



**CITY OF SUNNYVALE  
REPORT  
Planning Commission**

**December 14, 2009**

**SUBJECT:**           **2009-0522 - Clearwire LLC** [Applicant] **Pacific Gas and Electric Co.** [Owner]: Application for a project located at **757 Lois Avenue** in an R-0 (Low Density Residential) Zoning District (APN: 198-25-010)

Motion               **Use Permit** to allow third wireless telecommunications carrier to add three panel antennas and three microwave dishes on an existing lattice tower and associated ground equipment.

Motion               **Variance** to allow a 6' extension of the lattice tower.

**REPORT IN BRIEF**

**Existing Site Conditions**           Pacific Gas and Electric (PG&E) right-of-way with high-tension power lines.

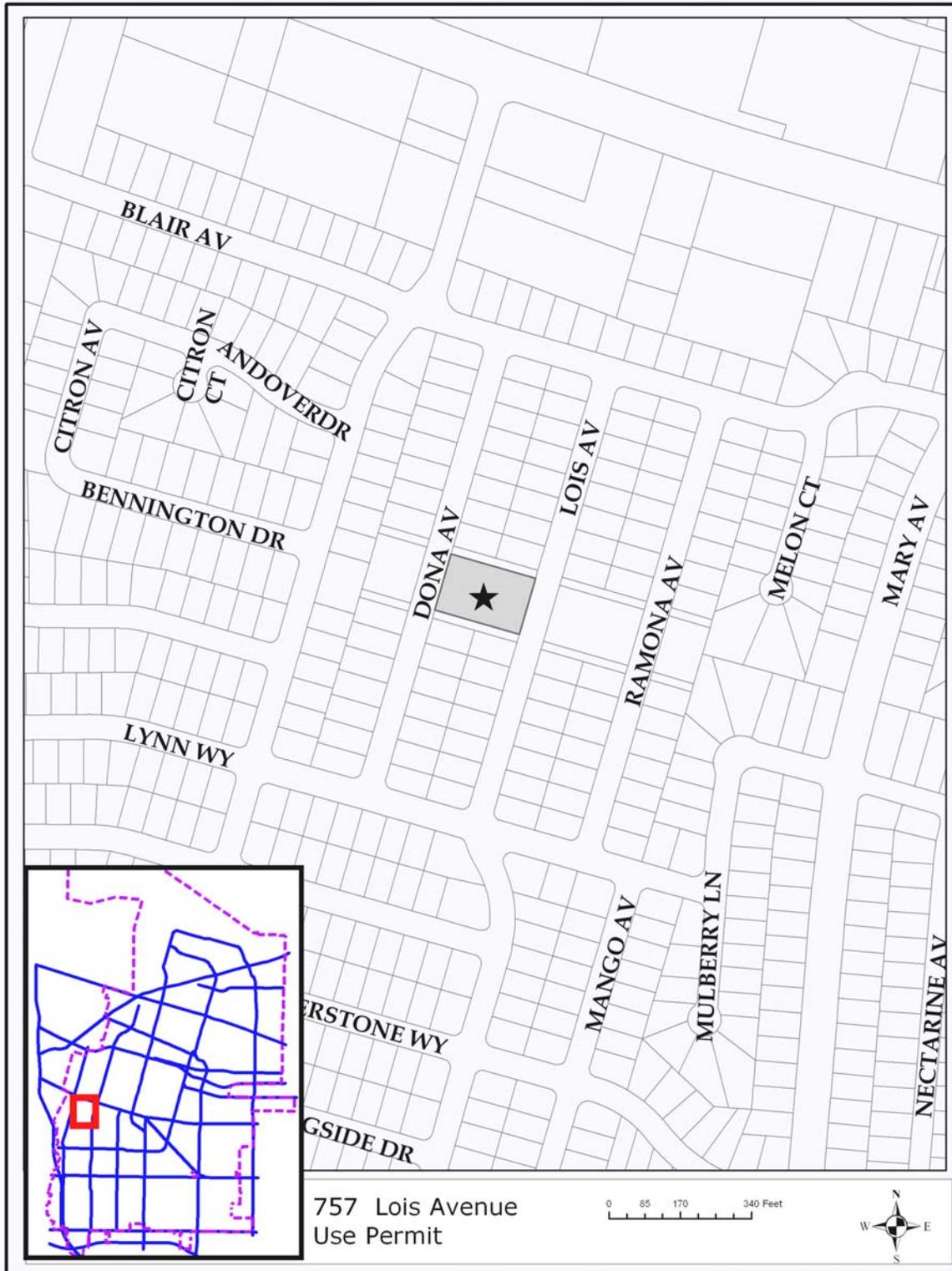
**Surrounding Land Uses**

North	Single-family homes
South	Single-family homes
East	PG&E right-of-way & Single-family homes
West	PG&E right-of-way & Single-family homes

**Issues**                               Visual impacts and variance findings

**Environmental Status**           A Class 1 Categorical Exemption relieves this project from California Environmental Quality Act provisions and City Guidelines.

**Staff Recommendation**           Approve Use Permit with modified location, and Deny Variance



**PROJECT DATA TABLE**

	<b>EXISTING</b>	<b>PROPOSED</b>	<b>REQUIRED/ PERMITTED</b>
<b>General Plan</b>	Residential Low Density	Same	Residential Low Density
<b>Zoning District</b>	R-0	Same	R-0
<b>Lot Size (s.f.)</b>	29,400	Same	6,000 min.
★ <b>Height of Lattice Tower (ft.)</b>	116'-9"	122'-9"	55' max. w/out a Variance
<b>Setbacks to Equipment Enclosure</b>			
<b>Front (Lois)</b>	44'	Same	N/A
<b>Left Side</b>	26'	Same	N/A
<b>Right Side</b>	94'	Same	N/A
<b>Rear (Donna)</b>	114'	Same	N/A

★ Starred items indicate deviations from Sunnyvale Municipal Code requirements.

**ANALYSIS****Description of Proposed Project**

The site currently contains two PG&E lattice towers. The proposed project is to allow the collocation of three panel antennas and three microwave dishes on the southerly tower (left side facing Lois). The tower is proposed to be raised 6 feet, resulting in a total height of 122 feet 9 inches. Additional ground equipment will be added near the base of the tower within an existing 6-foot 6-inch tall solid masonry enclosure. No generators are proposed as part of this application.

According to Sunnyvale Municipal Code (SMC) Section 19.54.080, telecommunications projects in residential zoning districts involving three or more facilities or carriers on a single site require a major Use Permit. The proposed project would result in the third telecommunication facility on this existing tower; therefore Planning Commission review is required for this project.

The proposed project requires a Variance to exceed the maximum height requirements for the area, which is 55 feet. A "top hat" extension is requested to allow for greater coverage area due to height and line of site. The microwave dishes are necessary to the wireless services that Clearwire provides, as they link all Clearwire sites together by providing point-to-point connections.

**Background**

**Previous Actions on the Site:** The following table summarizes previous planning applications related to the subject site for both existing lattice towers.

<b>File Number</b>	<b>Brief Description</b>	<b>Hearing/ Decision</b>	<b>Date</b>
2007-1242	MPP to allow six panel antennas and ground equipment on northerly tower (Verizon, formerly T-Mobile equipment).	Staff/Approved	12/20/2007
2004-0260	MPP to allow three panel antennas and ground equipment on southerly tower (Metro PCS).	Staff/Approved	5/05/20004

**Environmental Review**

A Class 1 Categorical Exemption relieves this project from California Environmental Quality Act provisions and City Guidelines. Class 1 Categorical Exemptions include minor additions to existing facilities.

**Use Permit & Variance**

**Site Layout:** The two existing towers are currently 116 feet 9 inches in height and are located on PG&E land within a single-family residential neighborhood. All proposed modifications are limited to the southerly tower, left side facing Lois (Attachment C).

**Design:** The proposed project is to extend the steel lattice tower by 6 feet in order to accommodate three 4-foot tall antennas and three 2-foot diameter microwave dishes. The total height proposed is 122 feet, where 55 feet is the maximum permitted within the R-0 Zoning district for wireless telecommunication sites.

The proposed equipment would extend out approximately 3 feet from the top hat and would be fitted as snug as possible. No modifications are proposed to the existing Metro PCS antennas located below the existing power lines. Staff recommends that all new equipment be painted to match the color of the tower (Attachment B).

Associated ground equipment consisting of a cabinet will be installed inside the existing 6-foot 6-inch tall masonry enclosure. The new cabinet will be screened to full height by the existing enclosure. A new 2-foot tall GPS antenna will be

mounted to the cabinet and will exceed the height of the existing enclosure by approximately 1 foot. No modifications are proposed to the existing enclosure. A permanent generator is not proposed at this time (Attachment B).

**Landscaping:** Existing landscaping consisting of trees and shrubs provide partial screening for the equipment enclosure along Lois and Donna Avenues. No changes are proposed to the existing landscaping.

**Parking/Circulation:** No additional parking is required for the proposed use.

**Radio Frequency (RF) Emissions Exposure:** The Federal Communications Commission (FCC) is the final authority on safety of telecommunications facilities. If the facility meets FCC standards, the City is not permitted to make additional judgments on health and safety issues. The applicant submitted a radio frequency (RF) exposure study conducted by Hammett & Edison, Inc. The study found that the individual exposure level for the Clearwire antennas will be 0.02% of the limit for general public exposure and 1.5% for all carriers on-site. The study also states that the microwave dishes make no significant contribution to the RF exposure. The project complies with Federal requirements (Attachment F).

**Visual Impacts and Project Alternatives:** The existing tower is partially screened by existing landscaping in the right-of-way area. However, the proposed project would increase the visibility of the tower along the street frontages and adjacent residential properties due to the visual bulk and massing of the antennas and microwave dishes installed on the 6-foot top hat extension (Attachment D).

Staff's recommended alternative design would be to mount the proposed equipment on the existing lattice tower below the power lines instead of extending the tower and conditioned as such in Attachment B. As indicated by the applicant, a minimum of 6 foot clearance must be maintained between the new equipment and the power lines. Staff finds that there is sufficient room under the power lines to accommodate this alternative design. However, this alternative may reduce overall coverage and limit the sight line connection of the microwave dishes. Therefore, the applicant is not in agreement with staff's recommended alternative design and proposes to move forward with the project as currently designed with a top hat extension.

**Compliance with Development Standards/Guidelines:** As previously discussed, the project complies with Federal requirements for RF exposure. The proposed height of 122 feet exceeds the height limit of 55 feet permitted within the R-0 Zoning district for wireless telecommunication sites. The project is also subject to the Sunnyvale wireless telecommunications regulations contained in SMC Section 19.54. In addition, the Code requires that the facility be designed

with sensitivity to the surrounding area. The following design standards apply to this project:

*19.54.40 (b) - All facilities shall be designed to minimize the visual impact to the greatest extent feasible, considering technological requirements, by means of placement, screening, and camouflage, to be compatible with existing architectural elements and building materials, and other site characteristics. The applicant shall use the smallest and least visible antennas possible to accomplish the owner/operator's coverage objectives.*

- The proposed antennas and microwave dishes would be mounted as snug as possible to the tower. However, the proposed top hat extension and added equipment will increase the visibility of the tower along the street frontages and neighboring residential properties. The project alternative to mount the new equipment below the existing power lines will help reduce visual impacts.

*19.54.40 (c) - SMC 19.54.040 - Colors and materials for facilities shall be chosen to minimize visibility. Facilities shall be painted or textured using colors to match or blend with the primary background*

- As recommended by staff, all new antennas and microwave dishes would be painted to match the existing lattice tower.

*19.54.40 (j) - All monopoles and lattice towers shall be designed to be the minimum functional height and width required to support the proposed antenna installation.*

- The proposed project will modify the height of the existing tower by six feet, which is the minimum necessary for antennas and microwave dishes if placed on top of the power lines. However, the project alternative would remove the need to extend the tower.

*19.54.40 (l) - In order of preference, ancillary support equipment for facilities shall be located either within a building, in a rear yard or on a screened roofs top area. Support equipment pads, cabinets, shelters and buildings require architectural, landscape, color, or other camouflage treatment for minimal visual impact.*

- All proposed ground equipment will be located within the existing masonry enclosure at the base of the tower. The proposed cabinet would be fully screened by the enclosure, while the GPS antenna would extend 1-foot over the enclosure.

## **Fiscal Impact**

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No fiscal impacts other than normal fees and taxes are expected.

## **Public Contact**

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Staff received several calls from neighbors inquiring about the project. No formal comments have been submitted by neighbors.

<b>Notice of Public Hearing</b>	<b>Staff Report</b>	<b>Agenda</b>
<ul style="list-style-type: none"> <li>• Published in the <i>Sun</i> newspaper</li> <li>• Posted on the site</li> <li>• 49 notices mailed to the property owners and tenants adjacent to the project site</li> </ul>	<ul style="list-style-type: none"> <li>• Posted on the City of Sunnyvale's web site</li> <li>• Provided at the Reference Section of the City of Sunnyvale's Public Library</li> </ul>	<ul style="list-style-type: none"> <li>• Posted on the City's official notice bulletin board</li> <li>• Posted on the City of Sunnyvale's web site</li> </ul>

## **Conclusion**

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**Applicant's Justifications:** The applicant has submitted justifications for the Variance (Attachment E). The applicant contends the following:

1. The existing tower already exceeds the maximum height permitted. Therefore, a denial of a Variance will limit the ability of PG&E to utilize the tower for collocation options in the future. In addition, PG&E is not regulated by the City of Sunnyvale, and therefore, may install a top hat in the future without City authorization. A letter was submitted by PG&E (Attachment G) describing their policy to encourage top hat extensions to allow for collocation opportunities.
2. The extension would not significantly change the overall appearance of the tower and the project would meet Federal RF requirements.
3. The City's wireless telecommunications ordinance encourages collocations, which this project would satisfy. A special privilege will not be granted, as there are already existing wireless carriers on the tower.

