



## Staff Report to the Zoning Administrator

Application Number: **171015**

**Applicant:** SAC Wireless, LLC  
**Owner:** Hattis, Berke, Sheridan  
**APN:** 030-181-10 & 44

**Agenda Date:** January 19, 2018  
**Agenda Item #:** 3  
**Time:** After 9:00 a.m.

**Project Description:** Proposal to construct a new wireless communications facility consisting of 2 antennas, 6 Radio Remote Units, and 3 duplexers camouflaged within a new 200 square foot roof mounted enclosure. Project includes installation of associated ground mounted equipment within a 36 square foot lease area. Requires an amendment to Commercial Development Permit 78-1523-U.

**Location:** Property located on the northwest corner of the intersection of 41<sup>st</sup> Avenue and Corey Street (2601 41<sup>st</sup> Ave) approximately 500 feet north of the Highway 1 overpass at 41<sup>st</sup> Avenue.

**Supervisory District:** 1 District (District Supervisor: John Leopold)

**Permits Required:** Commercial Development Permit

### Staff Recommendation:

- Determine that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- Approval of Application 171015, based on the attached findings and conditions.

### Exhibits

- |   |   |
|---|---|
| A. Categorical Exemption (CEQA determination) | F. Radio Frequency Report                             |
| B. Findings                                   | G. Assessor's, Location, Zoning and General Plan Maps |
| C. Conditions                                 | H. Comments & Correspondence                          |
| D. Project plans                              |   |
| E. Visual Simulations                         |   |

### Parcel Information

Parcel Size:	9,670 square feet & 5,053 square feet
Existing Land Use - Parcel:	Commercial – Professional administrative office
Existing Land Use - Surrounding:	Commercial/Residential
Project Access:	Corey Street

County of Santa Cruz Planning Department  
701 Ocean Street, 4<sup>th</sup> Floor, Santa Cruz CA 95060

Planning Area:	Soquel
Land Use Designation:	C-C (Community Commercial)
Zone District:	C-2 (Community Commercial)
Coastal Zone:	<input type="checkbox"/> Inside <input checked="" type="checkbox"/> Outside
Appealable to Calif. Coastal Comm.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

### Environmental Information

Geologic Hazards:	Not mapped/no physical evidence on site
Soils:	N/A
Fire Hazard:	Not a mapped constraint
Slopes:	N/A
Env. Sen. Habitat:	Not mapped/no physical evidence on site
Grading:	No grading proposed
Tree Removal:	No trees proposed to be removed
Scenic:	Mapped resource
Drainage:	Existing drainage adequate
Archeology:	Not mapped/no physical evidence on site

### Services Information

Urban/Rural Services Line:	<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside
Water Supply:	Soquel Creek Water District
Sewage Disposal:	County Sanitation District
Fire District:	Central Fire Protection District
Drainage District:	Flood Control District 5

### History

The subject property is developed with an existing two story office building constructed in 1979 under Commercial Development Permit 78-1523-U. The building is currently occupied by several professional administrative uses (real estate office, mortgage broker and accounting firm). The site is currently operated in compliance with all existing conditions of approval.

### Project Setting

The subject properties are located on the northwest corner of the intersection of 41<sup>st</sup> Avenue and Cory Street in the Soquel Planning Area. The subject properties are shown on maps as being within the mapped scenic corridor of Highway 1 however the parcels are not visible from the highway. The surrounding area is developed primarily with commercial development consisting of a regional commercial shopping center located across 41<sup>st</sup> Avenue, a lumber yard to the south and a cluster of smaller retail and service uses to the north. The area located to the west of the subject property is zoned commercial though it consists of a mix of commercial office space and non-conforming residential uses.

## **Zoning & General Plan Consistency**

The subject property consists of two parcels totaling approximately 12,000 square feet in size and located in the Community Commercial (C-2) zone district, a designation which allows commercial uses. The proposed wireless facility is an allowed use within the zone district and the zoning is consistent with the site's Community Commercial (C-C) General Plan designation.

## **Design Review**

The proposed wireless facility complies with the requirements of the County Design Review Ordinance, in that the proposed project will incorporate site and architectural design features such as structural addition to the existing building to camouflage the proposed roof mounted wireless communication equipment. The proposed addition to the building will reduce the visual impact of the proposed development on surrounding land uses and the Highway 1 scenic corridor.

## **Conclusion**

As proposed and conditioned, the project is consistent with all applicable codes and policies of the Zoning Ordinance and General Plan/LCP. Please see Exhibit "B" ("Findings") for a complete listing of findings and evidence related to the above discussion.

## **Staff Recommendation**

- Determine that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- **APPROVAL** of Application Number **171015**, based on the attached findings and conditions.

**Supplementary reports and information referred to in this report are on file and available for viewing at the Santa Cruz County Planning Department, and are hereby made a part of the administrative record for the proposed project.**

**The County Code and General Plan, as well as hearing agendas and additional information are available online at: [www.co.santa-cruz.ca.us](http://www.co.santa-cruz.ca.us)**

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# CALIFORNIA ENVIRONMENTAL QUALITY ACT

## NOTICE OF EXEMPTION

The Santa Cruz County Planning Department has reviewed the project described below and has determined that it is exempt from the provisions of CEQA as specified in Sections 15061 - 15332 of CEQA for the reason(s) which have been specified in this document.

Application Number: 171015

Assessor Parcel Number: 030-181-10

Project Location: 2601 41st Avenue

**Project Description: Construct a new wireless communication facility and cosmetic modifications to an existing office building.**

**Person or Agency Proposing Project: SAC Wireless, LLC**

**Contact Phone Number: (209) 747-1725**

- A. ☐ The proposed activity is not a project under CEQA Guidelines Section 15378.  
B. ☐ The proposed activity is not subject to CEQA as specified under CEQA Guidelines Section 15060 (c).  
C. ☐ Ministerial Project involving only the use of fixed standards or objective measurements without personal judgment.  
D. ☐ Statutory Exemption other than a Ministerial Project (CEQA Guidelines Section 15260 to 15285).  
E. ☒ Categorical Exemption

Specify type: Class 1 – Existing Facilities (Section 15301) & Class 3 - New Construction or Conversion of Small Structures (Section 15303)

**F. Reasons why the project is exempt:**

Construction of a wireless communication facility and modifications to an existing commercial structure in an area designated for commercial uses.

In addition, none of the conditions described in Section 15300.2 apply to this project.

\_\_\_\_\_  
Nathan MacBeth, Project Planner

Date: \_\_\_\_\_

## **Wireless Communication Facility Use Permit Findings**

1. The development of the proposed wireless communications facility as conditioned will not significantly affect any designated visual resources, environmentally sensitive habitat resources (as defined in the Santa Cruz County General Plan/LCP Sections 5.1, 5.10, and 8.6.6.), and/or other significant County resources, including agricultural, open space, and community character resources; or there are no other environmentally equivalent and/or superior and technically feasible alternatives to the proposed wireless communications facility as conditioned (including alternative locations and/or designs) with less visual and/or other resource impacts and the proposed facility has been modified by condition and/or project design to minimize and mitigate its visual and other resource impacts.

This finding can be made in that the proposed wireless communication antennas and equipment will be screened/camouflaged with textured and painted materials and color to match the existing building. The proposal will not significantly affect any designated visual resources, environmentally sensitive resources or any other significant County resource as its visual impact will be negligible as it appears as commercial rooftop enclosures common to many commercial buildings. The project site is not readily visible from Scenic Highway 1.

2. The site is adequate for the development of the proposed wireless communications facility and, for sites located in one of the prohibited and/or restricted areas set forth in Sections 13.10.661(b) and 13.10.661 (c), that the applicant has demonstrated that there are not environmentally equivalent or superior and technically feasible: (1) alternative sites outside the prohibited and restricted areas; and/or (2) alternative designs for the proposed facility as conditioned.

This finding can be made in that the proposed site is not located in a prohibited or restricted area as set forth in Sections 13.10.661(b) and 13.10.661(c). As such, no alternative site analysis or alternative designs are required. Wireless communication facilities are an allowed use with the C-2 (Community Commercial) zone district.

3. The subject property upon which the wireless communications facility is to be built is in compliance with all rules and regulations pertaining to zoning uses, subdivisions and any other applicable provisions of this title (County Code 13.10.660) and that all zoning violation abatement costs, if any, have been paid.

This finding can be made, in that the existing professional office building is a permitted use under Discretionary Permits 78-1523-U. This application proposes construction of a 200 square foot roof mounted enclosure designed to blend with the architectural style of the existing building. The proposed enclosure complies with the site and structural standards including setbacks and height for the C-2 zone district. The facility is proposed to be fully screened/camouflaged from view by the proposed rooftop enclosures.

4. The proposed wireless communication facility as conditioned will not create a hazard for aircraft in flight.

This finding can be made, in that the proposed antennas will be located within a rooftop equipment enclosure resulting in office building with a maximum height of approximately 35 feet, which complies with the commercial height standard for the C-2 zone district. As such, the proposal will not create a hazard for aircraft in flight.

5. The proposed wireless communication facility as conditioned is in compliance with all FCC and California PUC standards and requirements.

This finding can be made, in that an RF report prepared by Hammett & Edison Consulting Engineers dated January 5, 2017 indicates the project would result in an exposure level of approximately 7.2% of the applicable public exposure limit at ground level and 1.7% at the second-floor elevation of any nearby building. Consequently, sufficient evidence has been submitted to indicate the current proposal would be in compliance with FCC regulations with respect to RF exposure levels. The applicant has provided verification of an active license with the FCC for installation of wireless installation/operation.

6. The proposed wireless communication facilities as conditioned are consistent with the all applicable requirements of the Local Coastal Program (LCP).

This finding is not applicable, in that the proposed WCF is located outside the Coastal Zone and is therefore not subject to the LCP.

### **Development Permit Findings**

1. That the proposed location of the project and the conditions under which it would be operated or maintained will not be detrimental to the health, safety, or welfare of persons residing or working in the neighborhood or the general public, and will not result in inefficient or wasteful use of energy, and will not be materially injurious to properties or improvements in the vicinity.

