER



SECTION B-B



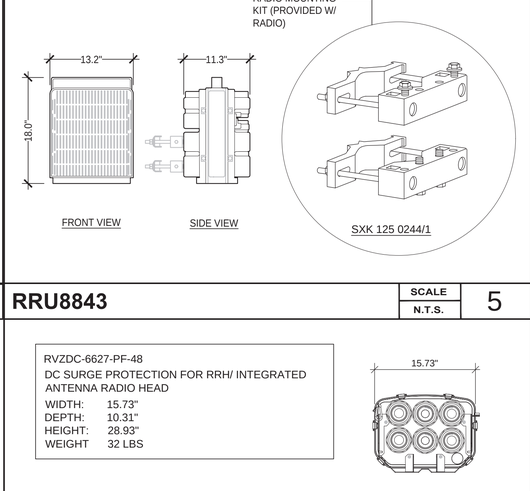
SECTION A-A

NOTE: PIPE MOUNT ADJUSTS TO FIT ANGLE TOWER LEGS FROM 2 1/2" TO 6" AT SLOPES OF 3" TO 10° FROM VERTICAL.

ELEVATION

B139409 MOD FOR B-1709 ASSEMBLY

SCALE N.T.S. 8



PG&E REQUIREMENTS:

TYPICAL RISER LEG IS THE FOOTING OPPOSITE OF THE STEP LEG. CONDUITS TO BE INSTALLED INLINE WITH THE CENTER LINE OF THE TOWER LEG. MINIMUM SPACE BETWEEN CONDUITS. MAXIMUM OF SIX (6) 6" CONDUITS.

CABLE DROP OFF

SCALE N.T.S. 6

MANUFACTURER: ERICSSON
MODEL: RRUS 8843

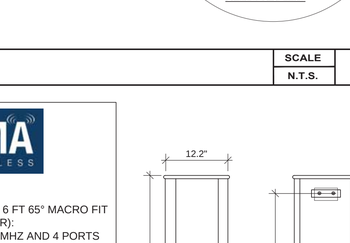
NET WEIGHT: 75 LBS
DIMENSION (LxWxD): 18.0"X13.2"X11.3"
COLOR: WHITE
MOUNTING: STANDARD MOUNTING BRACKET
HARDWARE MATERIAL: HOT DIP GALVANIZED

RRU8843

SCALE N.T.S. 5

MANUF.: MTI
TYPE: PARABOLIC DISH
MODEL: MT518M49VH

GROSS WEIGHT: 17.63 lb
DIMENSIONS (HxWxD): 5.7"x25.7"x11.8"



ANTENNA MOUNTING REFER TO: 10 A-9

NEW MICROWAVE ANTENNA

SCALE N.T.S. 3

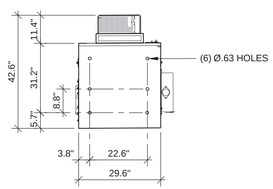
MANUFACTURER: ERICSSON
MODEL: RRUS 4449

NET WEIGHT: 70 LBS
DIMENSION (LxWxD): 18.0"X13.2"X9.4"
COLOR: WHITE
MOUNTING: STANDARD MOUNTING BRACKET
HARDWARE MATERIAL: HOT DIP GALVANIZED

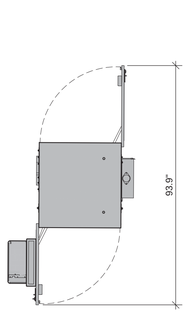
RRU4449

SCALE N.T.S. 2

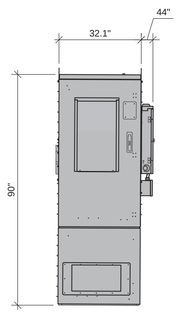
EQUIPMENT CABINET	
DIMENSIONS:	90" H X 33.3" D X 32.1" W
WEIGHT:	± 575 LBS. (EMPTY)
COLOR	OFF-WHITE
MATERIALS:	CABINET: .125 ALUMINUM BATTERY TRAYS: 10GA STEEL



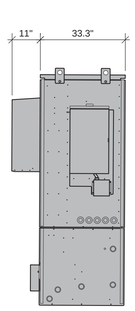
PLAN VIEW
BOLTING PATTERN



TOP VIEW
DOOR CLEARANCES



FRONT VIEW

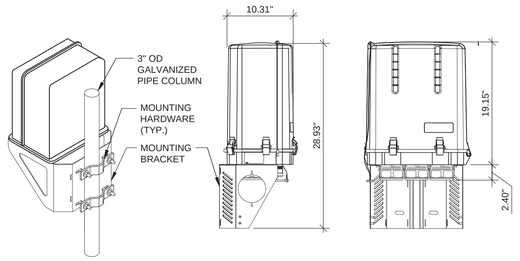


SIDE VIEW

EQUIPMENT CABINET

SCALE N.T.S. 7

RVZDC-6627-PF-48
DC SURGE PROTECTION FOR RRH/ INTEGRATED ANTENNA RADIO HEAD
WIDTH: 15.73"
DEPTH: 10.31"
HEIGHT: 28.93"
WEIGHT 32 LBS

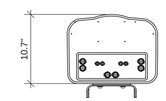


RAYCAP - RVZDC-6627-PF-48

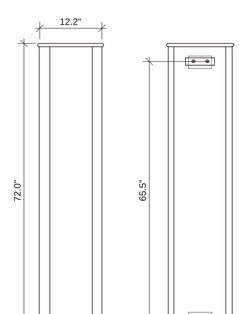
SCALE N.T.S. 4

JMA WIRELESS

MX06FIT665-02
X-POL HEX-PORT 6 FT 65° MACRO FIT (FORM IN TIGHTER):
2 PORTS 698-894 MHZ AND 4 PORTS 1695-2180 MHZ
LENGTH: 71.3"
WIDTH: 12.2"
DEPTH: 10.7"
WEIGHT: 51 LBS



ANTENNA MOUNTING REFER TO: 2 A-9



FRONT VIEW BACK VIEW

ANTENNA - MX06FIT665-02

SCALE N.T.S. 1

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

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SAN DIEGO, CA 92126
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619.736.3766

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WALNUT CREEK, CA 94598

LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA

02/22/2023

SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:

DETAILS

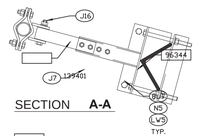
A-8

PARTS LIST

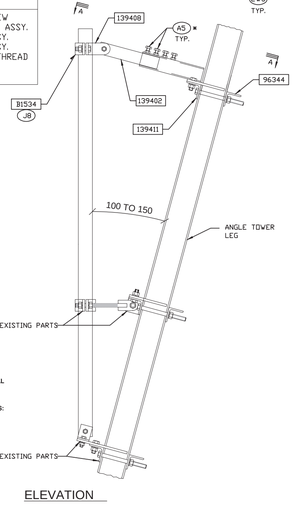
MARK	DESCRIPTION	QTY
141419	BRKT WELDMENT	2
139402	TUBE STEEL	2
139408	BRKT WELDMENT	2
141418	ANGLE	2
139411	ANGLE	2
B1534	FORMED PLATE	2

HARDWARE LIST

SYM	QTY	DESCRIPTION
A5	8	1/2ø X 1 1/2 SET SCREW
J7	4	5/8ø X 1 3/4 G5 BOLT ASSY.
J8	4	5/8ø X 2 G5 BOLT ASSY.
J16	2	5/8ø X 4 G5 BOLT ASSY.
8LT	4	5/8ø X 8 BOLT W/6" THREAD
N5	4	5/8ø NUT
LW5	4	5/8ø LOCKWASHER



SECTION **A-A**



*** A MIMIMUM OF 2 SET SCREWS MUST BE IN CONTACT WITH PART NO. "139402"**

NOTE: PIPE MOUNT ADJUSTS TO FIT ANGLE TOWER LEGS FROM 2 1/2" TO 6" AT SLOPES OF 10 TO 15 DEGREES FROM VERTICAL

THIS PRODUCT IS RATED TO SUPPORT THE FOLLOWING LOADS:

500 LB. DEAD LOAD
500 LB. LATERAL WIND LOAD

ELEVATION

B1709 PIPE MOUNT ASSEMBLY

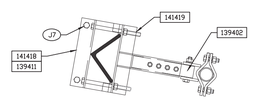
SCALE	
N.T.S.	10

PARTS LIST

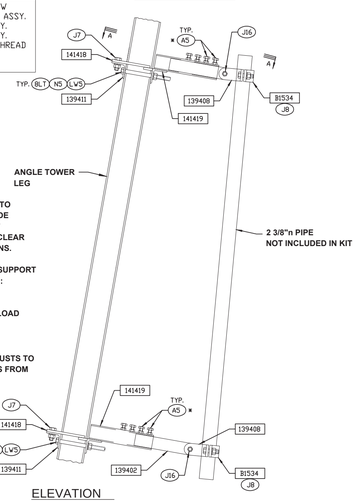
MARK	DESCRIPTION	QTY
141419	BRKT WELDMENT	2
139402	TUBE STEEL	2
139408	BRKT WELDMENT	2
141418	ANGLE	2
139411	ANGLE	2
B1534	FORMED PLATE	2

HARDWARE LIST

SYM	QTY	DESCRIPTION
A5	8	1/2ø X 1 1/2 SET SCREW
J7	4	5/8ø X 1 3/4 G5 BOLT ASSY.
J8	4	5/8ø X 2 G5 BOLT ASSY.
J16	2	5/8ø X 4 G5 BOLT ASSY.
8LT	4	5/8ø X 8 BOLT W/6" THREAD
N5	4	5/8ø NUT
LW5	4	5/8ø LOCKWASHER



SECTION **A-A**



*** A MIMIMUM OF 2 SET SCREWS MUST BE IN CONTACT WITH PART NO. "139402"**

ANGLE TOWER LEG

THIS PRODUCT IS USED TO SUPPORT RRUs ON INSIDE OF TOWER. IT HAS 6" OF ADJUSTMENT TO HELP CLEAR INTERNAL OBSTRUCTIONS.

PRODUCT IS RATED TO SUPPORT THE FOLLOWING LOADS:

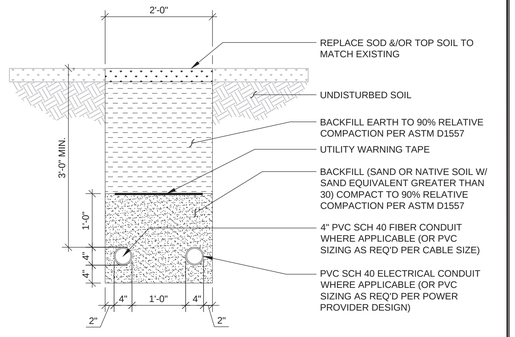
350 LB. DEAD LOAD
500 LB. LATERAL WIND LOAD

NOTE: PIPE MOUNT ADJUSTS TO FIT ANGLE TOWER LEGS FROM 2 1/2" TO 6"

ELEVATION

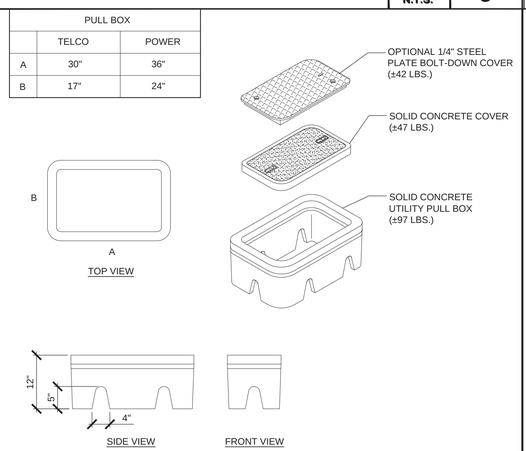
B141415 PIPE MOUNT ASSEMBLY

SCALE	
N.T.S.	8



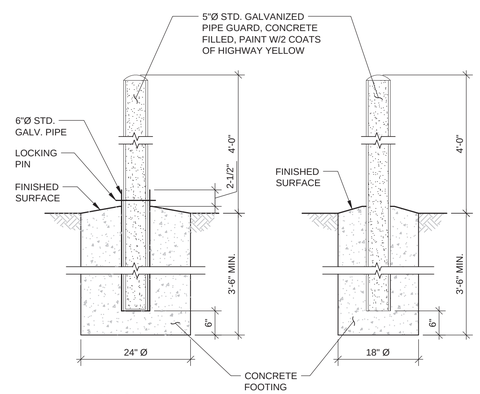
DUAL UTILITY TRENCH

SCALE	
N.T.S.	6



PULL BOX DETAIL

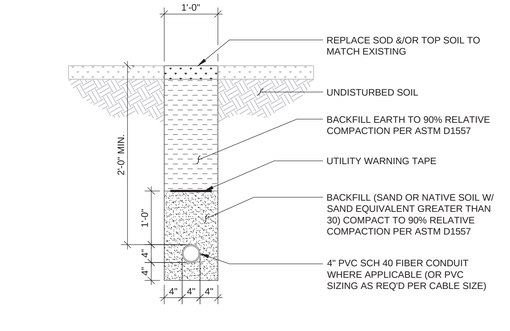
SCALE	
N.T.S.	5



REMOVABLE **FIXED**

BOLLARD DETAIL

SCALE	
N.T.S.	4



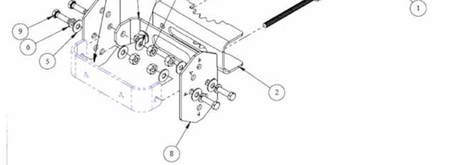
NOTE:
PLACE UTILITY CONDUIT AT CENTER IF SINGLE IN TRENCH

FIBER TRENCH DETAIL

SCALE	
N.T.S.	3

KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-, 6-, AND 8-FOOT ANTENNAS

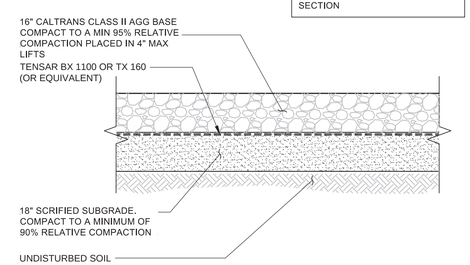
Item #	Part #	Description	Qty. in kit
1	45700384-01	Back grip bracket	2
2	45700385-01	Anti-rotation bracket	2
3	45700382-01	Single mount adapter	2
5	413-441-2721-VS	3/8" flat washer, HDG	36
6	413-452-2721-VS	3/8" lock washer, HDG	20
7	412-044-1323-VS	3/8" hex nut, galv.	24
8	45700391-01	Negative degree adj. bottom bracket	2
9	411-057-1352-VS	3/8" bolt, HDG	12



ANTENNA MOUNT DETAIL

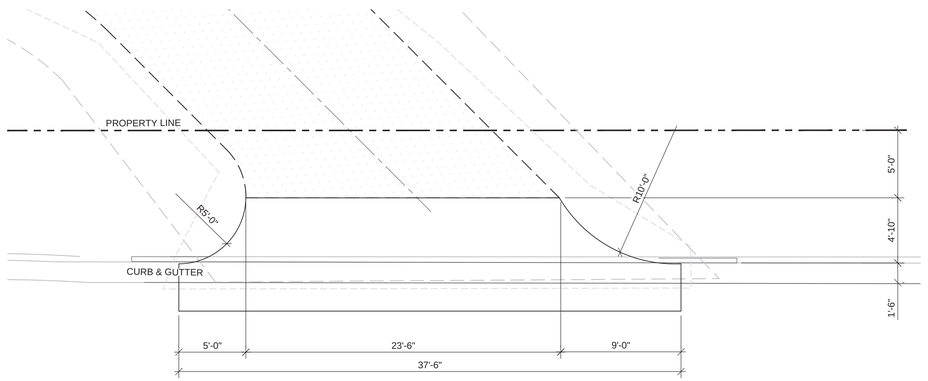
SCALE	
N.T.S.	2

NOTE:
REFER TO KRAZAN & ASSOCIATES, INC. GEOTECHNICAL ENGINEERING INVESTIGATION PAGE #5 R-VALUE TEST RESULTS & PAVEMENT SECTION

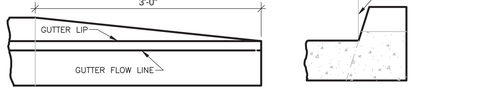


ALL-WEATHER ROAD DETAIL

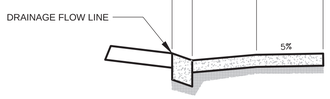
SCALE	
N.T.S.	1



PLAN



CURB RETURN TRANSITION



PROFILE

ACCESS ROAD DETAIL

0 1.5' 3' 5'

SCALE: 3/16" = 1'-0" (24x36)
(OR) 3/32" = 1'-0" (11x17)

7	

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

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WALNUT CREEK, CA 94598

LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA

02/22/2023

SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
DETAILS

A-9

SH	1/3	REV	A	WINDCHILL VERSION	A.1	

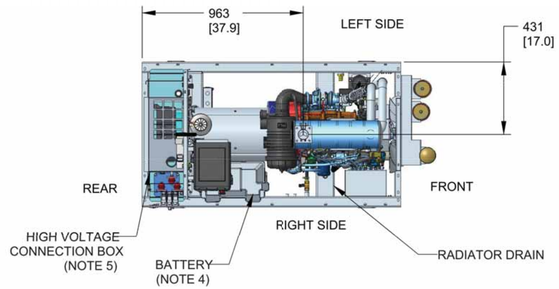
Notes:
1. CONTROL PANEL, (5 AMP BATTERY CHARGER INSIDE).
2. 120V, 20A GFCI, 15A OUTLET (OPTIONAL).
3. CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN THE LOW VOLTAGE CONNECTION BOX (USE LOW VOLTAGE STUB-UP AREA).
4. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM).
5. MAIN LINE CIRCUIT BREAKER (MLCB), AC LOAD LEADS.
   MAIN LINE CIRCUIT BREAKER INFORMATION:
   -SEE SPECIFICATION SHEET OR OWNERS MANUAL
   -ACCESSIBLE THROUGH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF GENERATOR (DIMENSIONS MAY VARY DUE TO UNIT CONFIGURATION)
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS. FOR WEIGHT AND CENTER OF GRAVITY DATA SEE SHEET 3
7. ENGINE SERVICE CONNECTIONS:

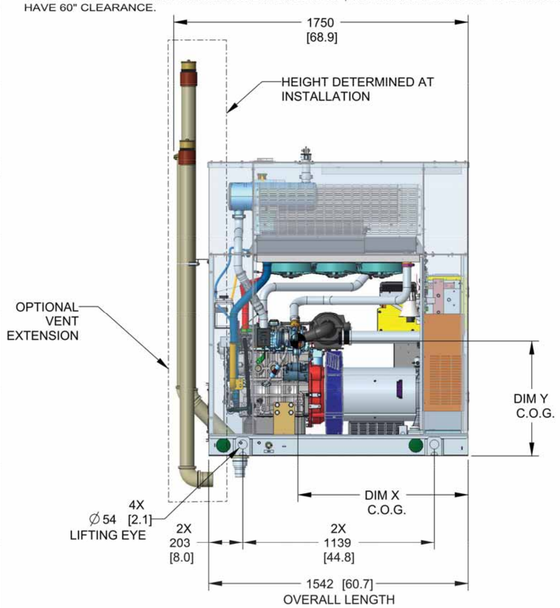
   INLET DIESEL = 1/4" NPT
   RETURN DIESEL = 1/4" NPT
   OIL DRAIN = 1/2" NPT
   RADIATOR DRAIN = 1/4" NPT
   FLEX PIPE OUTLET = 2" ID
   EXHAUST OUTLET = 2: ID

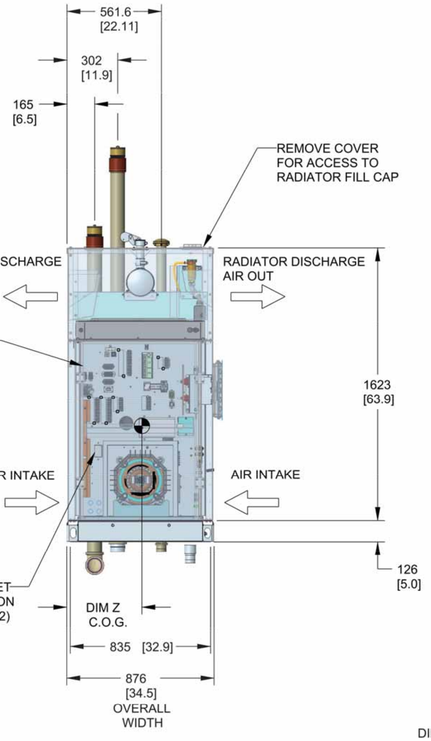
***** SEE GENERATOR SIZING GUIDE FOR FUEL PIPE SIZING TO SUIT APPLICATION *****

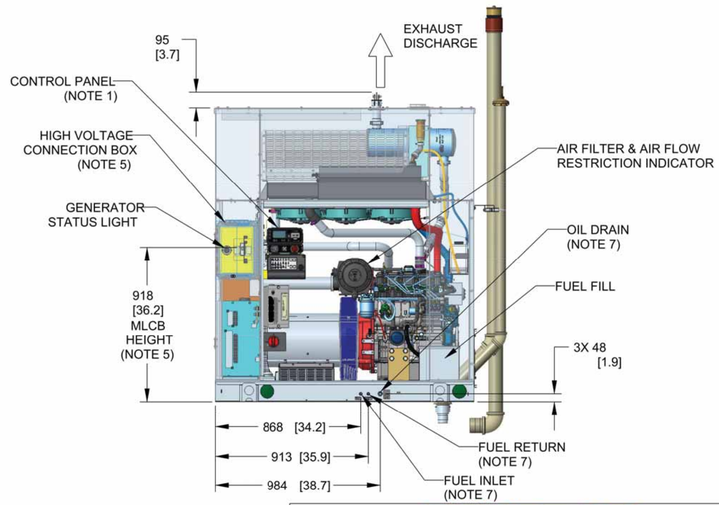
8. GENERATOR SET MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND DISCHARGE AIR FROM THE RADIATOR IS NOT RECIRCULATED.
9. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
10. EXHAUST SYSTEM MAXIMUM BACK PRESSURE = 10" H20 (ADDITIONAL).
11. REMOVE THE REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB-UP AREAS AS FOLLOWS:
    -HIGHT VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION
    NEUTRAL CONNECTION, BATTERY CHARGER 120V AC (0.5 AMP MAX) CONNECTION.
    LOW VOLTAGE CONNECTION INCUDING TRANSFER SWITCH CONTROL WIRES.
12. BOLTS OR STUDS USED TO MOUNT UNIT TO PAD SHALL BE 5/8 - 11 GRADE 5.
13. ONE SIDE MAY HAVE A SMALLER CLEARANCE THAN THE OTHERS. IF THE SIDE WITH REDUCED CLEARANCE IS EITHER FRONT OR BACK THAT MINIMUN CLEARANCE IS 16", THE THREE REMAINING SIDES MUST HAVE 60" CLEARANCE. IF THE SIDE WITH REDUCED CLEARANCE IS THE LEFT OR RIGHT THAT MINIMUM CLEARANCE IS 30", THE THREE REMAINING SIDES MUST HAVE 60" CLEARANCE.

SERVICE ITEM	
OIL FILL CAP	RIGHT SIDE
OIL DIP STICK	RIGHT SIDE
OIL FILTER	RIGHT SIDE
OIL DRAIN HOSE	RIGHT SIDE
RADIATOR DRAIN HOSE	RIGHT SIDE
COOLANT RECOVERY BOTTLE	RIGHT SIDE
RADIATOR FILL CAP ACCESS	ROOF
AIR CLEANER ELEMENT	RIGHT SIDE
FUEL FILTER	RIGHT SIDE
BATTERY	RIGHT SIDE









DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

DIMENSIONS ARE IN MILLIMETERS [INCHES]

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ELECTRONICALLY APPROVED INSIDE WINDCHILL

GENERAC

TITLE: INSTALL D2.2L G22 L2A ENCLOSURE TA
D2.2L: SDC030

ISSUE DATE:				
SIZE B	CAGE NO N/A	DWG NO A0002075428		REV A
SCALE 0.035	WT-KG N/A	SHEET 1 of 3		

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

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PROPRIETARY INFORMATION
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ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED

verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA
02/22/2023

SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
GENERATOR SPECIFICATIONS FOR REFERENCE

A-10

SDC030 | 2.2L | 30 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

Standby Power Rating
30 kW, 38 kVA, 60 Hz



Image used for illustration purposes only

*EPA Certified Prime ratings are not available in the US or its Territories

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

- UL2200, UL6200, UL1236, UL489, UL142
- CSA C22.2, ULC S601
- BS5514 and DIN 6271
- SAE J1349
- NFPA 37, 70, 99, 110
- NEC700, 701, 702, 708
- ISO 3046, 7637, 8528, 9001
- NEMA ICS10, MG1, 250, ICS6, AB1
- ANSI C62.41

Powering Ahead

For over 60 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SDC030 | 2.2L | 30 kW
INDUSTRIAL DIESEL GENERATOR SET
EPA Certified Stationary Emergency

STANDARD FEATURES

ENGINE SYSTEM
- Oil Drain Extension
- Air Cleaner
- Stainless Steel Flexible Exhaust Connection
- Engine Coolant Heater with Isolation Ball Valve
- Factory Filled Oil and Coolant

FUEL SYSTEM
- Fuel Lockoff Solenoid
- Primary Fuel Filter

COOLING SYSTEM
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene Glycol Antifreeze
- Fan Guard

ELECTRICAL SYSTEM
- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor
- 5A Battery Charger

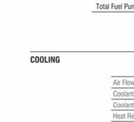
ALTERNATOR SYSTEM
- UL2200 GENprotect™
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Permanent Magnet Excitation
- Sealed Bearing
- Rotor Dynamically Spin Balanced
- Amortisseur Winding (3-Phase Only)
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET
- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- Silencer Mounted in the Discharge Hood

ENCLOSURE
- Aluminum Enclosure
- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material
- Gasketed Doors
- Twist-Lock Handle
- RhinoCoat™ - Textured Polyester Powder Coat Paint
- Up to 70 lbs/ft² Snow Load Rating
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)

FUEL TANKS (If Selected)
- UL 142/ULC S601
- Double Wall
- Normal and Emergency Vents
- Factory Pressure Tested
- Rupture Basin Alarm
- Fuel Level
- Check Valve In Supply and Return Lines
- RhinoCoat™ - Textured Polyester Powder Coat Paint
- Stainless Steel Hardware

CONTROL SYSTEM



Power Zone® 410 Controller

Features
- Programmable Auto Crank
- Selectable Low Speed Exercise
- RS-232 x2
- RS-485 x2
- All-Phase Sensing Digital Voltage Regulator
- Time
- Date
- On/Off/Manual Switch
- Not in Auto (Flashing Light)
- Emergency Stop
- Modbus® RTU
- Remote Ports
- CANbus
- Full Range Standby Operation
- 3-Phase AC Volts
- 3-Phase Amps
- kW
- Power Factor
- Ruptured Tank Detection
- Auxiliary Shutdown Switch
- Remote Communications
- Compatible with NFPA 110, Level 1 or 2 (When Optional Modules Selected)
- Line Power/Gen Power
- PT Function for Full Generator Protection (Contact Factory)

Full System Status Display
- Multilingual 128x64 Graphical Display with Heater
- Easy Status View LED Screen
- Full System Status
- Run Hours
- Service Reminders
- Fault History (Alarm Log)
- Oil Pressure
- Oil Temperature Indication and Alarm
- Output for Fuel Level High/Low Warning
- Water Temperature
- Water Level
- Fuel Pressure/Level
- Engine Speed
- Battery Voltage
- Alternator Frequency

Alarms and Warnings
- Common Alarm Output

SDC030 | 2.2L | 30 kW
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CONFIGURABLE OPTIONS

ENGINE SYSTEM
- Oil Heater
- Two-Stage Air Cleaner
- Level 1 Belt Guard

FUEL SYSTEM
- NPT Flexible Fuel Line

ELECTRICAL SYSTEM
- 10A UL Listed Battery Charger
- Battery Warmer

ALTERNATOR SYSTEM
- Anti-Condensation Heater
- Tropical Coating

GENERATOR SET
- Extended Factory Testing
- Pad Vibration Isolators

ENCLOSURE
- AC/DC Enclosure Light
- Door Open Alarm Horn

WARRANTY (Standby Gensets Only)
- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

CONTROL SYSTEM
- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Battery Disconnect Switch
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- 100 dB Alarm Horn
- Ground Fault Annunciation
- 120V GFCI and 240V Outlets
- 10A Engine Run Relay

FUEL TANKS (Size On Last Page)
- Overfill Protection Valve
- Spill Box Return Hose
- 2.5 Gallon Spill Box
- Tank Risers
- Fuel Level Switch and Alarm
- 12' Vent System
- Fire Rated Stainless Steel Fuel Hose
- Fuel Drop Hose

ENGINEERED OPTIONS

GENERATOR SET
- Special Testing

FUEL TANKS
- UL2085 Tank
- Stainless Steel Tanks
- Special Fuel Tanks
- Fluid Containment Pan

SDC030 | 2.2L | 30 kW
INDUSTRIAL DIESEL GENERATOR SET
EPA Certified Stationary Emergency

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Perkins
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emission Data Sheet
Cylinder #	4
Type	In-Line
Displacement - in³ (L)	135 (2.22)
Bore - in (mm)	3.3 (84)
Stroke - in (mm)	3.9 (100)
Compression Ratio	23.3:1
Intake Air Method	Turbocharged
Cylinder Head	Cast Iron
Piston Type	Aluminum
Crankshaft Type	Forged Steel

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	±0.5%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-Flow Cartridge
Crankcase Capacity - qt (L)	11.2 (10.6)

Cooling System

Cooling System Type	Pressurized Closed
Water Pump Type	Pre-Lubed, Self Sealing
Fan Type	Pusher
Fan Speed - RPM	3,000
Fan Diameter - in (mm)	11 (279)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (Microns)	5
Fuel Inject Pump	Distribution Injection Pump
Fuel Pump Type	Cassette
Injector Type	Indirect, Pintle Nozzle
Fuel Supply Line - in (mm)	0.31 (7.94) ID
Fuel Return Line - in (mm)	0.31 (7.94) ID

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0050124Y26
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5% (3-Phase Only)
Telephone Interference Factor (TIF)	<50
Standard Excitation	Permanent Magnet Excitation
Bearings	Single Sealed
Coupling	Direct via Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

SDC030 | 2.2L | 30 kW
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OPERATING DATA

POWER RATINGS

	Standby	
Single-Phase 120/240 VAC @1.0pf	30 kW, 30 kVA	Amps: 125
Three-Phase 120/208 VAC @0.8pf	30 kW, 38 kVA	Amps: 104
Three-Phase 120/240 VAC @0.8pf	30 kW, 38 kVA	Amps: 90
Three-Phase 277/480 VAC @0.8pf	30 kW, 38 kVA	Amps: 45
Three-Phase 346/600 VAC @0.8pf	30 kW, 38 kVA	Amps: 36

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip

120/240 VAC 1Ø	30%	277/480 VAC 3Ø	30%	208/240 VAC 3Ø	30%	600 VAC 3Ø	30%
A0050044N26	Contact Factory	A0050124Y26	Contact Factory	A0050124Y26	Contact Factory	L0050124N24	Contact Factory

FUEL CONSUMPTION RATES*

Fuel Pump Lift - ft (m:	Diesel - gph (Lph)	
2.6 (0.8)	Percent Load	Standby
	25%	1.0 (3.8)
Total Fuel Pump Flow (Combustion + Return) - gph (Lph)	50%	1.3 (5.0)
16.6 (63.0)	75%	1.9 (7.2)
	100%	2.7 (10.2)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Air Flow (Fan Air Flow Across Radiator) - Compact	cfm (m³/min)	2,569 (70.8)
Coolant Flow	gpm (Lpm)	14.8 (56.2)
Coolant System Capacity	gal (L)	5.11 (19.36)
Heat Rejection to Coolant	BTU/hr (kW)	128,638 (37.7)
Maximum Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)		See Bulletin No. 0199280SSD

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power - cfm (m³/min)	88 (2.5)

ENGINE

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	48.8
Piston Speed	ft/min (m/min)	1,182 (360)
BMEP	psi (kPa)	158.8 (1,095)

EXHAUST

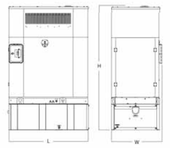
		Standby
Exhaust Flow (Rated Output)	cfm (m³/min)	168 (4.8)
Maximum Allowable Backpressure (Post Silencer)	inHg (kPa)	3 (10.2)
Exhaust Temperature (Rated Output)	°F (°C)	892 (478)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.
Standby - See Bulletin 0187505SB
Prime - See Bulletin 0187510SSB

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DIMENSIONS AND WEIGHTS*



COMPACT VARIANT

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)
No Tank	-	60.7 (1,542) x 36.1 (917) x 72.6 (1,844)	Contact Factory
18	50 (189)	60.7 (1,542) x 32.9 (836) x 90.9 (2,309)	Contact Factory
53	145 (549)	60.7 (1,542) x 32.9 (836) x 109.6 (2,784)	Contact Factory

* All measurements are approximate and for estimation purposes only. Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

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Part No. A0002078653
Rev. A 05/26/2022

GENERATOR SPECIFICATIONS FOR REFERENCE

SCALE N.T.S.

