

**COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT**

DATE: May 18, 2017

TO: Zoning Hearing Officer

FROM: Planning Staff

SUBJECT: Consideration of five Use Permits, pursuant to Sections 6500 and 6510 of the San Mateo County Zoning Regulations, to install new wireless telecommunications facilities on existing joint utility poles located in the public right-of-way in front of: (1) 111 Dumbarton Avenue, (2) 2823 Devonshire Avenue, (3) 2753 Devonshire, (4) 2797 Blenheim Avenue, and (5) 2760 Marlborough Avenue, in the unincorporated North Fair Oaks area of San Mateo County.

County File Numbers:

ITEM 1	PLN 2016-00509
ITEM 2	PLN 2016-00510
ITEM 3	PLN 2016-00511
ITEM 4	PLN 2016-00512
ITEM 5	PLN 2016-00513

PROPOSAL

The applicant proposes to install new wireless telecommunication facilities on existing joint utility poles located in the public right-of-way in front of: (1) 111 Dumbarton Avenue, (2) 2823 Devonshire Avenue, (3) 2753 Devonshire, (4) 2797 Blenheim Avenue, and (5) 2760 Marlborough Avenue in the unincorporated North Fair Oaks area. The new facilities will consist of a new support arm, located at a maximum height of 25 feet 6 inches above grade, one to two antennas, located at a maximum height of 21 feet 3 inches above grade, and four equipment boxes, located between 7 and 12 feet above the existing grade, mounted on existing joint utility poles where the maximum allowed height in each zoning district is 36 feet from the existing grade. No grading or tree removal activities are proposed.

ExteNet's entire project includes an additional nine sites, east of Middlefield Road and south of Fair Oaks Elementary School, of near identical description (File Nos. PLN 2016-00502 through PLN 2016-00508; PLN 2016-00531; and PLN 2016-00532). Although "bundled" under a separate staff report, these sites will be considered by the ZHO along with this grouping.

RECOMMENDATION

That the Zoning Hearing Office approve the Use Permits, County File Numbers:

ITEM 1	PLN 2016-00509	111 Dumbarton Avenue
ITEM 2	PLN 2016-00510	2823 Devonshire Avenue
ITEM 3	PLN 2016-00511	2753 Devonshire Avenue
ITEM 4	PLN 2016-00512	2797 Blenheim Avenue
ITEM 5	PLN 2016-00513	2760 Marlborough Avenue

by making the required findings and adopting the conditions of approval listed in Attachment A.

BACKGROUND

Report Prepared By: Laura Richstone, Project Planner, 650/363-1829

Applicant: ExteNet (for T-Mobile), Mike Mangiantini

Land Owner: Public Right-of-Way (San Mateo County Department of Public Works)

Pole Owner: Pacific Gas and Electric

Sphere-of-Influence: None

Existing Land Use: Utility Poles in the Public Right-of-Way

Property details of the Use Permits recommended for approval:

Item 1 - County File Number: PLN 2016-00509	
Location	Public Right-of-Way in front of 111 Dumbarton Avenue , North Fair Oaks
APN	Public Right-of-Way adjacent to 054-274-140
Existing Zoning	R-3/S-5 (Multiple-Family Residential/Minimum Lot Size 5,000 sq. ft.)
General Plan Designation	Urban Multifamily Residential (24 du/ac to 60 du/ac)
Flood Zone	Zone X (area of minimal flood risk); FEMA Panel No. 06081C 0302E; effective October 2012

Item 2 - County File Number: PLN 2016-00510	
Location	Public Right-of-Way in front of 2823 Devonshire Avenue , North Fair Oaks
APN	Public Right-of-Way adjacent to 054-281-210
Existing Zoning	R-3/S-5 (Multiple-Family Residential/Minimum Lot Size 5,000 sq. ft.)
General Plan Designation	Urban Multifamily Residential (24 du/ac to 60 du/ac)
Flood Zone	Zone X (area of minimal flood risk); FEMA Panel No. 06081C 0302E; effective October 2012

Item 3 - County File Number: PLN 2016-00511	
Location	Public Right-of-Way in front of 2753 Devonshire Avenue , North Fair Oaks
APN	Public Right-of-Way adjacent to 054-273-190
Existing Zoning	R-3/S-5 (Multiple-Family Residential/Minimum Lot Size 5,000 sq. ft.)
General Plan Designation	Urban Multifamily Residential (24 du/ac to 60 du/ac)
Flood Zone	Zone X (area of minimal flood risk); FEMA Panel No. 06081C 0302E; effective October 2012

Item 4 - County File Number: PLN 2016-00512	
Location	Public Right-of-Way in front of 2797 Blenheim Avenue , North Fair Oaks
APN	Public Right-of-Way adjacent to 054-276-330
Existing Zoning	R-3/S-3 (Single-Family Residential/Minimum Lot Size 5,000 sq. ft.)
General Plan Designation	Urban Multifamily Residential (24 du/ac to 60 du/ac)
Flood Zone	Zone X (area of minimal flood risk); FEMA Panel No. 06081C 0302E; effective October 2012

Item 5 - County File Number: PLN 2016-00513	
Location	Public Right-of-Way in front of 2760 Marlborough Avenue , North Fair Oaks
APN	Public Right-of-Way adjacent to 054-275-050
Existing Zoning	R-3/S-5 (Single-Family Residential/Minimum Lot Size 5,000 sq. ft.)
General Plan Designation	Urban Multifamily Residential (24 du/ac to 60 du/ac)
Flood Zone	Zone X (area of minimal flood risk); FEMA Panel No. 06081C 0302E; effective October 2012

Environmental Evaluation: All projects are categorically exempt under provisions of Class 3, Section 15303, of the California Environmental Quality Act (CEQA) Guidelines for construction of a new small structure and installation of small new equipment and a facility in a small structure.

Setting: The proposed project sites are located on existing utility poles in the public right-of-way north of Dumbarton Avenue between the railroad tracks and Highway 82 in the unincorporated North Fair Oaks area. The surrounding area is an urbanized multifamily residential and urban commercial mixed use neighborhood.

Chronology:

<u>Date</u>	<u>Action</u>
November 30, 2016	- Use permit applications, the subject of this application, submitted.
December 16, 2016	- Additional use permit applications (PLN 2016-00531 and PLN 2016-00532), the subject of this application, submitted.
January 20, 2017	- Application deemed complete.
April 27, 2017	- North Fair Oaks Community Council hearing date.
May 18, 2017	- ZHO Public Hearing date.

DISCUSSION

A. KEY ISSUES

1. Compliance with the General Plan

Staff has determined that all projects comply with all applicable County General Plan policies, specifically:

Visual Quality Policies

Policy 4.21 (*Utility Structures*) requires minimizing adverse visual impacts generated by utility structures. The project sites are located within the public right-of-way along local roads in a multifamily residential and commercial mixed use area. The majority of the proposed antennas, located 18 feet 1-inch to 21 feet 3 inches above grade, will be screened by existing trees. Four equipment clusters (two remote radio units, ancillary equipment boxes, and one disconnect switch) will be located on the lower half of the joint utility poles. To further reduce visual impacts, the antenna(s) will be painted green (when screened by foliage) or brown (when there is no foliage present) to match the wood material of the joint utility pole and the surrounding vegetation.

2. Compliance with Zoning Regulations

The proposed project areas are located within the public right-of-way in the R-3/S-3 and R-3/S-5 Zoning Districts. The zoning district standards, with

the exception of height, are not applicable since the site is located within the public right-of-way.

The maximum height allowed in the R-3/S-3 and R-3/S-5 Zoning Districts is 36 feet. The proposed projects will consist of one new support arm (which will be used to relocate existing wires higher up on the utility pole), located at a maximum height of 25 feet 6 inches above grade, one to two antennas, located at a maximum height of 21 feet 3 inches above grade, and four equipment boxes, located between 7 and 12 feet above the existing grade. The proposed support arms, antennas, and equipment boxes fall below the maximum height allowed in the R-3/S-5 and R-3/S-3 Zoning Districts. The proposed projects comply with the development criteria set forth by the County Zoning Regulations for these districts as noted in the following table:

Item No.	Planning Case No.	Zoning District	Maximum Height Allowed in Zoning District	Maximum Height of Support Arm	Maximum Height of Antenna(s)
ITEM 1	PLN 2016-00509	R-3/S-5	36 feet	23'-7"	21'-3"
ITEM 2	PLN 2016-00510	R-3/S-5	36 feet	24'-4"	21'-3"
ITEM 3	PLN 2016-00511	R-3/S-5	36 feet	24'-3"	21'-3"
ITEM 4	PLN 2016-00512	R-3/S-3	36 feet	25'-6"	21'-3"
ITEM 5	PLN 2016-00513	R-3/S-5	36 feet	24'-8"	21'-3"

Section 6512.2.1.2 (*Development And Design Standards For New Wireless Telecommunication Facilities That Are Not Co-Location Facilities*) of the San Mateo County Zoning Regulations state, in any Residential (R) District, that no monopole or antenna shall exceed the maximum height for structures allowed in that district, except that new equipment on an existing facility in the public right-of-way shall be allowed to exceed the maximum height for structures allowed in that district by 10% of the height of the existing facility, or by 5 feet, whichever is less. The new equipment for the wireless telecommunication facilities will be in compliance with this section by maintaining a maximum height of 21 feet 3 inches.

3. Compliance with Wireless Telecommunication Facilities Ordinance

Staff has reviewed these projects against the provisions of the Wireless Telecommunication Facilities (WTF) Ordinance and determined that the projects comply with the applicable standards discussed below:

a. Development and Design Standards

Section 6512.2.A states that new wireless telecommunication facilities shall be prohibited in a Sensitive Habitat, as defined by

**Policy 1.8 of the General Plan (*Definition of Sensitive Habitats*)
for facilities proposed outside of the Coastal Zone.**

The projects are not located in a sensitive habitat, as defined by Policy 1.8 of the General Plan.

Section 6512.2.B prohibits new wireless telecommunication facilities from being located in areas zoned Residential (R), unless the applicant demonstrates that a review has been conducted of other options and no other sites or combination of sites allow feasible service or adequate capacity and coverage.

The proposed facilities will be located on joint utility poles within the public right-of-way in the R-3/S-3 and R-3/S-5 Zoning Districts. The applicant chose the proposed locations to adequately provide T-Mobile wireless voice and data coverage to the surrounding area where there is currently a gap in service coverage. The proposed facilities are a part of a larger Distribution Antenna System (DAS) providing increased coverage capacity to the North Fair Oaks area that is difficult to cover using traditional macro wireless telecommunications facilities due to local land use and densities. The proposed facilities will cover transient traffic along the roadways and provide increased in-building service to the surrounding residences.

In the Extenet Alternative Site Analysis (see Attachment D), the applicant has identified and researched alternative sites within a 2.5-mile radius. The analysis includes a total of 26 monopole, rooftop, and tower alternative locations within a 2.5-mile radius and two alternative utility poles within 150 feet from the proposed sites. The 26 alternative locations were ruled out as viable candidates due to their location outside of the proposed small cell network. In order to provide the needed increase in coverage and capacity, these sites must be located approximately 150 feet from the targeted coverage area. A total of 10 utility poles were identified as possible alternatives (see Attachment K1-K5). Nine out of the 10 possible alternative utility poles identified were ruled out due to additional impacts that may result if chosen. These impacts include the relocation of existing transformer and tree trimming or removal. Other challenges associated with these alternative locations included inadequate space on the existing pole, limited climbing space for maintenance, and an inability to co-locate. Several macro antennas were found within a 2.5-mile radius (See Attachment E). However, placing the proposed facilities on these macro antennas would not fill the significant gap in coverage.

Among the researched locations, these proposed locations are the least intrusive and will fill the coverage gap necessary to provide adequate wireless and data coverage.

Section 6512.2.C prohibits new wireless telecommunication facilities to be located in areas where co-location on existing facilities would provide equivalent coverage with less environmental impacts.

The applicant was unable to identify any existing wireless facilities within a 2.5-mile radius that would either allow co-location or provide coverage to the target area. Though several monopoles and cellular towers exist within a 2.5-mile radius (see Attachment E), these alternative sites are not feasible due to their location outside of the proposed small cell network and their inability to increase network capacity and coverage.

Section 6512.2.D requires new wireless telecommunication facilities to be constructed so as to accommodate co-location, and must be made available for co-location.

Future co-locations are technically feasible as long as the proposed facilities comply with California Public Utilities Commission General Order 95 (GO95) engineering requirements. However, it would be difficult to comply with the GO95 safety and separation requirements if another wireless facility were to be installed at this location. Therefore, the applicant does not expect future co-locations.

Sections 6512.2.E and F seek to minimize and mitigate visual impacts from public views by siting new facilities outside of public view, using natural vegetation for screening, painting equipment to blend with existing landscaping, and designing the facility to blend in with the surrounding environment.

The proposed facilities include one to two panel antenna(s) located at a maximum height of 21 feet 3 inches above grade mounted on existing joint utility poles located in the public right-of-way. When screened by foliage, the antenna(s) shall be painted a non-reflective green color to blend with the existing vegetation. When not screened by foliage, the antenna (s) shall be painted a non-reflective brown color to match the utility pole. The equipment boxes shall also be painted a non-reflective brown color to match the utility pole as recommended in Condition of Approval No. 4 (see Attachment A) to reduce visual impacts and blend in with existing equipment. No trees or vegetation are proposed for removal.

Section 6512.2.G requires that the exterior of wireless telecommunication facilities be constructed of non-reflective materials.

The proposed facilities will be constructed of non-reflective materials. As discussed in the section above, the facilities will be painted a non-reflective green color to match the surrounding vegetation, or

non-reflective brown color to match the brown wood material of the joint utility poles.

Section 6512.2.H requires that wireless telecommunication facilities comply with all the requirements of the underlying zoning district, including, but not limited to, setbacks.

As discussed in Section 2, Compliance with Zoning Regulations, the proposed facilities will comply with all applicable requirements of the R-3/S-3 and R-3/S-5 Zoning Districts. The existing joint utility poles are situated in the public right-of-way and are not subject to the development standards for setbacks.

Section 6512.2.I.2 states that new equipment located on existing facilities in the public right-of-way in any Residential (R) District shall be allowed to exceed the maximum height for structures allowed in that district by 10% of the height of the existing facility, or by 5 feet, whichever is less.

The maximum height allowed in the R-3/S-3 and R-3/S-5 Zoning Districts is 36 feet. The proposed projects involve installing new wireless telecommunication facilities on existing joint utility poles. As discussed in Section A.2, the new equipment for the wireless telecommunication facilities will be in compliance with this section by maintaining a maximum height of 25 feet 6 inches for the support arm and a maximum height of 21 feet 3 inches for the antenna(s) (see Attachment G for site specifics).

b. Performance Standards

The proposed projects meet the required standards of Section 6512.3 (*Performance Standards for New Wireless Telecommunication Facilities that are Not Co-Location Facilities*) for lighting, licensing, provision of a permanent power source, timely removal of the facility, and visual resource protection. There is no lighting proposed, proper licenses will be obtained from both the Federal Communications Commission (FCC) and the California Public Utilities Commission (CPUC), power for the facilities will be provided by PG&E, visual impacts will be minimal, and conditions of approval will require maintenance and/or removal of the facilities when they are no longer in operation. Furthermore, road access to the proposed project sites is existing and no noise in excess of San Mateo County's Noise Ordinance will be produced. Conditions of Approval Nos. 8-19 were added to ensure compliance with the performance standards of this section (see Attachment A).

4. Compliance with Use Permit Findings

For the use permit to be approved by the Zoning Hearing Officer, the following findings must be made:

- a. **That the establishment, maintenance and/or conducting of the use will not, under the circumstances of this particular case, be detrimental to the public welfare or injurious to property or improvements in said neighborhood.**

Cellular communications facilities, such as these proposed projects, require the submittal and review of a radio frequency (RF) report to ensure that the RF emissions from the proposed antenna(s) do not exceed the Federal Communications Commission’s public exposure limits. The applicant submitted radio frequency reports prepared by Hammett & Edison, Inc., dated November 22, 2016, confirming that the proposed facilities will comply with the prevailing standards for limiting public exposure to radio frequency energy and thus, will not cause a significant impact on the environment (see Attachments L1-L5). The reports state that the maximum RF level at ground level is calculated to range from 0.47% to 0.83% of the applicable public exposure limit (see tables below). The maximum calculated level at the second-floor elevation of the nearby residences is calculated to range from 2.2% to 3.9% of the public exposure limit (see tables below for site specific information). It should be noted that these results include several “worst-case” assumptions and therefore are expected to overstate actual power density levels from the proposed operation. Due to the location of the mounted antenna(s), they will not be accessible to the general public and therefore no mitigation measures are necessary to comply with the FCC public exposure guidelines. To ensure compliance with occupational exposure limitations, staff has included Condition of Approval No. 20 (see Attachment A), recommended by Hammett & Edison, Inc., for the posting of explanatory warning signs at the antennas and/or on the pole below the antennas, readily visible from any angle of approach to persons who may need to work within the area (see Attachment A).

Item No.	Planning Case No.	Approximate Location	Ground Floor Radio Frequency Exposure	Second Floor Radio Frequency Exposure
ITEM 1	PLN 2016-00509	111 Dumbarton Avenue	0.83%	2.5%
ITEM 2	PLN 2016-00510	2823 Devonshire Avenue	0.47%	2.2%
ITEM 3	PLN 2016-00511	2753 Devonshire Avenue	0.83%	3.9%
ITEM 4	PLN 2016-00512	2797 Blenheim Avenue	0.47%	3.5%
ITEM 5	PLN 2016-00513	2760 Marlborough Avenue	0.83%	2.4%

Furthermore, the proposed facilities will be unmanned, operate at all times, and be serviced once a year by a T-Mobile technician. The proposed facilities will not generate significant traffic, noise, or intensification of use of the site.

With the discussion above, staff has determined that the proposed project will not have a negative environmental, health, or visual impact on persons or property within the project vicinity.

b. That this telecommunication facility is necessary for the public health, safety, convenience or welfare of the community.

Staff has determined that installation of a cellular facility at these locations will allow for increased clarity, range, and capacity of the existing cellular network and will enhance services for the public. The proposed facilities are the least intrusive option available to expand T-Mobile's network capacity and service coverage in this area of North Fair Oaks. The proposed facilities will use existing utility infrastructure and add small equipment without disturbing the character of the neighborhood.

B. NORTH FAIR OAKS COUNCIL REVIEW

On March 27, 2017 the proposed projects were presented to the North Fair Oaks Community Council. Six members of the Council were present and a motion to recommend denial to the Zoning Hearing Officer was passed by a majority vote. Three council members voted for denial of the projects, two members voted for approval, and one member of the Council abstained. A discussion of the Council's concerns, the Council's comments, and Staff's response are listed below.

Concern No. 1: The Council, members who voted to recommend denial of the project, expressed concerns about the cumulative health impacts on the surrounding North Fair Oaks neighborhood posed by the RF (radio frequency) emissions of both clusters. The council also cited the lack of conclusive studies performed in the United States (U.S.) about possible health effects that may arise due to long term exposure to RF emissions. While there was some discussion of whether the County might require that ExteNet (or the cell provider/user of the infrastructure) submit annual RF reports to ensure that the RF output emissions do not exceed levels identified in the RF reports, that point did not ultimately factor into the Council's overall concerns about the potential health effects of the proposed projects.

Staff's Response: As noted by County Counsel at the North Fair Oaks Community Council meeting, the FCC preempts the County's ability to deny wireless telecommunication facilities due to health concerns related to RF exposure if those emissions are below the FCC's public exposure limits. A jurisdiction can require the submittal of an RF report, prepared by a licensed engineer, to verify that a wireless telecommunication facility is below the FCC's

public exposure limit a jurisdiction. The County must accept the report's conclusions if it can adequately demonstrate that the RF emissions of the proposed facilities are below the FCC's public exposure limits. As discussed in Section 4, Part A of this report, the RF reports submitted in conjunction with the proposed facilities verify that emissions from these proposed facilities fall well below the FCC's public exposure limits.

Concern No. 2: The Council expressed concerns that these new types of wireless telecommunication facilities are being unduly concentrated in the unincorporated North Fair Oaks Area where the political will to resist these types of facilities might not be as strong as in other communities. In addition, the Council was concerned about who would benefit from the placement of the proposed facilities. They were concerned that these facilities were being placed in the North Fair Oaks area, but would serve adjacent areas that would not be burdened by the facilities.

Staff's Response: As discussed previously, this technology will create and facilitate better wireless coverage and network capacity within the North Fair Oaks Community. These facilities will serve the North Fair Oaks community immediately surrounding, and adjacent to, the joint utility poles. Those that will benefit the most from the increased wireless coverage and network capacity will be North Fair Oaks residents within an approximate .33 mile radius from the proposed facilities. Attachment B illustrates the current scope and strength of T-Mobile's cell network. Attachment C illustrates the expanded coverage and signal strength of T-Mobile's network with the installation of the proposed facilities. These renderings show that these facilities will benefit the North Fair Oaks community and are not intended (nor do they serve) neighboring communities like Atherton, Menlo Park, Woodside, or Redwood City. While the technology of locating this type of cellular infrastructure onto existing utility poles is relatively recent, ExteNet has installed such systems in Palo Alto, Redwood City, Oakland, Concord, and San Francisco. Within the unincorporated County similar systems have been installed along a considerable length of Skyline Boulevard, in La Honda, and along Highway 1. That said, staff has no reason to believe that ExteNet is choosing to place this system in the North Fair Oaks Area as a "trial" exercise or that they are doing so because there is an assumption on ExteNet's or the County's part that the North Fair Oaks area would be an easier candidate to accommodate such a network compared to others areas of the unincorporated County.

C. ENVIRONMENTAL REVIEW

These projects are categorically exempt pursuant to Section 15303, Class 3, of the California Environmental Quality Act (CEQA) related to the construction of a new, small structure and installation of small new equipment and a facility in a small structure.

D. REVIEWING AGENCIES

San Mateo County Building Inspection Section
San Mateo County Department of Public Works

Redwood City Fire Protection District
Menlo Park Fire Protection District
North Fair Oaks Community Council

ATTACHMENTS

- A. Recommended Findings and Conditions of Approval
- B. Existing Cell Coverage Map
- C. Expanded Cell Coverage Map after Installation
- D. Wireless Telecommunication Facilities within a 2.5 Mile Radius
- E. Wireless Telecommunication Facilities Map
- F. Map of Proposed Cell Sites
- G. Project Summary Chart
- H1.-H5. Vicinity Map; Specific for Each Site
- I1.-I5. Project Plans; Specific for Each Site
- J1.-J5. Photo Simulations; Specific for Each Site
- K1.-K5. Extenet Alternative Site Analysis; Specific for Each Site
- L1.-L5. Radio Frequency Radiation Report prepared by Hammett & Edison, Inc., dated November 22, 2016; Specific for Each Site

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County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Numbers:

Hearing Date: May 18, 2016

ITEM 1	PLN 2016-00509
ITEM 2	PLN 2016-00510
ITEM 3	PLN 2016-00511
ITEM 4	PLN 2016-00512
ITEM 5	PLN 2016-00513

Prepared By: Laura Richstone
Project Planner

For Adoption By: Zoning Hearing Officer

RECOMMENDED FINDINGS

Regarding the Environmental Review, Find:

1. That these projects are categorically exempt from environmental review, per Class 3, Section 15303, of the California Environmental Quality Act (CEQA) Guidelines for construction of a new, small structure and installation of small new equipment and a facility in a small structure.

Regarding the Use Permits, Find:

2. That the establishment, maintenance, and/or conducting of the use will not, under the circumstances of this particular case, be detrimental to the public welfare or injurious to the property or improvements in said neighborhood because the projects will meet current Federal Communications Commission (FCC) standards as shown in the radio frequency radiation reports and has been conditioned to maintain a valid FCC and California Public Utilities Commission (CPUC) license.
3. That these telecommunications facilities are necessary for the public health, safety, convenience, or welfare of the community in that installing cellular facilities at these location will provide increased and improved cellular coverage in the area for residents, commuters, and emergency personnel.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

1. This approval applies only to the proposal, documents, and plans described in this report and submitted to and approved by the Zoning Hearing Officer on May 18, 2017. Minor revisions or modifications may be approved by the Community Development Director if they are consistent with the intent of and in substantial conformance with this approval.
2. These use permits shall be for the proposed projects only. Any change or change in intensity of use shall require an amendment to the use permit. Amendments to these use permits require an application for amendment, payment of applicable fees, and consideration at a public hearing.
3. These permits shall be valid for ten (10) years until May 18, 2027. If the applicant seeks to renew these permits, renewal shall be applied for six (6) months prior to expiration with the Planning and Building Department and shall be accompanied by the renewal application and fee applicable at that time. Renewal of these permits shall be considered at a public hearing.
4. When the proposed antenna(s) are screened by foliage, the applicant shall paint the antenna(s) green. When the proposed antenna(s) are not screened by foliage, the applicant shall paint the antenna(s) brown to match the utility pole. The equipment boxes shall also be painted a non-reflective brown color to match the utility pole. Two copies of each color samples shall be submitted to the Current Planning Section at the time of application for a building permit. Color verification will be confirmed by the Current Planning Section prior to a final inspection for the building permit.
5. During project construction, the applicant shall, pursuant to Chapter 4.100 of the San Mateo County Ordinance Code, minimize the transport and discharge of stormwater runoff from the construction site into storm drain systems by:
 - a. Stabilizing all denuded areas and maintaining erosion control measures continuously between October 1 and April 30. Stabilizing shall include both proactive measures, such as the placement of hay bales or coir netting, and passive measures, such as revegetating disturbed areas with plants propagated from seed collected in the immediate area.
 - b. Storing, handling, and disposing of construction materials and wastes properly, so as to prevent their contact with stormwater.
 - c. Controlling and preventing the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, and non-stormwater discharges to storm drains and watercourses.

- d. Avoiding cleaning, fueling, or maintaining vehicles on-site, except in a designated area where wash water is contained and treated.
 - e. Delineating with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.
 - f. Protecting adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.
 - g. Performing clearing and earth-moving activities only during dry weather.
 - h. Limiting and timing application of pesticides and fertilizers to prevent polluted runoff.
 - i. Limiting construction access routes and stabilizing designated access points.
 - j. Avoiding tracking dirt or other materials off-site; cleaning off-site paved areas and sidewalks using dry sweeping methods.
 - k. The contractor shall train and provide instruction to all employees and subcontractors regarding the construction best management practices.
6. These permits do not allow for the removal of any trees. Any tree removal will require a separate permitting process.
7. The applicant shall not enter into a contract with the landowner or lessee which reserves for one company exclusive use of structures on this site for telecommunications facilities.
8. The wireless telecommunications facilities shall not be lighted or marked unless required by the Federal Communications Commission (FCC) or the Federal Aviation Administration (FAA).
9. The applicant shall file, receive, and maintain all necessary licenses and registrations from the Federal Communications Commission (FCC), the California Public Utilities Commission (CPUC), and any other applicable regulatory bodies prior to initiating the operation of these facilities. The applicant shall supply the Planning and Building Department with evidence of each of these licenses and registrations. If any required license is ever revoked, the applicant shall inform the Planning and Building Department of the revocation within ten (10) days of receiving notice of such revocation.
10. Once a use permit is obtained, the applicant shall obtain a building permit and build in accordance with the approved plans.