This finding can be made, in that the proposed wireless communication facility will comply with all FCC regulations and the proposed 200 square foot equipment enclosure has been designed to match the existing building in color and materials. The enclosure will camouflage the proposed roof-mounted equipment so that the visual impacts to neighboring properties and the Highway 1 scenic corridor will be minimized. The proposed wireless communication facility will require a building and electrical permit to ensure structural safety and energy conservation. Building plans are required to comply with all uniform building code and fire district requirements. Security measures will be required to prevent people from accessing the antennas or equipment cabinets. This includes locked entry to the rooftop and an automatic shut off valve for occupational technicians and public safety personnel.

The proposed project will not result in inefficient or wasteful use of energy, in that the most recent and efficient technology available to provide wireless communication services will be required as a condition of this permit. Upgrades to more efficient and effective technologies will be required to occur as new technologies are developed.



The proposed wireless communications facility will not deprive adjacent properties or the neighborhood of light, air, or open space, in that the structure meets all current setbacks that ensure access to light, air, and open space in the vicinity.

2. That the proposed location of the project and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the zone district in which the site is located.

This finding can be made, in that the proposed location of the wireless facility and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the C-2 (Community Commercial) zone district as the primary use of the property will be one professional administrative office building with a roof-mounted wireless facility that meets all current site standards for the zone district.

3. That the proposed use is consistent with all elements of the County General Plan and with any specific plan which has been adopted for the area.

This finding can be made, in that the proposed commercial use is consistent with the use and density requirements specified for the C-C (Community Commercial) land use designation in the County General Plan.

The proposed wireless communication facility is compatible with adjacent uses in that the wireless communications facility was subject to Design Review and its design is consistent with the design review standards, as specified in Policy 8.5.2 (Commercial Compatibility With Other Uses).

The proposed project complies with General Plan Policy 5.10.3 (Protection of Public Vistas), in that the roof-mounted enclosure has been designed to be consistent with the existing building in terms of color and finish material. The location of the proposed development is not located on a prominent ridge or within a significant public vista. Additionally, the project complies with General Plan Policy 5.10.12 in that the project has been designed to maintain the aesthetic qualities of the existing development on site including architectural style and retention of existing vegetation.

A specific plan has not been adopted for this portion of the County.

4. That the proposed use will not overload utilities and will not generate more than the acceptable level of traffic on the streets in the vicinity.

This finding can be made, in that adequate electrical service will be available to the wireless communication facility, and no additional traffic will be generated beyond periodic maintenance and inspection of the facility.

5. That the proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the neighborhood.

This finding can be made, in that the proposed wireless communication facility will be ancillary to the primary use of the property as a profession office building. The proposed antennas and equipment will be camouflaged within a 200 square foot rooftop equipment enclosure that matches the color and materials of the building. The proposed enclosure would comply with the site and structural dimension requirements for the C-2 zone district including setbacks and maximum height. The proposed structure is located in a mixed neighborhood containing a variety of architectural styles, and the proposed wireless facility is consistent with the land use intensity and density of the neighborhood.

6. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and any other applicable requirements of this chapter.

This finding can be made, in that the proposed wireless communication facility will be camouflaged as a rooftop equipment enclosure to minimize its visual impact to the surrounding properties. As required by the design review ordinance, the proposed rooftop enclosure will match the materials and color of the building and will appear as an integral part of the building, consistent with the appearance of any other commercial rooftop equipment enclosure. This proposal will not reduce or visually impact available open space in the surrounding area and the proposal will not result in adverse impacts to the Highway 1 scenic corridor.



## Conditions of Approval

Exhibit D: Project Plans 9 Sheets Prepared by SAC Wireless, Dated 12/20/16

- I. This permit authorizes the construction of a new wireless communication facility consisting of 2 antennas, 6 remote radio units and associated roof-mounted equipment within a new 200 square foot roof-mounted enclosure. Project includes a 36 square foot ground mount enclosure for associate equipment as indicated on the approved Exhibit "D" for this permit. This approval does not confer legal status on any existing structure(s) or existing use(s) on the subject property that are not specifically authorized by this permit. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:
  - A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.
  - B. Obtain a Building Permit from the Santa Cruz County Building Official.
    1. Any outstanding balance due to the Planning Department must be paid prior to making a Building Permit application. Applications for Building Permits will not be accepted or processed while there is an outstanding balance due.
  - C. The applicant shall obtain approval from the California Public Utilities Commission and the Federal Communications Commission to install and operate this facility.
  - D. Obtain an Encroachment Permit from the Department of Public Works for all off-site work performed in the County road right-of-way.
  - E. To ensure that the storage of hazardous materials on the site does not result in adverse environmental impacts, the applicant shall submit a Hazardous Materials Management Plan for review and approval by the County Department of Environmental Health Services.
  - F. Submit proof that these conditions have been recorded in the official records of the County of Santa Cruz (Office of the County Recorder) within 30 days from the effective date of this permit.
- II. Prior to issuance of a Building Permit the applicant/owner shall:
  - A. Submit final architectural plans for review and approval by the Planning Department. The final plans shall be in substantial compliance with the plans marked Exhibit "D" on file with the Planning Department. Any changes from the approved Exhibit "D" for this development permit on the plans submitted for the Building Permit must be clearly called out and labeled by standard architectural methods to indicate such changes. Any changes that are not properly called out

and labeled will not be authorized by any Building Permit that is issued for the proposed development. The final plans shall include the following additional information:

1. A copy of the text of these conditions of approval incorporated into the full size sheets of the architectural plan set.
  2. One elevation shall indicate materials and colors as they were approved by this Discretionary Application. If specific materials and colors have not been approved with this Discretionary Application, in addition to showing the materials and colors on the elevation, the applicant shall supply a color and material sheet in 8 1/2" x 11" format for Planning Department review and approval.
  3. Dimensions and location of all signage associated with the wireless facility. Size and location shall be limited to the minimum requirements of the FCC to ensure safe operation of the facility.
  4. Details showing compliance with fire department requirements.
- B. Meet all requirements and pay any applicable plan check fee of the Central Fire Protection District.
- C. Submit a written statement signed by an authorized representative of the school district in which the project is located confirming payment in full of all applicable developer fees and other requirements lawfully imposed by the school district.
- III. All construction shall be performed according to the approved plans for the Building Permit. Prior to final building inspection, the applicant/owner must meet the following conditions:
- A. All site improvements shown on the final approved Building Permit plans shall be installed.
  - B. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.
  - C. Pursuant to Sections 16.40.040 and 16.42.080 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.080, shall be observed.

#### IV. Operational Conditions

- A. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation
- B. The use of temporary generators to power the wireless communication facility is not allowed.
- C. The equipment cabinet area must be locked at all times except when authorized personnel are present. The antennas must not be accessible to the public.
- D. Any modification in the type of equipment shall be reviewed and acted on by the Planning Department staff. The County may deny or modify the conditions at this time, or the Planning Director may refer it for public hearing before the Zoning Administrator.
- E. The camouflage materials of the enclosure screening wall shall be permanently maintained and replacement materials and/or paint shall be applied as necessary to maintain the camouflage of the facility. Modifications to the structural dimensions of the roof-mounted enclosure shall be reviewed and acted on by the Planning Department. The County may deny or modify the conditions at this time, or the Planning Director may refer it for public hearing before the Zoning Administrator.
- F. The operator of the wireless communication facility must submit within 90 days of commencement of normal operations (or within 90 days of any major modification of power output of the facility) a written report to the Santa Cruz County Planning Department documenting the measurements and findings with respect to compliance with the established Federal Communications Commission (FCC) Non-Ionizing Electromagnetic Radiation (NEIR) exposure standard. The wireless communication facility must remain in continued compliance with the NEIR standard established by the FCC at all times. Failure to submit required reports or to remain in continued compliance with the NEIR standard established by the FCC will be a violation of the terms of this permit.
- G. If, as a result of future scientific studies and alterations of industry-wide standards resulting from those studies, substantial evidence is presented to Santa Cruz County that radio frequency transmissions may pose a hazard to human health and/or safety, the Santa Cruz County Planning Department shall set a public hearing and in its sole discretion, may revoke or modify the conditions of this permit.
- H. All site, building, security and landscape lighting shall be directed onto the lease site and away from adjacent properties. Light sources shall not be visible from adjacent properties. Building and security lighting shall be integrated into the

building design and shall be operated with a manual on/off switch. The site shall be unlit except when authorized personnel are present at night.

- I. If future technological advances would allow for reduced visual impacts resulting from the proposed telecommunication facility, the operator of the wireless communication facility must make those modifications which would allow for reduced visual impact of the proposed facility as part of the normal replacement schedule. If, in the future, the facility is no longer needed, the operator of the wireless communication facility must abandon the facility and be responsible for the removal of all permanent structures and the restoration of the site as needed to re-establish the area consistent with the character of the surrounding natural landscape.
- J. Transfer of Ownership: In the event that the original permittee sells its interest in the wireless communication facility, the succeeding carrier shall assume all responsibilities concerning the project and shall be held responsible to the County for maintaining consistency with all project conditions of approval. A new contact name shall be provided by the succeeding carrier to the Planning Department within thirty days of transfer of interest of the facility.
- V. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, its officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.
  - A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.
  - B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:
    - 1. COUNTY bears its own attorney's fees and costs; and
    - 2. COUNTY defends the action in good faith.
  - C. Settlement. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder

shall not enter into any stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.

- D. Successors Bound. "Development Approval Holder" shall include the applicant and the successor(s) in interest, transferee(s), and assign(s) of the applicant.

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Minor variations to this permit which do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or staff in accordance with Chapter 18.10 of the County Code.

**Please note: This permit expires three years from the effective date listed below unless a building permit (or permits) is obtained for the primary structure described in the development permit (does not include demolition, temporary power pole or other site preparation permits, or accessory structures unless these are the primary subject of the development permit). Failure to exercise the building permit and to complete all of the construction under the building permit, resulting in the expiration of the building permit, will void the development permit, unless there are special circumstances as determined by the Planning Director.**

Approval Date: \_\_\_\_\_

Effective Date: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

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Appeals: Any property owner, or other person aggrieved, or any other person whose interests are adversely affected by any act or determination of the Zoning Administrator, may appeal the act or determination to the Planning Commission in accordance with chapter 18.10 of the Santa Cruz County Code.