**Staff's Response:** Staff acknowledges that the California Public Utilities Commission has discretion over PG&E towers and that modifications or extensions for PG&E's purposes may be constructed without City review. However, the City retains jurisdictional authority of private wireless telecommunication facilities and their visual impacts. Staff has concerns regarding the bulk and massing of the antennas and microwave dishes being positioned on the top hat. Although the new equipment would be fitted as snug against the tower as much possible, staff finds that the alternative design to

mount the antennas and microwave dishes below the existing power lines would help reduce these concerns.

The Planning Commission recently denied a similar project located at 602 Weddell Drive due to inability to make Variance findings. Staff's recommendation would be consistent with establishes precedent.

**Findings and General Plan Goals:** Staff was able to make the required Findings based on the justifications for the Use Permit, but was not able to make the required findings for the Variance. Recommended Findings and General Plan Goals are located in Attachment A.

**Conditions of Approval:** If the project is approved, staff's Recommended Conditions of Approval are located in Attachment B.

### **Alternatives**

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1. Approve the Use Permit with attached conditions, and deny the Variance.
2. Approve the Use Permit with modified conditions, and deny the Variance.
3. Deny the Use Permit and Variance.

### **Recommendation**

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Alternative 1.

Prepared by:

Noren Caliva  
Project Planner

Reviewed by:

Steve Lynch  
Senior Planner

Attachments:

- A. Recommended Findings
- B. Recommended Conditions of Approval
- C. Site and Architectural Plans
- D. Photosimulations
- E. Letter from the Applicant & Use Permit Justifications
- F. RF Study
- G. Letter from PG&E

## **Recommended Findings – Use Permit**

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Goals and Policies that relate to this project are:

**Telecommunications Policy Goal B:** *Promote universal access to telecommunications services for all Sunnyvale citizens.*

**Land Use and Transportation Element Action Statement N1.1** – *Limit the intrusion of incompatible uses and inappropriate development into city neighborhoods.*

**Land Use and Transportation Element Policy N1.3** – *Support a full spectrum of conveniently located commercial public and quasi-public uses that add to the positive image of the city.*

1. The proposed use attains the objectives and purposes of the General Plan of the City of Sunnyvale.

The proposed project as conditioned for the alternative design will increase telecommunications coverage, while meeting federal emissions requirements for human exposure. In addition, the project would utilize an existing tower and would eliminate the need to build a new telecommunications facility elsewhere in the City. *[Finding met]*

2. The proposed use ensures that the general appearance of proposed structures, or the uses to be made of the property to which the application refers, will not impair either the orderly development of, or the existing uses being made of, adjacent properties.

Although the added equipment will be visible from the street frontage, the visual impact of placing the equipment below the existing power lines would be minimal as conditioned for the alternative design. All proposed ground equipment will be located inside an existing enclosure and would be minimally visible from the street frontage. In addition, the RF emissions resulting from the project are substantially below federal limits. *[Finding met.]*

## **Recommended Findings - Variance**

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In order to approve the Variance the following findings must be made:

1. Because of exceptional or extraordinary circumstances or conditions applicable to the property, or use, including size, shape topography, location or surroundings, the strict application of the ordinance is found to deprive the property owner of privileges enjoyed by other properties in the vicinity and within the same zoning district, **and**

There is nothing extraordinary about this property that would warrant an exception to the zoning height restriction. Alternatives exist that would remove the necessity to construct a top hat extension, such as staff's recommended design alternative to place the new equipment below the existing power lines. *[Finding not met.]*

2. The granting of the Variance will not be materially detrimental to the public welfare or injurious to the property, improvements, or uses within the immediate vicinity and within the same zoning district, **and**

The proposed top hat and equipment would add to the visual bulk and massing of the tower from the street frontages and neighboring residential properties. However, granting of the Variance would not be materially detrimental to the public welfare as the project would provide improved cellular service for the area and takes advantage of a collocation opportunity. *[Finding met.]*

3. Upon granting of the Variance, the intent and purpose of the ordinance will still be served and the recipient of the Variance will not be granted special privileges not enjoyed by other surrounding property owners within the same zoning district.

Staff was not able to find other Variances granted for PG&E tower extensions associated with wireless telecommunication facilities in Sunnyvale. The Planning Commission recently denied a similar project located at 602 Weddell Drive due to inability to make Variance findings. Staff's recommendation would be consistent with establishes precedent. *[Finding not met.]*

## **Standard Requirements**

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The following is a list of standard requirements. This list is intended to assist the applicant and public in understanding basic related requirements, and is not intended as an exhaustive list. These requirements cannot be waived or modified.

- A. **Testing Within 15 Days:** The applicant shall test any wireless telecommunications site installed in the City of Sunnyvale within 15 days of operating the tower. The test shall confirm that any Emergency 911 wireless call made through the wireless telecommunications site shall provide Enhanced 911 capability (including phase 2 information when available from the caller's device) and direct the call to the City of Sunnyvale Department of Public Safety dispatcher, ensuring phase 2 information is transferred. If the call is to be directed elsewhere pursuant to State and Federal law the applicant shall ensure that the Enhanced 911 information transfers to that dispatch center. This capability shall be routinely tested to ensure compliance as long as the approved wireless telecommunications site is in service.
- B. **Permit Expiration:** The Use Permit for the use shall expire if the use is discontinued for a period of one year or more.
- C. **Permit Lapse if not Exercised (Ordinance 2895-09):** The Use Permit shall be valid for three (3) years from the date of approval by the final review authority (as adopted by City Council on April 21, 2009, RTC 09-094). Extensions of time may be considered, for a maximum of two one year extensions, if applied for and approved prior to the expiration of the permit approval. If the approval is not exercised within this time frame, the permit is null and void.
- D. **Building Permits:** Obtain Building Permits.
- E. **Certification:** Before January 31 of each even numbered year following the issuance of any authorizing establishment of a wireless telecommunication facility, an authorized representative for each wireless carrier providing service in the City of Sunnyvale shall provide written certification to the City executed under penalty of perjury that (i) each facility is being operated in accordance with the approved local and federal permits and includes test results that confirm the facility meets city noise requirements and federal RF emissions standards; (ii) each facility complies with the then-current general and design standards and is in compliance with the approved plans; (iii) whether the facility is currently being used by the owner or operator; and (iv) the basic contact and site information supplied by the owner or operator is current.
- F. **Renewal:** Every owner or operator of a wireless telecommunication facility shall renew the facility permit at least every ten (10) years from the date of initial approval. If a permit or other entitlement for use is not

renewed, it shall automatically become null and void without notice or hearing ten (10) years after it is issued, or upon cessation of use for more than a year and a day, whichever comes first. Unless a new use permit or entitlement of use is issued, within one hundred twenty (120) days after a permit becomes null and void all improvements, including foundations and appurtenant ground wires, shall be removed from the property and the site restored to its original pre-installation condition within one hundred eighty (180) days of non-renewal or abandonment.

- G. **Comply with Applicable Regulations:** The facility must comply with any and all applicable regulations and standards promulgated or imposed by any state or federal agency, including but not limited to the Federal Communications Commission and Federal Aviation Agency.
- H. **RF Emissions:** Certification must be provided that the proposed facility will at all times comply with all applicable health requirements and standards pertaining to RF emissions.
- I. **RF Emissions Studies:** The applicant shall submit to the Director of Community Development Radio Frequency Emissions at least two reports of field measurements showing: 1.) The ambient level of RF emissions before construction of the facility and 2.) The actual level of emissions after the facility is in place and operating at or near full capacity.
- J. **Business License:** The owner or operator of the facility shall obtain and maintain current at all times a business license as issued by the city.
- K. **Maintain Current Information:** The owner or operator shall maintain, at all times, a sign mounted on the outside fence showing the operator name, site number and emergency contact telephone number. The owner or operator of the facility shall also submit and maintain current at all times basic contact and site information on a form to be supplied by the city. The applicant shall notify city of any changes to the information submitted within thirty (30) days of any change, including change of the name or legal status of the owner or operator. This information shall include, but is not limited to the following:
  - i. Identity, including name, address and telephone number, and legal status of the owner of the facility including official identification numbers and FCC certification, and if different from the owner, the identity and legal status of the person or entity responsible for operating the facility.
  - ii. Name, address and telephone number of a local contact person for emergencies.
  - iii. Type of service provided.

- L. **Good Repair:** All facilities and related equipment, including lighting, fences, shields, cabinets, and poles, shall be maintained in good repair, free from trash, debris, litter and graffiti and other forms of vandalism, and any damage from any cause shall be repaired as soon as reasonably possible so as to minimize occurrences of dangerous conditions or visual blight. Graffiti shall be removed from any facility or equipment as soon as practicable, and in no instance more than forty-eight (48) hours from the time of notification by the city.
- M. **Minimize Noise:** The facility shall be operated in such a manner so as to minimize any possible disruption caused by noise. A permanent generator is not approved as part of this project.
- N. **Responsibility to Maintain:** The owner or operator of the facility shall routinely and regularly inspect each site to ensure compliance with the standards set forth in the Telecommunications Ordinance.
- O. **Hold Harmless:** The wireless telecommunication facility provider shall defend, indemnify, and hold harmless the city or any of its boards, commissions, agents, officers, and employees from any claim, action or proceeding against the city, its boards, commission, agents, officers, or employees to attack, set aside, void, or annul, the approval of the project when such claim or action is brought within the time period provided for in applicable state and/or local statutes. The city shall promptly notify the provider(s) of any such claim, action or proceeding. The city shall have the option of coordinating in the defense. Nothing contained in this stipulation shall prohibit the city from participating in a defense of any claim, action, or proceeding if the city bears its own attorney's fees and costs, and the city defends the action in good faith.
- P. **Liability:** Facility lessors shall be strictly liable for any and all sudden and accidental pollution and gradual pollution resulting from their use within the city. This liability shall include cleanup, intentional injury or damage to persons or property. Additionally, lessors shall be responsible for any sanctions, fines, or other monetary costs imposed as a result of the release of pollutants from their operations. Pollutants include any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalis, chemicals, and waste. Waste includes materials to be recycled, reconditioned or reclaimed.
- Q. **No Interference with City Communication Systems:** The facility operator shall be strictly liable for interference caused by the facility with city communication systems. The operator shall be responsible for all labor and equipment costs for determining the source of the interference, all costs associated with eliminating the interference, (including but not limited to filtering, installing cavities, installing directional antennas, powering down systems, and engineering analysis), and all costs arising from third party claims against the city attributable to the interference.

- R. **No Threat to Public Health:** The facility shall not be sited or operated in such a manner that it poses, either by itself or in combination with other such facilities, a potential threat to public health. To that end, the subject facility and the combination of on-site facilities shall not produce at any time power densities in any inhabited area that exceed the FCC's Maximum Permissible Exposure (MPE) limits for electric and magnetic field strength and power density for transmitters or any more restrictive standard subsequently adopted or promulgated by the federal government.

### **Recommended Conditions of Approval**

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In addition to complying with all applicable City, County, State and Federal Statutes, Codes, Ordinances, Resolutions and Regulations, Permittee expressly accepts and agrees to comply with the following conditions of approval of this Permit:

1. **Project Conformance:** Project shall be in conformance with the plans approved at the public hearing(s). Minor changes may be approved by the Director of Community Development, major changes may be approved at a public hearing.
2. **Execute Permit Document:** Execute a Use Permit document prior to issuance of the building permit.
3. **Conditions of Approval on Plans:** The Conditions of Approval shall be reproduced on a page of the plans submitted for a Building permit for this project.
4. **Alternative Design:** All new antennas and microwave dishes shall be relocated to below the power lines on the existing lattice tower.
5. **Pole Design:** All new antennas and microwave dishes shall be painted to match the existing tower.
6. **Microwave Dishes:** All new microwave dishes shall be snug against the pole as much as physically feasible, as shown in the approved plans.
7. **Tree Removal:** No trees shall be removed as part of this application.

