

Case File Number: DR10291

July 20, 2011

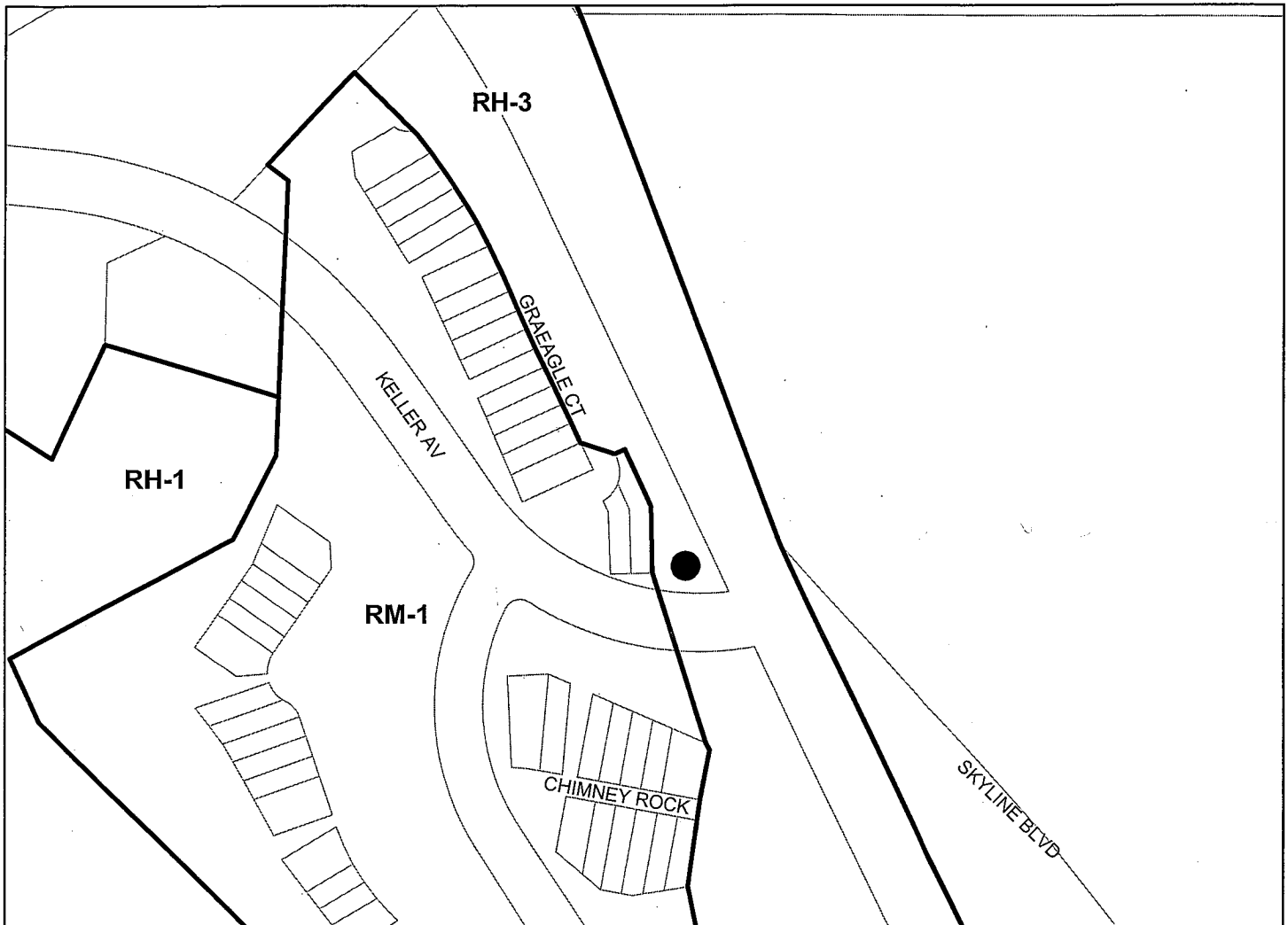
Location:	Skyline Boulevard (located in the Public Right of Way adjacent to 14530 Skyline Blvd.) (See map on reverse)
Assessors Parcel Number:	Adjacent to 040A -3840-013-01
Proposal:	Installation of a wireless telecommunication facility to an existing PG&E utility pole consisting of: increasing the existing pole height from 25' to 29'; two panel K athrein antennas mounted at approximately at 27' pole height; and associated equipment box (6' tall by 18" wide); one battery backup, and one meter box attached to the existing pole, at a height of between 7' to 9' above ground located in public right of way.
Applicant:	Extenet Systems
Contact Person/ Phone Number:	Rick Hirsch (415) 377-7826
Owner:	Pacific Gas & Electric
Case File Number:	DR10291
Planning Permits Required:	Regular Design Review to install a wireless Telecommunication Facility to an existing PG&E pole located in public right of away within a residential zone.
General Plan:	Mixed Housing Type Residential
Zoning:	RH-3 Hillside Residential 3 Zone
Environmental Determination:	Exempt, Section 15301 of the State CEQA Guidelines; alterations to existing facilities; 15183 Projects consistent with the General Plan or Zoning.
Historic Status:	No Historic Status
Service Delivery District:	IV
City Council District:	VI – Brooks
Date Filed:	11/9/10
Finality of Decision:	Appealable to City Council within 10 days
For Further Information:	Contact case planner Jose M. Herrera-Preza at (510) 238-3808 or jherrera@oaklandnet.com

SUMMARY

This project would provide for a modification to an existing Pacific Gas & Electric (PG&E) utility pole, located on the northwest corner at the intersection where Keller Ave meets Skyline Boulevard adjacent to 14530 Skyline Blvd. The project would result in an increase to the height of the existing utility pole to accommodate a new Telecommunications Facility consisting of two (2) panel antennas. Associated equipment cabinets would be mounted on the pole.

Regular Design Review is required for establishing a new telecommunications facility and to modify an existing PG&E utility pole located in or within 100' of a residential zone. As detailed below, the project meets all of the required findings for approval. Therefore, staff recommends approval of the project subject to the attached conditions of approval.

CITY OF OAKLAND PLANNING COMMISSION



0 125 250 500 750 1,000 Feet



Case File: DR10-291
Applicant: Extenet Systems / Rick Hirsch
Address: Skyline Boulevard (in Public Right-of-Way
adjacent to 14530 Skyline Boulevard
Zone: RH-3

PROJECT DESCRIPTION

The applicant (Extenet Systems) is proposing to install a total of two (2) wireless telecommunication panel antennas mounted on an existing PG&E utility pole. The proposed antennas would be mounted 27' above the public right of way and a 6'x18" enclosed equipment cabinet mounted 7' above the public right of way. The proposed antennas and equipment cabinet would be painted to match the existing color of the utility pole (See Attachment A).

BACKGROUND

Under the Telecommunications Act of 1996, the Federal Communications Commission (FCC) preempted cities' zoning jurisdiction over wireless telecommunications facilities, limiting their authority to aesthetic review and confirmation of satisfactory radio frequency (RF) emissions reports. For further information the FCC can be contacted at 1-888-225-5322 or www.fcc.gov

Recent State case law (Sprint v. Palos Verdes Estates) has enabled the City to require Design Review for telecommunications facilities attached to existing utility poles located within the right-of-way. The Planning & Zoning Department has determined that such Design Reviews be decided at the equivalent level as telecommunications projects located on private property located in the same zone.

PROPERTY DESCRIPTION

The subject property is located on the 14000 block of Skyline Blvd along an unpaved section of public right of way at the northwest corner of the intersection of Keller Avenue and Skyline Blvd.. The subject property is located within a 100' of a residential zone and surrounded by multifamily hillside properties and East Bay Regional Park property.

GENERAL PLAN ANALYSIS

The subject property is located within the Mixed Housing Type Residential General Plan designation. The Mixed Housing Type land use classification is intended to create, maintain and enhance residential areas typically located near the City's major arterials and characterized by a mix of single family homes, townhouses, small multi-unit buildings and neighborhood business where appropriate. The proposed unmanned wireless telecommunication facility will not adversely affect or detract from the residential characteristics of the neighborhood along Keller Ave and Skyline Blvd. The proposed antennas will be mounted along an existing wooden utility pole and will be textured and painted to match the wooden pole thus visual impacts will be mitigated since the antennas and equipment cabinet will not detract any character from the hillside residential neighborhood.

ZONING ANALYSIS

The subject property is located within the RH-3 Hillside Residential Zone. The RH-3 zone is create, maintain, and enhance areas for single-family dwellings on lots of 6,500 to 8,000 square feet and is typically appropriate in already developed areas of the Oakland Hills. The proposal is for a new unmanned wireless telecommunication facility to be mounted on an existing PG&E utility pole located along the 14000 block of Skyline Blvd. along an unpaved section of public right of way. A major Design Review permit is required since the project is within 100' of a residential zone. Staff finds that the proposed application meets the City of Oakland Telecommunication regulations (see Findings for Approval).

ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines lists the projects that qualify as categorical exemptions from environmental review. The proposed project is categorically exempt from the environmental review requirements pursuant to Sec. 15303, new construction of small structures, 15301, alterations to existing facilities, and 15183, projects consistent with the general plan or zoning.

KEY ISSUES AND IMPACTS

1. Design Review

The Ninth Circuit Court of Appeals has recently held that the city may consider aesthetics with respect to the siting of wireless telecommunications facilities within the public right of way. Based upon this Court decision the city has begun requiring Design Review for the co-location of wireless telecommunications facilities on existing public utility infrastructure located with the right of way, whereas previously these co-location projects has undergone a ministerial review process.

The proposed modification of an existing PG&E utility pole to add two panel antennas and associated equipment on the existing pole will consolidate public infrastructure while concealing the antennas through non-reflective matte exterior material and color treatment to minimize aesthetic impacts.

2. Project Site

Section 17.128.110 of the City of Oakland Telecommunication Regulations requires that wireless facilities shall generally be located on designated properties or facilities in the following order of preference:

- A. Co-located on an existing structure or facility with existing wireless antennas.
- B. City owned properties or other public or quasi-public facilities.
- C. Existing commercial or industrial structures in non-residential zones.
- D. Existing commercial or industrial structures in residential zones.
- E. Other non-residential uses in residential zones.
- F. Residential uses in non-residential zones.
- G. Residential uses in residential zones.

*Facilities locating on an A, B or C ranked preference do not require a site alternatives analysis.

Since the proposed project involves the co-location of a new unmanned wireless telecommunications facility on an existing public utility pole, the proposed development meets the (B) City owned properties or other public or quasi-public facilities, therefore a site alternatives analysis is not required.

3. Project Design

Section 17.128.120 of the City of Oakland Telecommunications Regulations indicates that new wireless facilities shall generally be designed in the following order of preference:

- A. Building or structure mounted antennas completely concealed from view.
- B. Building or structure mounted antennas set back from roof edge, not visible from public right-of way.

- C. Building or structure mounted antennas below roof line (facade mount, pole mount) visible from public right-of-way, painted to match existing structure.
- D. Building or structure mounted antennas above roof line visible from public right of-way.
- E. Monopoles.
- F. Towers.

* Facilities designed to meet an A or B ranked preference do not require site design alternatives analysis. Facilities designed to meet a C through F ranked preference, inclusive, must submit a site design alternatives analysis as part of the required application materials. This project is a proposed co-location establishing a new telecommunications facility.

The project meets design criteria (C) since the two (2) panel antennas will be pole mounted on an existing PG&E utility pole 27' above the public right of way and painted to match the wooden pole visible from the right of way. All proposed antennas are to be painted to match the wooden pole thus minimizing their impacts from the public view. Furthermore, to mitigate visual impacts the antennas will be mounted at least 27' above any pedestrian pathway. The associated equipment cabinets will be pole mounted 7' above the right of way and painted to match the wooden pole to minimize visual impact since the equipment cabinets will be fully enclosed and will be adequately concealed from the public right of way or immediate neighbors. (**Attachment B**)

4. Project Radio Frequency Emissions Standards

Section 17.128.130 of the City of Oakland Telecommunication Regulations require that the applicant submit the following verifications including requests for modifications to existing facilities:

- a. With the initial application, a RF emissions report, prepared by a licensed professional engineer or other expert, indicating that the proposed site will operate within the current acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.
- b. Prior to commencement of construction, a RF emissions report indicating the baseline RF emissions condition at the proposed site.
- c. Prior to final building permit sign off, an RF emissions report indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.

A RF emissions report, prepared by Matthew J. Butcher, PE for Sitesafe rf compliance experts, (**Attachment C**) indicated that the proposed project meets the radio frequency (RF) emissions standards as required by the regulatory agency. The report states that the proposed project will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not cause a significant impact on the environment. Additionally, staff recommends that prior to the issuance of a final building permit, that the applicant submits certified RF emissions report stating that the facility is operating within acceptable thresholds established by the regulatory federal agency.

CONCLUSION

In consideration of the proposal, site surroundings, and discussions regarding recent cases under this relatively new type of review, staff recommends Planning Commission approval of this application for the following reasons:

The site does not front:

- a scenic vista

The proposal features:

- a JPA pole in an area lacking other non-residential structures
- no ground mounted equipment cabinets
- pole mounted equipment cabinets to be encased in a single, continuous shroud painted matte brown to match the color and finish of the wooden utility pole

As of the completion of this report, no correspondence has been received by the City regarding the application.

RECOMMENDATIONS:

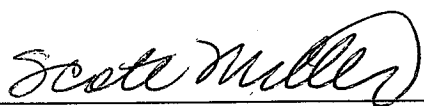
1. Affirm staff's environmental determination
2. Approve Major Design Review application DR10-291 subject to the attached findings and conditions of approval.

Prepared by:



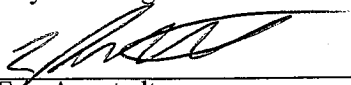
Jose M. Herrera-Preza
Planner I

Approved by:



Scott Miller
Zoning Manager

Approved for forwarding to the
City Planning Commission



Eric Angstadt
Deputy Director of
Community & Economic Development Agency

ATTACHMENTS:

- A. Project Plans & Photo simulation
- B. Design Alternative Analysis
- C. SiteSafe, Inc., RF Compliance Experts RF Emissions Report

FINDINGS FOR APPROVAL

This proposal meets all the required findings under Section 17.136.070A, Conditional Use Permit Findings and Regular Design Review Criteria as set forth below and which are required to approve your application. Required findings are shown in bold type; reasons your proposal satisfies them are shown in normal type.

17.136.070A – DESIGN REVIEW CRITERIA :

- A. The proposed design will create a building or set of buildings that are well related to the surrounding area in their scale, bulk, height, materials, and textures.**

The proposal would modify an existing PG&E utility pole to accommodate a new unmanned telecommunications facility through the addition of (2) panel antennas and (1) equipments cabinet, mounted on the public utility pole. The addition of the telecommunication facility to the existing utility pole will result in an increase in height from 25' to 29'. The utility pole will remain in the same location and will have the antennas mounted at 27' and an equipment cabinet at 7' on the utility pole. The proposed antennas and equipment cabinet will match the utility pole in color and finish materials to minimize visual impacts and the location and scale of the addition will be compatible with the existing facilities. Therefore, the proposal is consistent and well related to the surrounding area in scale, bulk, height, materials, and textures.

- B. The proposed design will protect, preserve, or enhance desirable neighborhood characteristics.**

The proposal protects and preserves the surrounding neighborhood context by co-locating additional wireless telecommunication antennas to existing utility infrastructure. The antennas will be painted and textured to match the structure and be located at least 27' above any pedestrian pathway or roadway thus mitigating the impact on the public view and will have minimal visual impact being located on a utility pole. The equipment cabinet would be mounted below the antennas at approximately 7' and concealed by existing shrubs and vegetation along the along Skyline Blvd., thus will not visually affect adjoining properties.

- C. The proposed design will be sensitive to the topography and landscape.**

The subject property is on a lot in which topography is not an issue of concern. The location and scale of the proposal will maintain existing landscaping.

- D. If situated on a hill, the design and massing of the proposed building relates to the grade of the hill.**

This criteria is not applicable to this proposal.

- E. The proposed design conforms in all significant respects with the Oakland Comprehensive Plan and with any applicable district plan or development control map which has been adopted by the City Council.**

The proposal conforms with the City of Oakland Comprehensive General Plan meeting specific General Plan policies and the Supplemental Report and Recommendations on Revisions to the Citywide Telecommunications Regulations. The proposal will conform to performance standards for noise set forth in Section 17.143.020 (j) and (k) for decibels levels in residential areas for both day and nighttime use. The Project conforms to all macro-facility definitions set forth in Section 17.128.050 and meets all design review criteria to minimize all impacts throughout the neighborhood