HWY 1 &amp; 41ST SC1

PSL # 263384

2601 41ST AVENUE  
SOQUEL, CA 95073

ISSUE STATUS		REV	DATE	DESCRIPTION	BY
		0	02/02/18	90% ZONING	FR
		1	02/23/18	100% ZONING	FR
		2	02/23/18	FISER	FR
		3	02/23/18	100% ZONING	FR
		4	02/13/18	REVIEWED 100% ZONING	CM
		5	12/21/18	REVIEWED 100% ZONING	MS



**PROPRIETARY INFORMATION**  
THE INFORMATION CONTAINED IN THIS SET OF  
DRAWINGS IS PROPRIETARY & CONFIDENTIAL  
UNLESS NOTED OTHERWISE

**verizon** wireless

### **SMALL CELL PROJECT**

HWY 1 & 41ST  
SC1  
PSL # 263384  
2601 41ST AVENUE  
SOQUEL, CA 95073

**SHEET TITLE:**

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**811**  
Know what's below.  
Call before you dig.

CALL 811  
WWW.CALL811.COM

CONTRACTOR TO CALL TO  
MARK UTILITIES AND  
LOCATE PIPES AND  
CABLE PRIOR TO DIGGING

SHEET	DESCRIPTION	REV
T-1	TITLE SHEET	0
C-1	SITE SURVEY -	0
C-2	SITE SURVEY	0
A-1	BOTTOM PLAN	6
A-2	ROOF PLAN, EQUIPMENT & ANTENNA LAYOUT	6
A-3	SOUTH/EAST ELEVATIONS	5
A-4	DETAILS	6
	ZONING DRAWINGS - NOT FOR CONSTRUCTION	

SAC WIRELESS SIGNATURE BLOCK		
EMPLOYEE NAME	EMPLOYEE	DATE
WIRELESS ACCOUNT FOR		
PLANT/STATE		
CONSTRUCTION		
LAND/ORD		

<b>PROJECT SUMMARY</b>		<b>ASSessor's PARCEL NUMBER</b> 006-191-0-00 1-00-91-44	
<b>APPLICANT/LESSEE</b> 		<b>GEODETIC COORDINATES</b> NAD 83 114.075000 (Easting) 49.000000 (Northing) 114.075000 (Easting) 49.000000 (Northing) (SARCE OF 15 MINUTES)	
<b>APPLICANTS REPRESENTATIVE</b> SAC WIRELESS LLC 10000 WILLOW LAKE BLVD D WILLOW LAKE, CALIF 94095 OFFICE (925) 239-6000		<b>PROPERTY OWNER</b> DOWNEY 37700 DOWNEY CENTER DR DOWNEY, CA 90244 (714) 291-1111 TELEPHONE (916) 284-3488	
<b>PROPERTY INFORMATION:</b> SITE NAME: HWY 1 & 4TH ST SITE ADDRESS: 2001 HWY 4 CITY ADDRESS: 2001 HWY 4 JURISDICTION: COUNTY OF SANTA CLARA		<b>CONSTRUCTION INFORMATION:</b> AREA OF CONSTRUCTION: 6500 SQUARE FEET OCCUPANCY: V TYPE OF CONSTRUCTION: COMMERCIAL CURRENT ZONING: COMMERCIAL ASSUMES ALL REQUIREMENTS: VARIATION, ACCESSIBILITY NOT REQUIRED	

**GENERAL CONTRACTOR NOTES**

DO NOT SCALE DRAWINGS IF NOT FULL SIZE (X=1)

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
1. 2013 CALIFORNIA ADMINISTRATIVE CODE 2. 2013 CALIFORNIA BUILDING CODE 3. 2013 CALIFORNIA ELECTRICAL CODE 4. 2013 CALIFORNIA FIRE CODE 5. LOCAL AND COUNTY ORDINANCES

[illegible]

**DRIVING DIRECTIONS**

TO: 2001 41ST AVENUE  
BOONVILLE, CA 96003

FROM: 2786 MITCHELL DR.  
WALNUT CREEK, CA 94596

1. NORTH ON MITCHELL, LANE TOWARD CAMP ROCK LANE
2. TURN RIGHT ONTO CAMP ROCK LANE
3. TURN LEFT ONTO GROVE ROAD
4. MAKE LEFT 180 DEGREE TURN LEFT ONTO THE INTERSTATE 680 RAMP TO SAN JOSE
5. MERGE ONTO 680
6. MERGE ONTO 680
7. TAKE EXIT 10A FOR SAN JOSE ROUTE AND YAMHAGEN RD
8. NEED LEFT AT THE FLOW FOLLOW SIGN FOR INTERSTATE 680 SAN JOSE AND MERGE ONTO 680 B
9. TAKE EXIT 8 FOR CAMP ROCK 1A
10. TAKE RIGHT ONTO CAMP ROCK 1A
11. TAKE RIGHT ONTO 41ST AVE
12. TURN LEFT ONTO 41ST AVE

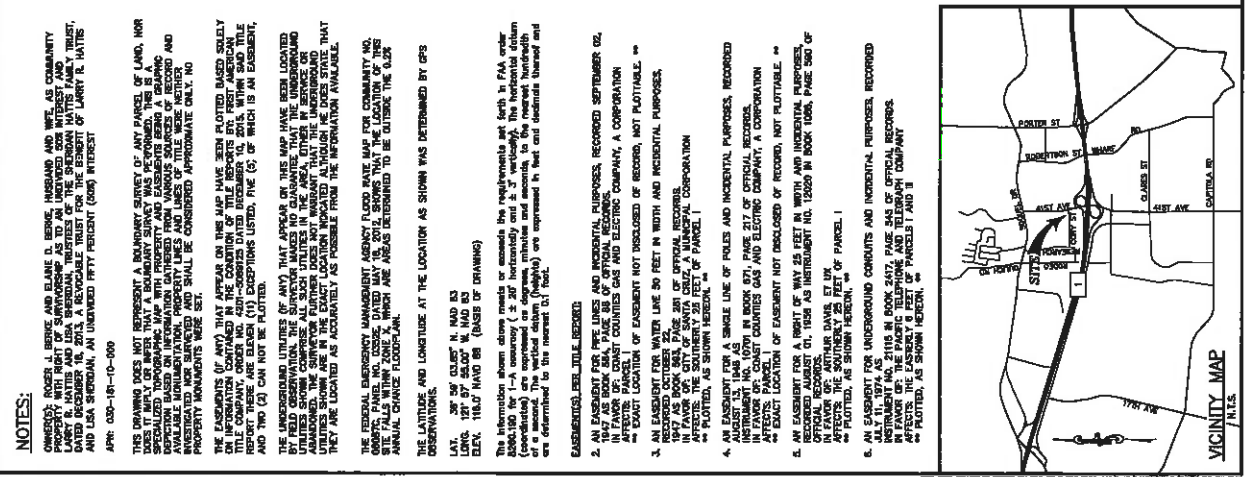
[illegible]

## PROJECT TEAM

<b>SITE ACQUISITION</b>	<b>PLANNING</b>	<b>UTILITY COORDINATOR:</b>
SAC WIRELESS, LLC 10000 WILSON AVE. LAKE BRIDGE, MD CONTACT: TONY CAHILL TELEPHONE: (202) 741-6729 E-MAIL: TONY@SACWIRELESS.COM	SAC WIRELESS, LLC 10000 WILSON AVE. LAKE BRIDGE, MD CONTACT: TONY CAHILL TELEPHONE: (202) 741-6729 E-MAIL: TONY@SACWIRELESS.COM	SAC WIRELESS, LLC 10000 WILSON AVE. LAKE BRIDGE, MD CONTACT: TONY CAHILL TELEPHONE: (202) 741-6729 E-MAIL: TONY@SACWIRELESS.COM
<b>ARCHITECT:</b>		
WILLIAMSON BROS. ARCHITECTS, P.A. 5015 SHORHAM PL., SUITE 150 DALLAS, TX 75219 CONTACT: JUDY KILGUS TELEPHONE: (972) 352-8855 FAX: (972) 352-3271		
<b>ENGINEER:</b>		
P.O. BOX 6100 DALLAS, TX 75261 CONTACT: DESSA SMITH, P.E. TELEPHONE: (972) 353-5171		

VERIZON WIRELESS SIGNATURE		
DISCIPLINE	SIGNATURE	DATE
SITE ACQUISITION		
CONSTRUCTION		
RADIO		
MICROWAVE		
TELCO		
EQUIPMENT		
PROJECT ADMINISTRATOR		
VO ADMINISTRATOR		



C-1








### ISSUE STATUS

REV	DATE	DESCRIPTION	BY
0	05/07/18	ISSUE 0000	FR
1	05/07/18	ISSUE 0001	FR
2	05/07/18	ISSUE 0002	FR
3	05/07/18	ISSUE 0003	FR
4	05/07/18	ISSUE 0004	FR
5	05/07/18	ISSUE 0005	FR