1

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

SAC™
A Nokia company
9020 ACTIVITY RD.
SAN DIEGO, CA 92126
www.sacw.com
619.736.3766

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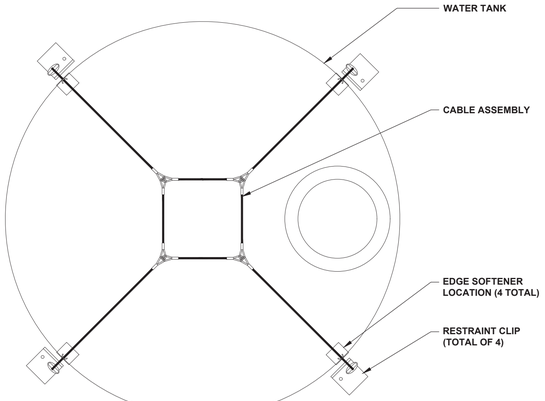
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02/22/2023

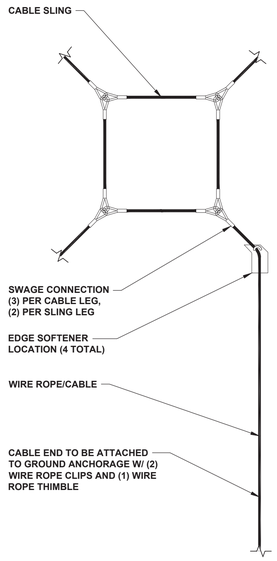
SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
GENERATOR SPECIFICATIONS FOR REFERENCE

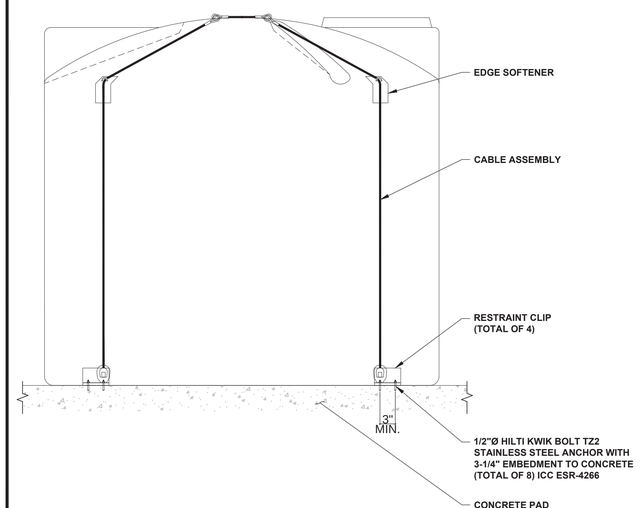
A-11



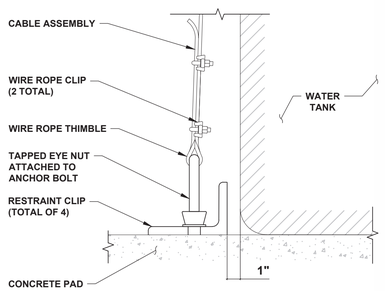
PLAN VIEW



CABLE ASSEMBLY



ELEVATION VIEW

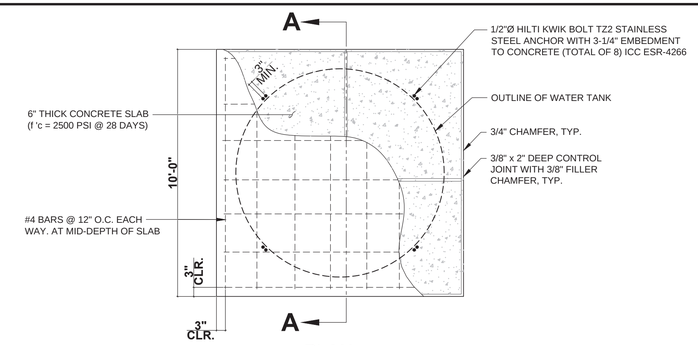


ANCHOR CLIP

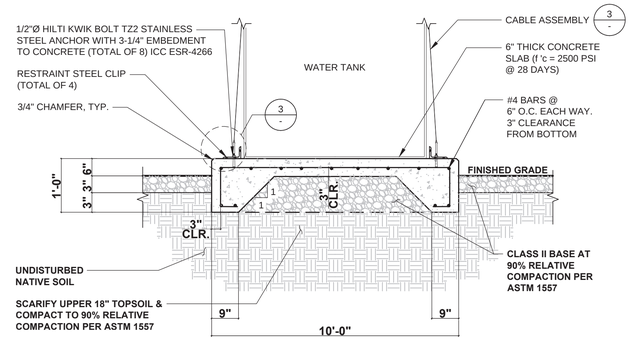
WATER TANK ANCHORAGE DETAIL

SCALE
N.T.S.

3



PLAN



WATER TANK CONCRETE PAD DETAIL

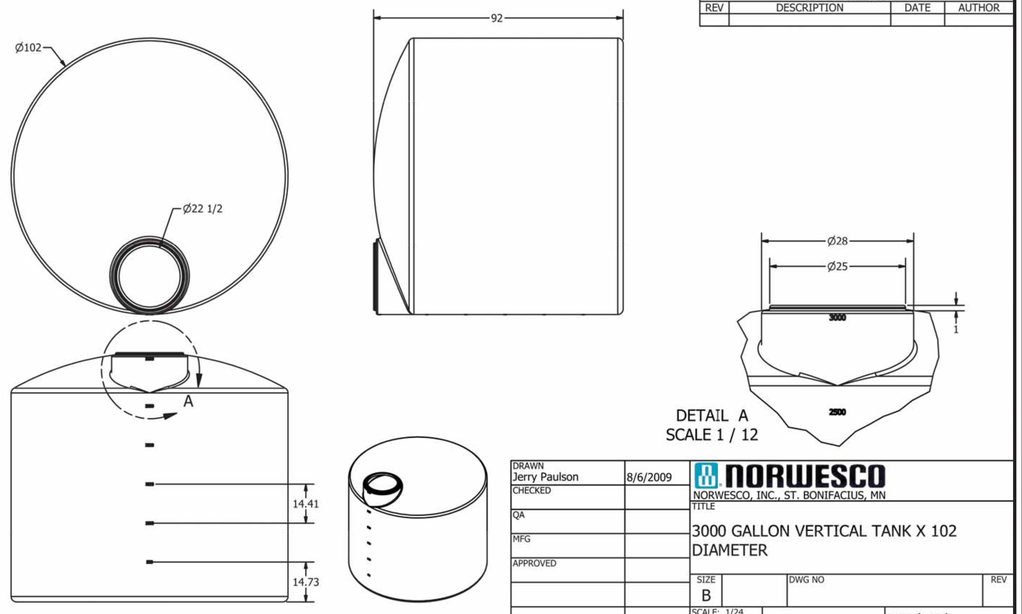
0 3" 6" 1'

SCALE: 1" = 1'-0" (24x36)
(OR) 1/2" = 1'-0" (11x17)

2

REVISION HISTORY

REV	DESCRIPTION	DATE	AUTHOR



DRAWN	Jerry Paulson	8/6/2009
CHECKED		
QA		
MFG		
APPROVED		

NORWESCO
NORWESCO, INC., ST. BONIFACIUS, MN

TITLE
3000 GALLON VERTICAL TANK X 102 DIAMETER

SIZE	DWG NO	REV
B		

SCALE: 1/24 SHEET 1 OF 1

3000 GALLON VERTICAL WATER TANK SPECIFICATIONS_FOR REFERENCE

SCALE
N.T.S.

1

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02/22/2023

SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
WATER TANK CONCRETE PAD, ANCHORAGE DETAILS & SPECIFICATION

A-12

CONSTRUCTION NOTES

LOC 1) INTERCEPT EXISTING 3-1/0A 12KV CABLES / APPLICANT TO INSTALL #5 BOX (041668)
LOC 2) PG&E TO PULLBACK AND ROUTE EXISTING 3-1/0A CIC INTO NEW #5 BOX
LOC 3) CONNECT UNDERGROUND TRANSFORMER
LOC 4) INSTALL 3-1/0A EPR / APPLICANT TO INSTALL 4" CONDUIT (CODE 016472)
LOC 5) INSTALL 3-1/0A EPR / APPLICANT TO INSTALL 4" CONDUIT (CODE 016472)
LOC 6) SPLICE AND RACK CABLES / APPLICANT TO INSTALL 3'X5' ENCLOSURE (CODE 041668)
LOC 7) INSTALL 3-1/0A EPR / APPLICANT TO INSTALL 4" CONDUIT (CODE 016472)
LOC 8) INSTALL 50KVA PMTX / APPLICANT TO INSTALL 50"X52" BOX PAD (CODE 36003)
LOC 9) INSTALL 1-4/0A TPX SERVICE / APPLICANT TO INSTALL 3" CONDUIT (CODE 016471)
LOC 10) SET NEW METER

GENERAL NOTES

1. APPLICANT TO TRENCH & INSTALL SERVICE CONDUITS AND SUBSTRUCTURES.
2. APPLICANT TO CONFORM TO ALL PG&E STANDARDS/SPECIFICATIONS.
3. ALL CONDUIT INSTALLATION SHALL BE INSPECTED & APPROVED PRIOR TO BACKFILLING.

7
COORDINATE # 100000093655
PRIMARY VOLTAGE 12KV
SECONDARY VOLTAGE 120/240
TX SIZE - 50
KVA 1ø - 35.4
KVA 3ø - -
% L. F. - 100
TYPE TX.- PM
LOADING DIST- SC

SEE DETAIL B (10, 9, 8)

METER PEDESTAL MUST BE INSTALLED WITHIN THE CELL-SITE GROUND GRID WITH A SWITCH PLATFORM IN FRONT TO ENSURE THAT PERSONNEL WILL BE STANDING ON THE EQUIPMENT PAD WHEN TOUCHING THE METER.

THE PG&E TRANSFORMER MUST BE A DEDICATED TRANSFORMER, SERVING ONLY THE CELL SITE (NOW AND FOREVER)

PROPOSED VERIZON WIRELESS ACCESS ROADWAY

PROPOSED LESSEE 15' WIDE ACCESS & UTILITY EASEMENT RIGHT-OF-WAY

4 CABLE & PULLING DATA FOR ENCLOSURE LOC 5

TOTAL LENGTHS: FEEDER 720' 1PH DIST. 3PH DIST.

FROM ENCLOSURE	NO. of CABLES	CABLE TYPE	ESTIMATED TENSION	ACTUAL TENSION	GALLONS LUBE	FRT END PACKS	RUN LENGTH W/TAILS
LOC 1	3	EPR	762		4	4	684

5 CABLE & PULLING DATA FOR ENCLOSURE LOC 5

TOTAL LENGTHS: FEEDER 680' 1PH DIST. 3PH DIST.

FROM ENCLOSURE	NO. of CABLES	CABLE TYPE	ESTIMATED TENSION	ACTUAL TENSION	GALLONS LUBE	FRT END PACKS	RUN LENGTH W/TAILS
LOC 3	3	EPR	737		4	4	768'

7 CABLE & PULLING DATA FOR ENCLOSURE LOC 5

TOTAL LENGTHS: FEEDER 636' 1PH DIST. 3PH DIST.

FROM ENCLOSURE	NO. of CABLES	CABLE TYPE	ESTIMATED TENSION	ACTUAL TENSION	GALLONS LUBE	FRT END PACKS	RUN LENGTH W/TAILS
LOC 6	3	EPR	630		4	4	684'

SEE DETAIL A (1, 3, 2)

1-350A TPX
1-6A DPX
1-350A TPX
3-1/0A XLP 12kV
3-1/0A XLP 12kV
T12994

258-300-019-1
COMMON AREA-TRACT 6292
SANDERS RANCH HO. ASSN

636'/684'
PULL
704LB
(NO REVERSE)

PULL
762LB
(1427LB REVERSE)
720'/768'

PULL
737LB
(NO REVERSE)
680'/728'

N

DETAIL A
N.T.S
T12994
1
5
TO T12993
TO SW19554
3-1/0A XLP 12kV
2

DETAIL B
N.T.S
T493003
50KVA 1ø
120/240V
7
8
9
10'/24'
200A 120/240 3W 1ø
EST DEM = 35.4KVA
SC = 25,000A
VD = 1.8V

1 #5 3' x 5' x 3'6" BOX DETAIL
N.T.S
TO SW19554
3-1/0A 12KV
TO T493003
3-1/0A 12KV

6 #5 3' x 5' x 3'6" BOX DETAIL
N.T.S
TO T12994
3-1/0A 12KV
TO SW19554
3-1/0A 12KV
TO T493003
3-1/0A 12KV
TO T493003
3-1/0A 12KV

7 BARRIER POSTS & CLEARANCE
F = FIXED
R = REMOVABLE
POST TO BE PLACED AS REQUIRED BY INSPECTOR
28" 42" 28"
R R
FRONT
24" 34" 34" 34" 20"
F F F F F F F F F F
52"
(CODE 360003)
50"

PRIMARY VOLTAGE: 12 kV	VOLTAGE AREA: 1
LATITUDE: 37.823802	LONGITUDE: -122.114446
SOURCE SIDE DEVICE:	
SUB & CIRCUIT: MORAGA 1105	
DSGN SAG: Short-Span Urban	RAPTOR ZONE: Yes
DSGN WIND: 110 MPH	ANTENNA DIST.: 1
CORROSION AREA: Non	INSULATION DIST.: 8
EXIST EQUIP ANT. NO.	

ESR: RONGLI ZHU 925-270-2229
ADE: GARY ALAMENA 707-449-5741
SUPV: JOAQUIN FLOREZ 559-347-5129
REP: DIANA TIRE 925-270-2791
NSMF: Francisco Bailey 925-244-3562
SCALE: 1"=40' DATE: 1/12/2022
PM: 3522833336 SHEET: 1 OF 1 REV.

NO ENVIRONMENTAL SCRATCHES

Know what's below. Call before you dig. 811

GAS CONNECT

NEAR LOC:

ENGINEERING AND PLANNING DEPT.

NO:	DATE	REVISIONS DESCRIPTION

CONSTRUCTION SKETCH
SANDERS RANCH ROAD
MORAGA

PACIFIC GAS & ELECTRIC COMPANY

INCH 0 1

PG&E CONSTRUCTION SKETCH

SCALE N.T.S. | 1

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	PLANNING SUBMITTAL	FA
1	02/22/2023	PLANNING SUBMITTAL	FA

SAC
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verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

REGISTERED PROFESSIONAL ENGINEER
WALTER D. CAMP
E07061
9-22-24
ELECTRICAL

SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
PG&E CONSTRUCTION SKETCH

E-1

UTILITY GENERAL NOTES:

1. ALL NEW GROUNDINGS FOR ELECTRICAL METER MUST BE DONE PER CEC, NEC & LOCAL BUILDING & SAFETY REQUIREMENTS.
2. ALL NEW CONDUIT FROM ELECTRICAL METER TO THE SITE SHALL BE PVC SCH 40 FOR U/G AND PVC SCH 80 FOR ABOVE GROUND. INSTALL WEATHERPROOF PULL BOXES AS REQD. PER CEC, NEC & LOCAL BLDG. & SAFETY REQUIREMENTS & MUST HAVE TRAFFIC COVERS.
3. ALL NEW WIRE SPLICES PULL BOXES DONE PER CEC & NEC.
4. FIELD VERIFY EXACT ELECTRICAL CONDUIT ROUTE.
5. VERIZON WIRELESS NEW METER/MAIN NEED TO BE LABELED & ALL CLEARANCE FOR ELECTRICAL EQUIPMENT BY CEC & NEC.
6. NEW GROUND RODS MAY BE USED FOR SITE GROUNDING IF DESIRED RESISTANCE IS ACHIEVED.
7. CONTRACTOR TO INSTALL UTILITY CONDUIT (LATERAL).
8. UTILITY POINTS OF SERVICE AND WORK / MATERIALS SHOWN ARE BASED UPON PRELIMINARY INFORMATION PROVIDED BY THE UTILITY COMPANY AND ARE FOR BID PURPOSES ONLY.
9. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR FINAL AND EXACT WORK / MATERIALS REQUIREMENTS AND CONSTRUCT TO UTILITY COMPANY ENGINEERING PLANS AND SPECIFICATIONS ONLY. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, PULL ROPES, CABLES, PULL BOXES, CONCRETE ENCASEMENT OF CONDUIT (IF REQUIRED), TRANSFORMER PAD, BARRIERS, POLE RISERS, TRENCHING, BACKFILL, PAY ALL UTILITY COMPANY FEES AND INCLUDE ALL REQUIREMENTS IN SCOPE OF WORK.

UTILITY NOTES

SCALE: NTS

3

MAIN ELECTRICAL PANEL
MANUFACTURED BY INTERSECT, INC MODEL AA3003R SERIES
120/240 V, 1 PHASE, 3 WIRE, 200 AMP BUS, 22KAIC
200 AMP/2P MAIN BREAKER

DESCRIPTION	C/B	CKT NO.	PHASE 1	PHASE 2	CKT NO.	C/B	DESCRIPTION
48VDC POWER PLANT RECTIFIER #1	30A/2P	1	3,000	-	2	30A/2P	SURGE SUPPRESSOR
		3	-	1,200	4		
48VDC POWER PLANT RECTIFIER #2	30A/2P	5	3,000	-	6	30A/2P	48VDC POWER PLANT RECTIFIER #8
		7	-	3,000	8		
48VDC POWER PLANT RECTIFIER #3	30A/2P	9	3,000	-	10	20A/1P	MISC. RECEPTACLE #1
		11	-	3,000	12	20A/1P	MISC. RECEPTACLE #2
48VDC POWER PLANT RECTIFIER #4	30A/2P	13	3,000	-	14	20A/1P	MISC. CABINET RECEPTACLE #1
		15	-	3,000	16	20A/1P	MISC. CABINET RECEPTACLE #2
48VDC POWER PLANT RECTIFIER #5	30A/2P	17	3,000	-	18	20A/1P	STDBY GENERATOR BATT. CHARGER
		19	-	2,000	20	20A/1P	STDBY GENERATOR BLOCK HEATER
48VDC POWER PLANT RECTIFIER #6	30A/2P	21	3,000	-	22	20A/1P	SERVICE LIGHTS
		23	-	400	24	-	SPACE
48VDC POWER PLANT RECTIFIER #7	30A/2P	25	3,000	-	26	-	SPACE
		27	-	-	28	-	SPACE
48VDC POWER PLANT INTERIOR OUTLET	15A/1P	29	1,600	-	30	-	SPACE
LOAD PHASE 1			22,600	12,600			LOAD PHASE 2
TOTAL LOAD (PHASE 1 & 2) =			35,200				
ADDITIONAL 25% CONTINUOUS LOAD =			400				
TOTAL LOAD	=		35,600				
TOTAL AMPS	=		148 AMPS				
TOTAL KVA	=		44.150				

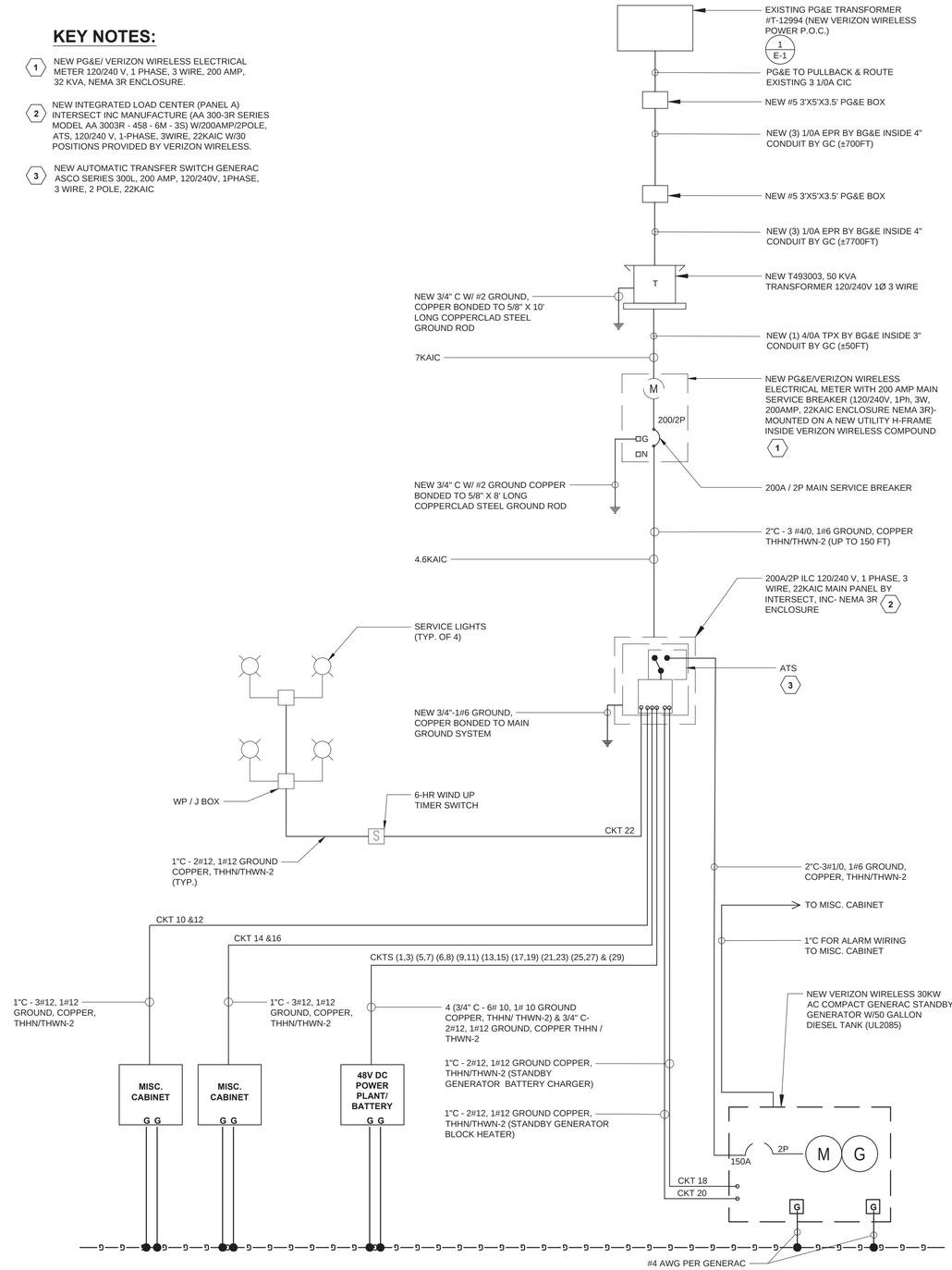
PANEL SCHEDULE

SCALE: NTS

2

KEY NOTES:

1. NEW PG&E/ VERIZON WIRELESS ELECTRICAL METER 120/240 V, 1 PHASE, 3 WIRE, 200 AMP, 32 KVA, NEMA 3R ENCLOSURE.
2. NEW INTEGRATED LOAD CENTER (PANEL A) INTERSECT INC MANUFACTURE (AA 300-3R SERIES MODEL AA 3003R - 458 - 6M - 3S) W/200AMP/2POLE, ATS, 120/240 V, 1-PHASE, 3WIRE, 22KAIC W/30 POSITIONS PROVIDED BY VERIZON WIRELESS.
3. NEW AUTOMATIC TRANSFER SWITCH GENERAC ASCO SERIES 300L, 200 AMP, 120/240V, 1PHASE, 3 WIRE, 2 POLE, 22KAIC



1-LINE DIAGRAM & KEY NOTES

SCALE: NTS

1

ISSUE STATUS

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0	05/25/2022	PLANNING SUBMITTAL	FA
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STATE OF CALIFORNIA

02/22/2023

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PSL# 304480

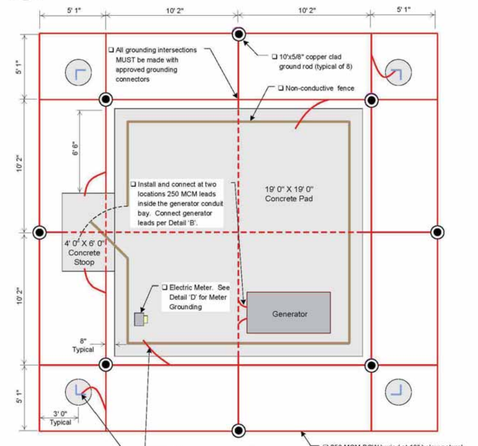
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
1-LINE DIAGRAM, PANEL SCHEDULE & UTILITY NOTES

E-2
1

PG&E Grounding Requirements-Sheet 1

(Required Design Details are Located on Sheet 2)



Carrier: Verizon Title: Sanders Ranch Road Site No.: VZN-34076 Co-Location: None Line Name: Moraga-Castro Valley 230 kV Tower No.: 003/019 Tower SAP No.: 40872782			
Designed By: Greg Chang Phone: (925) 866-5515	SIZE: 0	PG&E Proj Mgr: Sean Kennedy Phone: (925) 786-3375	DWG NO: VZN-340746 / REV: 2
	From Drawing Dated: 3/24/22	Issue Date: 7/6/22	SHEET: 1 of 2

The following design details MUST BE incorporated into the final engineering and construction drawings for the cell site ground grid. Where conflicts arises between these details and cell vendor generic details, these details SHALL prevail.

REQUIRED DESIGN DETAILS:

☐_____1. All grounding connections and grid intersections SHALL be made using approved 'DMC' GroundLok System' compression components. Carrier to supply 250 MCM BCW with DMC 2-hole NEMA connector. Final connections to the tower legs SHALL be made per the Theft Deterrent Tower Ground Arrangement.

☐_____2. Ground grid safety calculations are based on the ground grid conductors being at 18" below natural grade with a concrete equipment pad of no more than 8" thick. Any pad thickness greater than 8" MUST be verified as acceptable by the grounding designer.

☐_____3. Fence MUST be located on top edge of the concrete pad (i.e. no separate footings for the fence posts will be allowed). No metallic equipment SHALL be installed outside fence. At fence door swings, metallic equipment must be 3'-0" minimum from edge of concrete pad.

☐_____4. All concrete SHALL contain #4 rebar with a 1'-0" maximum grid spacing. All rebar intersections MUST be securely tied together. If concrete is poured in separate sections, each section must be connected to ground grid with 2-250 MCM BCW or equivalent.

☐_____5. Coax ground MUST be connected to the ground grid with 2-250 MCM BCW or equivalent. If more than one ground bus is used, all ground buses must be either connected together or connected to ground grid separately with #2 BCW or larger.

☐_____6. All fences MUST be of non-conductive material.

☐_____7. Electric meter MUST be located within the boundary of the non-conductive fence on the concrete pad. Any exception to this MUST be cleared through Greg Chang (925) 866-5515 prior to construction. Special service requirements may be required to isolate ground grid from other customer neutral wires.

☐_____8. Meter ground rod MUST be attached to the cell site ground grid with a 250 kcmil BCW or equivalent.

☐_____9. Ground grid backfill material (at least 6") covering the 250 MCM BCW MUST be clean loamy material (or conductive material) and be free of rocks and foreign material.

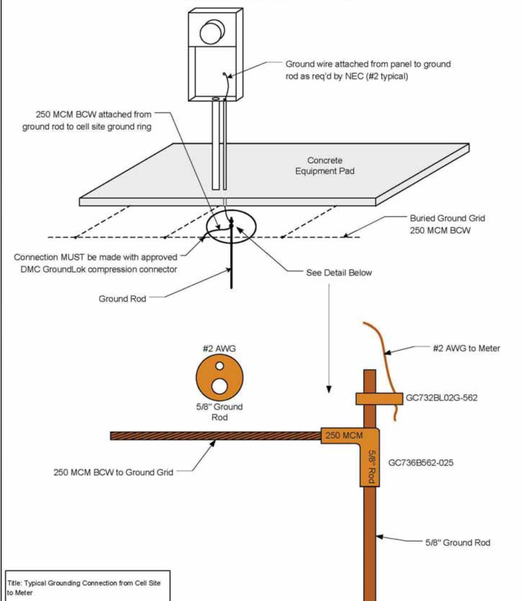
☐_____10. If drilling is required to achieve ground rod depth, a minimum 2" hole is required. The hole MUST be backfilled with bentonite (or equivalent) material.

☐_____11. For safety reasons, the new ground grid MUST be completely installed (fully covered), the concrete pad MUST be completed before the new ground grid is attached to the existing ground grid.

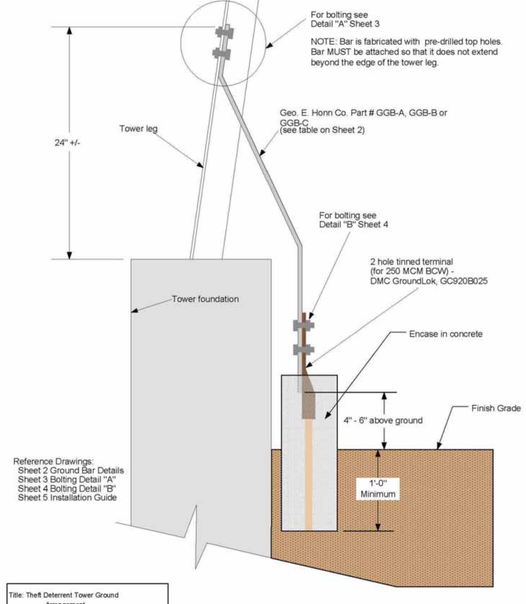
☐_____12. Concrete pad size or any dimension stated on sheet 1 can not be changed without prior authorization from the grounding designer.