# clearwire®

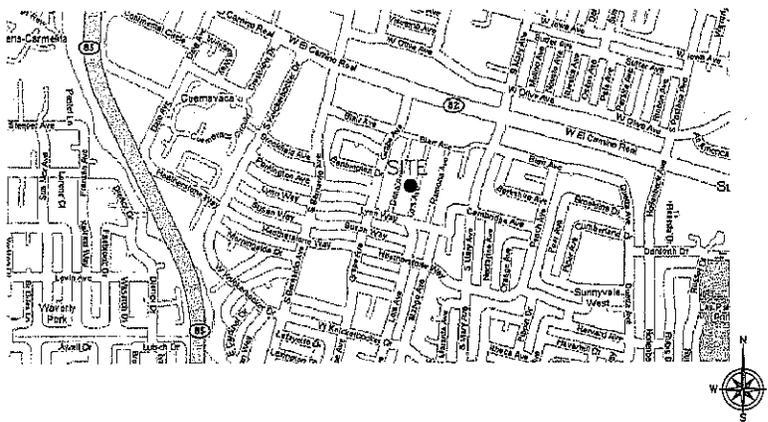
LOIS PG&E  
CA-SJC0106E

SAP NO.: 40752555 TOWER NO.: 004/025  
TOWER LINE NAME: BRITTON MONTE VISTA  
757 LOIS AVE SUNNYVALE, CA 94087

### SIGNATURE BLOCK

VENDOR CM MANAGER	DATE
VENDOR ZONING MANAGER	DATE
VENDOR SAQ MANAGER	DATE
RF MANAGER	DATE
CONSTRUCTION MANAGER	DATE
MICROWAVE MANAGER	DATE

### VICINITY MAP - N.T.S.



### 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. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- |  |   |
|--|---|
| 1. CALIFORNIA ADMINISTRATIVE CODE (INCL TITLE 24 & 25) | 6. ANSI/EIA-222-F LIFE SAFETY CODE NFPA-101 |
| 2. 2007 CALIFORNIA BUILDING CODE                       | 7. 2007 CALIFORNIA PLUMBING CODE            |
| 3. CITY/COUNTY ORDINANCES                              | 8. 2007 CALIFORNIA ELECTRICAL CODE          |
| 4. BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA)   | 9. LOCAL BUILDING CODE                      |
| 5. MECHANICAL 2007 CALIFORNIA CODE                     |   |

### PROJECT SUMMARY

<b>PROPERTY OWNER:</b> PACIFIC GAS & ELECTRIC CO. 245 MARKET ST. - MAIL CODE N10A SAN FRANCISCO, CA 94105 CONTACT: SHARI HOLLAND PHONE: (415) 973-3353	<b>ARCHITECT:</b> DELTA GROUPS ENGINEERING, INC. 5635 WEST LAS POSITAS, SUITE 403 PLEASANTON, CA 94588 NAME: FRANCIS ONG CONTACT: HAROLD TRIAS PHONE: (925) 468-0115
<b>APPLICANT:</b> CLEARWIRE 2999 OAK RD. WALNUT CREEK, CA 94597 CONTACT: TOM DERKAS PHONE: (925) 202-3333	<b>STRUCTURAL ENGINEER:</b> DELTA GROUPS ENGINEERING, INC. 5635 WEST LAS POSITAS, SUITE 403 PLEASANTON, CA 94588 CONTACT: ALBERT TENG PHONE: (949) 622-0333
<b>LEASING MANAGER:</b> GOODMAN NETWORKS 2603 CAMINO RAMON, BISHOP RANCH 3 2ND FLOOR SAN RAMON, CA 94503 CONTACT: AUSTIN BLAIR PHONE: (906) 392-6631	<b>CONSTRUCTION MANAGER:</b> GOODMAN NETWORKS 2603 CAMINO RAMON, BISHOP RANCH 3 2ND FLOOR SAN RAMON, CA 94503 CONTACT: MITCHELL SMITH PHONE: (925) 595-3353
<b>ZONING MANAGER:</b> GOODMAN NETWORKS 2603 CAMINO RAMON, BISHOP RANCH 3 2ND FLOOR SAN RAMON, CA 94503 CONTACT: GORDON BELL PHONE: (530) 647-1932	<b>PG&amp;E PROJECT MANAGER:</b> PACIFIC GAS & ELECTRIC COMPANY 245 MARKET ST. - MAIL CODE N10A SAN FRANCISCO, CA 94105 CONTACT: SEAN KENNEDY PHONE: (925) 786-3376

### BUILDING/ SITE DATA LEGEND

<b>LATITUDE:</b>	37° 22' 09.49" N (NAD83)
<b>LONGITUDE:</b>	122° 03' 09.80" W (NAD83)
<b>ELEVATION:</b>	154' AMSL (NGVD 23)
<b>A.P.N.:</b>	198-25-010
<b>ZONING:</b>	RD, RESIDENTIAL LOW DENSITY
<b>PROPOSED USE:</b>	U, UNMANNED
<b>TYPE OF CONSTRUCTION:</b>	VN
<b>LEASE AREA:</b>	69.0 SQ. FT.
<b>HANDICAP REQUIREMENTS:</b>	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
<b>TITLE 24 REQUIREMENTS:</b>	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. TITLE 24 IS EXEMPT.

### PROJECT DESCRIPTION

INSTALLATION OF A WIRELESS COMMUNICATIONS FACILITY, INCLUDING THE INSTALLATION OF (1) ONE EQUIPMENT CABINET, (3) THREE MICROWAVE DISHES, (6) RF HEADS, (3) THREE PANEL ANTENNAS, AND (1) GPS.

### DRIVING DIRECTIONS

FROM: CLEARWIRE REGIONAL OFFICE  
2999 OAK RD.  
WALNUT CREEK, CA 94597

TO: 757 LOIS AVENUE  
SUNNYVALE, CA 94087

DISTANCE: 40.0 MILES

1. HEAD SOUTHEAST ON OAK RD
2. TURN RIGHT AT TREAT BLVD
3. SLIGHT LEFT TO STAY ON TREAT BLVD
4. TURN RIGHT AT H MAIN ST
5. TAKE THE RAMP ONTO I-680 S
6. TAKE EXIT 12 TO MERGE ONTO CA-262 S/MISSION BLVD TOWARD I-680
7. TAKE THE RAMP ONTO I-680 S
8. TAKE THE EXIT ONTO CA-237 W TOWARD MOUNTAIN VIEW
9. TURN LEFT AT CA-82/E EL CAMINO REAL
10. SLIGHT LEFT TO STAY ON CA-82/E EL CAMINO REAL
11. TURN RIGHT AT GRAPPE AVE
12. TURN LEFT AT LOIS AVE
13. TURN RIGHT AT LOIS AVE
14. ARRIVE AT 757 LOIS AVE. DESTINATION WILL BE ON THE RIGHT

## clearwire

5805 LAKE WASHINGTON BLVD.  
NE, SUITE 300  
KIRKLAND, WA 98033

PROJECT INFORMATION:

**LOIS PG&E**  
**CA-SJC0106E**  
757 LOIS AVENUE  
SUNNYVALE, CA 94087  
SANTA CLARA COUNTY

CURRENT ISSUE DATE:

11/02/09

ISSUED FOR:

ZD (100%)

REV. DATE DESCRIPTION BY:

△	11/09/09	ZD (100)	CL
△	11/02/09	ZD (100)	CC
△	08/16/09	ZD (100)	JK
△	07/30/09	ZD (100)	CL
△	07/02/09	ZD (95)	JK
△	06/29/09	ZD (90)	JK
△	06/12/09	ZD (90)	CC

PLANS PREPARED BY:

**DELTA GROUPS**  
**ENGINEERING, INC.**  
**CONSULTING ENGINEERS**  
5635 WEST LAS POSITAS, SUITE 403  
PLEASANTON, CA 94588  
TEL: (925) 468-0115 FAX: (925) 468-0355

CONSULTANT:

ATTACHMENT  
Page 1 of 7  
SEAL OF APPROVAL  
SHEET TITLE:  
T  
SHEET NUMBER

**NOTES**

APN: 198-25-010  
 OWNER: PACIFIC GAS & ELECTRIC CO.

THE INFORMATION SHOWN HEREON IS BASED UPON A FIELD SURVEY AND A COMPILATION OF AVAILABLE RECORDS AND TITLE INFORMATION. UNLESS NOTED OTHERWISE, PROPERTY LINES ARE DERIVED FROM RECORD INFORMATION. THIS IS NOT A BOUNDARY SURVEY.

THE EASEMENTS (IF ANY) THAT APPEAR ON THIS MAP HAVE BEEN PLOTTED BASED SOLELY ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT BY XXX TITLE COMPANY, ORDER NO. XXX, DATED XXX XX, 2009. WITHIN SAID TITLE REPORT THERE ARE XXX (XX) EXCEPTIONS LISTED, OF WHICH XXX (XX) ARE EASEMENTS XXX (XX) OF WHICH CAN 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. 080850, PANEL NO. 02054, DATED MAY 18, 2009, SHOWS THAT THE LOCATION OF THIS SITE FALLS WITHIN ZONE X, WHICH IS OUTSIDE THE PUBLISHED 100 YEAR FLOOD PLAN.

THE LATITUDE AND LONGITUDE AS SHOWN WAS DETERMINED BY GPS OBSERVATIONS.

LAT. 37°22'08.5" N, NAD 83  
 LONG. 122°03'08.8" W, NAD 83  
 ELEV. 158.0 NAVD 88 (BASIS OF DRAWING)

LAT. 37°22'08.7" N, NAD 27  
 LONG. 122°03'08.0" W, NAD 27  
 ELEV. 155.3 NAVD 29

The information shown above meets or exceeds the requirements set forth in FAA order 8050.16 for 1-A category (±.15' horizontally and ±.3' vertically). The horizontal datum (coordinates) are expressed as degrees, minutes and seconds, to the nearest tenth of a second. The vertical datum (heights) are expressed in feet and decimals thereof and are determined to the nearest 0.1 foot.

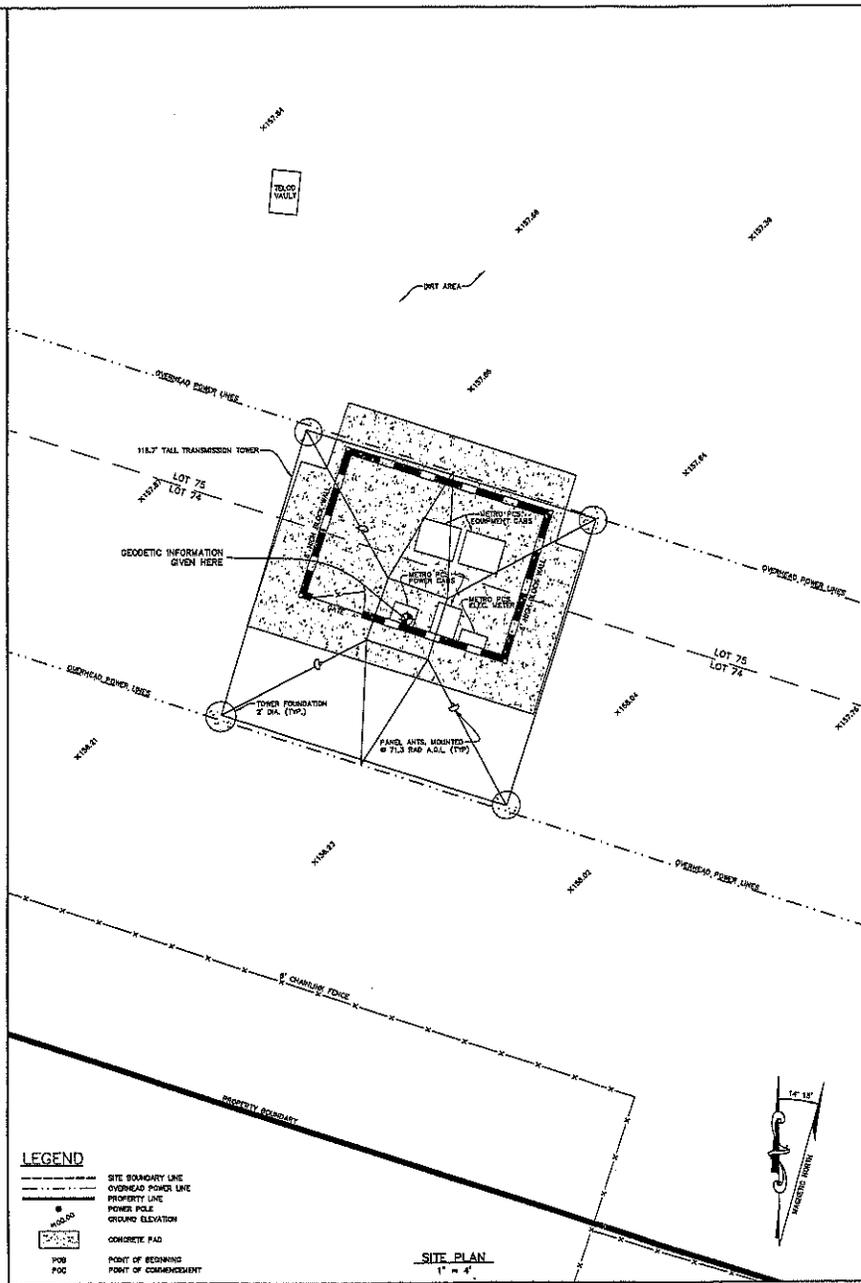
GROUND ELEV. = 158.0' A.M.S.L. (NAVD 88)  
 TOP OF STRUCTURE ELEV. = 274.7' A.M.S.L. (NAVD 88)  
 STRUCTURE HEIGHT = 116.7'

PARENT PROPERTY DESCRIPTION:  
 TITLE REPORT HAS NOT BEEN PROVIDED.

PROPOSED CLEARWIRE LEASE AREA DESCRIPTION:  
 T.R.D.