**Verizon Wireless**

2705 MITCHELL DRIVE, BLDG 9  
WALNUT CREEK, CA 94598

**Verizon Wireless**

2705 MITCHELL DRIVE, BLDG 9  
WALNUT CREEK, CA 94598

**SMALL CELL PROJECT**

**HWY 1 & 41ST**

**SC1**

**PSL # 263384**

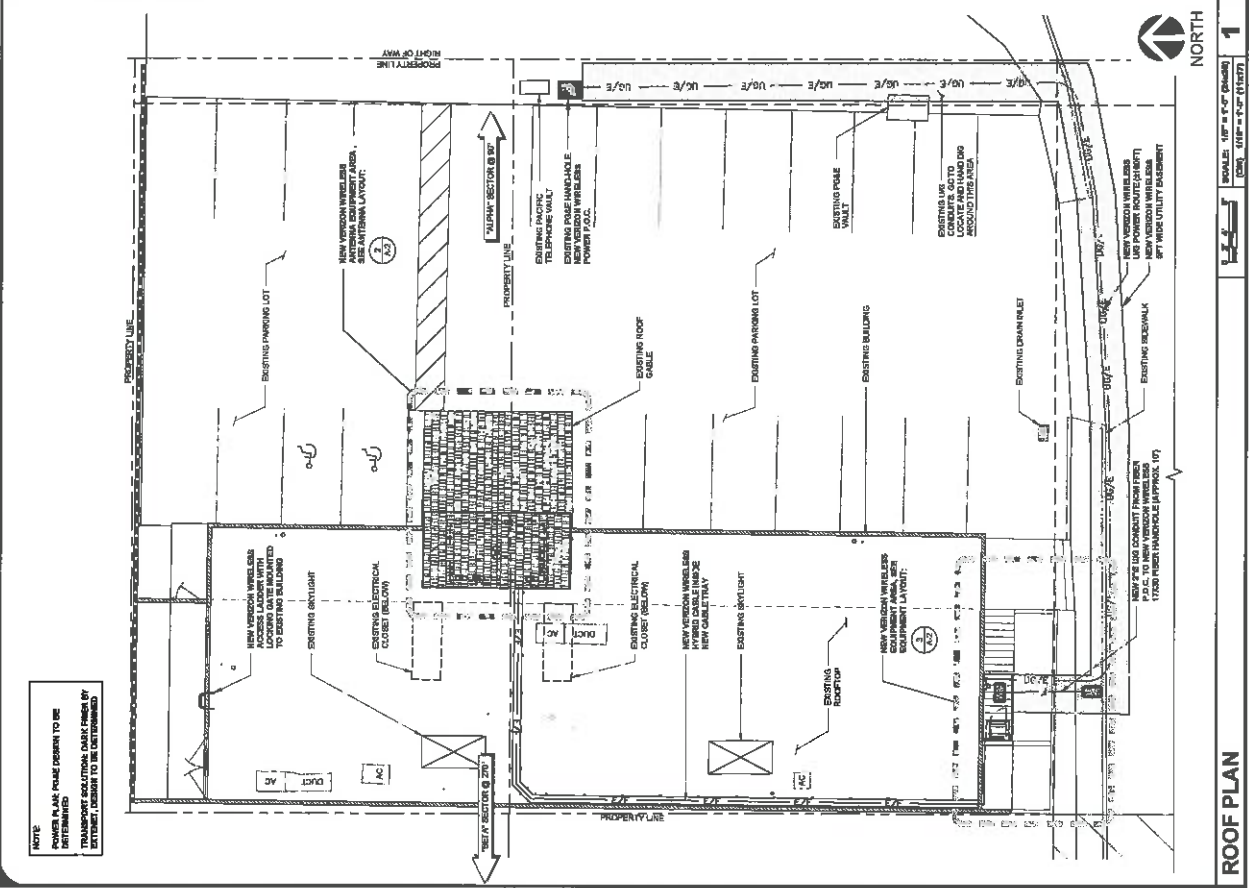
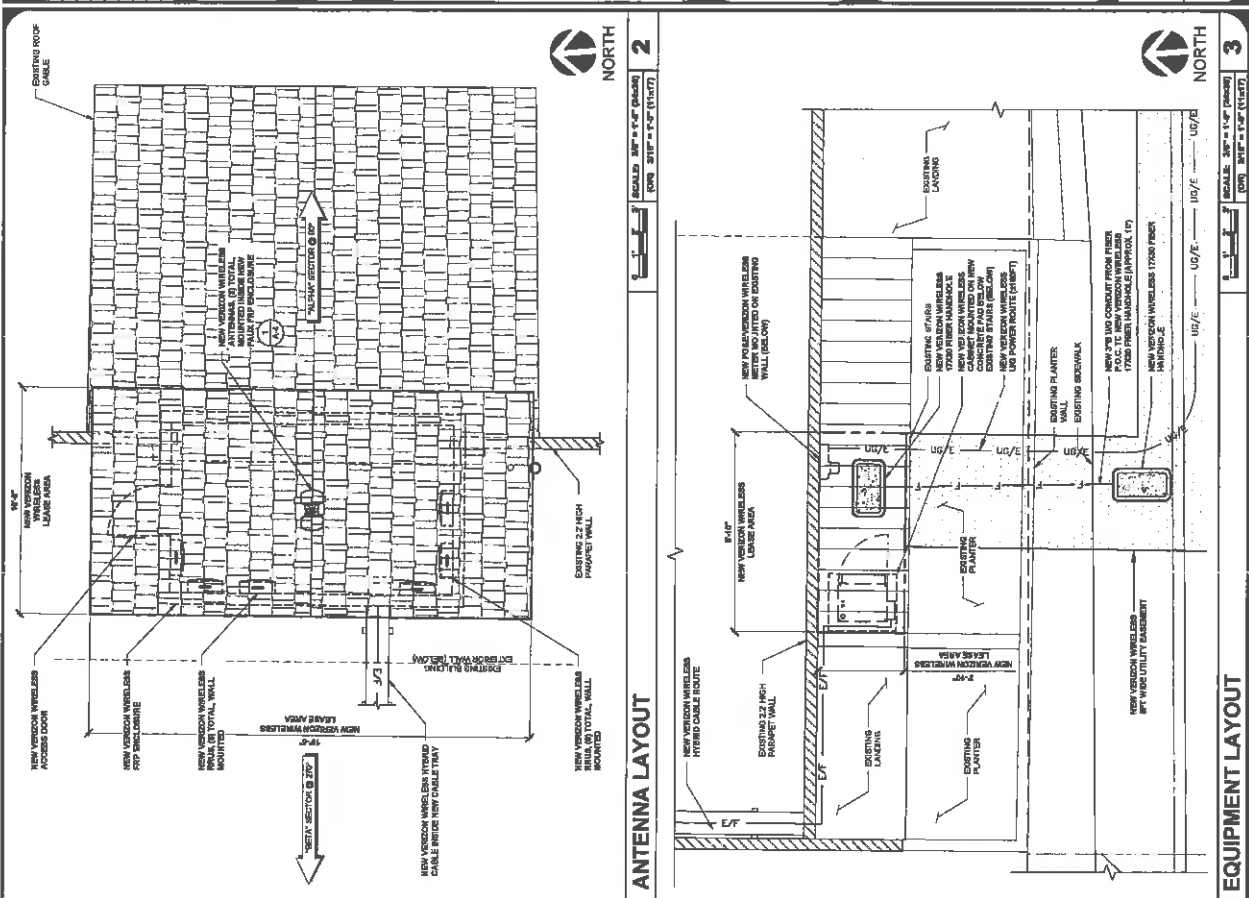
**2601 41ST AVENUE**

**SOURCE, CA 95073**

**SHEET TITLE:**

**ROOF PLAN, ANTENNA & EQUIPMENT LAYOUT**

**A-2**



ISSUE STATUS		REV	DATE	DESCRIPTION	BY
		0	03/05/10	90% ZONING	FR
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		2	06/02/10	FEEB	FR
		3	08/25/10	100% ZONING	FR
		4	09/13/10	REVISIED 100% ZONING	CM
		5	10/31/10	REVISIED 100% ZONING	MB



**PROPRIETARY INFORMATION**  
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VERIZON WIRELESS

ANY USE OR DISCLOSURE OTHER THAN AS IT  
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verizon  
wireless

2776 MITCHELL DRIVE, BLDG 9  
WALNUT CREEK, CA 94598

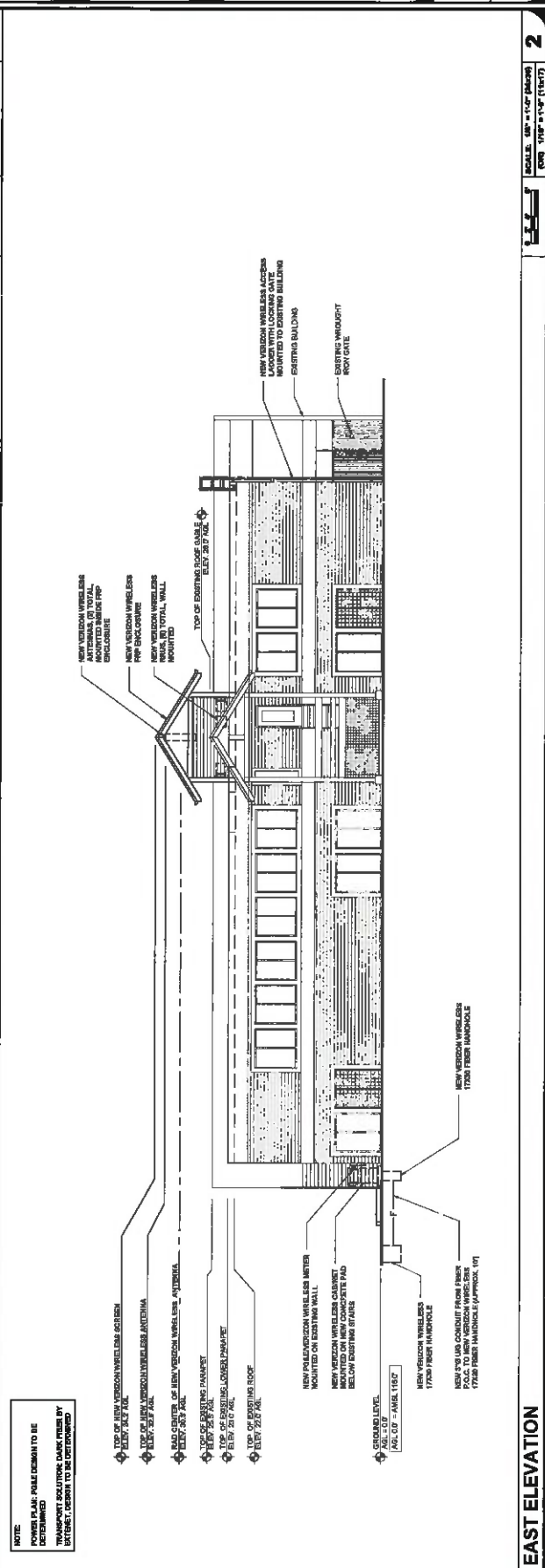
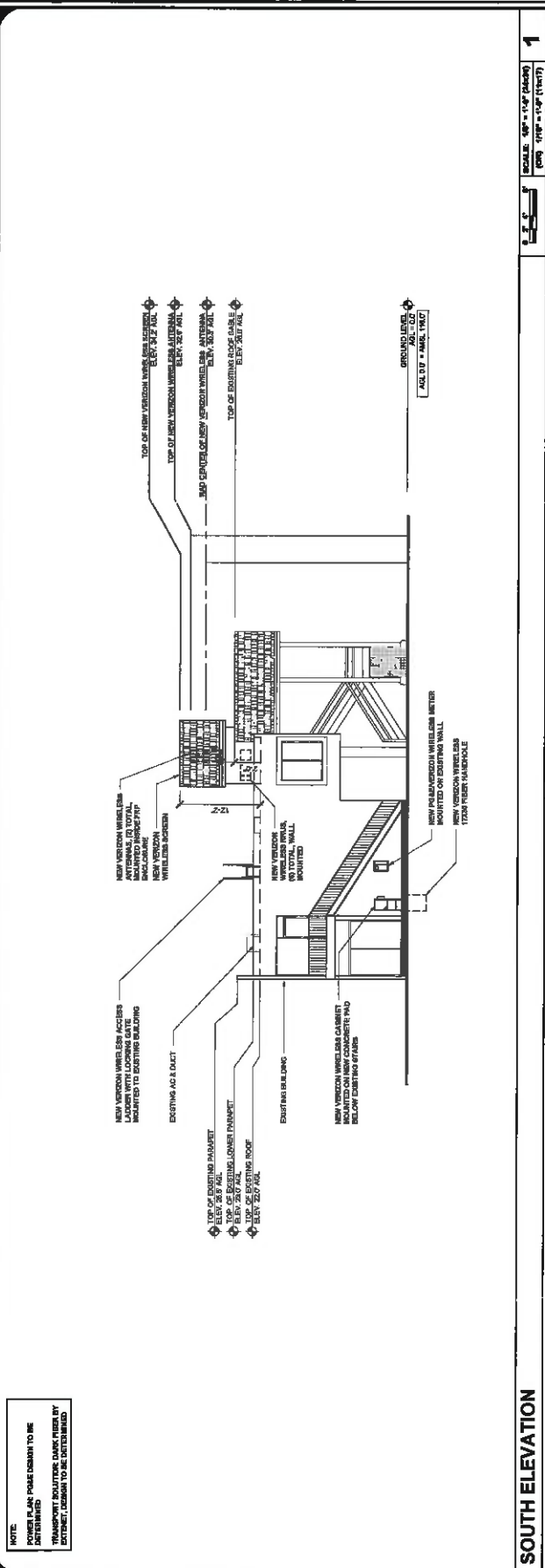
## SMALL CELL PROJECT