11. The projects' final inspection approval shall be dependent upon the applicant obtaining a permanent and operable power connection from the applicable energy provider.
12. The wireless telecommunication facilities and all equipment associated with it shall be removed in its entirety by the applicant within 90 days if the FCC and/or CPUC license and registration are revoked or the facility is abandoned or no longer needed, and the sites shall be restored to blend with the surrounding area. The owner and/or operator of the wireless telecommunication facilities shall notify the Planning Department upon abandonment of the facility. Restoration shall be completed within two (2) months of the removal of the facility.
13. Wireless telecommunications facilities shall be maintained by the permittee(s) and subsequent owners in a manner that implements visual resource protection requirements of Section 6512.2.E and F above (e.g., landscape maintenance and painting), as well as all other applicable zoning standards and permit conditions.
14. Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m., weekdays and 9:00 a.m. to 5:00 p.m., Saturdays. Said activities are prohibited on Sundays, Thanksgiving, and Christmas (San Mateo Ordinance Code Section 4.88.360).
15. The use of diesel generators or any other emergency backup energy source shall comply with the San Mateo County Noise Ordinance.
16. If technically practical and without creating any interruption in commercial service caused by electronic magnetic interference (EMI), floor space, tower space and/or rack space for equipment in a wireless telecommunication facility shall be made available to the County for public safety communication use.
17. To reduce the impact of construction activities within the public right-of-way and/or on neighboring properties, the applicant shall ensure that no construction-related vehicles impede through traffic along 4th Avenue, Oakside Avenue, Edison Way, 3rd Avenue, 5th Avenue, and Fair Oaks Avenue, or other public right-of-ways.
18. To reduce the impact of potential traffic hazards from service visits to the facility, the applicant shall ensure that no vehicles related to the service and/or maintenance of the cellular facility impede through traffic along 4th Avenue, Oakside Avenue, Edison Way, 3rd Avenue, 5th Avenue, and Fair Oaks Avenue, or other public right-of-ways.
19. Explanatory signs are required to be posted at the antennas and/or on the pole below the antennas, readily visible from any angle of approach to persons who might need to work within the project area.

Building Inspection Section

20. The installation shall be based on the latest California Building Standards Code, which at the time of this review is the 2016 California Building Standards, Title 24.

Department of Public Works

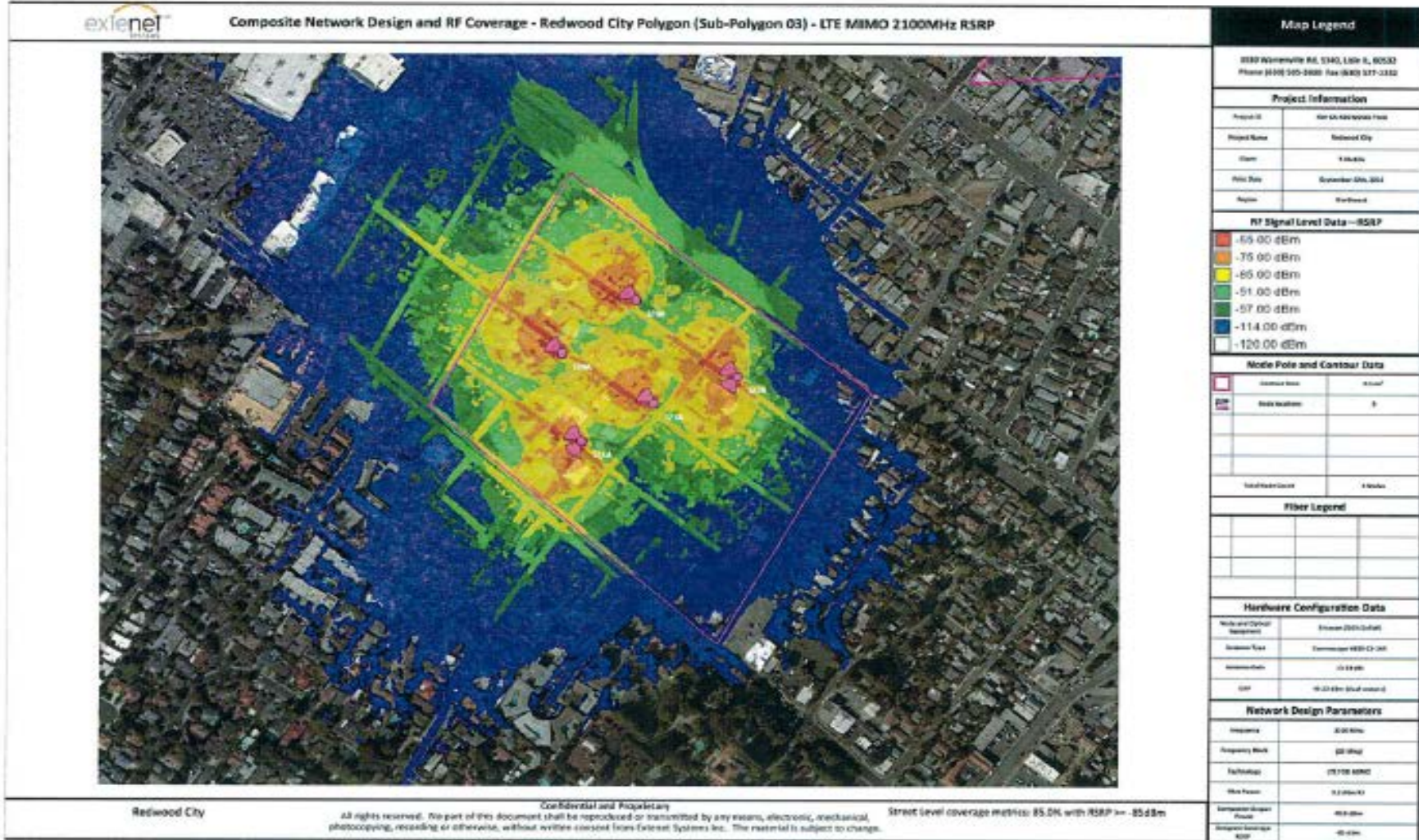
21. No proposed construction work within the public right-of-way shall begin until County requirements for the issuance of an encroachment permit, including review of the plans, have been met and an encroachment permit issued. The applicant shall contact a Department of Public Works inspector 48 hours prior to commencing work in the public right-of-way.

Redwood City Fire Protection District

22. The applicant shall meet all applicable requirements of section 608 of the 2016 CFC.
23. The applicant shall provide signage on the poles of the equipment areas and doors to boxes on existing utility poles. The signs shall state the type of voltage of electrical circuits (NFPA 704 labeling). The sign shall also have the 24-hour a day emergency contact numbers and the name of the lessee company.
24. A final inspection is required with all corrections completed.
25. Approved plan, approval letter and a permit must be on-site at the time of inspection.

LR:pac - LARBB0044(5)_WPU.DOCX

Propagation Map of Proposed Site (and Cluster)



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Expanded Propagation

(proposed)



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

ExteNet Small Cell Node
3017 Fair Oaks Avenue, Redwood City
WTFs Within 2.5 Mile Radius

Latitude	Longitude	Type	Street Address	APN
37°28'47.84"N	122°13'10.05"W	Existing Monopole	338-385 Manzanita Street, Redwood City	053-355-180
37°28'46.32"N	122°13'10.79"W	Existing Monopole	338-385 Manzanita Street, Redwood City	053-355-180
37°28'34.62"N	122°12'33.23"W	Existing Monopole	2801 Crocker Avenue, Redwood City	054-221-380
37°27'41.41"N	122°10'34.84"W	Existing Monopole	555 Middlefield Road, Atherton	061-282-060
37°29'13.80"N	122°12'45.34"W	Existing Monopole	1100 Broadway, Redwood City	054-023-060
37°29'06.53"N	122°11'07.92"W	Existing Monopole	3600 Haven Avenue, Redwood City	055-162-300
37°29'20.93"N	122°14'11.24"W	Existing Monopole	911 Arguello Street, Redwood City	052-272-040
37°29'48.88"N	122°14'41.77"W	Existing Monopole	1680 Bayport Avenue, San Carlos	046-223-110
37°28'57.76"N	122°13'47.94"W	Existing Rooftop Site	1121 Jefferson Avenue, Redwood City	053-172-999 / SBE 279-41-34
37°27'08.47"N	122°10'47.19"W	Existing Rooftop Site	700 El Camino Real, Menlo Park	071-333-200
37°28'29.13"N	122°13'11.33"W	Existing Rooftop Site	2342 El Camino Real, Redwood City	053-335-270
37°27'26.65"N	122°13'37.63"W	Existing Rooftop Site	1391 Woodside Road, Redwood City	069-311-370
37°26'57.19"N	122°13'54.22"W	Existing Rooftop Site	2000 Woodside Road, Redwood City	069-191-560
37°28'52.35"N	122°13'40.66"W	Existing Rooftop Site	1451 El Camino Real, Redwood City	053-176-170
37°28'49.39"N	122°15'12.56"W	Existing Rooftop Site	170 Alameda de las Pulgas, Redwood City	058-060-080
37°28'25.90"N	122°11'19.67"W	Existing Rooftop Site	723 Marsh Road, Menlo Park	060-143-320
37°29'19.95"N	122°13'24.03"W	Existing Rooftop Site	1100 Veterans Blvd., Redwood City	053-202-140
37°27'13.68"N	122°13'43.33"W	Existing Rooftop Site	1775 Woodside Road, Redwood City	069-341-420
37°27'08.12"N	122°11'24.18"W	Existing Rooftop Site	1330 University Drive, Menlo Park	110-370-999
37°29'23.47"N	122°13'41.42"W	Existing Rooftop Site	900 Veterans Blvd., Redwood City	052-372-250
37°28'49.53"N	122°12'01.71"W	Existing Enclosed Tower	3175 Spring Street, Redwood City	055-081-999 / SBE 312-41-25
37°28'11.45"N	122°12'24.53"W	Existing Guy Tower	197 Fifth Avenue, Redwood City	060-261-260
37°27'48.76"N	122°11'53.01"W	Existing Lattice Tower	83 Ashfield Road, Atherton	060-321-010
37°26'59.99"N	122°11'42.21"W	Existing Water Tower	150 Valparaiso Avenue, Atherton	070-390-010
37°27'23.69"N	122°10'00.50"W	Existing Fire Station Hose Tower Site	300 Middlefield Road, Menlo Park	062-460-030
37°28'01.98"N	122°12'29.32"W	Existing Parking Lot Light Attachment	46 Fifth Avenue, Redwood City	060-281-610

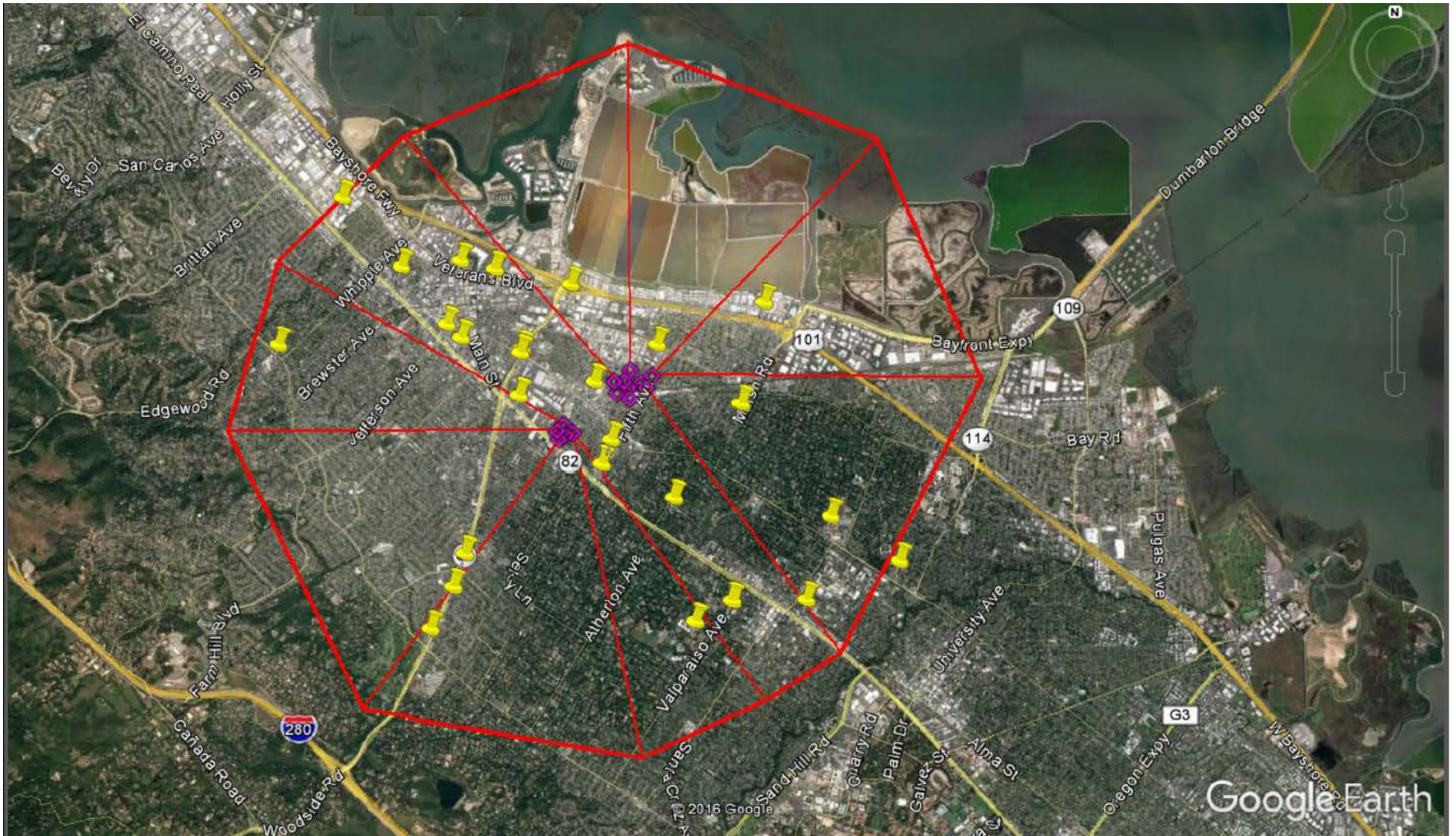
Existing WTFs within 2.5 miles of the proposed site are listed above. Availability of space and owner interest in accommodating additional users at these sites has not been investigated because none of the sites are acceptable for ExteNet's small cell network due to incompatibility with the fundamental design concept associated with the network. The main purpose of the proposed small cell network is to increase network capacity (more bandwidth for customers). This site will improve coverage as well, but the area is already covered so this will be a nominal, secondary benefit. Cell sites can only handle a limited number of voice calls, data megabytes, and total number of active users at any one time. This limitation is directly related to the amount of radio frequency spectrum allocated to wireless carriers by the FCC. In order to increase network capacity, carriers have to add cell sites, which allows for frequency re-use in non-adjacent cells. More frequency re-use means more capacity. If ExteNet located this site at any of the existing WTFs, there would be no opportunity for frequency re-use. Due to their locations outside the proposed small cell network, the signals transmitted from any of the existing WTFs would be cast all over the network, causing co-channel interference, and ExteNet would not be able to build any network capacity. The site needs to be located within the area that will be served by the site, which is very small. It cannot be done from 2.5 miles away. It can only be done at the targeted location, or within approximately 150 feet from the targeted location.

San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

NFO Extenet Map

Extenet sites are proposed in two clusters.

Legend
Feature 1



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Project Summary Chart

Item No.	Planning Case No.	Approx. Location	Max. Height Allowed	Max Height of Support Arm	Max. Height of Antenna(s)	Ground Floor Radio Frequency Exposure	Second Floor Radio Frequency Exposure
ITEM 1	PLN 2016-00509	111 Dumbarton Ave	36	23'-7"	21'-3"	0.83%	2.5%
ITEM 2	PLN 2016-00510	2823 Devonshire Ave	36	24'-4"	21'-3"	0.47%	2.2%
ITEM 3	PLN 2016-00511	2753 Devonshire	36	24'-3"	21'-3"	0.83%	3.9%
ITEM 4	PLN 2016-00512	2797 Blenheim Ave	36	25'-6"	21'-3"	0.47%	3.5%
ITEM 5	PLN 2016-00513	2760 Marlborough Ave	36	24'-8"	21'-3"	0.83%	2.4%

San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

ITEM 1

File No.: PLN 2016-00509

Location: Public Right-of-Way in front of 111 Dumbarton Avenue, North Fair Oaks

APN: Public Right-of-Way adjacent to 054-274-140

PROJECT SPECIFICATIONS TABLE							
R-3/S-5 Maximum Height	Height of Existing Utility Pole	Maximum Height of Support Arm	Maximum Height of Antenna(s)	Ground Floor Radio Frequency Exposure	Send Floor Radio Frequency Exposure	Number of Viable Alternatives	Number of Proposed Antenna
36 feet	36 feet	23 feet 7 inches	21 feet 3 inches	0.83%	2.5%	1	1

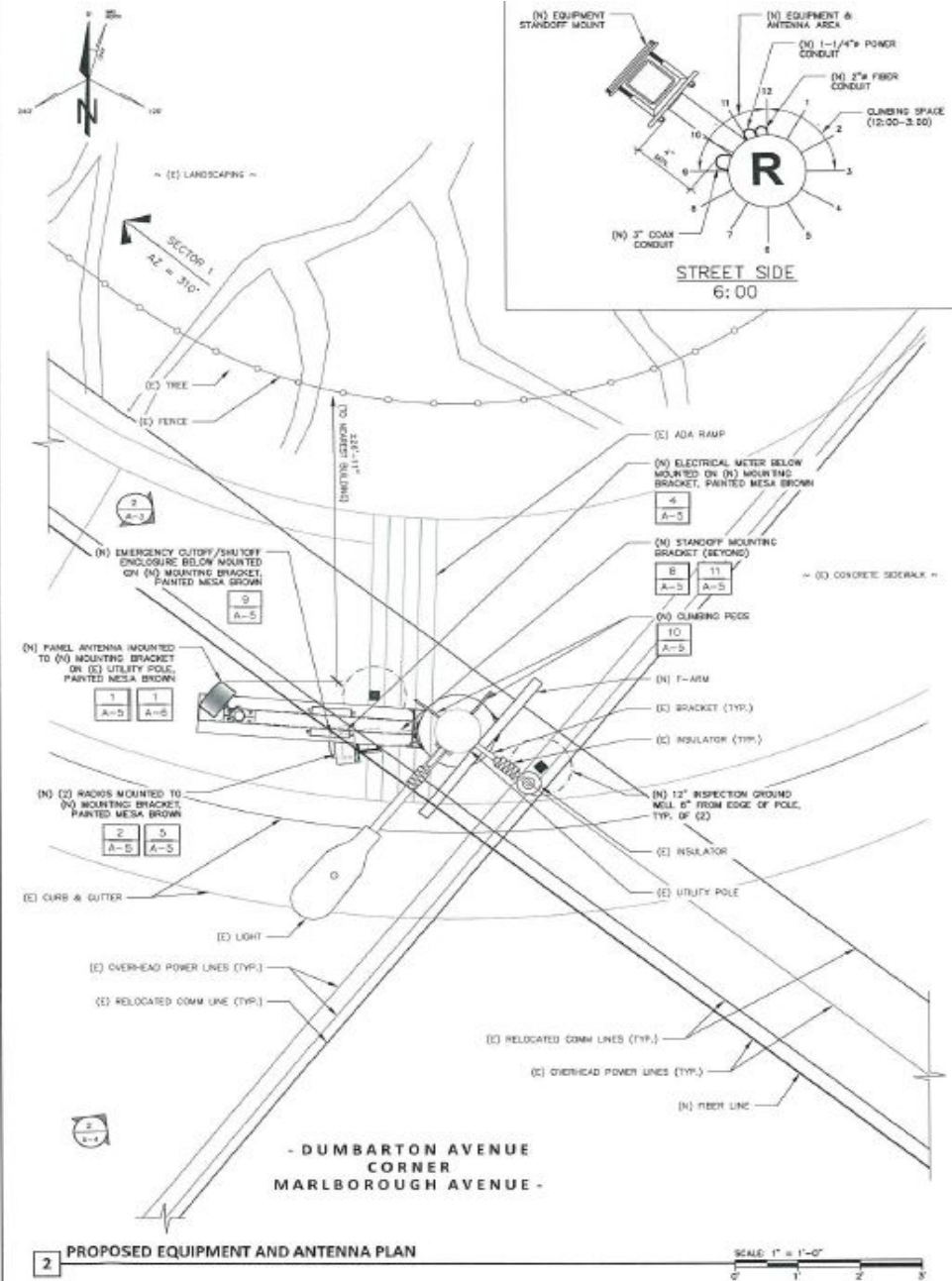
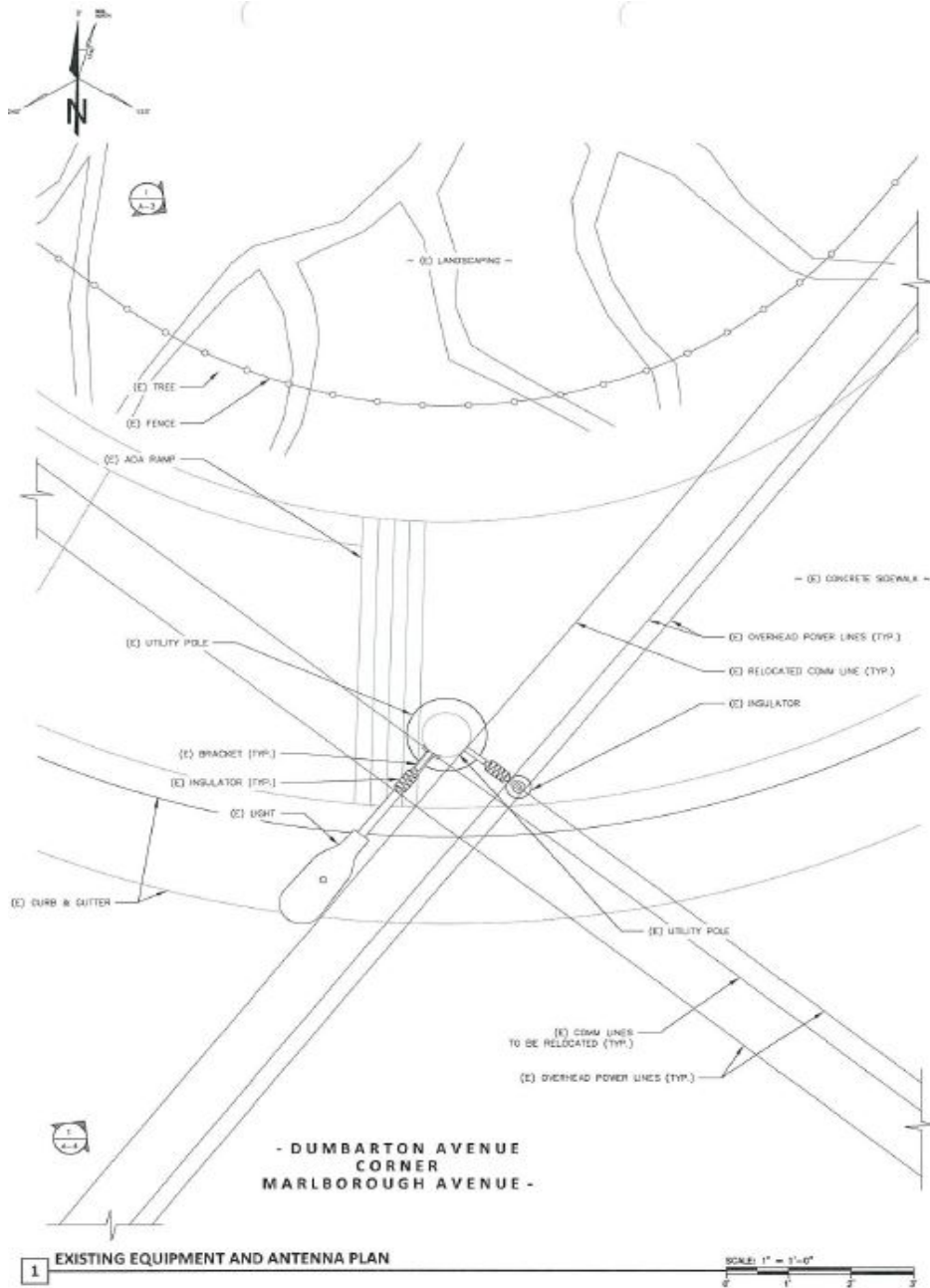