**PRELIMINARY DRAWING**

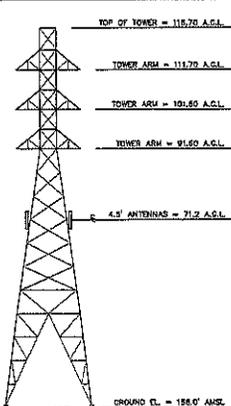
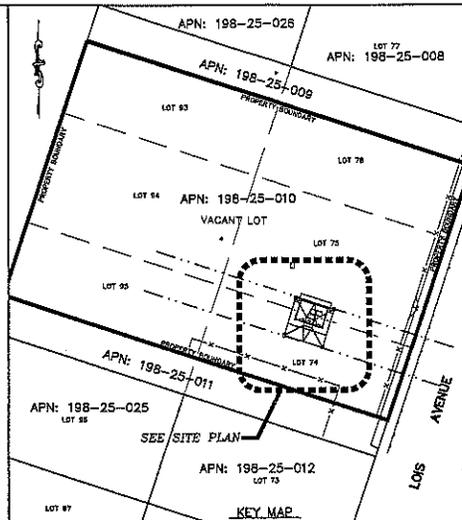
TITLE REPORT SUPPORTING DOCUMENTS HAVE NOT BEEN PROVIDED FOR THIS PROJECT



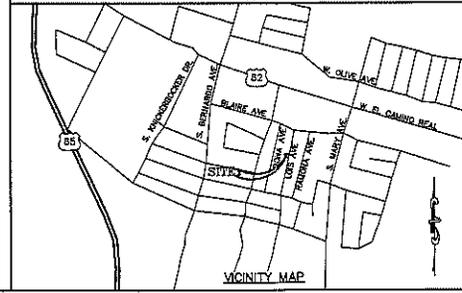
**LEGEND**

- SITE BOUNDARY LINE
- - - - OVERHEAD POWER LINE
- PROPERTY LINE
- POWER POLE
- GROUND ELEVATION
- CONCRETE PAD
- POINT OF BEGINNING
- POINT OF COMMENCEMENT

**SITE PLAN**  
 1" = 4'



**WEST ELEVATION VIEW**  
 NOT TO SCALE



**VICINITY MAP**

**clearwre, LLC.**  
 4400 CARILLON POINT  
 KIRKLAND, WA 98033

**PROJECT INFORMATION:**  
 HOPKINS CAR DEALERSHIP PG&E  
 CA-SJC0106A  
 1048 W. EL CAMINO REAL  
 SUNNYVALE, CA 94087  
 SANTA CLARA COUNTY

**CURRENT ISSUE DATE:**  
 07/08/09

**ISSUED FOR:**  
 PRELIMINARY

**REV. DATE:** 07/08/09 **ISSUED FOR:** PRELIMINARY **BY:** KP

REV.	DATE	ISSUED FOR	BY
0	07/08/09	PRELIMINARY	KP

**PLANS PREPARED BY:**  
**DELTA GROUPS ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 5635 WEST LAG POSTAL, SUITE 403  
 FRESNO, CA 93608  
 TEL. 925-488-0115 FAX 925-488-0355

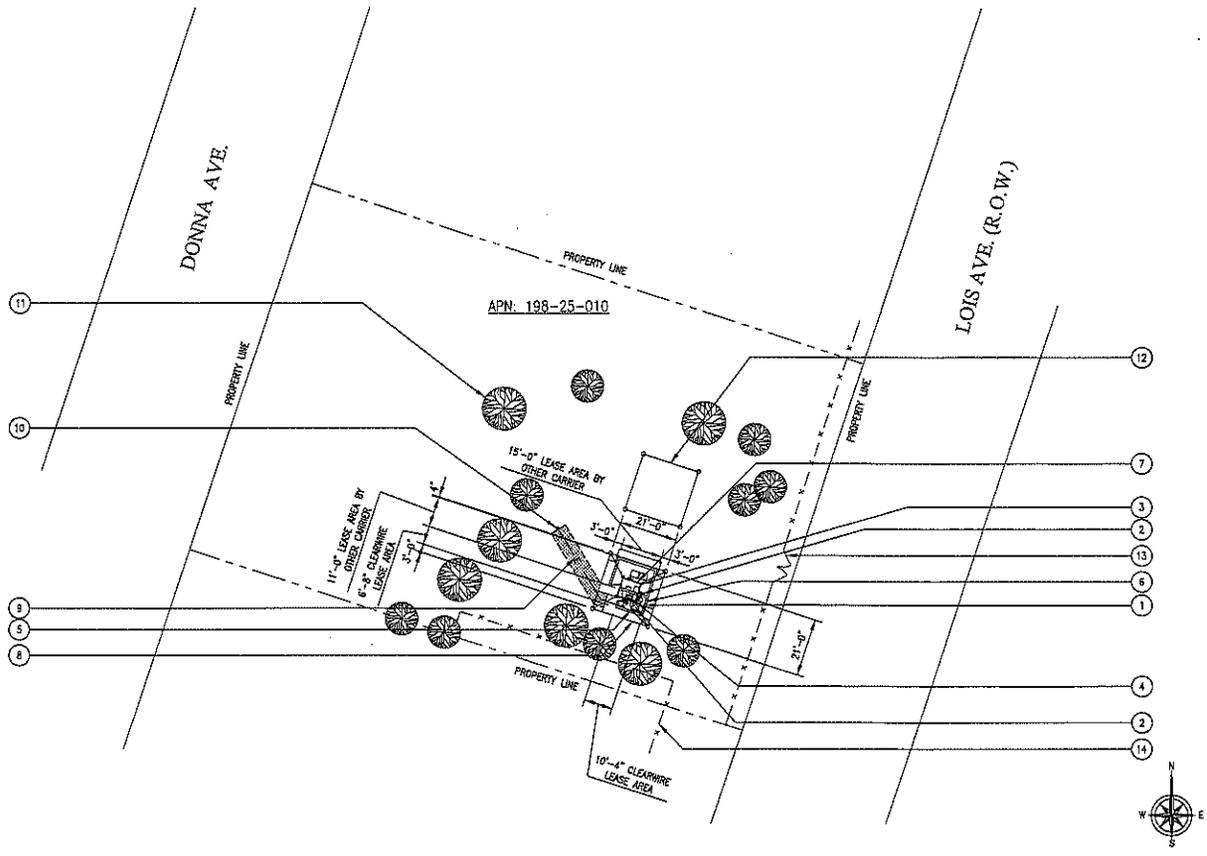
**CONSULTANT:**

**ATTACHMENT**  
 Page 2 of 7  
 SHEET 1  
 SHEET 2

**KEY NOTES:**

- 1 PROPOSED 6'-8"x10'-4" CLEARWIRE LEASE AREA (68.8 SQ. FT. TOTAL)
- 2 PROPOSED CLEARWIRE MICROWAVE DSH (1 PER SECTOR, 3 SECTORS TOTAL) - MOUNTING DESIGN BY PG&E
- 3 PROPOSED CLEARWIRE 4'-0" HIGH PANEL ANTENNA (1 PER SECTOR, 3 SECTORS TOTAL) - MOUNTING DESIGN BY PG&E
- 4 PROPOSED CLEARWIRE EQUIPMENT CABINET
- 5 PROPOSED CLEARWIRE RF HEAD (TYP. OF 6)
- 6 PROPOSED 6'-0" HIGH CMU WALL
- 7 PROPOSED 6'-0" HIGH TOP HAT - DESIGN BY PG&E
- 8 PROPOSED 6" HIGH CONCRETE PAD
- 9 PROPOSED CLEARWIRE UNDERGROUND ELECTRICAL ROUTING WITH IN PROPOSED 8'-0" WIDE EASEMENT - TO LOCATION OF POWER P.O.C. (TO BE CONFIRMED BY PG&E)
- 10 EXISTING PG&E JPA WITH TRANSFORMER - LOCATION OF POWER P.O.C. (TO BE CONFIRMED BY PG&E)
- 11 EXISTING LANDSCAPE (TYP.)
- 12 EXISTING PG&E LATTICE TOWER
- 13 EXISTING 6'-0" HIGH CHAIN LINK GATE (TYP.)
- 14 EXISTING 6'-0" HIGH CHAIN LINK FENCE (TYP.)

**NOTES:**  
 1. DO NOT SCALE DRAWINGS. ALL DIMENSIONS OF AND BETWEEN EXISTING BUILDINGS/STRUCTURES, OR RELATIVE DISTANCES AS SHOWN BETWEEN EXISTING BUILDINGS/STRUCTURES, PROPERTY LINES, EASEMENTS AND THE TRUE NORTH ARE TO BE CONFIRMED BY A SURVEYOR.  
 2. POWER ROUTING AND DESIGN IS PRELIMINARY AND MUST BE VERIFIED WITH LOCAL UTILITY COMPANIES.



**OVERALL SITE PLAN**

SCALE: 1 inch = 10 ft. 10' 0' 10' 20'

**clearw're**

5805 LAKE WASHINGTON BLVD.  
 NE, SUITE 300  
 KIRKLAND, WA 98033

**LOIS PG&E**  
**CA-SJC0106E**  
 757 LOIS AVENUE  
 SUNNYVALE, CA 94087  
 SANTA CLARA COUNTY

CURRENT ISSUE DATE:  
**11/02/09**

ISSUED FOR:  
**ZD (100%)**

REV.	DATE	DESCRIPTION	BY
△	11/09/09	ZD (100)	CL
△	11/02/09	ZD (100)	CC
△	08/18/09	ZD (100)	JK
△	07/30/09	ZD (100)	CL
△	07/02/09	ZD (95)	JK
△	06/28/09	ZD (90)	JK
△	06/12/09	ZD (90)	CC

PLANS PREPARED BY:  
**DELTA GROUPS ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 5825 WEST LAKE POSTAL SUITE 403  
 PLEASANTON, CA 94588  
 TEL: (925) 488-0115 FAX: (925) 488-0355

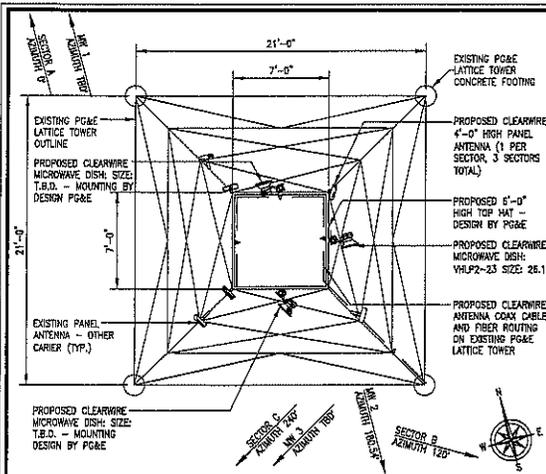
CONSULTANT:

**ATTACHMENT**  
 Page 5 of 7

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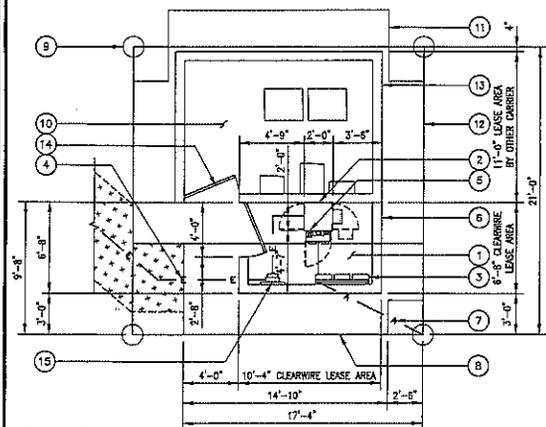
SHEET T \_\_\_\_\_

SHEET \_\_\_\_\_



ANTENNA LAYOUT

SCALE: 1/4 inch = 1 ft

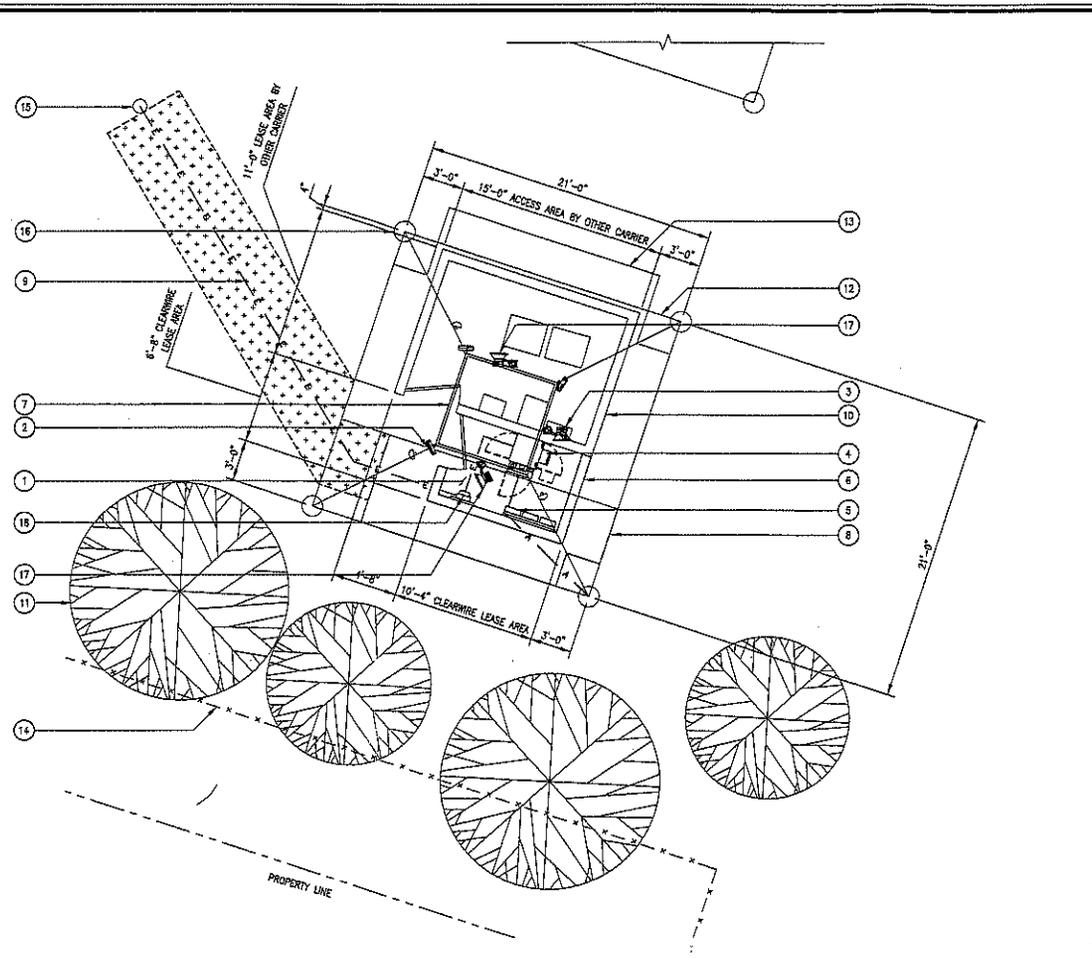


KEY NOTES:

- 1 PROPOSED 6'-8"x10'-4" CLEARWIRE LEASE AREA (68.8 SQ. FT. TOTAL)
- 2 PROPOSED CLEARWIRE EQUIPMENT CABINET
- 3 PROPOSED CLEARWIRE RF HEAD (TYP. OF 6)
- 4 PROPOSED CLEARWIRE UNDERGROUND ELECTRICAL ROUTING WITH IN PROPOSED 6'-0" WIDE EASEMENT - TO LOCATION OF POWER P.O.C. (TO BE CONFIRMED BY PG&E)
- 5 PROPOSED CLEARWIRE GPS
- 6 PROPOSED 6'-0" HIGH CMU WALL TO MATCH EXISTING
- 7 PROPOSED CLEARWIRE ANTENNA ROUTING
- 8 PROPOSED 6" HIGH CONCRETE PAD
- 9 EXISTING PG&E LATTICE TOWER CONCRETE FOOTING
- 10 EXISTING EQUIPMENT LEASE AREA (BY OTHERS)
- 11 EXISTING 6" HIGH CONCRETE PAD
- 12 EXISTING PG&E LATTICE TOWER OUTLINE
- 13 EXISTING 6'-0" HIGH CMU WALL
- 14 EXISTING 4'-0" WIDE DOOR
- 15 PROPOSED 100A METER WITH MAIN DISCONNECT

EQUIPMENT LAYOUT

SCALE: 1/4 inch = 1 ft



KEY NOTES:

- 1 PROPOSED 6'-8"x10'-4" CLEARWIRE LEASE AREA (68.8 SQ. FT. TOTAL)
- 2 PROPOSED 4'-0" HIGH CLEARWIRE PANEL ANTENNA (1 PER SECTOR, 3 SECTORS TOTAL) - MOUNTING DESIGN BY PG&E
- 3 PROPOSED CLEARWIRE MICROWAVE DISH: Y.HLPZ-23 SIZE: 26'-1" - MOUNTING DESIGN BY PG&E
- 4 PROPOSED CLEARWIRE EQUIPMENT CABINET
- 5 PROPOSED CLEARWIRE RF HEAD (TYP. OF 6)
- 6 PROPOSED 6'-0" HIGH CMU WALL TO MATCH EXISTING
- 7 PROPOSED 6'-0" HIGH PG&E TOP MAT
- 8 PROPOSED 6" HIGH CONCRETE PAD
- 9 PROPOSED CLEARWIRE UNDERGROUND ELECTRICAL ROUTING WITH IN PROPOSED 6'-0" WIDE EASEMENT - TO LOCATION OF POWER P.O.C. (TO BE CONFIRMED BY PG&E)
- 10 EXISTING 6'-0" HIGH CMU HALL
- 11 EXISTING LANDSCAPE (TYP.)
- 12 EXISTING PG&E LATTICE TOWER
- 13 EXISTING 6" HIGH CONCRETE PAD
- 14 EXISTING 6'-0" HIGH CHAIN LINK FENCE (TYP.)
- 15 EXISTING PG&E JPA WITH TRANSFORMER- LOCATION OF POWER P.O.C. - TO BE CONFIRMED BY PG&E
- 16 EXISTING PG&E LATTICE TOWER CONCRETE FOOTING
- 17 PROPOSED CLEARWIRE MICROWAVE DISH: SIZE: Y.B.D. - MOUNTING DESIGN BY PG&E
- 18 PROPOSED 100A METER WITH MAIN DISCONNECT

NOTES:  
 1. DO NOT SCALE DRAWINGS. ALL DIMENSIONS OF AND BETWEEN EXISTING BUILDINGS/STRUCTURES, OR RELATIVE DISTANCES AS SHOWN BETWEEN EXISTING BUILDINGS/STRUCTURES, PROPERTY LINES, EASEMENTS AND THE TRUE NORTH ARE TO BE CONFIRMED BY A SURVEYOR.  
 2. POWER ROUTING AND DESIGN IS PRELIMINARY AND MUST BE VERIFIED WITH LOCAL UTILITY COMPANIES.

EQUIPMENT AREA PLAN

SCALE: 1/4 inch = 1 ft

clearw're

5805 LAKE WASHINGTON BLVD.  
 NE, SUITE 300  
 KIRKLAND, WA 98033

PROJECT INFORMATION:

**LOIS PG&E**  
**CA-SJC0106E**  
 757 LOIS AVENUE  
 SUNNYVALE, CA 94087  
 SANTA CLARA COUNTY

CURRENT ISSUE DATE:

11/02/09

ISSUED FOR:

ZD (100%)

REV. - DATE DESCRIPTION BY:

REV.	DATE	DESCRIPTION	BY:
△	11/09/09	ZD (100)	CL
△	11/02/09	ZD (100)	CC
△	08/18/09	ZD (100)	JK
△	07/30/09	ZD (100)	CL
△	07/02/09	ZD (95)	JK
△	06/29/09	ZD (90)	JK
△	06/12/09	ZD (90)	CC

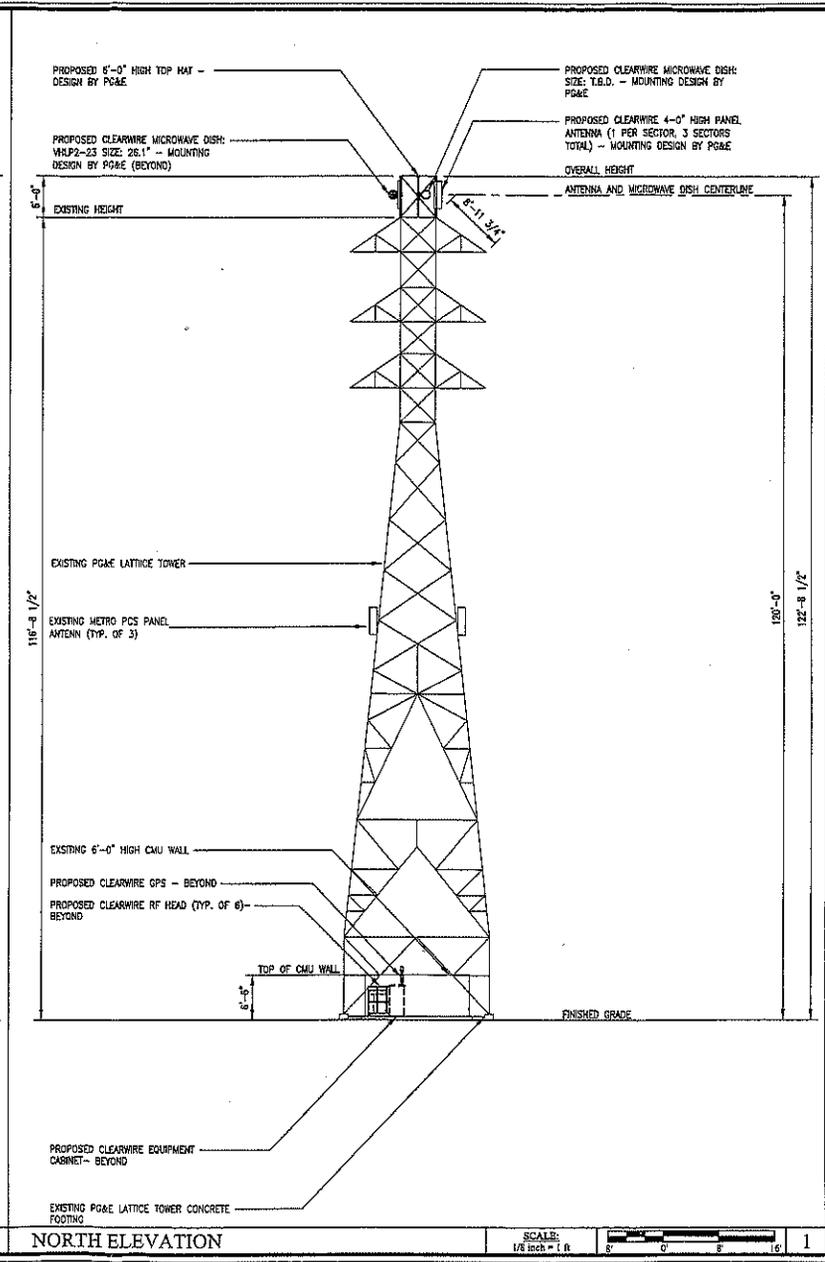
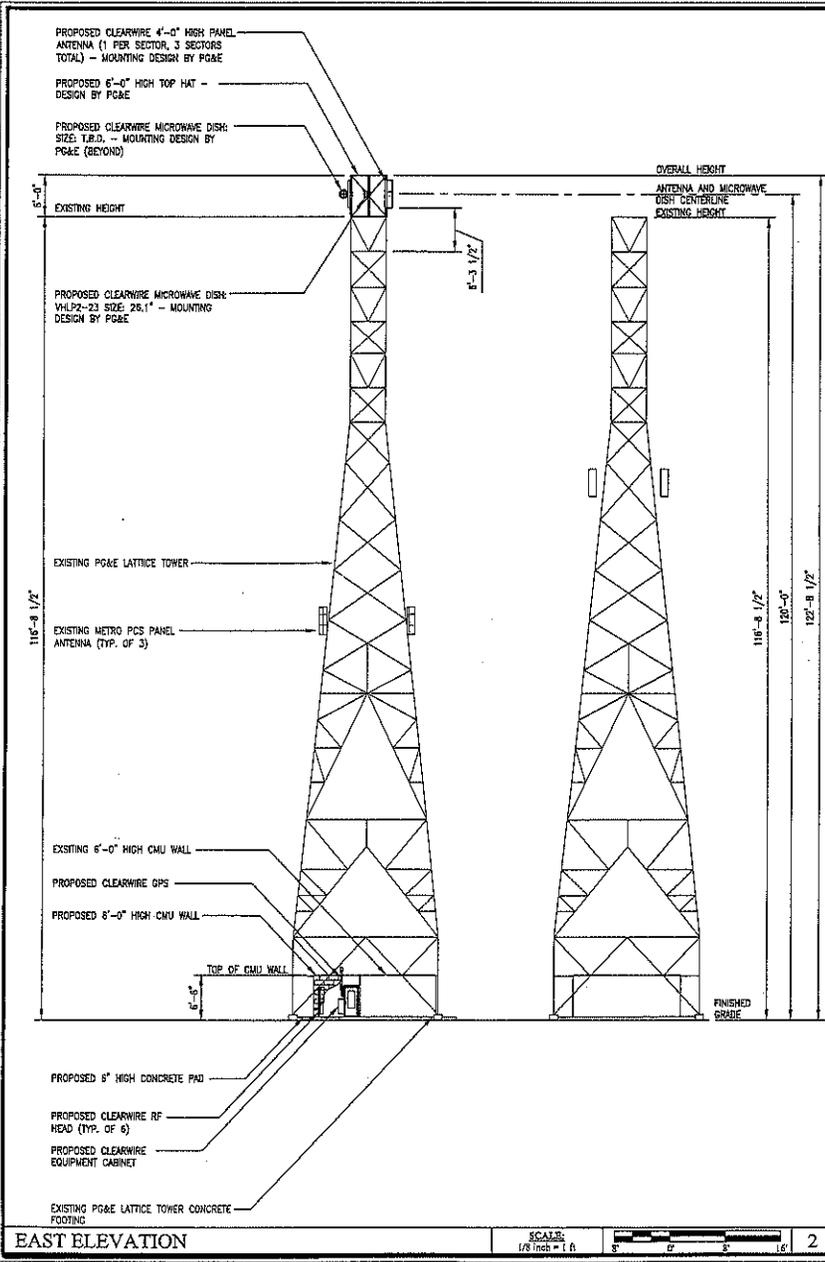
PLANS PREPARED BY:

**DELTA GROUPS**  
**ENGINEERING, INC.**  
 CONSULTING ENGINEERS

5805 WEST LAKES FOREST, SUITE 403  
 PLEASANTON, CA 94566  
 TEL: (925) 466-0115 FAX: (925) 466-0355

CONSULTANT:

ATTACHMENT  
 Page 2 of 7  
 SHEET



**clearwire**

5805 LAKE WASHINGTON BLVD.  
NE. SUITE 300  
KIRKLAND, WA 98033

PROJECT INFORMATION:  
**LOIS PG&E**  
CA-SJC0106E  
757 LOIS AVENUE  
SUNNYVALE, CA 94087  
SANTA CLARA COUNTY

CURRENT ISSUE DATE:

11/02/09

ISSUED FOR:

ZD (100%)

REV.: DATE: DESCRIPTION: BY:

REV.	DATE	DESCRIPTION	BY
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△	11/02/09	ZD (100)	CC
△	08/18/09	ZD (100)	JK
△	07/30/09	ZD (100)	CL
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△	06/29/09	ZD (90)	JK
△	06/12/09	ZD (90)	CC