HWY 1 & 41ST  
SC1  
PSL # 263384  
2801 41ST AVENUE  
SOQUEL, CA 95073

**SHEET TITLE:**  
**SOUTH & EAST  
ELEVATIONS**

A-3







PSL # 263384

2601 41ST AVENUE  
SOQUEL, CA 95073

ISSUE STATUS			BY	DESCRIPTION
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4	3	06/29/18	FR	100% ZONING
5	4	04/15/19	COM	REVISED 100% ZONING
6	5	10/31/18	IND	REVISED 100% ZONING



8017 JORDANA PL. SUITE 150  
SAN DIEGO, CA 92121  
WWW.BCMW.NET  
619.738.3766

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**Verizon** wireless

22765 MITCHELL DRIVE, BLDG 9  
WALNUT CREEK, CA 94598

SMALL CELL PROJECT

HWY 1 & 41ST  
SC1  
PSL # 263384  
2601 41ST AVENUE  
SOQUEL, CA 95073

**SHEET TITLE:**

**TITLE SHEET**

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[illegible]

SAC WIRELESS SIGNATURE BLOCK		
DISCIPLINE	AGENT/PIE	DATE
SITE ACQUISITION		
PLANNER		
CONSTRUCTION		
LAUNCH/ORD		

<b>PROJECT SUMMARY</b>	<b>APPLICANT/LESSEE</b>	<b>ASSessor's PARCEL NUMBER</b> 000-00-000-000-00-047
<b>DEED/DEED COORDINATOR</b> LONG ELEVATION DATE OF SURVEY	<b>APPLICANT'S ADDRESS</b> 2000 METCALLE DRIVE, SUITE B WHEAT RIDGE, CA 94090 CONTACT: BOB TAYLOR	<b>ASSessor's PARCEL NUMBER</b> 000-00-000-000-00-047
<b>OWNER</b> LARRY HARTIS, ROGER BEARNE, ELAN D SOCIOL, CA 94070 TELEPHONE: (415) 326-5268	<b>APPLICANT'S ADDRESS</b> 1001 FERTILE LANE SACRAMENTO, CA 95815 CONTACT: JIMMY WILSON TELEPHONE: (916) 442-7272 CREDIT: CREDIT TRANSFER.COM	<b>APPLICANT'S ADDRESS</b> 1001 FERTILE LANE SACRAMENTO, CA 95815 CONTACT: JIMMY WILSON TELEPHONE: (916) 442-7272 CREDIT: CREDIT TRANSFER.COM
<b>PROPERTY INFORMATION:</b> SITE NAME SITE NUMBER SITE ADDRESS JURISDICTION	<b>PROPERTY INFORMATION:</b> HWY 1 & 1ST ST 2000 METCALLE DRIVE SOCIOL, CA 94070 COUNTY OF SANTA CLARA	<b>PROPERTY INFORMATION:</b> HWY 1 & 1ST ST 2000 METCALLE DRIVE SOCIOL, CA 94070 COUNTY OF SANTA CLARA
<b>ASSIGNMENT INFORMATION:</b> AREA OF CONTRIBUTION TYPE OF CONTRIBUTION CURRENT ZONING ACCESSIBILITY REQUIREMENTS	<b>ASSIGNMENT INFORMATION:</b> 2000 SQUARE FEET V COMMERCIAL FACILITY IS UNIMPAVED AND NOT FOR ABBANDON	<b>ASSIGNMENT INFORMATION:</b> 2000 SQUARE FEET V COMMERCIAL FACILITY IS UNIMPAVED AND NOT FOR ABBANDON

**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

VICINITY MAP

NOT TO SCALE

**DRIVING DIRECTIONS**

FROM 278 MITCHELL CIR  
NORTH CHESHAM, CA 94508

TO 3807 41ST AVENUE  
SUNNYVALE, CA 95088

1. TAKE SOUTH MAIN AVENUE SOUTH  
2. TURN RIGHT ONTO WANGD VALLEY ROAD  
3. TURN RIGHT ONTO WANGD VALLEY ROAD  
4. MAKE LEFT TURN  
5. MAKE LEFT TURN  
6. MAKE LEFT TURN  
7. TAKE LEFT AT THE FOLLOWS FLOW SIGN FOR INTERSTATE 580 AND SUNNYVALE AND MERGE  
8. CONTINUE ONTO CA 78  
9. TAKE LEFT AT THE CA 78  
10. TAKE LEFT AT THE CA 78  
11. TAKE LEFT AT THE CA 78  
12. TAKE LEFT AT THE CA 78

## PROJECT DESCRIPTION

THIS PROJECT IS A VISION WHERE DATA MANAGEMENT IS RECOMMENDED BY THE FACILITY. IT WILL CONSIST OF THE FOLLOWING:

- (1) NEW ATTENDANCE
- (1) NEW FIRST ENCLOSURE
- (1) NEW PRESS
- (1) NEW DELEGATE
- (1) NEW EQUIPMENT CABINET
- (1) NEW EQUIPMENT CABINET
- (1) NEW ACCESS UNDER W/ LOCKING DATE
- (1) NEW 100T REEF VALVES

## PROJECT TEAM

<b><u>SITE ACQUISITION</u></b>	<b><u>UTILITY COORDINATOR</u></b>
SAC WARELERS, LLC	SAC WARELERS, LLC
1881 PERTH AVE	1881 PERTH AVE
SACRAMENTO, CA 95814	SACRAMENTO, CA 95814
TEL: (916) 486-1234	TEL: (916) 486-1234
TELEPHONE: (916) 747-1725	CONTACT: CRAIG BRICE
CASBY COASTA TRANSCON.COM	TELEPHONE: (916) 486-3888

<b><u>ARCHITECT</u></b>	<b><u>SURVEYOR</u></b>
SAC WARELERS, LLC	DELICIOUS SURVEYING ENGINEERING
1881 PERTH AVE	1881 PERTH AVE
SACRAMENTO, CA 95814	SACRAMENTO, CA 95814
TEL: (916) 486-1234	TEL: (916) 486-1234
TELEPHONE: (916) 747-1725	CONTACT: JAMES J. JONES
CASBY COASTA TRANSCON.COM	TELEPHONE: (916) 486-1234

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### ISSUE STATUS

REV	DATE	DESCRIPTION	BY
0	03/04/16	100% ZONING	FE
1	03/04/16	100% ZONING	FE
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3	03/04/16	100% ZONING	FE
4	03/04/16	REVIEWED 100% ZONING	TM
5	03/04/16	REVIEWED 100% ZONING	TM