Carrier: Verizon Title: Sanders Ranch Road Site No.: VZN-34076 Co-Location: None Line Name: Moraga-Castro Valley 230 kV Tower No.: 003/019 Tower SAP No.: 40872782			
Designed By: Greg Chang Phone: (925) 866-5515	SIZE: 0	PG&E Proj Mgr: Sean Kennedy Phone: (925) 786-3375	DWG NO: VZN-340746 / REV: 2
	From Drawing Dated: 3/24/22	Issue Date: 7/6/22	SHEET: 2 of 2

'DETAIL D'
Typical Meter Connection to Ground Grid

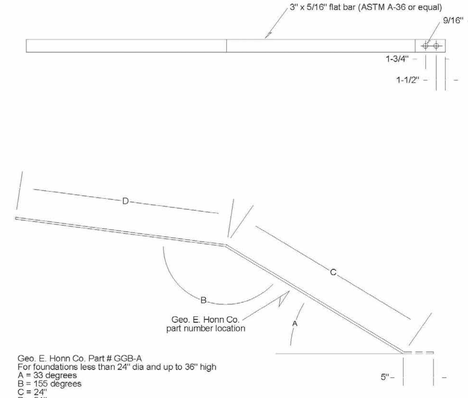


Title: Typical Grounding Connection from Cell Site to Meter			
Drawn By: Steve Maddix Approved By: Marcia Eblen, PE	SIZE: 0 SCALE: none	Revision Date: 8/4/2011	DWG NO: Meter Connection – Detail 'D' / REV: 3 SHEET: 1 of 1



Reference Drawings:
Sheet 2 Ground Bar Details
Sheet 3 Bolting Detail "A"
Sheet 4 Bolting Detail "B"
Sheet 5 Installation Guide

Title: Theft Deterrent Tower Ground Arrangement			
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix Approved By: Marcia Eblen	SIZE: 0 SCALE: none	Revision Date: 7/29/09	DWG NO / REV: 5 SHEET: 1 of 5



Geo. E. Honn Co. Part # GGB-A
For foundations less than 24" dia and up to 36" high
A = 33 degrees
B = 155 degrees
C = 24"
D = 51"

Geo. E. Honn Co. Part # GGB-B
For foundations 24" to 36" dia. and up to 36" high
A = 42 degrees
B = 146 degrees
C = 26"
D = 49"

Geo. E. Honn Co. Part # GGB-C
Alternate for foundations 24" to 36" dia. and up to 36" high
A = 45 degrees
B = 147 degrees
C = 28"
D = 47"

Note: Hot dip galvanize after fabrication

Reference Drawings:
Sheet 1 Arrangement
Sheet 3 Bolting Detail "A"
Sheet 4 Bolting Detail "B"
Sheet 5 Installation Guide

Title: Theft Deterrent Tower Ground Bar Details			
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix Approved By: Marcia Eblen	SIZE: 0 SCALE: none	Revision Date: 7/29/09	DWG NO / REV: 2 SHEET: 2 of 5

Pacific Gas and Electric Company

Report Date: 07/06/22
Revision: 2

High Voltage Transmission Tower Cell Site Datasheet

Site Information

Company:	Verizon		
Site name:	Sanders Ranch	Site number:	VZN-340746
Site address:	100 Sanders Ranch Rd, Moraga, CA		
PG&E Contact:	Greg Chang	Phone:	(925) 866-5515

Soil Data

Soil Model:	Two Layer		
	Top	18.0 Ohm-meters	20.0 Feet
	Bottom	15.0 Ohm-meters	Infinite thickness

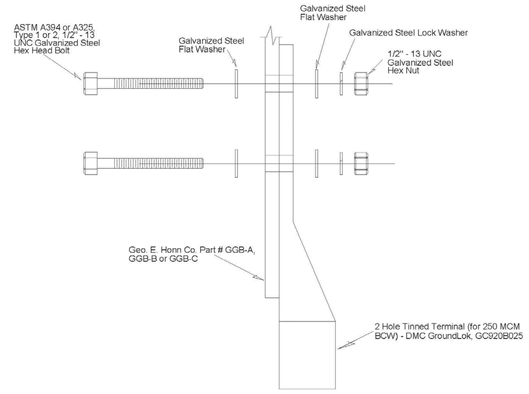
GPR Information

Grid Area	930	Ft^2
Grid Resistance	0.68	Ohms
Ground Fault Duty	19,090	Amps $_{RMS}$
X/R Ratio	7.50	
Voltage $_{(Line-Line)}$	230	kV $_{RMS}$
DC Offset	1.66	
GPR $_{RMS}$	12,886	Volts $_{RMS}$
GPR Peak Symmetrical	18,223	Volts (Peak Symmetrical)
GPR Peak with DC Offset	30,210	Volts (Peak Asymmetrical)

Greg Chang
PG&E Representative

7/6/2022
Date

Connection Detail "B"

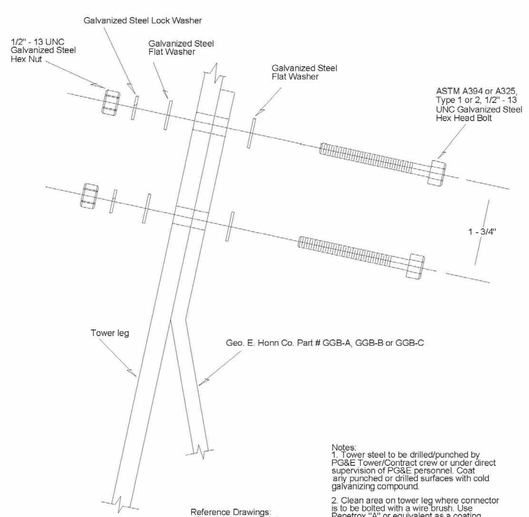


Reference Drawings:
Sheet 1 Arrangement
Sheet 2 Ground Bar Details
Sheet 3 Bolting Detail "A"
Sheet 5 Installation Guide

Notes:
1. Coat any cut or drilled surfaces with cold galvanizing compound.
2. Clean area on flat bar where connector is to be bolted with a wire brush. Use Penetrox "A" or equivalent as a coating between connector and tower leg.
3. All bolting material per ASTM A 394 or A325, Type 1 or 2. Bolts to be torqued to 480 in/lbs.
4. After installation and torquing, center punch the bolt threads in at least one location at the Hex Nut interface.

Title: Theft Deterrent Tower Ground Bolting Detail 'B'			
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix Approved By: Marcia Eblen	SIZE: 0 SCALE: none	Revision Date: 7/29/09	DWG NO / REV: 3 SHEET: 4 of 5

Connection Detail "A"



Reference Drawings:
Sheet 1 Arrangement
Sheet 2 Ground Bar Details
Sheet 4 Bolting Detail "B"
Sheet 5 Installation Guide

Notes:
1. Tower steel to be drilled/punched by PG&E Tower/Contract crew or under direct supervision of PG&E personnel. Coat any punched or drilled surfaces with cold galvanizing compound.
2. Clean area on tower leg where connector is to be bolted with a wire brush. Use Penetrox "A" or equivalent as a coating between connector and tower leg.
3. All bolting material per ASTM A 394 or A325, Type 1 or 2. Bolts to be torqued to 480 in/lbs.
4. After torquing, center punch the bolt threads in at least one location at the Hex Nut interface.

Title: Theft Deterrent Tower Ground Bolting Detail 'A'			
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix Approved By: Marcia Eblen	SIZE: 0 SCALE: none	Revision Date: 7/29/09	DWG NO / REV: 2 SHEET: 3 of 5

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LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA

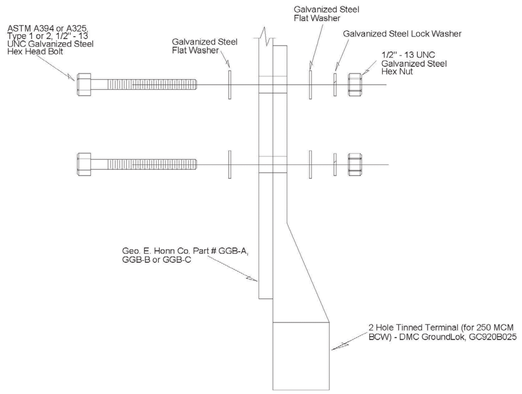
02/22/2023

SANDERS RANCH
PSL# 304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
PG&E GROUNDING REQUIREMENTS

G-1
1

Connection Detail "B"



Reference Drawings:

Sheet 1 Arrangement
Sheet 2 Ground Bar Details
Sheet 3 Bolting Detail "A"
Sheet 5 Installation Guide

Notes:

1. Coat any cut or drilled surfaces with cold galvanizing compound.
2. Clean area on flat bar where connector is to be bolted with a wire brush. Use Penetrox "A" or equivalent as a coating between connector and tower leg.
3. All bolting material per ASTM A 394 or A325, Type 1 or 2. Bolts to be torqued to 480 in/lbs.
4. After installation and torquing, center punch the bolt threads in at least one location at the Hex Nut interface.

Title: Theft Deterrent Tower Ground Bolting Detail 'B'				
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix	SIZE 0	Revision Date: 7/29/09	DWG NO	REV 3
Approved By: Marcia Eblen	SCALE none		SHEET 4 of 5	

Installation Guide

1. Select connection bar that best fits site conditions (Geo. E. Honn Co. Part # GGB-A,GGB-B or GGB-C). Use table on Sheet 2 as a guide.
2. Install with pre-drilled holes at top. Fit bar to tower leg per arrangement on Sheet 1. If bar needs to be cut to fit, cut from bottom.
3. Slip 1 1/2" or 2" Sch. 80 PVC sleeve over 250 MCM BCW (2" sleeve may be put on before Step 7).
4. Attach DMC GroundLok to 250 MCM BCW per manufacturer's instructions.
5. Drill or punch bar to accommodate DMC GroundLok fitting per Sheet 1. Coat any cut/punched/drilled surfaces with cold galvanizing compound per manufacturer's instructions.
6. Using a wire brush, clean the GroundLok/bar contact surfaces. Coat the contact surfaces with Penetrox "A" or equivalent.
7. Connect the DMC GroundLok to the bar with bolts, lock washers, flat washers and nuts per Sheet 4. Torque bolts to 480 in/lbs.
8. Center punch the bolt threads in at least one location at the hex nut interface.
9. Temporarily clamp bar to tower leg at the location determined in step 2.
10. Backfill to finish grade keeping the top of the PVC sleeve against the bottom of the flat bar and 4" to 6" above grade.
11. Remove the clamp holding the bar to the tower leg and insert a length of 4" PVC conduit over the bar conduit to the tower leg to temporarily insulate the bar from the tower leg until the ground grid system is completed. Secure the conduit to the tower leg.

DO NOT PROCEED TO STEP 12 UNTIL GROUND GRID SYSTEM IS COMPLETED

12. Punch or drill tower leg to accommodate the bar to tower connection. Tower steel to be drilled or punched by PG&E Tower/ Contract crew or under direct supervision of PG&E personnel.
13. Coat any punched or drilled surfaces with cold galvanizing compound per manufacturer's instructions.
14. Using a wire brush, clean the bar/tower leg contact surfaces. Coat the contact surfaces with Penetrox "A" or equivalent.
15. Connect the bar to the tower leg with bolts, lock washers, flat washers and nuts per Sheet 3. Torque bolts to 480 in/lbs.
16. Center punch the bolt threads in at least one location at the hex nut interface

Reference Drawings:

Sheet 1 Arrangement
Sheet 2 Ground Bar Details
Sheet 3 Bolting Detail "A"
Sheet 4 Bolting Detail "B"

Title: Theft Deterrent Tower Ground Installation Guide				
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix	SIZE 0	Revision Date: 7/29/09	DWG NO	REV 5
Approved By: Marcia Eblen	SCALE none		SHEET 5 of 5	

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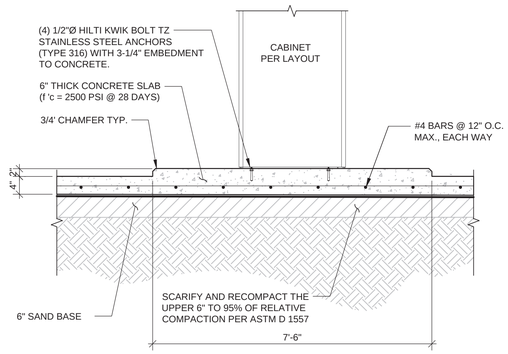
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SHEET TITLE:

PG&E GROUNDING REQUIREMENTS

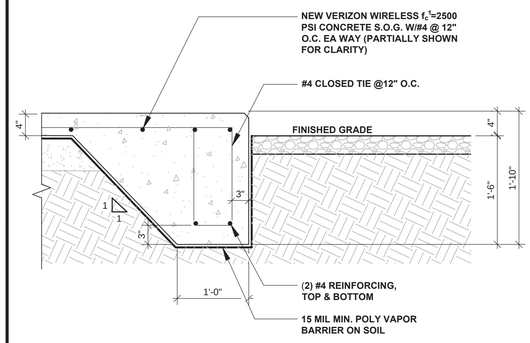
G-2

1



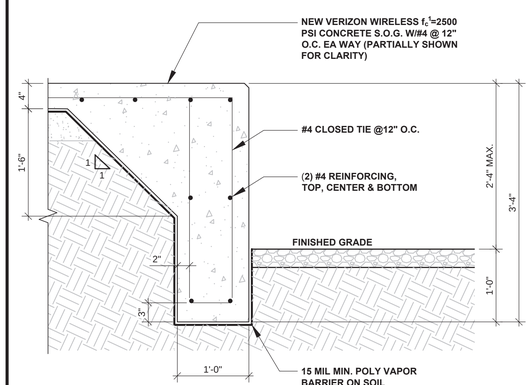
SLAB SECTION-A-A

SCALE N.T.S. | 4



SECTION

0 3" 6" 1' | SCALE: 1" = 1'-0" (24x36) (OR) 1/2" = 1'-0" (11x17) | 3



SECTION

0 3" 6" 1' | SCALE: 1" = 1'-0" (24x36) (OR) 1/2" = 1'-0" (11x17) | 2

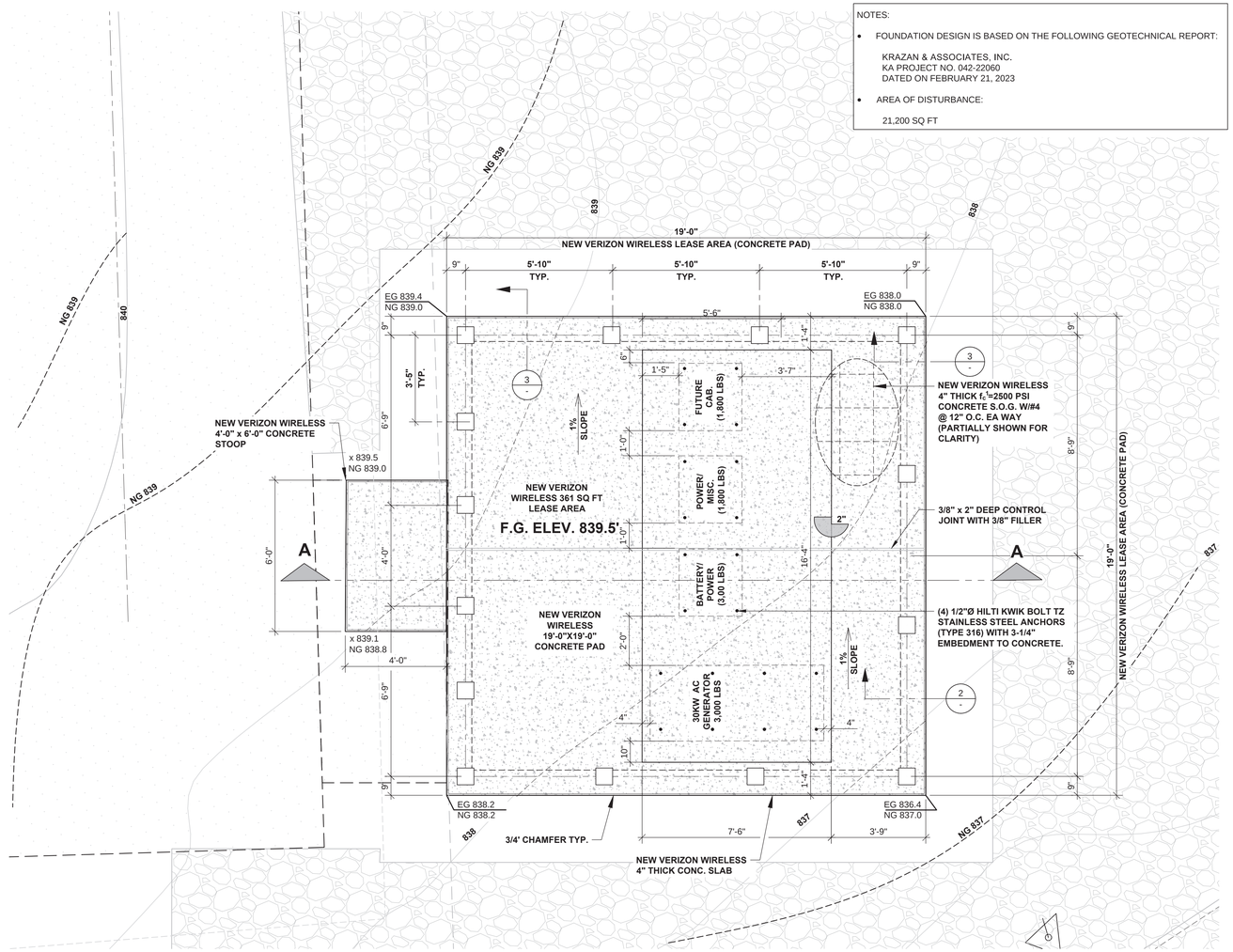
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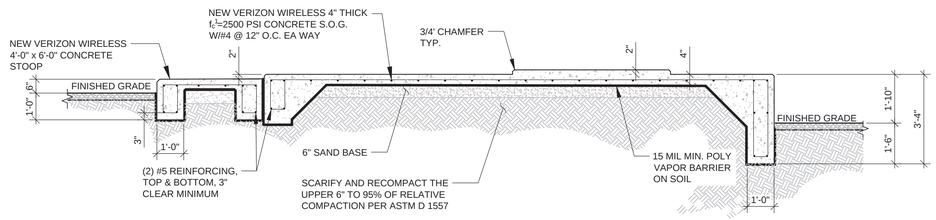
- FOUNDATION DESIGN IS BASED ON THE FOLLOWING GEOTECHNICAL REPORT:

  KRAZAN & ASSOCIATES, INC.
  KA PROJECT NO. 042-22060
  DATED ON FEBRUARY 21, 2023

- AREA OF DISTURBANCE:

  21,200 SQ FT





SECTION A-A

NORTH

STRUCTURAL & GRADING PLAN & SECTION

0 1' 2' 3' | SCALE: 3/8" = 1'-0" (24x36) (OR) 3/16" = 1'-0" (11x17) | 1

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ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED ARCHITECT
NESTOR T. POPOWYCH
C-27496
RENEWAL 4-30-23
STATE OF CALIFORNIA

02/22/2023

SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
STRUCTURAL PLAN, SECTION & DETAILS

S-1

ATTACHMENT M

Grading Plans

GENERAL CONSTRUCTION NOTES:

1. WHERE CONFLICTS OCCUR BETWEEN PLANS, SPECIFICATIONS, JURISDICTIONAL AGENCY REQUIREMENTS, OR OTHER CONTRACT DOCUMENTS, THE MOST STRINGENT SHALL GOVERN.
2. ISSUANCE OF A BUILDING PERMIT BY THE JURISDICTION DOES NOT RELIEVE APPLICANTS OF THE LEGAL REQUIREMENTS TO OBSERVE COVENANTS, CONDITIONS AND RESTRICTIONS WHICH MAY BE RECORDED AGAINST THE PROPERTY OR TO OBTAIN PLANS. YOU SHOULD CONTACT YOUR COMMUNITY ASSOCIATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY THIS PERMIT.
3. PRIOR TO PERFORMING ANY WORK IN THE CITY RIGHT-OF-WAY AN ENCROACHMENT PERMIT MUST BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT.
4. ALL WORK SHALL CONFORM TO CONTRA COSTA COUNTY CODE, THE PROJECT SOILS REPORT AND SPECIAL REQUIREMENTS OF THE PERMIT.
5. DUST SHALL BE CONTROLLED BY WATERING AND/OR DUST PALLIATIVE.
6. SANITARY FACILITIES SHALL BE MAINTAINED ON THE SITE DURING THE CONSTRUCTION PERIOD.
7. WORK HOURS ARE LIMITED FROM 7:00 AM TO 6:30 PM MONDAY THROUGH FRIDAY; 8:00 AM TO 6:00 PM SATURDAYS; AND NO WORK ON SUNDAYS AND HOLIDAYS.
8. NOISE, EXCAVATION, DELIVERY AND REMOVAL SHALL BE CONTROLLED.
9. THE STAMPED SET OF APPROVED PLANS SHALL BE ON THE JOB SITE AT ALL TIMES.
10. PERMITTEE AND CONTRACTOR ARE RESPONSIBLE FOR LOCATING AND PROTECTING UTILITIES.
11. APPROVED SHORING, DRAINAGE PROVISIONS AND PROTECTIVE MEASURES MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING THE GRADING OPERATION.
12. CESSPOOLS AND SEPTIC TANKS SHALL BE ABANDONED IN COMPLIANCE WITH THE UNIFORM PLUMBING CODE AND APPROVED BY THE BUILDING OFFICIAL.
13. HAUL ROUTES FOR IMPORT OR EXPORT OF MATERIALS SHALL BE APPROVED BY THE COUNTY AND PROCEDURES SHALL CONFORM WITH SLO COUNTY CODE.
14. POSITIVE DRAINAGE SHALL BE MAINTAINED AWAY FROM ALL BUILDING AND SLOPE AREAS.
15. FAILURE TO REQUEST INSPECTIONS AND/OR HAVE REMOVABLE EROSION CONTROL DEVICES ON-SITE AT THE APPROPRIATE TIMES SHALL RESULT IN A "STOP WORK" ORDER.
16. ALL PLASTIC DRAINAGE PIPES SHALL CONSIST OF PVC OR ABS PLASTIC SCHEDULE 40 OR SDR 35 OR ADS 3000 WITH GLUED JOINTS.
17. NO PAINT, PLASTER, CEMENT, SOIL, MORTAR OR OTHER RESIDUE SHALL BE ALLOWED TO ENTER STREETS, CURBS, GUTTERS OR STORM DRAINS. ALL MATERIAL AND WASTE SHALL BE REMOVED FROM THE SITE.
18. A PRE-GRADING MEETING SHALL BE SCHEDULED 48 HOURS PRIOR TO START OF GRADING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, GRADING CONTRACTOR, DESIGN CIVIL ENGINEER, SOILS ENGINEER, GEOLOGIST, CITY BUILDING INSPECTOR OR THEIR REPRESENTATIVES. REQUIRED FIELD INSPECTIONS WILL BE OUTLINED AT THE MEETING.
19. A PRE-PAVING MEETING SHALL BE SCHEDULED 48 HOURS PRIOR TO START OF THE SUB-GRADE PREPARATION FOR THE PAVING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, PAVING CONTRACTORS, DESIGN CIVIL ENGINEER, SOILS ENGINEER, CITY BUILDING INSPECTOR OR THEIR REPRESENTATIVES. REQUIRED FIELD INSPECTIONS WILL BE OUTLINED AT THE MEETING.
20. FOR SITE PREPARATION, SUITABLE FILL MATERIAL, GRADING AND EARTHWORK ACTIVITIES, FOUNDATION SETBACKS, KEYING/BENCHING, AND OTHER GEOTECHNICAL RECOMMENDATIONS, REFER TO GEOTECHNICAL INVESTIGATION REPORT PREPARED BY KRAZAN & ASSOCIATED, INC., DATED FEBRUARY 21, 2023, KA PROJ NO. 042-22060.

ESTIMATED EARTHWORK SUMMARY (CY)			
	CUT	FILL	NET (CUT-FILL)
RAW SURFACE GRADING	461.26	498.76	-37.50
SECTION ADJUSTMENTS			
LEASE AREA (6" CONC/5" AB)	26.00	12.00	14.00
GRAVEL ACCESS ROAD (16" AB)		-1040.00	1040.00
TOTAL	487.26	-529.24	1016.50 CUT(EXPORT)

DISTURBED AREA= 0.751 ACRES
MAX CUT DEPTH= 3.622 FT
MAX FILL HEIGHT= 3.875 FT

21. ENGINEERS ESTIMATE OF EARTHWORK VOLUMES IS BASED ON TOPOGRAPHICAL INFORMATION PROVIDED BY OTHERS AND DOES NOT INCLUDE TRENCH SPOILS FOR UTILITY TRENCHING, SHRINK/SWELL FACTORS, OR EXCAVATION VOLUMES FOR RETAINING WALLS, TOWERS, CONCRETE PADS OR OTHER STRUCTURAL SECTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EARTHWORK QUANTITIES PRIOR TO BID.

CITY GENERAL NOTES:

1. FIELD CONFLICTS: THESE PLANS SHOW EXISTING FEATURES INCLUDING BUT NOT LIMITED TO TREES, UTILITIES, AND STRUCTURES THAT MAY BE AFFECTED BY THE CONSTRUCTION OR PLACEMENT OF THE PROPOSED ENGINEERED IMPROVEMENTS. THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE ENGINEER IF THERE ARE ANY EXISTING FEATURES, WHETHER SHOWN OR NOT SHOWN ON THESE PLANS THAT COULD IN ANY WAY BE IN POTENTIAL CONFLICT WITH THE DESIGN OF THESE PLANS. ALL WORK WITHIN THE VICINITY OF A POTENTIAL CONFLICT SHALL CEASE UNTIL AN ADEQUATE AND APPROPRIATE SOLUTION IS DETERMINED BY THE ENGINEER AND APPROVED BY THE PUBLIC WORKS DEPARTMENT.
2. 2. SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT J DESIGN & CONSULTING ENGINEERS FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
3. BASIS OF ELEVATION DATUM: PER SURVEY CONDUCTED BY SMITHCO SURVEYING & ENGINEERING THE POINT OF GEODETIC INFORMATION IS THE BASIS OF DRAWING ELEVATIONS LOCATED AT THE FOLLOWING LATITUDE, LONGITUDE AND ELEVATION. THIS POINT IS ALSO SHOWN ON GRADING PLAN SHEET C1.3:

   LAT. 37° 49' 25.71" N. NAD 83
   LONG. 122° 06' 52.02" W. NAD 83
   ELEV. 838.4' NAVD 88

4. ALL STREET IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF MORAGA ATANDARDS. ALL PEDESTRIAN IMPROVEMENTS SHALL CONFORM TO THE REQUIREMENTS OF TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS AND THE AMERICANS WITH DISABILITIES ACT. THE IMPROVEMENTS ARE SUBJECT TO THE INSPECTION AND APPROVAL OF THE PUBLIC WORKS DEPARTMENT. CONTACT THE PUBLIC WORKS DEPARTMENT AT 925-888-7026, AT LEAST 48 HOURS PRIOR TO THE START OF ANY WORK, TO ARRANGE FOR INSPECTION. ANY WORK PERFORMED WITHOUT PROVIDING THIS ADVANCED NOTICE WILL BE REJECTED AND THE DEVELOPER/CONTRACTOR MAY BE REQUIRED TO REMOVE THE IMPROVEMENTS AND MAY BE SUBJECT TO PAYMENT OF FINES AS DETERMINED BY THE PUBLIC WORKS DIRECTOR.
5. QUALITY CONTROL PLAN: THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING THE QUALITY OF MATERIAL ENTERING THE WORK AND THE WORK PERFORMED AND SHALL PERFORM TESTING TO ENSURE CONTROL. PRIOR TO START OF WORK THE CONTRACTOR SHALL SUBMIT A QUALITY CONTROL PLAN THAT MUST DESCRIBE THE METHODS AND FREQUENCY OF TESTING, IMPLEMENTATION OF CORRECTIVE ACTIONS AS NECESSARY, AND REPORTING OF TEST RESULTS, SPECIFIC TO EACH MATERIAL TO BE USED.
6. PLAN REVISIONS: ALL REVISIONS TO THIS PLAN MUST BE REVIEWED BY THE PUBLIC WORKS DEPARTMENT PRIOR TO CONSTRUCTION AND SHALL BE ACCURATELY SHOWN ON REVISED PLANS, STAMPED AND DISTRIBUTED BY THE ENGINEERING SERVICES DIVISION, PRIOR TO ACCEPTANCE OF THE WORK AS COMPLETE.
7. EXCAVATION: THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT 811 OR (800) 227-2600 TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION. THE USA AUTHORIZATION NUMBER SHALL BE KEPT AT THE JOB SITE.
8. ALL UTILITY DISTRIBUTION SERVICES SHALL BE PLACED UNDERGROUND.
9. UTILITY CLEARANCE: PRIOR TO PLACING CURB, SIDEWALK, ASPHALT CONCRETE, SUBBASE OR BASE MATERIAL, ALL UNDERGROUND UTILITIES WITHIN THE RIGHT OF WAY SHALL BE INSTALLED, BACKFILL COMPLETED AND THE PUBLIC WORKS DEPARTMENT NOTIFIED, BY EACH OF THE UTILITY COMPANIES HAVING FACILITIES WITHIN THE WORK AREA, THAT THE UTILITY INSTALLATION HAS SATISFACTORILY PASSED ACCEPTANCE TESTS.
10. ALL MANHOLES OR INLETS OVER 4 FEET IN DEPTH SHALL BE PROVIDED WITH LADDER STEPS. LADDER STEPS SHALL BE INTEGRALLY CAST INTO THE WALLS OF THE MANHOLE OR INLET WHETHER PRECAST OR FIELD CAST IN ACCORDANCE WITH COUNTY SPECIFICATIONS. LADDER STEPS SHALL BE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC OR EQUIVALENT.
11. PAVEMENT WIDENING: WHEN WIDENING THE PAVEMENT ON AN EXISTING ROAD, THE EXISTING PAVEMENT SHALL BE CUT TO A NEAT LINE AND REMOVED TO AN EXISTING ADEQUATE STRUCTURAL SECTION. AN EXPLORATORY TRENCH, OR POTHOLING, MAY BE REQUIRED TO DETERMINE THE LIMITS OF PAVEMENT REMOVAL.
12. RETAINING WALLS: RETAINING WALLS WITHIN PUBLIC ROAD RIGHTS OF WAY WILL BE INSPECTED BY THE PUBLIC WORKS DEPARTMENT.
    a. A BUILDING PERMIT WILL BE REQUIRED FOR RETAINING WALLS, OUTSIDE PUBLIC ROAD RIGHTS OF WAY, THAT ARE 4 FEET OR HIGHER, OR THAT ARE 3 FEET OR HIGHER WITH SURCHARGE. PRIOR TO ACCEPTANCE OF THE IMPROVEMENTS AS COMPLETE, VERIFICATION THAT THE BUILDING INSPECTION DEPARTMENT HAS SIGNED OFF ON THE PERMIT SHALL BE PROVIDED TO THE CONSTRUCTION INSPECTOR.
    b. RETAINING WALLS UNDER 4 FEET HIGH (3 FEET HIGH WITH SURCHARGE) SHOWN ON THE IMPROVEMENT PLAN TO BE OUTSIDE OF PUBLIC ROAD RIGHT OF WAY, WILL BE INSPECTED BY THE ENGINEER OF RECORD FOR THE DESIGN OF THE WALL. A LETTER STATING THAT ALL WALLS WERE CONSTRUCTED IN ACCORDANCE WITH THE STRUCTURAL AND/OR GEOTECHNICAL ENGINEERS' RECOMMENDATIONS MUST BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT, PRIOR TO ACCEPTANCE OF IMPROVEMENTS AS COMPLETE.
13. REPRODUCIBLE 24" X 36" MYLAR "AS BUILT" RECORD DRAWINGS ARE REQUIRED FOR ENGINEERED STRUCTURES WITHIN PUBLIC RIGHTS OF WAY OR EASEMENTS. STRUCTURES INCLUDE: BRIDGES, RETAINING WALLS, TIE BACKS, SUBDRAINS, ETC.
14. TREES: NO TREES SHALL BE REMOVED UNLESS THEY ARE SHOWN AND NOTED TO BE REMOVED ON THE IMPROVEMENT PLANS. IF ANY TREES ARE TO BE REMOVED, THE IMPROVEMENT PLANS MUST BE REVIEWED AND ACKNOWLEDGED BY THE DEPARTMENT OF CONSERVATION AND DEVELOPMENT. ALL TREES CONFLICTING WITH GRADING, UTILITIES, OR OTHER IMPROVEMENTS, OR OVERHANGING THE SIDEWALK OR PAVEMENT SO AS TO FORM A NUISANCE OR HAZARD, SHALL BE TRIMMED, PROPERLY TREATED AND SEALED. A TREE PERMIT MAY BE NECESSARY AND CAN BE OBTAINED FROM THE COUNTY DEPARTMENT OF CONSERVATION AND DEVELOPMENT.
15. GRADES LESS THAN 1 PERCENT: WATER TESTING IS REQUIRED FOR ALL CURB GRADES LESS THAN ONE PERCENT.
16. ALL ASPHALT CONCRETE PAVING OF PUBLIC ROADS IS SUBJECT TO TESTS REQUIRED BY AMENDED SECTION 39-HOT MIX ASPHALT OF THE CONTRA COSTA COUNTY STANDARD SPECIFICATIONS DATED OCTOBER 16, 2014. BASED ON THESE TESTS, ADDITIONAL PAVEMENT TREATMENT MAY BE NECESSARY.
17. EXISTING CURB AND SIDEWALK WITHIN THE PROJECT LIMITS THAT ARE DAMAGED OR DISPLACED, EVEN THOUGH NOT PROPOSED TO BE REMOVED, SHALL BE REPAIRED OR REPLACED, EVEN IF DAMAGE OR DISPLACEMENT OCCURRED PRIOR TO ANY WORK PERFORMED BY THE CONTRACTOR.
18. EROSION CONTROL: IF PAVING AND STORM DRAIN IMPROVEMENTS ARE NOT COMPLETED BY OCTOBER 1ST, TEMPORARY SILT AND DRAINAGE CONTROL FACILITIES SHALL BE INSTALLED TO CONTROL AND CONTAIN EROSION-CAUSED SILT DEPOSITS AND TO PROVIDE FOR THE SAFE DISCHARGE OF STORM WATERS INTO EXISTING STORM WATER FACILITIES. DESIGN OF THESE FACILITIES MUST BE APPROVED BY THE BUILDING INSPECTION DIVISION.
19. PAVEMENT STRUCTURAL SECTION IN PUBLIC RIGHT OF WAY: THE THICKNESS OF SUB-BASE, BASE AND SURFACING WILL BE DETERMINED BY THE PUBLIC WORKS DEPARTMENT BASED ON THE TRAFFIC INDEX AND SOILS TESTS FOR "R" VALUE.
20. PAVEMENT STRIPING: ALL TRAFFIC STRIPING AND MARKINGS SHALL BE THERMOPLASTIC UNLESS THESE PLANS DESIGNATE THE USE OF TRAFFIC PAINT.
21. ALL STRIPING ON MAJOR ROADS SHALL BE CAT TRACKED PRIOR TO FINAL INSTALLATION. FINAL INSTALLATION OF STRIPING WILL BE ALLOWED ONLY AFTER APPROVAL OF THE STRIPING LAYOUT BY THE CONSTRUCTION INSPECTOR.
22. ALL SUBDIVISION STREETS THAT ARE STUBBED OUT FOR FUTURE USE SHALL HAVE A SIGN POSTED AT THE END OF THE DEAD-END STREET THAT READS: "THIS STREET PLANNED TO BE EXTENDED." THE SIGN SHALL BE REFLECTORIZED WITH BLACK 2-INCH CAPITAL SERIES "E" LETTERS ON A WHITE BACKGROUND, MEASURING 18 INCHES HIGH BY 36 INCHES WIDE. INSTALL WITH W31 ("END") SIGN BEHIND STANDARD END OF STREET BARRICADE. SEE COUNTY STANDARD PLAN CA 30.
23. THE CONTRACTOR SHALL COMPLY WITH ALL RULES, REGULATIONS AND PROCEDURES OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) FOR MUNICIPAL CONSTRUCTION AND INDUSTRIAL ACTIVITIES AS PROMULGATED BY THE CALIFORNIA STATE WATER RESOURCE CONTROL BOARD OR ANY OF ITS REGIONAL WATER QUALITY CONTROL BOARDS.
24. THE CONTRACTOR IS RESPONSIBLE FOR PRESERVATION AND/OR PERPETUATION OF ALL EXISTING MONUMENTS (THAT CONTROL SUBDIVISIONS, TRACTS, STREETS OR HIGHWAYS, OR PROVIDE SURVEY CONTROL) WHICH WILL BE DISTURBED OR REMOVED DUE TO CONTRACTOR'S WORK. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 10 WORKING DAYS NOTICE, TO PROJECT ENGINEER/SURVEYOR, PRIOR TO DISTURBANCE OR REMOVAL OF EXISTING MONUMENTS. PROJECT ENGINEER/SURVEYOR SHALL COORDINATE WITH THE CONTRACTOR TO RESET MONUMENTS OR PROVIDE PERMANENT WITNESS MONUMENTS AND FILE THE REQUIRED DOCUMENTATION WITH THE COUNTY SURVEYOR, PER BUSINESS AND PROFESSIONS CODE SECTION 8771.
25. ANY MATERIAL IMPORTED FOR THE CONSTRUCTION OF EMBANKMENTS OR AS BACKFILL FOR STRUCTURES, CULVERTS AND OTHER FACILITIES SHALL MEET THE FOLLOWING REQUIREMENTS:

PH*	>5.5 (>7.3**)
Water Soluble Sulfate***	<0.2%
Resistivity (R)*	>3000 ohm/cm**

* Per California Test 532 & 643. ** For backfill around metal pipe/conduit.
*** Reported as SO_4

26. ENCROACHMENT PERMIT: THE CONTRACTOR IS REQUIRED TO OBTAIN AN ENCROACHMENT PERMIT FOR ALL WORK WITHIN EXISTING PUBLIC EASEMENTS AND RIGHTS OF WAY. APPLICATIONS FOR ENCROACHMENT PERMIT, SUBMITTED MORE THAN 120 DAYS PAST THE PUBLIC WORKS "REVIEWED" DATE STAMP, MAY REQUIRE UP TO FOUR WEEKS TO PROCESS. FOR FURTHER PERMIT INFORMATION, CONTACT THE APPLICATION AND PERMIT CENTER AT 925-888-7026.
27. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE COUNTY AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

GENERAL EROSION CONTROL NOTES:

1. IN CASE OF EMERGENCY CALL _____
2. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES. NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES OR TO REPAIR ANY DAMAGED EROSION CONTROL MEASURES.
3. EROSION CONTROL DEVICES SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE CITY ENGINEER.
4. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM CHECK BERMS AND DESILTING BASINS. ANY GRADED SLOPE SURFACE PROTECTION MEASURES DAMAGED DURING THE RAINSTORM SHALL ALSO BE REPAIRED IMMEDIATELY.
5. FILL SLOPES AT THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE TOP OF THE SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
6. A SIX-FOOT HIGH PERIMETER FENCE OR A 24-HOUR GUARD SHALL BE POSTED ON THE SITE WHENEVER THE DEPTH OF WATER IN ANY DEVICE EXCEEDS 18 INCHES.
7. TEMPORARY EROSION DEVICES SHOWN ON THE GRADING PLAN WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED WHEN THE PUBLIC WORKS INSPECTOR SO DIRECTS THE WORK PROGRESS.
8. ALL LOOSE SOIL AND DEBRIS SHALL BE REMOVED FROM THE STREET AREAS UPON STARTING OPERATIONS AND PERIODICALLY THEREAFTER AS DIRECTED BY THE PUBLIC WORKS INSPECTOR.
9. WHEN THE PUBLIC WORKS INSPECTOR SO DIRECTS, A 12-INCH BERM SHALL BE MAINTAINED ALONG THE TOP OF THE SLOPE OF THOSE FILLS ON WHICH GRADING IS NOT IN PROGRESS.
10. VELOCITY CHECK DAMS SHALL BE PROVIDED ACROSS THE OUTLETS OF ALL LOTS DRAINING INTO THE STREET.
11. ALL FILLS SHALL BE GRADED TO PROMOTE DRAINAGE AWAY FROM THE EDGE OF THE FILL.
12. STAND-BY CREWS SHALL BE ALERTED BY THE PERMITTEE OR CONTRACTOR FOR EMERGENCY WORK DURING RAINSTORMS.
13. ALL UTILITY TRENCHES SHALL BE BLOCKED AT THE PRESCRIBED INTERVALS FROM BOTTOM TO TOP WITH A DOUBLE ROW OF SANDBAGS PRIOR TO BACKFILL. SEWER TRENCHES SHALL BE BLOCKED AT THE PRESCRIBED INTERVALS WITH A DOUBLE ROW OF SANDBAGS EXTENDING DOWNWARD, TWO SANDBAGS FROM THE GRADED SURFACE OF THE STREET. SANDBAGS ARE TO BE PLACED WITH ALTERNATE HEADER AND STRETCHER COURSES. THE INTERVALS PRESCRIBED BETWEEN SANDBAG BLOCKING SHALL DEPEND ON THE SLOPE OF THE GROUND SURFACE, BUT NOT EXCEED THE FOLLOWING:

GRADE OF THE STREET	INTERVALS
LESS THAN 2%	AS REQUIRED
2% TO 4%	100 FEET
4% TO 10%	50 FEET
OVER 10%	25 FEET

14. VELOCITY CHECK DAMS SHALL BE PROVIDED IN ALL UNPAVED STREET AREAS AT THE INTERVALS INDICATED ABOVE. VELOCITY CHECK DAMS MAY BE CONSTRUCTED OF SANDBAGS, TIMBER, OR OTHER EROSION-RESISTANT MATERIALS APPROVED BY THE PUBLIC WORKS INSPECTOR, AND SHALL EXTEND COMPLETELY ACROSS THE STREET OR CHANNEL AT RIGHT ANGLES TO THE CENTERLINE. EARTH DIKES MAY NOT BE USED AS VELOCITY CHECK DAMS. PLASTIC BAGS SHALL NOT BE USED FOR SANDBAGS.
15. VELOCITY CHECK DAMS SHALL BE PROVIDED IN ALL UNPAVED GRADED CHANNELS AT THE INTERVALS INDICATED BELOW:

GRADE OF CHANNEL	INTERVALS BETWEEN CHECK DAMS
LESS THAN 3%	100 FEET
3% TO 6%	50 FEET
OVER 6%	25 FEET

16. AFTER SEWER AND UTILITY TRENCHES ARE BACKFILLED AND COMPACTED, THE SURFACES OVER SUCH TRENCHES SHALL BE MOUNDED SLIGHTLY TO PREVENT CHANNELING OF WATER IN THE TRENCH AREA. CARE SHOULD BE EXERCISED TO PROVIDE FOR CROSS FLOWS AT FREQUENT INTERVALS WHERE TRENCHES ARE NOT ON THE CENTERLINE OF A CROWN STREET.
17. EXCEPT WHEN THE PUBLIC WORKS INSPECTOR DIRECTS OTHERWISE, ALL DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS FORECAST AND SHALL BE MAINTAINED DURING THE RAINY SEASON (OCTOBER 1 THRU APRIL 15).
18. ALL BASINS AND CHECK DAMS SHALL HAVE THE DEBRIS AND SILT REMOVED AFTER EACH STORM TO RESTORE THEIR CAPACITY.
19. SANDBAG SHALL BE STOCKPILED IN PARKWAY AT INTERVALS SHOWN PLANS, READY TO BE PLACED IN POSITION WHEN RAIN IS FORECAST, OR WHEN THE PUBLIC WORKS INSPECTOR SO DIRECTS.
20. BRUSH AND GROUND COVER MAY NOT BE REMOVED MORE THAN 10-FEET ABOVE FILLS BETWEEN OCTOBER 15 AND APRIL 15.
21. PLACEMENT OF DEVICES TO REDUCE EROSION DAMAGE WITHIN THE PROJECT MUST BE SHOWN ON THE PLAN. STOCKPILE LOCATIONS FOR MATERIALS SHALL ALSO BE INDICATED ON THE DRAWING.
22. OUTLET CONDITIONS FROM THE DESILTING BASIN SHALL NOT EXCEED DOWNSTREAM LIMITATIONS. THE OVERFLOW SHALL BE DESIGNED TO SAFELY PASS 1.5 TIMES THE 25-YEAR PEAK DISCHARGE.
23. A CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE CONSTRUCTION ENTRANCE. THE CONSTRUCTION ENTRANCE SHALL CONSIST OF A BED OF 3/4" GRAVEL OF THE FOLLOWING MINIMUM DIMENSIONS: 15' WIDE, 30' LONG AND 12" DEEP. THE CONSTRUCTION ENTRANCE SHALL BE REMOVED PRIOR TO PLACING BASE FOR PAVING.
24. ALL SANDBAGS SHALL BE AMERICAN BUILDERS SUPPLY SIZE 18" X 30" MADE OF PROPYLENE MATERIAL OR EQUAL, WITH 10X12 WEAVE, 950 DENIER, 1200-HOUR U.V. RATING, OF MILK WHITE COLOR, AND SHOULD HAVE 1000 PER BALE.
25. SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
26. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
27. FUELS, OILS, SOLVENTS AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
28. NON-STORM WATER RUNOFF FROM EQUIPMENT AND VEHICLE WASHING AND ANY OTHER ACTIVITY SHALL BE CONTAINED AT THE PROJECT SITE.
29. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
30. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
31. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
32. 18. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER

PRIVATE ENGINEER'S NOTICE TO CONTRACTOR

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS PROVIDED BY OTHERS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES TO VERIFY THE LOCATION AND ANY DISCREPANCY BETWEEN THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER.
2. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITION DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

SHT	DESCRIPTION
C0.0	TITLE CIVIL GENERAL NOTES
C-1	SITE SURVEY
C-2	SITE SURVEY
C-3	SITE SURVEY
C-4	SITE SURVEY
C-5	SITE SURVEY
C0.1	GRADING SECTIONS
C1.1	SITE GRADING PLAN
C1.2	SITE GRADING PLAN
C1.3	SITE GRADING PLAN
C1.4	CULVERT LAYOUT
C1.5	EROSION CONTROL PLAN
C1.6	EROSION CONTROL DETAILS
C1.7	EXISTING HYDROLOGY
C1.8	PROPOSED HYDROLOGY
GR-1	EQUIPMENT COMPOUND GRADING PLAN & SECTION
GR-2	CONCRETE PAD PROFILES & SECTIONS
BMP-1	EQUIPMENT COMPOUND BEST MANAGEMENT PRACTICES
S-1	STRUCTURAL DRAWINGS
S-2	STRUCTURAL DRAWINGS
S-3	CONCRETE AND MASONRY RETAINING WALL SCHEDULE
SHEET 01	EXISTING AVERAGE SLOPE
C1.7	EXISTING HYDROLOGY
C1.8	PROPOSED HYDROLOGY

ENGINEER OF RECORD:
LETS AMERICA, INC.
112 S. KYRENE RD., STE. 1
CHANDLER, AZ 85226
MADHAN KUMAR K, MS, PE
TELEPHONE: (480) 961-9151
FAX: (480) 961-9151
WWW.LETSINC.COM

GEOTECHNICAL ENGINEER:
KRAZAN & ASSOCIATES, INC.
215 W. DAKOTA AVENUE
CLOVIS, CA 93612
DAVID R. JAROSZ, II
TELEPHONE: (559) 348-2200
WWW.KRAZAN.COM

CIVIL ENGINEER:
J DESIGN & CONSULTING ENGINEERS, INC.
15016 LAGO DRIVE
RANCHO MURIETA, CA 95683
JD CHRISTIANSEN, PE
TELEPHONE: (405) 650-3711
JDC@JDCENGINEERS.COM

SURVEYOR:
SMITHCO SURVEYING ENGINEERING
P.O. BOX 81626
BAKERSFIELD, CA 93380
CONTACT: GREG SMITH, PLS
TELEPHONE: (661) 393-1217
GSMITH@SMITHCO.NET

PROJECT:
SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:
verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:
A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.saceng.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:
REGISTERED PROFESSIONAL ENGINEER JD CHRISTIANSEN No. 89629 CIVIL STATE OF CALIFORNIA
2/22/2023
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF THE ABOVE LISTED LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

ENGINEERING FIRM:
J DESIGN & CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:
CIVIL GENERAL NOTES

SHEET NUMBER:
C0.0

Plotted: 2/22/2023 2:41:47 PM By: JDLocsign
Z:\Projects\22007001 Sanders Ranch\Civil\Drawings\Sheets\C0.0 CIVIL GENERAL NOTES.dwg

NOTES

OWNER(S): COMMON AREA–TRACT 6292 / SANDERS RANCH HO ASSN

APN: 258–300–019–1

THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY OF ANY PARCEL OF LAND, NOR DOES IT IMPLY OR INFER THAT A BOUNDARY SURVEY WAS PERFORMED. THIS IS A SPECIALIZED TOPOGRAPHIC MAP WITH PROPERTY AND EASEMENTS BEING A GRAPHIC DEPICTION BASED ON INFORMATION GATHERED FROM VARIOUS SOURCES OF RECORD AND AVAILABLE MONUMENTATION. PROPERTY LINES AND LINES OF TITLE WERE NEITHER INVESTIGATED NOR SURVEYED AND SHALL BE CONSIDERED APPROXIMATE ONLY. NO PROPERTY MONUMENTS WERE SET.

THE EASEMENTS (IF ANY) THAT APPEAR ON THIS MAP HAVE BEEN PLOTTED BASED SOLELY ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT BY: FIRST AMERICAN TITLE INSURANCE COMPANY, FILE NO. 6096040, DATED NOVEMBER 19, 2019. WITHIN SAID TITLE REPORT THERE ARE THIRTEEN (13) EXCEPTIONS LISTED, TEN (10) OF WHICH ARE EASEMENTS AND THREE (3) OF WHICH CAN NOT BE PLOTTED.

THE UNDERGROUND UTILITIES (IF ANY) THAT APPEAR ON THIS MAP HAVE BEEN LOCATED BY FIELD OBSERVATION. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES STATE THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE.

THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD RATE MAP FOR COMMUNITY NO. 060637, PANEL NO. 0428F DATED JUNE 16, 2009 SHOWS THAT THE LOCATION OF THIS SITE FALLS WITHIN ZONE X, WHICH ARE AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THE LATITUDE AND LONGITUDE AT THE LOCATION AS SHOWN WAS DETERMINED BY GPS OBSERVATIONS.

LAT. 37° 49' 25.71" N. NAD 83
LONG. 122° 06' 52.02" W. NAD 83
ELEV. 838.4' NAVD 88 (BASIS OF DRAWING)

The information shown above meets or exceeds the requirements set forth in FAA order 8260.19D for 1–A accuracy (± 20' horizontally and ± 3' vertically). The horizontal datum (coordinates) are expressed as degrees, minutes and seconds, to the nearest hundredth of a second. The vertical datum (heights) are expressed in feet and decimals thereof and are determined to the nearest 0.1 foot.

LESSOR'S PROPERTY LEGAL DESCRIPTION PER TITLE REPORT;

REAL PROPERTY IN THE TOWN OF MORAGA, COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL C, AS SHOWN ON THAT CERTAIN MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH", WHICH MAP WAS FILED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA ON MAY 30, 1985, IN BOOK 289 OF MAPS PAGE(S) 33–45. EXCEPTING THEREFROM THAT PORTION GRANTED TO J. B. POTTS, ET UX RECORDED JANUARY 11, 1996 INSTRUMENT NO. 1996– 5182 OF OFFICIAL RECORDS.

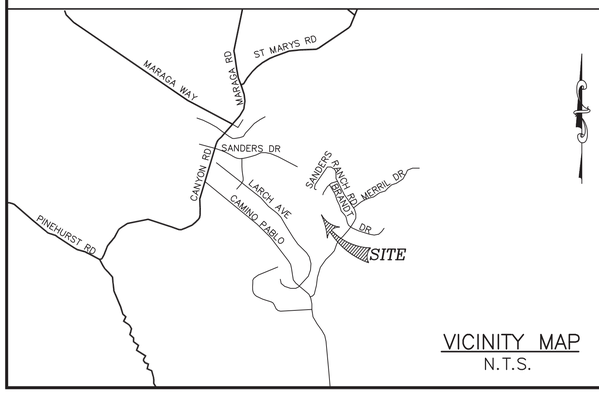
APN: 258–300–019

EASEMENT(S) PER TITLE REPORT;

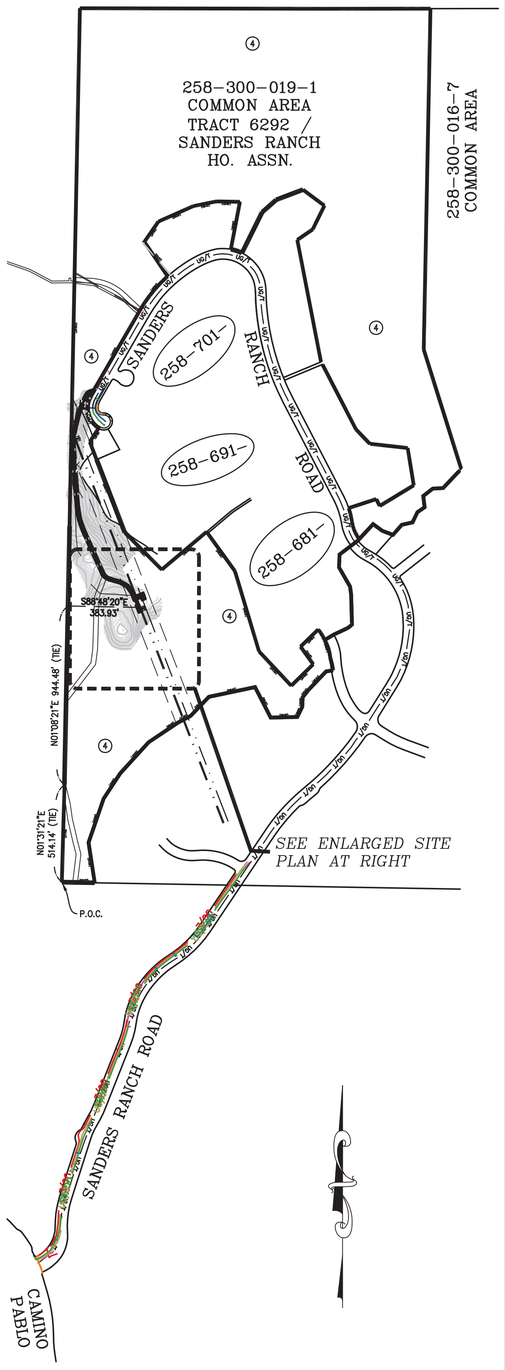
SEE SHEET C–5.

LEGAL DESCRIPTIONS;

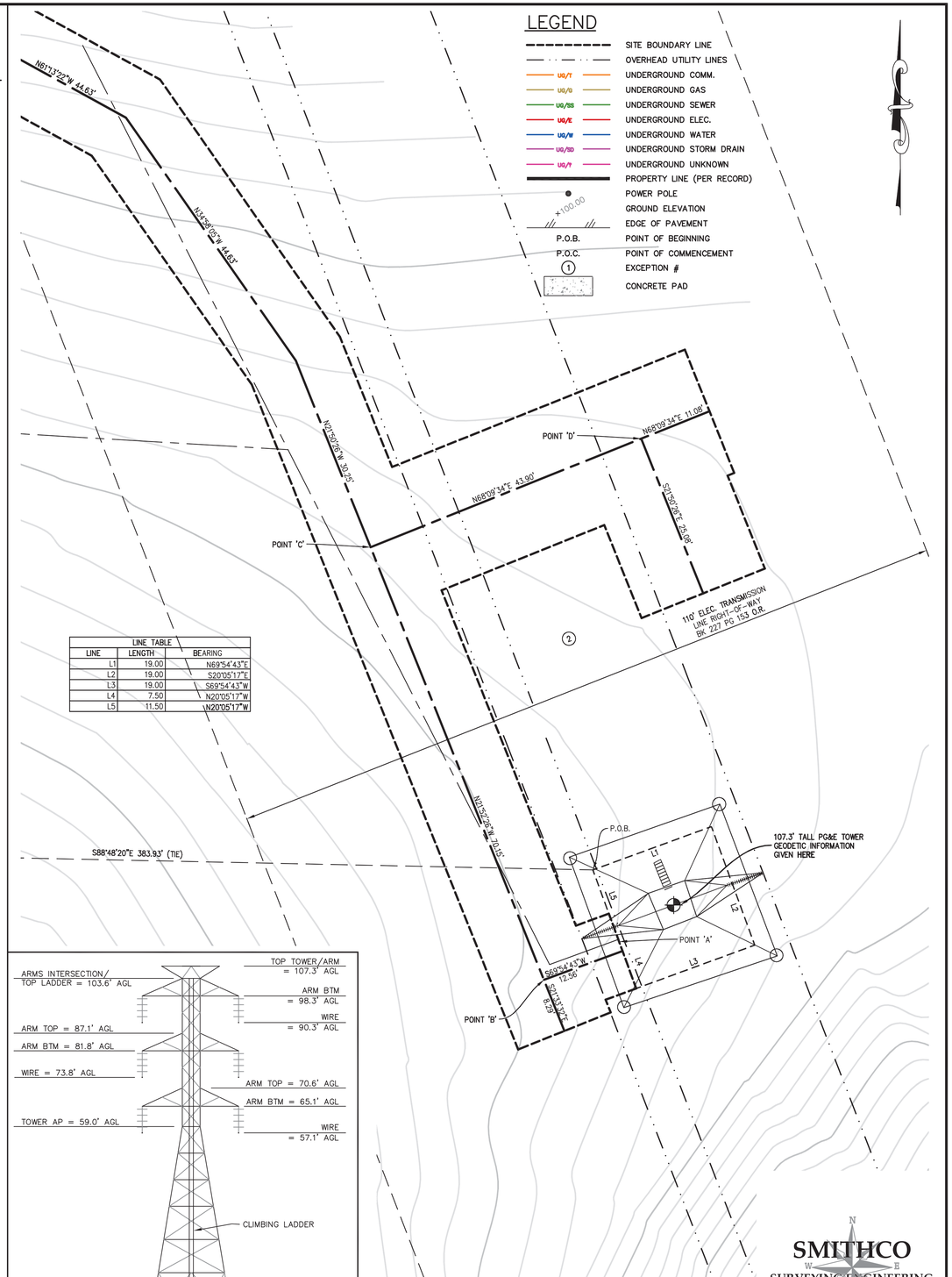
SEE SHEET C–5.



VICINITY MAP
N.T.S.

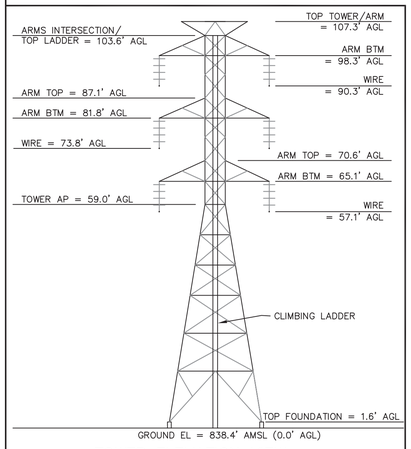


OVERALL SITE MAP
1" = 400'



LINE TABLE		
LINE	LENGTH	BEARING
L1	19.00	N69°54'43"E
L2	19.00	S20°05'17"E
L3	19.00	S69°54'43"W
L4	7.50	N20°05'17"W
L5	11.50	N20°05'17"W

ENLARGED SITE PLAN
1" = 10'



TOWER ELEVATION VIEW
1" = 20'

LEGEND

- SITE BOUNDARY LINE
- OVERHEAD UTILITY LINES
- UG/T — UNDERGROUND COMM.
- UG/G — UNDERGROUND GAS
- UG/SS — UNDERGROUND SEWER
- UG/E — UNDERGROUND ELEC.
- UG/W — UNDERGROUND WATER
- UG/SD — UNDERGROUND STORM DRAIN
- UG/? — UNDERGROUND UNKNOWN
- PROPERTY LINE (PER RECORD)
- POWER POLE
- +100.00 — GROUND ELEVATION
- EDGE OF PAVEMENT
- P.O.B. — POINT OF BEGINNING
- P.O.C. — POINT OF COMMENCEMENT
- (1) — EXCEPTION #
- CONCRETE PAD

ISSUE STATUS

REV	DATE	DESCRIPTION	BY
0	02/07/20	PRELIMINARY	DL
5	05/18/22	ADD DIMS	DA
6	10/11/22	UPDATE	CJ
7	10/12/22	REVISIONS	CJ
8	10/20/22	REVISIONS	CJ
9	11/08/22	ADDITIONAL TOPO	EJ
10	12/19/22	REVISIONS	EJ
11	02/07/23	REVISIONS	CJ

SMITHCO JOB NO.: 82–1335

A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3768

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS PROPRIETARY & CONFIDENTIAL TO VERIZON WIRELESS

ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED LAND SURVEYOR — ANTAGNAC AIRA — L. 9052 — STATE OF CALIFORNIA

02/07/2023

304480
SANDERS
RANCH

100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA
COUNTY

SHEET TITLE:
SITE SURVEY
FOR EXAMINATION ONLY

C-1

SMITHCO
SURVEYING & ENGINEERING
P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218

LEGEND

- SITE BOUNDARY LINE
- OVERHEAD UTILITY LINES
- UG/T — UNDERGROUND COMM.
- UG/G — UNDERGROUND GAS
- UG/SS — UNDERGROUND SEWER
- UG/E — UNDERGROUND ELEC.
- UG/W — UNDERGROUND WATER
- UG/SD — UNDERGROUND STORM DRAIN
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- P.O.C. — POINT OF COMMENCEMENT
- (1) — EXCEPTION #
- CONCRETE PAD

SMITHCO
SURVEYING & ENGINEERING
P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218

258-300-019-1
COMMON AREA
TRACT 6292 /
SANDERS RANCH
HO. ASSN.
(4)

SANDERS RANCH ROAD — 56'

PROPOSED LESSEE UTILITY ROUTE

258-681-

258-691-

258-701-

SEE SHEET C - 4

(102.87') (130.00') (114.19') (137.09') (41.00') (50.00') (60.00') (140.88') (247.85') (180.91') (443.23') (245.82') (249.04') (60.65') (100.00') (69.39') (275.82') (513.74') (85.55') (195.38') (522.94') (245.04') (139.92') (215.00') (139.95') (125.43') (123.88') (255.00') (2732.87') (1368.00')

SITE ACCESS

PERALTA CT.

3' WIDE V-GUTTER

3.5' WIDE V-GUTTER

PG&E VAULT #T-12994

U/G WATER LINE PAINT MARK

U/G SEWER LINE PAINT MARK

CCCSD SEWER MANHOLE

U/G ELEC LINE PAINT MARK

U/G COMM. LINE PAINT MARK

CCCSD SEWER MANHOLE

TREE (TYP.)