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Owner/Applicant: _____

Attachment: _____

File Numbers: _____

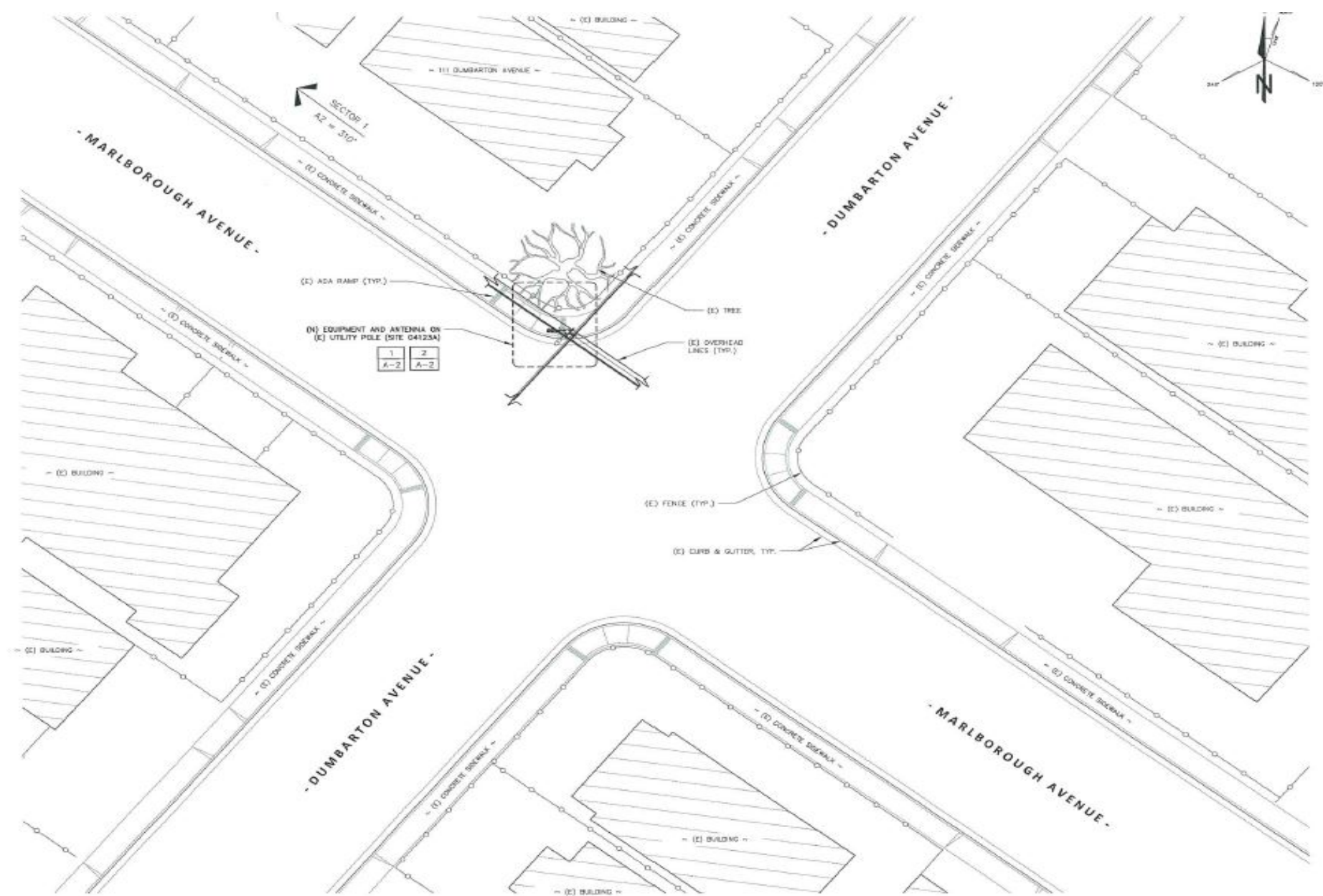


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Owner/Applicant: _____

Attachment: _____

File Numbers: _____



1 OVERALL SITE PLAN

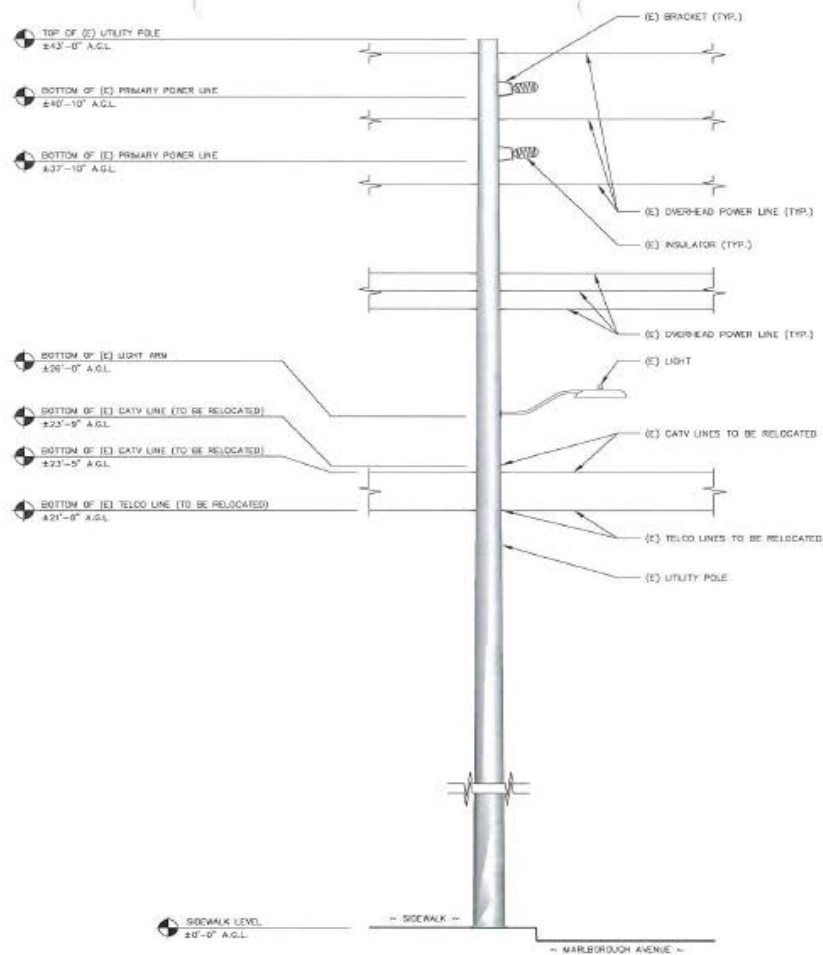
SCALE: 3/32" = 1'-0"

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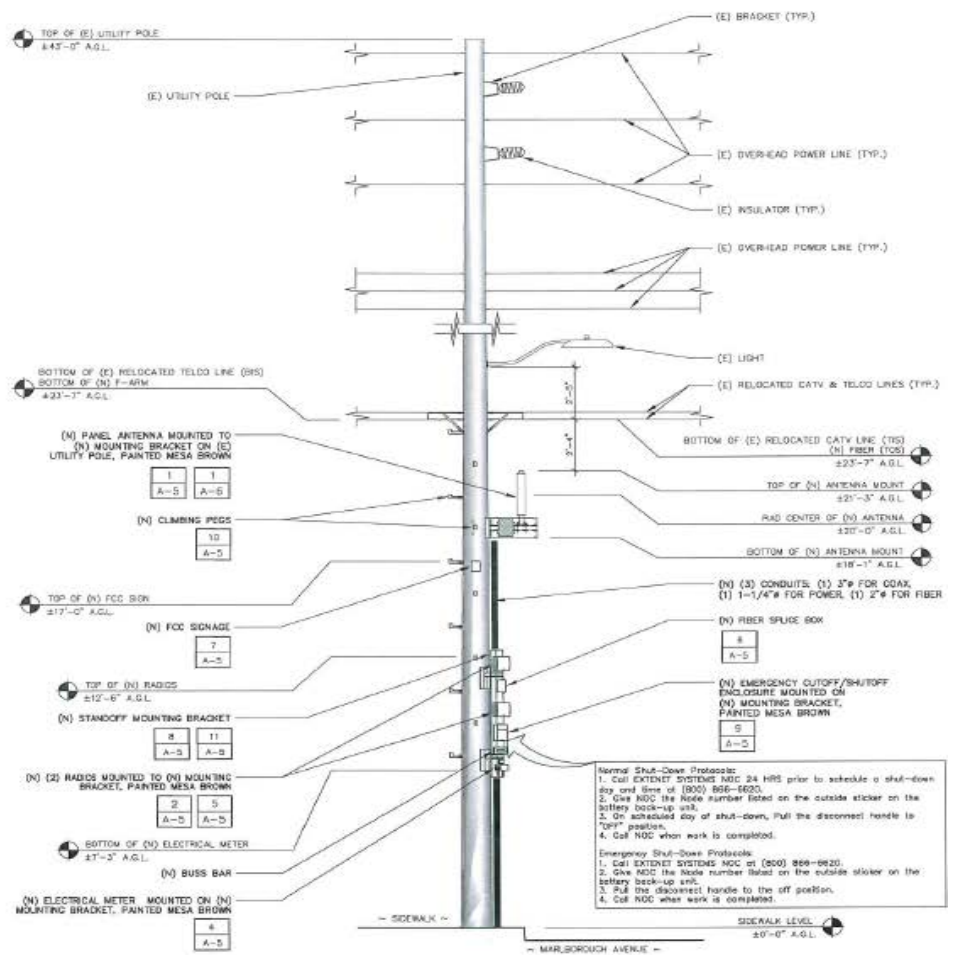
Owner/Applicant:

Attachment:

File Numbers:



1 EXISTING NORTHWEST ELEVATION



2 PROPOSED NORTHWEST ELEVATION



MAKE READY INFORMATION

1. EXTENET CONTRACTOR TO PLACE CABLE SUSPENSION CROSSOVER CLAMP ON LINES CROSSING RIBS TO THE WIRE 16\"/>
- 2. EXTENET CONTRACTOR TO PLACE NEW F-ARM ON (E) EXISTING POLE AT 23'1\"/>
- 3. EXTENET CONTRACTOR TO TRANSFER EXISTING TELCO TO NEW F-ARM AT 23'7\"/>
- 4. EXTENET CONTRACTOR TO TRANSFER EXISTING CATV WIRE TO NEW F-ARM AT 23'7\"/>
- 5. EXTENET CONTRACTOR TO PLACE NEW EXTENET FIBER TO NEW F-ARM AT 23'7\"/>
- 6. EXTENET CONTRACTOR TO PLACE BOTTOM OF NEW ANTENNA SUPPORT ARM EXTENDING INTO STREET SIDE AT 38'3\"/>
- 7. EXTENET CONTRACTOR TO INSTALL NEW ANTENNA TO NEW SUPPORT ARM PER DESIGN.
- 8. EXTENET CONTRACTOR TO PLACE NEW 2\"/>
- 9. EXTENET APPROVED ELECTRICAL CONTRACTOR TO PLACE NEW 1 1/4\"/>
- 10. EXTENET CONTRACTOR TO CUT IN NEW V-TAP AT 23'7\"/>
- 11. EXTENET CONTRACTOR TO PLACE NEW 4\"/>
- 12. EXTENET CONTRACTOR TO MOUNT BOTTOM OF NEW POLE 5/8\"/>
- 13. MOUNT OF 2 NEW RIBS AND ALUMINUM BACKPLATE TO NEW EQUIPMENT CHANNEL.
- 14. EXTENET CONTRACTOR TO MOUNT BOTTOM OF NEW POLE 5/8\"/>
- 15. EXTENET CONTRACTOR TO MOUNT BOTTOM OF NEW BREAKER BOX TO POLE AT 85\"/>
- 16. EXTENET CONTRACTOR TO PLACE NEW 20 COPPER GROUND ROD 12\"/>
- 17. EXTENET CONTRACTOR TO PLACE NEW 8\"/>
- 18. PLACE NEW #2 COVERED GROUND WIRE FROM POWER METER TO NEW METER GROUND ROD.
- 19. PLACE NEW #2 COVERED GROUND WIRE FROM EXTENET EQUIPMENT TO NEW EQUIPMENT GROUND ROD.
- 20. EXTENET CONTRACTOR TO QUARTER STEP NEW POLE AT 80\"/>
- 21. EXTENET CONTRACTOR TO PLACE ALL RIBS AS REQUIRED BY LAW.

Normal Shut-Down Protocol:
 1. Call EXTENET SYSTEMS 24 HRS prior to schedule a shut-down day and time of (800) 866-6620.
 2. Give NOC the Node number listed on the outside sticker on the battery back-up unit.
 3. On scheduled day of shut-down, pull the disconnect handle to "off" position.
 4. Call NOC when work is completed.

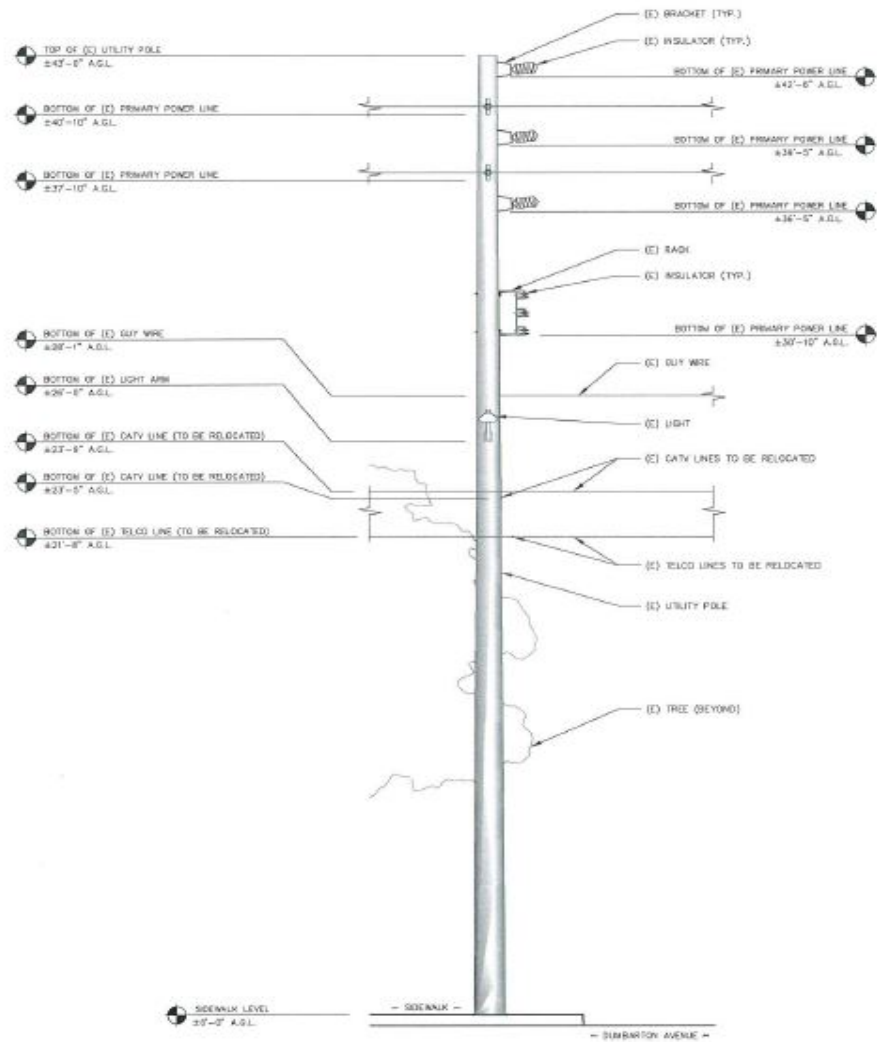
Emergency Shut-Down Protocol:
 1. Call EXTENET SYSTEMS NOC at (800) 866-6620.
 2. Give NOC the Node number listed on the outside sticker on the battery back-up unit.
 3. Pull the disconnect handle to the off position.
 4. Call NOC when work is completed.

San Mateo County Zoning Hearing Officer Meeting

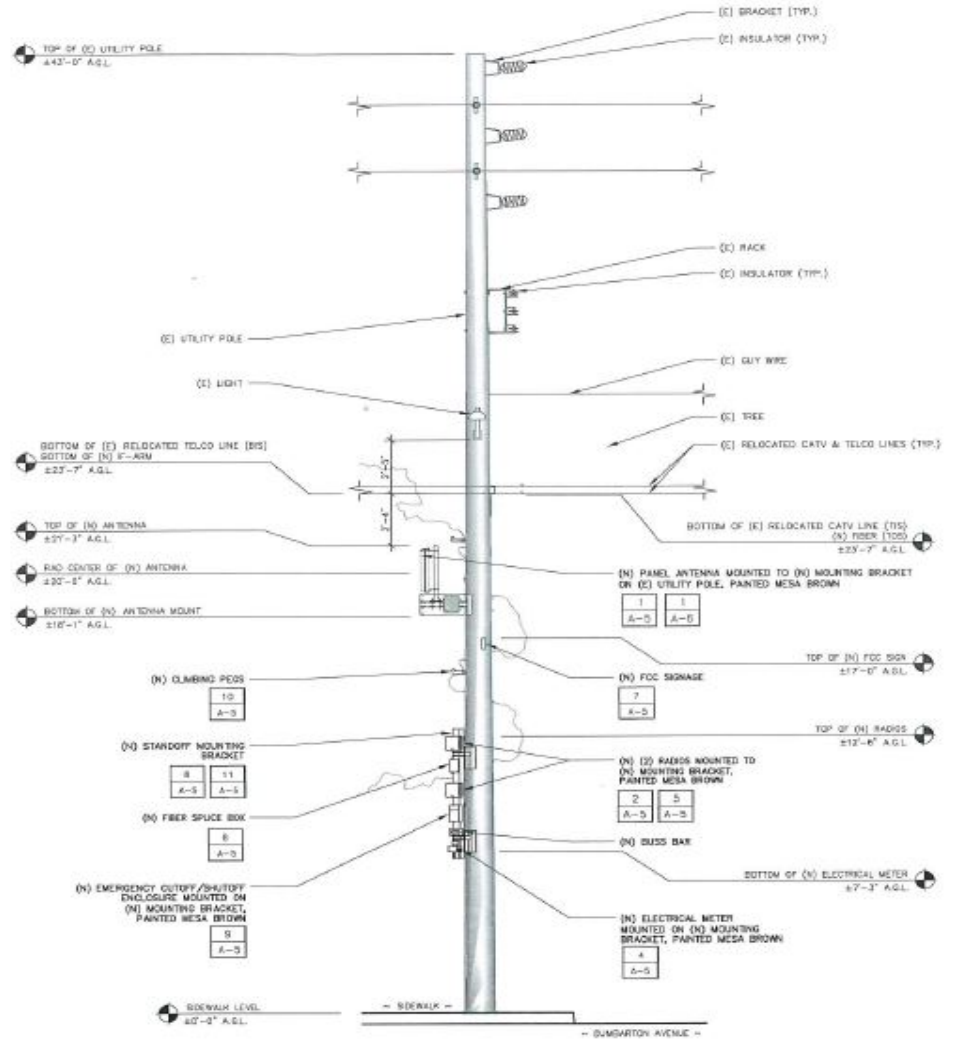
Owner/Applicant:

File Numbers:

Attachment:



1 EXISTING SOUTHWEST ELEVATION



2 PROPOSED SOUTHWEST ELEVATION



Gub'A UHyc '7 ci bhmBcfh : Uj'CU_g'7 ca a i b]hm'7 ci bW' A YH]b[

Owner/Applicant: _____

File Numbers: _____

Attachment: _____



NW-CA-SANFRNMC- 04120A

Looking East from Devonshire Avenue

IFO 2753 Devonshire Avenue Redwood City, CA

11/14/16

View #1

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



NW-CA-SANFRNMC- 04123A

Looking North from Dumbarton Avenue

11/14/16

IFO 111 Dumbarton Avenue Redwood City, CA

View #1

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:



NW-CA-SANFRNMC- 04123A

Looking North from Dumbarton Avenue

11/14/16

IFO 111 Dumbarton Avenue Redwood City, CA

View #1

Applied Imagination 510 914-0500

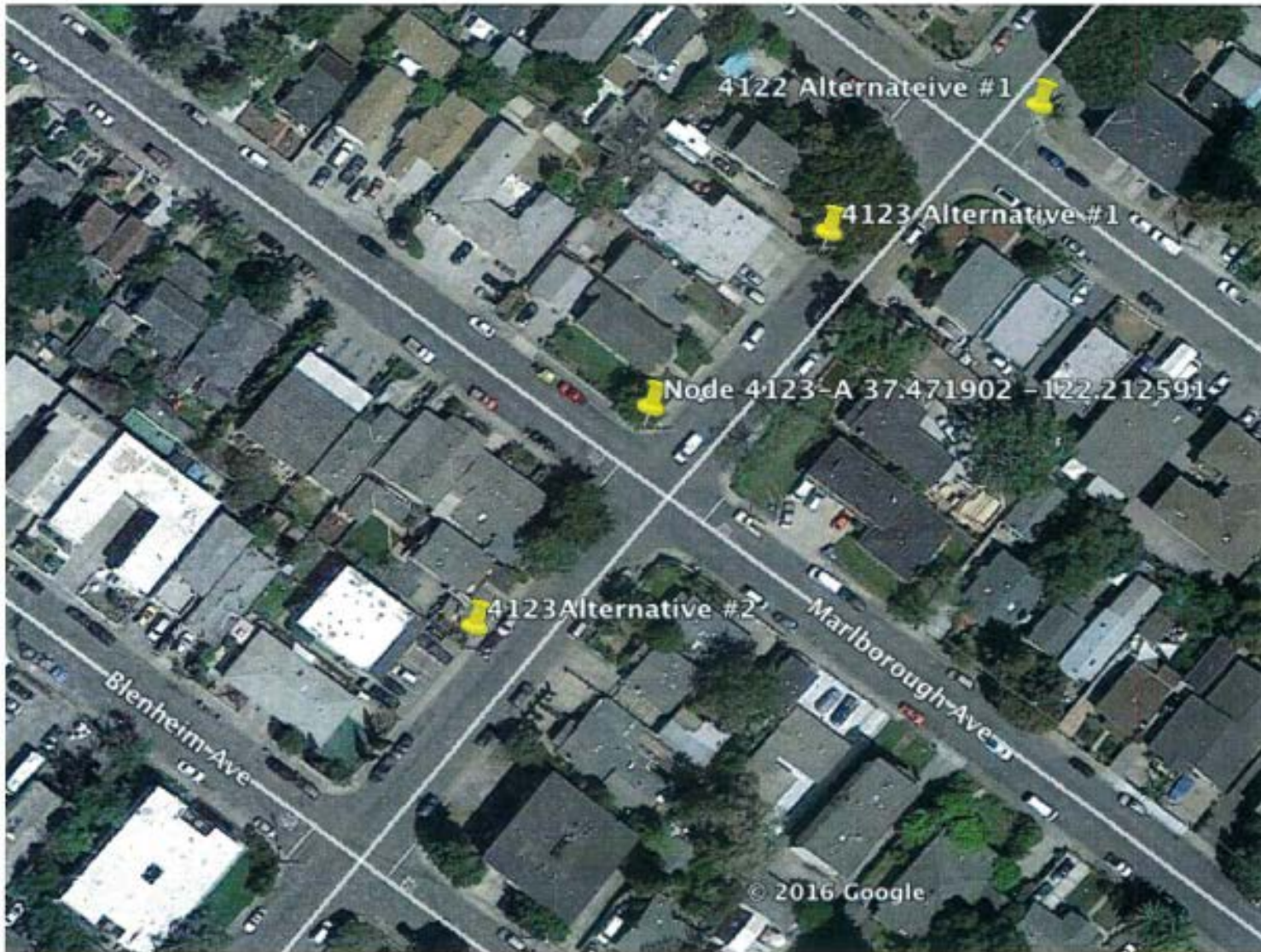
San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

Alternative Overview



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Alternative Utility Poles

Alternate Pole NORTH #1- Proposed design will not comply with GO 95 regulations



Alternate Pole SOUTH #2- Viable Candidate



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of ExtNet Systems CA, LLC, a wireless telecommunications facilities provider, to evaluate the addition of Node No. 04123A to be added to the ExtNet distributed antenna system (“DAS”) in Redwood City, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

Executive Summary

ExtNet proposes to install a directional panel antenna on a utility pole sited in the public right-of-way at 111 Dumbarton Avenue (Marlborough Avenue frontage) in Redwood City. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm ²	1.00 mW/cm ²
BRS (Broadband Radio)	2,600	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.35	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



San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04123A)
111 Dumbarton Avenue (Marlborough Avenue Frontage) • Redwood City, California**

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

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 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 ExteNet, including drawings by The CBR Group, dated November 3, 2016, it is proposed to install one CommScope Model V65S-C3-1XR, 2-foot tall, directional panel antenna, on a cross-arm to be added to a utility pole sited in the public right-of-way on Marlborough Avenue adjacent to the residence located at 111 Dumbarton Avenue in Redwood City. The antenna would employ no downtilt, would be mounted at an effective height of about 20 feet above ground, and would be oriented toward 310°T. T-Mobile proposes to operate from this facility with a maximum effective radiated power in any direction of 214 watts, representing simultaneous operation at 107 watts for AWS and 107 watts for PCS service. There are reported no other wireless telecommunications base stations at this site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed T-Mobile operation is calculated to be 0.0083 mW/cm², which is 0.83% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 2.5% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04123A)
111 Dumbarton Avenue (Marlborough Avenue Frontage) • Redwood City, California**

Recommended Mitigation Measures

Due to its mounting location and height, the ExteNet antenna would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antenna, including employees and contractors of the utility companies. No access within 2 feet directly in front of the antenna itself, such as might occur during certain activities, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory signs* on the pole at or below the antenna, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the node proposed by ExteNet Systems CA, LLC, at 111 Dumbarton Avenue (Marlborough Avenue frontage) in Redwood City, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training personnel and posting signs is recommended to establish compliance with occupational exposure limitations.

* Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required. Signage may also need to comply with the requirements of California Public Utilities Commission General Order No. 95.

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04123A)
111 Dumbarton Avenue (Marlborough Avenue Frontage) • Redwood City, California

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-18063, which expires on June 30, 2017. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.



Rajat Mathur

Rajat Mathur, P.E.
707/996-5200

November 22, 2016

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

ITEM 2

File No.: PLN 2016-00510

Location: Public Right-of-Way in front of 2823 Devonshire Avenue, North Fair Oaks

APN: Public Right-of-Way adjacent to 054-281-210

PROJECT SPECIFICATIONS TABLE							
R-3/S-5 Maximum Height	Height of Existing Utility Pole	Maximum Height of Support Arm	Maximum Height of Antenna(s)	Ground Floor Radio Frequency Exposure	Send Floor Radio Frequency Exposure	Number of Viable Alternatives	Number of Proposed Antenna
36 feet	40 feet	24 feet 4 inches	21 feet 3 inches	0.47%	2.2%	0	2