WTF P E L L S S  
1111 HERRING RD, SUITE 100  
SAN ANTONIO, TX 78204  
210.375.3786

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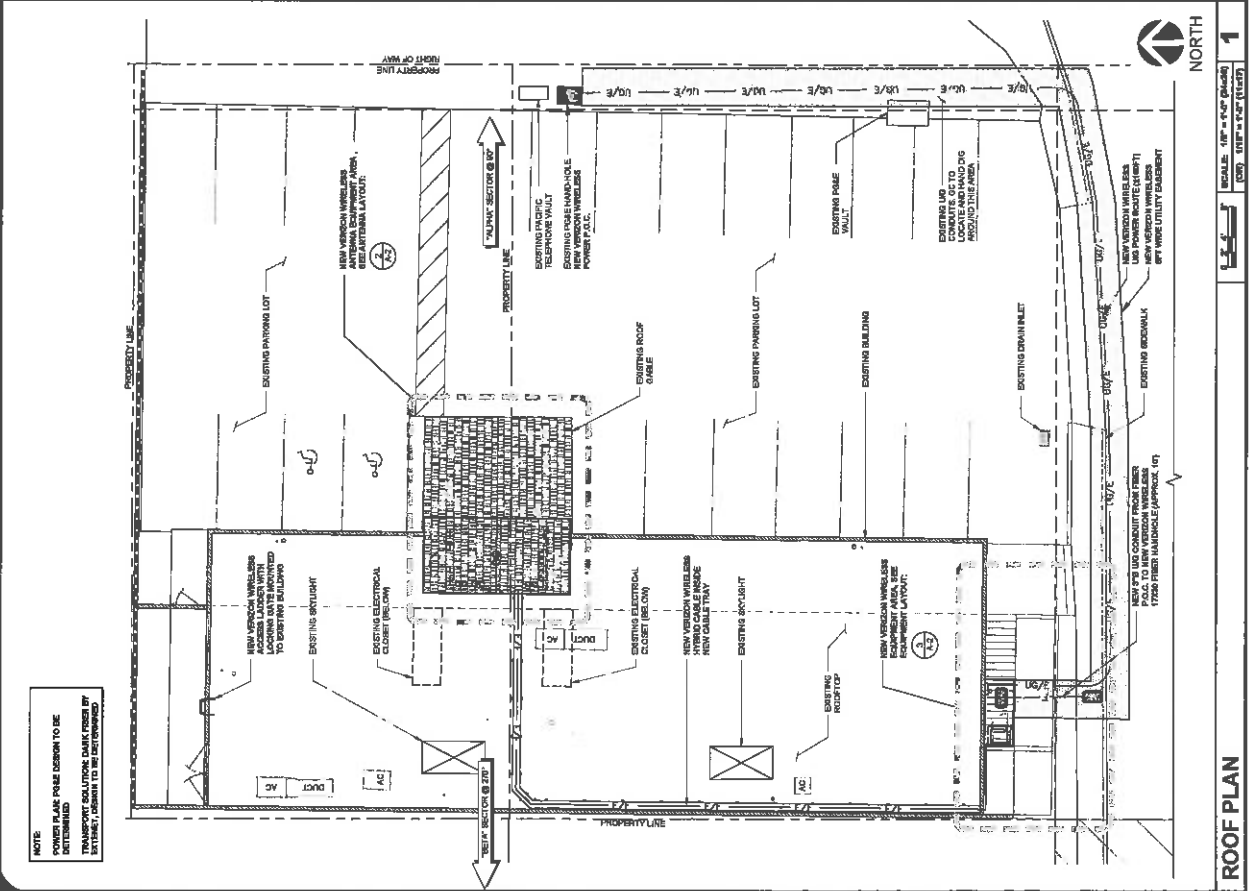
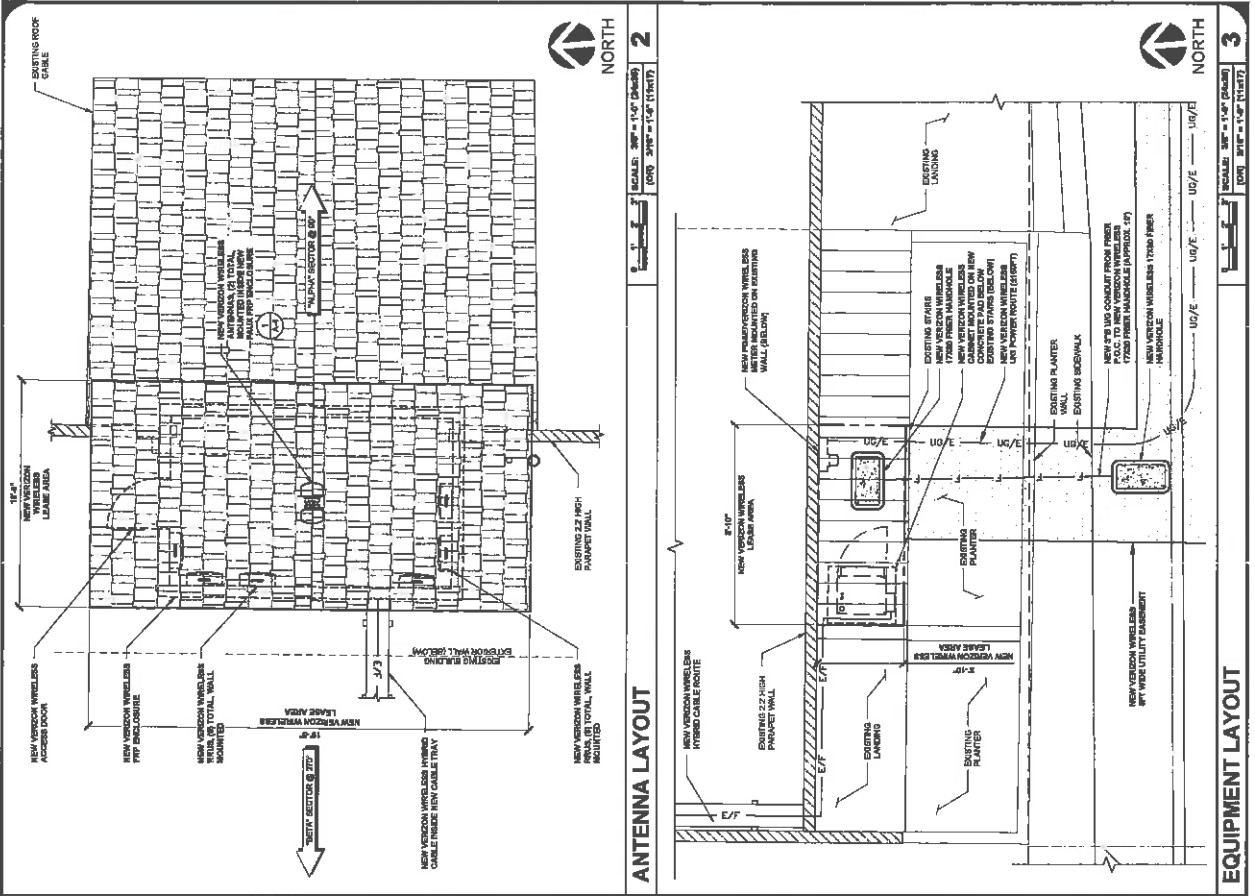
2705 MITCHELL DRIVE, BLDG 6  
WALTON CREEK, CA 94598

SMALL CELL PROJECT

**HWY 1 & 41ST**  
**SC1**  
**PSL # 2633384**  
**2001 41ST AVENUE**  
**SOQUEL, CA 95073**

SHEET TITLE:  
**ROOF PLAN, ANTENNA & EQUIPMENT LAYOUT**

# A-2





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HWY 1 & 41ST SC1  
PSL # 263384  
2601 41ST AVENUE  
SOLVING, CA 95073



# VICINITY MAP PHOTOSIMULATION VIEWPOINTS



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THIS PHOTOSIMULATION IS INTENDED AS A GRAPHICAL REPRESENTATION OF EXISTING AND PROPOSED SITE CONDITIONS BASED ON THE PROJECT / DRAWING PLANS. IT IS NOT INTENDED FOR CONSTRUCTION. ACTUAL, FINAL CONSTRUCTION MAY VARY



**verizon**  
HWY 1 & 41ST SC1  
PSL # 263384  
2601 41ST AVENUE  
SOQUEL, CA 95073

**PHOTOSIMULATION VIEWPOINT 1**

**NEW**





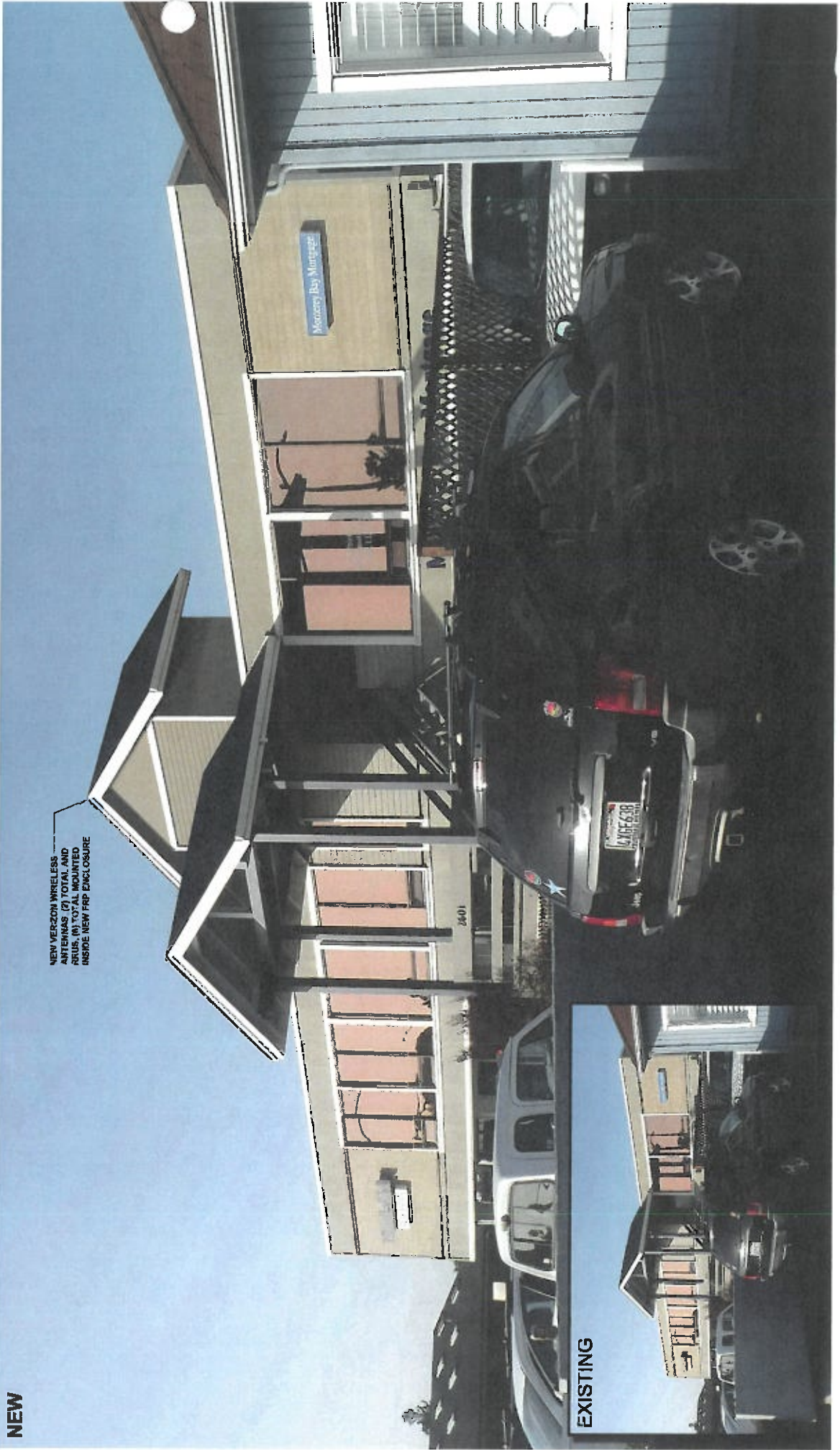
HWY 1 & 41ST SC-1  
PSL # 283384  
2601 41ST AVENUE  
SQUEL, CA 95073

**verizon**

**PHOTOSIMULATION VIEWPOINT 2**

**NEW**

NEW VERIZON WIRELESS  
ANTENNAS (2) TOTAL AND  
RRUS, (M) TOTAL MOUNTED  
INSIDE NEW FRP ENCLOSURE



**EXISTING**





PHOTOSIMULATION VIEWPOINT 3



**Verizon Wireless • Proposed Base Station (Site No. 263384 “Hwy 1 & 41st Ave SC1”)  
2601 41st Avenue • Soquel, California**

**Statement of Hammett & Edison, Inc., Consulting Engineers**

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate the base station (Site No. 263384 “Hwy 1 & 41st Ave SC1”) proposed to be located at 2601 41st Avenue in Soquel, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

**Executive Summary**

Verizon proposes to install directional panel antennas above the roof of the two-story office building located at 2601 41st Avenue in Soquel. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy; certain mitigation measures are recommended to comply with FCC occupational guidelines.