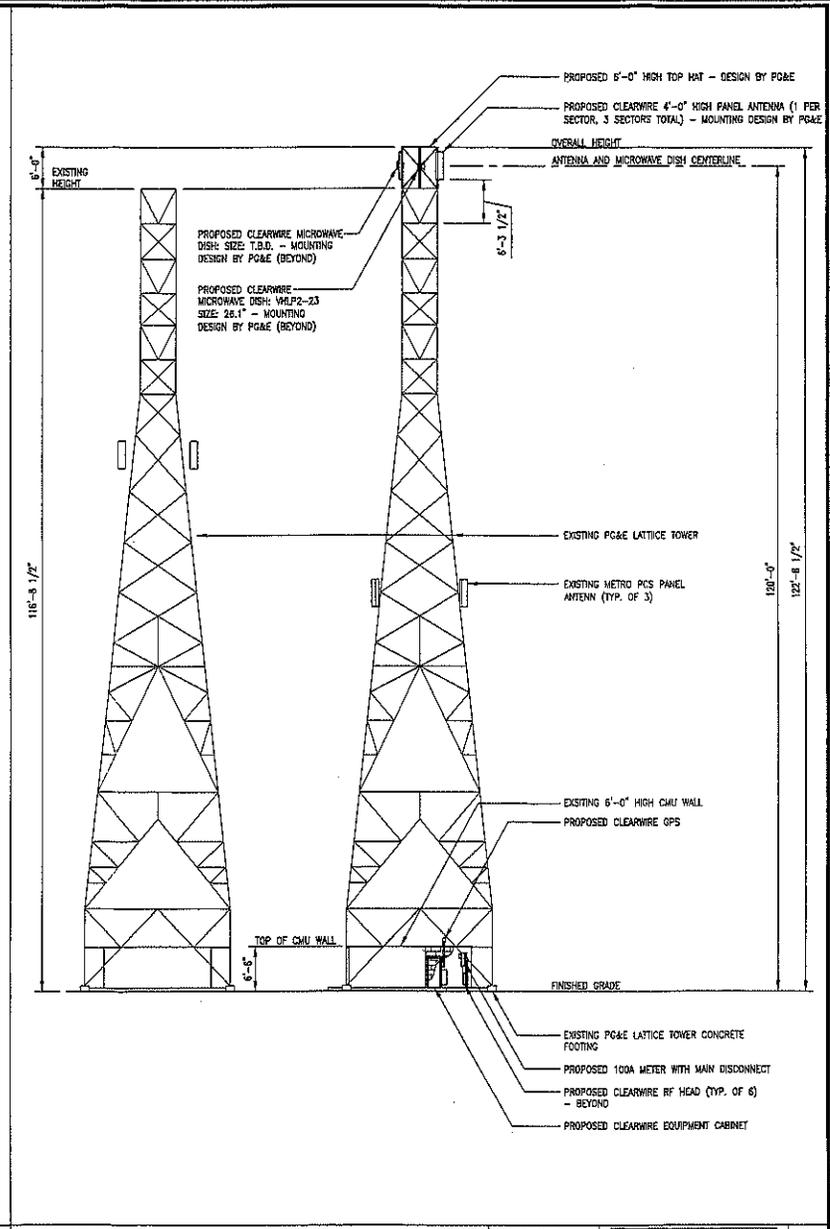
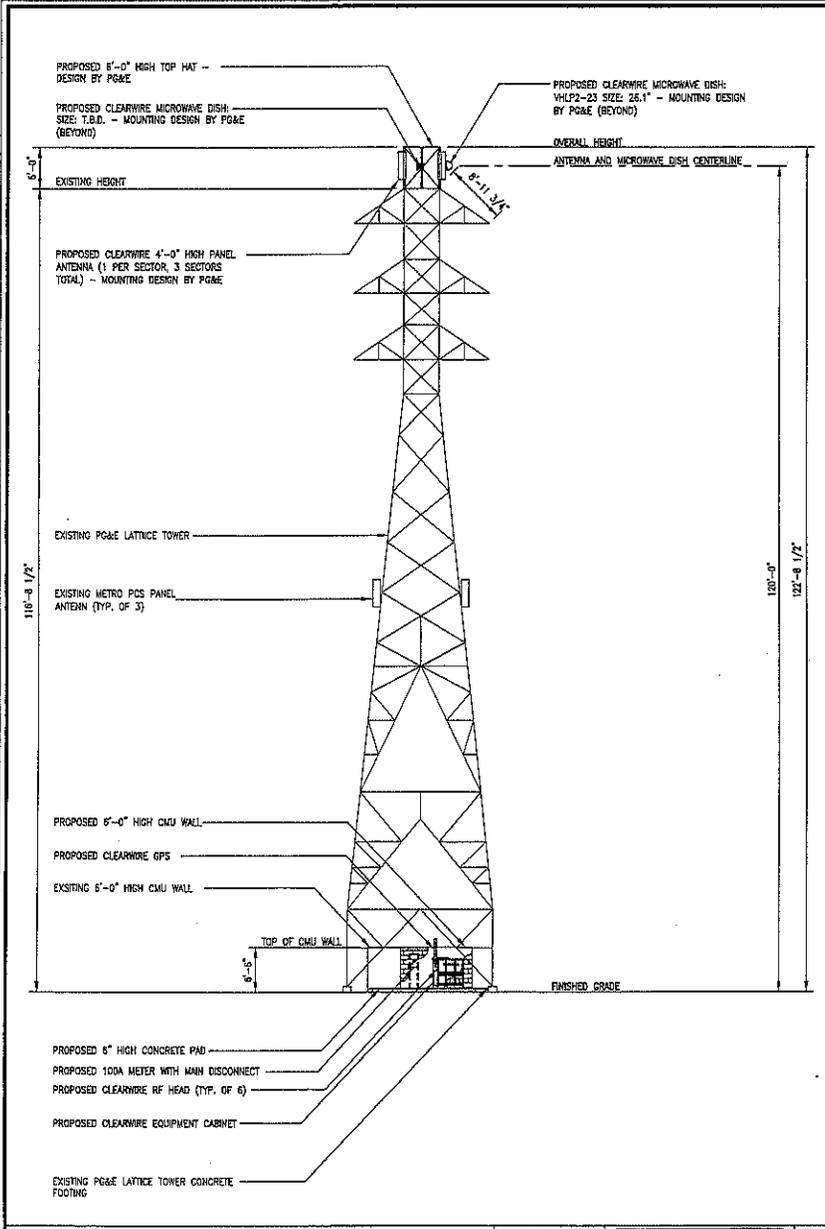
PLANS PREPARED BY:

**DELTA GROUPS**  
ENGINEERING, INC.  
CONSULTING ENGINEERS  
8555 WEST LAS POSITAS, SUITE 403  
FLEXAPARTS, CA 94508  
TEL: (925) 488-0115 FAX: (925) 488-0350

CONSULTANT:

ATTACHMENT  
Page 5 of 7  
C

SEAL SHEET SHEET



SOUTH ELEVATION

WEST ELEVATION

SCALE: 1/8" = 1'-0"  
 0' 5' 10'

SCALE: 1/8" = 1'-0"  
 0' 5' 10'

clearwire

5505 LAKE WASHINGTON BLVD.  
 NE, SUITE 300  
 KIRKLAND, WA 98033

PROJECT INFORMATION:  
**LOIS PG&E**  
**CA-SJC0106E**  
 757 LOIS AVENUE  
 SUNNYVALE, CA 94087  
 SANTA CLARA COUNTY

CURRENT ISSUE DATE:

11/02/09

ISSUED FOR:

ZD (100%)

REV.: DATE DESCRIPTION BY:

△	11/09/09	ZD (100)	CL
△	11/02/09	ZD (100)	CC
△	08/18/08	ZD (100)	JK
△	07/30/08	ZD (100)	CL
△	07/02/08	ZD (95)	JK
△	06/29/08	ZD (90)	JK
△	06/12/08	ZD (90)	CC

PLANS PREPARED BY:

**DELTA GROUPS**  
**ENGINEERING, INC.**  
 CONSULTING ENGINEERS

5425 WEST LAS POSITAS, SUITE 403  
 FOLSOM, CA 95630  
 TEL: (925) 488-0112 FAX: (925) 488-0385

CONSULTANT:

ATTACHMENT  
 Page 6 of 7

LOG#

**clearw're**

5805 LAKE WASHINGTON BLVD.  
NE, SUITE 300  
KIRKLAND, WA 98033

PROJECT INFORMATION:

**LOIS PG&E**  
**CA-SJC0106E**  
757 LOIS AVENUE  
SUNNYVALE, CA 94087  
SANTA CLARA COUNTY

CURRENT ISSUE DATE:

11/02/09

ISSUED FOR:

ZD (100%)

REV.: DATE: DESCRIPTION: BY:

REV.	DATE	DESCRIPTION	BY
△	11/09/08	ZD (100)	CL
△	11/02/09	ZD (100)	CC
△	08/18/09	ZD (100)	JK
△	07/30/09	ZD (100)	CL
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△	06/29/09	ZD (90)	JK
△	06/12/09	ZD (80)	CC

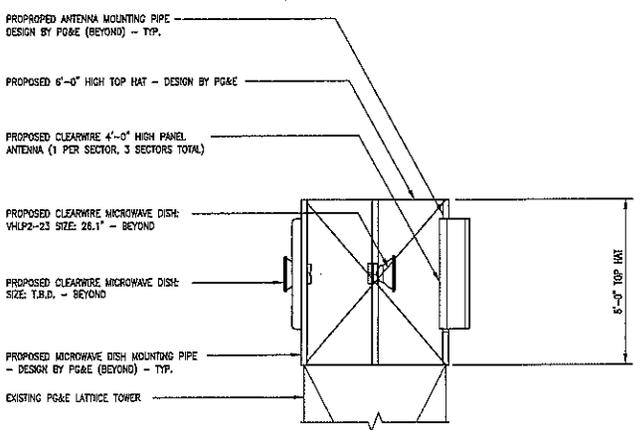
PLANS PREPARED BY:

**DELTA GROUPS**  
**ENGINEERING, INC.**  
CONSULTING ENGINEERS

5635 WEST LAS POSITAS, SUITE 403  
PLEASANTON, CA 94588  
TEL: (925) 488-0119 FAX: (925) 488-0355

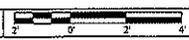
CONSULTANT:

**ATTACHMENT**  
 Page 7 of 7

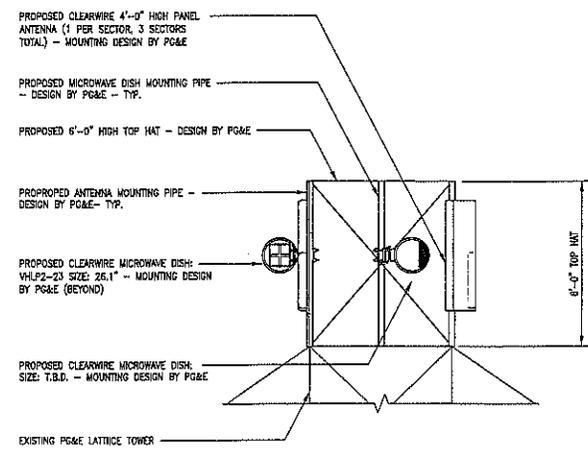


WEST ELEVATION

SCALE:  
1/2 inch = 1 ft

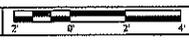


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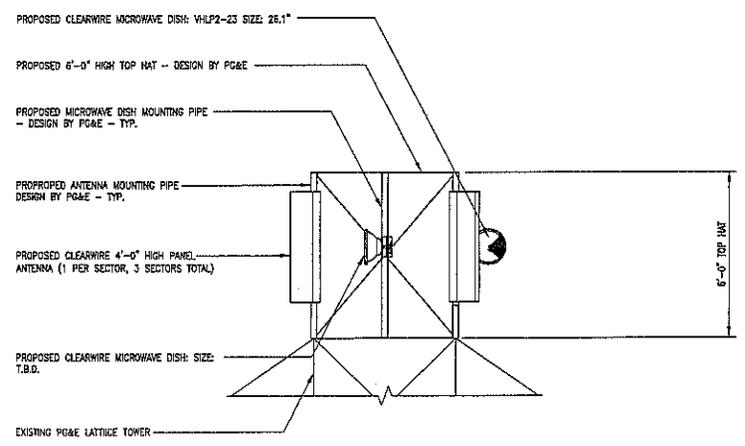


NORTH ELEVATION

SCALE:  
1/2 inch = 1 ft

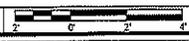


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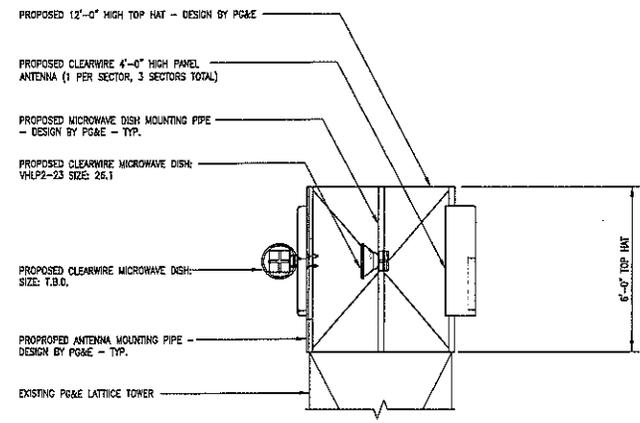