17.128.070(B) CITY OF OAKLAND TELECOMMUNICATIONS FACILITIES (MACRO)
DESIGN REVIEW CRITERIA

- 1. Antennas should be painted and/or textured to match the existing structure:**
The proposed antennas will be painted and finished to match the existing structure thus minimizing the impacts from public view.
- 2. Antennas mounted on architecturally significant structures or significant architectural details of the building should be covered by appropriate casings which are manufactured to match existing architectural features found on the building:**
The proposed antennas will be mounted along an exiting public utility pole which will have no affect on any existing residential neighborhood. The antennas will be mounted approximately 27' above grade to the centerline of the antennas. The antennas will not be mounted on any structure that will affect architectural features of existing structure on the subject property.
- 3. Where feasible, antennas can be placed directly above, below or incorporated with vertical design elements of a building to help in camouflaging:**
The proposal will utilize the existing structures vertical elements of the utility pole by mounting the proposed antennas vertically. The pole will be used to mount all new antennas maximizing the vertical elements of the structure. All mounted antennas will be painted and textured to camouflage them from public view thus creating minimal visual impact from street view.
- 4. Equipment shelters or cabinets shall be screened from the public view by using landscaping, or materials and colors consistent with surrounding backdrop:**
The associated equipment cabinets will be mounted along the pole approximately 7' above street level in an area surrounded by naturally occurring vegetation. Furthermore, the new equipment cabinet will be painted to match the pole and therefore the exterior of the pole will not be adversely affected when viewed from the street.
- 5. Equipment shelters shall be consistent with the general character of the area:**
The associated equipment cabinet will be mounted on a utility pole in between existing public utility equipment and therefore the exterior of the pole will not be significantly affected when viewed from the surrounding area.
- 6. For antennas attached to the roof, maintain a 1:1 ratio for equipment setback; screen the antennas to match existing air conditioning units, stairs, or elevator towers; avoid placing roof mounted antennas in direct line with significant view corridors.**

The proposed antennas will not be attached to a roof. The proposal will utilize an existing public utility pole in the center median along the 14000 block of Skyline Blvd. The new equipment cabinet will be screened by surrounding foliage and trees thus providing adequate camouflage from public view thus creating minimal visual impact from street view.

7. **That all reasonable means of reducing public access to the antennas and equipment has been made, including, but not limited to, placement in or on buildings or structures, fencing, anti-climbing measures and anti-tampering devices.**

The antennas will be mounted 27' above street level and will not be accessible to the public due to its location. The equipment cabinet will be 9' above street level, in a secured and separated area and will not be accessible to the public.

CONDITIONS OF APPROVAL
CMD10291

STANDARD CONDITIONS:

1. Approved Use

Ongoing

- a) The project shall be constructed and operated in accordance with the authorized use as described in the application materials, **CMD10-291**, and the plans dated **March 15th, 2011** and submitted on **June 28th, 2011** and as amended by the following conditions. Any additional uses or facilities other than those approved with this permit, as described in the project description and the approved plans, will require a separate application and approval. Any deviation from the approved drawings, Conditions of Approval or use shall required prior written approval from the Director of City Planning or designee.
- b) This action by the City Planning Commission ("this Approval") includes the approvals set forth below. This Approval includes: **modification to an existing Pacific Gas & Electric (PG&E) utility pole, located on the center median along Skyline Blvd. adjacent to property address 14530 Skyline Blvd. The project will increase the height of the existing utility pole to accommodate a new Telecommunications Facility consisting of two (2) panel antennas and associated equipment cabinets mounted on the utility pole., under Oakland Planning Code 17.136**

2. Effective Date, Expiration, Extensions and Extinguishment

Ongoing

Unless a different termination date is prescribed, this Approval shall expire **two calendar years** from the approval date, unless within such period all necessary permits for construction or alteration have been issued, or the authorized activities have commenced in the case of a permit not involving construction or alteration. Upon written request and payment of appropriate fees submitted no later than the expiration date of this permit, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit for this project may invalidate this Approval if the said extension period has also expired.

3. Scope of This Approval; Major and Minor Changes

Ongoing

The project is approved pursuant to the **Oakland Planning Code Telecommunications Regulations** only. Minor changes to approved plans may be approved administratively by the Director of City Planning or designee. Major changes to the approved plans shall be reviewed by the Director of City Planning or designee to determine whether such changes require submittal and approval of a revision to the approved project by the approving body or a new, completely independent permit.

4. Conformance with other Requirements

Prior to issuance of a demolition, grading, P-job, or other construction related permit

- a) The project applicant shall comply with all other applicable federal, state, regional and/or local codes, requirements, regulations, and guidelines, including but not limited to those imposed by

CONDITIONS OF APPROVAL

the City's Building Services Division, the City's Fire Marshal, and the City's Public Works Agency.

- b) The applicant shall submit approved building plans for project-specific needs related to fire protection to the Fire Services Division for review and approval, including, but not limited to automatic extinguishing systems, water supply improvements and hydrants, fire department access, and vegetation management for preventing fires and soil erosion.

5. Conformance to Approved Plans; Modification of Conditions or Revocation

Ongoing

- a) Site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within 60-90 days of approval, unless an earlier date is specified elsewhere.
- b) The City of Oakland reserves the right at any time during construction to require certification by a licensed professional that the as-built project conforms to all applicable zoning requirements, including but not limited to approved maximum heights and minimum setbacks. Failure to construct the project in accordance with approved plans may result in remedial reconstruction, permit revocation, permit modification, stop work, permit suspension or other corrective action.
- c) Violation of any term, conditions or project description relating to the Approvals is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approvals or alter these conditions if it is found that there is violation of any of the conditions or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it, limit in any manner whatsoever the ability of the City to take appropriate enforcement actions.

6. Signed Copy of the Conditions

With submittal of a demolition, grading, and building permit

A copy of the approval letter and conditions shall be signed by the property owner, notarized, and submitted with each set of permit plans to the appropriate City agency for this project.

7. Indemnification

- a) ***Ongoing*** The project applicant shall defend (with counsel reasonably acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the City of Oakland Redevelopment Agency, the Oakland City Planning Commission and their respective agents, officers, and employees (hereafter collectively called the City) from any claim, action, or proceeding (including legal costs and attorney's fees) against the City to attack, set aside, void or annul this Approval, or any related approval by the City. The City shall promptly notify the project applicant of any claim, action or proceeding and the City shall cooperate fully in such defense. The City may elect, in its sole discretion, to participate in the defense of said claim, action, or proceeding. The project applicant shall reimburse the City for its reasonable legal costs and attorney's fees.
- b) Within ten (10) calendar days of the filing of a claim, action or proceeding to attack, set aside, void, or annul this Approval, or any related approval by the City, the project applicant shall execute a Letter Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations and this condition of approval. This condition/obligation shall survive termination, extinguishment, or invalidation of this, or any related approval. Failure to timely execute the Letter Agreement does not relieve the project applicant of any of the obligations contained in 7(a) above, or other conditions of approval.

8. Compliance with Conditions of Approval

Ongoing

The project applicant shall be responsible for compliance with the recommendations in any submitted and approved technical report and all the Conditions of Approval set forth below at its sole cost and expense, and subject to review and approval of the City of Oakland.

9. Severability

Ongoing

Approval of the project would not have been granted but for the applicability and validity of each and every one of the specified conditions, and if any one or more of such conditions is found to be invalid by a court of competent jurisdiction this Approval would not have been granted without requiring other valid conditions consistent with achieving the same purpose and intent of such Approval.

10. Job Site Plans

Ongoing throughout demolition, grading, and/or construction

At least one (1) copy of the stamped approved plans, along with the Approval Letter and Conditions of Approval, shall be available for review at the job site at all times.

11. Operational

Ongoing.

Noise levels from the activity, property, or any mechanical equipment on site shall comply with the performance standards of Section 17.120 of the Oakland Planning Code and Section 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the Planning and Zoning Division and Building Services.

PROJECT SPECIFIC CONDCTIONS:

12. Sinking Fund For Facility Removal or Abandonment.

Prior to the issuance of building permit.

The applicant shall provide proof of the establishment of a sinking fund to cover the cost of removing the facility if it is abandoned within a prescribed period. The word "abandoned" shall mean a facility that has not been operational for a six (6) month period, except where non-operation is the result of maintenance or renovation activity pursuant to valid City permits. The sinking fund shall be established to cover a two-year period, at a financial institution approved by the City's Office of Budget and Finance. The sinking fund payment shall be determined by the Office of Budget and Finance and shall be adequate to defray expenses associated with the removal of the telecommunication facility.

13. Emissions Report

Prior to a final inspection

The applicant shall provide an RF emissions report to the City of Oakland Zoning Division indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency that may be subsequently authorized to establish such standards.

14. Camouflaging

Prior to a final inspection

All apparatus (including but not limited to antenna and equipment) shall be painted brown (matte or non-reflective) to match the color and finish of the existing wooden utility pole.