**Prevailing Exposure Standards**

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5–80 GHz	5.00 mW/cm <sup>2</sup>	1.00 mW/cm <sup>2</sup>
WiFi (and unlicensed uses)	2–6	5.00	1.00
BRS (Broadband Radio)	2,600 MHz	5.00	1.00
WCS (Wireless Communication)	2,300	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.40	0.48
[most restrictive frequency range]	30–300	1.00	0.20

**General Facility Requirements**

Base stations typically consist of two distinct parts: the electronic transceivers (also called “radios” or “channels”) that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A



**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

H7I2.2  
Page 1 of 4

**Verizon Wireless • Proposed Base Station (Site No. 263384 “Hwy 1 & 41st Ave SC1”)  
2601 41st Avenue • Soquel, California**

small antenna for reception of GPS signals is also required, mounted with a clear view of the sky. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

### **Computer Modeling Method**

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

### **Site and Facility Description**

Based upon information provided by Verizon, including zoning drawings by SAC Wireless, LLC, dated October 31, 2016, it is proposed to install two Andrew Model SBNHH-1D65A directional panel antennas within a roofed view screen enclosure to be constructed above the east side of the two-story office building located at 2601 41st Avenue in Soquel. The two antennas would employ no downtilt, would be mounted at an effective height of about 30 feet above ground, 8 feet above the main roof, and would be oriented toward 90°T and 270°T. The maximum effective radiated power in any direction would be 9,010 watts, representing simultaneous operation at 4,100 watts for AWS, 4,020 watts for PCS, and 890 watts for 700 MHz service; no operation on cellular frequencies is presently proposed from this site. There are reported no other wireless telecommunications base stations operating at or near the site.

### **Study Results**

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.066 mW/cm<sup>2</sup>, which is 7.2% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building\* is 1.7% of the public exposure limit. It should be noted that these results include several “worst-case” assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

---

\* Including the residences located at least 50 feet away, based on photographs from Google Maps.



**Verizon Wireless • Proposed Base Station (Site No. 263384 "Hwy 1 & 41st Ave SC1")  
2601 41st Avenue • Soquel, California**

Levels may exceed the applicable public exposure limit on the roof of the subject building, in front of the antennas.

**Recommended Mitigation Measures**

Due to their mounting location, requiring specialized equipment or a climb up an exterior, locked ladder to reach the roof, the Verizon antennas would not be accessible to unauthorized persons, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training, to include review of personal monitor use and lockout/tagout procedures, be provided to all authorized personnel who have access to the roof, including employees and contractors of Verizon and of the property owner. No access within 19 feet directly in front of the Verizon antennas themselves, such as might occur during certain maintenance activities above the main roof or on the roof over the exterior staircase, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. It is recommended that boundary lines be marked on the roof with blue paint to identify the area on the main roof in which exposure levels are calculated to exceed the public limit, as shown in Figure 3. It is recommended that explanatory signs<sup>†</sup> be posted at the roof access ladder, at the boundary lines, on the roof over the staircase, and on the antenna enclosure in front of the antennas, readily visible from any angle of approach to persons who might need to work within that distance.

**Conclusion**

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the base station proposed by Verizon Wireless at 2601 41st Avenue in Soquel, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training authorized personnel, marking roof areas, and posting explanatory signs are recommended to establish compliance with occupational exposure limits.

---

<sup>†</sup> Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.



**Verizon Wireless • Proposed Base Station (Site No. 263384 "Hwy 1 & 41st Ave SC1")  
2601 41st Avenue • Soquel, California**

**Authorship**

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2017. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.



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

January 5, 2017



**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

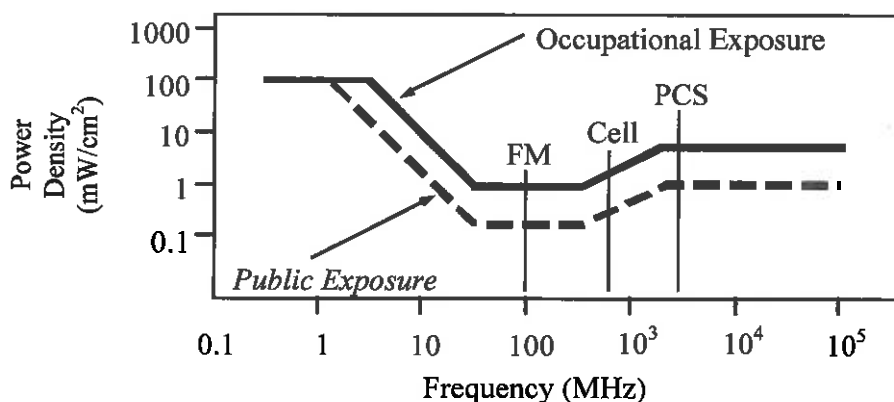
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Page 4 of 4

## FCC Radio Frequency Protection Guide

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements ("NCRP"). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

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

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



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has built those formulas into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radio sources. The program allows for the description of buildings and uneven terrain, if required to obtain more accurate projections.



**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

FCC Guidelines  
Figure 1



## RFR.CALC™ Calculation Methodology

### Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

#### Near Field.

Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density  $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$ , in mW/cm<sup>2</sup>,

and for an aperture antenna, maximum power density  $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$ , in mW/cm<sup>2</sup>,

where  $\theta_{BW}$  = half-power beamwidth of the antenna, in degrees, and

$P_{net}$  = net power input to the antenna, in watts,

$D$  = distance from antenna, in meters,

$h$  = aperture height of the antenna, in meters, and

$\eta$  = aperture efficiency (unitless, typically 0.5-0.8).

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

#### Far Field.

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

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

where ERP = total ERP (all polarizations), in kilowatts,

RFF = relative field factor at the direction to the actual point of calculation, and

$D$  = distance from the center of radiation to the point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radiation sources. The program also allows for the description of uneven terrain in the vicinity, to obtain more accurate projections.



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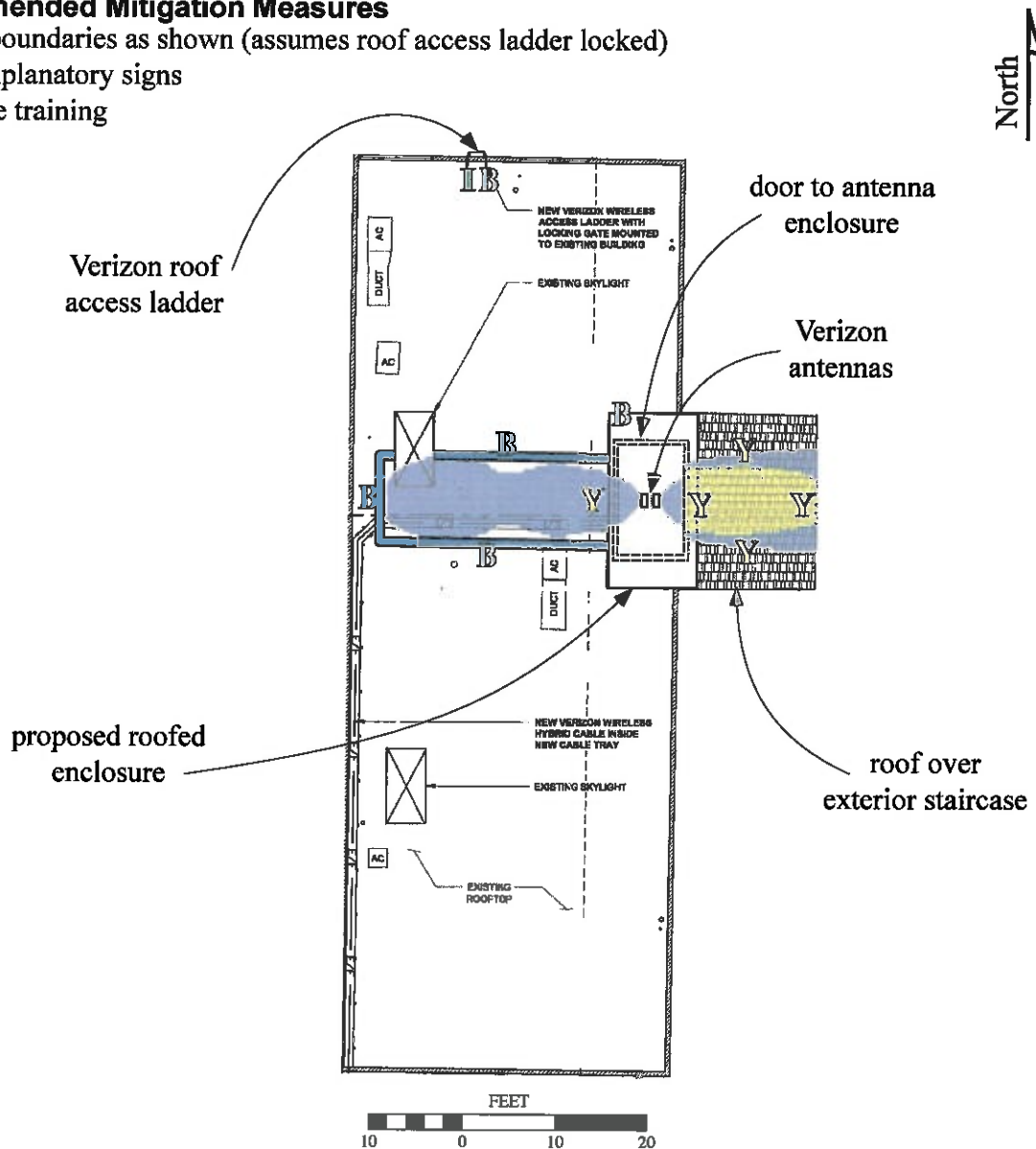
Methodology  
Figure 2

**Verizon Wireless • Proposed Base Station (Site No. 263384 "Hwy 1 & 41st Ave SC1")  
2601 41st Avenue • Soquel, California**

**Calculated RF Exposure Levels on Roof**

**Recommended Mitigation Measures**

- Mark boundaries as shown (assumes roof access ladder locked)
- Post explanatory signs
- Provide training



Notes: See text.