SOUTH ELEVATION

SCALE:  
1/2 inch = 1 ft



4



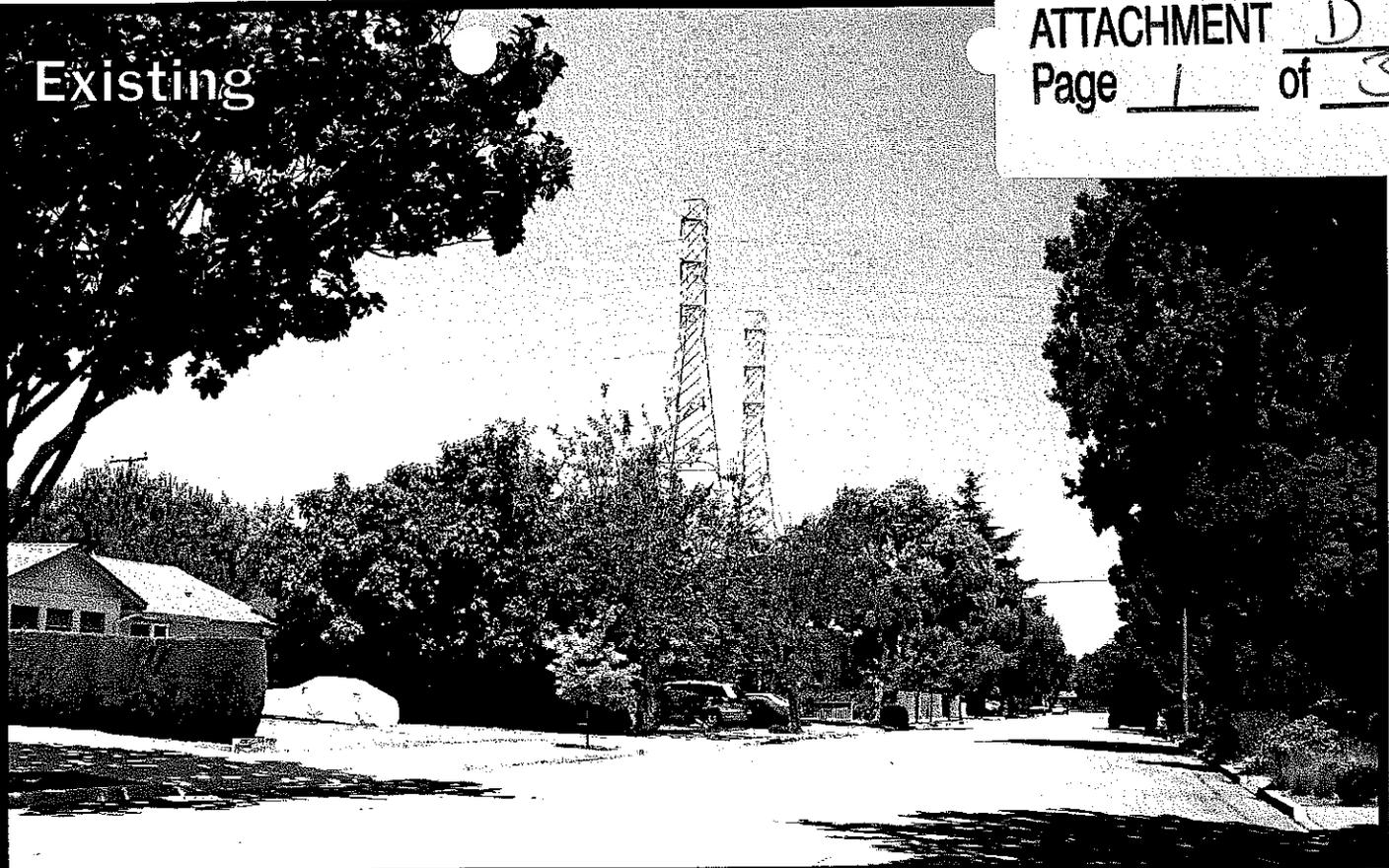
EAST ELEVATION

SCALE:  
1/2 inch = 1 ft



2

Existing



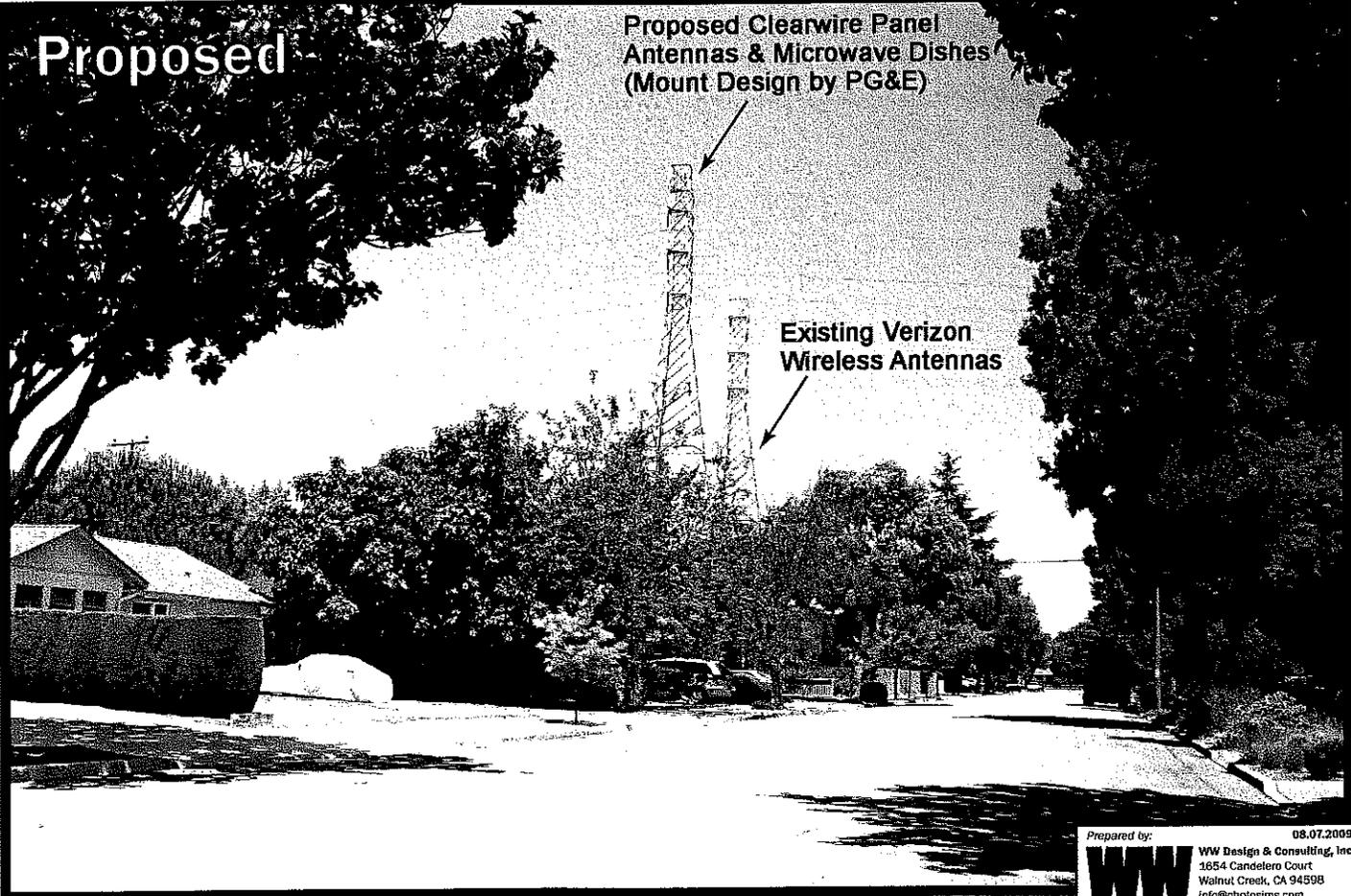
**clear**  
wireless broadband

CA-SJC0106

Lois PG&E

757 Lois Avenue  
Sunnyvale, CA 94087

Proposed



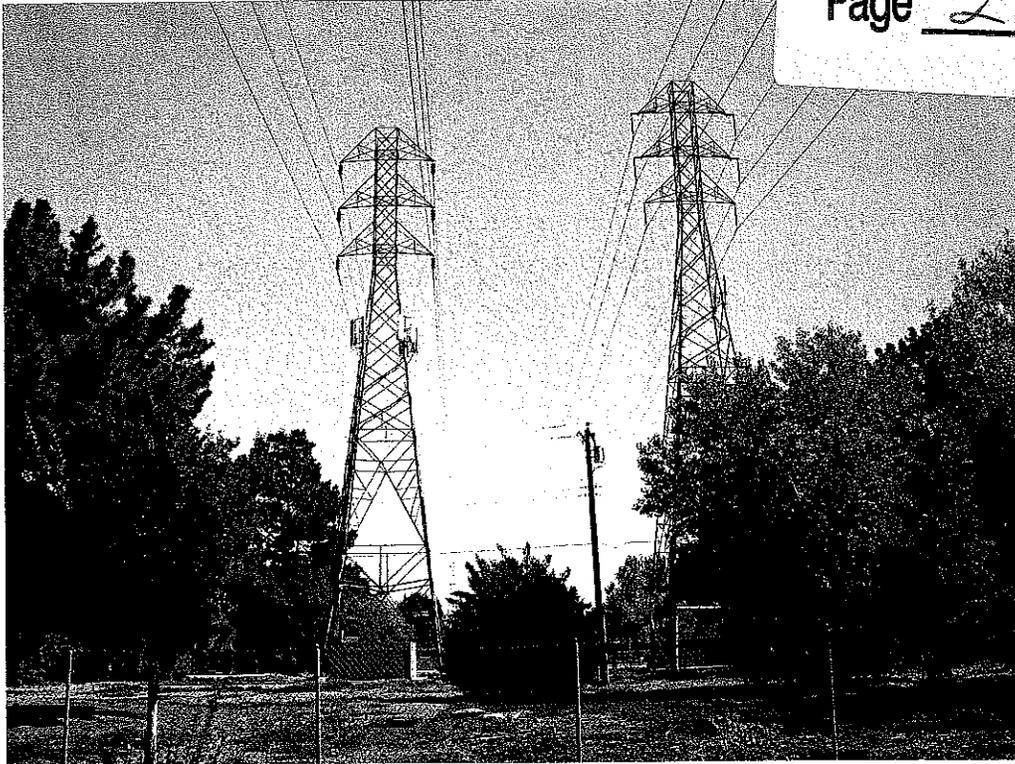
Proposed Clearwire Panel  
Antennas & Microwave Dishes  
(Mount Design by PG&E)

Existing Verizon  
Wireless Antennas

otosimulation of the proposed telecommunication facility as seen looking northwest from Lois Avenue

EXISTING

(View Looking East)

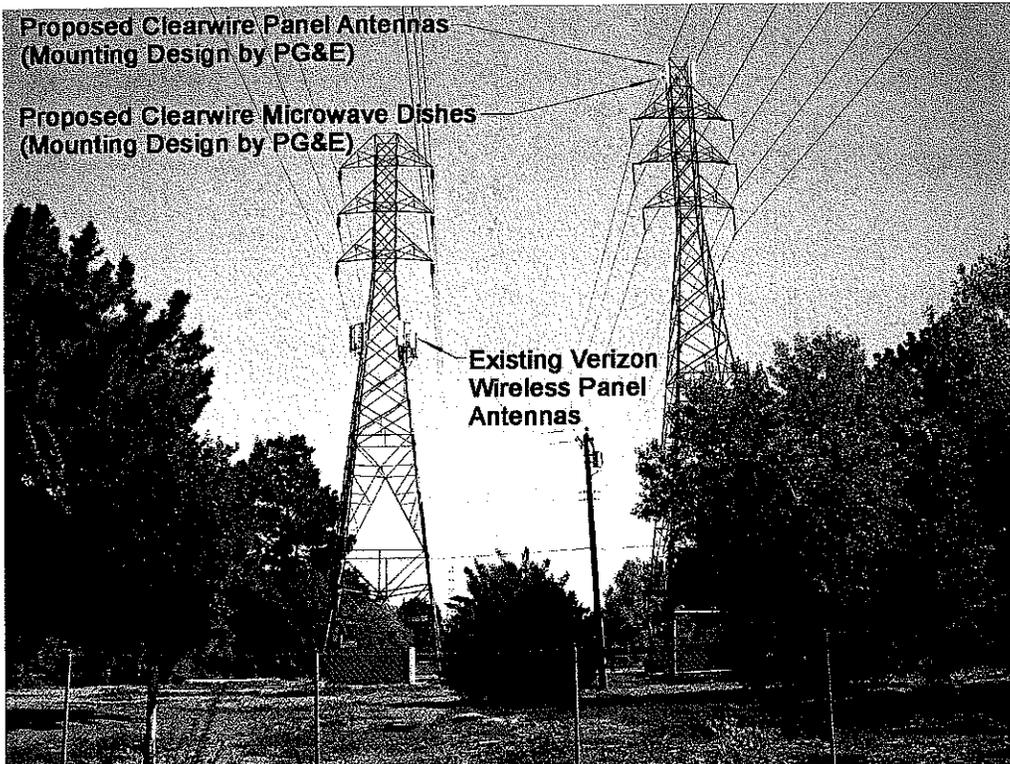


**clear**

**LOIS PG&E (CA-SJC0106A)**  
757 LOIS AVENUE, SUNNYVALE, CA 94087

PROPOSED

(View Looking East to Site from Dona Avenue)



Existing



**clear**  
wireless broadband

CA-SJC0106

Lois PG&E

757 Lois Avenue  
Sunnyvale, CA 94087

Proposed

Proposed Clearwire Panel  
Antennas & Microwave Dishes  
(Mount Design by PG&E)



Prepared by: **WW** 08.20.2009  
WW Design & Consulting, Inc.  
1854 Candelero Court  
Walnut Creek, CA 94598  
info@photosims.com

Simulation of the proposed telecommunication facility as seen looking northeast from Donna Avenue



November 3, 2009

City of Sunnyvale  
Planning Division  
456 W. Olive Avenue  
Sunnyvale, CA 94088

RE: **ClearWire Site CA-SJC0106:** Application for a Minor Use Permit for a Wireless Communications Facility at 757 Lois Avenue, Sunnyvale, CA, APN 198-25-010 (Resubmittal)

This letter is hereby submitted in conjunction with an application for a minor use permit for an unmanned wireless communications facility located on and under an existing PG&E lattice tower at a property located at 757 Lois Avenue in the City of Sunnyvale. The proposed facility is part of a wireless communications network for ClearWire Technologies.

## **I. Applicant Information**

### Lessee/Applicant

ClearWire Technologies  
12657 Alcosta Blvd., Ste. 300  
San Ramon, CA 94583  
Attn: Gary Carpenter  
Phone: (808) 741-7200

### Agent for Applicant

Bell + Associates (Attn: Gordon Bell)  
4020 Sierra Springs Drive  
Pollock Pines, CA 95726  
Phone: (530) 647-1932  
Fax: (805) 456-3958  
Email: [gbell61639@aol.com](mailto:gbell61639@aol.com)

### Property Owner

Pacific Gas & Electric  
245 Market Street, 10<sup>th</sup> Floor  
San Francisco, CA 94105  
Attn: Sean Kennedy  
Phone: (925) 786-5375

## **II. Project Description**

### Project Location

The proposed project is located at 757 Lois Avenue in the City of Sunnyvale. The proposed communications facility will be located on and under an existing PG&E lattice tower. The

project site is located on Assessor's Parcel 198-25-010. Geographic coordinates (NAD 83) for the proposed facility are Latitude: 37°22' 09.52"; Longitude: -122° 03' 09.82", at an elevation of approximately 154' AMSL (above mean sea level). The aerial photo below shows project location and surrounding land uses.