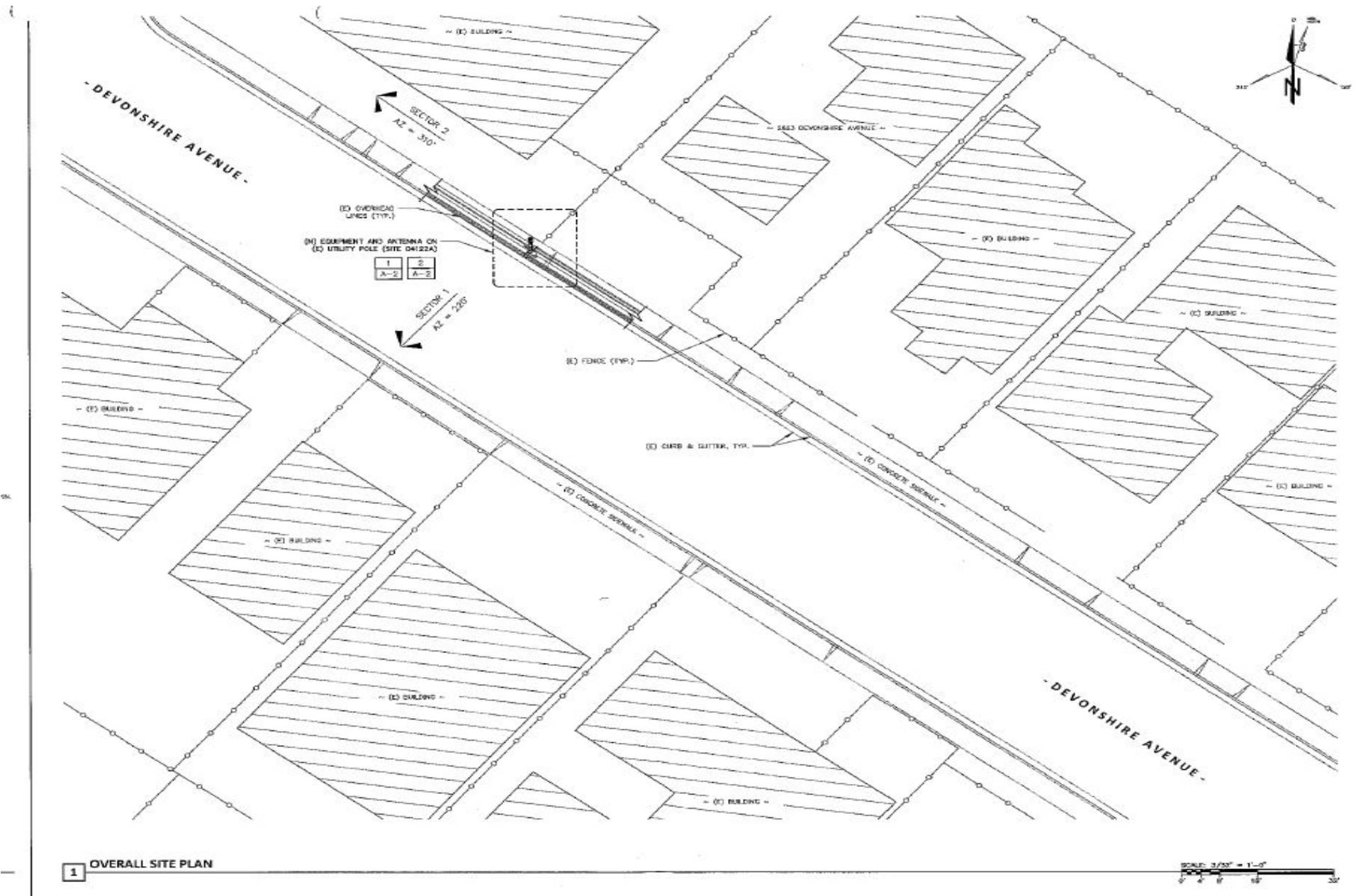


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Owner/Applicant: _____

Attachment: _____

File Numbers: _____



1 OVERALL SITE PLAN

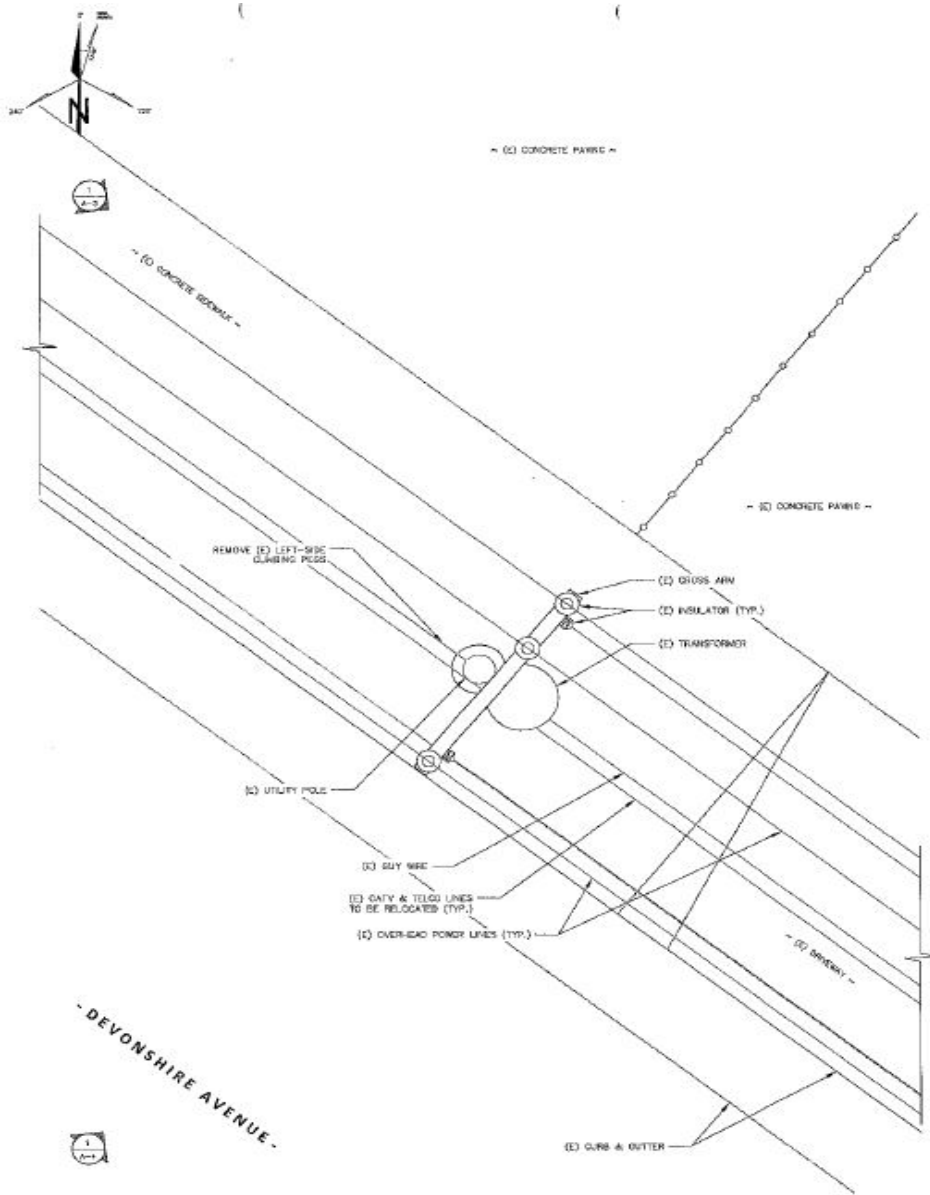
SCALE: 3/32" = 1'-0"

San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

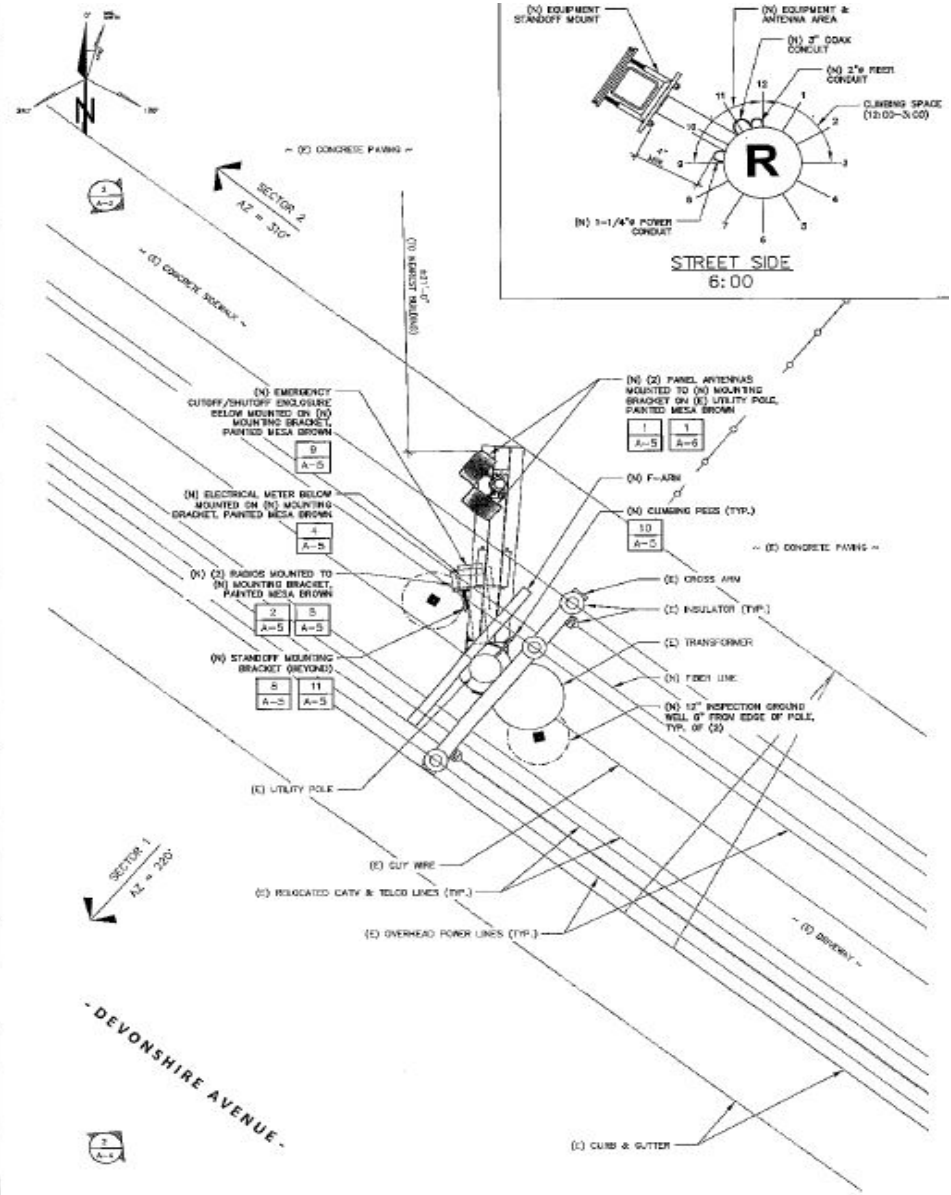
Attachment: _____

File Numbers: _____



1 EXISTING EQUIPMENT AND ANTENNA PLAN

SCALE: 1" = 1'-0"



2 PROPOSED EQUIPMENT AND ANTENNA PLAN

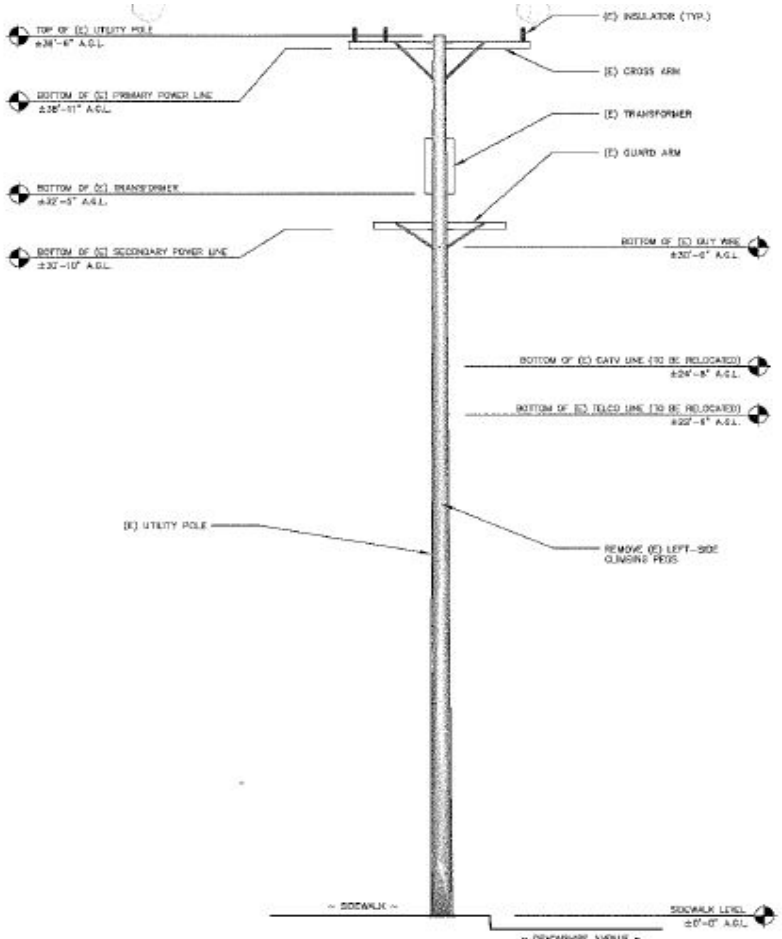
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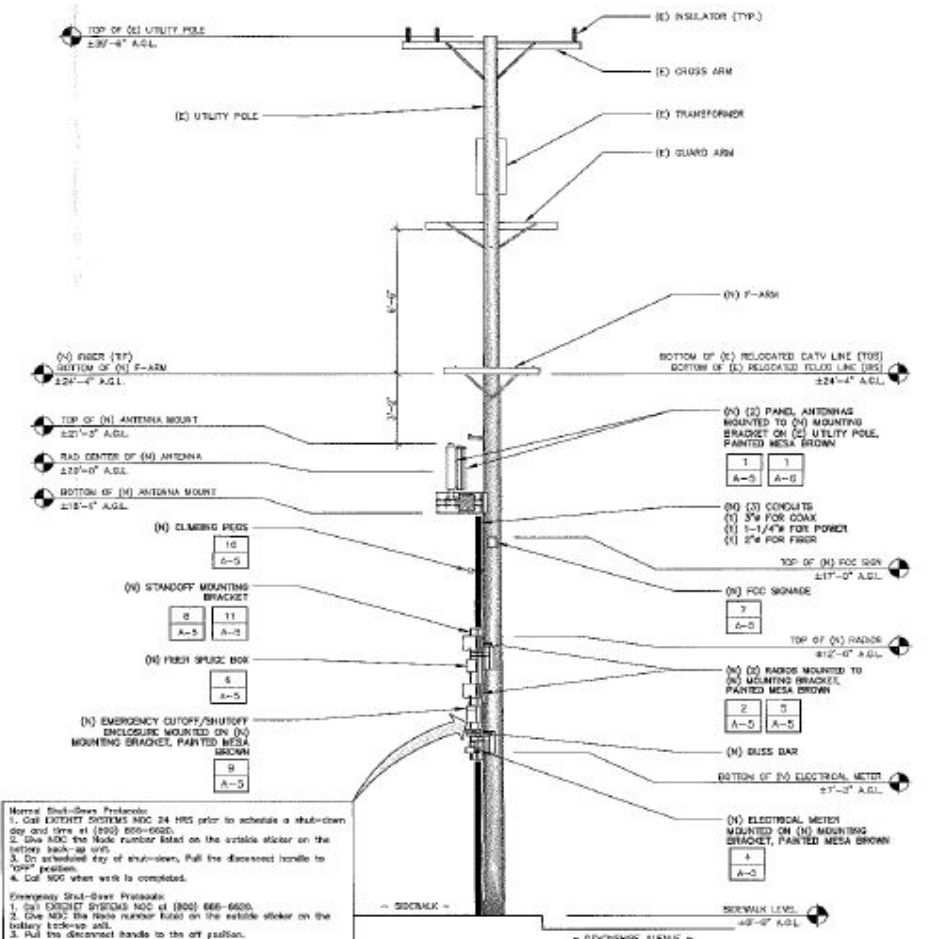
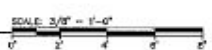
Owner/Applicant:

Attachment:

File Numbers:



1 EXISTING NORTHWEST ELEVATION



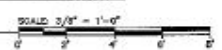
Normal Shut-Down Procedure:
 1. Call EXISTENT SYSTEMS 24 HRS prior to schedule a shut-down.
 2. Give and time at (800) 866-6600.
 3. Give NCC the Node number listed on the outside sticker on the meter back-up wire.
 4. Call attention to the shut-down, pull the disconnect handle to the "OFF" position.
 5. Call NCC when work is completed.

Emergency Shut-Down Procedure:
 1. Call EXISTENT SYSTEMS 24 HRS prior to schedule a shut-down.
 2. Give NCC the Node number listed on the outside sticker on the battery back-up wire.
 3. Pull the disconnect handle to the "OFF" position.
 4. Call NCC when work is completed.

MAKE READY INFORMATION

- EXISTENT CONTRACTOR TO PLACE NEW F-ARM ON W/UT SYSTEM POLE AT 238'-6" A.G.L.
- EXISTENT CONTRACTOR TO TRANSFER EXISTING TELCO TO NEW F-ARM AT 224'-0" AND ATTACH BOTTOM TO BE POSITION - STREET SIDE.
- EXISTENT CONTRACTOR TO TRANSFER EXISTING CATV TO NEW F-ARM AT 224'-0" AND ATTACH TO TOP OUTSIDE POSITION - STREET SIDE.
- EXISTENT CONTRACTOR TO PLACE NEW EXISTENT FIBER TO NEW F-ARM AT 224'-0" AND ATTACH TO TOP INSIDE POSITION - FIELD SIDE.
- EXISTENT CONTRACTOR TO PLACE BOTTOM OF NEW ANTENNA SUPPORT ARM EXTENDING INTO FIBER SIDE AT 218'-0" A.G.L.
- EXISTENT CONTRACTOR TO INSTALL NEW ANTENNAS TO NEW SUPPORT ARM FOR DESIGN.
- EXISTENT CONTRACTOR TO PLACE NEW 2" SCH 40 PVC RISER AT 13.80 POSITION FOR EXISTENT COAXIAL CABLES - FIELD DESIGN.
- EXISTENT CONTRACTOR TO PLACE NEW 2" SCH 40 PVC RISER AT 13.80 POSITION FOR EXISTENT FIBER CABLES - FIELD DESIGN.
- EXISTENT APPROVED ELECTRICAL CONTRACTOR TO PLACE NEW 1.5" SCH 40 PVC RISER AT 212" POSITION FOR POWER SERVICE FROM 1' BELOW SECONDARY TO NEW POWER METERS.
- EXISTENT CONTRACTOR TO CUT IN NEW F-ARM AT 20'-0" A.G.L TO BRIDGE NEW FIBER INTO NEW COAXIAL RISER.
- EXISTENT CONTRACTOR TO PLACE NEW 4" X 4" X 6" POLE MOUNTED EQUIPMENT CHANNEL AT 212" POSITION ON 4' STANDARD GULLY FOR NEW EXISTENT EQUIPMENT. (BOTTOM AT 210" A.G.L.)
- MOUNT 2" DIA. RIBBON AND ALUMINUM SANDWICH TO NEW EQUIPMENT CHANNEL.
- EXISTENT CONTRACTOR TO INCLINE BOTTOM OF NEW POWER SMART METER BOX TO PER 8 AT 21" A.G.L.
- EXISTENT CONTRACTOR TO INCLINE BOTTOM OF NEW BREAKER BOX TO POLE AT 21" A.G.L.
- EXISTENT CONTRACTOR TO PLACE NEW 4" DIA. BRASS AND ALUMINUM SANDWICH TO NEW EQUIPMENT CHANNEL.
- EXISTENT CONTRACTOR TO PLACE NEW 3" COPPER BRONZE RISER 12" BELOW GRADE AND 24" FROM POLE FOR NEW EXISTENT EQUIPMENT.
- PLACE NEW #2 COVERED BOND WIRE FROM POWER METERS TO NEW METERS GROUND ROD.
- PLACE NEW #2 COVERED BOND WIRE FROM EXISTENT EQUIPMENT TO NEW EQUIPMENT GROUND ROD.
- EXISTENT CONTRACTOR TO QUANTIFY SET NEW POLE AT 13.80 AND LOG FOR CLIMBING ROPS.
- EXISTENT CONTRACTOR TO PLACE ALL MOUNTING BRACKETS AS REQUIRED BY LAW.

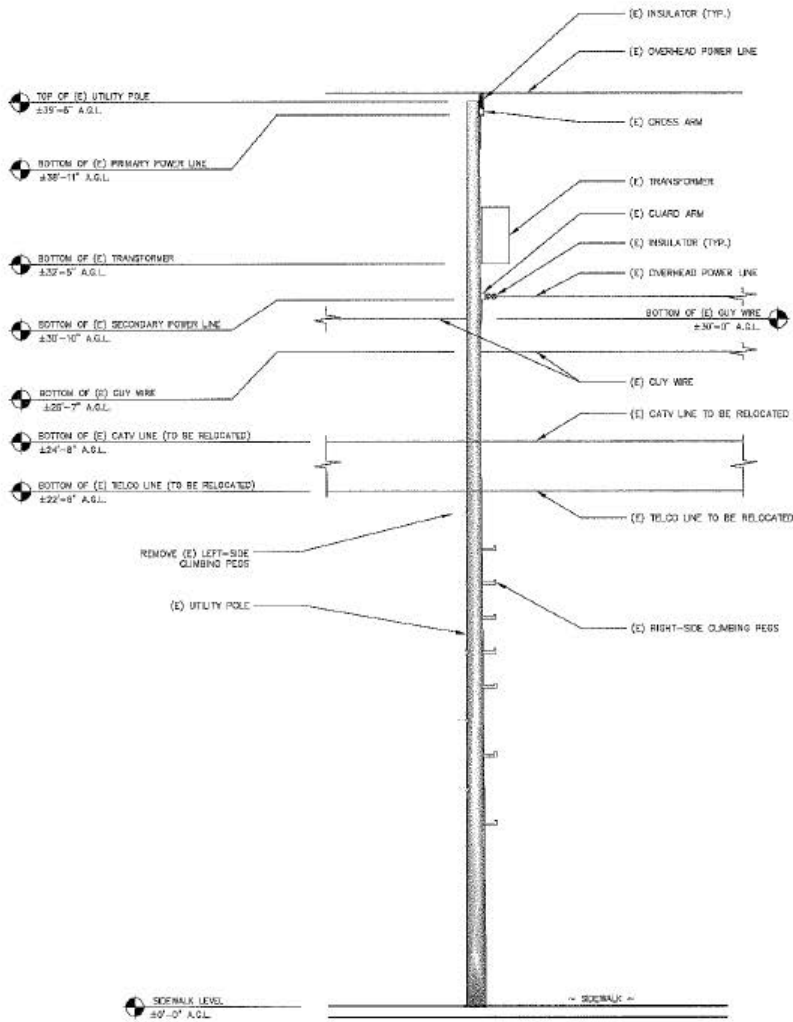
2 PROPOSED NORTHWEST ELEVATION



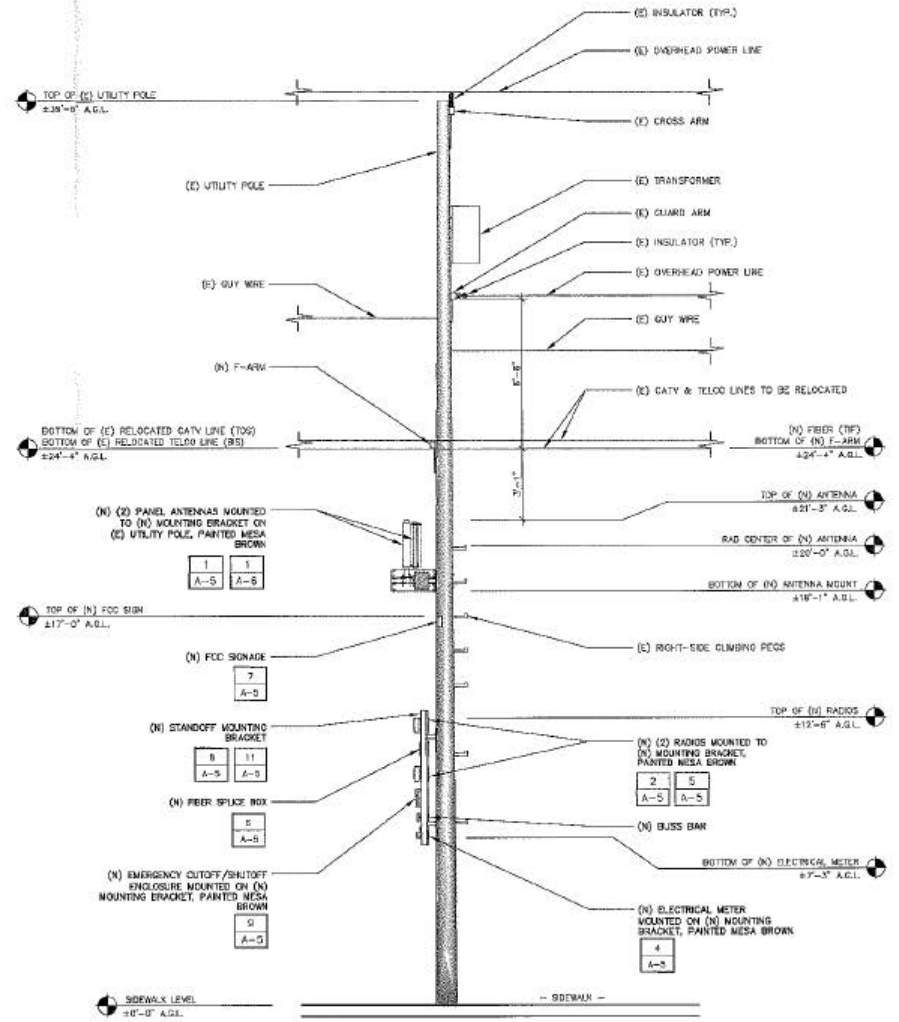
Gub'A UhYc'7 ci bhmBcfh : Uj'CU_g'7 ca a i b]hm'7 ci bW' A Yh]b[

Owner/Applicant:
 File Numbers:

Attachment:



1 EXISTING SOUTHWEST ELEVATION



2 PROPOSED SOUTHWEST ELEVATION



Gub'A Uñc'7 ci bñmBcfñ : Uj'CU_g'7 ca a i b]ñi7 ci bW' A Yñb[

Owner/Applicant:

Attachment:

File Numbers:



NW-CA-SANFRNMC- 04122A

Aerial Map

I/O 2823 Devonshire Avenue Redwood City, CA

11/14/16

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



Existing



Proposed



NW-CA-SANFRNMC- 04122A

Looking Northwest from Devonshire Avenue

11/14/16

IFO 2823 Devonshire Avenue Redwood City, CA

View #1

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:



Existing



proposed antennas

Proposed



11/14/16

NW-CA-SANFRNMC- 04122A

IFO 2823 Devonshire Avenue Redwood City, CA

Looking Southeast from Devonshire Avenue

View #2

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

Alternative Overview



San Mateo County Zoning Hearing Officer Meeting

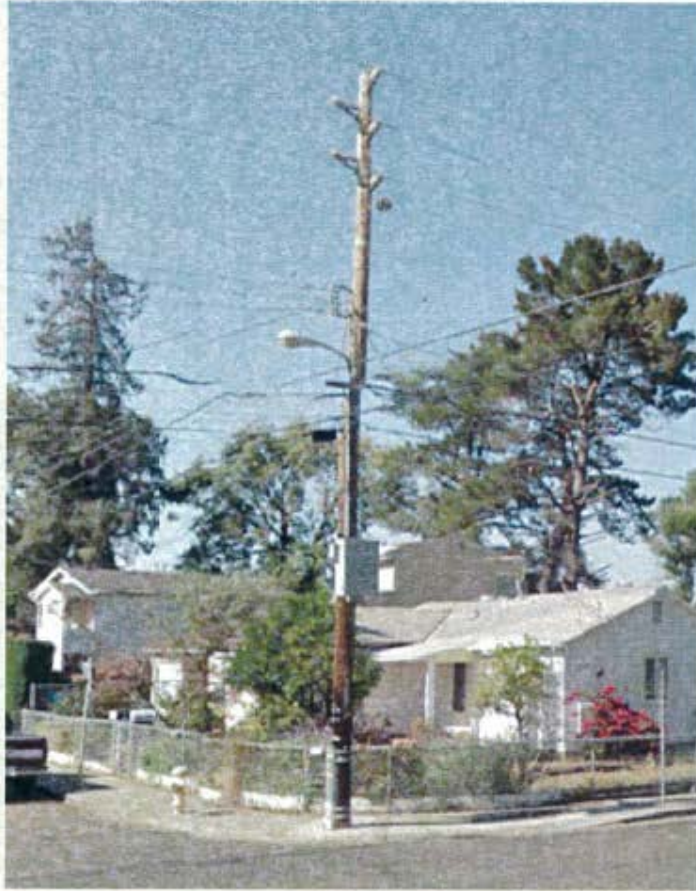
Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Alternative Utility Poles

Alternate Pole West #1- Pole would not be GO 95 compliant with proposed design added



Alternate Pole East #2- Structurally the pole would have to be replaced to place equipment on pole.



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04122A)
 2823 Devonshire Avenue • Redwood City, California

RECEIVED
 NOV 30 2016
 San Mateo County
 Planning Division

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of ExteNet Systems CA, LLC, a wireless telecommunications facilities provider, to evaluate the addition of Node No. 04122A to be added to the ExteNet distributed antenna system ("DAS") in Redwood City, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

ExteNet proposes to install directional panel antennas on a utility pole sited in the public right-of-way at 2823 Devonshire Avenue in Redwood City. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm ²	1.00 mW/cm ²
BRS (Broadband Radio)	2,600	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.35	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.