Base drawing from SAC Wireless, LLC, dated October 31, 2016.

Calculations performed according to OET Bulletin 65, August 1997.

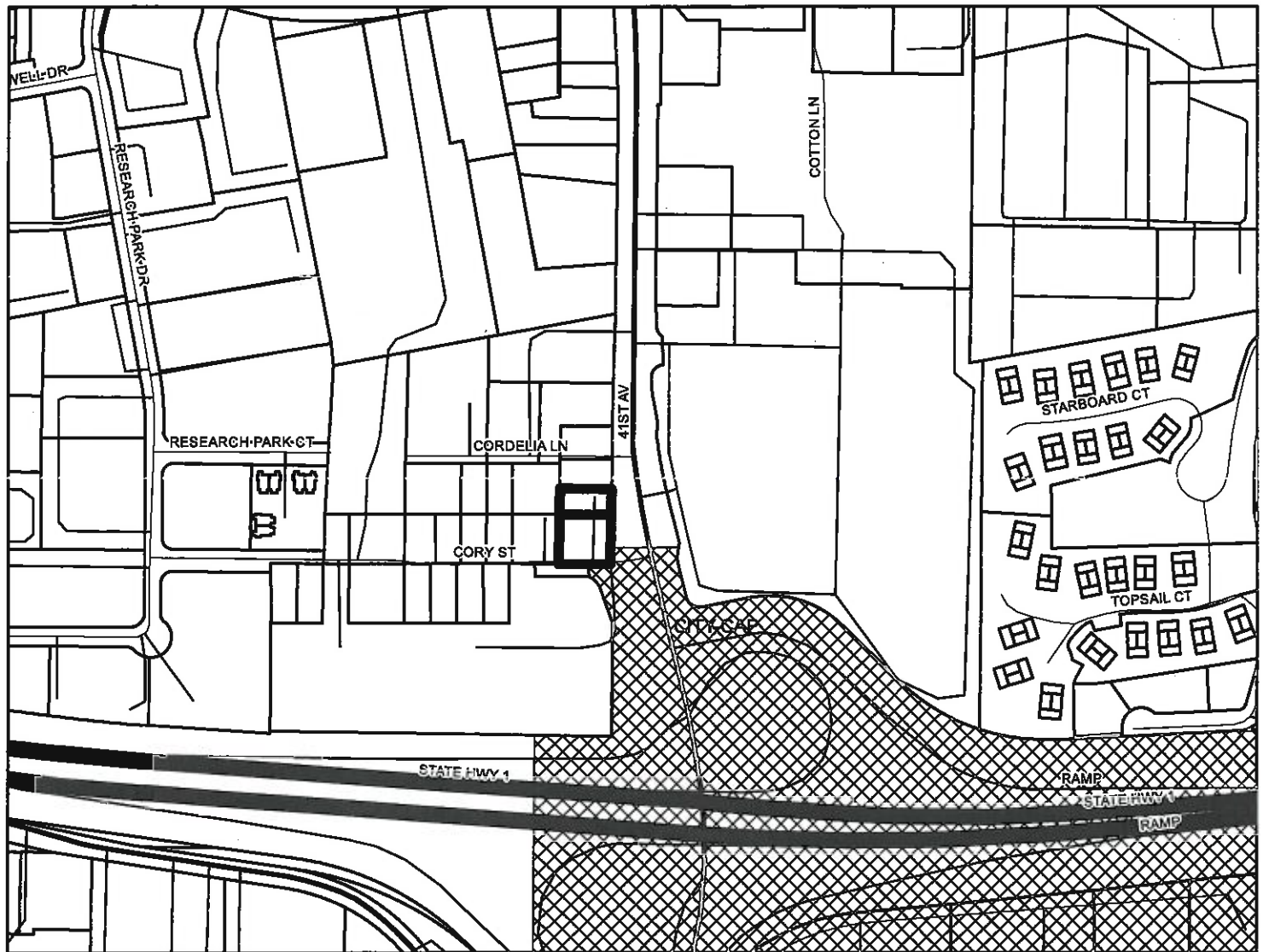
<b>Legend:</b>	Less Than Public	Exceeds Public	Exceeds Occupational	Exceeds 10x Occupational
Shaded color	blank	Blue	Yellow	Orange
Boundary marking	N/A	Blue line	Yellow line	Orange line
Sign type	II - Green INFORMATION	B - Blue NOTICE	Y - Yellow CAUTION	⓪ - Orange WARNING



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H712.2  
Figure 3

# Location Map



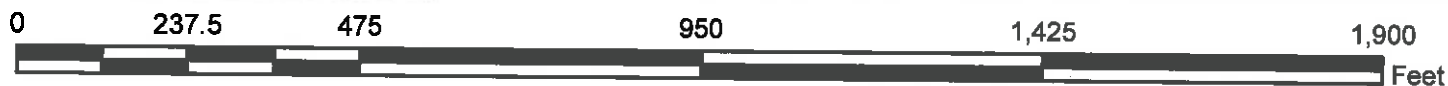
## Legend

-  Project Area
-  Assessors Parcels
-  State Highway
-  Major Road
-  Street
-  CITY OF CAPITOLA



*Map Created by  
County of Santa Cruz  
Planning Department  
December 2017*

# General Plan Designations



## Legend

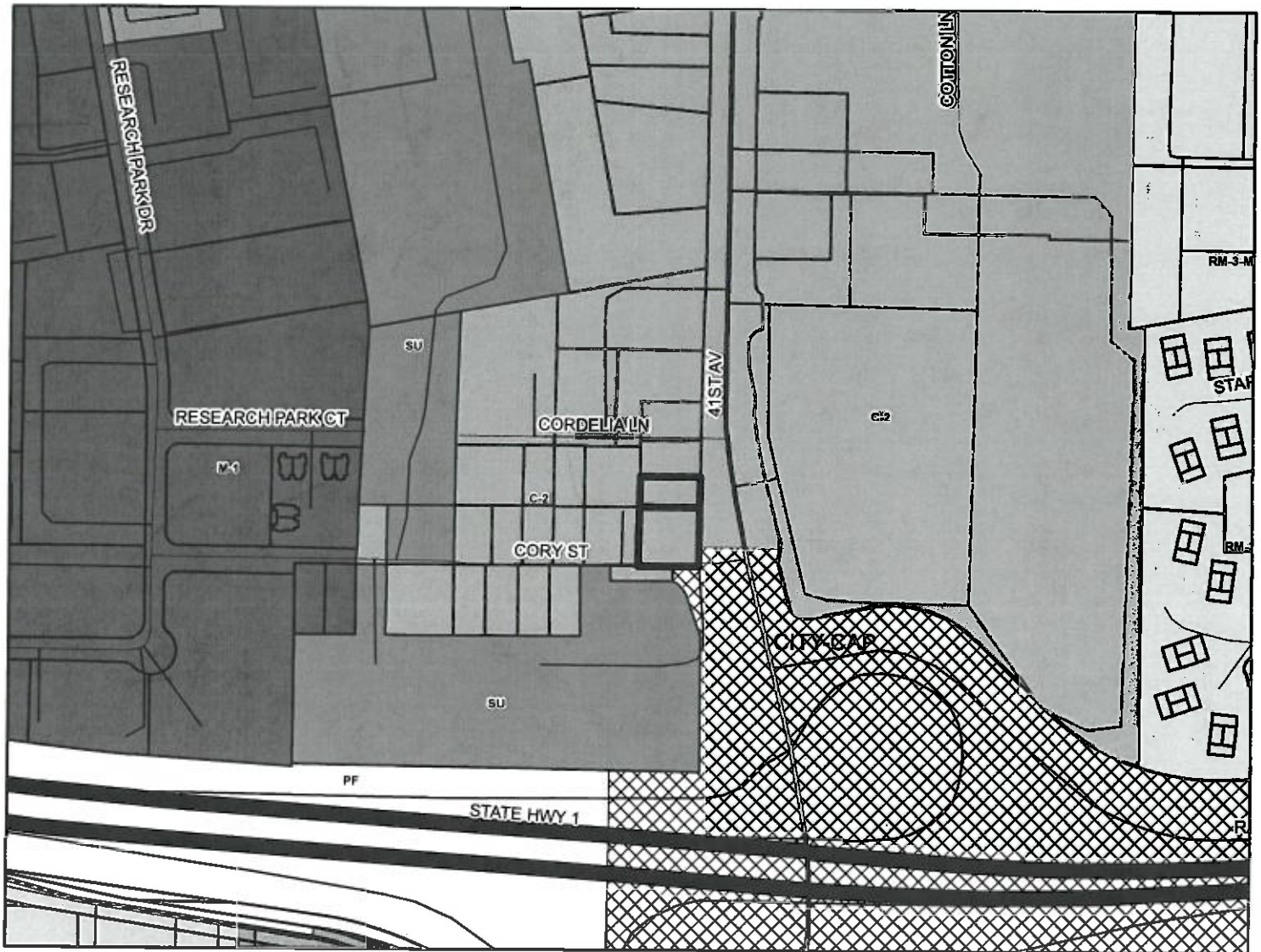
- Project Area
- Assessors Parcels
- State Highway
- Major Road
- Street
- Commercial-Service
- Commercial-Community
- Residential - Urban High Density
- CITY OF CAPITOLA



Map Created by  
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December 2017



# Zoning Designations



## Legend

- Project Area
- Assessors Parcels
- State Highway
- Major Road
- Street
- LIGHT INDUSTRIAL
- COMMERCIAL-COMMUNITY
- SPECIAL USE
- RESIDENTIAL-MULTI FAMILY
- CITY PROPERTY



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Planning Department  
December 2017