U/G GAS LINE PAINT MARK

N75°04'38"E 16.78'
N62°07'02"E 14.24'
N36°11'49"E 14.24'
N23°14'13"E 79.69'
STORM DRAIN
N18°37'33"E 32.76'

13.6' WIDE BARBED WIRE GATE

4' TALL BARBED WIRE FENCE

N09°43'33"E 19.95'

N16°49'40"E 34.13'

EXISTING PG&E TOWER

N14°00'54"E 65.24'

N02°11'30"W 133.26'

N03°51'03"W 97.17'

N05°14'25"W 144.84'

4' TALL BARBED WIRE FENCE

N09°56'33"W 63.88'

N19°26'49"W 63.88'

N24°10'58"W 245.92'

N36°43'28"W 22.48'

N61°13'22"W 44.63'

N74°21'01"W 59.73'

N61°48'30"W 22.48'

EXISTING PG&E TRANS. TOWER 107.3' TALL

OVERHEAD POWER LINES

OVERHEAD POWER LINES

APPROXIMATE LOCATION

APPROXIMATE LOCATION

PROPOSED LESSEE UTILITY ROUTE

ACCESS & UTILITY ROUTE
1" = 100'

ISSUE STATUS			
REV	DATE	DESCRIPTION	BY
0	02/07/20	PRELIMINARY	DL
4	04/23/20	TITLE REVIEW	SL
5	05/18/22	ADD DIMS	DA
6	10/11/22	UPDATE	CJ
7	10/12/22	REVISIONS	CJ
8	10/20/22	REVISIONS	CJ
9	11/08/22	ADDITIONAL TOPO	EJ
10	12/19/22	REVISIONS	EJ

SMITHCO JOB NO.: 82-1335

SAC
A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3768

PROPRIETARY INFORMATION

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2785 MITCHELL DRIVE, BLDG 9
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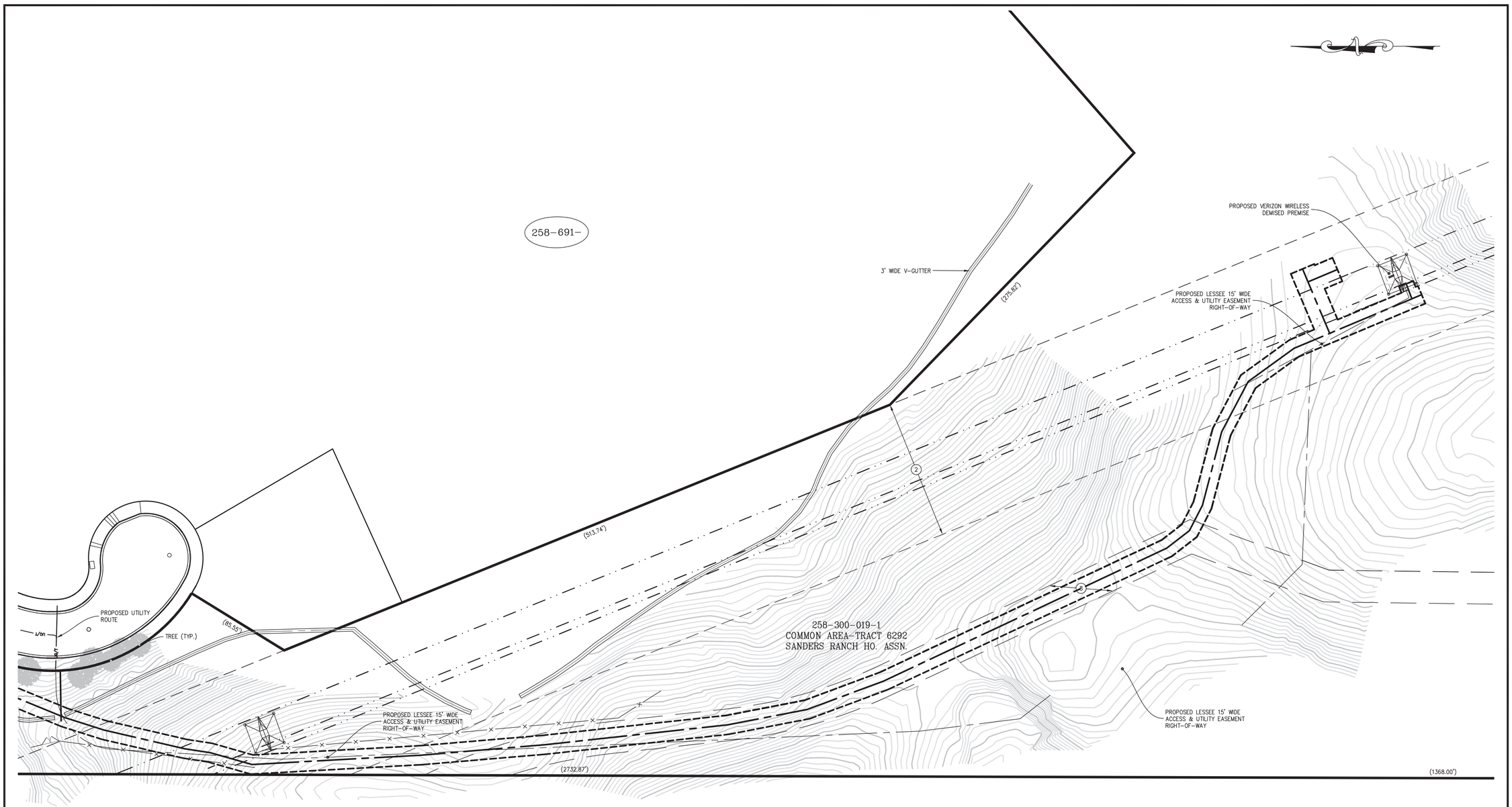
LICENSED LAND SURVEYOR
LUKE A. SMITH
No. 9052
STATE OF CALIFORNIA
02/07/2023

304480 SANDERS RANCH

100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA COUNTY

SHEET TITLE:
SITE SURVEY
FOR EXAMINATION ONLY

C-2



SITE PLAN
1" = 40'

SMITHCO
SURVEYING & ENGINEERING

P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218

ISSUE STATUS

REV	DATE	DESCRIPTION	BY
0	02/07/20	PRELIMINARY	DL
4	04/23/20	TITLE REVIEW	SL
5	05/18/22	ADD DIMS	DA
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7	10/12/22	REVISIONS	CJ
8	10/20/22	REVISIONS	CJ
9	11/08/22	ADDITIONAL TOPO	EJ
10	12/19/22	REVISIONS	EJ

SMITHCO JOB NO.: 82-1335

A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3786

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verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598



02/07/2023

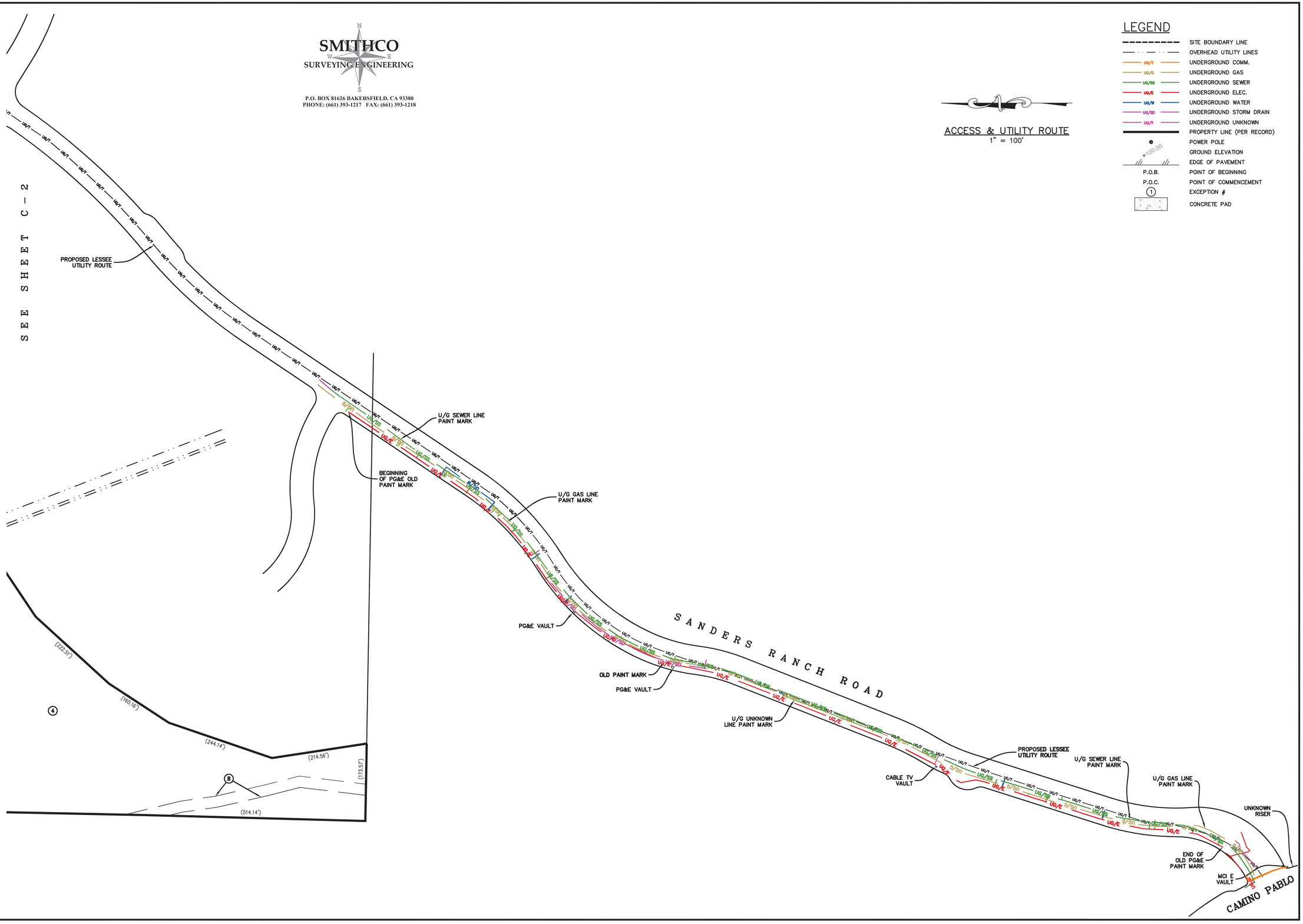
304480 SANDERS RANCH

100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA
COUNTY

SHEET TITLE:
SITE SURVEY
FOR EXAMINATION ONLY

C-3

SMITHCO
SURVEYING & ENGINEERING
P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218



ACCESS & UTILITY ROUTE
1" = 100'

LEGEND

- SITE BOUNDARY LINE
- OVERHEAD UTILITY LINES
- UG/T — UNDERGROUND COMM.
- UG/G — UNDERGROUND GAS
- UG/SS — UNDERGROUND SEWER
- UG/E — UNDERGROUND ELEC.
- UG/W — UNDERGROUND WATER
- UG/SD — UNDERGROUND STORM DRAIN
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- CONCRETE PAD

ISSUE STATUS

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7	10/12/22	REVISIONS	CJ
8	10/20/22	REVISIONS	CJ
9	11/08/22	ADDITIONAL TOPO	EJ
10	12/19/22	REVISIONS	EJ

SMITHCO JOB NO.: 82-1335

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5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3768

PROPRIETARY INFORMATION

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verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED LAND SURVEYOR
ERIC J. JANAGHAN
9052
STATE OF CALIFORNIA
02/07/2023

304480 SANDERS RANCH

100 SANDERS RANCH RD.
MORAGA, CA 94566
CONTRA COSTA COUNTY

SHEET TITLE:
SITE SURVEY
FOR EXAMINATION ONLY

C-4

EASEMENT(S) PER TITLE REPORT:

2. AN EASEMENT FOR LINES OF POLE AND TOWER PURPOSES AND INCIDENTAL PURPOSES, RECORDED MARCH 19, 1930 AS BOOK 227, PAGE 153 OF OFFICIAL RECORDS.
IN FAVOR OF: WESTERN POWER COMPANY OF CALIFORNIA
AFFECTS: AS DESCRIBED THEREIN
*** PLOTTED AS SHOWN HEREON ***

3. COVENANTS, CONDITIONS, RESTRICTIONS, EASEMENTS, ASSESSMENTS, LIENS, CHARGES, TERMS AND PROVISIONS IN THE DOCUMENT RECORDED DECEMBER 21, 1983 AS INSTRUMENT NO. 1983–186921 OF OFFICIAL RECORDS, WHICH PROVIDE THAT A VIOLATION THEREOF SHALL NOT DEFEAT OR RENDER INVALID THE LIEN OF ANY FIRST MORTGAGE OR DEED OF TRUST MADE IN GOOD FAITH AND FOR VALUE, BUT DELETING ANY COVENANT, CONDITION, OR RESTRICTION INDICATING A PREFERENCE, LIMITATION OR DISCRIMINATION BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, GENETIC INFORMATION, GENDER, GENDER IDENTITY, GENDER EXPRESSION, SOURCE OF INCOME (AS DEFINED IN CALIFORNIA GOVERNMENT CODE § 12955(P)) OR ANCESTRY, TO THE EXTENT SUCH COVENANTS, CONDITIONS OR RESTRICTIONS VIOLATION 42 U.S.C. § 3604(C) OR CALIFORNIA GOVERNMENT CODE § 12955. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS.
A DECLARATION OF ANNEXATION RECORDED JUNE 19, 1985 AS INSTRUMENT NO. 1985–78638 OF OFFICIAL RECORDS, BUT DELETING ANY COVENANT, CONDITION, OR RESTRICTION INDICATING A PREFERENCE, LIMITATION OR DISCRIMINATION BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, GENETIC INFORMATION, GENDER, GENDER IDENTITY, GENDER EXPRESSION, SOURCE OF
INCOME (AS DEFINED IN CALIFORNIA GOVERNMENT CODE § 12955(P)) OR ANCESTRY, TO THE EXTENT SUCH COVENANTS, CONDITIONS OR RESTRICTIONS VIOLATION 42 U.S.C. § 3604(C) OR CALIFORNIA GOVERNMENT CODE § 12955. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED JUNE 09, 1992 AS INSTRUMENT NO. 1992–145677 OF OFFICIAL RECORDS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED OCTOBER 14, 1999 AS INSTRUMENT NO. 1999–271611 OF OFFICIAL RECORDS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED FEBRUARY 14, 2003 AS INSTRUMENT NO. 2003–54907 OF OFFICIAL RECORDS.
DOCUMENT(S) DECLARING MODIFICATIONS THEREOF RECORDED JANUARY 04, 2011 AS INSTRUMENT NO. 2011–11201 OF OFFICIAL RECORDS.
*** NOT PLOTTABLE–BLANKET IN NATURE ***

4. AN EASEMENT SHOWN OR DEDICATED ON THE MAP AS REFERRED TO IN THE LEGAL DESCRIPTION FOR: RECREATIONAL FACILITIES, PARKING, UTILITIES, DRAINAGE, INGRESS, EGRESS, SCENIC & STORM DRAIN AND INCIDENTAL PURPOSES.
THE LOCATION OF THE EASEMENT CANNOT BE DETERMINED FROM RECORD INFORMATION.
*** PLOTTED AS SHOWN HEREON ***

5. AN EASEMENT FOR THE RIGHT FROM TIME TO TIME TO CONSTRUCT, INSTALL, INSPECT, MAINTAIN, REPLACE, REMOVE, AND USE FACILITIES AND INCIDENTAL PURPOSES, RECORDED JANUARY 14, 1986 AS INSTRUMENT NO. 1986–6336 OF OFFICIAL RECORDS.
IN FAVOR OF: PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION
AFFECTS: AS DESCRIBED THEREIN
*** PLOTTED AS SHOWN HEREON ***

6. AN EASEMENT FOR RIGHT OF WAY FOR THE PURPOSE OF LAYING DOWN, CONSTRUCTING, RECONSTRUCTING, REMOVING, REPLACING, REPAIRING, MAINTAINING, OPERATING AND INCIDENTAL PURPOSES, RECORDED JUNE 25, 1986 AS INSTRUMENT NO. 1986–98750 OF OFFICIAL RECORDS.
IN FAVOR OF: EAST BAY MUNICIPAL UTILITY DISTRICT, A POLITICAL CORPORATION
AFFECTS: AS DESCRIBED THEREIN
*** PLOTTED AS SHOWN HEREON ***

7. AN EASEMENT FOR RIGHT OF WAY AND INCIDENTAL PURPOSES, RECORDED OCTOBER 06, 1986 AS INSTRUMENT NO. 1986–175278 OF OFFICIAL RECORDS.
IN FAVOR OF: SMITH & WALLACE DEVELOPMENT CO., A GENERAL PARTNERSHIP
AFFECTS: AS DESCRIBED THEREIN
*** NOT PLOTTABLE–BLANKET IN NATURE ***

8. AN EASEMENT FOR RIDING AND HIKING TRAIL PURPOSES AND INCIDENTAL PURPOSES, RECORDED APRIL 23, 1987 AS INSTRUMENT NO. 1987–87116 OF OFFICIAL RECORDS.
IN FAVOR OF: EAST BAY REGIONAL PARK DISTRICT
AFFECTS: AS DESCRIBED THEREIN
*** PLOTTED AS SHOWN HEREON ***

9. THE EFFECT OF A DOCUMENT ENTITLED "CERTIFICATE OF LOT LINE ADJUSTMENT", RECORDED SEPTEMBER 04, 1987 AS INSTRUMENT NO. 1987–188353 OF OFFICIAL RECORDS.
THE REQUIREMENT THAT DEEDS ARE RECORDED TO PERFECT LOT LINE ADJUSTMENT.
*** PLOTTED AS SHOWN HEREON ***

10. AN EASEMENT FOR THE RIGHT FROM TIME TO TIME TO CONSTRUCT, RECONSTRUCT, INSTALL, INSPECT, MAINTAIN, REPLACE, REMOVE, AND USE FACILITIES AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 17, 1992 AS INSTRUMENT NO. 1992–234307 OF OFFICIAL RECORDS.
IN FAVOR OF: PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION
AFFECTS: AS DESCRIBED THEREIN
*** APPROXIMATE LOCATION SHOWN HEREON ***

11. AN EASEMENT FOR A NON–EXCLUSIVE EASEMENT IN GROSS AND RIGHT–OF–WAY TO CONSTRUCT, USE, MAINTAIN, OPERATE, ALTER, ADD TO, REPAIR, REPLACE, RECONSTRUCT, INSPECT AND REMOVE AT ANY TIME AND FROM TIME TO TIME A BROADBAND COMMUNICATION SYSTEM (HEREINAFTER REFERRED TO AS THE "COMPANY WIRING") CONSISTING OF WIRES, UNDERGROUND CONDUITS, CABLES, PEDESTALS, VAULTS, AND INCLUDING BUT NOT LIMITED TO ABOVE GROUND ENCLOSURES, MARKERS AND CONCRETE PADS OR OTHER APPURTENANT FIXTURES AND EQUIPMENT NECESSARY OR USEFUL FOR DISTRIBUTING BROADBAND SERVICES AND OTHER LIKE COMMUNICATION, IN, ON, OVER, UNDER, ACROSS THE PROPERTY AND INCIDENTAL PURPOSES, RECORDED FEBRUARY 02, 2018 AS INSTRUMENT NO. 2018–0017368 OF OFFICIAL RECORDS.
IN FAVOR OF: COMCAST OF CALIFORNIA I, INC., ITS SUCCESSORS AND ASSIGNS
AFFECTS: AS DESCRIBED THEREIN
TERMS AND PROVISIONS CONTAINED IN THE ABOVE DOCUMENT.
*** NOT PLOTTABLE–BLANKET IN NATURE ***

PROPOSED VERIZON WIRELESS DEMISED PREMISE DESCRIPTION:

BEING A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWESTERLY MOST CORNER OF SAID PARCEL C; THENCE ALONG THE WEST LINE OF SAID PARCEL C, N 01°31'21" E (SHOWN ON SAID MAP AS N 01°30'52" E), A DISTANCE OF 514.14 FEET TO AN ANGLE POINT THEREON; THENCE CONTINUING ALONG SAID WEST LINE, N 01°08'21" E (SHOWN ON SAID MAP AS N 01°07'52" E), A DISTANCE OF 944.48; THENCE LEAVING SAID WEST LINE, S 88°48'20" E, A DISTANCE OF 383.93 FEET TO THE POINT OF BEGINNING;

COURSE 1) THENCE N 69°54'43" E, A DISTANCE OF 19.00 FEET;
COURSE 2) THENCE S 20°05'17" E, A DISTANCE OF 19.00 FEET;
COURSE 3) THENCE S 69°54'43" W, A DISTANCE OF 19.00 FEET;
COURSE 4) THENCE N 20°05'17" W, A DISTANCE OF 7.50 FEET TO POINT 'A';
COURSE 5) THENCE CONTINUING N 20°05'17" W, A DISTANCE OF 11.50 FEET TO THE POINT OF BEGINNING.

CONTAINING 361 SQUARE FEET, MORE OR LESS.

PROPOSED LESSEE ACCESS & UTILITY EASEMENT RIGHT–OF–WAY DESCRIPTION:

A 12.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 6.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE DESCRIBED POINT 'A';

COURSE 1) THENCE S 69°54'43" W, A DISTANCE OF 12.65 FEET TO POINT 'B' AND TO THE TERMINUS OF THIS DESCRIPTION.

TOGETHER WITH A 15.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 7.50 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE DESCRIBED POINT 'B';

COURSE 1) THENCE S 21°33'32" W, A DISTANCE OF 8.29 FEET TO THE TERMINUS OF THIS DESCRIPTION.

ALSO TOGETHER WITH A 15.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 7.50 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE DESCRIBED POINT 'B';

COURSE 2) THENCE N 21°52'26" W, A DISTANCE OF 70.15 FEET TO POINT 'C';
COURSE 3) THENCE N 21°50'26" W, A DISTANCE OF 30.25 FEET;
COURSE 4) THENCE N 34°58'05" W, A DISTANCE OF 44.63 FEET;
COURSE 5) THENCE N 61°13'22" W, A DISTANCE OF 44.63 FEET;
COURSE 6) THENCE N 74°21'01" W, A DISTANCE OF 59.73 FEET;
COURSE 7) THENCE N 61°48'30" W, A DISTANCE OF 22.48 FEET;
COURSE 8) THENCE N 36°43' 28" W, A DISTANCE OF 22.48 FEET;
COURSE 9) THENCE N 24°10'58" W, A DISTANCE OF 245.92 FEET;
COURSE 10) THENCE N 19°26'49" W, A DISTANCE OF 63.88 FEET;
COURSE 11) THENCE N 09°58'33" W, A DISTANCE OF 63.88 FEET;
COURSE 12) THENCE N 05°14'25" W, A DISTANCE OF 144.84 FEET;
COURSE 13) THENCE N 03°51'03" W, A DISTANCE OF 97.17 FEET;
COURSE 14) THENCE N 02°11'30" W, A DISTANCE OF 133.26 FEET;
COURSE 15) THENCE N 16°49'40" E, A DISTANCE OF 34.13 FEET;
COURSE 16) THENCE N 09°43'33" E, A DISTANCE OF 19.95 FEET;
COURSE 17) THENCE N 14°00'54" E, A DISTANCE OF 65.24 FEET;
COURSE 18) THENCE N 18°37'33" E, A DISTANCE OF 32.76 FEET;
COURSE 19) THENCE N 23°14'13" E, A DISTANCE OF 79.69 FEET;
COURSE 20) THENCE N 36°11'49" E, A DISTANCE OF 14.24 FEET;
COURSE 21) THENCE N 62°07'02" E, A DISTANCE OF 14.24 FEET;
COURSE 22) THENCE N 75°04'38" E, A DISTANCE OF 16.78 FEET TO THE RIGHT–OF–WAY OF SANDERS RANCH ROAD AND TO THE TERMINUS OF THIS DESCRIPTION.

ALSO TOGETHER WITH A 20.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 10.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE MENTIONED POINT 'C':

COURSE 1) THENCE N 68°09'34" E, A DISTANCE OF 43.90 FEET TO POINT 'D';
COURSE 2) THENCE CONTINUING N 68°09'34" E, A DISTANCE OF 11.08 FEET AND TO THE TERMINUS OF THIS DESCRIPTION.

ALSO TOGETHER WITH A 20.00 FOOT WIDE STRIP OF LAND OVER, ACROSS AND THROUGH A PORTION OF PARCEL C AS SHOWN ON THE MAP ENTITLED "SUBDIVISION 6291 SANDERS RANCH" RECORDED MAY 30, 1985, IN BOOK 289 OF MAPS, AT PAGES 33–45, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 10.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT THE HEREINBEFORE MENTIONED POINT 'D':

COURSE 1) THENCE S 21°50'26" E, A DISTANCE OF 25.08 FEET AND TO THE TERMINUS OF THIS DESCRIPTION.

ALSO TOGETHER WITH A TRIANGULAR SHAPED PARCEL OF LAND BOUNDED ON THE SOUTH BY THE NORTHERLY LINE OF THE ABOVE DESCRIBED STRIP NO. 2, AND BOUNDED ON THE NORTHEAST BY THE NORTHWESTERLY LINE OF THE ABOVE DESCRIBED STRIP NO. 1, AND BOUNDED ON THE NORTHWEST BY THE ARC OF A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 20.00 FEET, SAID CURVE BEING TANGENT TO SAID NORTHERLY AND NORTHWESTERLY LINES.

ALSO TOGETHER WITH A TRIANGULAR SHAPED PARCEL OF LAND BOUNDED ON THE NORTH BY THE SOUTHERLY LINE OF THE ABOVE DESCRIBED STRIP NO. 2, AND BOUNDED ON THE SOUTHEAST BY THE NORTHWESTERLY LINE OF THE ABOVE DESCRIBED STRIP NO. 1, AND BOUNDED ON THE SOUTHWEST BY THE ARC OF A CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 20.00 FEET, SAID CURVE BEING TANGENT TO SAID SOUTHERLY AND NORTHWESTERLY LINES.

ALSO TOGETHER WITH A ROUTE FROM THE POINT OF TERMINUS OF THE ABOVE SAID STRIP NO. 2, ALONG SANDERS RANCH ROAD, AS SAID ROAD IS DEPICTED ON SUBDIVISION 6291, FILED IN BOOK 289, PAGES 33–45 AND SUBDIVISION 6143, FILED IN BOOK 267, PAGES 22–35, CONTRA COSTA RECORDS, TO CAMINO PABLO ROAD.

ISSUE STATUS

REV	DATE	DESCRIPTION	BY
0	02/07/20	PRELIMINARY	DL
4	04/23/20	TITLE REVIEW	SL
5	05/18/22	ADD DIMS	DA
6	10/11/22	UPDATE	CJ
7	10/12/22	REVISIONS	CJ
8	10/20/22	REVISIONS	CJ
9	11/08/22	ADDITIONAL TOPO	EJ
10	12/19/22	REVISIONS	EJ

SMITHCO JOB NO.: 82–1335

A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3786

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS PROPRIETARY & CONFIDENTIAL TO VERIZON WIRELESS

ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED

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2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

LICENSED LAND SURVEYOR
Antagnao Ajos
L. ANTAGNAO AJOS
STATE OF CALIFORNIA

02/07/2023

304480
SANDERS
RANCH

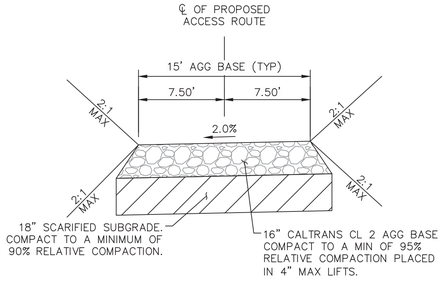
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MORAGA, CA 94566
CONTRA COSTA
COUNTY

SHEET TITLE:

SITE SURVEY

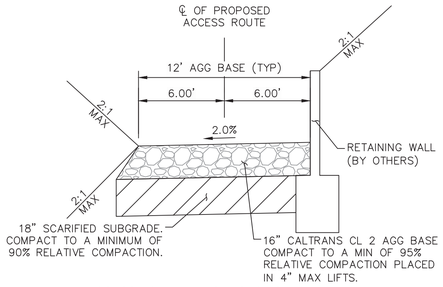
FOR EXAMINATION ONLY

C-5



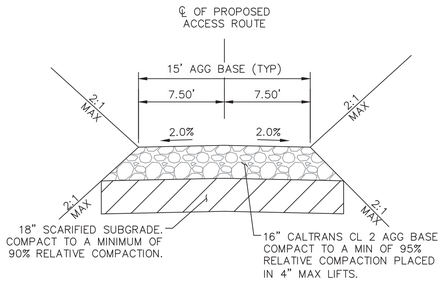
ACCESS ROUTE TYPICAL SECTION 1

STA 0+45.00 TO STA 2+65.00
STA 12+70.00 TO STA 13+71.30



ACCESS ROUTE TYPICAL SECTION 2

STA 2+85.00 TO STA 3+50.00



ACCESS ROUTE TYPICAL SECTION 3

STA 3+70.00 TO STA 12+50.00

GENERAL GRADING NOTES:

1. WHERE CONFLICTS OCCUR BETWEEN PLANS, SPECIFICATIONS, JURISDICTIONAL AGENCY REQUIREMENTS, OR OTHER CONTRACT DOCUMENTS, THE MOST STRINGENT SHALL GOVERN.
2. FOR SITE PREPARATION, SUITABLE FILL MATERIAL, GRADING AND EARTHWORK ACTIVITIES, FOUNDATION SETBACKS, KEYING/BENCHING, AND OTHER GEOTECHNICAL RECOMMENDATIONS, REFER TO GEOTECHNICAL INVESTIGATION REPORT PREPARED BY KRAZAN & ASSOCIATED, INC., DATED FEBRUARY 21, 2023, KA PROJ. NO. 042–22060.
3. SOIL TEST RESULTS INDICATE POOR SUBGRADE SUPPORT CHARACTERISTICS. IF ANY VARIATIONS FROM GEOTECHNICAL REPORT OR UNDESIRABLE CONDITIONS ARE ENCOUNTERED DURING CONSTRUCTION, THE SOILS ENGINEER SHOULD BE NOTIFIED IMMEDIATELY SO SUPPLEMENTAL RECOMMENDATIONS MAY BE MADE.
4. GENERAL SITE CLEARING SHOULD INCLUDE REMOVAL OF ORGANIC MATERIAL, DEBRIS, EXISTING UTILITIES, STRUCTURES & FOUNDATIONS, STOCKPILES SOILS, TREES AND TREE ROOTS, RUBBLE, RUBBISH, AND ANY LOOSE AND/OR SATURATED MATERIALS.
5. SITE STRIPPING SHOULD EXTEND TO A MINIMUM DEPTH OF 2 INCHES OR UNTIL ALL ORGANICS IN EXCESS OF 3 PERCENT BY VOLUME ARE REMOVED. DEEPER STRIPPING MAY BE REQUIRED IN LOCALIZED AREAS. STRIPPINGS SHALL NOT BE USED FOR ENGINEERED FILL BUT MAY BE USED FOR TOPSOIL IN LANDSCAPED OR NON–STRUCTURAL/NON–PAVED AREAS.
6. FILL SOILS SHOULD BE MOISTURE–CONDITIONED TO A MINIMUM OF 2 PERCENT ABOVE OPTIMUM MOISTURE CONTENT PRIOR TO COMPACTION.
7. ALL REFERENCES TO RELATIVE COMPACTION SHALL BE BASED ON ASTM TEST METHOD D1557 OR CAL216.
8. LIMITS OF RECOMPACTION SHOULD EXTEND A MINIMUM OF 2 FEET BEYOND THE ENGE OR PAVEMENT.
9. CONTRACTOR MAY LIME TREAT EXISTING SOILS AS AN ALTERNATIVE METHOD OF CONSTRUCTION. SEE GEOTECHNICAL REPORT FOR DETAILS.
10. DURING GRADING AND BACKFILLING OPERATIONS ADJACENT TO ANY RETAINING WALLS, HEAVY EQUIPMENT SHOULD NOT BE ALLOWED TO OPERATE WITHIN A LATERAL DISTANCE OF 5 FEET FROM THE WALL, OR WITHIN A LATERAL DISTANCE EQUAL TO THE WALL HEIGHT, WHICHEVER IS GREATER.
11. SITE GRADING NEAR SLOPES AND EMBANKMENTS, INCLUDING RETAINING WALLS AND WING WALLS, SHALL BE ACCOMPLISHED SUCH THAT EXCE3SSIVE SHEET RUN–OFF IS PREVENTED. SEE EROSION CONTROL PLANS AND NOTES.
12. PROJECT SITE WINTERIZATION AND PROTECTION OF EXPOSED SOILS BEFORE, DURING, AND AFTER RAIN EVENTS OF 0.1" OR MORE, OR DURING THE RAINY SEASON SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
13. EARTHWORK OPERATIONS PERFORMED DURING WINTER MONTHS MAY ENCOUNTER VERY MOIST UNSTABLE SOILS WHICH MAY REQUIRE REMOVAL. PROJECT CLEARING, GRADING, AND CONSTRUCTION DURING WINTER MONTHS INCLUDING PLACEMENT OF AGGREGATE BASE SHALL REQUIRE GEOTECHNICAL ENGINEER OVERSIGHT.

PROJECT:

SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:

A NOKIA COMPANY

SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL. SUITE 150
SAN DIEGO, CA 92122
www.saow.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:

REGISTERED PROFESSIONAL ENGINEER
J.D. CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA

2/22/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF THE ABOVE LISTED LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

ENGINEERING FIRM:

J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

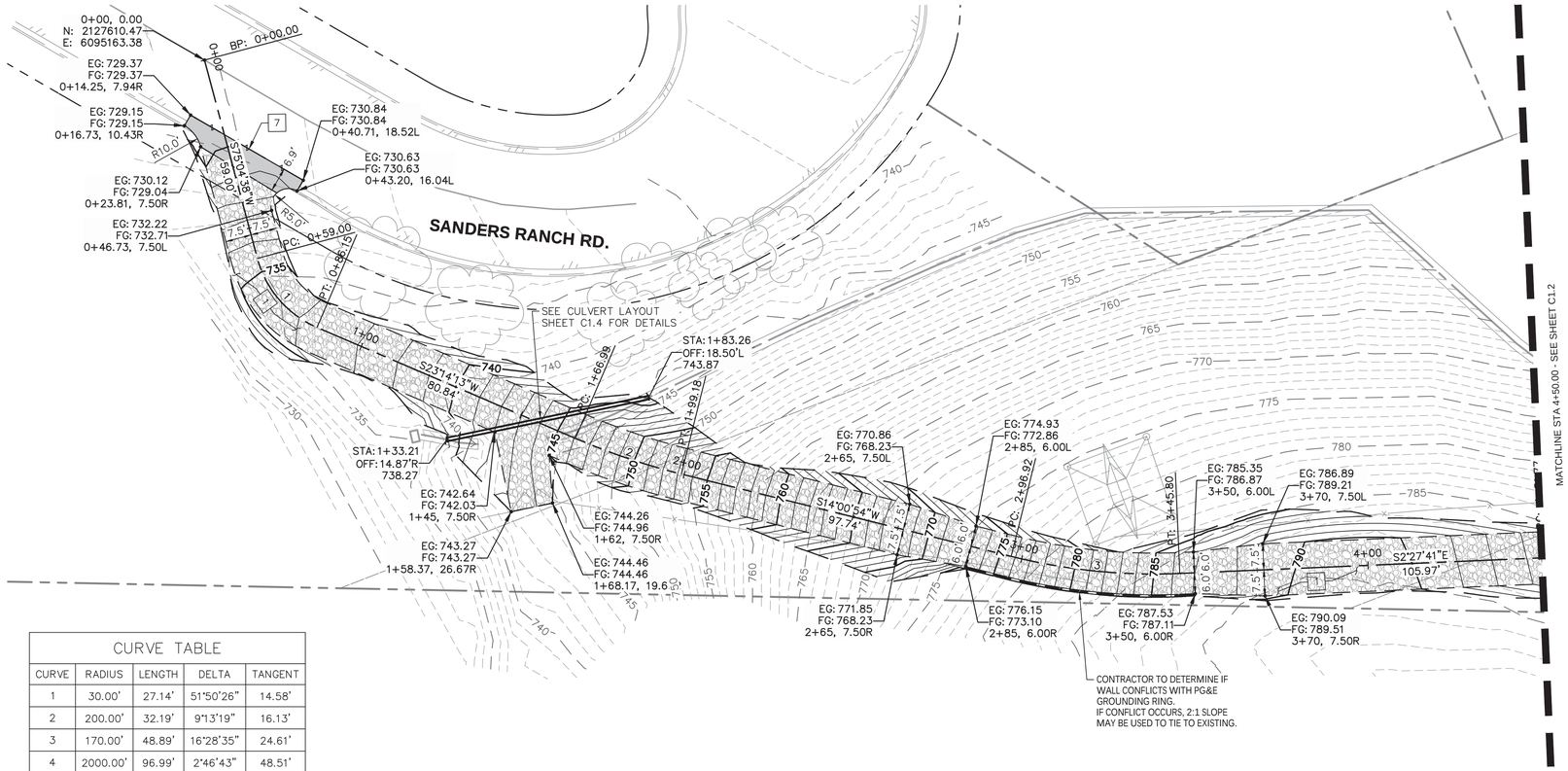
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GRADING
SECTIONS

SHEET NUMBER:

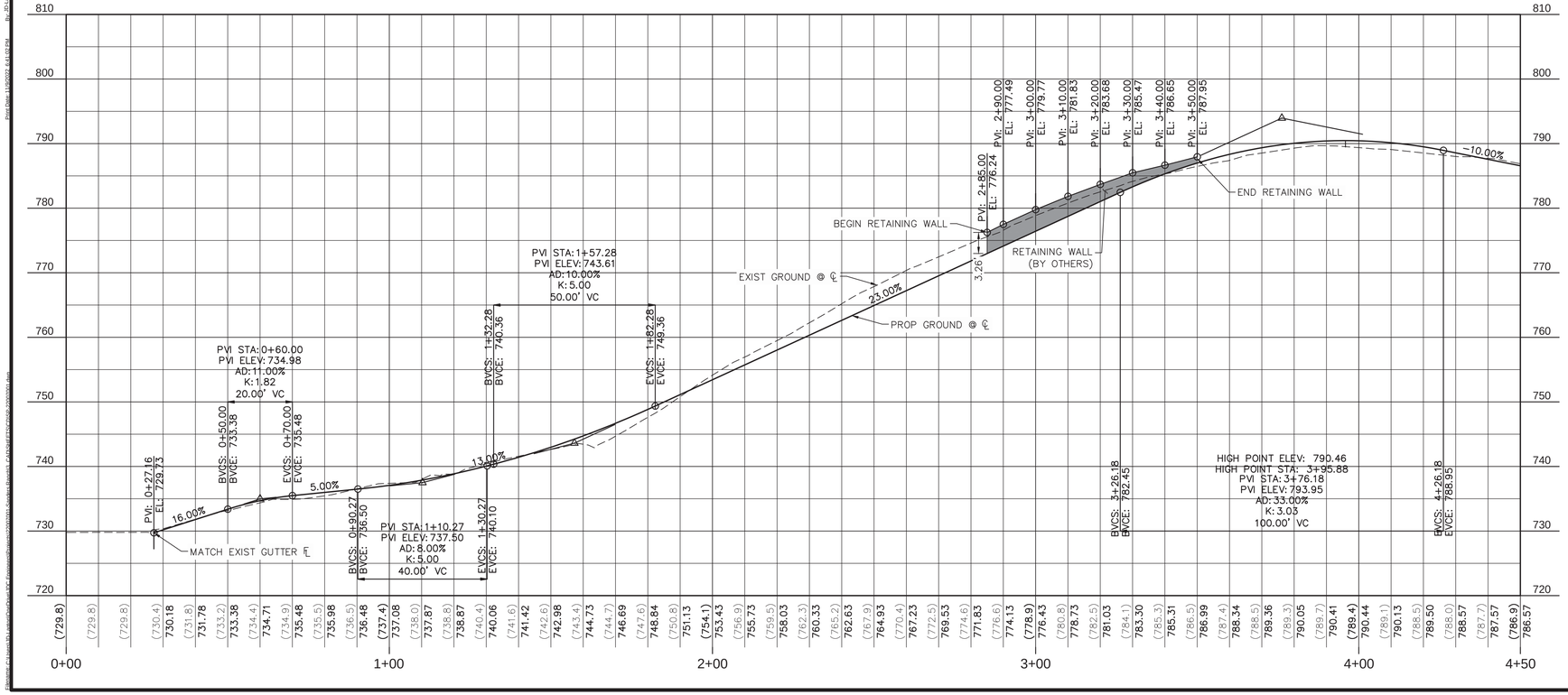
C0.1

Plotted: 1/30/2023 4:44 PM By: JDJansen
Drawing and specifications, as instruments of service, are property of J1 DESIGN & CONSULTING ENGINEERS and shall not be reused in whole or part for any other project without written authorization of J1 DESIGN & CONSULTING ENGINEERS.



CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT
1	30.00'	27.14'	51°50'26"	14.58'
2	200.00'	32.19'	9°13'19"	16.13'
3	170.00'	48.89'	16°28'35"	24.61'
4	2000.00'	96.99'	2°46'43"	48.51'
5	385.00'	127.28'	18°56'33"	64.23'
6	50.00'	43.78'	50°10'03"	23.40'
7	100.00'	91.65'	52°30'35"	49.33'



LEGEND:

- EXIST PROPERTY LINE
- PROPOSED GRAVEL ACCESS ROUTE
- CIVIL LIMIT OF WORK

SITE PLAN KEYNOTES:

1. PROPOSED GRAVEL ACCESS ROUTE PER TYPICAL SECTIONS SHEET C0.1
2. PROPOSED COMPOSITE FENCE. SEE ARCHITECTURAL PLANS.
3. PROPOSED CONCRETE PAD PER ARCHITECTURAL DETAILS.
4. PROPOSED CELLULAR EQUIPMENT. SEE ARCHITECTURAL PLANS.
5. PROPOSED FIRETRUCK TURNAROUND
6. PROPOSED WATER TANK. SEE ARCHITECTURAL PLANS.
7. SAWCUT PAVEMENT. INSTALL ASPHALT DRIVEWAY. MATCH EXISTING GUTTER FLOWLINE. ASPHALT PAVEMENT SECTION TO MATCH EXISTING SECTION.

NOTES:

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2. PRIOR TO PERFORMING ANY WORK IN THE RIGHT-OF-WAY AN ENCROACHMENT PERMIT MUST BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT.
3. ENGINEERS ESTIMATE OF EARTHWORK VOLUMES IS BASED ON TOPOGRAPHICAL INFORMATION PROVIDED BY OTHERS AND DOES NOT INCLUDE TRENCH SPOILS FOR UTILITY TRENCHING, SHRINK/SWELL FACTORS, OR EXCAVATION VOLUMES FOR RETAINING WALLS, TOWERS, CONCRETE PADS OR OTHER STRUCTURAL SECTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EARTHWORK QUANTITIES PRIOR TO BID.

0 40 80 Feet
H. SCALE: 1"=20'
0 20 40 Feet
V. SCALE: 1"=10'

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PROJECT:
SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:
verizon
2785 MITCHELL DRIVE, BLDG 9
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VENDOR:
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5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.saceom
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:
REGISTERED PROFESSIONAL ENGINEER
J.D. CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA
2/22/2023
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF THE ABOVE LISTED LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

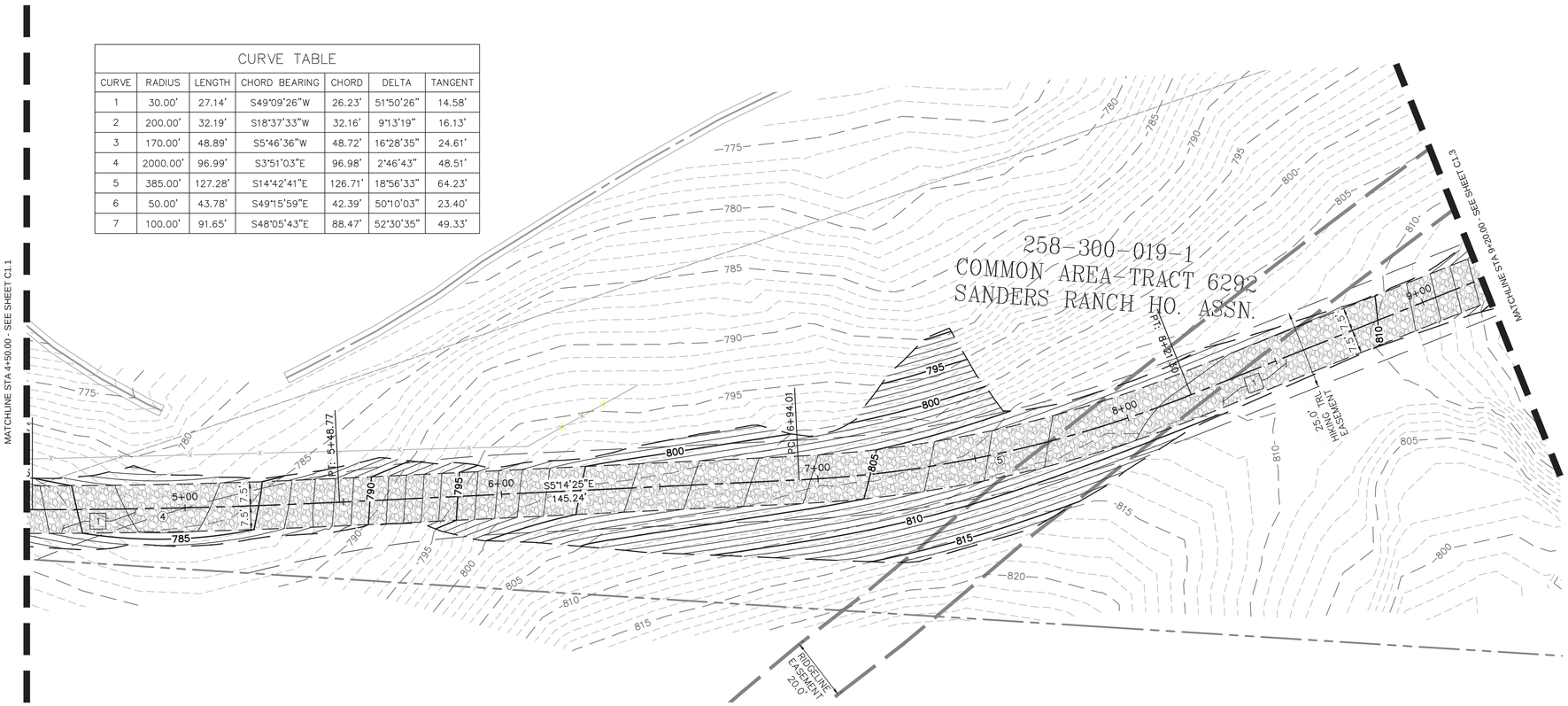
ENGINEERING FIRM:
J1 DESIGN & CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

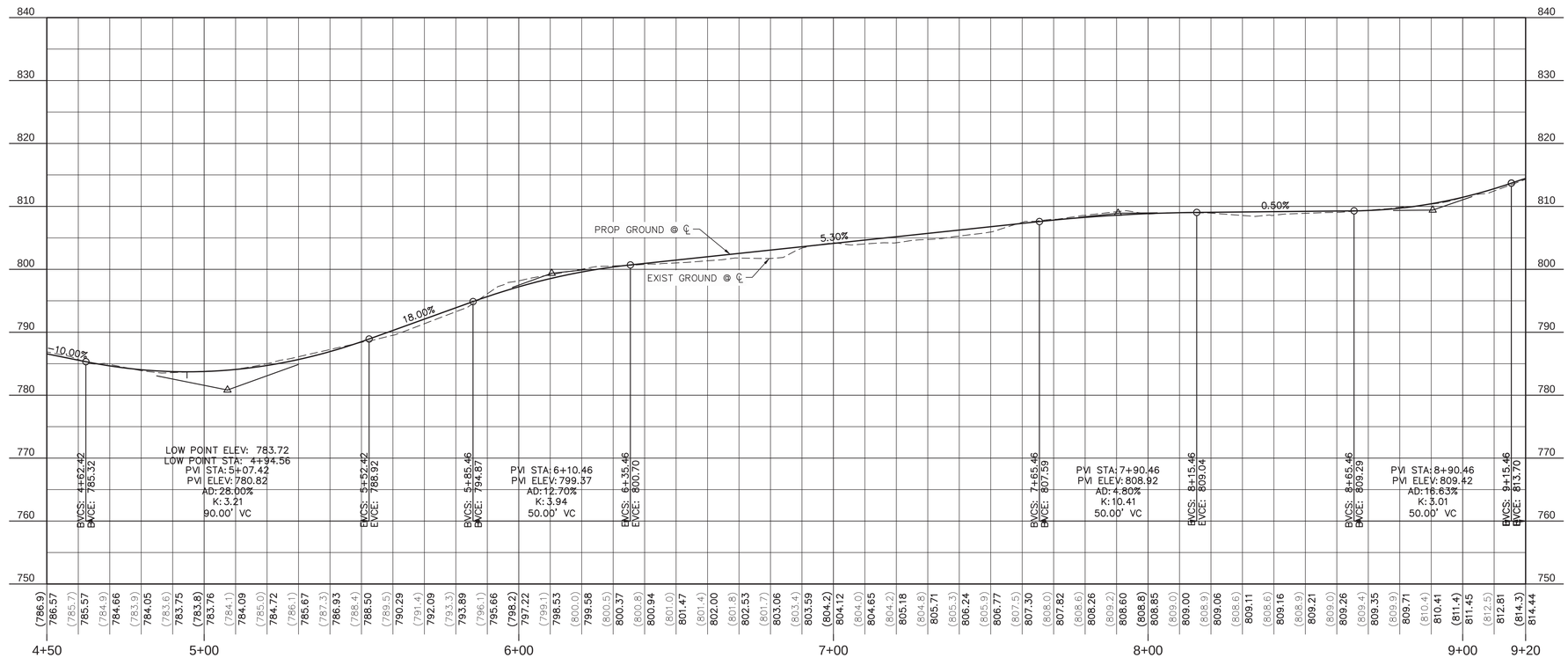
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SITE GRADING PLAN

SHEET NUMBER:
C1.1

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CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
1	30.00'	27.14'	S49°09'26"W	26.23'	51°50'26"	14.58'
2	200.00'	32.19'	S18°37'33"W	32.16'	9°13'19"	16.13'
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4	2000.00'	96.99'	S3°51'03"E	96.98'	2°46'43"	48.51'
5	385.00'	127.28'	S14°42'41"E	126.71'	18°56'33"	64.23'
6	50.00'	43.78'	S49°15'59"E	42.39'	50°10'03"	23.40'
7	100.00'	91.65'	S48°05'43"E	88.47'	52°30'35"	49.33'





LEGEND:

EXIST PROPERTY LINE

PROPOSED GRAVEL ACCESS ROUTE

CIVIL LIMIT OF WORK

SITE PLAN KEYNOTES:

1. PROPOSED GRAVEL ACCESS ROUTE PER TYPICAL SECTIONS SHEET C0.1
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NOTES:

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0 40 80 Feet

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SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

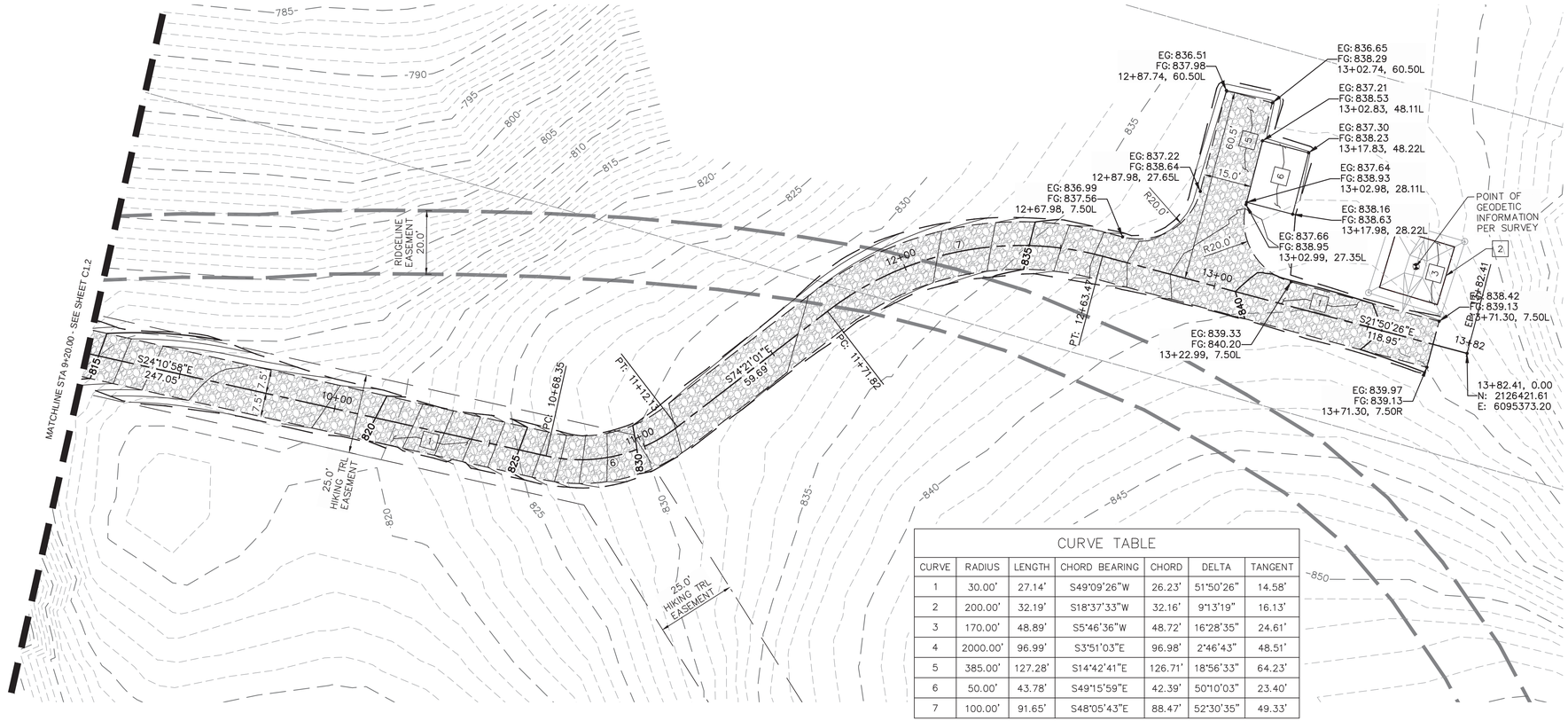
ENGINEER OF RECORD:
REGISTERED PROFESSIONAL ENGINEER
JAN CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA
2/22/2023
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ENGINEERING FIRM:
J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:
SITE GRADING PLAN

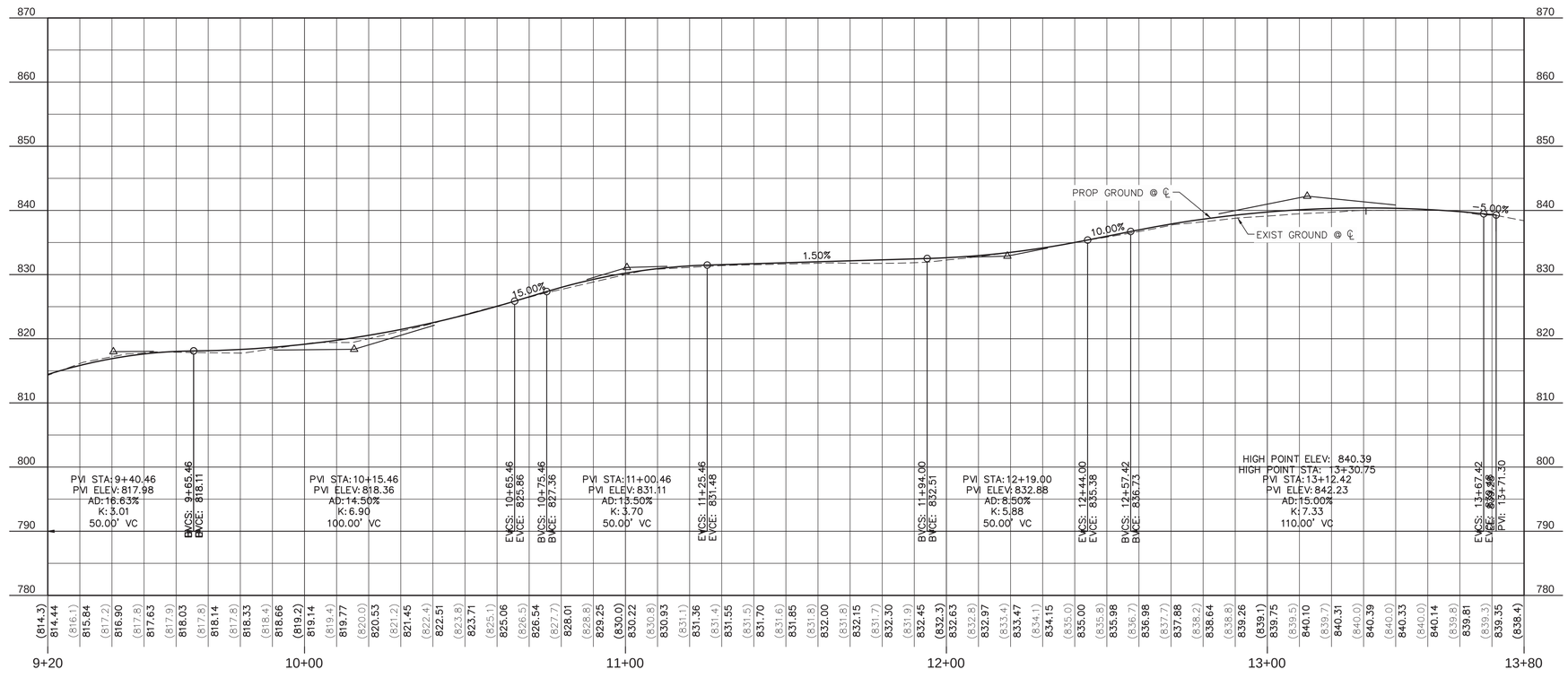
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C1.2

Date/Time: 1/13/2023 4:41:05 PM By: JDC-Admin
C:\Users\JDC-Admin\Documents\Projects\Verizon\Sanders Ranch\Sanders Ranch_Site Grading_Plan_Profile_Detail_Sheets_22007001_JDC-Admin.dwg



CURVE TABLE

CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
1	30.00'	27.14'	S49°09'26"W	26.23'	51°50'26"	14.58'
2	200.00'	32.19'	S18°37'33"W	32.16'	9°13'19"	16.13'
3	170.00'	48.89'	S5°46'36"W	48.72'	16°28'35"	24.61'
4	2000.00'	96.99'	S3°51'03"E	96.98'	2°46'43"	48.51'
5	385.00'	127.28'	S14°42'41"E	126.71'	18°56'33"	64.23'
6	50.00'	43.78'	S49°15'59"E	42.39'	50°10'03"	23.40'
7	100.00'	91.65'	S48°05'43"E	88.47'	52°30'35"	49.33'



LEGEND:

- EXIST PROPERTY LINE
- PROPOSED GRAVEL ACCESS ROUTE
- CIVIL LIMIT OF WORK
- (#) CURVE NUMBER

SITE PLAN KEYNOTES:

1. PROPOSED GRAVEL ACCESS ROUTE PER TYPICAL SECTIONS SHEET C0.1
2. PROPOSED COMPOSITE FENCE. SEE ARCHITECTURAL PLANS.
3. PROPOSED CONCRETE PAD PER ARCHITECTURAL DETAILS.
4. PROPOSED CELLULAR EQUIPMENT. SEE ARCHITECTURAL PLANS.
5. PROPOSED FIRETRUCK TURNAROUND
6. PROPOSED WATER TANK. SEE ARCHITECTURAL PLANS.
7. SAWCUT PAVEMENT. INSTALL ASPHALT DRIVEWAY. MATCH EXISTING GUTTER FLOWLINE. ASPHALT PAVEMENT SECTION TO MATCH EXISTING SECTION.

NOTES:

1. ISSUANCE OF A BUILDING PERMIT BY THE JURISDICTION DOES NOT RELIEVE APPLICANTS OF THE LEGAL REQUIREMENTS TO OBSERVE COVENANTS, CONDITIONS AND RESTRICTIONS WHICH MAY BE RECORDED AGAINST THE PROPERTY OR TO OBTAIN PLANS. YOU SHOULD CONTACT YOUR COMMUNITY ASSOCIATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY THIS PERMIT.
2. PRIOR TO PERFORMING ANY WORK IN THE RIGHT-OF-WAY AN ENCROACHMENT PERMIT MUST BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT.
3. ENGINEERS ESTIMATE OF EARTHWORK VOLUMES IS BASED ON TOPOGRAPHICAL INFORMATION PROVIDED BY OTHERS AND DOES NOT INCLUDE TRENCH SPOILS FOR UTILITY TRENCHING, SHRINK/SWELL FACTORS, OR EXCAVATION VOLUMES FOR RETAINING WALLS, TOWERS, CONCRETE PADS OR OTHER STRUCTURAL SECTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EARTHWORK QUANTITIES PRIOR TO BID.

0 40 80 Feet
H. SCALE: 1"=20'
0 20 40 Feet
V. SCALE: 1"=10'

DIGALERT
DIAL BEFORE YOU DIG TOLL FREE 1-800-227-2600 TWO WORKING DAYS BEFORE YOU DIG
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

PROJECT:
SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:
verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:
A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sace.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

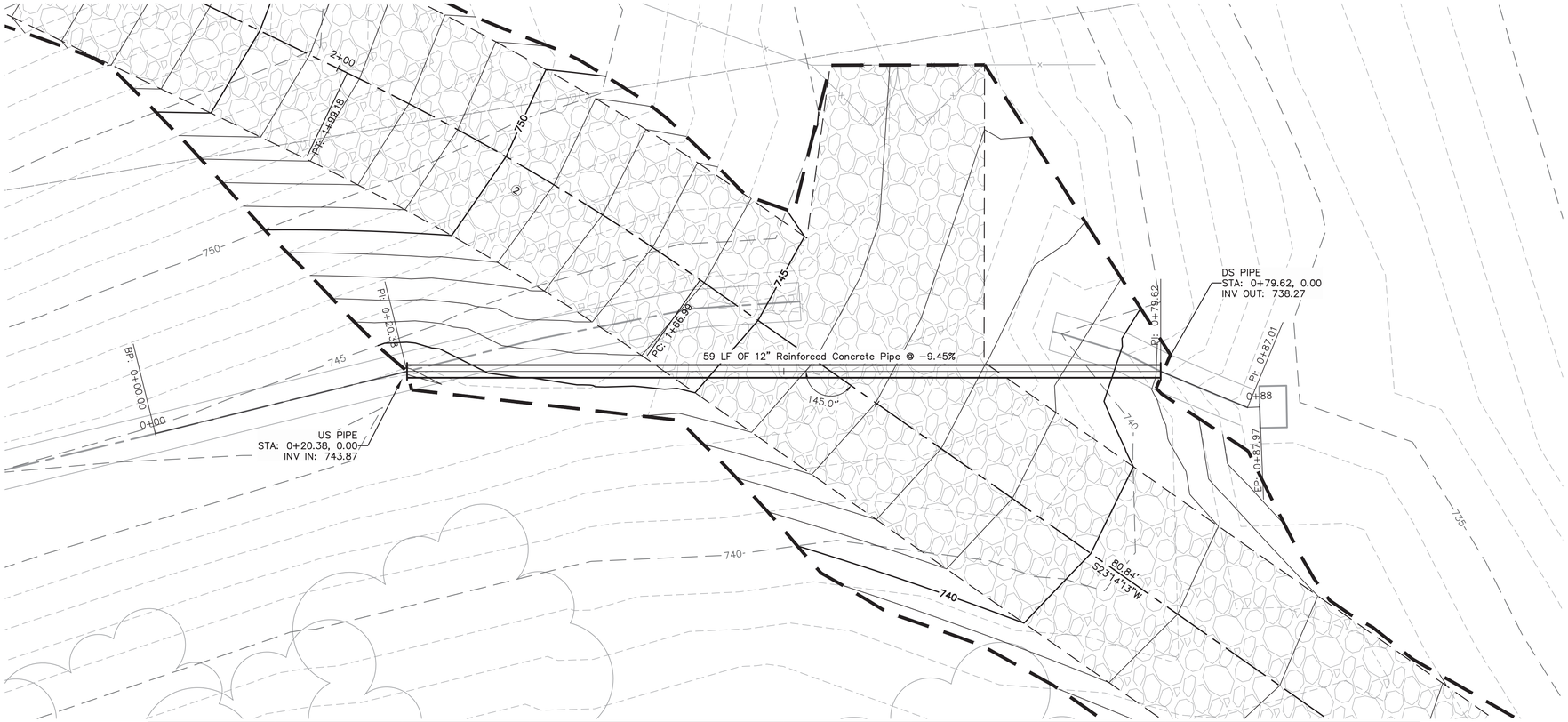
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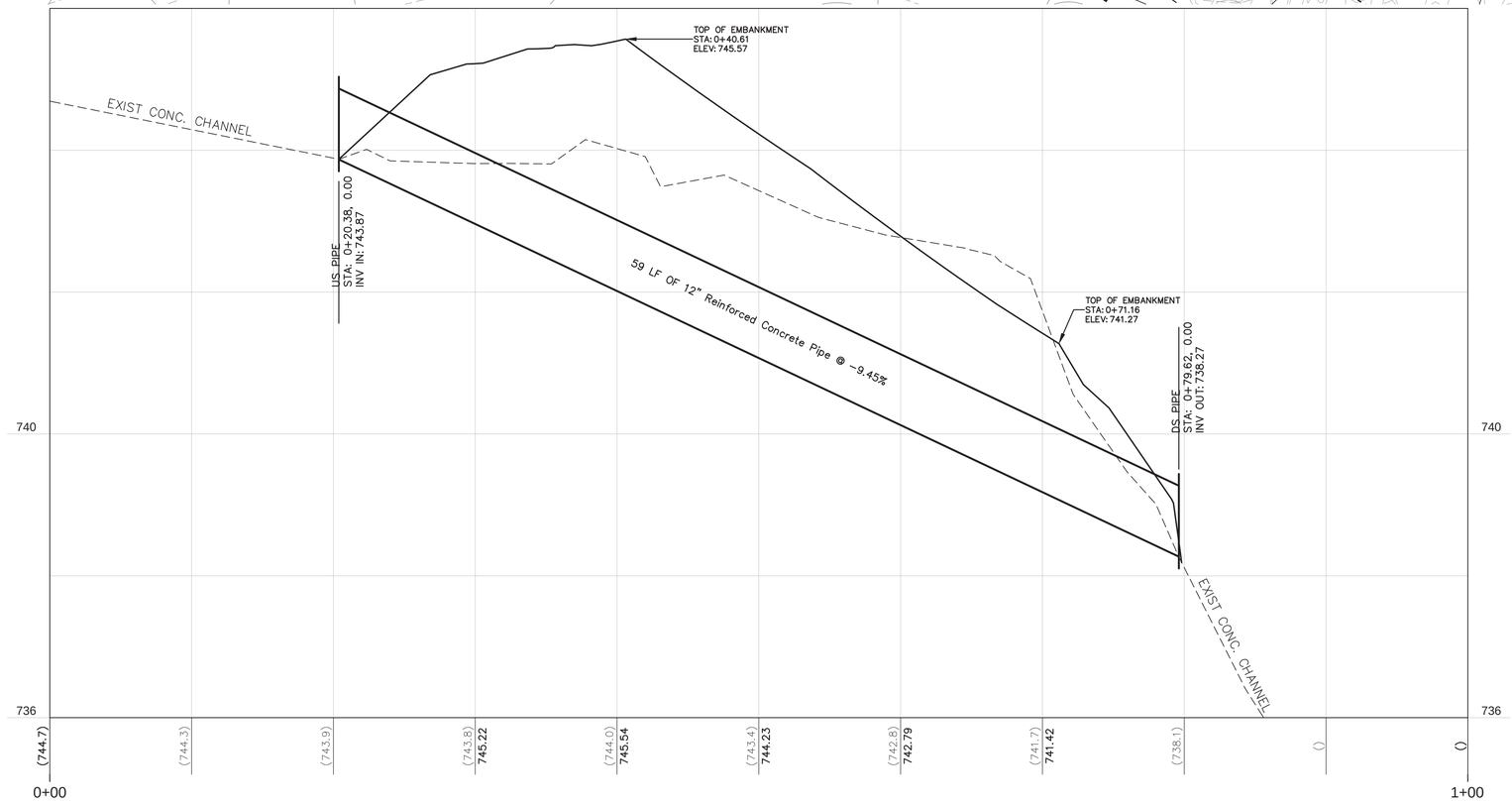
ENGINEER OF RECORD:
REGISTERED PROFESSIONAL ENGINEER JAN CHRISTIANSEN No. 89629 CIVIL STATE OF CALIFORNIA
2/22/2023
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF THE ABOVE LISTED LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

ENGINEERING FIRM:
J1 DESIGN & CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:
SITE GRADING PLAN

SHEET NUMBER:
C1.3





LEGEND:

- EXIST PROPERTY LINE
- PROPOSED GRAVEL ACCESS ROUTE
- CIVIL LIMIT OF WORK

SITE PLAN KEYNOTES:

1. PROPOSED ASPHALT ACCESS ROUTE PER DETAIL A THIS SHEET.
2. PROPOSED WOOD FENCE. SEE ARCH PLANS FOR DETAILS.
3. PROPOSED GRAVEL PER ARCH DETAILS.