San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04122A)
2823 Devonshire Avenue • Redwood City, California**

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

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 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 ExteNet, including drawings by The CBR Group, dated November 4, 2016, it is proposed to install two CommScope Model V65S-C3-1XR, 2-foot tall, directional panel antennas, on a cross-arm to be added to a utility pole sited in the public right-of-way in front of the residence located at 2823 Devonshire Avenue in Redwood City. The antennas would employ no downtilt, would be mounted at an effective height of about 20 feet above ground, and would be oriented toward 220°T and 310°T. T-Mobile proposes to operate from this facility with a maximum effective radiated power in any direction of 122 watts, representing simultaneous operation at 61 watts for AWS and 61 watts for PCS service. There are reported no other wireless telecommunications base stations at this site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed T-Mobile operation is calculated to be 0.0047 mW/cm², which is 0.47% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 2.2% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04122A)
2823 Devonshire Avenue • Redwood City, California**

Recommended Mitigation Measures

Due to their mounting location and height, the ExteNet antennas would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antennas, including employees and contractors of the utility companies. No access within 1 foot directly in front of the antennas themselves, such as might occur during certain activities, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory signs on the pole at or below the antennas, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the node proposed by ExteNet Systems CA, LLC, at 2823 Devonshire Avenue in Redwood City, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training personnel and posting signs is recommended to establish compliance with occupational exposure limitations.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-18063, which expires on June 30, 2017. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

Rajat Mathur

Rajat Mathur, P.E.
707/996-5200



November 22, 2016

* Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required. Signage may also need to comply with the requirements of California Public Utilities Commission General Order No. 95.



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

F4KL
Page 3 of 3

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

ITEM 3

File No.: PLN 2016-00511

Location: Public Right-of-Way in front of 2357 Devonshire Avenue, North Fair Oaks

APN: Public Right-of-Way adjacent to 054-273-190

PROJECT SPECIFICATIONS TABLE							
R-3/S-5 Maximum Height	Height of Existing Utility Pole	Maximum Height Support Arm	Maximum Height of Antenna(s)	Ground Floor Radio Frequency Exposure	Send Floor Radio Frequency Exposure	Number of Viable Alternatives	Number of Proposed Antenna
36 feet	39 feet	24 feet 3 inches	21 feet 3 inches	0.83%	3.9%	2	1

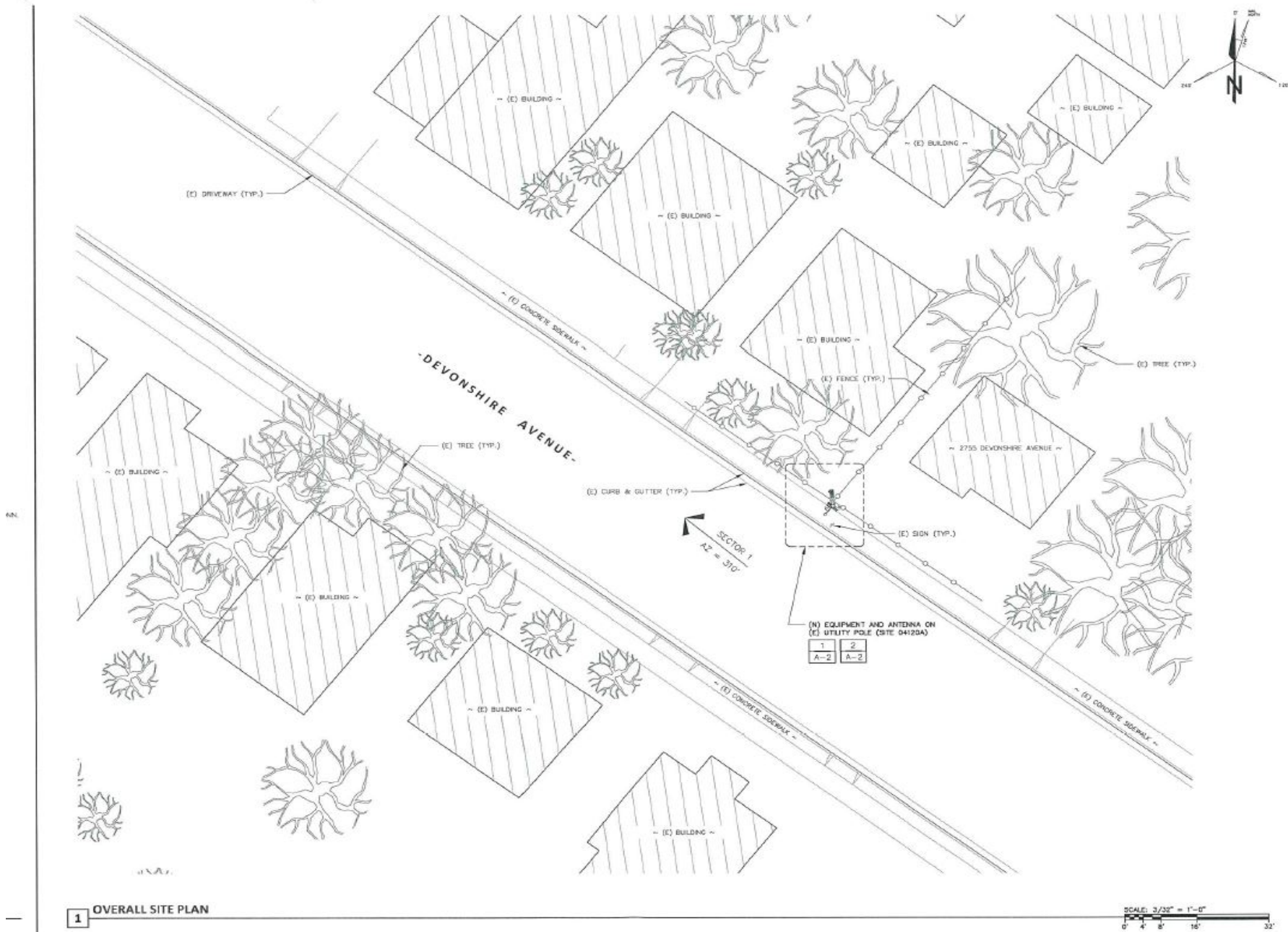


GUb`A UHc`7 ci bhmBcfH` : Ujf`CU_g`7 ca a i b]hm7 ci bWj`A YH]b[

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



1 OVERALL SITE PLAN

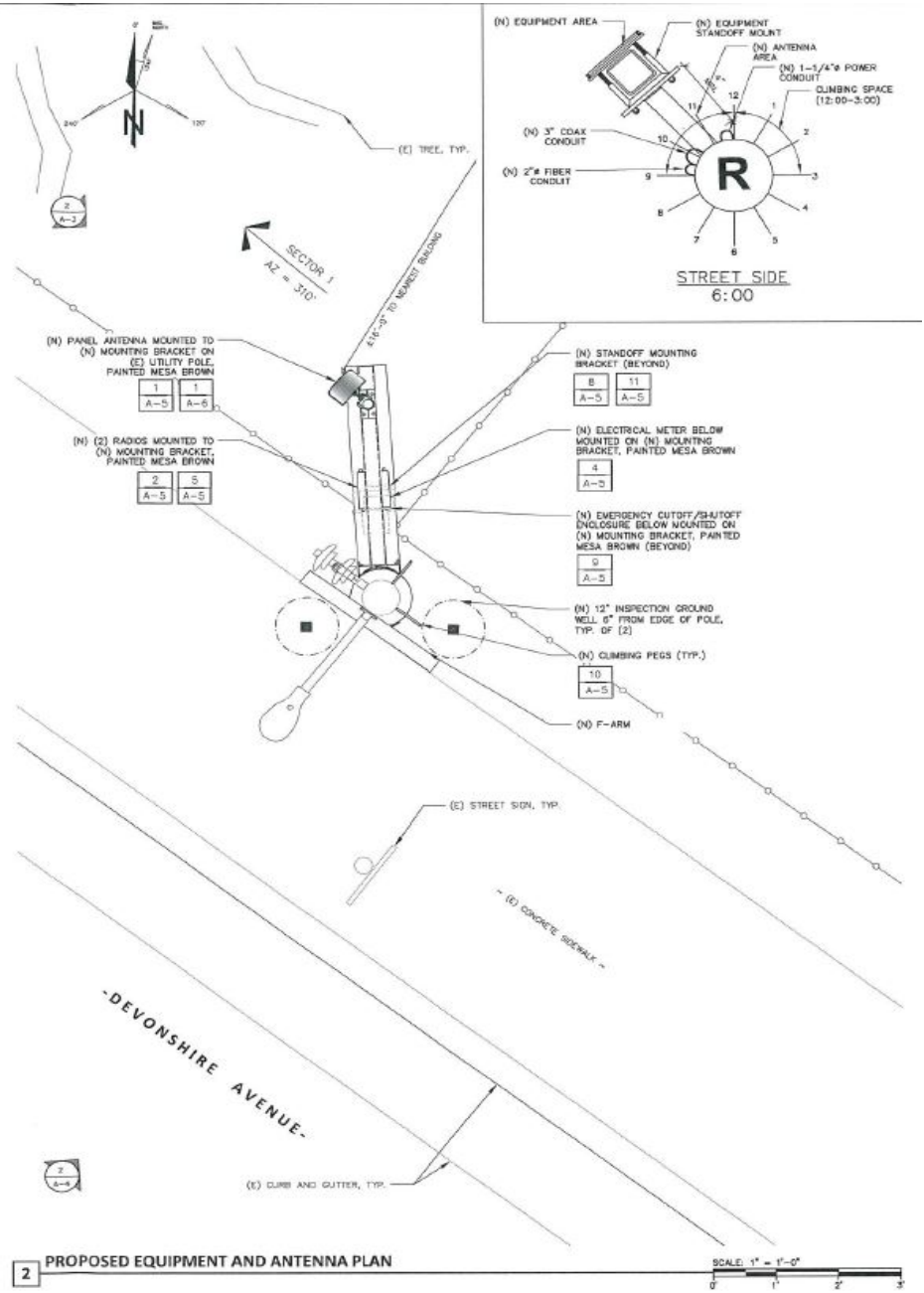
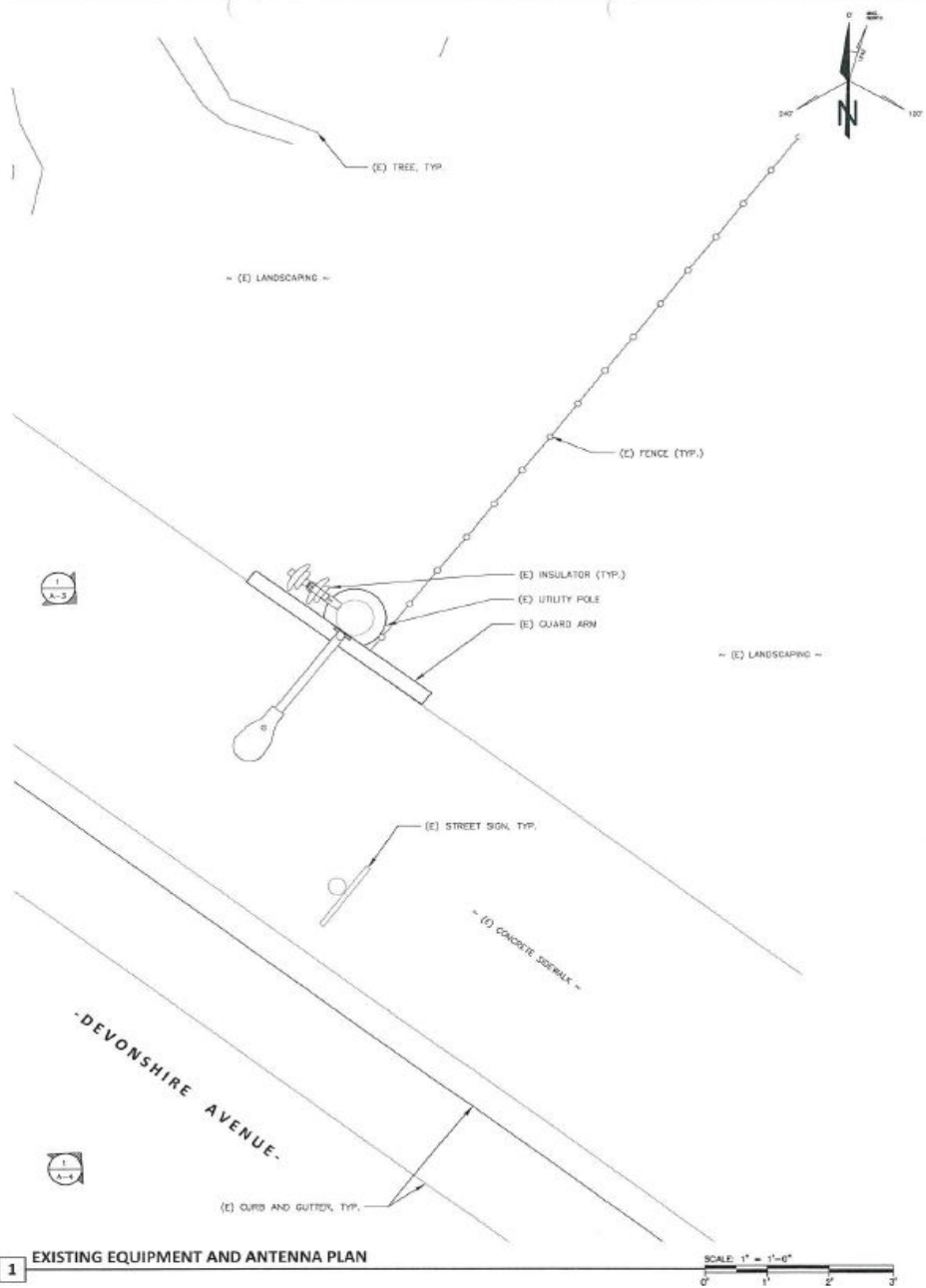
SCALE: 3/32" = 1'-0"
0 4 8 16 32'

GUb'A UHc'7 ci bhmBcfh : Ujf'CU_g'7 ca a i b]hm'7 ci bWj'A YHj[b]

Owner/Applicant:

Attachment:

File Numbers:

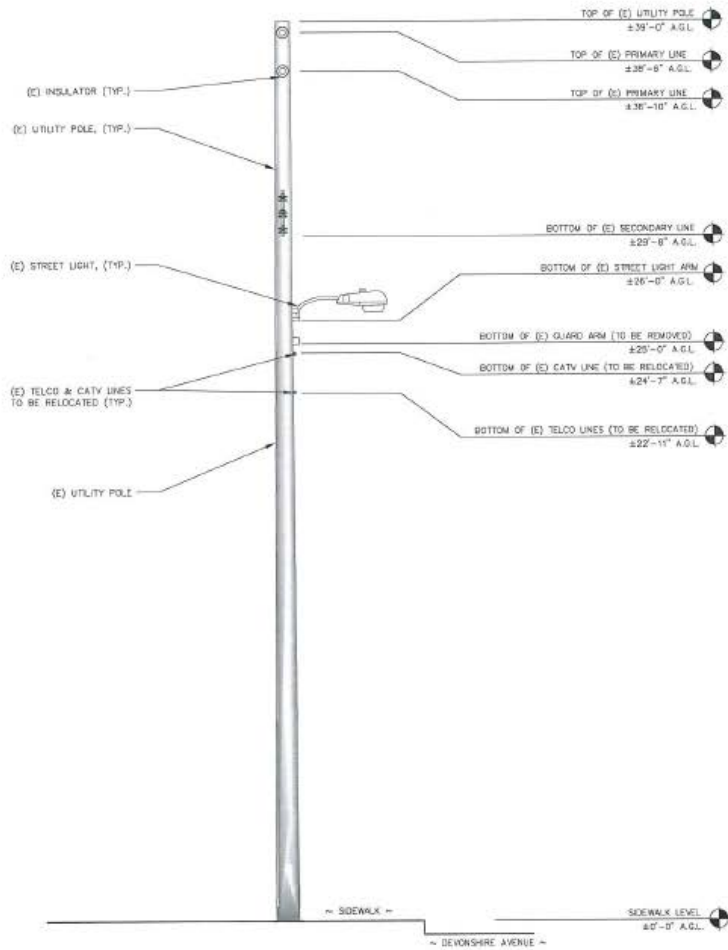


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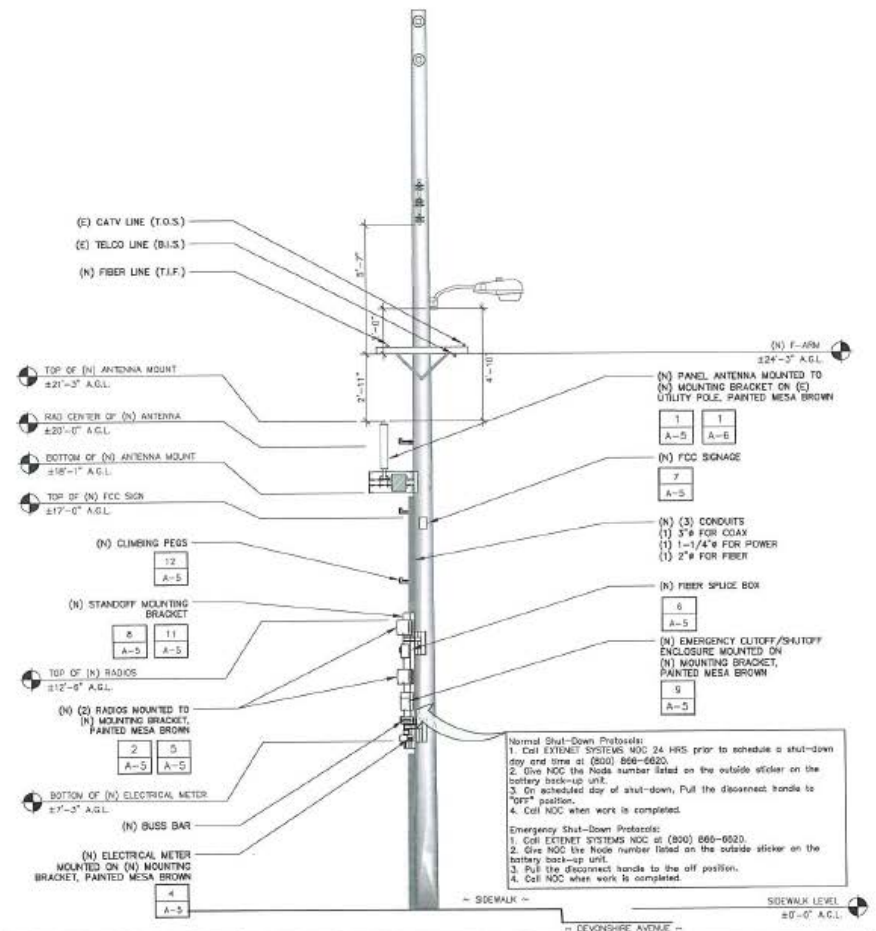
Owner/Applicant: _____

Attachment: _____

File Numbers: _____



1 EXISTING NORTHWEST ELEVATION



MAKE READY INFORMATION

1. EXTENET CONTRACTOR TO PLACE NEW F-ARM ON EXISTING POLE AT 24'-3\"/>

2 PROPOSED NORTHWEST ELEVATION

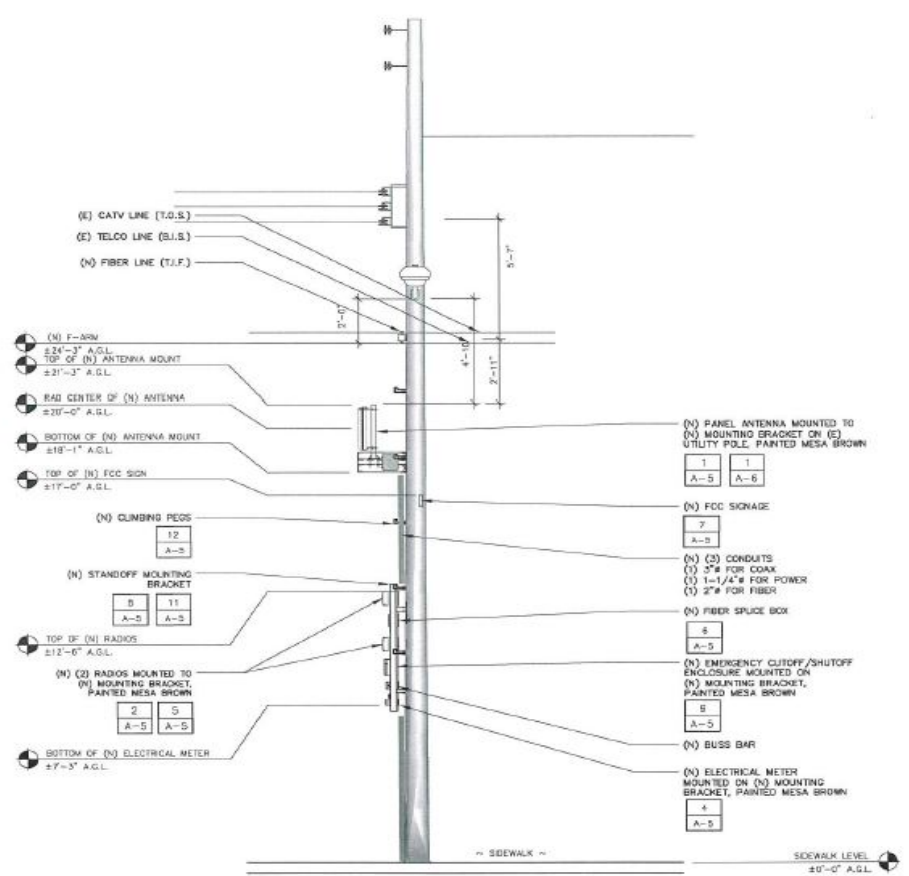
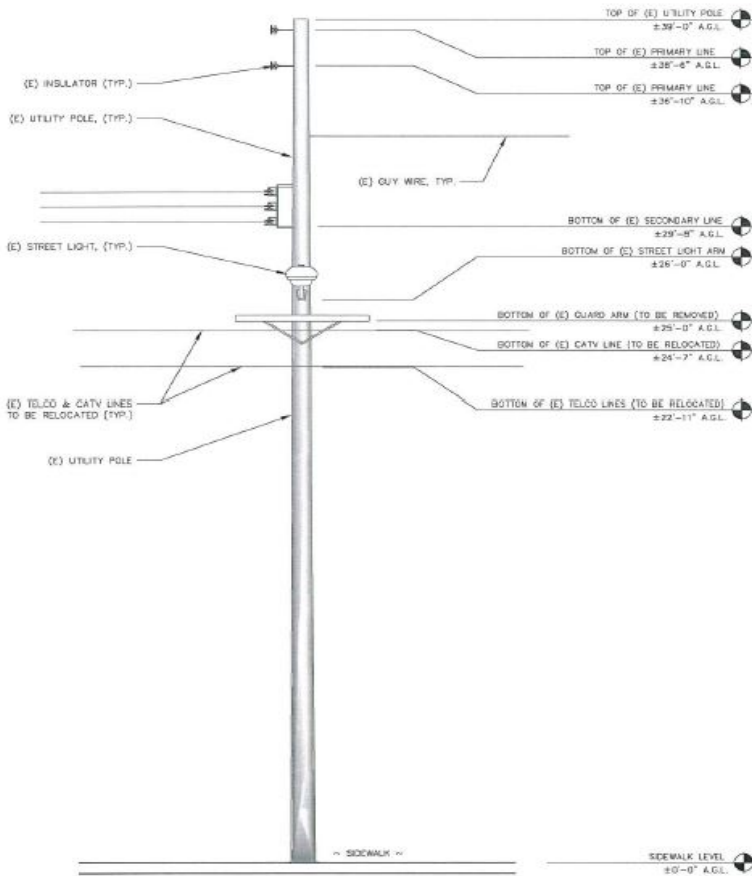


Gub'A Uhc'7 ci bhmBcfh : Uj'CU_g'7 ca a i b]m7 ci bW' A YH]b[

Owner/Applicant:

File Numbers:

Attachment:



1 EXISTING SOUTHWEST ELEVATION



2 PROPOSED SOUTHWEST ELEVATION

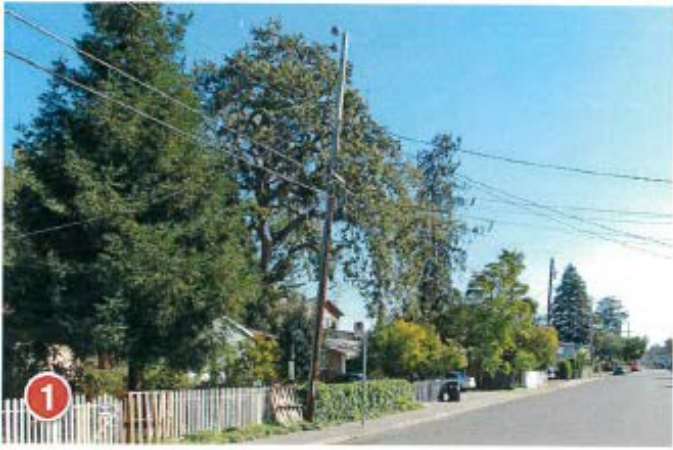


San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

File Numbers: _____

Attachment: _____



NW-CA-SANFRNMC- 04120A

Aerial Map

11/14/16

IFO 2753 Devonshire Avenue Redwood City, CA

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



NW-CA-SANFRNMC- 04120A

Looking East from Devonshire Avenue

IFO 2753 Devonshire Avenue Redwood City, CA

11/14/16

View #1

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



Existing



Proposed

proposed antenna



NW-CA-SANFRNMC- 04120A

Looking Northwest from Devonshire Avenue

11/14/16

IFO 2753 Devonshire Avenue Redwood City, CA

View #2

Applied Imagination 510 914-0500

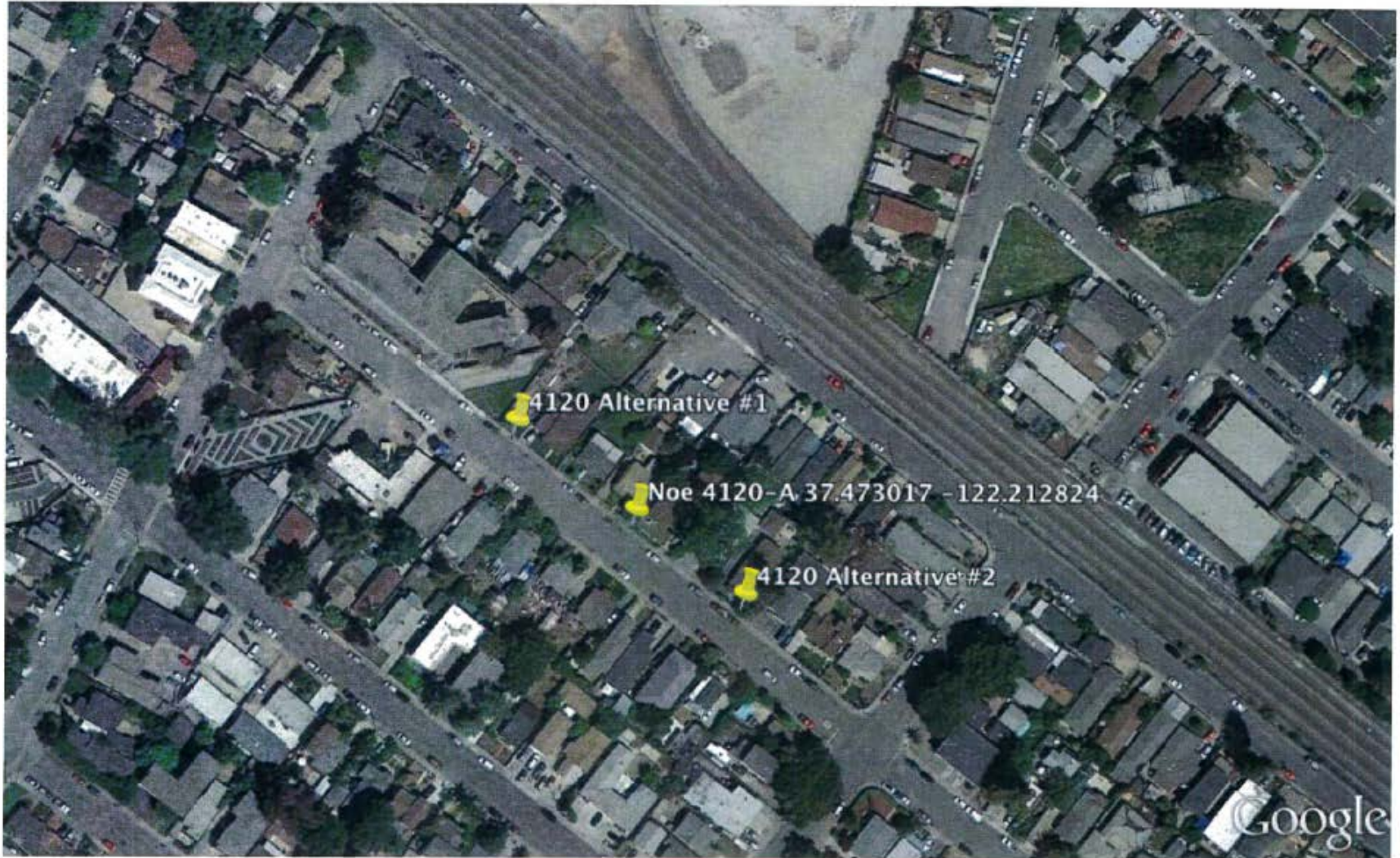
San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Alternative Overview



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Alternative Utility Poles

Alternate Pole NORTH #1- Possible Candidate



Alternate Pole SOUTH #2- Possible Candidate



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

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NOV 30 2016

PL 2016-00511

ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04120A)
2753 Devonshire Avenue • Redwood City, California

San Mateo County
Planning Division

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of ExteNet Systems CA, LLC, a wireless telecommunications facilities provider, to evaluate the addition of Node No. 04120A to be added to the ExteNet distributed antenna system ("DAS") in Redwood City, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

ExteNet proposes to install a directional panel antenna on a utility pole sited in the public right-of-way at 2753 Devonshire Avenue in Redwood City. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm ²	1.00 mW/cm ²
BRS (Broadband Radio)	2,600	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.35	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.