**Fig. 1. Aerial Photo Showing Project Location and Surrounding Land Uses**



### Project Components

The proposed project would consist of the installation of antennas and radio equipment on and under an existing PG&E lattice tower as shown on the attached plans. The proposed project components would consist of the following elements to be contained within a 68.8 (6'8" x 10'4") square foot lease area:

- Radio equipment cabinet (approx. 2' x 2') to be installed on a concrete slab under the PG&E lattice tower.
- Three (3) panel antennas, three (3) RF heads, and three (3) microwave dishes to be installed on a 6'-tall top hat extension on to the existing 116'7"-tall lattice tower, for an overall tower height of 122'7".
- One (1) GPS antenna to be mounted on the radio cabinet within the lease area.
- Associated fiber/coax cable to be run from the radio cabinets on the concrete slab to the antennas on the top hat along the tower legs. Power would be pulled from existing electrical service adjacent to the site as shown on the plans.
- Construction of a 6'-tall CMU wall to enclose the lease area.

- No generator is proposed as part of the project.

Access is provided by existing access easements from Lois Avenue.

### Collocation

The existing tower already supports one existing communications facility (Metro PCS) and may be capable of handling additional antennas should other wireless communications companies be interested in collocation on the tower. Verizon Wireless is on an adjacent tower.

### Network Technology

Clearwire offers a robust suite of advanced voice and high-speed Internet services to consumers and businesses. The company is building the first Mobile WiMax 4G network in the San Francisco Bay area bringing together an unprecedented combination of speed and mobility. Clearwire is licensed by the FCC to operate the Mobile WiMax Network in the 2.5-2.7GHz frequency range in San Francisco market. Clearwire will be using microwave backhaul for the Mobile WiMax network.

The Clearwire network is designed upon utilization of microwave backhaul throughout the network of hundreds of sites in the Bay area. This is a 100 percent backhaul solution, with no hardline connections within the system. What this means is that the majority of the sites transport a signal to at least three other sites with "hubs" located at the center of some of the rings to transport an initial signal. Because sites are inextricably linked by these microwave connections, it is imperative that the MW dishes obtain maximum height over the surrounding clutter and topography to ensure a point-to-point connection with other sites in the system.

In terms of Clearwire's relationship to other carriers and their networks, it should be known that Clearwire is a subsidiary of Sprint/Nextel (Sprint owns 51%), but the systems are not integrated. Clearwire's network is an entirely new network. Eventually, Clearwire's subscribers may have roaming agreements with Sprint/Nextel where Clearwire is not present, but the systems are not integrated to support each other. Because of the ownership relationship, Clearwire's footprint is very similar to Sprint's in the Bay area because we know that it is possible to utilize Sprint/Nextel's shelters, mounting brackets, coax cable trays, etc. with the appropriate collocation agreement with Sprint/Nextel. We also know we're more likely to have willing landlords were Sprint/Nextel is already located.

### Public Services

Public services such as fire and law enforcement are not required given that the facilities are designed to be vandalism resistant (fenced and located on the tower) and are uninhabitable. The project does not require school or transit facilities, as it is an unmanned wireless communications facility.

### Operations

The site is an unmanned facility that will not generate any noise, dust, or odors. It is expected that a service technician may visit the site for routine maintenance once every month to two months if needed. Ample parking is available in the adjacent to the site for this transient visit.

### **III. Land Use**

#### Zoning

The project parcel is zoned R0, Residential Low Density. The project site is bounded on the east and west by vacant land in the PG&E utility corridor and on the north and south by single-family residential uses.

#### Environmental Setting

The project is located on a relatively level, vacant, residentially zoned parcel that is currently used as a utility corridor for PG&E high voltage transmission lines. The site has been disturbed in the past and vegetation onsite consists of annual grasses and trees. No trees would be removed or disturbed by the proposed project. There is an existing wireless communications facility located on and under the tower, and on the adjacent tower. Proposed antennas will be visible from surrounding public viewsheds but will not significantly change the visual character of the site as the proposed tower profile will essentially remain the same given the attachment of antennas in close to the tower as possible.

### **IV. Conclusion**

In conclusion, the proposed project is a compatible use with the surrounding land uses as proven by the fact that an existing facility is located on and under the lattice tower. The proposed project will provide valuable communications services to area residents and businesses. Should you have any questions regarding this application, please feel free to call me at (530) 647-1932.

Sincerely,

Bell + Associates

**Gordon J. Bell**

Gordon J. Bell  
Zoning Specialist

Encl.



# VARIANCE JUSTIFICATIONS

All three of the following findings must be made in order to approve a Variance application.

The Sunnyvale Municipal code states that all three of the following justifications must be met before granting the Variance. Please provide us information on how your project meets all of the following criteria.

1. Because of exceptional or extraordinary circumstances or conditions applicable to the property, or use, including size, shape, topography, location or surroundings, the strict application of the ordinance is found to deprive the property owner of privileges enjoyed by other properties in the vicinity and within the same zoning district.

Strict application of the zoning ordinance would require all PG&E towers on this property to be limited to a height of 30 feet. The existing towers on this property already greatly exceed that height, and thus by strictly applying the ordinance to these towers, the City would preclude PG&E from utilizing these towers in a manner in which they see fit, which is to provide public utility type services such as power, gas, and telephone services. It should be noted that PG&E is not regulated by the City, and can extend their towers without permits from the City. Clearwire is proposing to go on a PG&E-installed tower extension, not one undertaken by Clearwire. It is PG&E's policy, as discussed in their top-hat extension letter submitted with this application to plan for future collocation of wireless carriers consistent with the City's zoning ordinance.

AND

2. The granting of the Variance will not be materially detrimental to the public welfare or injurious to the property, improvements, or uses within the immediate vicinity and within the same zoning district.

Granting of the variance, which would consist of a 12-foot extension to the existing 116-foot tall tower, would not significantly change the overall appearance or use of the tower, which is for transmission lines and existing telecom facilities. Since the use is not changing, it will have no impact on surrounding properties or the public welfare of the neighbors. An RF report has been prepared which demonstrates that Radiofrequency Radiation levels are well below FCC guidelines.

AND

3. Upon granting of the Variance, the intent and purpose of the ordinance will still be served and the recipient of the Variance will not be granted special privileges not enjoyed by other surrounding property owners within the same zoning district.

The intent and purpose of the ordinance will still be served upon granting of the variance, as the project is a collocation project which the ordinance is designed to promote. The recipient will not be granted special privileges as this PG&E tower already supports one telecom facility above the height limit of the R0 zone district.

If you need assistance in answering any of these justifications, contact the Planning Division staff at the One-Stop Permit Center.

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

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Clearwire, LLC, a personal wireless service provider, to evaluate the base station (Site No. CA-SJC0106) proposed to be located at 757 Lois Avenue in Sunnyvale, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

### Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission ("FCC") evaluate its actions for possible significant impact on the environment. In Docket 93-62, effective October 15, 1997, the FCC adopted the human exposure limits for field strength and power density recommended in 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 exposure limits. 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:

Personal Wireless Service	Approx. Frequency	Occupational Limit	Public Limit
Broadband Radio ("BRS")	2,600 MHz	5.00 mW/cm <sup>2</sup>	1.00 mW/cm <sup>2</sup>
Advanced Wireless ("AWS")	2,100	5.00	1.00
Personal Communication ("PCS")	1,950	5.00	1.00
Cellular Telephone	870	2.90	0.58
Specialized Mobile Radio ("SMR")	855	2.85	0.57
Long Term Evolution ("LTE")	700	2.33	0.47
[most restrictive frequency range]	30-300	1.00	0.20

Power line frequencies (60 Hz) are well below the applicable range of these standards, and there is considered to be no compounding effect from simultaneous exposure to power line and radio frequency fields.

### 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 about 1 inch thick. 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. Along with the low power of such facilities, 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 attached 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 Clearwire, including drawings by Delta Groups Engineering, Inc., dated June 12, 2009, it is proposed to mount three Argus Model LLPX310R directional panel antennas on a 12-foot extension above an existing 90-foot PG&E lattice tower sited near 757 Lois Avenue in Sunnyvale. The antennas would be mounted with 2° downtilt at an effective height of about 99 feet above ground and oriented at about 120° spacing, to provide service in all directions. The maximum effective radiated power in any direction would be about 970 watts. Also proposed to be mounted on the same pole are three microwave “dish” antennas for the interconnection of this site with others in the Clearwire network.

Presently located on the same tower and the adjacent lattice tower are similar antennas for use by MetroPCS and another, unidentified wireless telecommunications carrier. For the limited purpose of this study, the transmitting facilities of those carriers are assumed to be as follows:



**Clearwire, LLC • Proposed Base Station (Site No. CA-SJC0106)  
757 Lois Avenue • Sunnyvale, California**

Carrier	Service	Maximum ERP	Antenna Model	Height
Metro	PCS	1,890 watts	Kathrein 742-213	50 ft
Verizon	PCS	1,500	} Andrew 731DG65	50
	Cellular	1,500		

**ATTACHMENT**  
**Page 3 of 6** F

**Study Results**

For a person anywhere at ground, the maximum ambient level of RF exposure due to the proposed Clearwire operation by itself would be 0.00021 mW/cm<sup>2</sup>, which is 0.021% of the applicable public limit. The maximum calculated cumulative level at ground, for the simultaneous operation of all three carriers, is 1.5% of the applicable public limit; the maximum calculated cumulative level at the second-floor elevation of any nearby building\* is 1.5% of the applicable public limit. It should be noted that these results include several “worst-case” assumptions and therefore are expected to overstate actual power density levels. The microwave antennas would be in point-to-point service and are so directional that they make no significant contribution to RF exposure conditions at ground.

**No Recommended Mitigation Measures**

Due to their mounting locations, the Clearwire antennas would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. It is presumed that PG&E already takes adequate precautions to ensure that there is no unauthorized access to its tower. To prevent exposures in excess of the occupational limit by authorized PG&E workers, it is expected that they will adhere to appropriate safety protocols adopted by that company.

**Conclusion**

Based on the information and analysis above, it is the undersigned’s professional opinion that the base station proposed by Clearwire, LLC at 757 Lois Avenue in Sunnyvale, 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.

\* Located at least 50 feet away, based on aerial photographs from Google Maps.

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, 2011. 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.

July 27, 2009

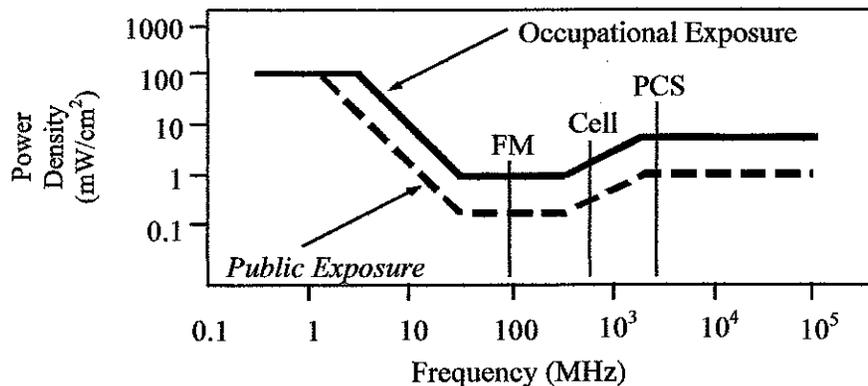


*William F. Hammett*  
William F. Hammett, P.E.

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 (f 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√f	<i>1.59√f</i>	√f/106	<i>√f/238</i>	f/300	<i>f/1500</i>
1,500 – 100,000	137	<i>61.4</i>	0.364	<i>0.163</i>	5.0	<i>1.0</i>



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. 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.

**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 ( $1.6 \times 1.6 = 2.56$ ). 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.





Pacific Gas and  
Electric Company

ATTACHMENT G  
Page 1 of 1

Business Development  
US Mail:  
Mail Code N10D  
P.O. Box 770000  
San Francisco, CA 94177-0001

Overnight Mail:  
Mail Code N10D  
245 Market Street, 10<sup>th</sup> Floor  
San Francisco, CA 94105

July 23, 2009

RE: Top Hat Extension Policy

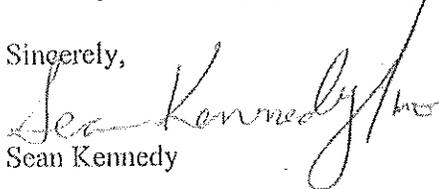
To Whom It May Concern:

The purpose of this letter is to notify effected jurisdictions that it is PG&E's current policy that wireless communication carriers propose an overall extension (Top Hat) on our lattice towers of 12-feet when going above our conductors in an effort to promote collocation on towers suitable for multi-carrier installations. In many instances, there is an existing 6-foot top hat which would be replaced with a 12-foot top hat as a result of a proposed project. In other cases, PG&E is requiring an initial 12-foot top hat extension if no previous extension exists for future growth.

PG&E recognizes that wireless communications carriers have similar coverage objectives and thus have the desire to collocate on facilities already suitable for wireless communications installations. In the past, PG&E has improved its towers on a case-by-case basis, necessitating the improvement of lattice towers many times over. These improvements are not cost efficient and require existing carriers on the tower to go "off-air" during the improvement phase which requires removal of antennas, and coaxial cables in order to install the "top hat" extension and new antennas. Existing carriers and their customers are thus compromised during this collocation process, which is not a satisfactory solution to future collocation efforts. Thus, PG&E is anticipating future collocation by making these proposed improvements and avoiding the need to remove existing/future carrier's antennas and coaxial cables during the collocation process. This policy seems to be consistent with most jurisdictions' policies directing carriers to collocate on existing structures, thus avoiding the need to construct new facilities on raw land sites.

Should you have any questions regarding this policy, please feel free to call me at (925) 786-3375.

Sincerely,

  
Sean Kennedy