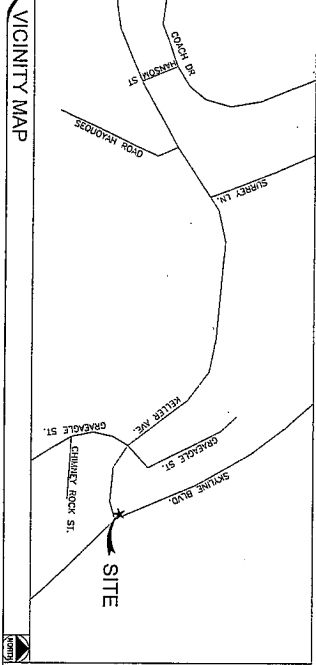
Issued For
Permitting

ATTACHMENT A

exteneSM SYSTEMS

SKY-060A
SKYLINE NETWORK - 060A

ACROSS FROM: 14530 SKYLINE BLVD.
OAKLAND, CA 94619



CLIENT
EXISTEL SYSTEMS, INC.
1351 FOLSOM ROAD
SUITE 340
OAKLAND, CA 94612
PHONE: (909) 982-3113
FAX: (909) 982-3113

POLE OWNER
A1A
1351 FOLSOM ROAD
SUITE 340
OAKLAND, CA 94612
PHONE: (909) 982-3113
FAX: (909) 982-3113

CODE COMPLIANCE:
ALL WORK AND MATERIALS SHALL BE PERFORMED &
INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF
THE FOLLOWING CODES:
1. CALIFORNIA ADMINISTRATIVE CODE (INCLUDING TITLE 24 &
29)
2. 2007 CALIFORNIA BUILDING CODE
3. 2007 CALIFORNIA ELECTRICAL CODE
4. BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA)
5. AMERICAN PLUMBING & MECHANICAL CODES
6. AMERICAN-22-7 LIFE SAFETY CODE
7. CALIFORNIA GENERAL ORDERS 35 & 128

ENGINEERING FIRMS/SURVEYING
UNIVERSITY ENGINEERING GROUP, INC.
1351 FOLSOM ROAD
SUITE 340
OAKLAND, CA 94612
PHONE: (909) 982-3113
FAX: (909) 982-3113

COORDINATES
LAT: 37.76971
LONG: -122.17914

PROJECT DESCRIPTION	
PROJECT IS A DIVERSIFIED ANTENNA SYSTEM, UTILIZING UTILITY POLES BY THE PUBLIC RIGHT OF WAY, TO PROVIDE A BROADBAND NETWORK FOR THE CITY OF OAKLAND. THE PROJECT WILL BE A BROADBAND NETWORK FOR THE CITY OF OAKLAND. THE PROJECT WILL BE A BROADBAND NETWORK FOR THE CITY OF OAKLAND.	
SHEET INDEX	
SHEET	DESCRIPTION
T1	TITLE SHEET
T2	GENERAL NOTES & SCHEDULE
A1	GENERAL NOTES & SCHEDULE
A2	ELEVATIONS/SECTION DETAILS
A3	ELEVATIONS/SECTION DETAILS
E1	ELEVATIONS/SECTION DETAILS

exteneSM
SYSTEMS
3030 WARRENDALE RD.
SUITE 340
OAKLAND, CA 94612
www.extenesystems.com

REV.	DATE	DESCRIPTION
1	1/17/11	REVISION PER PAGE POWER DESIGN
2	2/16/11	REVISION PER CLIENT
3	3/3/11	REVISION PER CLIENT
4	3/15/11	REVISION PER CITY COMMENTS

CURRENT SCALE DATE:
3/15/11

PLANS PREPARED BY:
Maximize Comm.
Group, Inc.
1351 FOLSOM ROAD
SUITE 340
OAKLAND, CA 94612
OFFICE: (909) 786-2170
FAX: (909) 982-3113

LICENSURE:
OAKLAND, CA 94619

SITE NO.:
SKY-060A
SITE NAME & ADDRESS:
SKYLINE NETWORK-060A
ACROSS FROM 14530 SKYLINE BLVD.
OAKLAND, CA 94619

SHEET TITLE:
TITLE SHEET
DRAWN BY: GREGORY, EM
CHECKED BY: GREGORY, EM
SHEET NUMBER: T1
TOTAL SHEETS: 4

exteneSM SYSTEMS	
3030 WAREHOUSE RD. SUITE 340 Lisle, IL 60532 www.extenesys.com	
REV.	DATE DESCRIPTION
1	1/17/11 REVISION PER POLE POWER DESIGN
2	2/16/11 REVISION PER CLIENT COMMENTS
3	3/31/11 REVISION PER LAYOUT
4	3/15/11 REVISION PER CITY COMMENTS

CLEARTEXT DATE: 3/15/11

PLANS PREPARED BY:
Maximize Comm.
Group, Inc.

1351 PULMONA ROAD
SUITE 100
CROMWELL, CA 92632
OFFICE: (909) 798-2170
FAX: (909) 592-3113

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LICENSEE:

SITE NO.: SKY-060A

SITE NAME & ADDRESS:
SKYLINE NETWORK-060A
ADDRESS: HESCO STREET AND
OAKVIEW AVE/699

exteneSM SYSTEMS	
3030 WAREHOUSE RD. SUITE 340 Lisle, IL 60532 www.extenesystems.com	
REV.	DATE DESCRIPTION
1	1/17/11 REVISION PER POLE POWER DESIGN
2	2/16/11 REVISION PER CLIENT COMMENTS
3	3/31/11 REVISION PER LAYOUT
4	3/15/11 REVISION PER CITY COMMENTS

CLEARTEXT DATE: 3/15/11

PLANS PREPARED BY:
 Maximize Comm. Group, Inc.
 1351 POLKINA ROAD
 SUITE 100
 CROMWELL, CA 92632
 OFFICE: (909) 798-2170
 FAX: (909) 592-3113
Copyright © 2011 by Maximize Communications Group, Inc.

LICENSEE:

SITE NO.: SKI-060A

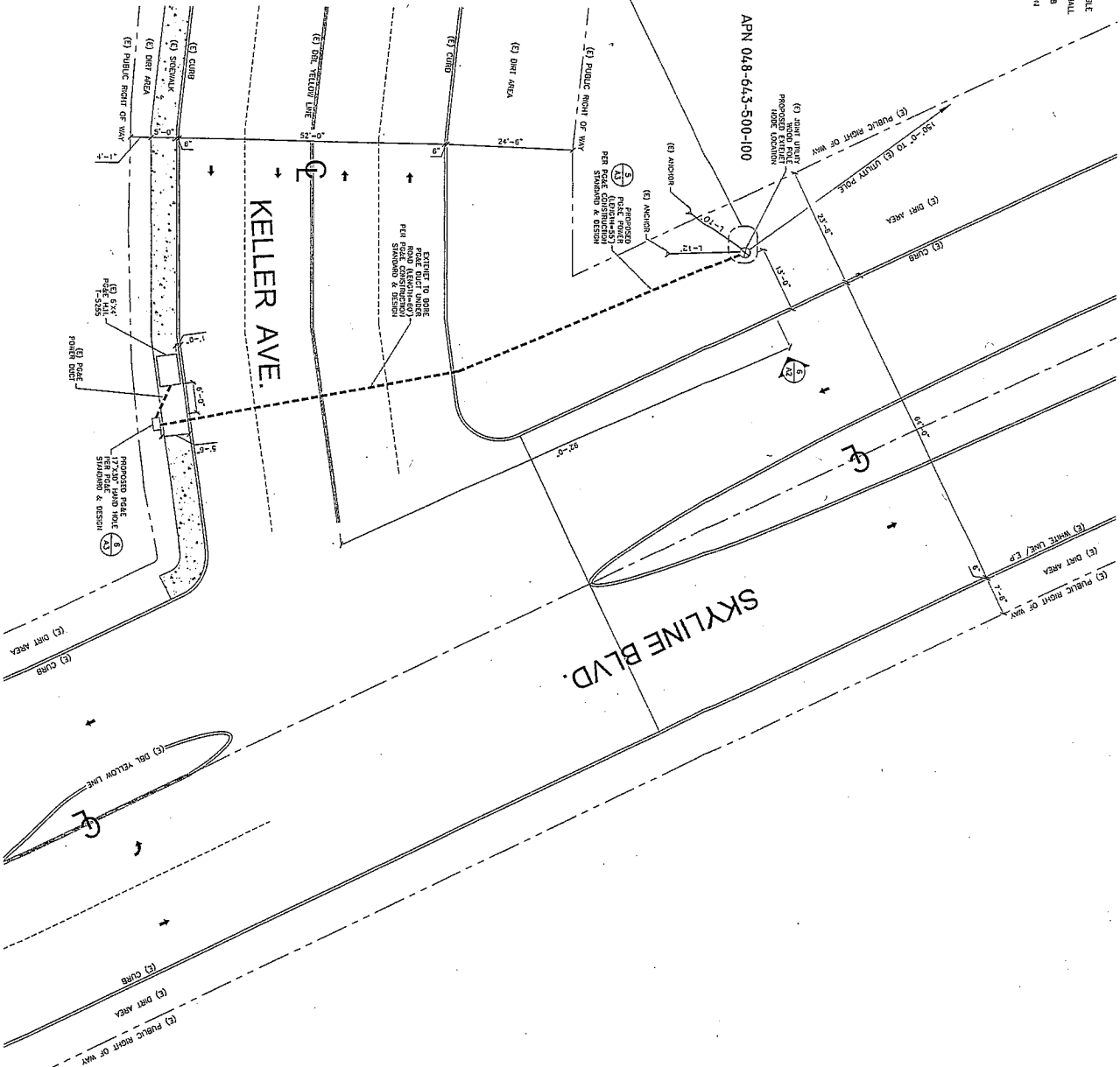
SITE NAME & ADDRESS:
 SKI LINE NETWORK-060A
 ADDRESS: HESCO STATE PARK
 OAKLAND, CA 94619

UTILITY INSTALLATION NOTE:
PROPOSED PNEUMATIC GAS & ELECTRIC FACILITIES WILL BE INSTALLED BY APPLICANT (EXHAUST SYSTEMS) PER PG&E CONSTRUCTION STANDARDS (GREEN BOOK) AND DESIGN INCLUDED IN CONTRACT.