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

Z0X3
Page 1 of 3

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04120A)
2753 Devonshire Avenue • Redwood City, California**

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

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 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 ExteNet, including drawings by The CBR Group, dated November 4, 2016, it is proposed to install one CommScope Model V65S-C3-1XR, 2-foot tall, directional panel antenna, on a cross-arm to be added to a utility pole sited in the public right-of-way in front of the residence located at 2753 Devonshire Avenue in Redwood City. The antenna would employ no downtilt, would be mounted at an effective height of about 20 feet above ground, and would be oriented toward 310°T. T-Mobile proposes to operate from this facility with a maximum effective radiated power in any direction of 214 watts, representing simultaneous operation at 107 watts for AWS and 107 watts for PCS service. There are reported no other wireless telecommunications base stations at this site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed T-Mobile operation is calculated to be 0.0083 mW/cm², which is 0.83% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 3.9% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04120A)
2753 Devonshire Avenue • Redwood City, California

Recommended Mitigation Measures

Due to its mounting location and height, the ExteNet antenna would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antenna, including employees and contractors of the utility companies. No access within 2 feet directly in front of the antenna itself, such as might occur during certain activities, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory signs* on the pole at or below the antenna, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the node proposed by ExteNet Systems CA, LLC, at 2753 Devonshire Avenue in Redwood City, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training personnel and posting signs is recommended to establish compliance with occupational exposure limitations.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-18063, which expires on June 30, 2017. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

Rajat Mathur
Rajat Mathur, P.E.
707/996-5200



November 22, 2016

* Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required. Signage may also need to comply with the requirements of California Public Utilities Commission General Order No. 95.

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

ITEM 4

File No.: PLN 2016-00512

Location: Public Right-of-Way in front of 2797 Blenheim Avenue, North Fair Oaks

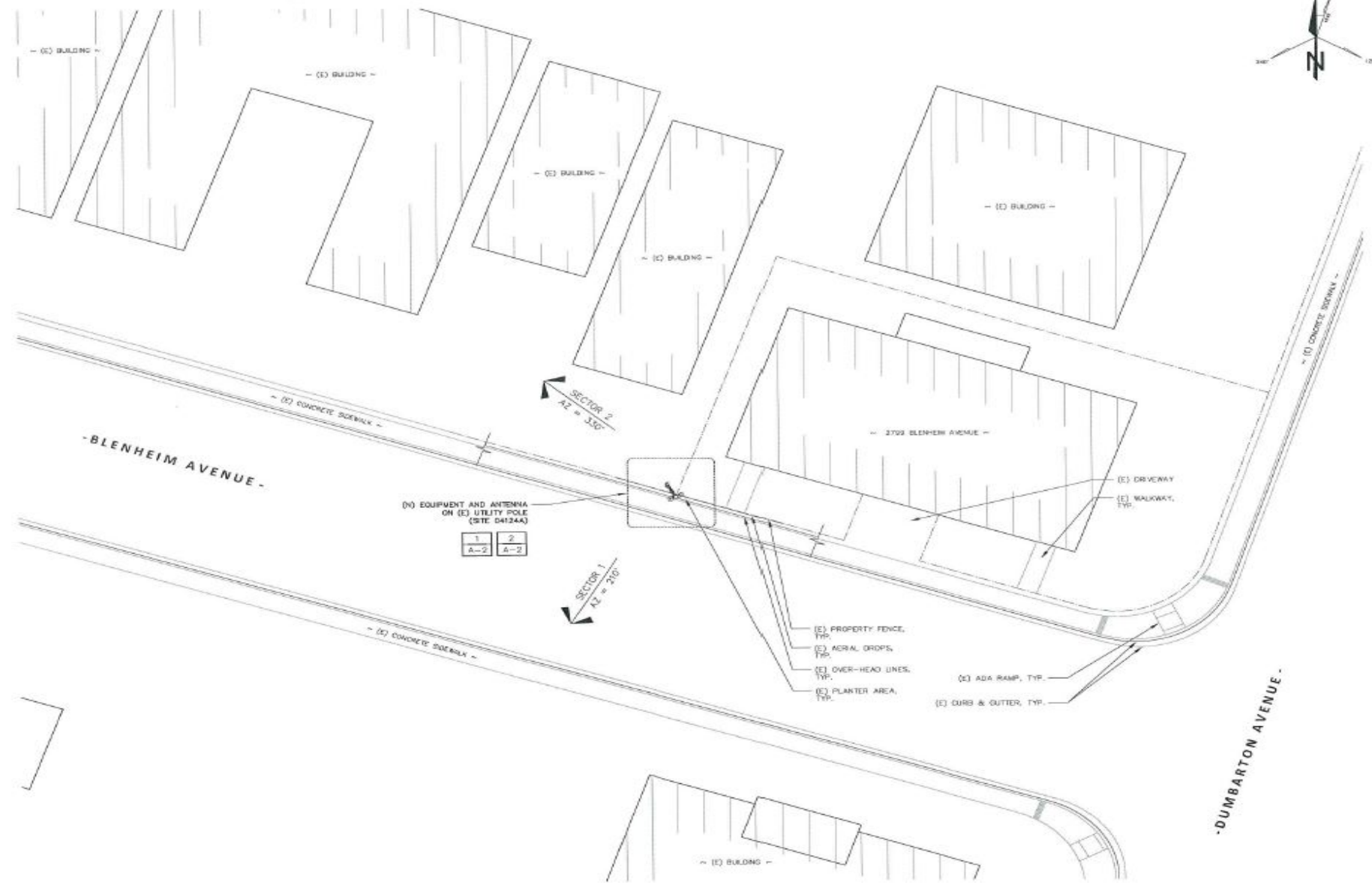
APN: Public Right-of-Way adjacent to 054-276-330

PROJECT SPECIFICATIONS TABLE							
R-3/S-3 Maximum Height	Height of Existing Utility Pole	Maximum Height of Support Arm	Maximum Height of Antenna(s)	Ground Floor Radio Frequency Exposure	Send Floor Radio Frequency Exposure	Number of Viable Alternatives	Number of Proposed Antenna
36 feet	30 feet	25 feet 6 inches	21 feet 3 inches	0.47%	3.5%	0	2



GUb`A UHyc`7 ci bhmBcfH` : Ujf`CU_g`7 ca a i b]hm7 ci bWj`A YH]b[

Owner/Applicant: _____ Attachment: _____
File Numbers: _____



1 OVERALL SITE PLAN

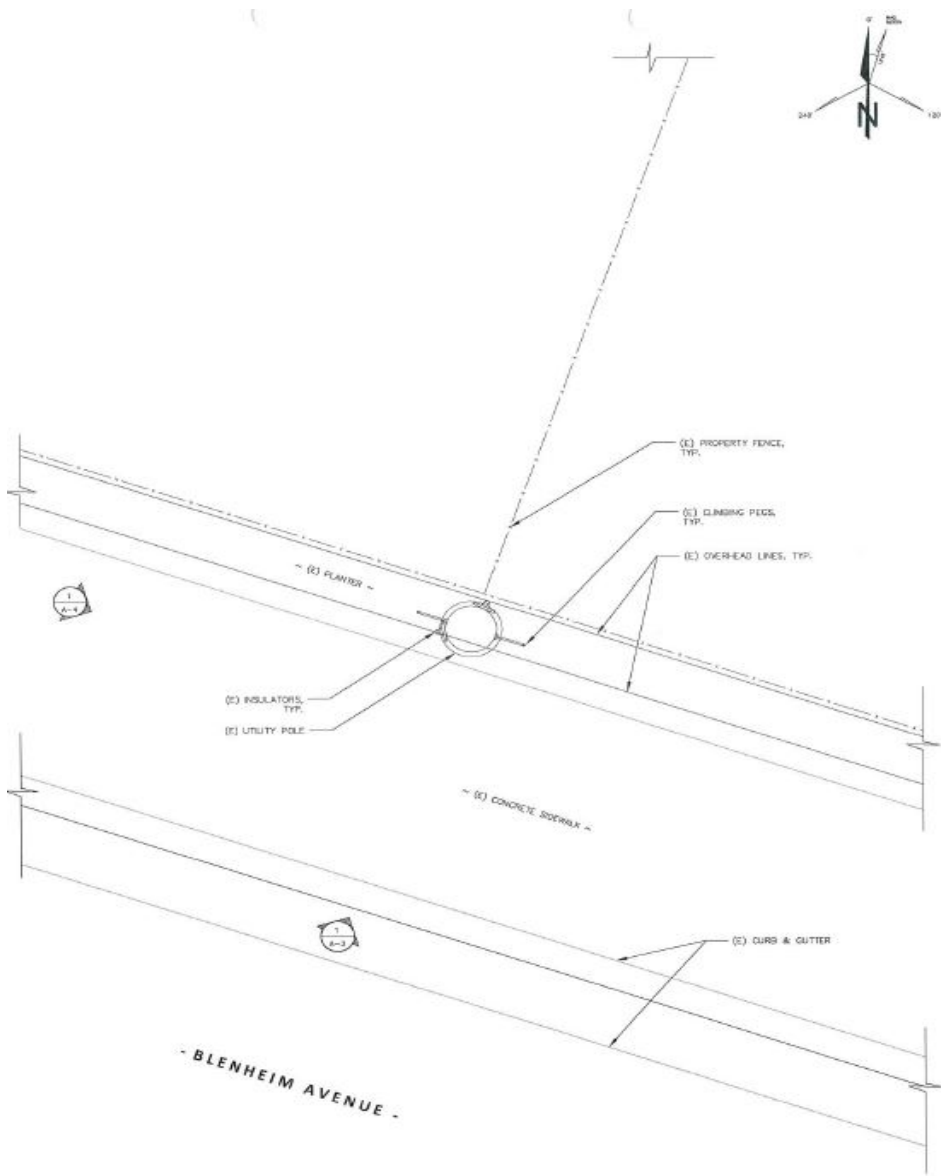
SCALE: 3/32" = 1'-0"
0 4 8 16 20

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Owner/Applicant:

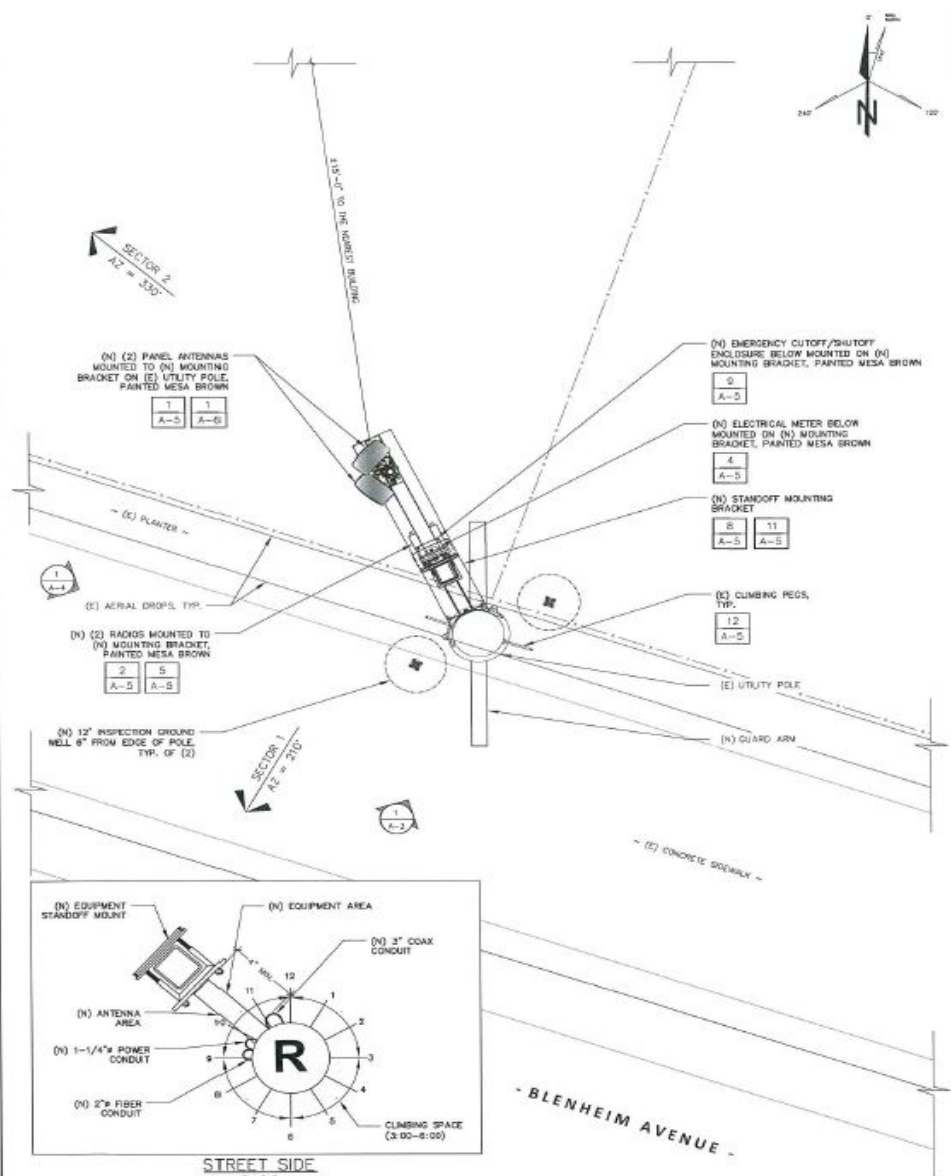
Attachment:

File Numbers:



1 EXISTING EQUIPMENT AND ANTENNA PLAN

SCALE: 1" = 1'-0"



2 PROPOSED EQUIPMENT AND ANTENNA PLAN

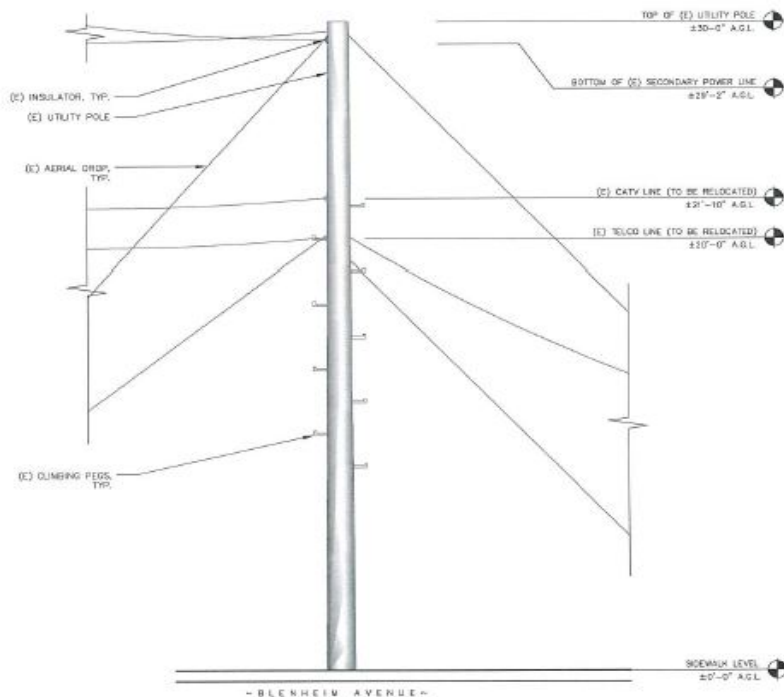
SCALE: 1" = 1'-0"

Gub'A UYc '7 ci bhmBcfh : Uj'CU_g'7ca a i b]m'7 ci bW' A YH]b[

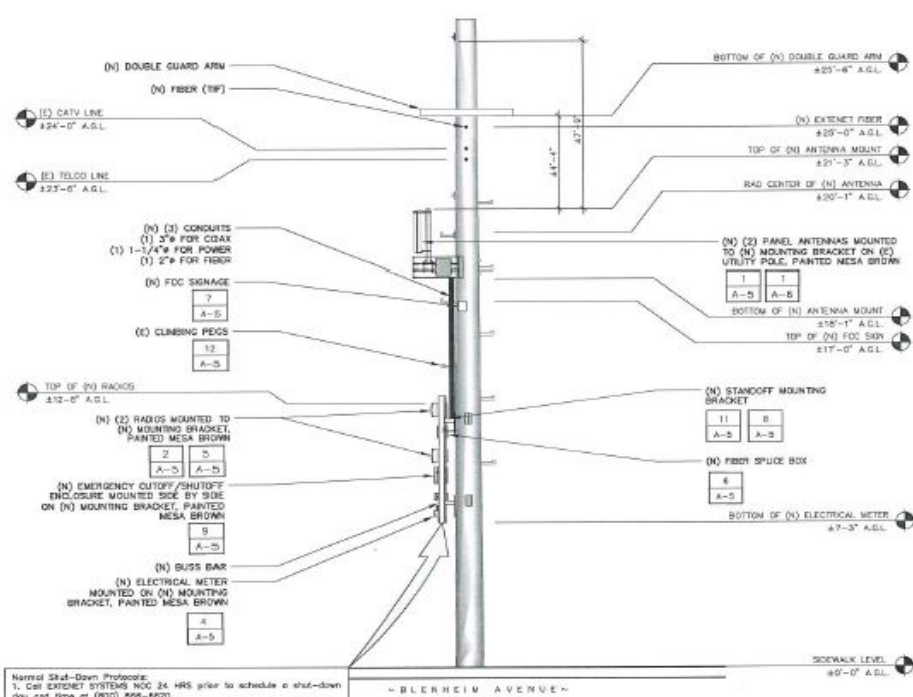
Owner/Applicant:

Attachment:

File Numbers:



1 EXISTING SOUTH ELEVATION



2 PROPOSED SOUTH ELEVATION



Harmed Shut-Down Protocol:

1. Call EXTENET SYSTEMS NDC 24 HRS prior to schedule a shut-down day and time at (800) 886-8920.
2. Give NDC the Node number listed on the outside sticker on the battery base-as used.
3. On scheduled day of shut-down, Pull the disconnect handle to "off" position.
4. Call NDC when work is completed.

Emergency Shut-Down Protocol:

1. Call EXTENET SYSTEMS NDC at (800) 886-8920.
2. Give NDC the Node number listed on the outside sticker on the battery base-as used.
3. Pull the disconnect handle to the off position.
4. Call NDC when work is completed.

MAKE READY INFORMATION

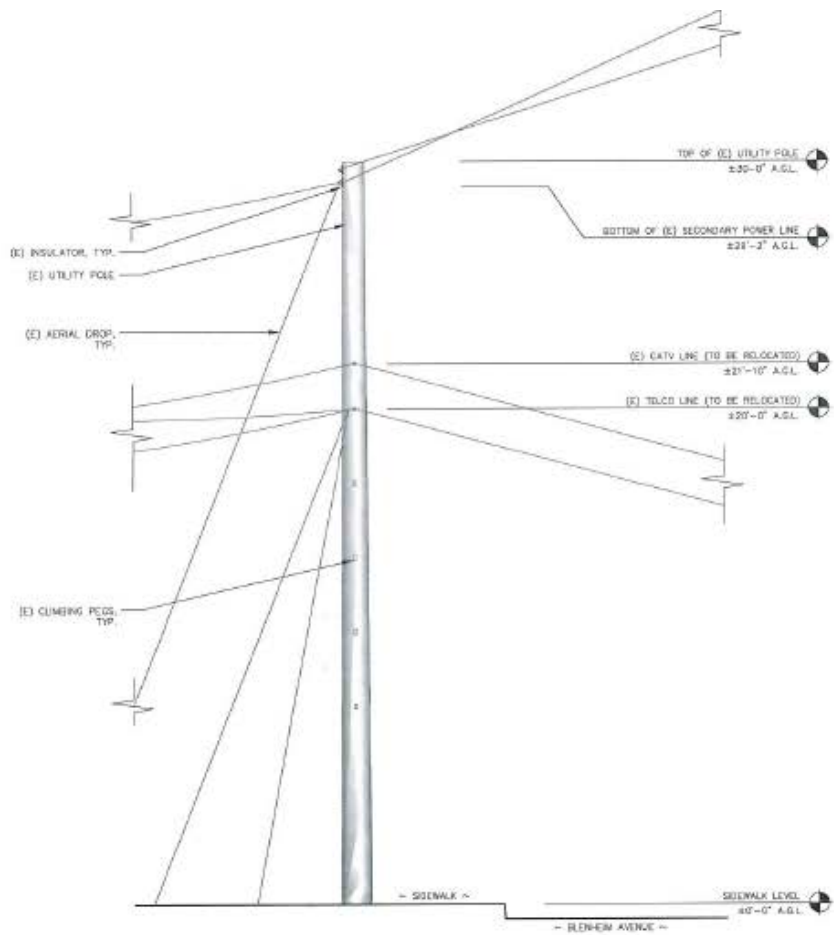
- A. EXTENET CONTRACTOR TO PLACE NEW DOUBLE GUARD ARM BRACKETS ON EXISTING POLE AT 225' AGL.
- B. EXTENET CONTRACTOR TO TRANSFER EXISTING CATV TO NEW BDA AT 245' AND ATTACH-SHEET SIDE.
- C. EXTENET CONTRACTOR TO PLACE NEW EXTENET FIBER TO NEW BDA AT 225' AND ATTACH-SHEET SIDE.
- D. EXTENET CONTRACTOR TO TRANSFER EXISTING TELEPHONE DROPS TO NEW BDA AT 225'.
- E. EXTENET CONTRACTOR TO PLACE BOTTOM OF NEW ANTENNA SUPPORT ARM EXTENDING INTO FIELD SIDE AT 87' AGL.
- F. EXTENET CONTRACTOR TO INSTALL NEW ANTENNA TO NEW SUPPORT ARM FOR DERRIS.
- G. EXTENET CONTRACTOR TO PLACE NEW 3" SCH 40 PVC RISER AT 1100 POSITION FOR EXTENET COAXIAL CABLES FOR DERRIS.
- H. EXTENET CONTRACTOR TO PLACE NEW 3" SCH 40 PVC RISER AT 480 POSITION FOR EXTENET FIBER CABLES FOR DERRIS.
- I. EXTENET APPROVED ELECTRICAL CONTRACTOR TO PLACE NEW 1 1/2" SCH 40 PVC RISER AT 9-54 POSITION FOR POWER SERVICE FROM 1" TELEPHONE SECONDARY TO NEW POWER METER.
- J. EXTENET CONTRACTOR TO CUT IN NEW V-TAP AT 225' AGL TO SUPPORT NEW FIBER INTO NEW COAXIAL RISER.
- K. EXTENET CONTRACTOR TO PLACE NEW 4" X 4" X 6" POLE MOUNTED EQUIPMENT CHANNEL AT 180" POSITION ON 4" STANDOFF BOLTS FOR NEW EXTENET EQUIPMENT. (BOTTOM AT 70" AGL).
- L. MOUNT UP 2 NEW RISERS AND ALLUMINUM BACKPLATE TO NEW EQUIPMENT CHANNEL.
- M. EXTENET CONTRACTOR TO MOUNT BOTTOM OF NEW HANS SHARPE METER BOX TO POLE AT 87' AGL.
- N. EXTENET CONTRACTOR TO MOUNT BOTTOM OF NEW BRACER BOX TO POLE AT 87' AGL.
- O. EXTENET CONTRACTOR TO PLACE NEW 1/2" COPPER GROUND ROD 12" BELOW GRADE AND 24" FROM POLE FOR NEW POWER METERS.
- P. EXTENET CONTRACTOR TO PLACE NEW 1/2" COPPER GROUND ROD 12" BELOW GRADE AND 24" FROM POLE FOR NEW EXTENET EQUIPMENT.
- Q. PLACE NEW #2 COVERED GROUND WIRE FROM POWER METER TO NEW METER GROUND ROD.
- R. PLACE NEW #2 COVERED GROUND WIRE FROM EXTENET EQUIPMENT TO NEW EQUIPMENT GROUND ROD.
- S. EXTENET CONTRACTOR TO QUARTER STEP NEW POLE AT 180 AND 680 FOR CLIMBING SPACE.
- T. EXTENET CONTRACTOR TO PLACE ALL RISE 94 SKINS AS REQUIRED BY LAW.