NOTES:

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0 10 20 Feet

H. SCALE: 1"=5'

0 2 4 Feet

V. SCALE: 1"=1'

DIGALERT
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TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

PROJECT:

SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:

A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:

REGISTERED PROFESSIONAL ENGINEER
J.D. CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA

2/22/2023

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ENGINEERING FIRM:

J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:

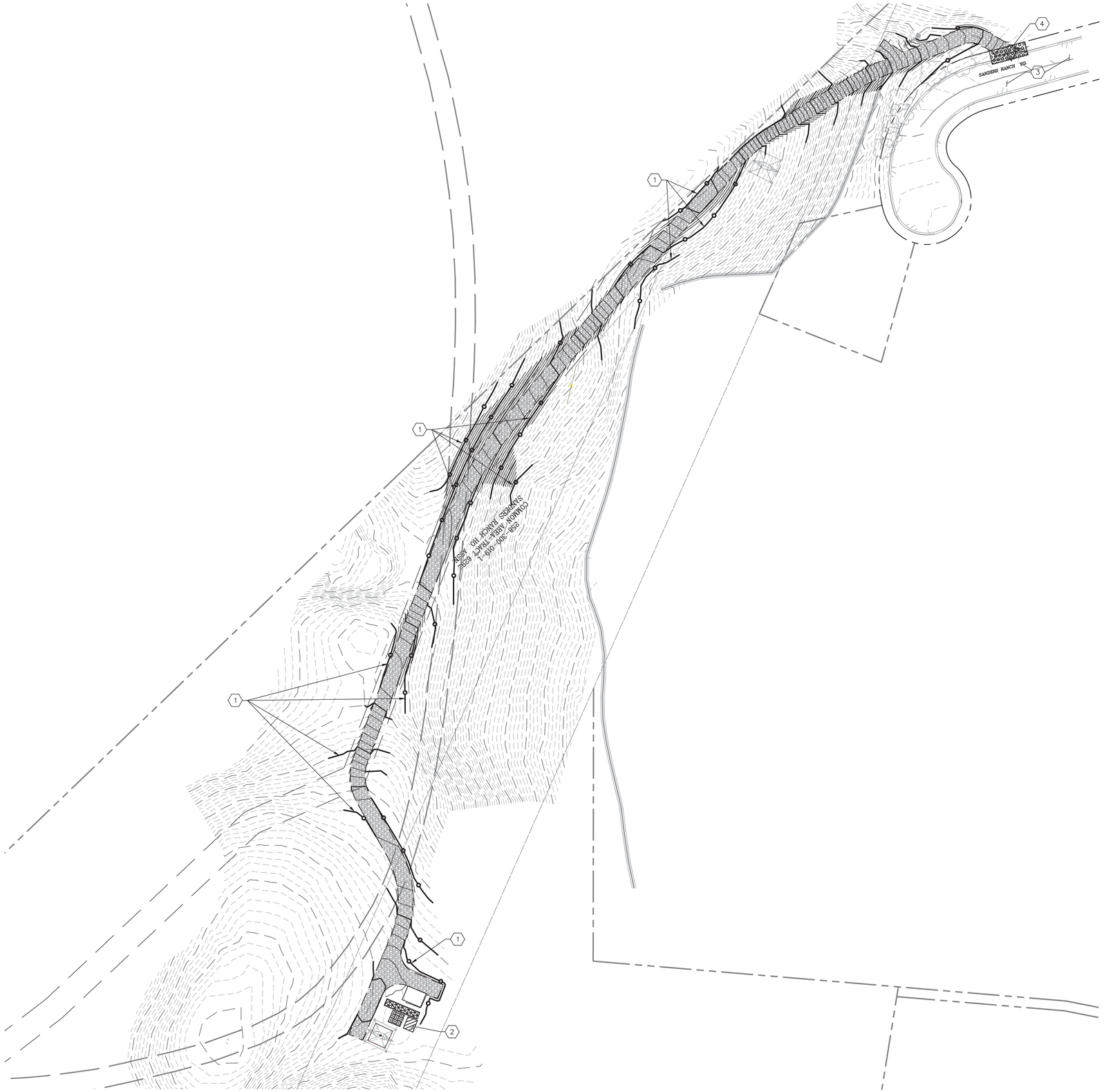
CULVERT LAYOUT

SHEET NUMBER:

C1.4

Date Plotted: 11/30/2022 4:18:42 PM by: JDJ.kemp

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LEGEND:

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- CENTER LINE
- OH — EXISTING OVERHEAD LINE
- EXISTING ROAD
- X — EXISTING FENCE
- x x x x x — PROPOSED FENCE
- 280 — EXISTING CONTOUR
- 280 — PROPOSED CONTOUR
- CIVIL LIMIT OF WORK
- E — PROPOSED ELECTRICAL LINE
- PROPOSED FIBER ROLL
- STOCKPILE AREA
- MATERIAL STOAGE AND DELIVERY
- SANITARY AREA, TRASH STORAGE, HAZARDOUS MATERIAL, CONCRETE MANAGEMENT
- CONSTRUCTION ENTRANCE

EROSION CONTROL NOTES

1. CONSTRUCT PERIMETER EROSION CONTROL – UTILIZE FIBER ROLLS PER CASQA BMP FACT SHEET SE–5.
2. PROPOSED SITE CONCRETE WASHOUT PER CASQA BMP FACT SHEET WM–8.
3. CONTRACTOR SHALL SWEEP ASPHALT & CONCRETE PAVEMENT FREQUENTLY TO CLEAN TRACKED MATERIALS AND PREVENT SEDIMENT TRANSPORT TO DRAINAGE FACILITIES.
4. PROPOSED TEMPORARY STABILIZED CONSTRUCTION ENTRANCE AND EXIT PER CASQA BMP FACT SHEET TE–1.

NOTE: ALL AREAS THAT ARE DISTURBED SHALL BE STABILIZED WITH PERMANENT EROSION CONTROL MEASURES PRIOR TO CONTRACT CLOSEOUT. ALL SLOPES SHALL BE TRACK WALKED PER CASQA BMP FACT SHEET EC–15 AND HYRDROSEEDED PER CASQA BMP FACT SHEET EC–4.

0 100 200 Feet

H. SCALE: 1"=50'

PROJECT:

SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:

A NOKIA COMPANY

SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.saow.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:

REGISTERED PROFESSIONAL ENGINEER
J.D. CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA

2/22/2023

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ENGINEERING FIRM:

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& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:

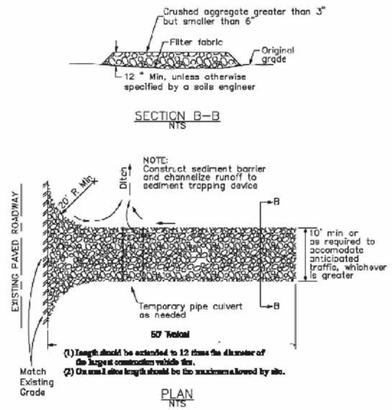
EROSION CONTROL PLAN

SHEET NUMBER:

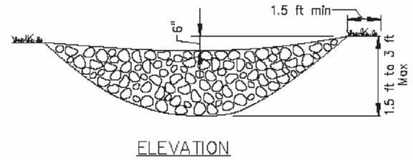
C1.5

Plotted: 22-FEB-23 By: JD Lacey
W:\2022\22007001 SANDERS RANCH\Engineering\Civil\Sheets\22007001 EC.dwg

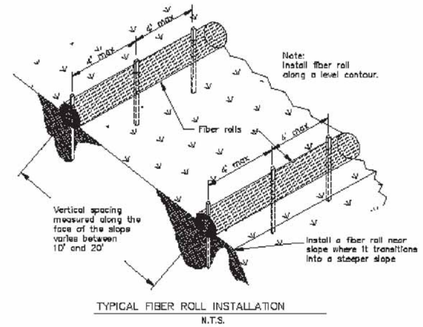
Stabilized Construction Entrance/Exit TC-1



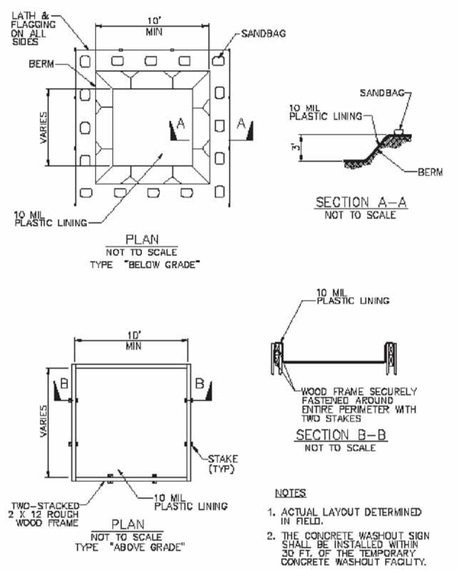
Check Dams SE-4



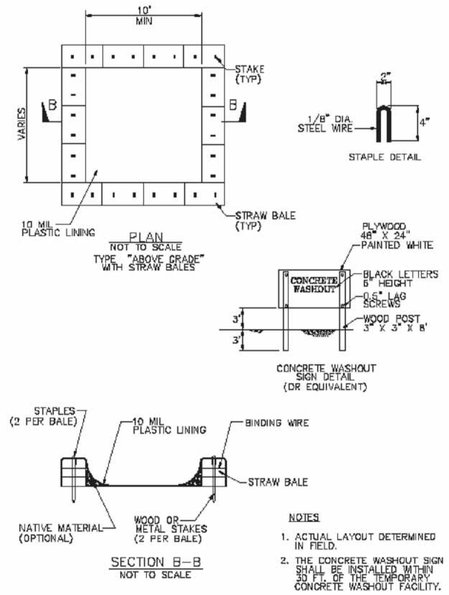
Fiber Rolls SE-5



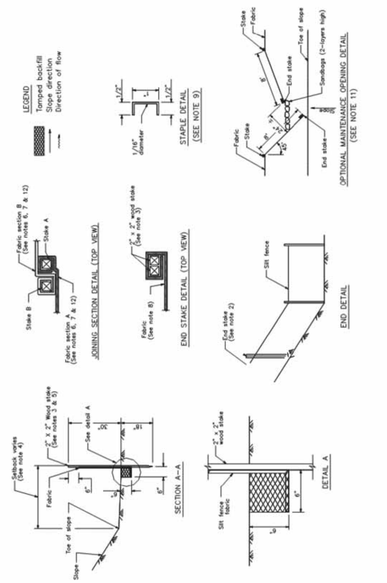
Concrete Waste Management WM-8



Concrete Waste Management WM-8



Silt Fence SE-1



PROJECT:

SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:

verizon

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WALNUT CREEK, CA 94598

VENDOR:

SAC
A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:

REGISTERED PROFESSIONAL ENGINEER
J.D. CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA

2/22/2023

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ENGINEERING FIRM:

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& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

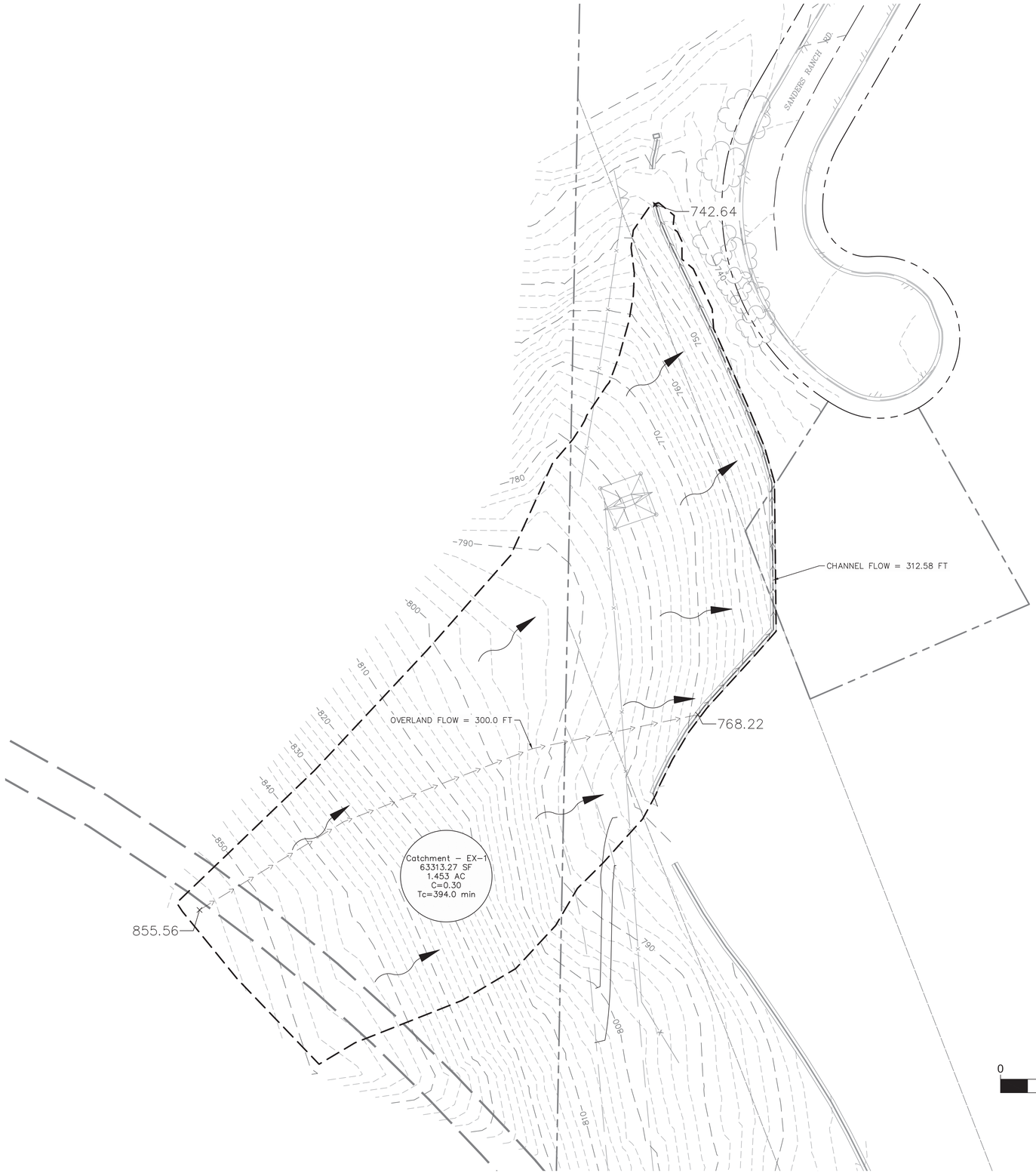
SHEET TITLE:

EROSION CONTROL DETAILS

SHEET NUMBER:

C1.6

Date/Time: 1/4/2023 4:41:47 PM By: JD Lacey



LEGEND:

- EXISTING PROPERTY LINE
- ROADWAY CENTERLINE
- DRAINAGE AREA BOUNDARY
- RIGHT-OF-WAY LINE
- HYDRAULICALLY MOST DISTANT FLOW PATH
- FLOW DIRECTION ARROW
- DA-## / #.### AC — DRAINAGE AREA INFORMATION

PRE-PROJECT AREA EX-1 HYDROLOGY CALCULATIONS

Existing Conditions

Sheet Flow

Surface	Short Grass (prairie)	
Manning, n (for sheet flow)	0.15	*From TR-55 Manual Table 3-1*
Flow Length, L (ft)	300	
Mean Seasonal Precipitation (in)	29.0	*CCCFCWCD Isohyet Map*
Slope, S (ft/ft)	0.291	
T_t (hr)	6.55	*Kerby Equation (per CCCFCWCD)*

Concrete Channel Flow

Surface	Concrete	
Flow Length, L (ft)	312.58	
Slope, S (ft/ft)	0.082	
Average Velocity, V (ft/s)	12.37	*Calculated from Mannings Equation*
Tt (hr)	0.007	*Calculated from Velocity being a function of length/time*

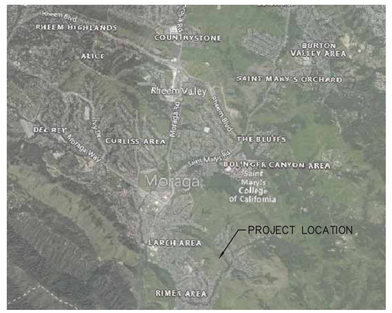
Time of Concentration

Total, T_t (hr):	6.553	393.17 min	*Σ of Sheet Flow and Concentrated flow*

Peak Flow

Rainfall Intensity (10 Year), *i* (in/hr)	0.45	*From City of Williams Design Standards, Appendix C*
Rainfall Intensity (100 Year), *i* (in/hr)	0.65	
Runoff Coeficient(10 Year), C	0.3	*Open Area (per CCCFCD Standard Runoff Coefficients)*
Runoff Coeficient(100 Year), C	0.3	
Catchment Area, A (ac)	1.453	*From Hydrology Exhibit*

Peak Flow Rate, Q_{10} (cfs)	0.20
Peak Flow Rate, Q_{100} (cfs)	0.28



VICINITY MAP
SCALE: 1"=5000'

0 60 120 Feet

SCALE: 1"=30'

PROJECT:

SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:

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A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL, SUITE 150
SAN DIEGO, CA 92122
www.sacw.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:

REGISTERED PROFESSIONAL ENGINEER
JOSEPH D. CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA

2/22/2023

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ENGINEERING FIRM:

J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:

EXISTING HYDROLOGY

SHEET NUMBER:

C1.7



LEGEND:

- EXISTING PROPERTY LINE
- ROADWAY CENTERLINE
- DRAINAGE AREA BOUNDARY
- RIGHT–OF–WAY LINE
- HYDRAULICALLY MOST DISTANT FLOW PATH
- FLOW DIRECTION ARROW
- DRAINAGE AREA INFORMATION (DA-## / #.### AC)

POST-PROJECT AREA A-1 HYDROLOGY CALCULATIONS

	Existing Conditions		
	Sheet Flow		
Surface	Short Grass (prairie)		
Manning, n (for sheet flow)	0.15		*From TR-55 Manual Table 3-1*
Flow Length, L (ft)	227.8		
Mean Seasonal Precipitation (in)	29.0		*CCCFCWCD Isohyet Map*
Slope, S (ft/ft)	0.321		
T_t (hr)	5.63		*Kerby Equation (per CCCFCWCD)*
	Concrete Channel Flow		
Surface	Concrete		
Flow Length, L (ft)	363.12		
Slope, S (ft/ft)	0.092		
Average Velocity, V (ft/s)	13.70		*Calculated from Mannings Equation*
Tt (hr)	0.007		*Calculated from Velocity being a function of length/time*
	Time of Concentration		
Total, T_t (hr):	5.634	338.04 min	*Σ of Sheet Flow and Concentrated flow*
	Peak Flow		
Rainfall Intensity (10 Year), *i* (in/hr)	0.48		*From City of Williams Design Standards, Appendix C*
Rainfall Intensity (100 Year), *i* (in/hr)	0.70		
Runoff Coeficient(10 Year), C	0.3		*Open Area (per CCCFCD Standard Runoff Coefficients)*
Runoff Coeficient(100 Year), C	0.3		
Catchment Area, A (ac)	1.640		*From Hydrology Exhibit*

Peak Flow Rate, Q_{10} (cfs)	0.24
Peak Flow Rate, Q_{100} (cfs)	0.34



VICINITY MAP
SCALE: 1"=5000'

0 60 120 Feet

SCALE: 1"=30'

PROJECT:
SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:
verizon
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VENDOR:
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SAC AE DESIGN GROUP, INC.
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SAN DIEGO, CA 92122
www.saow.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:
REGISTERED PROFESSIONAL ENGINEER
J.D. CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA
2/22/2023
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ENGINEERING FIRM:
J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:
PROPOSED HYDROLOGY

SHEET NUMBER:
C1.8

NOTES:

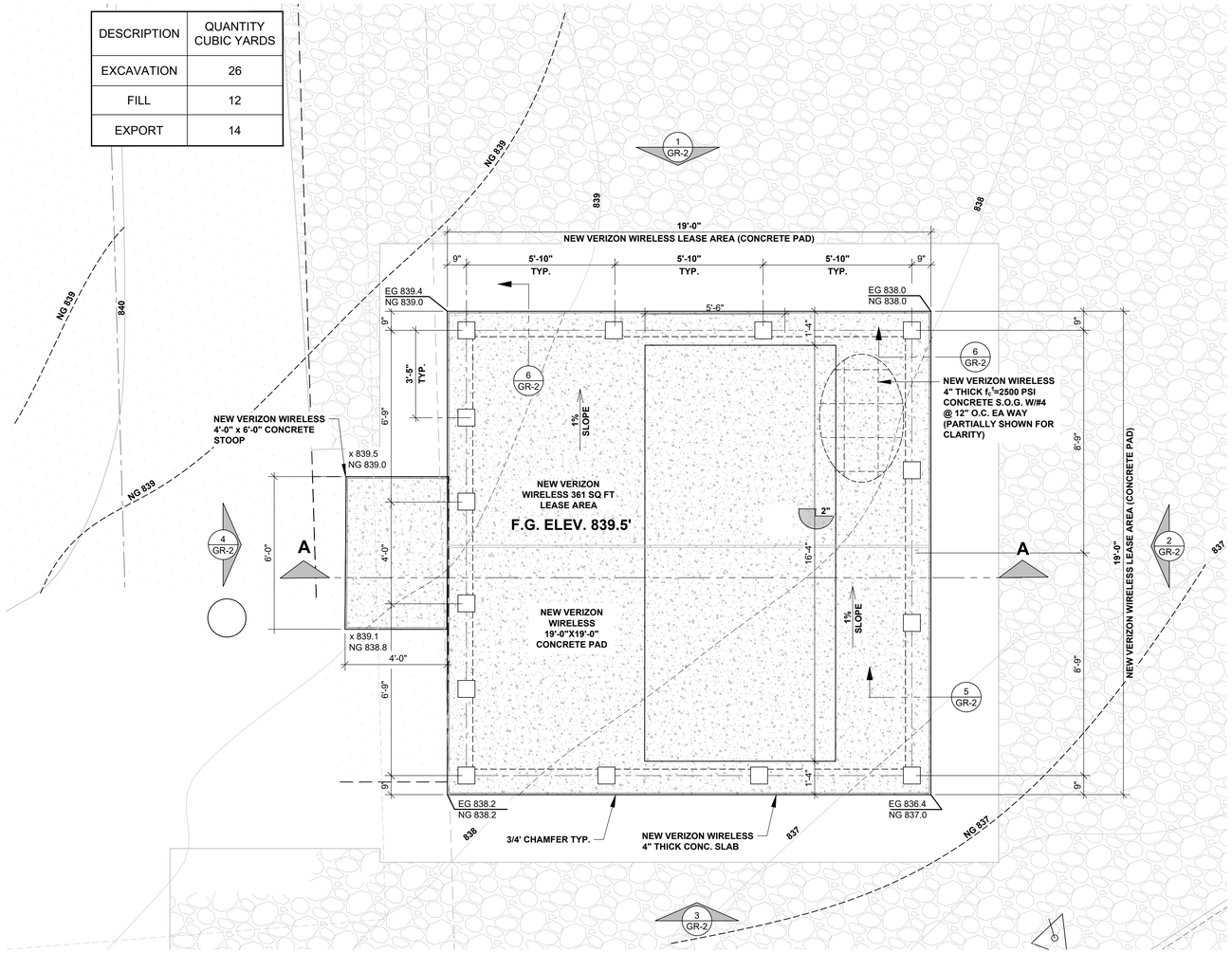
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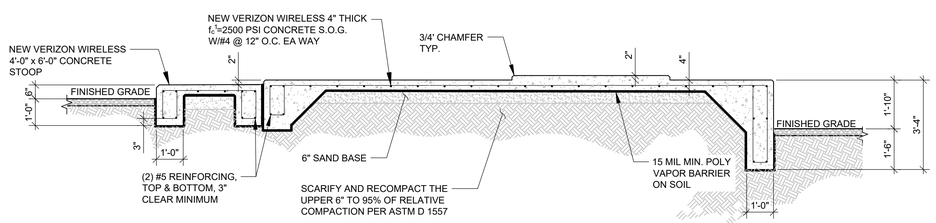
  KRAZAN & ASSOCIATES, INC.
  KA PROJECT NO. 042-22060
  DATED ON FEBRUARY 21, 2023

- AREA OF DISTURBANCE:

  21,200 SQ FT

DESCRIPTION	QUANTITY CUBIC YARDS
EXCAVATION	26
FILL	12
EXPORT	14





SECTION A-A

NORTH

GRADING PLAN & SECTION

0 1' 2' 3'

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)

1

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	GRADING PLANS	FA
1	02/22/2023	GRADING PLANS	FA

A Nokia company
9020 ACTIVITY RD.
SAN DIEGO, CA 92126
www.sacw.com
619.736.3766

PROPRIETARY INFORMATION

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verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

REGISTERED PROFESSIONAL ENGINEER
MADHAVAKUMAR KANTHASAMY
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA
02/04/2023
DATE

SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:

EQUIPMENT COMPOUND GRADING PLAN & SECTION

GR-1

NOT USED

SCALE N.T.S. | 10

NOT USED

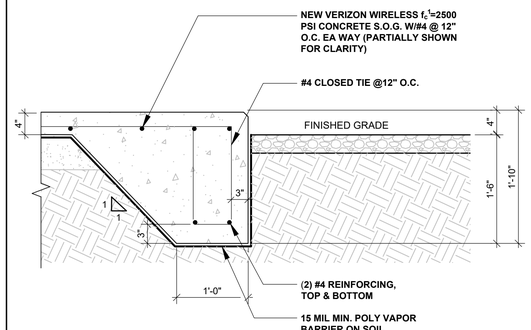
SCALE N.T.S. | 9

NOT USED

SCALE N.T.S. | 8

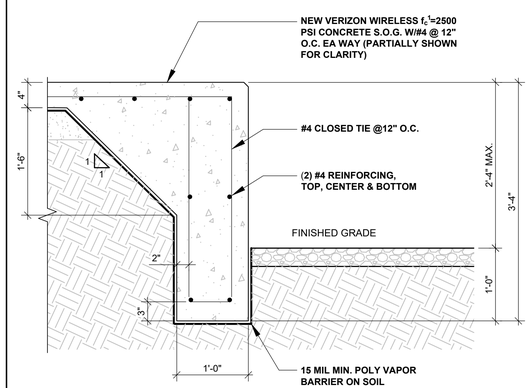
NOT USED

SCALE N.T.S. | 7



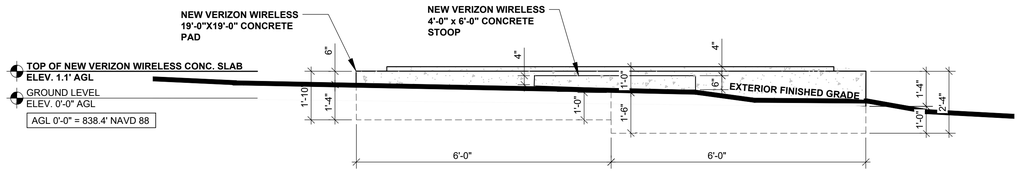
SECTION

0 3" 6" 1' | SCALE: 1" = 1'-0" (24x36) (OR) 1/2" = 1'-0" (11x17) | 6



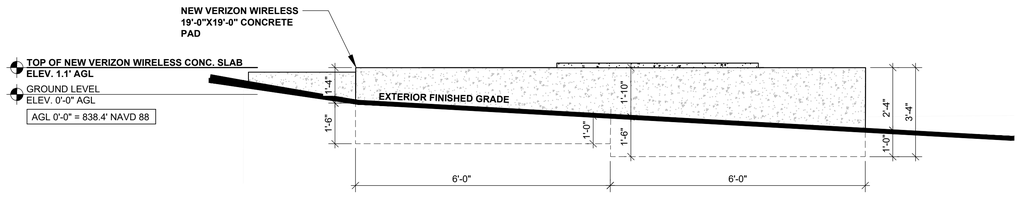
SECTION

0 3" 6" 1' | SCALE: 1" = 1'-0" (24x36) (OR) 1/2" = 1'-0" (11x17) | 5



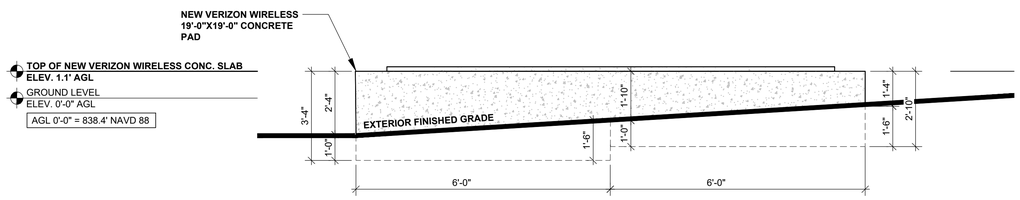
CONCRETE PAD PROFILE - 4

0 1' 2' 3' | SCALE: 3/8" = 1'-0" (24x36) (OR) 3/16" = 1'-0" (11x17) | 4



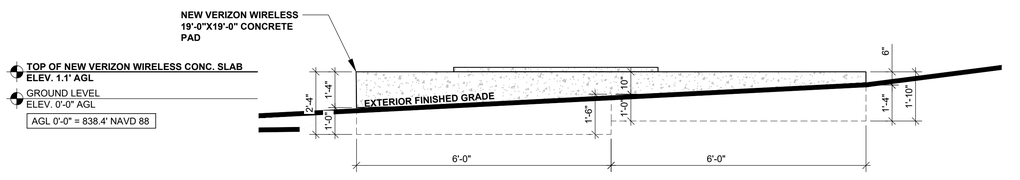
CONCRETE PAD PROFILE - 3

0 1' 2' 3' | SCALE: 3/8" = 1'-0" (24x36) (OR) 3/16" = 1'-0" (11x17) | 3



CONCRETE PAD PROFILE - 2

0 1' 2' 3' | SCALE: 3/8" = 1'-0" (24x36) (OR) 3/16" = 1'-0" (11x17) | 2



CONCRETE PAD PROFILE - 1

0 1' 2' 3' | SCALE: 3/8" = 1'-0" (24x36) (OR) 3/16" = 1'-0" (11x17) | 1

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	GRADING PLANS	FA
1	02/22/2023	GRADING PLANS	FA

A Nokia company
9020 ACTIVITY RD.
SAN DIEGO, CA 92126
www.sacw.com
619.736.3766

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS PROPRIETARY & CONFIDENTIAL TO VERIZON WIRELESS

ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

REGISTERED PROFESSIONAL ENGINEER
LADHANKUMAR KANTILAL SANGHANI
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA
DATE: 02/04/2023

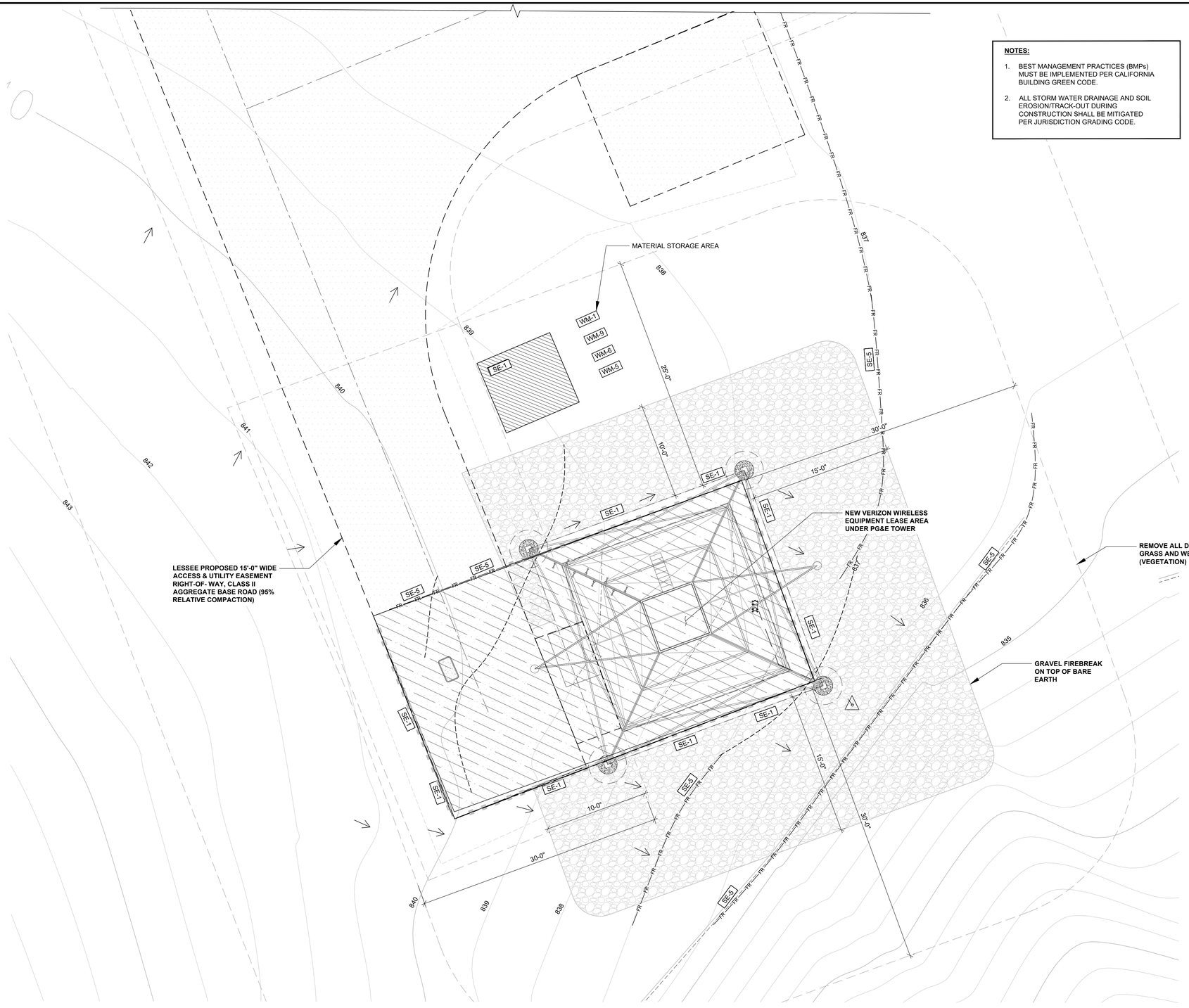
SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:

CONCRETE PAD PROFILES & SECTIONS

GR-2



NOTES:

1. BEST MANAGEMENT PRACTICES (BMPs) MUST BE IMPLEMENTED PER CALIFORNIA BUILDING GREEN CODE.
2. ALL STORM WATER DRAINAGE AND SOIL EROSION/TRACK-OUT DURING CONSTRUCTION SHALL BE MITIGATED PER JURISDICTION GRADING CODE.

BMP LEGEND

DIRECTION OF LOT DRAINAGE

MATERIALS & WASTE MANAGEMENT CONTROL BMP's:

- WM-1 MATERIAL DELIVERY & STORAGE
- WM-6 HAZARDOUS WASTE MANAGEMENT
- WM-5 SOLID WASTE MANAGEMENT
- WM-8 CONCRETE WASTE MANAGEMENT
- WM-9 SANITARY WASTE MANAGEMENT

TEMPORARY RUNOFF CONTROL BMP's:

- SS-3 BONDED OR STABILIZED FIBER MATRIX (WINTER)
- SE-1 SILT FENCE
- SE-5 FIBER ROLLS
- SE-6 / SE-8 GRAVEL OR SAND BAGS
- TC-1 STABILIZED CONSTRUCTION ENTRANCE
- EC-7 GEOTEXTILES & MATS

NOTE:

AREA OF DISTURBANCE
(VERIZON LEASE AREA): 361 SQ.FT.
(VERIZON ACCESS ROAD) : 20,839 SQ.FT.
TOTAL AREA OF DISTURBANCE: 21,200 SQ.FT.

AS SHOWN :

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
0	05/25/2022	GRADING PLANS	FA
1	02/22/2023	GRADING PLANS	FA

A Nokia company
9020 ACTIVITY RD.
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verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

REGISTERED PROFESSIONAL ENGINEER
ADHANKUMAR KANTHALAL SAINI
77991
Expires 6/30/2023
02/04/2023
CIVIL
STATE OF CALIFORNIA
DATE

SANDERS RANCH
PSL# 304480

100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE:
EQUIPMENT COMPOUND BEST MANAGEMENT PRACTICES

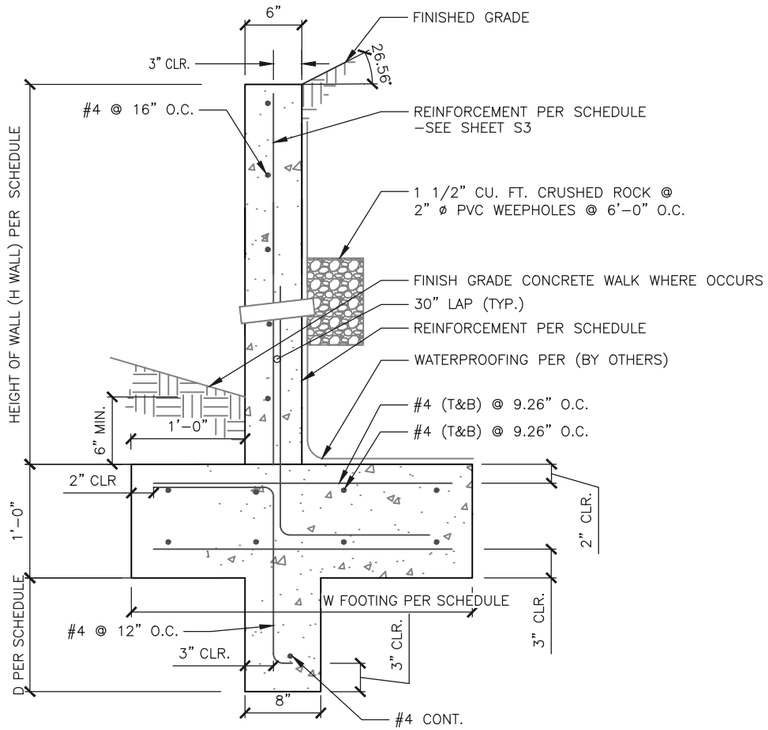
BMP-1

BEST MANAGEMENT PRACTICES & FIREWALL

0 1.5' 3' 5'

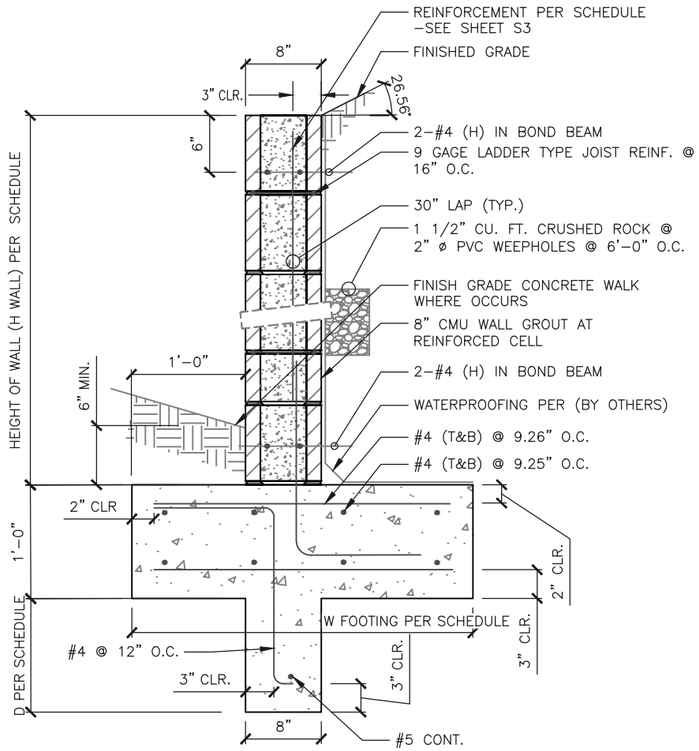
SCALE: 3/16" = 1'-0" (24x36)
(OR) 3/32" = 1'-0" (11x17)

1



NOTES:
1. NO SPECIAL INSPECTIONS ARE REQUIRED FOR WALL & FOOTING.
2. CONCRETE F'C=3,000 PSI (DESIGN STRENGTH 2500 PSI).
3. REINFORCING STEEL FY=60 KSI.

CONCRETE RETAINING WALL | SCALE N.T.S. | 2



NOTES:
1. NO SPECIAL INSPECTIONS ARE REQUIRED FOR WALL & FOOTING PERIODS.
2. CONCRETE F'C=3,000 PSI (DESIGN STRENGTH 2500 PSI).
3. REINFORCING STEEL FY=60 KSI.
4. CMU F'M=1750 PSI.

CMU RETAINING WALL | SCALE N.T.S. | 1

CARRIER:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

PLANS PREPARED FOR:

AE DESIGN GROUP, INC.
5015 SHOREHAM PL
SUITE 150
SAN DIEGO, CA 92122
WWW.SACW.COM
619.736.3766

PLANS PREPARED BY:

LETS AMERICA
Engineers & Architects
112 S. Kyrene Rd., Suite 1, Chandler, AZ 85226
602-526-7272 - AE@LETSinc.com - www.LETSinc.com
LETS PROJ. #: S2-SCV0-027

REVISIONS

REV.	DATE	ISSUED FOR	INITIALS
0	02/28/23	CONSTRUCTION SET	MAN

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

REGISTERED PROFESSIONAL ENGINEER
MADHAN KUMAR KAVITHA SAMY
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA

03/03/2023

"I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA"

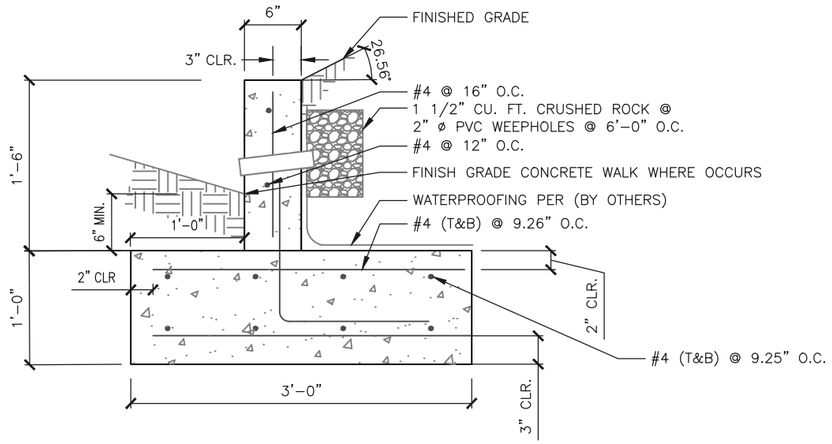
SANDERS RANCH
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE

STRUCTURAL DRAWINGS

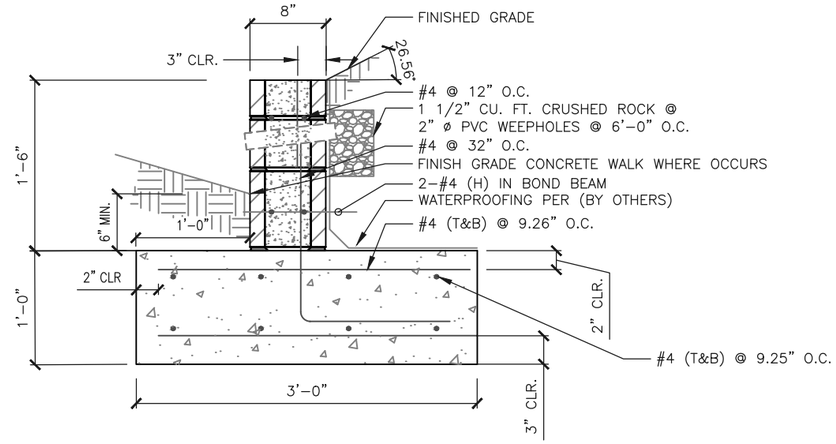
SHEET NUMBER

S-1



NOTES:
1. NO SPECIAL INSPECTIONS ARE REQUIRED FOR WALL & FOOTING.
2. CONCRETE F'C=3,000 PSI (DESIGN STRENGTH 2500 PSI).
3. REINFORCING STEEL FY=60 KSI.

CONCRETE RETAINING WALL 1'-6" | SCALE N.T.S. | 2



NOTES:
1. NO SPECIAL INSPECTIONS ARE REQUIRED FOR WALL & FOOTING.
2. CONCRETE F'C=3,000 PSI (DESIGN STRENGTH 2500 PSI).
3. REINFORCING STEEL FY=60 KSI.
4. CMU F'M=1750 PSI.

CMU RETAINING WALL 1'-6" | SCALE N.T.S. | 1

CARRIER:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

PLANS PREPARED FOR:

AE DESIGN GROUP, INC.

5015 SHOREHAM PL
SUITE 150
SAN DIEGO, CA 92122
WWW.SACW.COM
619.736.3766

PLANS PREPARED BY:

LETS AMERICA Engineers & Architects

112 S. Kyrene Rd., Suite 1, Chandler, AZ 85226
602-526-7272 - AE@LETSinc.com - www.LETSinc.com
LETS PROJ. #: S2-SCV0-027

REVISIONS

REV.	DATE	ISSUED FOR	INITIALS
0	02/28/23	CONSTRUCTION SET	MAN

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

REGISTERED PROFESSIONAL ENGINEER
MADHAN KUMAR KANTHA SAMY
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA

DATE 03/03/2023

"I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA"

SANDERS RANCH
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE

STRUCTURAL DRAWINGS

SHEET NUMBER

S-2

NOT USED

SCALE	
N.T.S.	2

CONCRETE RETAINING WALL SCHEDULE				
STEM INFO			FOOTING INFO	"D" SHEAR KEY DEPTH
HEIGHT (H WALL)	"T" WALL THK.	VERTICAL REBAR	"W" FOOTING	
1'-6"	6"	#4 @ 16" O.C.	3'-0"	-
3'-3" TO 1'-0"	6"	#4 @ 16" O.C.	3'-0"	1'-0"

MASONRY RETAINING WALL SCHEDULE				
STEM INFO			FOOTING INFO	"D" SHEAR KEY DEPTH
HEIGHT (H WALL)	"T" WALL THK.	VERTICAL REBAR	"W" FOOTING	
1'-6"	8"	#4 @ 32" O.C.	3'-0"	-
3'-3" TO 1'-0"	8"	#4 @ 32" O.C.	3'-0"	1'-0"

SOIL NOTES:
1. ALLOWABLE BEARING PRESSURE 2925 PSF.
2. SOIL UNIT WEIGHT 105 PCF.
3. SOIL/FOOTING FRICTION CO-EFFICIENT 0.3.
4. ACTIVE SOIL PRESSURE 35 PSF/FT.
5. PASSIVE SOIL PRESSURE 225 PSF/FT.

CONCRETE AND MASONRY RETAINING WALL SCHEDULE

SCALE	
N.T.S.	1

CARRIER:

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

PLANS PREPARED FOR:

AE DESIGN GROUP, INC.

5015 SHOREHAM PL
SUITE 150
SAN DIEGO, CA 92122
WWW.SACW.COM
619.736.3766

PLANS PREPARED BY:

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602-526-7272 - AE@LETSinc.com - www.LETSinc.com
LETS PROJ. #: S2-SCV0-027

REVISIONS

REV.	DATE	ISSUED FOR	INITIALS
0	02/28/23	CONSTRUCTION SET	MAN

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

REGISTERED PROFESSIONAL ENGINEER
MADHAN KUMAR KANTHA SAMY
77991
Expires 6/30/2023
CIVIL
STATE OF CALIFORNIA

DATE: 03/03/2023

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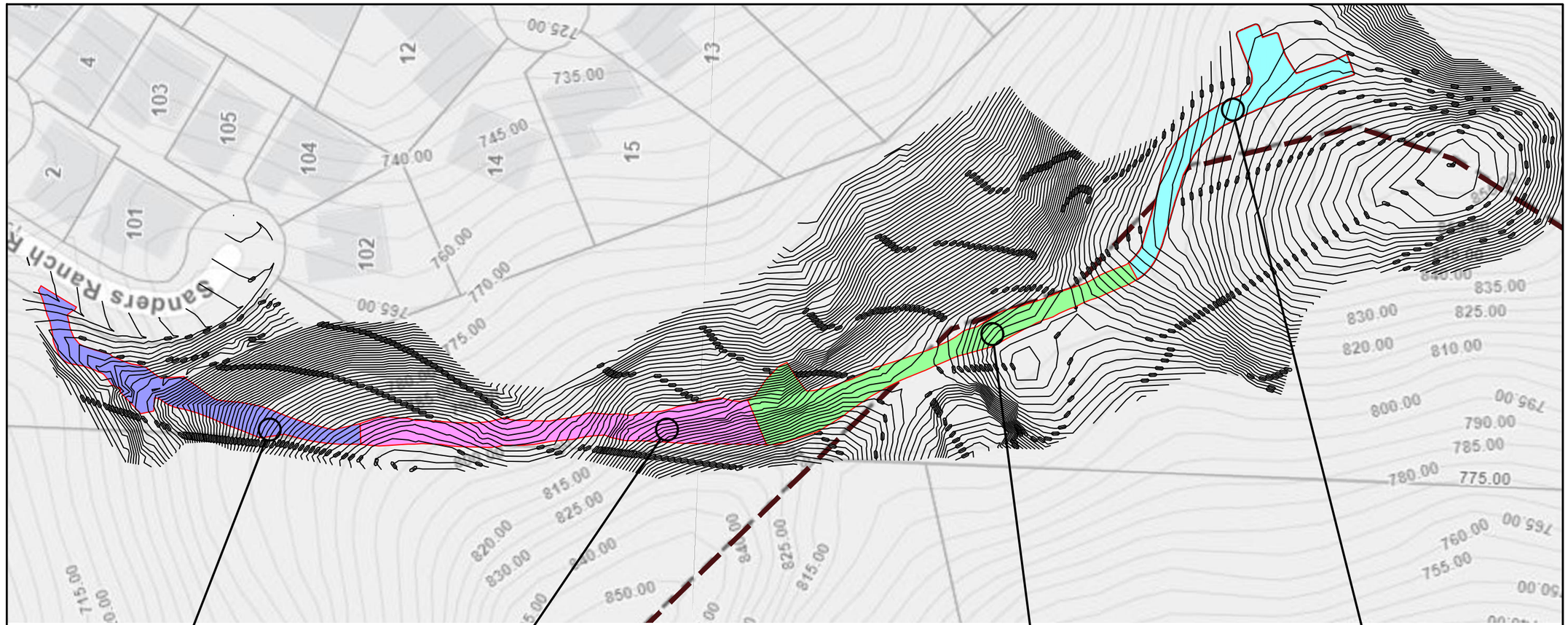
SANDERS RANCH
100 SANDERS RANCH ROAD
MORAGA, CA 94566

SHEET TITLE

CONCRETE AND MASONRY RETAINING WALL SCHEDULE

SHEET NUMBER

S-3



CELL 01
A= 7073.45 SQ FT
I= 1 LF
L= 1697.79
AV. SLOPE= $\frac{100 \times I \times L}{A}$
AV. SLOPE= 24.00%

CELL 02
A= 9301.31 SQ FT
I= 1 LF
L= 2127.65
AV. SLOPE= $\frac{100 \times I \times L}{A}$
AV. SLOPE= 22.87%

CELL 03
A= 9357.19 SQ FT
I= 1 LF
L= 2165.76
AV. SLOPE= $\frac{100 \times I \times L}{A}$
AV. SLOPE= 23.15%

CELL 04
A= 6955.87 SQ FT
I= 1 LF
L= 611.82
AV. SLOPE= $\frac{100 \times I \times L}{A}$
AV. SLOPE= 8.80%

100 50 0 100 200 400
GRAPHIC SCALE 1" = 100' (FEET)

AVERAGE SLOPE

$AS = \frac{S1+S2+S3+S4}{4}$

$AS = \frac{24.00\% + 22.87\% + 23.15\% + 8.80\%}{4}$

$AS = \frac{78.82\%}{4}$

AS= **19.71%**

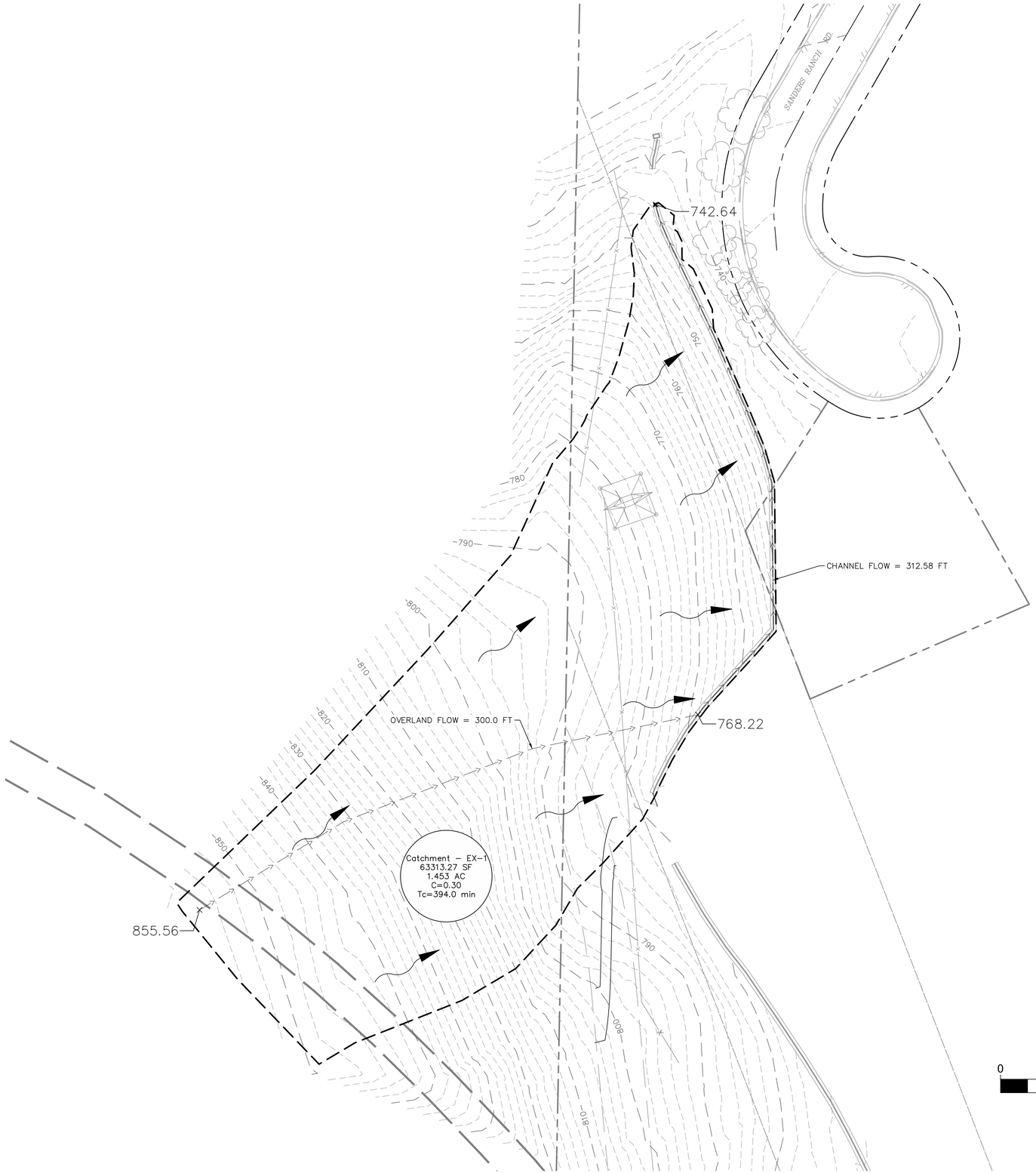
LEGEND

100 EXISTING CONTOURS
MOSO MINOR RIDGELINE
CENTER LINE
CELL BOUNDARY

PROJECT: S2-SCVO-027-SANDERS RANCH
100 SANDERS RANCH ROAD
MORAGA, CA 94566

DRAWING NAME: AVERAGE SLOPE EXHIBIT

ISSUE:	
DATE:	12/28/2022
CHECKED:	DRAWN:
DRAWING FILE:	
PROJECT NO.:	S2-SCVO-027
SHEET NUMBER:	
OF 01 SHEETS	
SCALE:	1" = 100'



LEGEND:

- EXISTING PROPERTY LINE
- ROADWAY CENTERLINE
- DRAINAGE AREA BOUNDARY
- RIGHT-OF-WAY LINE
- HYDRAULICALLY MOST DISTANT FLOW PATH
- FLOW DIRECTION ARROW
- DA-## / #.### AC — DRAINAGE AREA INFORMATION

PRE-PROJECT AREA EX-1 HYDROLOGY CALCULATIONS

Existing Conditions

Sheet Flow

Surface	Short Grass (prairie)	
Manning, n (for sheet flow)	0.15	*From TR-55 Manual Table 3-1*
Flow Length, L (ft)	300	
Mean Seasonal Precipitation (in)	29.0	*CCCFCWCD Isohyet Map*
Slope, S (ft/ft)	0.291	
T_t (hr)	6.55	*Kerby Equation (per CCCFCWCD)*

Concrete Channel Flow

Surface	Concrete	
Flow Length, L (ft)	312.58	
Slope, S (ft/ft)	0.082	
Average Velocity, V (ft/s)	12.37	*Calculated from Mannings Equation*
Tt (hr)	0.007	*Calculated from Velocity being a function of length/time*

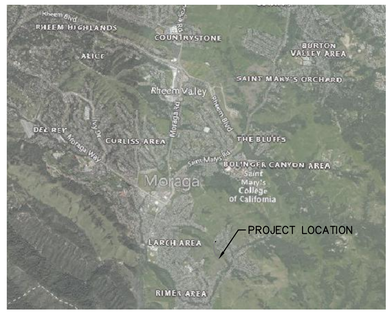
Time of Concentration

Total, T_t (hr):	6.553	393.17 min	*Σ of Sheet Flow and Concentrated flow*

Peak Flow

Rainfall Intensity (10 Year), *i* (in/hr)	0.45	*From City of Williams Design Standards, Appendix C*
Rainfall Intensity (100 Year), *i* (in/hr)	0.65	
Runoff Coeficient(10 Year), C	0.3	*Open Area (per CCCFCD Standard Runoff Coefficients)*
Runoff Coeficient(100 Year), C	0.3	
Catchment Area, A (ac)	1.453	*From Hydrology Exhibit*

Peak Flow Rate, Q_{10} (cfs)	0.20
Peak Flow Rate, Q_{100} (cfs)	0.28



VICINITY MAP
SCALE: 1"=5000'

0 60 120 Feet
SCALE: 1"=30'

PROJECT:
SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:
verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:
SAC A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL. SUITE 150
SAN DIEGO, CA 92122
www.saow.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:
REGISTERED PROFESSIONAL ENGINEER
JOA CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF THE ABOVE LISTED LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

ENGINEERING FIRM:
J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:
EXISTING HYDROLOGY

SHEET NUMBER:
C1.7



LEGEND:

- EXISTING PROPERTY LINE
- ROADWAY CENTERLINE
- DRAINAGE AREA BOUNDARY
- RIGHT–OF–WAY LINE
- HYDRAULICALLY MOST DISTANT FLOW PATH
- FLOW DIRECTION ARROW
- DA-## / #.### AC — DRAINAGE AREA INFORMATION

POST-PROJECT AREA A-1 HYDROLOGY CALCULATIONS

Existing Conditions

Sheet Flow

Surface	Short Grass (prairie)	
Manning, n (for sheet flow)	0.15	*From TR-55 Manual Table 3-1*
Flow Length, L (ft)	227.8	
Mean Seasonal Precipitation (in)	29.0	*CCCFCWCD Isohyet Map*
Slope, S (ft/ft)	0.321	
T_t (hr)	5.63	*Kerby Equation (per CCCFCWCD)*

Concrete Channel Flow

Surface	Concrete	
Flow Length, L (ft)	363.12	
Slope, S (ft/ft)	0.092	
Average Velocity, V (ft/s)	13.70	*Calculated from Mannings Equation*
Tt (hr)	0.007	*Calculated from Velocity being a function of length/time*

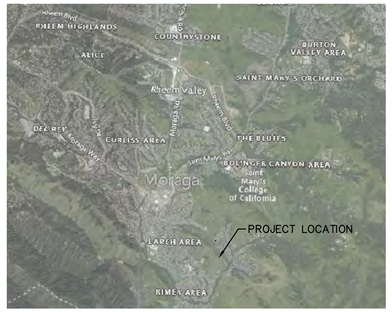
Time of Concentration

Total, T_t (hr):	5.634	338.04 min	*Σ of Sheet Flow and Concentrated flow*

Peak Flow

Rainfall Intensity (10 Year), *i* (in/hr)	0.48	*From City of Williams Design Standards, Appendix C*
Rainfall Intensity (100 Year), *i* (in/hr)	0.70	
Runoff Coeficient(10 Year), C	0.3	*Open Area (per CCCFCD Standard Runoff Coefficients)*
Runoff Coeficient(100 Year), C	0.3	
Catchment Area, A (ac)	1.640	*From Hydrology Exhibit*

Peak Flow Rate, Q_{10} (cfs)	0.24
Peak Flow Rate, Q_{100} (cfs)	0.34



VICINITY MAP
SCALE: 1"=5000'

0 60 120 Feet
SCALE: 1"=30'

PROJECT:
SANDERS RANCH
PSL#304480
100 SANDERS RANCH ROAD
MORAGA, CA 94566

PREPARED FOR:
verizon
2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

VENDOR:
A NOKIA COMPANY
SAC AE DESIGN GROUP, INC.
5015 SHOREHAM PL. SUITE 150
SAN DIEGO, CA 92122
www.saow.com
619.736.3766

SITE NO:	PSL#304480
JDC PROJ NO:	22007001
DRAWN BY:	JDC
CHECKED BY:	JDC

REV	DATE	DESCRIPTION

ENGINEER OF RECORD:
REGISTERED PROFESSIONAL ENGINEER
J.D. CHRISTIANSEN
No. 89629
CIVIL
STATE OF CALIFORNIA

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ENGINEERING FIRM:
J1 DESIGN
& CONSULTING ENGINEERS
15016 Lago Drive, Rancho Murieta, CA 95683

SHEET TITLE:
PROPOSED HYDROLOGY

SHEET NUMBER:
C1.8