USA North
of Caribbean, Latin America and Africa

Call Before you Dig! 1-800-227-2600




exteneiSM
SYSTEMS

3030 WARRENVILLE RD.
SUITE 340
Lisle, IL 60532
www.extenei.com

REV.	DATE	DESCRIPTION
1	1/17/11	REVISION PER PAGE POWER DESIGN
2	2/16/11	REVISION PER CLIENT REQUEST
3	3/3/11	REVISION PER REVISIONS
4	3/15/11	REV COMMENTS

CURRENT ISSUE DATE:

$$3/15/11$$


**Maximize Comm.
Group, Inc.**

1351 POMONA ROAD
SUITE 100
CORONA, CA 92882
OFFICE: (909) 786-2170
FAX: (909) 992-3113

LICENSEE:

SITE NO.:

SITE NAME & ADDRESS:

SKYLINE NETWORK-060A
ACTRESS FROM 14550 SKYLINE BLVD.
OFTEN AN CAPABLE

UNHCR, 2017

MEET ME:
SITE PLAN

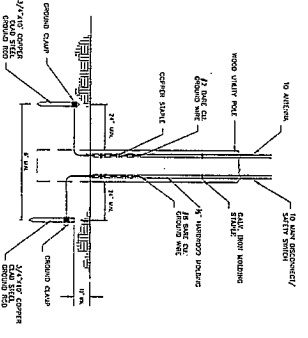
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A1		4

-

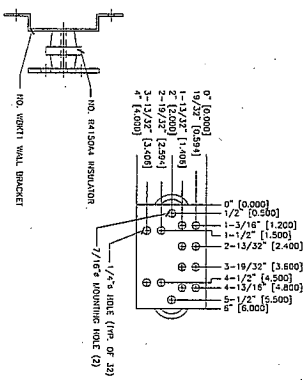
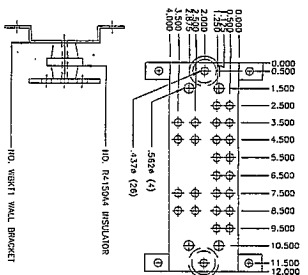
GROUND BAR DETAIL (TYP)

-

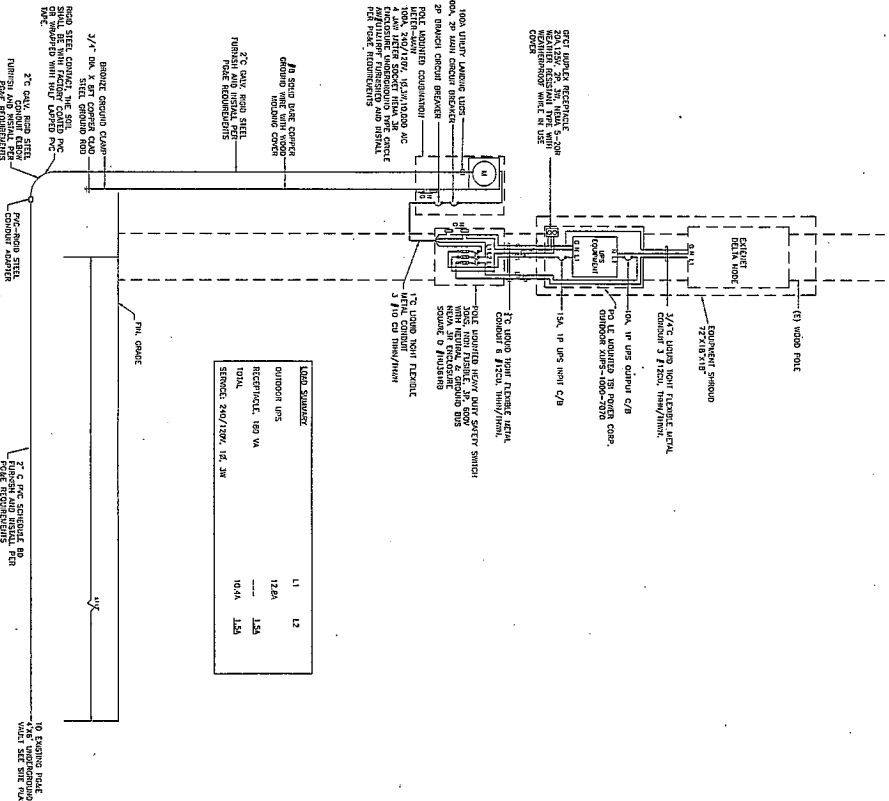
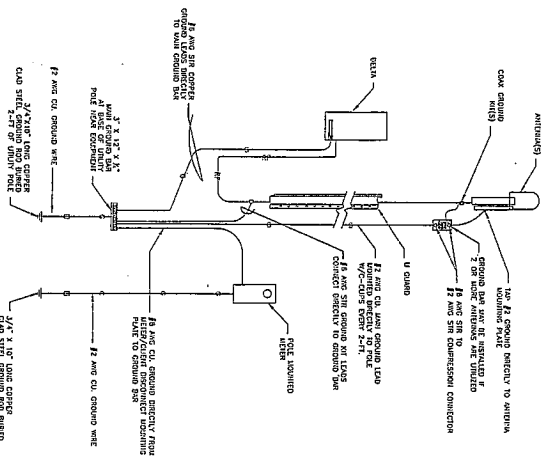
ANTENNA CABLE GROUND KIT



SECRET



SCALE:	1
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REV.	DATE	DESCRIPTION
1	1/17/11	REVISION PER ROAD POWER DESIGN
2	2/16/11	REVISION PER CLIENT REQUEST
3	3/3/11	REVISION PER LIRESTIGATION
4	3/15/11	REVISION PER CLIENT COMMENTS

 $3/|5/||$

 **Maximize Comm.
Group, Inc.**

1351 POMONA ROAD
SUITE 100
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SKY-060A

SKYLINE NETWORK-060A

10055 FIDON 14550 TALLE BLVD.
ORLAND, CA 94619

SEEK ME:
ELECTRICAL DETAILS

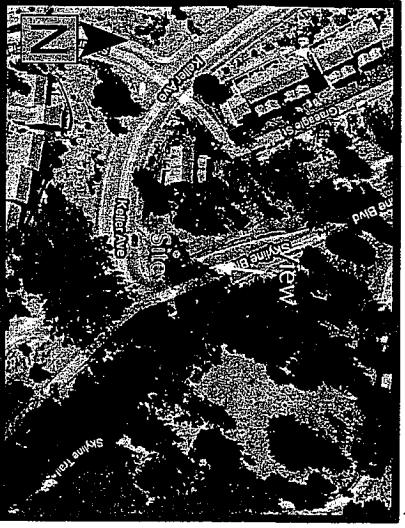
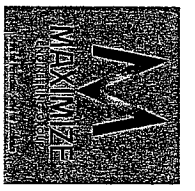
NAME:	DATE:	PERIOD:
VC	EM	EM