San Mateo County Zoning Hearing Officer Meeting

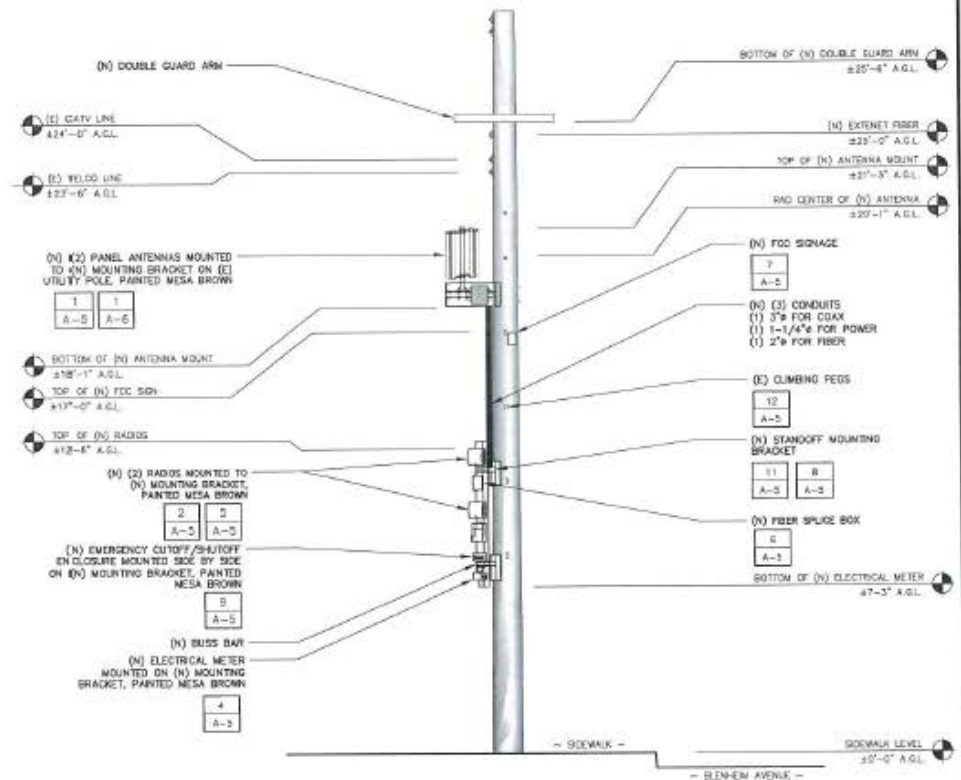
Owner/Applicant:

File Numbers:

Attachment:



1 EXISTING WEST ELEVATION



2 PROPOSED WEST ELEVATION

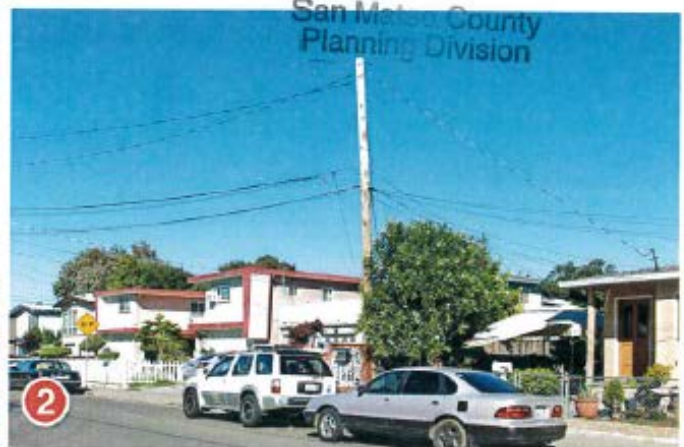
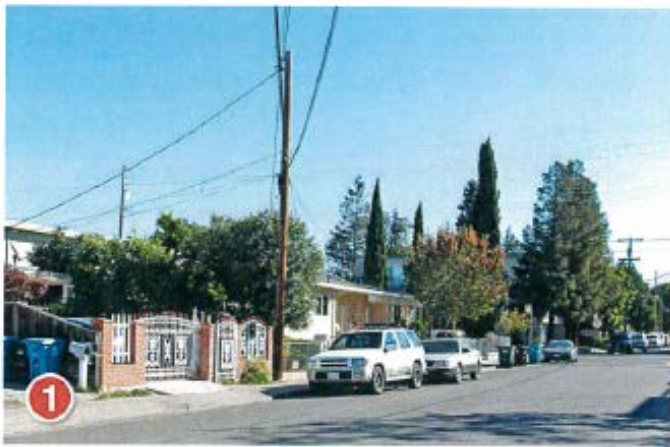


GUb'A UHyc '7 ci bhmBcfh : Uj'CU_g'7 ca a i b]hm'7 ci bW' A YH]b[

Owner/Applicant:

Attachment:

File Numbers:



NW-CA-SANFRNMC- 04124A

Aerial Map

11/14/16

I/O 2797 Blenheim Avenue Redwood City, CA

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

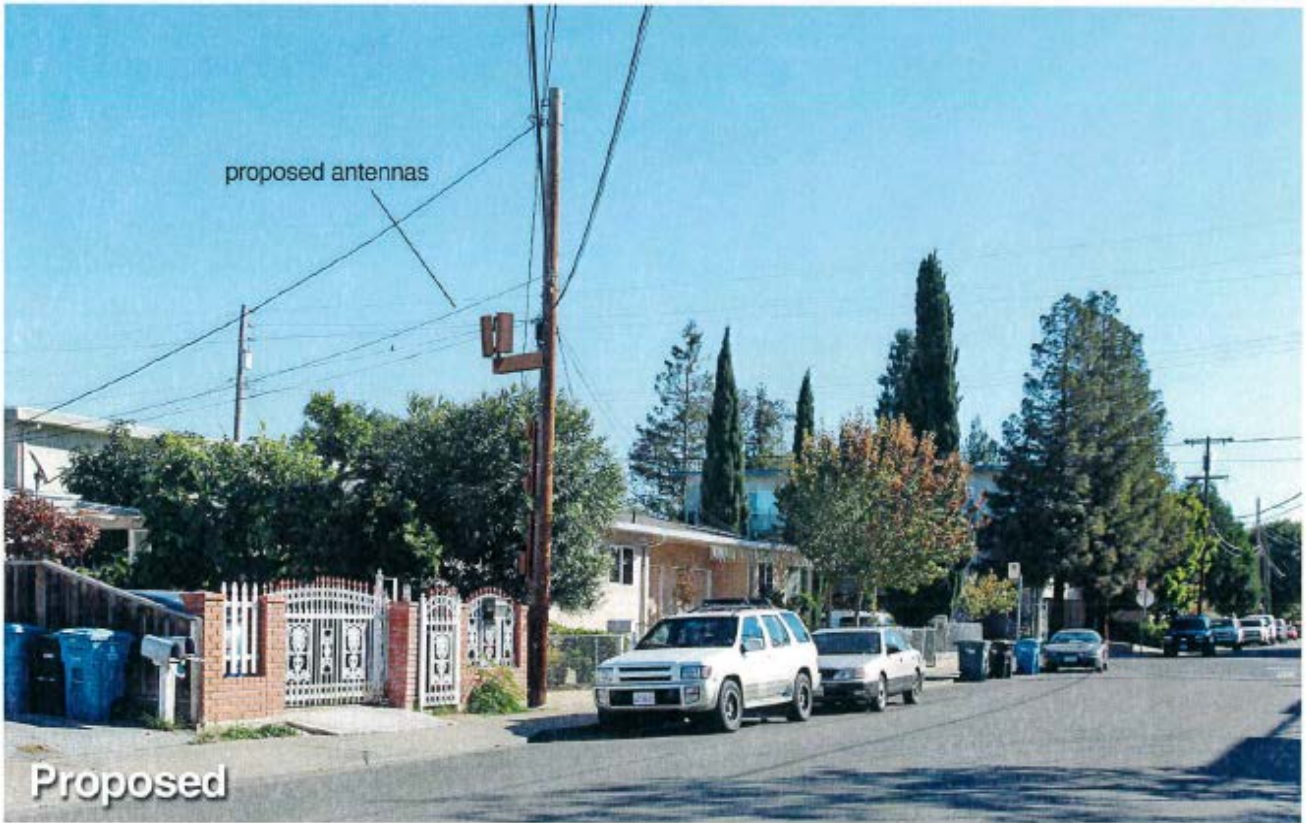
Owner/Applicant:

Attachment:

File Numbers:



Existing



proposed antennas

Proposed



11/14/16

NW-CA-SANFRNMC- 04124A

IFO 2797 Blenheim Avenue Redwood City, CA

Looking East from Blenheim Avenue

View #1

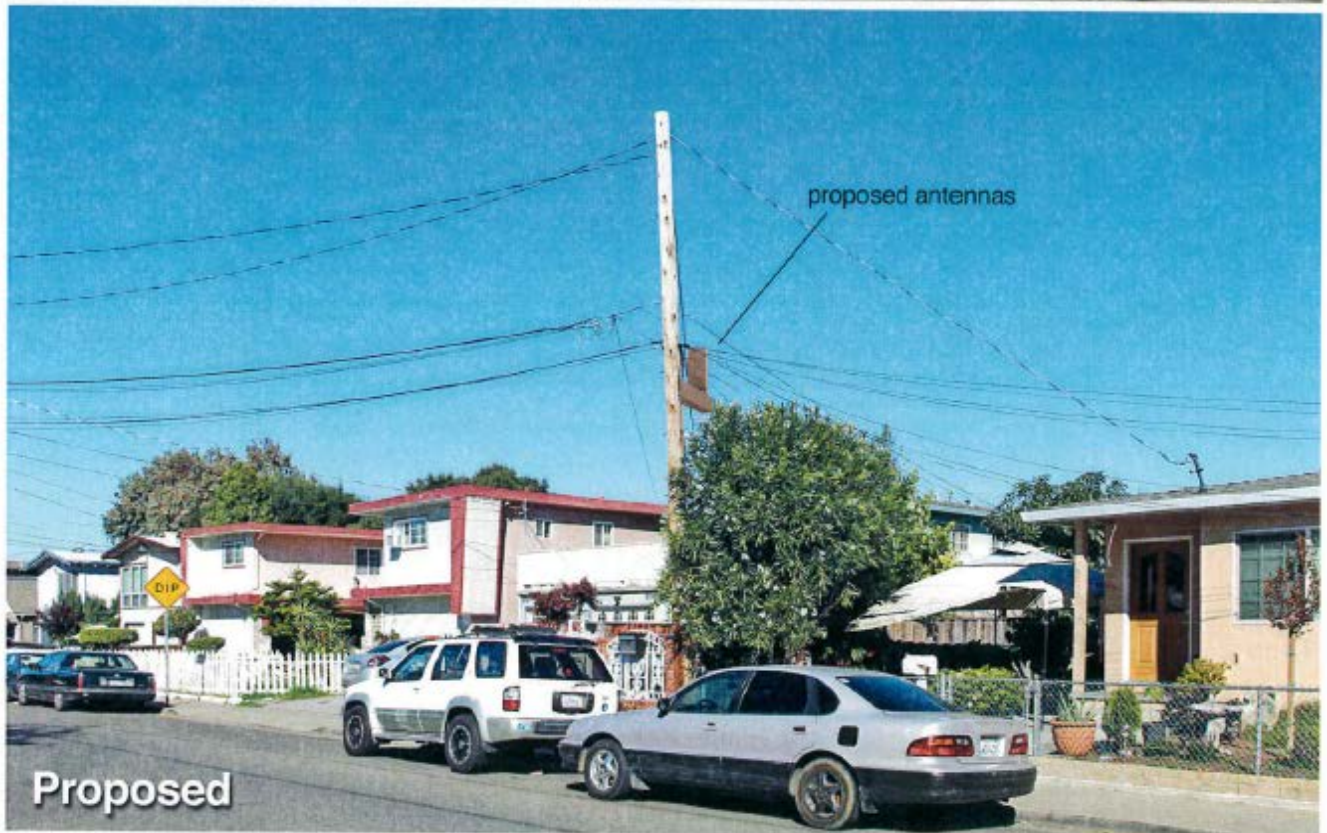
Applied Imagination 510 514-0500

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:



11/14/16

NW-CA-SANFRNMC- 04124A

I/O 2797 Blenheim Avenue Redwood City, CA

Looking Northwest from Blenheim Avenue

View #2

Applied Imagination 510 914-0500

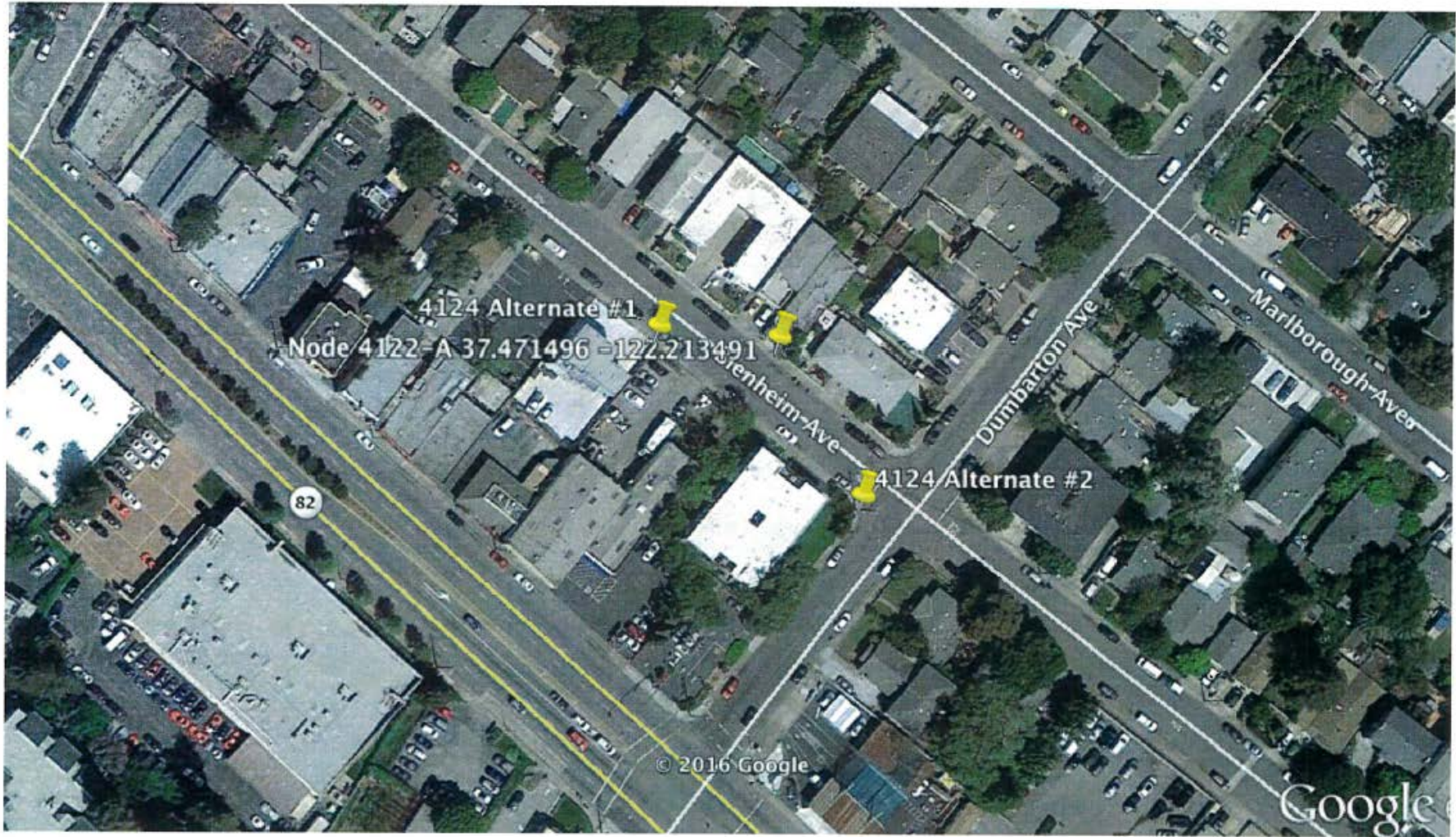
San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

Alternative Overview



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Alternative Utility Poles

Alternate Pole WEST #1-Proposed design will not be GO95 compliant



Alternate Pole EAST #2- Proposed design will not be GO95 compliant



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

PLN2016-00512

RECEIVED

ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04124A)
2797 Blenheim Avenue • Redwood City, California

NOV 30 2016

San Mateo County
Planning Division

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of ExteNet Systems CA, LLC, a wireless telecommunications facilities provider, to evaluate the addition of Node No. 04124A to be added to the ExteNet distributed antenna system ("DAS") in Redwood City, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

ExteNet proposes to install directional panel antennas on a utility pole sited in the public right-of-way at 2797 Blenheim Avenue in Redwood City. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm ²	1.00 mW/cm ²
BRS (Broadband Radio)	2,600	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.35	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.



San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04124A)
2797 Blenheim Avenue • Redwood City, California**

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

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 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 ExteNet, including drawings by The CBR Group, dated November 2, 2016, it is proposed to install two CommScope Model V65S-C3-1XR, 2-foot tall, directional panel antennas, on a cross-arm to be added to a utility pole sited in the public right-of-way in front of the residence located at 2797 Blenheim Avenue in Redwood City. The antennas would employ no downtilt, would be mounted at an effective height of about 20 feet above ground, and would be oriented toward 220°T and 330°T. T-Mobile proposes to operate from this facility with a maximum effective radiated power in any direction of 122 watts, representing simultaneous operation at 61 watts for AWS and 61 watts for PCS service. There are reported no other wireless telecommunications base stations at this site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed T-Mobile operation is calculated to be 0.0047 mW/cm², which is 0.47% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 3.5% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04124A)
2797 Blenheim Avenue • Redwood City, California

Recommended Mitigation Measures

Due to their mounting location and height, the ExteNet antennas would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antennas, including employees and contractors of the utility companies. No access within 1 foot directly in front of the antennas themselves, such as might occur during certain activities, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory signs* on the pole at or below the antennas, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the node proposed by ExteNet Systems CA, LLC, at 2797 Blenheim Avenue in Redwood City, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training personnel and posting signs is recommended to establish compliance with occupational exposure limitations.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-18063, which expires on June 30, 2017. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

Rajat Mathur
Rajat Mathur, P.E.
707/996-5200



November 22, 2016

* Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required. Signage may also need to comply with the requirements of California Public Utilities Commission General Order No. 95.

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

ITEM 5

File No.: PLN 2016-00506

Location: Public Right-of-Way in front of 2760 Marlborough Avenue, North Fair Oaks

APN: Public Right-of-Way adjacent to 054-275-050

PROJECT SPECIFICATIONS TABLE							
R-3/S-5 Maximum Height	Height of Existing Utility Pole	Maximum Height of Support Arm	Maximum Height of Antenna(s)	Ground Floor Radio Frequency Exposure	Send Floor Radio Frequency Exposure	Number of Viable Alternatives	Number of Proposed Antenna
36 feet	39 feet	24 feet 8 inches	21 feet 3 inches	0.83%	2.4%	0	1



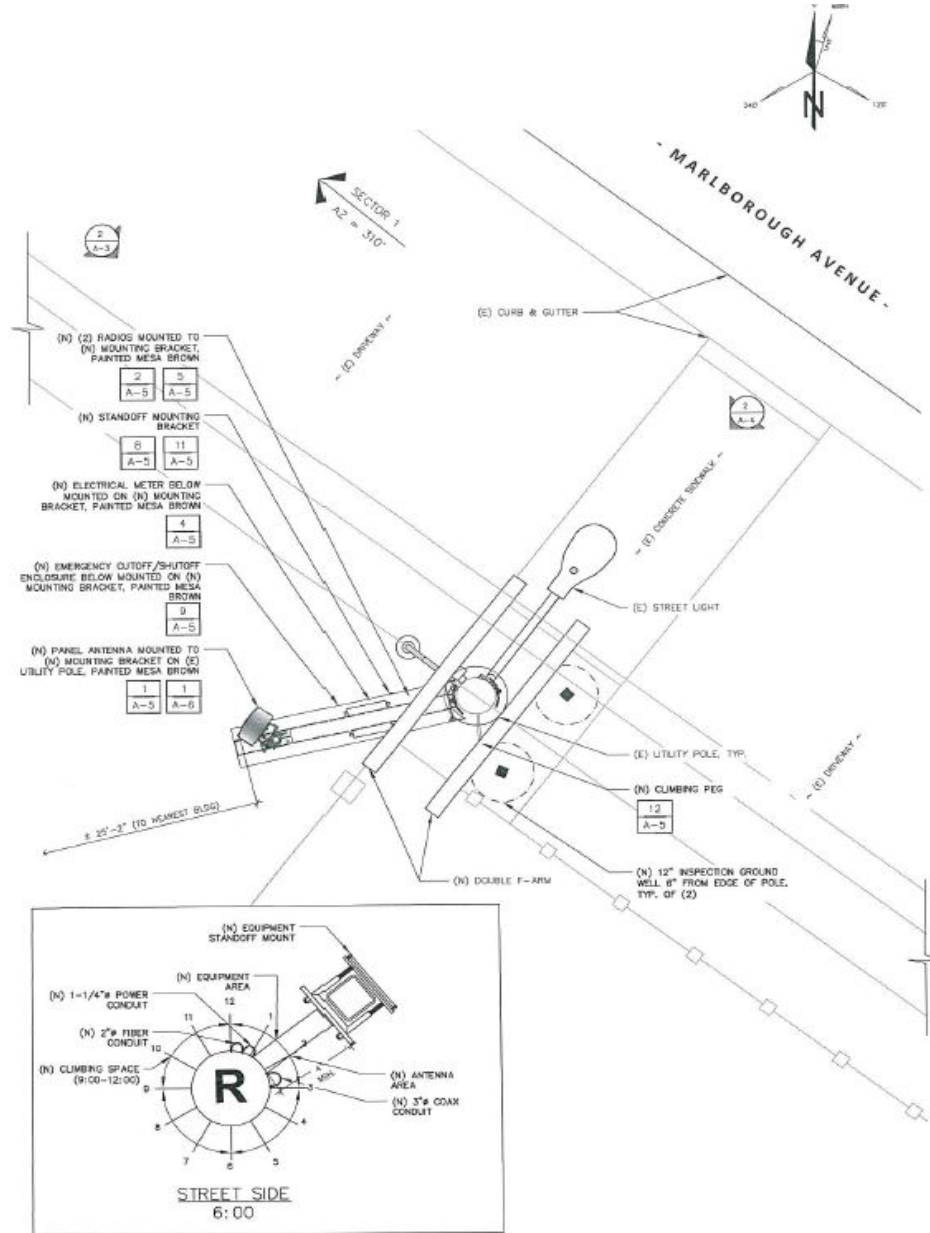
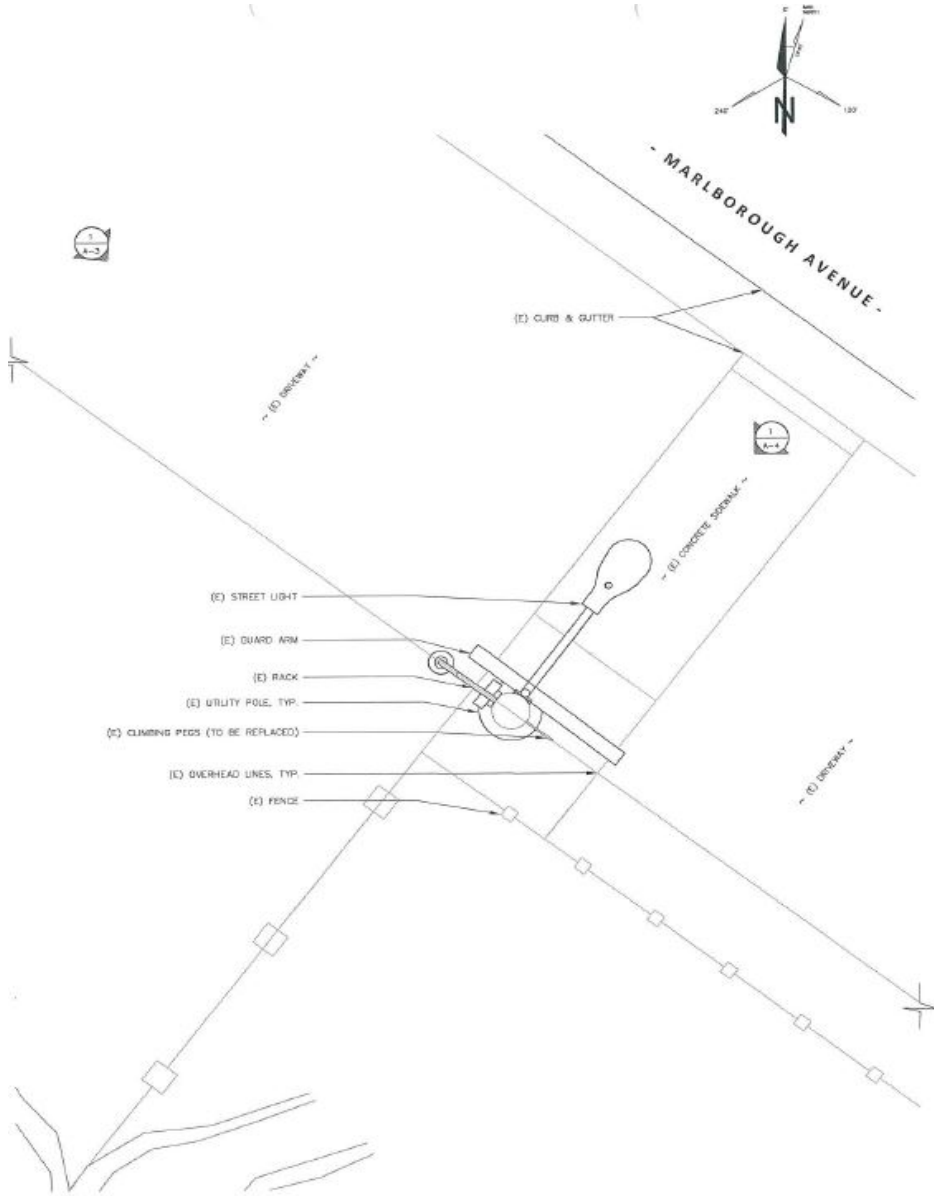
VICINITY MAP

GUb`A UHc`7 ci bhmBcfH : Ujf`CU_g`7ca a i b]hm7 ci bWj`A YH]b[

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



1 EXISTING EQUIPMENT AND ANTENNA PLAN

SCALE: 1" = 1'-0"

2 PROPOSED EQUIPMENT AND ANTENNA PLAN

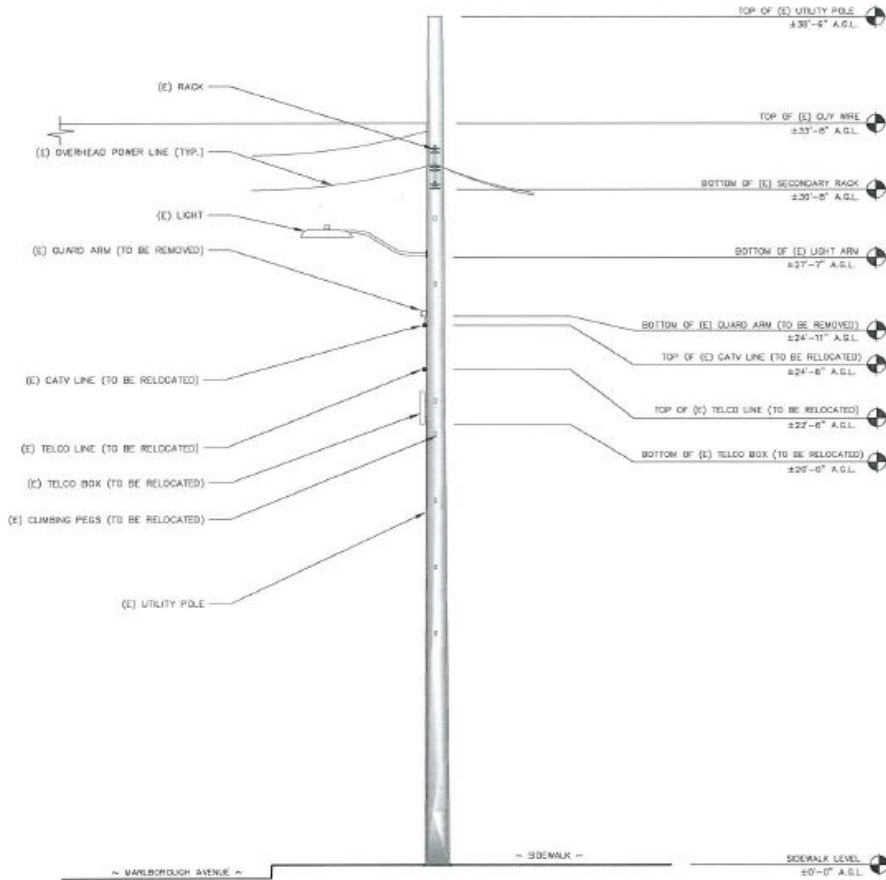
SCALE: 1" = 1'-0"

Glub'AUyc'7ci bhmBcfh : Uj'CU_g'7ca a i b]hm'7ci bW'AYh[b]

Owner/Applicant:

Attachment:

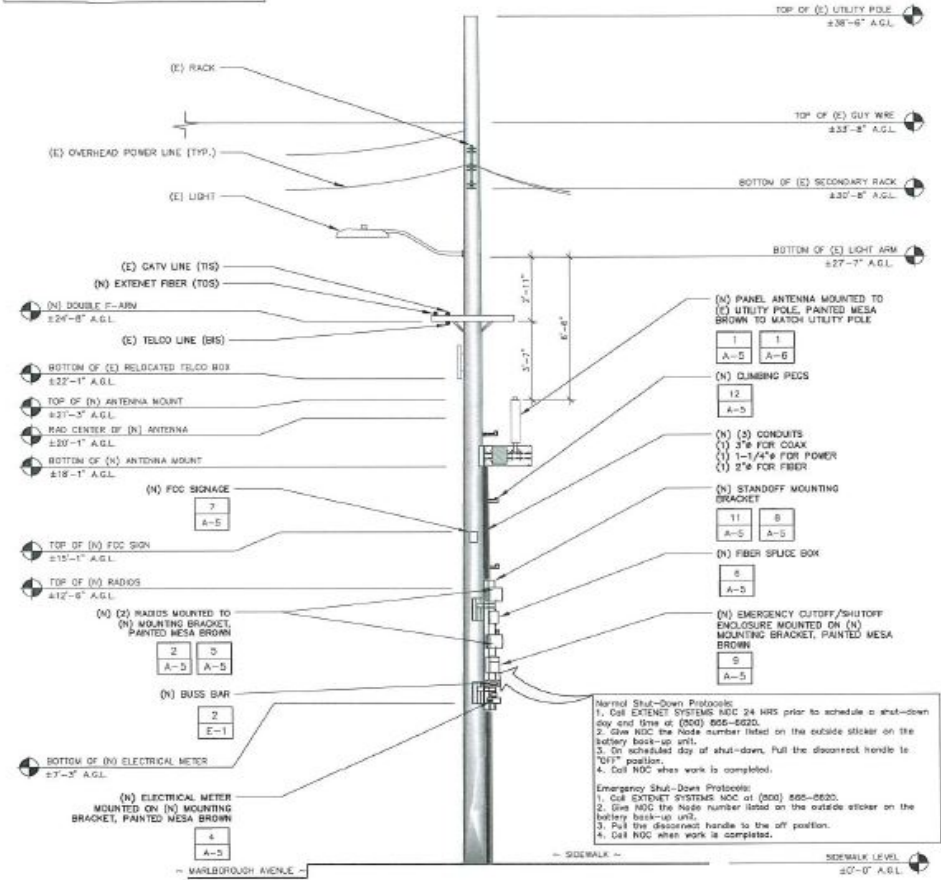
File Numbers:



1 EXISTING NORTHWEST ELEVATION



NOTE:
1. ALL ANTENNAS, WIRE'S, MOUNTING HARDWARE, AND CONDUIT TO BE PAINTED TO MATCH POLE.