SKY-60A

View One

Acropolis from 14530 Skyline Blvd. Oakland, Ca 94619

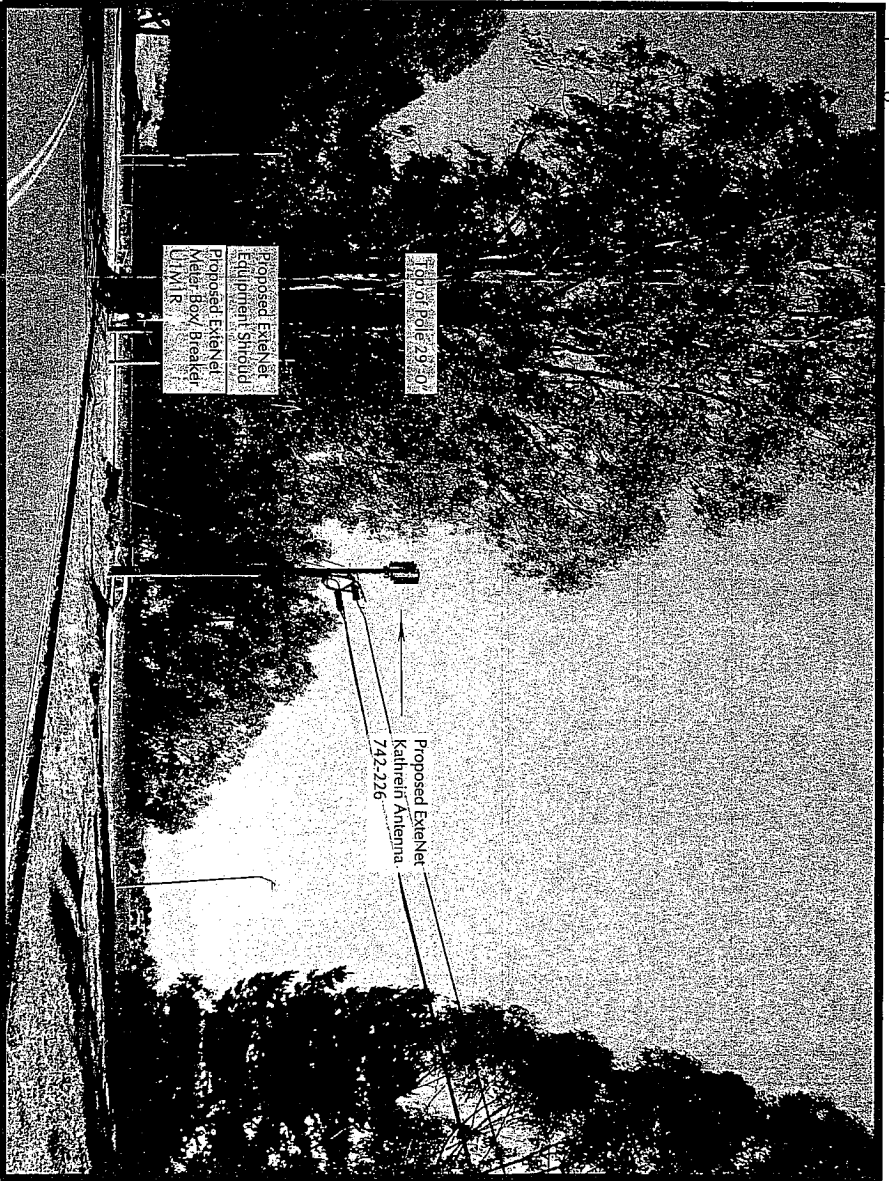
Date of final: 3/08/2011



Site Map



Existing



Proposing

DAS Network Fundamentals

A Distributed Antenna System (DAS) network is a group of multiple transceivers all interconnected to provide wireless service into a target area. In effect, a DAS network is a much smaller of a traditional (macro) cellular network.

A DAS network has three major components:

- Node – a transceiver serving a small (0.25 mile radius) typically located on electrical poles, light poles, or other outside plant (OSP)
- Hub – a centralized location that interfaces with the node and Wireless Service Provider (WSP – e.g. AT&T, Sprint, Verizon, etc) equipment to deliver functioning wireless signals
- Interconnection – a medium, typically fiber optics, that interconnects the node equipment with the hub equipment

Design Process for Skyline

Similar to the design of a macro cellular network, a WSP will provide requirements that a Distributed Antenna System (DAS) network must fulfill. There are three general classifications of requirements:

- Coverage – delivering adequate wireless signal in an area where signal is either not present or not usable (e.g. interference)
- Capacity – providing additional wireless signal and bandwidth resources from many sources (versus one source) to segment traffic and increase the overall capacity of the area being served
- Performance – providing both coverage and capacity to reduce congestion, better facilitate mobility, and improve the overall network performance in that specific area

The requirements for a DAS design could be either any one of the classifications or could be a combination of any or all of them.

In the case of the Skyline network, the primary requirement was to provide coverage in the specified area.

In a coverage design, there are three major goals:

- Contiguous coverage – design a network that provides seamless coverage throughout the area of interest
- Interface with the macro network – ensure coverage and performance continuity between the DAS and the macro network
- Aesthetics – minimizing the number of nodes and equipment per node location required to serve the area of interest

Because the goals can somewhat conflict (e.g. providing seamless coverage while minimizing the number of nodes within the design), combined with the small effective coverage radius of each individual node, the design process is very iterative. It is not uncommon to modify designs three to four

times before reaching an optimal balance between the three goals. Likewise, the designs become rather rigid, in that modifications to them after the design can produce unwanted outcomes that negate the initial goals. As an example, Figure 1 represents a prediction of the coverage the Skyline DAS network.



Figure 1 – Predicted Coverage for Designed Skyline Network

Figure 2 shows the same prediction with three of the nodes moved approximately 100 feet from their originally designed location, producing a coverage “hole,” or unserved area of wireless coverage.



Figure 2 – Predicted Coverage for Skyline Network with Node Locations Moved ~ 100 feet

The result of this situation would negate the initial goals. Specifically, the network would not provide contiguous coverage within the designed area, so additional node and head end equipment would be necessary, impacting aesthetics and/or node counts.



Summary

The designed node placement for the Skyline network is the optimal balance among the three main goals for a coverage-based DAS network. Even the slightest deviation in node locations, distance between nodes, antenna heights, etc. would have adverse effects for both the WSP and for the community.

Extenet Systems, LLC Site Name – DAS Configuration 2B Site Compliance Report

Structure Type: Existing or New Above Ground Facilities in Public Right-of-Way

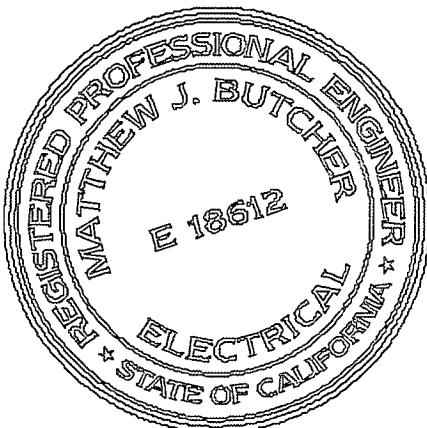
Report generated date: December 2, 2010

Report by: Jerry Audi

Customer Contact: Michael Chow

**Extenet Systems, LLC Will Be Compliant based on
FCC Rules and Regulations.**

© 2010 Sitesafe, Inc. Arlington, VA



Registration Expires December 31, 2010



Matthew J Butcher
Registered Professional Engineer
State of California License E 18612



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1 Executive Summary

Extenet Systems, LLC has contracted with Sitesafe, Inc. (Sitesafe), an independent Radio Frequency (RF) regulatory and engineering consulting firm, to determine whether the proposed communications site is in compliance with FCC Rules and Regulations for RF emissions.

This report contains a detailed summary of the RF environment at the site including:

- diagram of the site;
- inventory of the make / model of all transmitting;
- theoretical MPE based on modeling.

This report addresses exposure to radio frequency electromagnetic fields in accordance with the FCC Rules and Regulations for all individuals, classified in two groups, "Occupational or Controlled" and "General Public or Uncontrolled." This **site will be compliant** with FCC Rules and Regulations. The corrective actions needed to make this site compliant are located in Section 3.2.

The theoretical modeling of the RF electromagnetic fields on this site has been performed in accordance with the FCC's Office of Engineering and Technology Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997.

This document and the conclusions herein are based on the information provided by Extenet Systems, LLC

If you have any questions regarding RF safety and regulatory compliance, please do not hesitate to contact Sitesafe's Customer Support Department at (703) 276-1100.

2 Regulatory Basis

2.1 FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

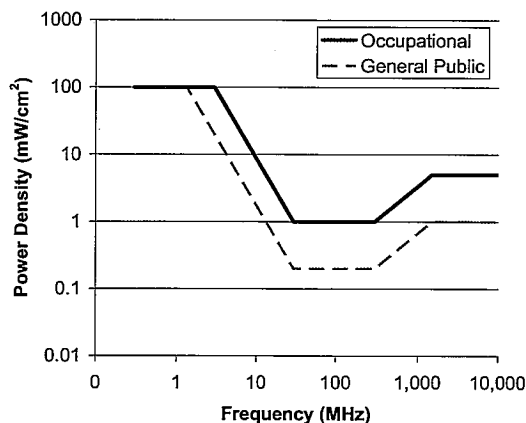
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:

FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

*Plane-wave equivalent power density

2.2 OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.



3 Site Compliance

3.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, Sitesafe has determined that:

Extenet Systems, LLC is predicted to contribute **greater than 5%** of the maximum permissible exposure (MPE) at the antenna level based on theoretical modeling using parameters supplied by the client. Extenet Systems, LLC is predicted to contribute **less than 5%** on the ground level. A detailed explanation of the 5% rule can be found in the Definition section of Appendix B.

The compliance determination is based on General Public MPE levels based on theoretical modeling, RF signage recommendations, information provided by customer and the level of restricted access to the antennas at the site. Any deviation from the proposed deployment plans may render the site in to non compliance.

3.2 Actions for Site Compliance

Based on common industry practice and our understanding of FCC and OSHA requirements, this section provides a statement of recommendations for site compliance. RF alert signage recommendations have been proposed based on theoretical analysis of MPE levels.

This site will be compliant with FCC Rules and Regulations. Extenet Systems, LLC contributes greater than 5% of the maximum permissible exposure (MPE); therefore, additional action is required by Extenet Systems, LLC to attain compliance. It is recommended that Extenet Systems, LLC review Appendix D in order to maintain a current RF Safety Awareness program.

Sitesafe found one or more issues that led to our determination. The site will be made compliant if the following changes are implemented:

- Posting RF signs that a person could read and understand the signs prior to accessing the site;

Site Access Location

Blue notice sign required. (Above the Extenet equipment, below the telco cable)

Note: Sitesafe recommends installing a Blue Notice Sign above the street lamp and underneath the antenna to alert tower climbers when performing services on site.

Extenet Systems, LLC Proposed Omni Location

No action required.

4 Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 5 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

5 Analysis

5.1 RF Emissions Diagram

The RF diagram(s) below display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as proscribed in OET Bulletin 65 and assumptions detailed in Appendix B.

The key at the bottom of each diagram indicates if percentages displayed are referenced to FCC Occupational or General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are below 5% of the MPE limits.
- Green represents areas predicted to be between 5% and 20% of the MPE limits.
- Yellow represents areas predicted to be between 20% and 100% of the MPE limits.
- Red areas indicated predicted levels greater than 100% of the MPE limits.

General Population diagrams are specified when an area is accessible to the public; i.e. personnel that do not meet Occupational or RF Safety trained criteria, could gain access.

If trained occupational personnel require access to areas that are delineated as Red or above 100% of the limit, Sitesafe recommends that they utilize the proper personal protection equipment (RF monitors), coordinate with the carriers to reduce or shutdown power, or make real-time power density measurements with the appropriate power density meter to determine real-time MPE levels. This will allow the personnel to ensure that their work area is within exposure limits.

The key at the bottom also indicates the level or height of the modeling with respect to the main level. The origin is typically referenced to the main rooftop level, or ground level for a structure without access to the antenna level. For example:

Average from 0 feet above to 6 feet above origin

and

Average from 20 feet above to 26 feet above origin

The first indicates modeling at the main rooftop (or ground) level averaged over 6 feet. The second indicates modeling at a higher level (possibly a penthouse level) of 20 feet averaged over 6 feet.

Abbreviations used in the RF Emissions Diagrams

PH=##'	Penthouse at ## feet above main roof
--------	--------------------------------------

Additional Information in the RF Emissions Diagrams Key

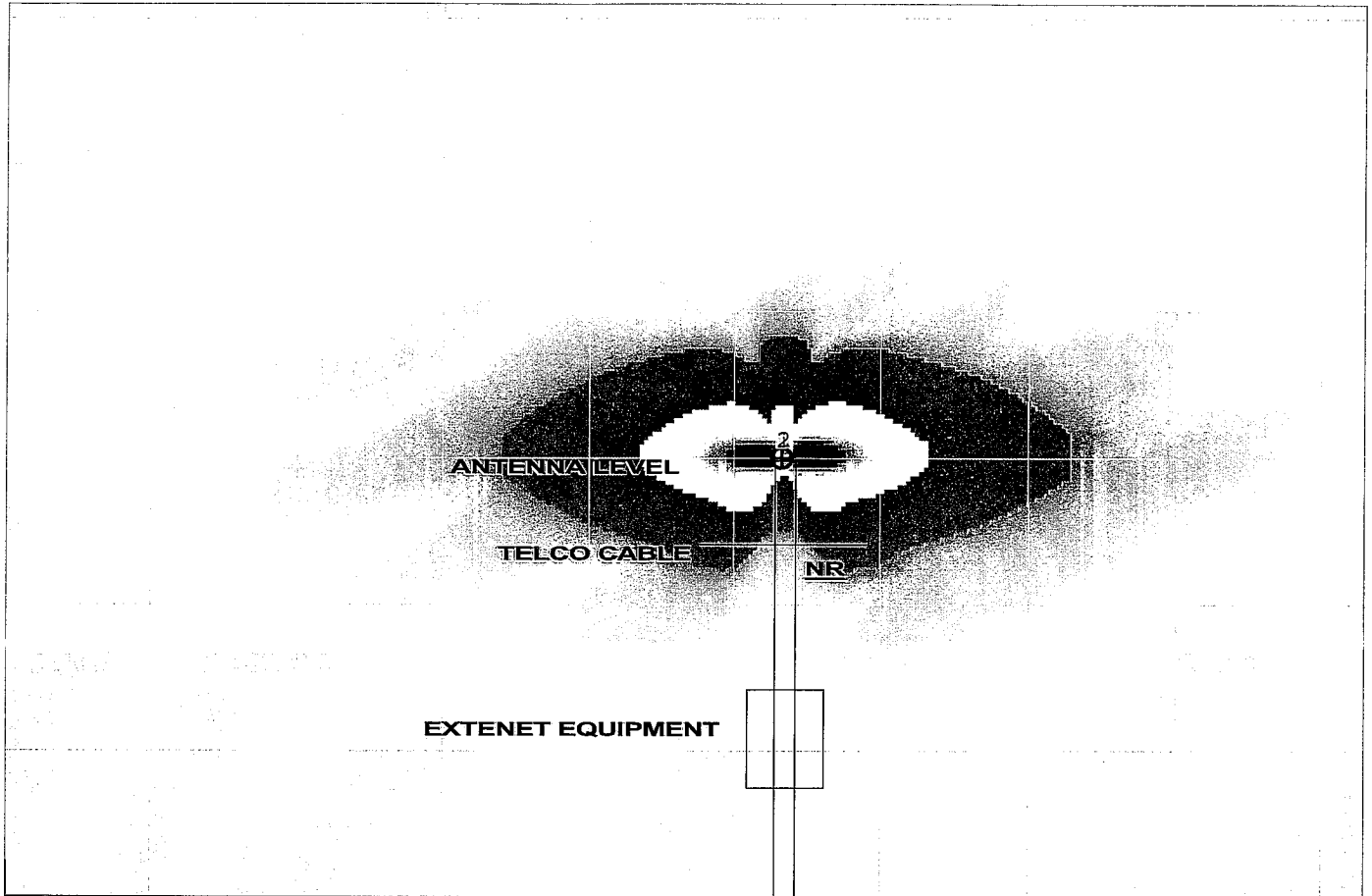
The RF emissions diagram provides recommendations of RF signage, barriers and locked doors. The table below lists the abbreviations:



The RF emissions diagram includes recommendations for RF signage, barriers and locked doors. The table below lists the abbreviations:

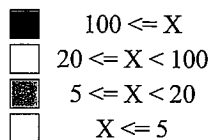
Table 1: RF Signage and Barrier Key					
RF Signage			Barriers		
Type	Existing Location	Recommended Location	Type	Existing Location	Recommended Location
Notice	<u>NE</u>	<u>NR</u>	Locked Door	<u>LE</u>	<u>LR</u>
Caution	<u>CE</u>	<u>CR</u>	Fencing	<u>RE</u>	<u>RR</u>
Warning	<u>WE</u>	<u>WR</u>	Rope Chain		
Info Sign	<u>IE</u>		Paint Stripes		

RF Emissions Diagram for: DAS Configuration 2B Elevation View



% of FCC Public Exposure Limit

Individual Points

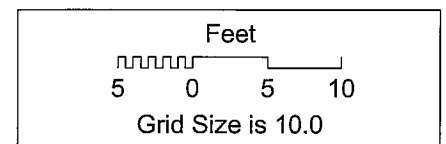


www.sitesafe.com

Sitesafe ID# 63940

Site Name: DAS Configuration 2B

Sitesafe Inc. assumes no responsibility for modeling results not verified by Sitesafe personnel.
Contact Sitesafe Inc. for modeling assistance (703) 278-1100.
Simsafe VTC Version Unavailable
10/19/2010



6 Antenna Inventory

6.1 Transmitting Antenna Inventory

The Antenna Inventory shows all transmitting antennas at the site. The antenna inventory was provided by the customer, and was utilized by Sitesafe to perform theoretical modeling of RF emissions. The inventory coincides with the site diagrams in this report, identifying each antenna's location at DAS Configuration 2B. The antenna information collected includes the following information:

- Licensee or wireless operator name
- Frequency or frequency band
- Transmitter power – Effective Radiated Power ("ERP"), or Equivalent Isotropic Radiated Power ("EIRP") in Watts
- Antenna manufacturer make, model, and gain

For other carriers at this site, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information with regard to carrier, their FCC license and/or antenna information was not available. Equipment, antenna models and nominal transmit power were used for modeling, based on past experience with radio service providers.



The following antenna inventory was obtained from the customer and was utilized to create the RF Emission diagrams in Section 5:

Table 3: Antenna Inventory												
Ant #	Operated By	TX Freq (MHz)	ERP (Watts)	Antenna Gain (dBd)	Az (Deg)	Antenna Model	Ant Type	Length (ft)	Horizontal Half Power Beamwidth (Deg)	Location		
										X	Y	Z (ft)
1	T-Mobile (Proposed)	1972	104	11.24	90	Kathrein-Scala 742226 or like	Panel	2	65	75	193	30
1	T-Mobile (Proposed)	2140	111	11.61	90	Kathrein-Scala 742226 or like	Panel	2	65	75	193	30
2	T-Mobile (Proposed)	1972	104	11.24	270	Kathrein-Scala 742226 or like	Panel	2	65	75	193	30
2	T-Mobile (Proposed)	2140	111	11.61	270	Kathrein-Scala 742226 or like	Panel	2	65	75	193	30

NOTE: X, Y and Z indicate relative position of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates antenna height above the main site level unless otherwise indicated. ERP values provided by the client and used in the modeling may be greater than are currently deployed. For other carriers at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to carrier, their FCC license and/or antenna information was not available nor could it be secured while on site. Equipment, antenna models and nominal transmit power were used for modeling, based on past experience with radio service providers.



7 Engineer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms that:

I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

That I am an employee of Sitesafe, Inc., in Arlington, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That survey measurements of the site environment of the site identified as DAS Configuration 2B have been performed in order to determine where there might be electromagnetic energy that is in excess of both the Controlled Environment and Uncontrolled Environment levels; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Jerry Audi

November 29, 2010



Appendix A – Statement of Limiting Conditions

Due to the complexity of some wireless sites, Sitesafe performed this analysis and created this report utilizing supplied and collected information. Sitesafe cannot be held accountable or responsible for anomalies or discrepancies due to actual site conditions (i.e., mislabeling of antennas or equipment, undocumented cable runs, undocumented antennas or equipment, etc.) or information or data supplied by Extenet Systems LLC, the site manager, or their affiliates, subcontractors or assignees.

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, observed during the survey of the subject property or that Sitesafe became aware of during the normal research involved in performing this survey. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data provided by a second party and physical data collected by Sitesafe, the physical data will be used.



Appendix B – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The site has been modeled with these assumptions to show the maximum RF energy density. Sitesafe believes this to be a *worst-case* analysis, based on best available data. Areas modeled to predict emissions greater than 100% of the applicable MPE level may not actually occur, but are shown as a *worst-case* prediction that could be realized real time. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Thus, at any time, if power density measurements were made, we believe the real-time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modeling in this way, Sitesafe has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where RFR exposure may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.



Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Radiation – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

The FCC has set forth guidelines in OET Bulletin 65 for human exposure to radio frequency electromagnetic fields. Specific regulations regarding this topic are listed in Part 1, Subpart I, of Title 47 in the Code of Federal Regulations. Currently, there are two different levels of MPE - General Public MPE and Occupational MPE. An individual classified as Occupational can be defined as an individual who has received appropriate RF training and meets the conditions outlined below. General Public is defined as anyone who does not meet the conditions of being Occupational. FCC and OSHA Rules and Regulations define compliance in terms of total exposure to total RF energy, regardless of location of or proximity to the sources of energy.

It is the responsibility of all licensees to ensure these guidelines are maintained at all times. It is the ongoing responsibility of all licensees composing the site to maintain ongoing compliance with FCC rules and regulations. Individual licensees that contribute less than 5% MPE to any total area out of compliance are not responsible for corrective actions.

OSHA has adopted and enforces the FCC's exposure guidelines. A building owner or site manager can use this report as part of an overall RF Health and Safety Policy. It is important for building owners/site managers to identify areas in excess of the General Population MPE and ensure that only persons qualified as Occupational are granted access to those areas.

Occupational Environment Explained

The FCC definition of Occupational exposure limits apply to persons who:

- are exposed to RF energy as a consequence of their employment;
- have been made aware of the possibility of exposure; and
- can exercise control over their exposure.

OSHA guidelines go further to state that persons must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

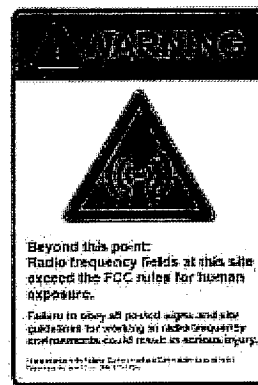
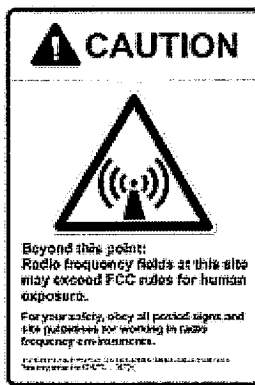
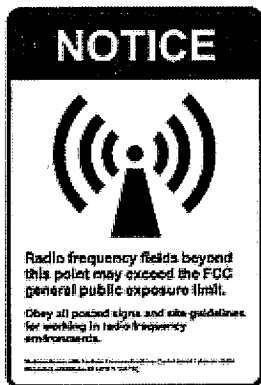
In order to consider this site an Occupational Environment, the site must be controlled to prevent access by any individuals classified as the General Public. Compliance is also maintained when any non-occupational individuals (the General Public) are prevented from accessing areas indicated as Red or Yellow in the attached RF Emissions diagram. In addition, a person must be aware of the RF environment into which they are entering. This can be accomplished by an RF Safety Awareness class, and by appropriate written documentation such as this Site Compliance Report.

All [Company_Name] employees who require access to this site must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

Appendix D – General Safety Recommendations

The following are *general recommendations* appropriate for any site with accessible areas in excess of 100% General Public MPE. These recommendations are not specific to this site. These are safety recommendations appropriate for typical site management, building management, and other tenant operations.

1. All individuals needing access to the main site (or the area indicated to be in excess of General Public MPE) should wear a personal RF Exposure monitor, successfully complete proper RF Safety Awareness training, and have and be trained in the use of appropriate personal protective equipment.
2. All individuals needing access to the main site should be instructed to read and obey all posted placards and signs.
3. The site should be routinely inspected and this or similar report updated with the addition of any antennas or upon any changes to the RF environment including:
 - adding new antennas that may have been located on the site
 - removing of any existing antennas
 - changes in the radiating power or number of RF emitters
4. Post the appropriate **NOTICE**, **CAUTION**, or **WARNING** sign at the main site access point(s) and other locations as required. Note: Please refer to RF Exposure Diagrams in Appendix B, to inform everyone who has access to this site that beyond posted signs there may be levels in excess of the limits prescribed by the FCC. The signs below are examples of signs meeting FCC guidelines.



5. Ensure that the site door remains locked (or appropriately controlled) to deny access to the general public if deemed as policy by the building/site owner.
6. For a General Public environment the four color levels identified in this analysis can be interpreted in the following manner:
 - Areas indicated as Gray are at 5% of the General Public MPE limits. This level is safe for a worker to be in at any time.
 - Green represents areas predicted to be between 5% and 20% of the General Public MPE limits. This level is safe for a worker to be in at any time.



- Yellow represents areas predicted to be between 20% and 100% of the General Public MPE limits. This level is safe for a worker to be in at any time.
- Red areas indicated predicted levels greater than 100% of the General Public MPE limits. This level is not safe for the General Public to be in.

7. For an Occupational environment the four color levels identified in this analysis can be interpreted in the following manner:

- Areas indicated as Gray are at 5% of the Occupational MPE limits. This level is safe for a worker to be in at any time.
- Green represents areas predicted to be between 5% and 20% of the Occupational MPE limits. This level is safe for a worker to be in at any time.
- Yellow represents areas predicted to be between 20% and 100% of the Occupational MPE limits. Only individuals that have been properly trained in RF Health and Safety should be allowed to work in this area. This is not an area that is suitable for the General Public to be in.
- Red areas indicated predicted levels greater than 100% of the Occupational MPE limits. This level is not safe for the Occupational worker to be in for prolonged periods of time. Special procedures must be adhered to such as lock out tag out procedures to minimize the workers exposure to EME.

8. Use of a Personal Protective Monitor: When working around antennas, Sitesafe strong recommends the use of a Personal Protective Monitor (PPM). Wearing a PPM will properly forewarn the individual prior to entering an RF exposure area.

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Keep a copy of this report available for all persons who must access the site. They should read this report and be aware of the potential hazards with regards to RF and MPE limits.

Additional Information

Additional RF information is available by visiting both www.Sitesafe.com and www.fcc.gov/oet/rfsafety. OSHA has additional information available at: <http://www.osha-slc.gov/SLTC/radiofrequencyradiation>.