2 PROPOSED NORTHWEST ELEVATION



MAKE READY INFORMATION

1. EXTENET CONTRACTOR TO REMOVE GUARD ARM ON N/S/O EXISTING POLE AT 241' AGL.
2. EXTENET CONTRACTOR TO PLACE NEW DOUBLE F-ARM ON N/S/O EXISTING POLE AT 228' AGL.
3. EXTENET CONTRACTOR TO TRANSFER EXISTING TELCO TO NEW F-ARM AT 248' AND ATTACH BOTTOM INSIDE POSITION - STREET SIDE.
4. EXTENET CONTRACTOR TO TRANSFER EXISTING CATV TO NEW F-ARM AT 248' AND ATTACH TOP INSIDE POSITION - STREET SIDE.
5. EXTENET CONTRACTOR TO PLACE NEW EXTENET FIBER TO NEW F-ARM AT 248' AND ATTACH TOP OUTSIDE POSITION - STREET SIDE.
6. EXTENET CONTRACTOR TO PLACE BOTTOM OF NEW ANTENNA SUPPORT ARM EXTENDING INTO E SIDE AT 211' AGL.
7. EXTENET CONTRACTOR TO INSTALL NEW ANTENNA TO NEW SUPPORT ARM PER DESIGN.
8. EXTENET CONTRACTOR TO PLACE NEW 2\"/>

Normal Shut-Down Protocol:
 1. Call EXTENET SYSTEMS NOC 24 HRS prior to schedule a shut-down day and time at (800) 866-8620.
 2. Give NOC the Node number listed on the outside sticker on the battery back-up unit.
 3. On scheduled day of shut-down, pull the disconnect handle to "OFF" position.
 4. Call NOC when work is completed.

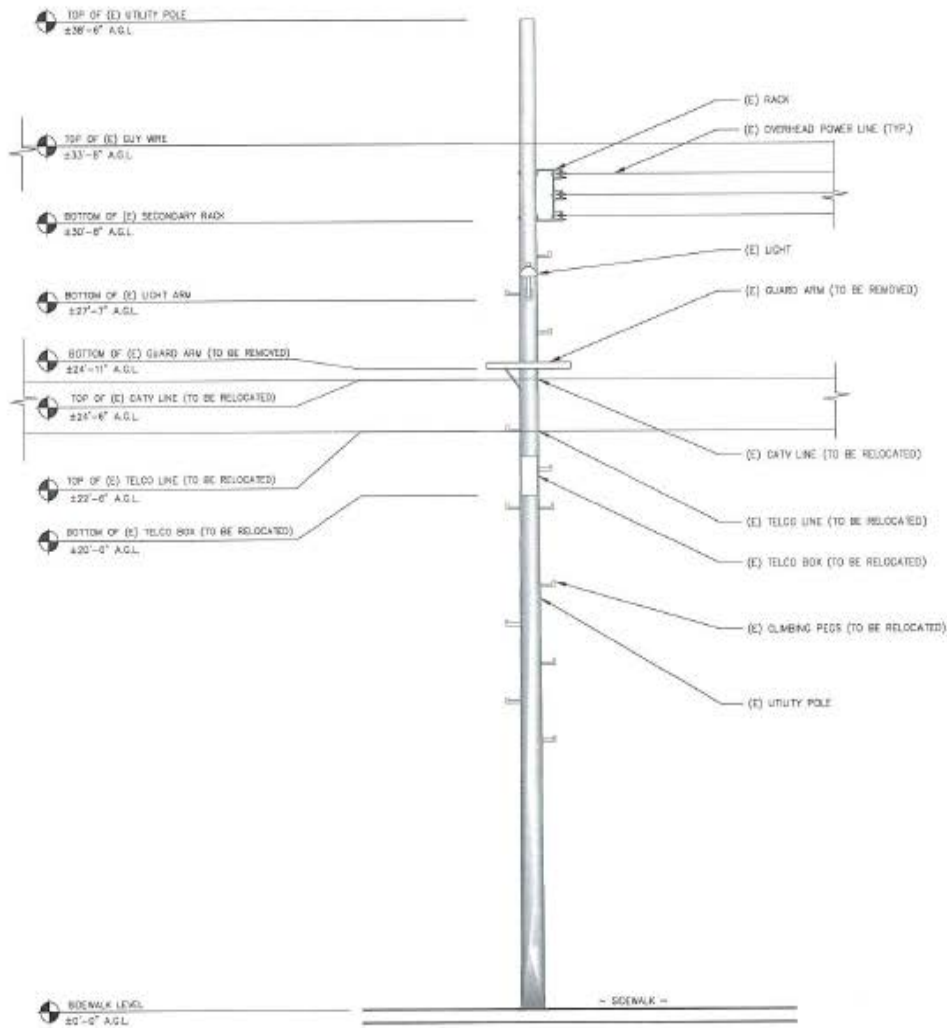
Emergency Shut-Down Protocol:
 1. Call EXTENET SYSTEMS NOC at (800) 866-8620.
 2. Give NOC the Node number listed on the outside sticker on the battery back-up unit.
 3. Pull the disconnect handle to the off position.
 4. Call NOC when work is completed.

Gub'A Uhc'7 ci bhmBcfh : Uj'CU_g'7 ca a i b]m7 ci bW' A Yh]b[

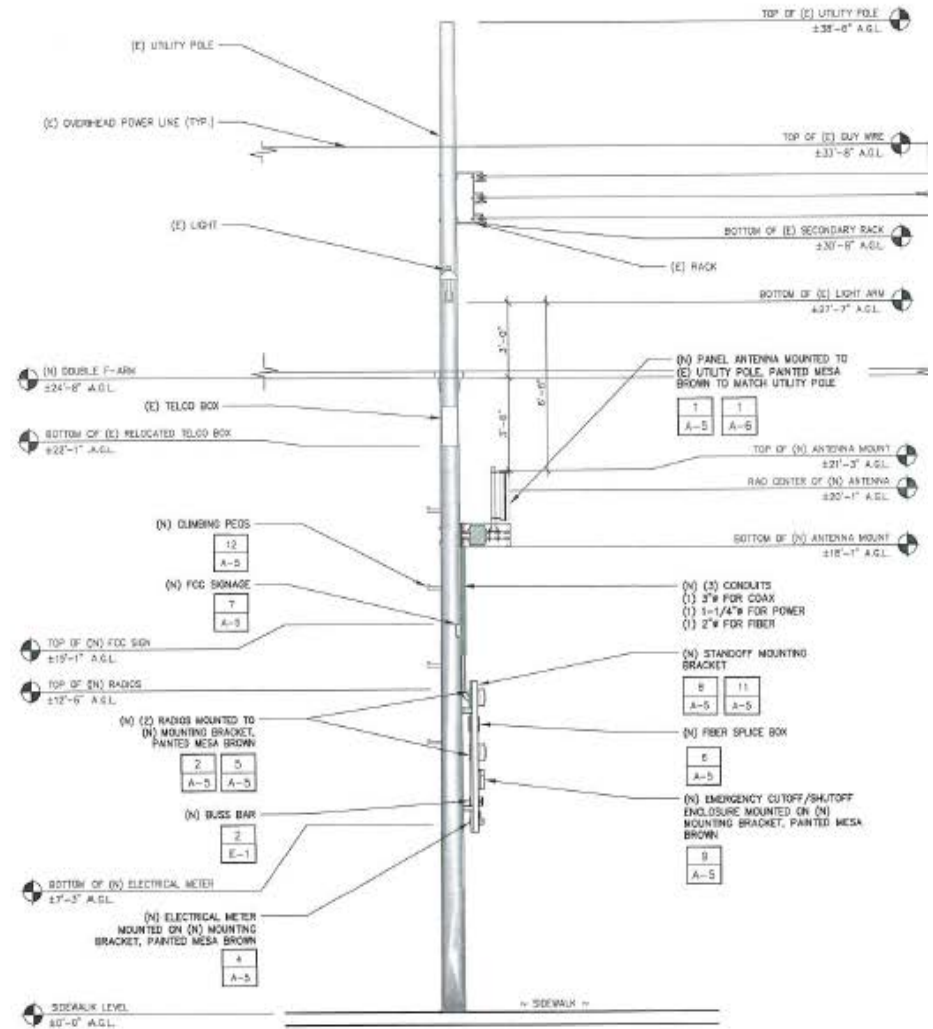
Owner/Applicant: _____

Attachment: _____

File Numbers: _____



1 EXISTING NORTHEAST ELEVATION



2 PROPOSED NORTHEAST ELEVATION



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant:

File Numbers:

Attachment:



NW-CA-SANFRNMC- 04129A

Aerial Map

2760 Marlborough Avenue Redwood City, CA

11/14/16

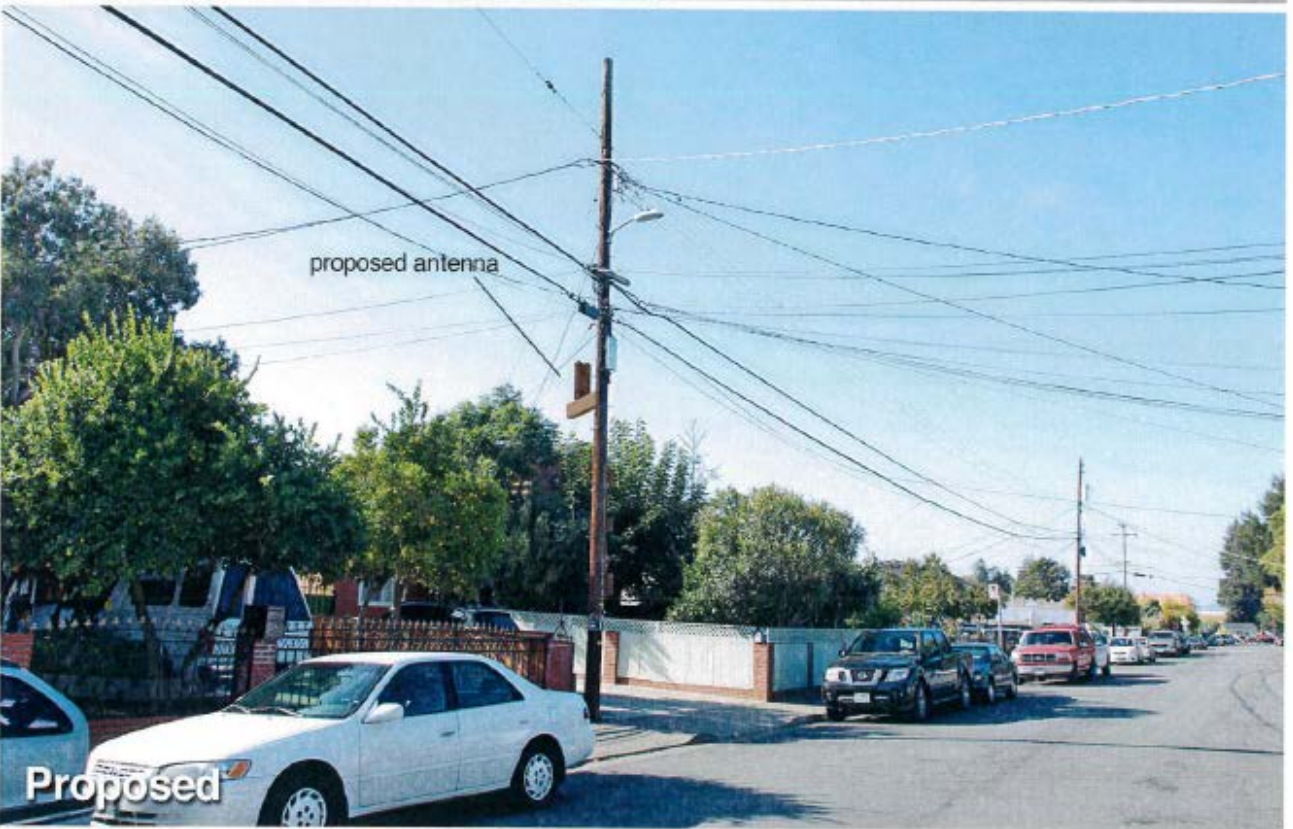
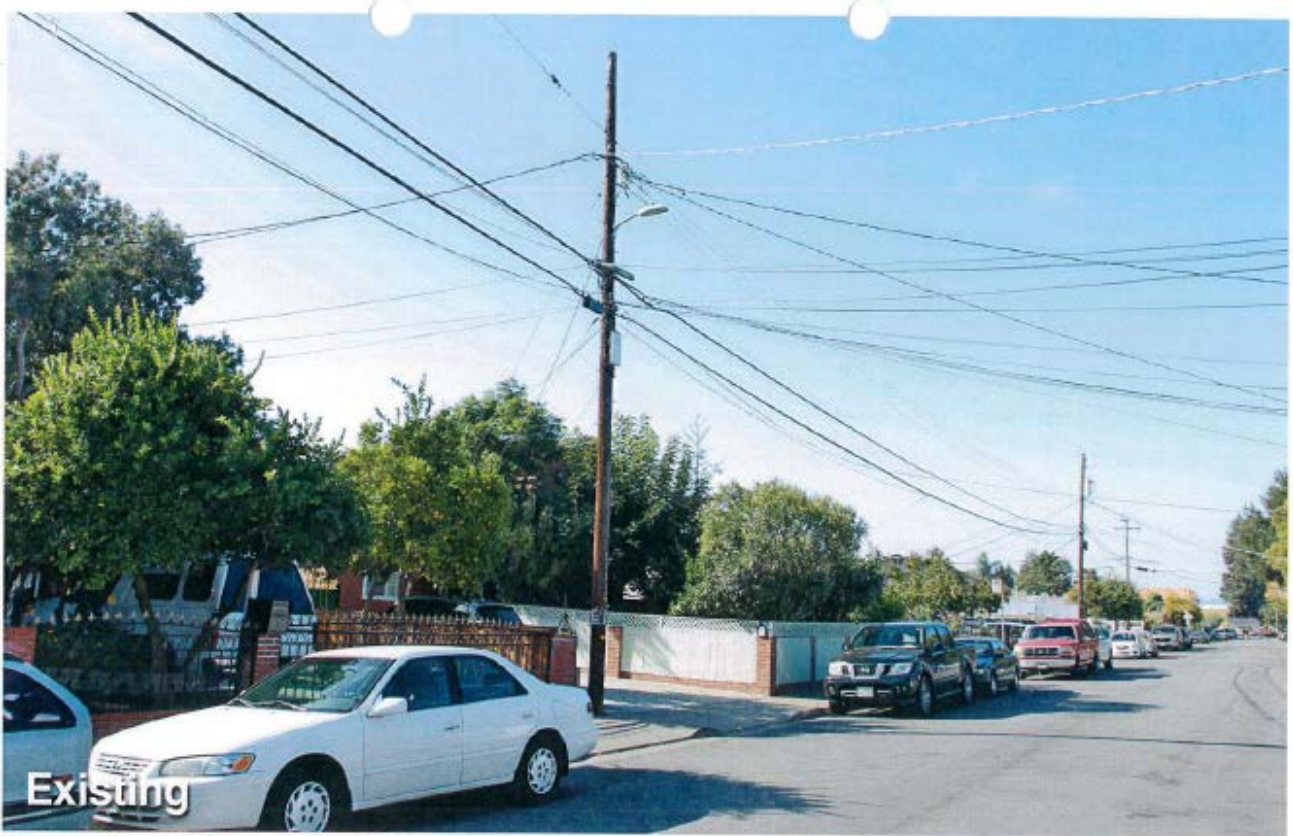
Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____



11/14/16

NW-CA-SANFRNMC- 04129A

2760 Marlborough Avenue Redwood City, CA

Looking West from Marlborough Avenue

View #1

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

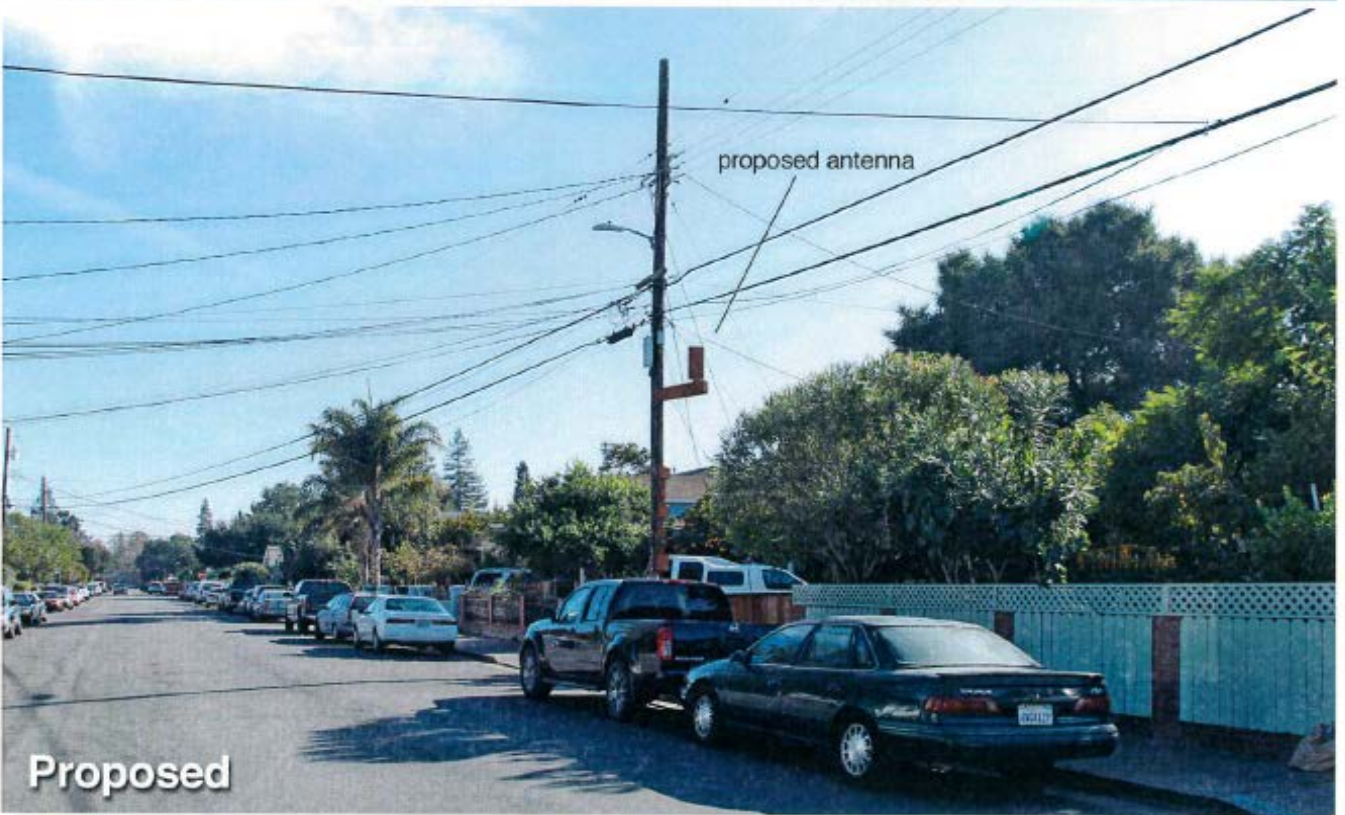
Owner/Applicant:

Attachment:

File Numbers:



Existing



Proposed



NW-CA-SANFRNMC- 04129A

Looking Southeast from Marlborough Avenue

11/14/16

2760 Marlborough Avenue Redwood City, CA

View #2

Applied Imagination 510 914-0500

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

Alternative Overview



San Mateo County Zoning Hearing Officer Meeting

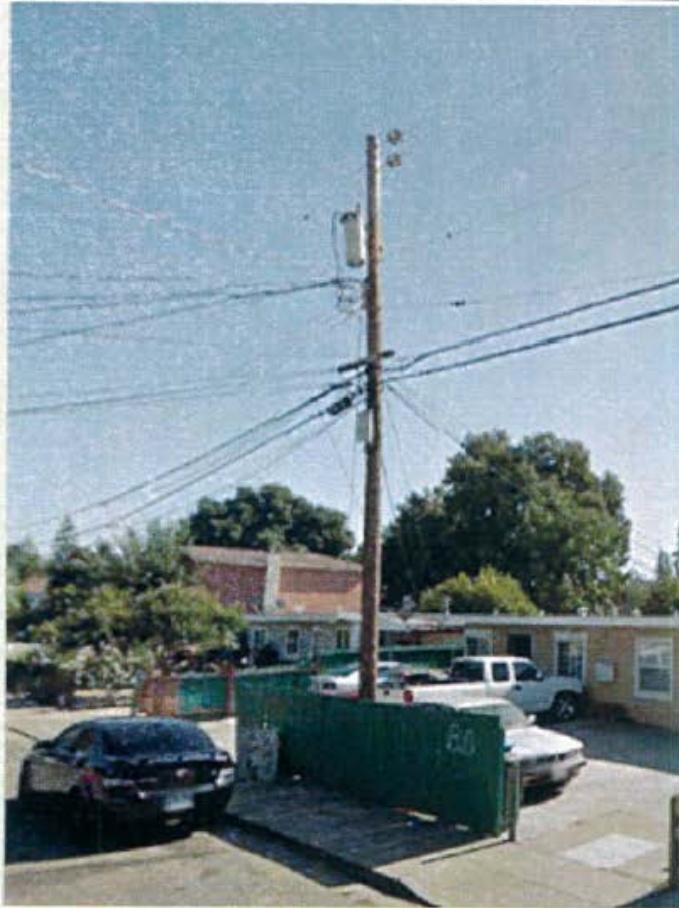
Owner/Applicant: _____

Attachment: _____

File Numbers: _____

Alternative Utility Poles

Alternate Pole West #1- Proposed design cannot be implemented on this pole, within GO95 regulations



Alternate Pole East #2- Proposed design cannot be implemented on this pole, within GO95 regulations



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: _____

Attachment: _____

File Numbers: _____

RECEIVED

ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04129A)
2760 Marlborough Avenue • Redwood City, California

NOV 30 2016

San Mateo County
The Planning Commission

Statement of Hammett & Edison, Inc., Consulting Engineers

Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of ExteNet Systems CA, LLC, a wireless telecommunications facilities provider, to evaluate the addition of Node No. 04129A to be added to the ExteNet distributed antenna system ("DAS") in Redwood City, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

ExteNet proposes to install a directional panel antenna on a utility pole sited in the public right-of-way at 2760 Marlborough Avenue in Redwood City. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

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BRS (Broadband Radio)	2,600	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
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700 MHz	700	2.35	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.



San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 04129A)
2760 Marlborough Avenue • Redwood City, California**

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

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 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 ExteNet, including drawings by The CBR Group, dated November 4, 2016, it is proposed to install one CommScope Model V65S-C3-1XR, 2-foot tall, directional panel antenna, on a cross-arm to be added to a utility pole sited in the public right-of-way in front of the residence located at 2760 Marlborough Avenue in Redwood City. The antenna would employ no downtilt, would be mounted at an effective height of about 20 feet above ground, and would be oriented toward 310°T. T-Mobile proposes to operate from this facility with a maximum effective radiated power in any direction of 214 watts, representing simultaneous operation at 107 watts for AWS and 107 watts for PCS service. There are reported no other wireless telecommunications base stations at this site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed T-Mobile operation is calculated to be 0.0083 mW/cm², which is 0.83% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 2.4% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers:

Recommended Mitigation Measures

Due to its mounting location and height, the ExteNet antenna would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antenna, including employees and contractors of the utility companies. No access within 2 feet directly in front of the antenna itself, such as might occur during certain activities, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory signs* on the pole at or below the antenna, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the node proposed by ExteNet Systems CA, LLC, at 2760 Marlborough Avenue in Redwood City, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training personnel and posting signs is recommended to establish compliance with occupational exposure limitations.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-18063, which expires on June 30, 2017. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

Rajat Mathur
Rajat Mathur, P.E.
707/996-5200



November 22, 2016

* Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required. Signage may also need to comply with the requirements of California Public Utilities Commission General Order No. 95.

San Mateo County Planning Commission Meeting

Owner/Applicant:

Attachment:

File Numbers: