

<b>Location:</b>	Utility pole in sidewalk adjacent to 2038 38 <sup>th</sup> Avenue (see map on reverse)
<b>Assessor's Parcel Number:</b>	Adjacent to: 032 -2092-038-00
<b>Proposal:</b>	To establish a telecommunications facility, to enhance existing services, by attaching an antenna and equipment to an existing wooden utility pole located in the public right-of-way (sidewalk).
<b>Applicant / Phone Number:</b>	Ana Gomez/Black & Veatch & Extenet (for: T-Mobile) (913) 458-9148
<b>Owner:</b>	Joint Pole Authority (JPA) including PG&E
<b>Planning Permits Required:</b>	Regular Design Review with additional findings for Macro Telecommunications Facility
<b>General Plan:</b>	Detached Unit Residential
<b>Zoning:</b>	RD-2 Detached Unit Residential Zone
<b>Environmental Determination:</b>	Exempt, under the State CEQA Guidelines. Section 15301: Minor alteration to existing Facilities; Section 15183: Projects Consistent with a Community Plan, General Plan or Zoning
<b>Historic Status:</b>	Non-historic property
<b>City Council District:</b>	5
<b>Date Filed:</b>	November 22, 2016
<b>Action to be Taken:</b>	Approve with conditions
<b>Finality of Decision:</b>	<i>Appealable to City Council within 10 days</i>
<b>For Further Information:</b>	Contact case planner <b>Maurice Brenyah-Addow</b> at (510) 238-6342 or mbrenyah@oaklandnet.com

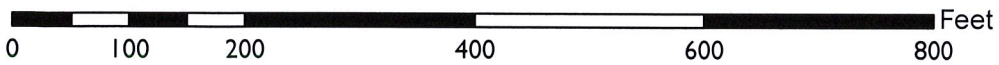
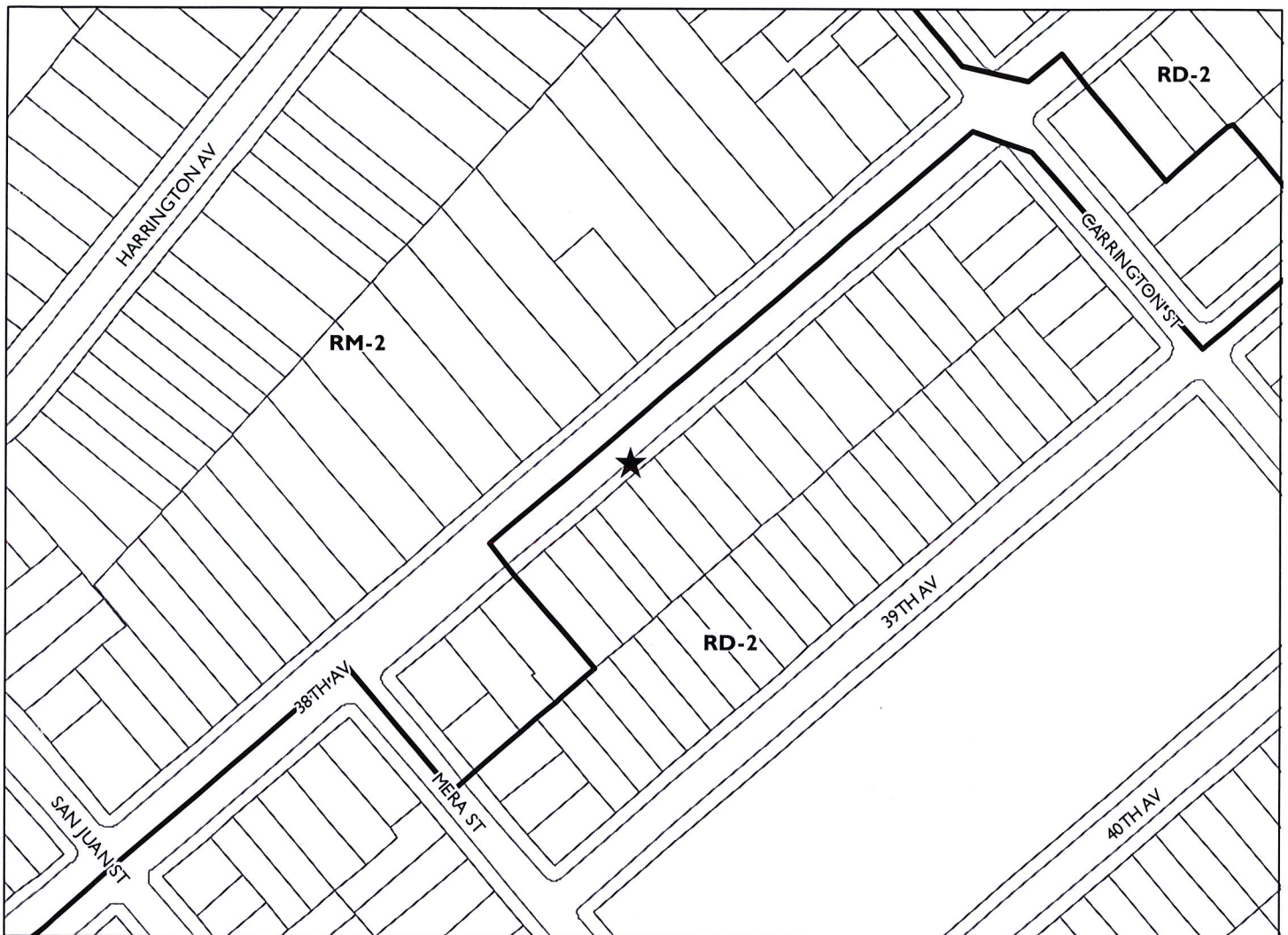
**SUMMARY**

The project applicant (Black & Veatch & Extenet (for: T-Mobile)) has submitted an application to establish a Macro Telecommunications Facility ("small cell site"). The purpose is to enhance existing services. The project involves attaching an antenna and equipment to an existing wooden utility pole located on a sidewalk in the public right-of-way (sidewalk).

The wooden PG&E utility pole is 50 feet tall and located in the public right-of-way adjacent to 2038 38<sup>th</sup> Avenue. The project involves installation of one (1) canister antenna located within a shroud and mounted at a height of 18'-0" above ground. Major Design Review is required for the installation of a new Macro Telecommunications Facility in a residential zone. The proposed antenna and associated equipment are compatible with the existing PG&E utility pole and typical of utility infrastructure normally found on these poles. The proposed antenna will be extended toward the street and painted a gray or brown color to blend with the pole and power lines.

The proposed new antenna will improve wireless telecommunications coverage for the neighboring residential properties. The proposed project substantially complies with the applicable findings for project approval and therefore, Staff recommend that the Planning Commission approve the project subject to the conditions, as described in this report.

# CITY OF OAKLAND PLANNING COMMISSION



Case File: PLN16390

Applicant: Ana Gomez/Black & Veatch & Extenet (for: T-Mobile)

Address: Utility pole in sidewalk adjacent to 2038 38th Avenue

Zone: RD-2

**BACKGROUND**

For several years in the City of Oakland, telecommunications carriers have proposed facility installation within the public right-of-way, instead of private property. These facilities typically consist of antennas and associated equipment attached to utility poles or street light poles. Poles are often replaced with replicas for technical purposes. The main purpose is to enhance existing service, given increasing technological demands for bandwidth, through new technology and locational advantages. The City exercises zoning jurisdiction over such projects in response to a 2009 State Supreme Court case decision (*Sprint v. Palos Verdes Estates*). Pursuant to the Planning Code, utility or joint pole authority (JPA) sites are classified by staff as “Macro Facilities,” and street light pole sites (lamps, not traffic signals) as “Monopole Facilities.” For JPA poles, only Design Review approval may be required, as opposed to Design Review and a Conditional Use Permit, for example. For non-JPA pole sites, such as City light poles, projects also require review by the City’s Public Works Agency (PWA) and Real Estate Division, and involve other considerations such as impacts to historical poles. The PWA may also review projects involving street lights. In either case, the practice has been to refer all such projects to the Planning Commission for decision when located in or near a residential zone.

Several projects for new DAS (distributed antenna services) facilities have come before the Planning Commission for a decision and have been installed throughout the Oakland Hills. Some applications have been denied due to view obstructions or propinquity to residences. Improved practices for the processing of all types of sites incorporating Planning Commission direction have been developed as a result. Conditions of approval typically attach requirements such as painting and texturing of approved components to more closely match utility poles in appearance. Approvals do not apply to any replacement project should the poles be removed for any reason. As with sites located on private property, the Federal Government precludes cities from denying an application on the basis of emissions concerns if a satisfactory emissions report is submitted. More recent Federal changes have streamlined the process to service existing facilities.

Currently, telecommunications carriers are in the process of attempting to deploy “small cell sites.” These projects also involve attachment of antennas and equipment at public right-of-way facilities such as poles or lights for further enhancement of services. However, components are now somewhat smaller in size than in the past. Also, sites tend to be located in flatland neighborhoods and Downtown where view obstructions are less likely to be an issue. Good design and placement is given full consideration nonetheless, especially with the greater presence of historic structures in Downtown.

**TELECOMMUNICATIONS BACKGROUND**

**Limitations on Local Government Zoning Authority under the Telecommunications Act of 1996**

Section 704 of the Telecommunications Act of 1996 (TCA) provides federal standards for the siting of “Personal Wireless Services Facilities.” “Personal Wireless Services” include all commercial mobile services (including personal communications services (PCS), cellular radio mobile services, and paging); unlicensed wireless services; and common carrier wireless exchange access services. Under Section 704, local zoning authority over personal wireless services is preserved such that the FCC is prevented from preempting local land use decisions; however, local government zoning decisions are still restricted by several provisions of federal law. Specifically:

- Under Section 253 of the TCA, no state or local regulation or other legal requirement can prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.

- Further, Section 704 of the TCA imposes limitations on what local and state governments can do. Section 704 prohibits any state and local government action which unreasonably discriminates among personal wireless providers. Local governments must ensure that its wireless ordinance does not contain requirements in the form of regulatory terms or fees which may have the “effect” of prohibiting the placement, construction, or modification of personal wireless services.
- Section 704 also preempts any local zoning regulation purporting to regulate the placement, construction and modification of personal wireless service facilities on the basis, either directly or indirectly, on the environmental effects of radio frequency emissions (RF) of such facilities, which otherwise comply with Federal Communication Commission (FCC) standards in this regard. (See 47 U.S.C. Section 332(c)(7)(B)(iv) (1996)). This means that local authorities may not regulate the siting or construction of personal wireless facilities based on RF standards that are more stringent than those promulgated by the FCC.
- Section 704 mandates that local governments act upon personal wireless service facility siting applications to place, construct, or modify a facility within a reasonable time (See 47 U.S.C.332(c)(7)(B)(ii) and FCC Shot Clock ruling setting forth “reasonable time” standards for applications deemed complete).
- Section 704 also mandates that the FCC provide technical support to local governments in order to encourage them to make property, rights-of-way, and easements under their jurisdiction available for the placement of new spectrum-based telecommunications services. This proceeding is currently at the comment stage.

For more information on the FCC’s jurisdiction in this area, consult the following:

Competition & Infrastructure Policy Division (CIPD) of the Wireless Telecommunications Bureau, main division number: (202) 418-1310.

Main division website: <https://www.fcc.gov/general/competition-infrastructure-policy-division-wireless-telecommunications-bureau>

Tower siting: <https://www.fcc.gov/general/tower-and-antenna-siting>

## **SITE DESCRIPTION**

The project site consists of a wooden utility pole (50-feet in height) located in the public right-of-way (sidewalk, towards the curb) adjacent to 2038 38<sup>th</sup> Avenue. The pole hosts power lines on two horizontal posts towards its top, a City street light beneath the posts, and wires attached to the pole below the light. The pole is located midblock on 38<sup>th</sup> Avenue between Mera Street and Carrington Street. The immediate neighborhood is characterized by mostly one-story single-family homes and an occasional small apartment building. The pole is not directly adjacent to a primary living space such as a living room or bedroom window.

**PROJECT DESCRIPTION**

The proposal is to establish a Macro Telecommunications Facility (“small cell site”). The project would involve attaching one antenna (7.9” wide, 23.5” tall) and associated equipment including radio box, meter reader to an existing 50-foot tall utility pole. The proposed antenna would be installed over the street below the City light at 18-feet to 21’-3” above grade. The equipment boxes would be installed projecting over the sidewalk between 7’-1” to approximately 13’-8” in height above grade.

**GENERAL PLAN ANALYSIS**

The site is located in a Detached Unit Residential area under the General Plan’s Land Use and Transportation Element (LUTE) which is intended “to create, maintain, and enhance residential areas characterized by detached single family structures.” Given residential and other customers increasing reliance upon cellular service for phone and internet, the proposal for a macro telecommunications facility that is not adjacent to a primary living space or historic structure conforms to this intent.

**ZONING ANALYSIS**

The site is located within the RD-2 Detached Unit Residential Zone. The intent of the RD-2 Zone is: “ to create, maintain, and enhance areas with detached, single unit structures, with allowances for Two-Family structures on lots larger than six thousand (6,000) square feet. A limited number of commercial uses will be permitted or conditionally permitted in existing Nonresidential Facilities.” The proposed new antenna will enhance telecommunications serve in this area.

Macro telecommunications facilities on utility poles require Regular Design Review with additional findings when located in residential zones. New wireless telecommunications facilities may also be subject to a Site Alternatives Analysis, Site Design Alternatives Analysis, and a satisfactory radio-frequency (RF) emissions report. Staff analyzed the proposal in consideration of these requirements in the ‘Key Issues and Impacts’ section of this report.

**ENVIRONMENTAL DETERMINATION**

The California Environmental Quality Act (CEQA) Guidelines categorically exempts specific types of projects from environmental review. Section 15301 exempts projects involving ‘Existing Facilities’. The proposal fits all of these descriptions. The project is also subject to Section 15183 for ‘Projects consistent with a community plan, general plan or zoning.’ The project is therefore exempt from further environmental review.

**KEY ISSUES AND IMPACTS**

The proposal to establish a macro telecommunications facility is subject to the following Planning Code development standards, which are followed by staff’s analysis in relation to this application:

**17.128.070 Macro Telecommunications Facilities.**

**A. General Development Standards for Macro Telecommunications Facilities.**

**1. The Macro Facilities shall be located on existing buildings, poles or other existing support structures, or shall be post mounted.**

The facility involves attachment to an existing utility pole hosting power lines and a City street light.

**2. The equipment shelter or cabinet must be concealed from public view or made compatible with the architecture of the surrounding structures or placed underground. The shelter or cabinet must be regularly maintained.**

Recommended conditions of approval require painting and texturing the antenna matte gray or brown and all components matte brown, per Planning Commission direction, to match the appearance of the wooden utility pole and power line posts.

**3. Macro Facilities may exceed the height limitation specified for all zones but may not exceed fifteen (15) feet above the roof line or parapet. Placement of an antenna on a nonconforming structure shall not be considered to be an expansion of the nonconforming structure.**

This standard is inapplicable because the proposal does not involve attachment to a roofed structure. Nonetheless, the facility would not exceed the height of the host facility or maximum height permitted in the zoning district.

**4. Ground post mounted Macro Facilities must not exceed seventeen (17) feet to the top of the antenna.**

This standard is inapplicable because the proposal does not involve ground post mounting.

**5. The applicant shall submit written documentation demonstrating that the emissions from the proposed project are within the limits set by the Federal Communications Commission.**

This standard is met by the proposal; a satisfactory emissions report has been submitted and is attached to this report (Attachment F).

**17.128.110 Site location preferences.**

New wireless facilities shall generally be located on the following properties or facilities in order of preference:

- A. Co-located on an existing structure or facility with existing wireless antennas.
- B. City-owned properties or other public or quasi-public facilities.
- C. Existing commercial or industrial structures in Nonresidential Zones (excluding all HBX Zones and the D-CE-3 and D-CE-4 Zones).
- D. Existing commercial or industrial structures in Residential Zones, HBX Zones, or the DCE-3 or D-CE-4 Zones.
- E. Other Nonresidential uses in Residential Zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.
- F. Residential uses in Nonresidential Zones (excluding all HBX Zones and the D-CE-3 and D-CE-4 Zones).
- G. Residential uses in Residential Zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.

Facilities locating on an A, B or C ranked preference do not require a site alternatives analysis. Facilities proposing to locate on a D through G ranked preference, inclusive, must submit a site alternatives analysis as part of the required application materials. A site alternatives analysis shall, at a minimum, consist of:

- a. The identification of all A, B and C ranked preference sites within one thousand (1,000) feet of the proposed location. If more than three (3) sites in each preference order exist, the three such closest to the proposed location shall be required.
- b. Written evidence indicating why each such identified alternative cannot be used. Such evidence shall be in sufficient detail that independent verification, at the applicant's expense, could be obtained if required by the City of Oakland Zoning Manager. Evidence should indicate

if the reason an alternative was rejected was technical (e.g. incorrect height, interference from existing RF sources, inability to cover required area) or for other concerns (e.g. refusal to lease, inability to provide utilities).

A site alternatives analysis is not required because the proposal conforms to 'B' as it would be located on a quasi-public facility (utility pole with power lines and City light). Nonetheless, the applicant has submitted an analysis which is attached to this report (Attachment E).

**17.128.120 Site design preferences.**

New wireless facilities shall generally be designed in the following order of preference:

- A. Building or structure mounted antennas completely concealed from view.
- B. Building or structure mounted antennas set back from roof edge, not visible from public right-of way.
- C. Building or structure mounted antennas below roof line (facade mount, pole mount) visible from public right-of-way, painted to match existing structure.
- D. Building or structure mounted antennas above roof line visible from public right-of-way.
- E. Monopoles.
- F. Towers.

Facilities designed to meet an A or B ranked preference do not require a site design alternatives analysis. Facilities designed to meet a C through F ranked preference, inclusive, must submit a site design alternatives analysis as part of the required application materials. A site design alternatives analysis shall, at a minimum, consist of: a. Written evidence indicating why each such higher preference design alternative cannot be used. Such evidence shall be in sufficient detail that independent verification could be obtained if required by the City of Oakland Zoning Manager. Evidence should indicate if the reason an alternative was rejected was technical (e.g. incorrect height, interference from existing RF sources, inability to cover required area) or for other concerns (e.g. inability to provide utilities, construction or structural impediments).

The proposal most closely conforms to 'C', and the applicant has submitted a satisfactory site design alternatives analysis (Attachment E).

**17.128.130 Radio frequency emissions standards.**

The applicant for all wireless facilities, including requests for modifications to existing facilities, shall submit the following verifications:

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

A satisfactory report is attached to this report (Attachment F).

**Analysis**

The proposed site design would not be situated on historic pole or structure, create a view obstruction, or be directly adjacent to a primary living space such as a living room or bedroom window. Staff finds the

proposal to provide an essential service with a least-intrusive possible design. The attached conditions of approval stipulate that the components be painted and textured to match the wooden utility pole or its existing equipment in appearance for camouflaging.

In conclusion, staff recommends approval subject to recommended Conditions of Approval.

- RECOMMENDATIONS:**
1. Affirm staff's environmental determination.
  2. Approve the application for Regular Design Review subject to the attached Findings and Conditions of Approval.

Prepared by:

  
Maurice Brenyah-Addow  
Planner III

Reviewed by:

  
SCOTT MILLER  
Zoning Manager

Approved for forwarding to the  
City Planning Commission:

  
DARIN RANELLETTI, Interim Director  
Planning and Building Department

**ATTACHMENTS:**

- A. Findings
- B. Conditions of Approval
- C. Plans
- D. Applicant's Photo-Simulations
- E. Site Alternatives Analysis/Site Design Alternatives Analysis dated October 28, 2016
- F. RF Emissions Report by Hammett & Edison, Inc. dated October 20, 2016



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**ATTACHMENT A: FINDINGS**

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This proposal meets the required findings under Regular Design Review Criteria for Nonresidential Facilities (OMC Sec. 17.136.050(B)) and Telecommunications Regulations/Design Review Criteria for Macro Telecommunications Facilities (OMC Sec. 17.128.070(B)), as set forth below. Required findings are shown in **bold type**; explanations as to why these findings can be made are in normal type.

**REGULAR DESIGN REVIEW CRITERIA FOR NONRESIDENTIAL FACILITIES (OMC SEC. 17.136.050(B))**

**1. That the proposal will help achieve or maintain a group of facilities which are well related to one another and which, when taken together, will result in a well-composed design, with consideration given to site, landscape, bulk, height, arrangement, texture, materials, colors, and appurtenances; the relation of these factors to other facilities in the vicinity; and the relation of the proposal to the total setting as seen from key points in the surrounding area. Only elements of design which have some significant relationship to outside appearance shall be considered, except as otherwise provided in Section 17.136.060;**

The attachment of a small antenna and equipment to a non-historic utility pole, painted and texturized to match the pole equipment and power line posts in appearance for camouflaging, will be the least intrusive design. The proposal would not create a view obstruction, be directly adjacent to a primary living space such as a living room or bedroom window, or be located on an historic structure. The proposal will enhance essential services in an urbanized neighborhood. The proposal will not be ground mounted.

**2. That the proposed design will be of a quality and character which harmonizes with, and serves to protect the value of, private and public investments in the area;**

The attachment of a small antenna and equipment to a non-historic utility pole, painted and texturized to match the pole equipment and power line posts in appearance for camouflaging, will be the least intrusive design. The proposal would not create a view obstruction, be directly adjacent to a primary living space such as a living room or bedroom window, or be located on an historic structure. The proposal will enhance essential services in an urbanized neighborhood. The proposal will not be ground mounted.

**3. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.**

The site is located in a Detached Unit Residential area under the General Plan's Land Use and Transportation Element (LUTE). The intent of the Detached Unit Residential area is: "to create, maintain, and enhance residential areas characterized by detached single family structures." Given residential customers' increasing reliance upon cellular service for phone and wi-fi, the proposal for a macro telecommunications facility that is not adjacent to a primary living space or historic structure conforms to this intent.

**TELECOMMUNICATIONS REGULATIONS/DESIGN REVIEW CRITERIA FOR MACRO TELECOMMUNICATIONS FACILITIES (OMC SEC. 17.128.070(B))**

**1. Antennas should be painted and/or textured to match the existing structure.**

The antenna will be painted and texturized matte gray to match the existing equipment on the pole, or brown

to match the power line posts in appearance for camouflaging, will be the least intrusive design, as required by conditions of approval.

**2. Antennas mounted on architecturally significant structures or significant architectural detail of the building should be covered by appropriate casings which are manufactured to match existing architectural features found on the building.**

This finding is inapplicable because the antenna will not be mounted onto an architecturally significant structure but to a wooden utility pole.

**3. Where feasible, antennas can be placed directly above, below or incorporated with vertical design elements of a building to help in camouflaging.**

The antenna will be located parallel to the host utility pole below an attached City light and below posts hosting power lines and above additional power lines. Further, the antenna and associated equipment will be painted to match the existing utility pole and its appurtenances.

**4. Equipment shelters or cabinets shall be screened from the public view by using landscaping, or materials and colors consistent with surrounding backdrop or placed underground or inside existing facilities or behind screening fences.**

Conditions of approval require painting and texturing matte brown to match the pole in appearance for camouflaging.

**5. Equipment shelters or cabinets shall be consistent with the general character of the area.**

The equipment cabinets measuring approximately 5"x3"x8" will be attached to an existing utility pole and will only project out approximately 4 inches which would be generally unobtrusive.

**6. For antennas attached to the roof, maintain a 1:1 ratio (example: ten (10) feet high antenna requires ten (10) feet setback from facade) for equipment setback; screen the antennas to match existing air conditioning units, stairs, or elevator towers; avoid placing roof mounted antennas in direct line with significant view corridors.**

This finding is inapplicable because the antenna would be attached to a pole and not to a roofed structure.

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

The minimal clearance to the facility will be 7'-4", which is above the average head height and will reduce public access to the antennas and equipment.

**1. Approved Use**

The project shall be constructed and operated in accordance with the authorized use as described in the approved application materials, **staff report** and the approved plans **dated November 22, 2016 and submitted November 22, 2016**, as amended by the following conditions of approval and mitigation measures, if applicable (“Conditions of Approval” or “Conditions”).

**2. Effective Date, Expiration, Extensions and Extinguishment**

This Approval shall become effective immediately, unless the Approval is appealable, in which case the Approval shall become effective in ten calendar days unless an appeal is filed. Unless a different termination date is prescribed, this Approval shall expire **two calendar years** from the Approval date, or from the date of the final decision in the event of an appeal, unless within such period all necessary permits for construction or alteration have been issued, or the authorized activities have commenced in the case of a permit not involving construction or alteration. Upon written request and payment of appropriate fees submitted no later than the expiration date of this Approval, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit or other construction-related permit for this project may invalidate this Approval if said Approval has also expired. If litigation is filed challenging this Approval, or its implementation, then the time period stated above for obtaining necessary permits for construction or alteration and/or commencement of authorized activities is automatically extended for the duration of the litigation.

**3. Compliance with Other Requirements**

The project applicant shall comply with all other applicable federal, state, regional, and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City’s Bureau of Building, Fire Marshal, and Public Works Department. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition #4.

**4. Minor and Major Changes**

- a. Minor changes to the approved project, plans, Conditions, facilities, or use may be approved administratively by the Director of City Planning.
- b. Major changes to the approved project, plans, Conditions, facilities, or use shall be reviewed by the Director of City Planning to determine whether such changes require submittal and approval of a revision to the Approval by the original approving body or a new independent permit/approval. Major revisions shall be reviewed in accordance with the procedures required for the original permit/approval. A new independent permit/approval shall be reviewed in accordance with the procedures required for the new permit/approval.

**5. Compliance with Conditions of Approval**

- a. The project applicant and property owner, including successors, (collectively referred to hereafter as the “project applicant” or “applicant”) shall be responsible for compliance with all the Conditions of Approval and any recommendations contained in any submitted and approved technical report at his/her sole cost and expense, subject to review and approval by the City of Oakland.
- b. The City of Oakland reserves the right at any time during construction to require certification by a licensed professional at the project applicant’s expense that the as-built project

conforms to all applicable requirements, including but not limited to, approved maximum heights and minimum setbacks. Failure to construct the project in accordance with the Approval may result in remedial reconstruction, permit revocation, permit modification, stop work, permit suspension, or other corrective action.

- c. Violation of any term, Condition, or project description relating to the Approval is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approval or alter these Conditions if it is found that there is violation of any of the Conditions or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it, limit in any manner whatsoever the ability of the City to take appropriate enforcement actions. The project applicant shall be responsible for paying fees in accordance with the City's Master Fee Schedule for inspections conducted by the City or a City-designated third-party to investigate alleged violations of the Approval or Conditions.

**6. Signed Copy of the Approval/Conditions**

A copy of the Approval letter and Conditions shall be signed by the project applicant, attached to each set of permit plans submitted to the appropriate City agency for the project, and made available for review at the project job site at all times.

**7. Blight/Nuisances**

The project site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within 60 days of approval, unless an earlier date is specified elsewhere.

**8. Indemnification**

- a. To the maximum extent permitted by law, the project applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the Oakland Redevelopment Successor Agency, the Oakland City Planning Commission, and their respective agents, officers, employees, and volunteers (hereafter collectively called "City") from any liability, damages, claim, judgment, loss (direct or indirect), action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) (collectively called "Action") against the City to attack, set aside, void or annul this Approval or implementation of this Approval. The City may elect, in its sole discretion, to participate in the defense of said Action and the project applicant shall reimburse the City for its reasonable legal costs and attorneys' fees.
- b. Within ten (10) calendar days of the filing of any Action as specified in subsection (a) above, the project applicant shall execute a Joint Defense Letter of Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Joint Defense Letter of Agreement shall survive termination, extinguishment, or invalidation of the Approval. Failure to timely execute the Letter of Agreement does not relieve the project applicant of any of the obligations contained in this Condition or other requirements or Conditions of Approval that may be imposed by the City.

**9. Severability**

The Approval would not have been granted but for the applicability and validity of each and every one of the specified Conditions, and if one or more of such Conditions is found to be invalid by a

court of competent jurisdiction this Approval would not have been granted without requiring other valid Conditions consistent with achieving the same purpose and intent of such Approval.

#### **10. Special Inspector/Inspections, Independent Technical Review, Project Coordination and Monitoring**

The project applicant may be required to cover the full costs of independent third-party technical review and City monitoring and inspection, including without limitation, special inspector(s)/inspection(s) during times of extensive or specialized plan-check review or construction, and inspections of potential violations of the Conditions of Approval. The project applicant shall establish a deposit with the Bureau of Building, if directed by the Building Official, Director of City Planning, or designee, prior to the issuance of a construction-related permit and on an ongoing as-needed basis.

#### **11. Construction Days/Hours**

Requirement: The project applicant shall comply with the following restrictions concerning construction days and hours:

- a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m.
- b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.
- c. No construction is allowed on Sunday or federal holidays.

Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

#### **12. Operational Noise**

Requirement: Noise levels from the project site after completion of the project (i.e., during project operation) shall comply with the performance standards of chapter 17.120 of the Oakland Planning Code and chapter 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the

activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the City.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

### **13. Construction Activity in the Public Right-of-Way**

#### **a. *Obstruction Permit Required***

Requirement: The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets and sidewalks.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

#### **b. *Traffic Control Plan Required***

Requirement: In the event of obstructions to vehicle or bicycle travel lanes, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian detours, including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The project applicant shall implement the approved Plan during construction.

When Required: Prior to approval of construction-related permit

Initial Approval: Public Works Department, Transportation Services Division

Monitoring/Inspection: Bureau of Building

#### **c. *Repair of City Streets***

Requirement: The project applicant shall repair any damage to the public right-of way, including streets and sidewalks caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.

When Required: Prior to building permit final

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

### **14. Underground Utilities**

Requirement: The project applicant shall place underground all new utilities serving the project and under the control of the project applicant and the City, including all new gas, electric, cable, and telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits, and similar facilities. The new facilities shall be placed underground along the project's street frontage and from the project structures to the point of service. Utilities under the control of other agencies, such as PG&E, shall be placed underground if feasible. All utilities shall be installed in accordance with standard specifications of the serving utilities.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

**15. Emissions Report**

Requirement: A RF emissions report shall be submitted to the Planning Bureau indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.

Requirement: Prior to a final inspection

When Required: Prior to submitting a building permit application

Initial Approval: N/A

Monitoring/Inspection: N/A

**16. Camouflage**

Requirement: The antenna shall be painted, texturized, and maintained matte silver, and the equipment and any other accessory items including cables matte brown, to better camouflage the facility to the utility pole and attached power line posts.

When Required: Prior to a final inspection

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

**17. Operational**

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

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

**18 . Possible District Undergrounding PG&E Pole**

Requirement: Should the PG &E utility pole be permanently removed for purposes of district undergrounding or otherwise, the telecommunications facility can only be re-established by applying for and receiving approval of a new application to the Oakland Planning Bureau as required by the regulations.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: N/A

**Applicant Statement**

I have read and accept responsibility for the Conditions of Approval. I agree to abide by and conform to the Conditions of Approval, as well as to all provisions of the Oakland Planning Code and Oakland Municipal Code pertaining to the project.

---

\_\_\_\_\_  
Name of Project Applicant

\_\_\_\_\_  
Signature of Project Applicant

\_\_\_\_\_  
Date

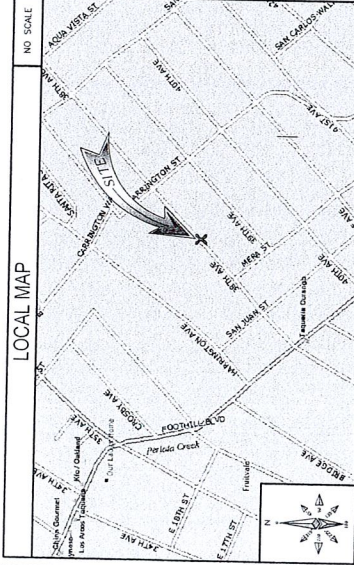
**APPROVED BY:**

City Planning Commission: \_\_\_\_\_ (date) \_\_\_\_\_ (vote)



**NW-CA-SANFRNMC  
06028B**

**ADJACENT TO (IN PROW)  
2038 38TH AVENUE  
OAKLAND, CA 94601**



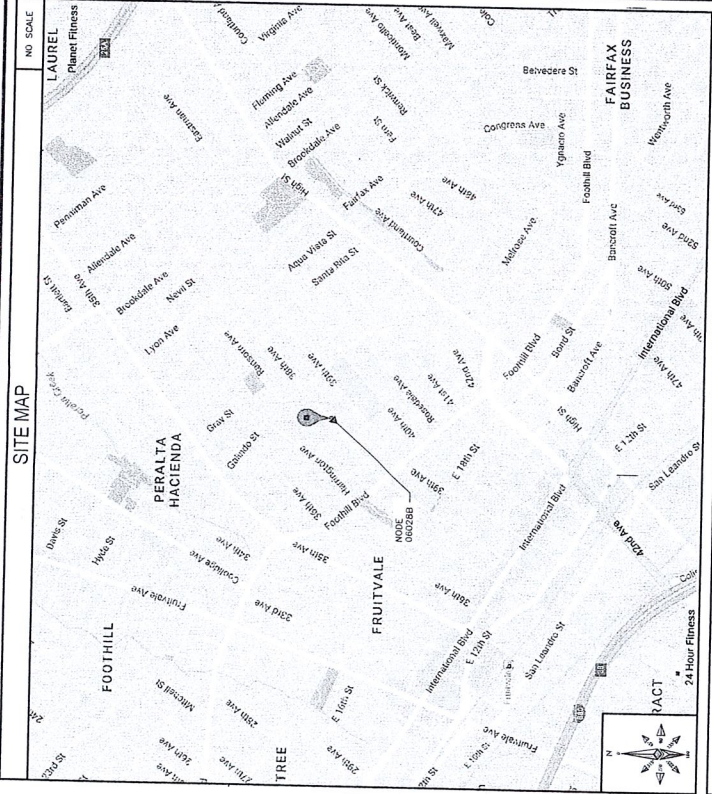
**SHEET INDEX**

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
GN-1	GENERAL NOTES AND LEGEND
C-1	OVERALL SITE PLAN
C-2	UTILITY POLE ELEVATIONS AND RISER DETAILS
C-3	EQUIPMENT DETAILS
C-4	EQUIPMENT DETAILS

**Attachment C**

**IF USING 11"X17" PLOT, DRAWINGS WILL BE HALF SCALE**

SUBCONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE. IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



**PROJECT INFORMATION**

<p><b>POLE OWNER</b></p> <p>OWNER: EXTENET SYSTEMS CA, LLC          ADDRESS: 2000 CROW CANYON PL., SUITE 210          SAN RAMON, CA 94583          PHONE: -</p>	<p><b>APPLICANT</b></p> <p>COMPANY: EXTENET SYSTEMS (CALIFORNIA), LLC          CONTACT: MATTHEW YERGOVICH          ADDRESS: 2000 CROW CANYON PL., SUITE 210          SAN RAMON, CA 94583          PHONE: (415) 598-3474          E-MAIL: MYERGOVICH@EXTENETSYSTEMS.COM</p>	<p><b>PROJECT DATA</b></p> <p>LATITUDE: 37.780764          LONGITUDE: -122.214165          POLE #: 110149146          ELEVATION: NA          ZONING JURISDICTION: CITY OF OAKLAND          ZONING DISTRICT: RD-2          NEAREST A.P.N.: 32-2092-38          OCCUPANCY: U, UNMANNED          CONSTRUCTION TYPE: PULP/CHIMNEY TO A WOOD UTILITY FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. THIS PRODUCT IS EXEMPT.</p>
<p><b>AGENT</b></p> <p>COMPANY: BLACK &amp; VEATCH          CONTACT: ANA GOMEZ          ADDRESS: 2999 OAK ROAD, WALNUT CREEK, CA 94597          PHONE: (913) 454-9148          E-MAIL: DOMEZ@BLACK&amp;VEATCH.COM</p>	<p><b>ENGINEER</b></p> <p>COMPANY: BLACK &amp; VEATCH          ENGINEER: ARON EVANS          PHONE: (925) 886-0751          E-MAIL: EVANS@BLACK&amp;VEATCH.COM</p>	

**CODE COMPLIANCE**

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT (UNLESS OTHERWISE SPECIFIED). NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. BC - 2012
2. CALIFORNIA BUILDING STANDARDS CODE - 2013
3. CALIFORNIA GENERAL ORDER 95-0013
4. CALIFORNIA PLUMBING CODE 2013
5. CALIFORNIA ELECTRICAL CODE 2013
6. CALIFORNIA FIRE CODE 2013
7. 2012 INTERNATIONAL FIRE CODE
8. 2012 INTERNATIONAL FIRE PREVENTION CODE
9. BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA) - EFFECTIVE UNTIL JANUARY 1ST, 2017

**PROJECT DESCRIPTION**

THESE DRAWINGS DEPICT THE INSTALLATION OF A WIRELESS TELECOMMUNICATIONS NODE IN THE PUBLIC RIGHT OF WAY, HARDWARE AND ANCILLARY EQUIPMENT TO BE INSTALLED AS DESCRIBED HEREIN.

**GENERAL PROJECT NOTES**

1. PRIOR TO SUBMITTING A BID, THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AFFECTING THE SCOPE OF WORK AND ALL CONDITIONS AFFECTING THE PROJECT.
2. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES AND DIMENSIONS OF THE JOB SITE AND CONFORM WITH WORK AS ACCURATELY AS SHOWN PRIOR TO COMMENCEMENT OF ANY FIELD MODIFICATIONS BEFORE, DURING OR AFTER CONSTRUCTION SHALL BE APPROVED IN WRITING BY AN EXTENET SYSTEMS REPRESENTATIVE.
3. INSTALL ALL EQUIPMENT AND MATERIALS PER THE CONTRACTOR'S RECOMMENDATIONS, UNLESS INDICATED OTHERWISE.
4. NOTIFY EXTENET SYSTEMS IN WRITING OF ANY MAJOR DISCREPANCIES REGARDING THE CONTRACT DOCUMENTS, EXISTING UTILITIES OR CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK. RESPONSIBILITY FOR OBTAINING ALL NECESSARY PERMITS AND ADJUSTING THE BID IS THE CONTRACTOR'S.
5. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL FINISHES THAT ARE TO REMAIN. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITIES AND ADJUSTING THE BID TO SATISFACTION OF AN EXTENET SYSTEMS REPRESENTATIVE.
6. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS AND FINISHES THAT ARE TO REMAIN. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITIES AND ADJUSTING THE BID TO SATISFACTION OF AN EXTENET SYSTEMS REPRESENTATIVE.
7. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND FINISHES THAT ARE TO REMAIN. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITIES AND ADJUSTING THE BID TO SATISFACTION OF AN EXTENET SYSTEMS REPRESENTATIVE.
8. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND FINISHES THAT ARE TO REMAIN. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITIES AND ADJUSTING THE BID TO SATISFACTION OF AN EXTENET SYSTEMS REPRESENTATIVE.
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**extenet**  
Systems  
CONNECTIONITY  
EMPLOYERS

INTERNAL REVIEW \_\_\_\_\_ DATE \_\_\_\_\_  
 CONSTRUCTION SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
 PROJECT SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
 REAL ESTATE SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

**BLACK & VEATCH**  
 BLACK & VEATCH CORPORATION  
 2999 OAK ROAD  
 SUITE 450  
 WALNUT CREEK, CA 94597

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PROJECT NO	DRAWN BY	CHECKED BY
192417.4091	MBS	GAC

REV	DATE	DESCRIPTION
C	09/22/16	ISSUED FOR RFP
B	09/16/16	ISSUED FOR RFP
A	09/09/16	ISSUED FOR RFP

**PRELIMINARY**

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT.

**EXTENET SYSTEMS (CA) LLC**  
 2000 CROW CANYON PLACE  
 SUITE 210  
 SAN RAMON, CA 94583

SITE ADDRESS  
 ADJACENT TO (IN PROW)  
 2038 38TH AVENUE  
 OAKLAND, CA 94601

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**

**UNDERGROUND SERVICE ALERT**  
 UTILITIES PROTECTION CENTER, INC.  
 811  
 48 HOURS BEFORE YOU DIG

**GENERAL NOTES**

1. DOCUMENTS SHALL BE CONSIDERED A PART OF THE WRITTEN SPECIFICATIONS, CONTRACT AND CONSTRUCTION DOCUMENTS.
2. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPROPRIATE TOOLS AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THESE PLANS AND IN THE CONTRACT AND ANY ADDENDUMS THERE TO. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR(S) SHALL VISIT THE JOB SITE AND BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, FIELD CONDITIONS AND DIMENSIONS AND COVERING THAT THE WORK MAY BE ACCOMPLISHED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY ADDENDUMS.
3. THE CONTRACTOR SHALL OBTAIN WRITTEN AUTHORIZATION TO PROCEED ON ANY WORK NOT CLEARLY DEFINED OR IDENTIFIED IN THE CONTRACT AND CONSTRUCTION DOCUMENTS BEFORE STARTING ANY WORK.
4. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, SCHEDULES, AND ORGANIZATION, INCLUDING APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS.
5. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS AND ORDINANCES.
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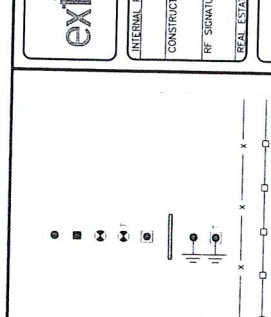
**TORQUE REQUIREMENTS**

1. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
2. ALL RF CONNECTIONS SHALL BE TIGHTENED TO THE FOLLOWING TORQUE VALUES:
3. ALL 1/2" ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
4. ALL 1/4" ANTENNA HARDWARE SHALL BE TIGHTENED TO 4.5 LB-FT (6.1 NM).
5. ALL GRNDING HARDWARE SHALL BE TIGHTENED TO 18-22 LB-FT (2.4 - 2.9 NM).
6. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).

**ROW UTILITY POLE CONSTRUCTION NOTES**

1. NO BOLT THREADS TO PROTRUDE MORE THAN 1-1/2" (38MM).
2. FILL ALL HOLES LEFT IN POLE FROM REARRANGEMENT OF CLIMBERS.
3. ALL CLAMP STEPS NEXT TO CONDUIT SHALL HAVE EXTENDED STEPS.
4. CABLE NOT TO IMPROVE 15' (3814) CLEAR SPACE OFF POLE FACE (1200).
5. 90 SHORT SWEEPS UNDER ANTENNA ARM ALL CABLES MUST ONLY TRANSITION ON THE INSIDE OR BOTTOM OF ARM (90 CABLE ON TOP OF ARMS).
6. USE 90 CONNECTOR AT CABLE CONNECTION TO ANTENNAS.
7. USE 1/2" (13MM) CABLE ON ANTENNAS UNLESS OTHERWISE SPECIFIED.

**LEGEND**



**BLACK & VEATCH**

BLACK & VEATCH CORPORATION  
2959 OAK ROAD  
WALNUT CREEK, CA 94597

**INTERNAL REVIEW**

CONSTRUCTION SIGNATURE	DATE
RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE

**PRELIMINARY**

PROJECT NO	192417-4091
MBS	CAC
ISSUED FOR REVIEW	09/27/16
ISSUED FOR REVIEW	10/16/16
ISSUED FOR REVIEW	10/26/16
DATE	DESCRIPTION

**GENERAL NOTES AND LEGENDS**

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EXTENET SYSTEMS (CA) LLC  
2000 CROW CANYON PLACE  
SUITE 210  
SAN RAMON, CA 94583

SITE ADDRESS  
ADJACENT TO (IN PROW)  
2038 38TH AVENUE  
OAKLAND, CA 94601

SHEET TITLE  
GENERAL NOTES  
AND SCHEDULES

SHEET NUMBER  
GN-1

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7. USE 1/2" (13MM) CABLE ON ANTENNAS UNLESS OTHERWISE SPECIFIED.

**NODE SITE POWER SHUT DOWN PROCEDURES**

1. FOR NON EMERGENCY/SCHEDULED POWER SHUT DOWN
  - A. CALL EXTENET SYSTEMS NDC (NETWORK OPERATIONS CENTER) (669)892-5327
  - B. 24 HOURS PRIOR TO SCHEDULED POWER SHUT OFF
  - C. PROVIDE THE FOLLOWING INFORMATION
    - YOUR NAME AND REASON FOR POWER SHUT OFF
    - PROVIDE DURATION OF OUTAGE
  - D. UNLOCK DISCONNECT BOX, FLIP BOTH BREAKERS TO THE OFF POSITION
  - E. POWER SHUT OFF VERIFICATION WITH APPROVED PS&E PROCEDURES
  - F. NOTIFY EXTENET NDC UPON COMPLETION OF WORK
  - G. REINSTALL LOCK ON DISCONNECT BOX
2. EMERGENCY POWER SHUT OFF
  - A. CALL EXTENET SYSTEMS NDC (NETWORK OPERATIONS CENTER) (669)892-5327
  - B. PROVIDE THE FOLLOWING INFORMATION
    - NDC SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER
    - PROVIDE DURATION OF OUTAGE
  - D. UNLOCK DISCONNECT BOX, FLIP BOTH BREAKERS TO THE OFF POSITION
  - E. POWER SHUT OFF VERIFICATION WITH APPROVED PS&E PROCEDURES
  - F. NOTIFY EXTENET NDC UPON COMPLETION OF WORK
  - G. REINSTALL LOCK ON DISCONNECT BOX

**FIELD WELDING NOTES:**

1. WELDING TO BE PERFORMED BY AWS CERTIFIED WELDER FOR THE TYPE OF AND POSITION INDICATED. ALL WORK MUST BE IN CONFORMANCE WITH LATEST EDITION OF AWS D1.1.
2. BRIND SURFACES TO BE WELDED WITH A SILICON CARBIDE WHEEL PRIOR TO WELDING TO REMOVE ALL BURRS AND SPATTER. WELDING SHALL BE CONSUMED IN THE WELD METAL. APPLY ANTI-SPATTER COMPOUND AFTER CHROING.
3. WELDING TECHNIQUE MUST MINIMIZE TEMPERATURE RISE ON THE INSIDE SURFACE OF THE POLE AND ALSO MINIMIZE ANY REMAINING ZINC WITHIN THE BASE METAL WITH MINIMUM SPATTER. USE AN E70 (LOW HYDROGEN) ELECTRODE TO WELD TO STEEL. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE WELDING PROCEDURE SPECIFICATIONS FROM MANUFACTURER'S INSTRUCTIONS FOR STORAGE AND USE OF ELECTRODES AND RELATED PACKAGING.
4. UPON COMPLETION OF WELDING, APPLY CALY-S-2500. THIS COATING IS ALL UNPROTECTED SURFACES. APPLY A SECOND LAYER OF COLO GALVANIZING SPRAY COMPOUND CONTAINING 10% ZINC DUST. IF NECESSARY, APPLY A FINAL COAT OF COMPATIBLE PAINT TO MATCH SURROUNDING SURFACES.

**ANTENNA MOUNTING**

1. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
2. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A153 ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS, UNLESS NOTED OTHERWISE.
3. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 ZINC (HOT-DIP) ON IRON AND STEEL HARDWARE, UNLESS NOTED OTHERWISE.
4. UNPAINTED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780. MANUFACTURER'S RECOMMENDATIONS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO SPECIFIED TORQUE.
5. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
6. PRIOR TO SETTING ANTENNA ARMS AND DOWNLEADS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA NORTH AND BE ORIENTED TO THE NORTH OR AS DEFINED BY THE RDS. ANTENNA DOWNLEADS SHALL BE WITHIN 1/4" - 0.5% AS DEFINED BY THE RDS.

**GENERAL NOTES AND LEGENDS**

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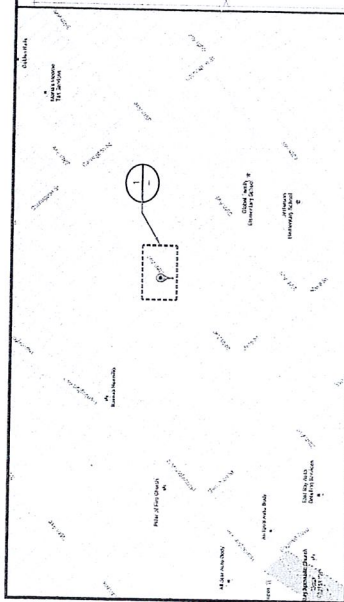
EXTENET SYSTEMS (CA) LLC  
2000 CROW CANYON PLACE  
SUITE 210  
SAN RAMON, CA 94583

SITE ADDRESS  
ADJACENT TO (IN PROW)  
2038 38TH AVENUE  
OAKLAND, CA 94601

SHEET TITLE  
GENERAL NOTES  
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SHEET NUMBER  
GN-1

THIS DRAWING IS NOT A SITE SURVEY. THE PURPOSE OF THIS DRAWING IS TO SHOW HOW THE DEVELOPED SITE RELATES TO THE ADJACENT PROPERTIES. A.C.W. MEASUREMENTS ARE APPROXIMATIONS.

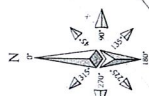


SITE PLAN PHOTO  
NO SCALE A



A.P.H. 2022

A.P.H. 2016



OVERALL SITE PLAN

**extenet** inConnectivity Everywhere  
SYSTEMS

INTERNAL REVIEW \_\_\_\_\_ DATE \_\_\_\_\_  
CONSTRUCTION SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
RF SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
REAL ESTATE SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

**BLACK & VEATCH**  
BLACK & VEATCH CORPORATION  
2995 OAK ROAD  
SUITE 400  
WALNUT CREEK, CA 94597

THESE DRAWINGS ARE UNPROTECTED AND ARE THE PROPERTY OF BLACK & VEATCH. NO PART OF THESE DRAWINGS IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN CONSENT OF BLACK & VEATCH.

PROJECT NO	DRAWN BY	CHECKED BY
192417-4091	MBS	GAC

REV	DATE	DESCRIPTION
C	09/23/16	ISSUED FOR REVIEW
B	09/16/16	ISSUED FOR REVIEW
A	09/09/16	ISSUED FOR REVIEW

PRELIMINARY

IT IS A VIOLATION OF LAW FOR ANY PERSON TO REPRODUCE OR TRANSMIT THESE DRAWINGS IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN CONSENT OF BLACK & VEATCH.

EXTENET SYSTEMS (CA) LLC  
2000 CROW CANYON PLACE  
SAN RAMON, CA 94583

SITE ADDRESS  
ADJACENT TO (IN PROW)  
2038 38TH AVENUE  
OAKLAND, CA 94601

SHEET TITLE  
OVERALL SITE PLAN

SHEET NUMBER  
**C-1**



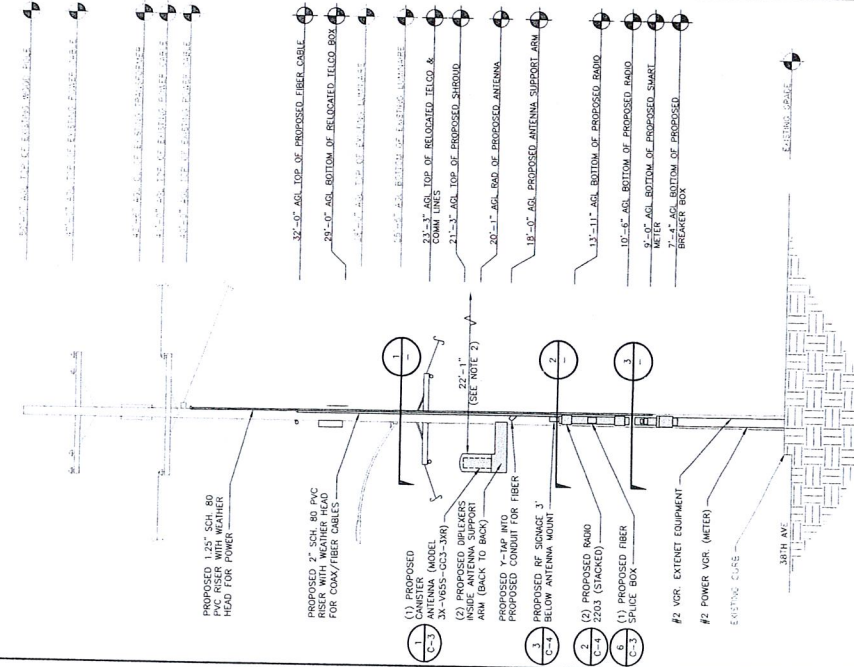
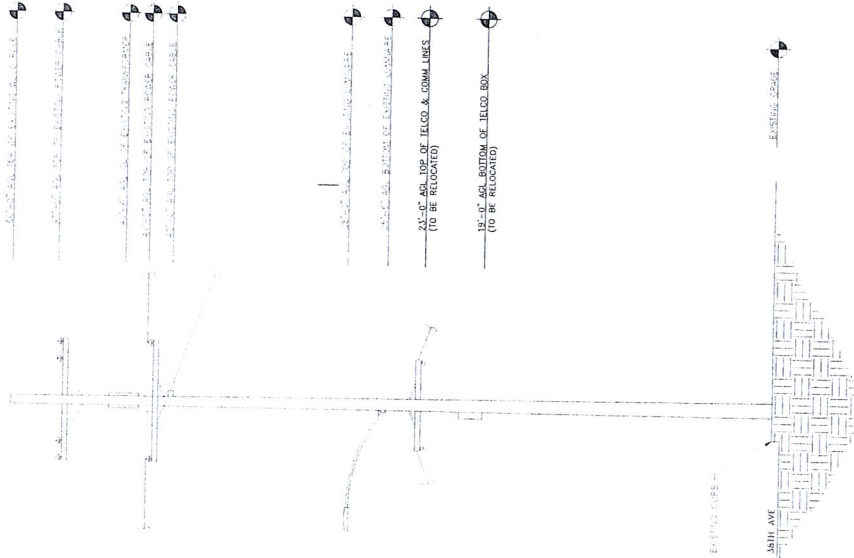
NOTE:  
 THESE DRAWINGS HAVE BEEN CREATED BASED ON THE ASSUMPTION THAT THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED CHANGING. IT IS THE RESPONSIBILITY OF THE POLE OWNER TO CONFIRM THAT THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE DESIGN CAPACITY OF THE STRUCTURE.

NOTES

1. ALL PROPOSED EQUIPMENT TO BE PAINTED TO MATCH EXISTING
2. DISTANCE FROM ANTENNA FACE TO NEAREST BUILDING (203B 38TH AVE) SEE SHEET C-1 FOR ORIENTATION.

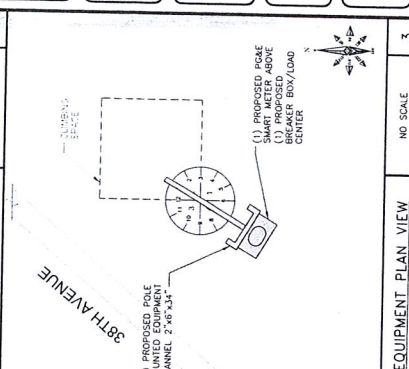
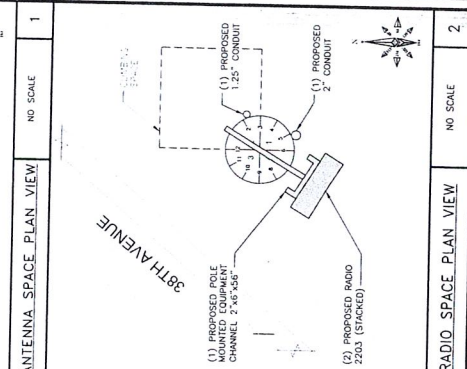
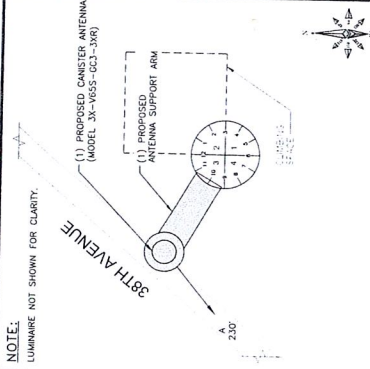
CABLES MAKE-READY

1. CONTRACTOR TO INSTALL CANISTER ANTENNA w/ ANCLARY ELECTRONICS AND HARDWARE ON PROPOSED ANTENNA SUPPORT ARM
2. CONTRACTOR TO INSTALL (2) RIGIDS w/ ANCLARY ELECTRONICS AND HARDWARE ON PROPOSED CHANNEL MOUNTS
3. CONTRACTOR TO INSTALL (1) 2" SCH. 80 PVC RISER CONDUIT FOR COAX AND FIBER CABLES. RISE FROM GROUND TO CENTER ON PROPOSED CHANNEL MOUNTS.
4. CONTRACTOR TO INSTALL (1) 1.25" SCH. 80 PVC RISER WITH WEATHERHEAD FOR POWER.
5. CONTRACTOR TO INSTALL (1) 1.25" SCH. 80 PVC RISER WITH WEATHERHEAD FOR POWER.
6. CONTRACTOR TO RELOCATE EXISTING TELCO & COMM LINES FROM 23'-0" TO 23'-3".
7. CONTRACTOR TO RELOCATE EXISTING TELCO & COMM LINES FROM 19'-0" TO 29'-0".
8. EXISTING APPROVED CONTRACTOR TO INSTALL (1) FIBER OPTIC CABLE AT 3'-0".
9. EXISTING APPROVED CONTRACTOR TO INSTALL (1) FIBER OPTIC CABLE AT 3'-0".
10. CONTRACTOR TO INSTALL REQUIRED RF SHIELDING 3'-0" BELOW PROPOSED ANTENNA MOUNT.



NOTE:

LUMINAIRE NOT SHOWN FOR CLARITY.



**extenet** connectivity everywhere  
 SYSTEMS

INTERNAL REVIEW: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CONSTRUCTION SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
 RF SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
 REAL ESTATE SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**BLACK & VEATCH**  
 BLACK & VEATCH CORPORATION  
 2250 SUITE 400  
 WALNUT CREEK, CA 94597

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PROJECT NO. 192417-4091  
 MBS  
 GAC

REV	DATE	DESCRIPTION
C	09/23/18	ISSUED FOR REVIEW
B	09/16/18	ISSUED FOR REVIEW
A	09/09/18	ISSUED FOR REVIEW

**PRELIMINARY**

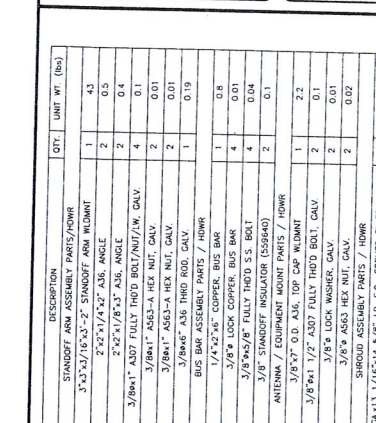
IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT.

**EXTENET SYSTEMS (CA) LLC**  
 2000 CROW CANYON PLACE  
 SUITE 210  
 SAN RAMON, CA 94583

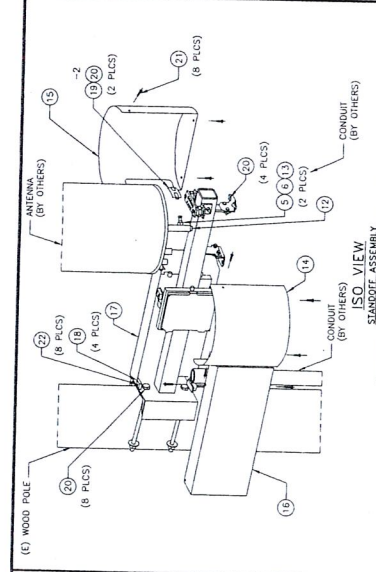
SITE ADDRESS  
**ADJACENT TO (IN PROW)**  
 2038 38TH AVENUE  
 OAKLAND, CA 94601

SHEET TITLE  
**UTILITY POLE ELEVATIONS AND RISER DETAILS**

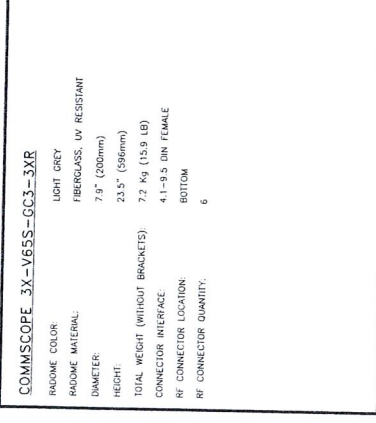
SHEET NUMBER  
**C-2**



**PROPOSED ANTENNA**  
 NO SCALE

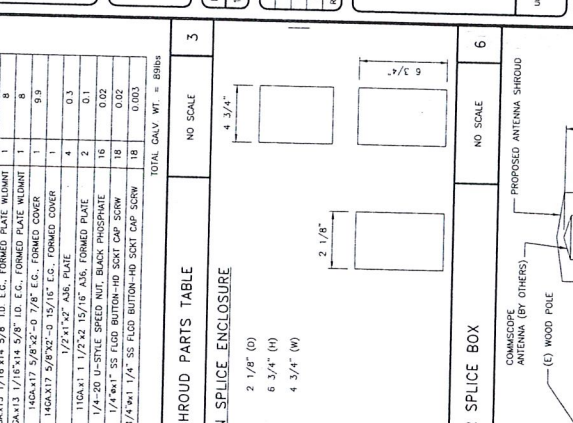


**SIDE ARM ANTENNA MOUNT**  
**2'-0" STANDOFF FOR WOOD POLE**  
 NO SCALE

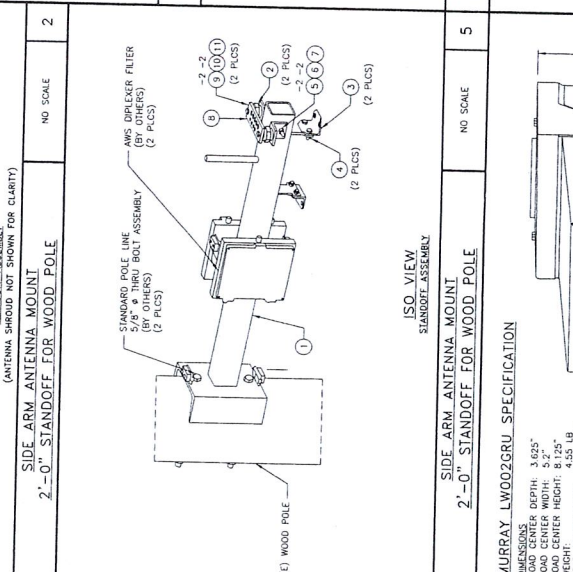


**SIDE ARM ANTENNA MOUNT**  
**2'-0" STANDOFF FOR WOOD POLE**  
 NO SCALE

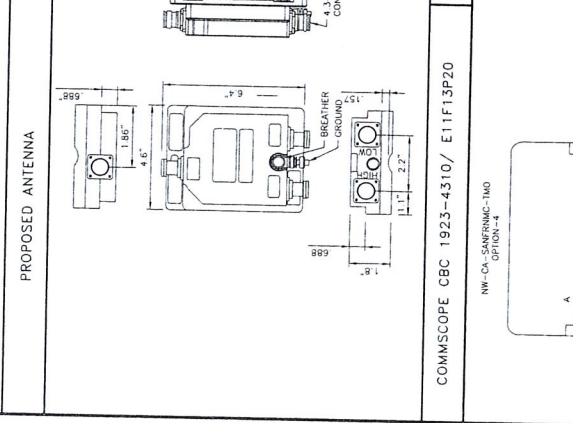
**COMMSCOPE CBC 1923-4310/ E11F13P20**  
 NW-CA-SANERNIC-1MO  
 OPTION-4



**ANTENNA CONFIGURATION**  
 NO SCALE



**MURRAY LW002GRU SPECIFICATION**  
 LOAD CENTER DEPTH: 3.625"  
 LOAD CENTER WIDTH: 5.2"  
 LOAD CENTER HEIGHT: 8.125"  
 LOAD CENTER TYPE: MAIN LUG  
 MOUNTING HOLE: 6.0"  
 NUMBER OF PHASES: 1 LUG IN  
 INDOOR/OUTDOOR: OUTDOOR  
 ELECTRICAL PRODUCT TYPE: LOAD CENTER

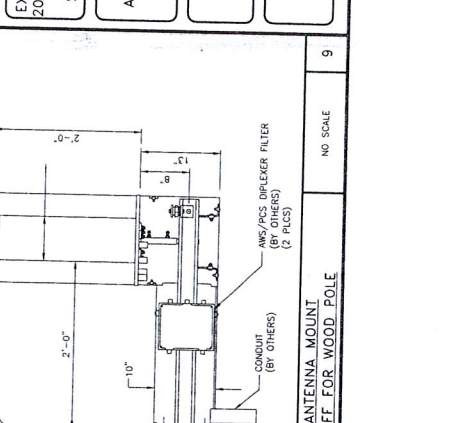


**FIBER SPLICE BOX**  
 NO SCALE

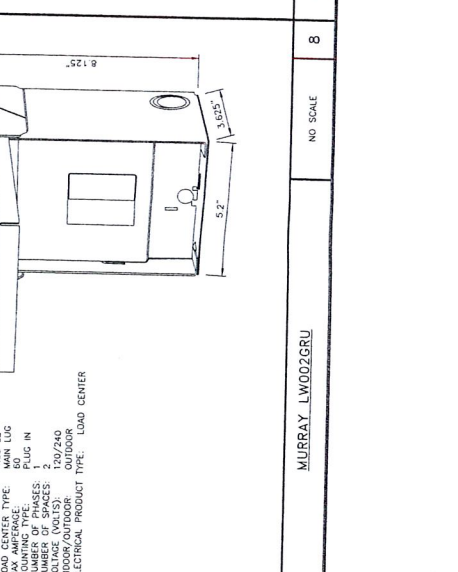
**ANTENNA SHROUD PARTS TABLE**  
 NO SCALE

ITEM #	PART #	DESCRIPTION	QTY.	UNIT WT. (LBS)
1	WA-714	STANDOFF ARM ASSEMBLY PARTS / HWWR	1	4.3
2	SS-314	3"x3/16"x3'-2" STANDOFF ARM W/DMT	2	0.5
3	SS-316	2"x2"x1/8"x2" ASS. ANGLE	2	0.4
4	13200	3/8"x1" A307 FULLY THRD BOLT/NI/1/W. GALV.	4	0.1
5	41010	3/8"x1" A563-A HEX NUT, GALV.	2	0.01
6	51000	3/8"x1" A563-A HEX NUT, GALV.	2	0.01
7	80226	3/8"x1" A36 THRD ROD, GALV.	1	0.19
8	PL-718	BUS BAR ASSEMBLY PARTS / HWWR	1	0.8
9	43010	1/4"x2"x6" COPPER, BUS BAR	4	0.01
10	71017	3/8"x2/8" FULLY THRD S.S. BOLT	4	0.04
11	90660	3/8" STANDOFF INSULATOR (S5640)	2	0.1
12	WA-686	ANTENNA / EQUIPMENT MOUNT PARTS / HWWR	1	2.2
13	16250F	3/8"x1/2" A307 FULLY THRD BOLT, GALV.	2	0.1
14	41010	3/8"x1" A563-A HEX NUT, GALV.	2	0.01
15	51000	3/8"x1" A563-A HEX NUT, GALV.	2	0.01
16	WA-715L	SHROUD ASSEMBLY PARTS / HWWR	1	0.02
17	PL-1284	1/4"x1/4" 5/8"x2'-0" 7/8" E.C. FORMED COVER	1	8
18	PL-1281	1/4"x1/4" 5/8"x2'-0" 15/16" E.C. FORMED COVER	1	9.3
19	14209-4	1/2"x1/2" A36 PLATE	4	0.3
20	55000	1/4"-20 U-STYLE 15/16" A36 FORMED PLATE	2	0.1
21	70217	1/4"x1" S5 FLRD BUTTON-HD SCKT CAP SCRW	16	0.02
22	70218	1/4"x1" 1/4" S5 FLRD BUTTON-HD SCKT CAP SCRW	18	0.02

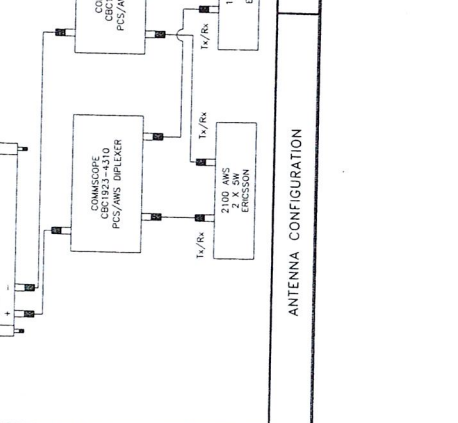
TOTAL CALV. WT. = 81lbs



**ANTENNA SHROUD PARTS TABLE**  
 NO SCALE



**ANTENNA SHROUD PARTS TABLE**  
 NO SCALE



**ANTENNA SHROUD PARTS TABLE**  
 NO SCALE

**COMMSCOPE 3X-V65S-GC3-3XR**

INTERNAL REVIEW  
 CONSTRUCTION SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
 RF SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
 REAL ESTATE SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

**BLACK & VEATCH**  
 BLACK & VEATCH CORPORATION  
 2950 OAK ROAD  
 SUITE 100  
 WALNUT CREEK, CA 94597

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PROJECT NO. 192417-40B1  
 MBS  
 GAC

C 09/23/16 ISSUED FOR REVIEW  
 B 09/16/16 ISSUED FOR REVIEW  
 A 09/09/16 ISSUED FOR REVIEW

REV. DATE DESCRIPTION

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**EXTENET SYSTEMS (CA) LLC**  
 2000 CROW CANYON PLACE  
 SUITE 210  
 SAN RAMON, CA 94583

SITE ADDRESS  
 ADJACENT TO (IN PROW)  
 2038 38TH AVENUE  
 OAKLAND, CA 94601

SHEET TITLE  
 EQUIPMENT DETAILS

SHEET NUMBER  
**C-3**

PRELIMINARY

NO SCALE

NO SCALE

NO SCALE

**ANTENNA SHROUD PARTS TABLE**  
 NO SCALE

**E1-4868-FSS FUSION SPLICE ENCLOSURE**  
 DEPTH: 2 1/8" (D)  
 HEIGHT: 6 3/4" (H)  
 WIDTH: 4 3/4" (W)

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE

**ANTENNA SHROUD PARTS TABLE**  
 NO SCALE

**E1-4868-FSS FUSION SPLICE ENCLOSURE**  
 DEPTH: 2 1/8" (D)  
 HEIGHT: 6 3/4" (H)  
 WIDTH: 4 3/4" (W)

NO SCALE

NO SCALE

NO SCALE

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NO SCALE

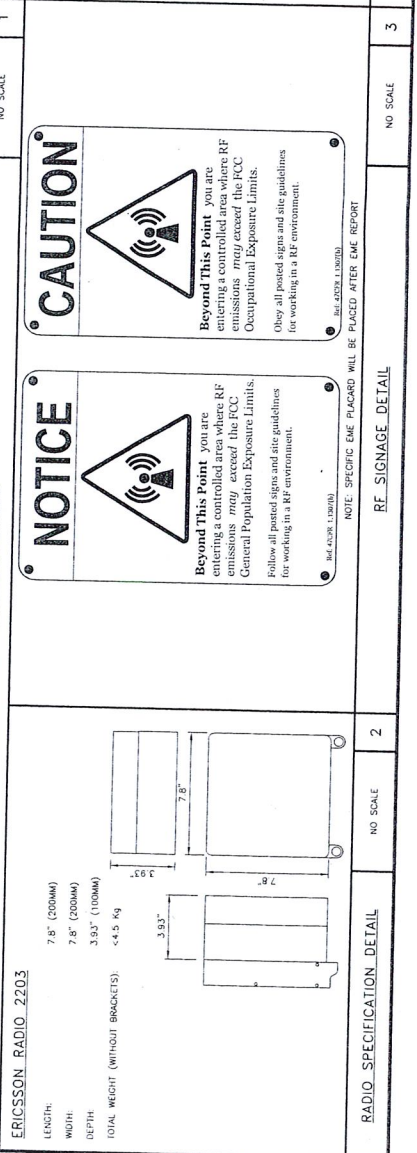
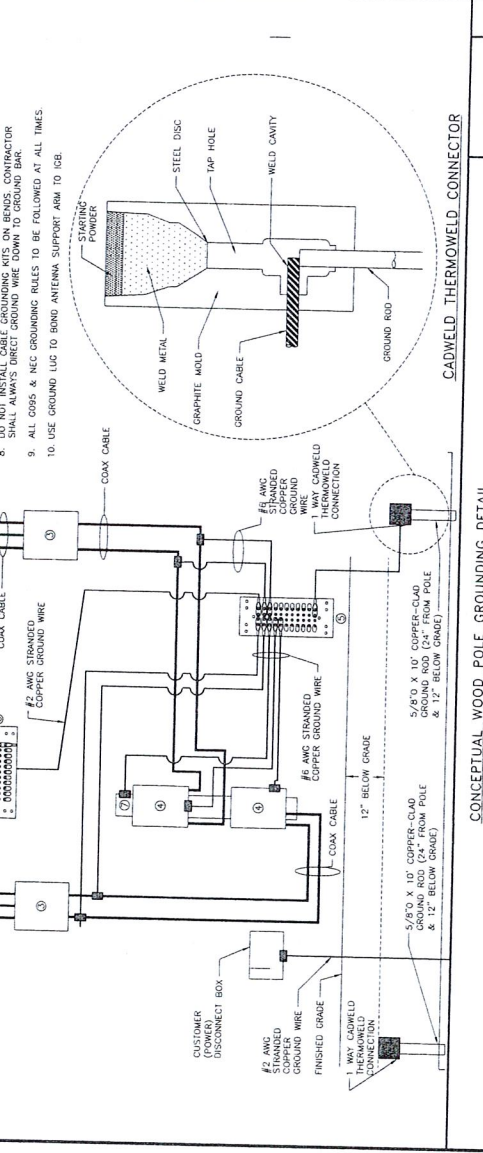
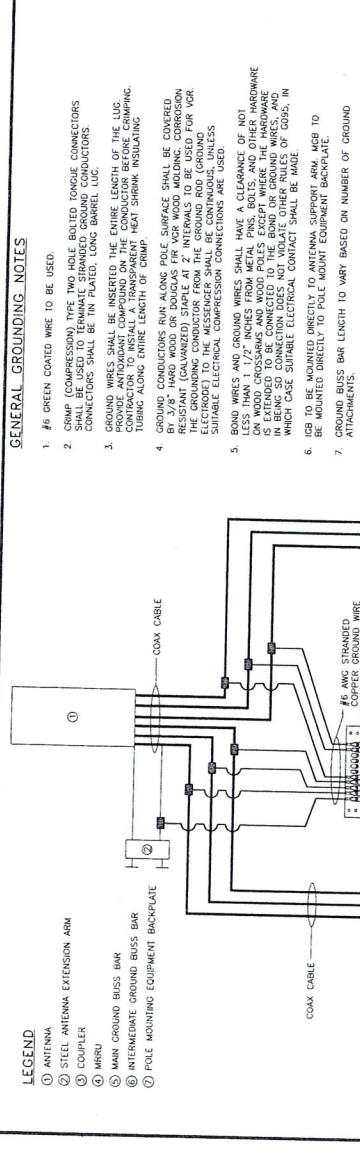
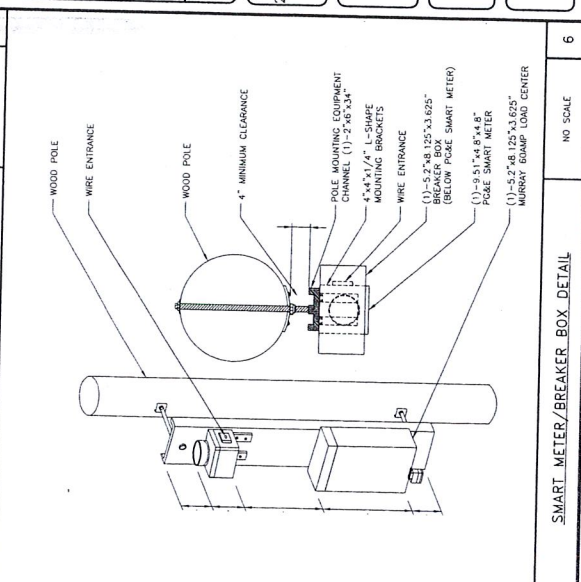
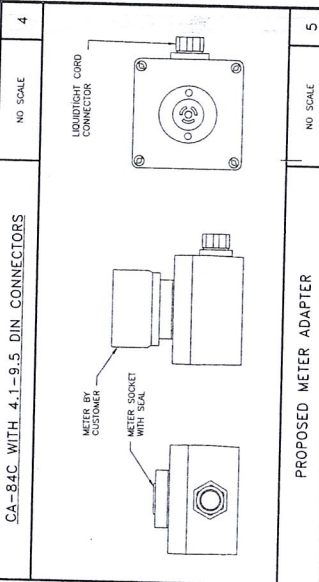
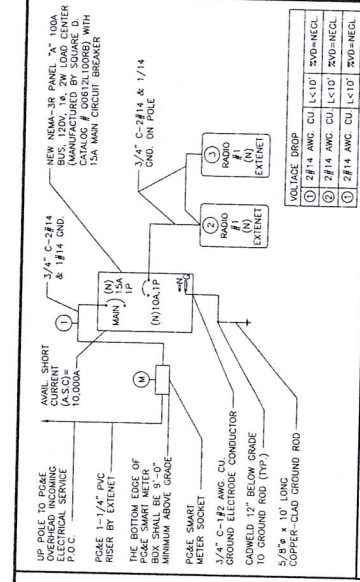
NO SCALE

NO SCALE

NO SCALE

NO SCALE

NO SCALE



**GENERAL GROUNDING NOTES**

- #6 GREEN COATED WIRE TO BE USED.
- CHMP (COMPRESSION) TYPE TWO HOLE BOILED TORQUE CONNECTORS SHALL BE USED ON ALL STRANDED GROUND CONDUCTORS.
- GROUND WIRES SHALL BE INSTALLED TO THE ENTIRE LENGTH OF THE LUG PROVIDE ANTI-OXIDANT COMPOUND ON THE ENTIRE LENGTH OF THE LUG. CONTRACTOR TO INSTALL A TRANSPARENT HEAT SHRINK INSULATING TUBING ALONG ENTIRE LENGTH OF CHMP.
- GROUNDING RODS RUN ALONG POLE SURFACE SHALL BE COVERED WITH AN ANTI-OXIDANT COMPOUND TO PREVENT CORROSION. THE GROUNDING CONDUCTOR FROM THE GROUND ROD (GROUND ROD SHALL BE INSTALLED AT 2' INTERVALS TO BE USED FOR ALL SHARABLE ELECTRICAL CONNECTIONS CONTINUOUS, UNLESS OTHERWISE NOTED).
- BOND WIRES AND GROUND WIRES SHALL HAVE A WEIGHT OF NOT LESS THAN 1/2" INCHES FROM METAL PINS, BOLTS AND OTHER HARDWARE IS EXTENDING THROUGH THE METAL. THE HARDWARE SHALL BE IN BEING SO CONNECTION DOES NOT VIOLATE OTHER RULES OF GDS, IN WHICH CASE SUITABLE ELECTRICAL CONTACT SHALL BE MADE.
- GR TO BE MOUNTED DIRECTLY TO ANTENNA SUPPORT ARM, HIGH TO BE MOUNTED DIRECTLY TO POLE MOUNT EQUIPMENT BACKPLATE ATTACHMENTS.
- GROUND BUSS BAR LENGTH TO VARY BASED ON NUMBER OF GROUND ATTACHMENTS.
- DO NOT INSTALL CABLE GRINDING KITS ON BENDS. CONTRACTOR SHALL ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
- ALL GDS & NEC GROUNDING RULES TO BE FOLLOWED AT ALL TIMES.
- USE GROUND LUG TO BOND ANTENNA SUPPORT ARM TO GR.

**NOTICE**

Beyond This Point you are entering a controlled area where RF emissions may exceed the FCC General Population Exposure Limits. Follow all posted signs and site guidelines for working in a RF environment.

RF-4238 (1.0/016)

**CAUTION**

Beyond This Point you are entering a controlled area where RF emissions may exceed the FCC Occupational Exposure Limits. Follow all posted signs and site guidelines for working in a RF environment.

RF-4238 (1.0/016)

NOTE: SPECIFIC CAGE PLACARD WILL BE PLACED AFTER EMF REPORT.

RF SIGNAGE\_DETAIL

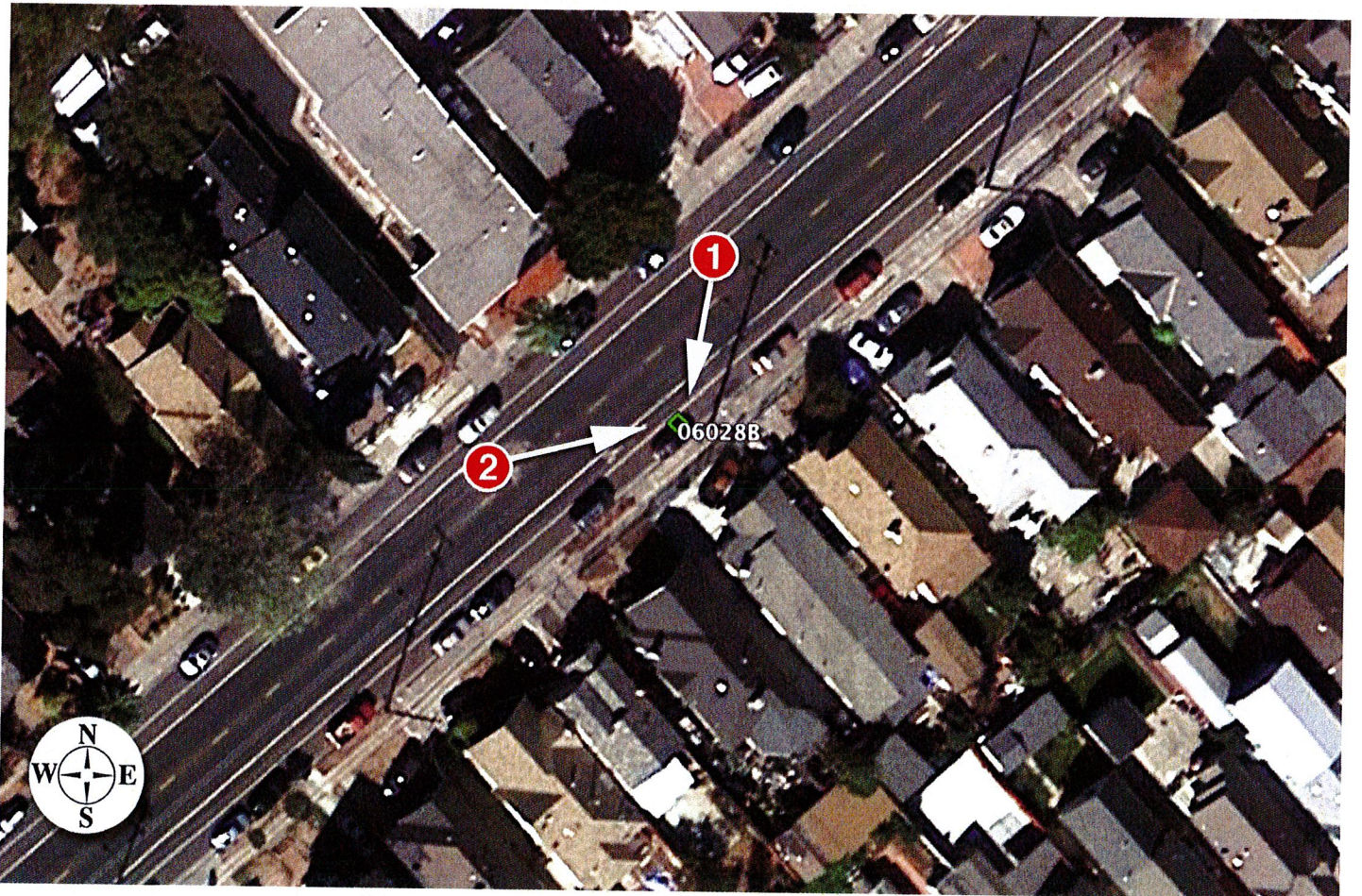
**LEGEND**

- ANTENNA
- STEEL ANTENNA EXTENSION ARM
- COUPLER
- MRU
- MAIN GROUND BUSS BAR
- INTERMEDIATE GROUND BUSS BAR
- POLE MOUNTING EQUIPMENT BACKPLATE

**RADIO SPECIFICATION\_DETAIL**

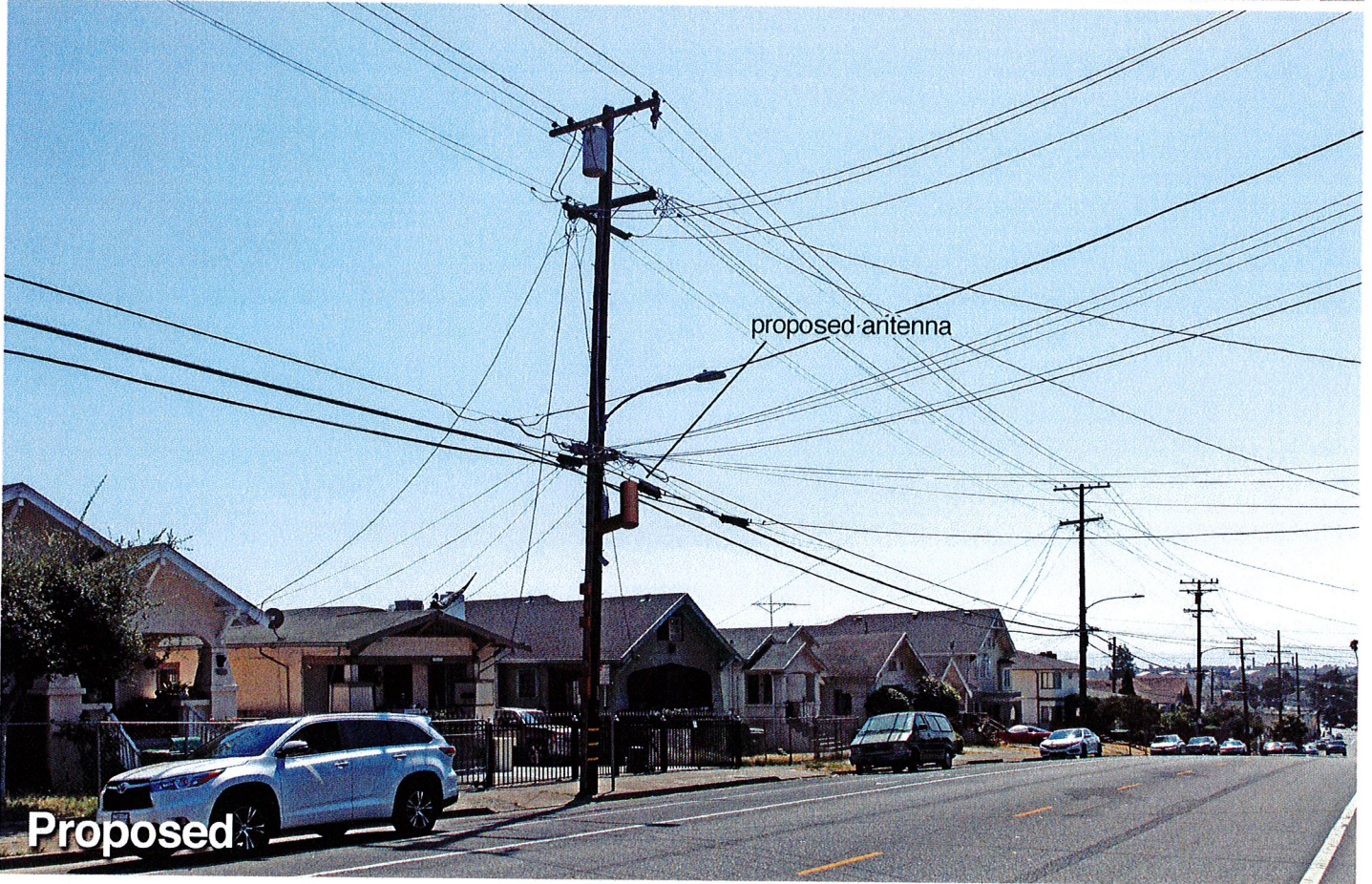
NO SCALE

# Attachment D





Existing



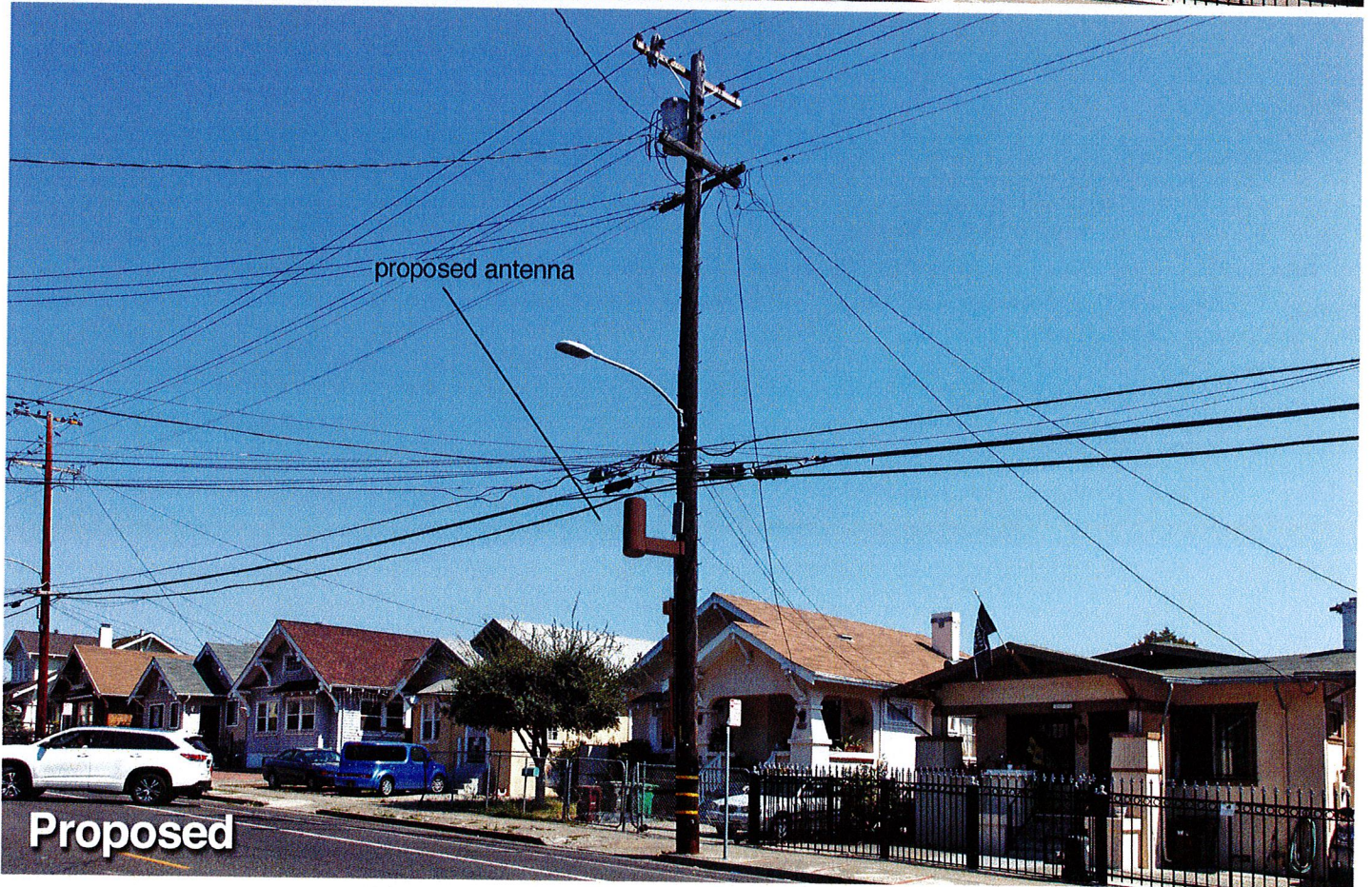
proposed antenna

Proposed





**Existing**



proposed antenna

**Proposed**



**NW-CA-SANFRNMC 06028B**

Looking East from 38th Avenue

9/16/16

Adjacent to (IN PROW)  
2038 38th Avenue Oakland, CA

**View #2**

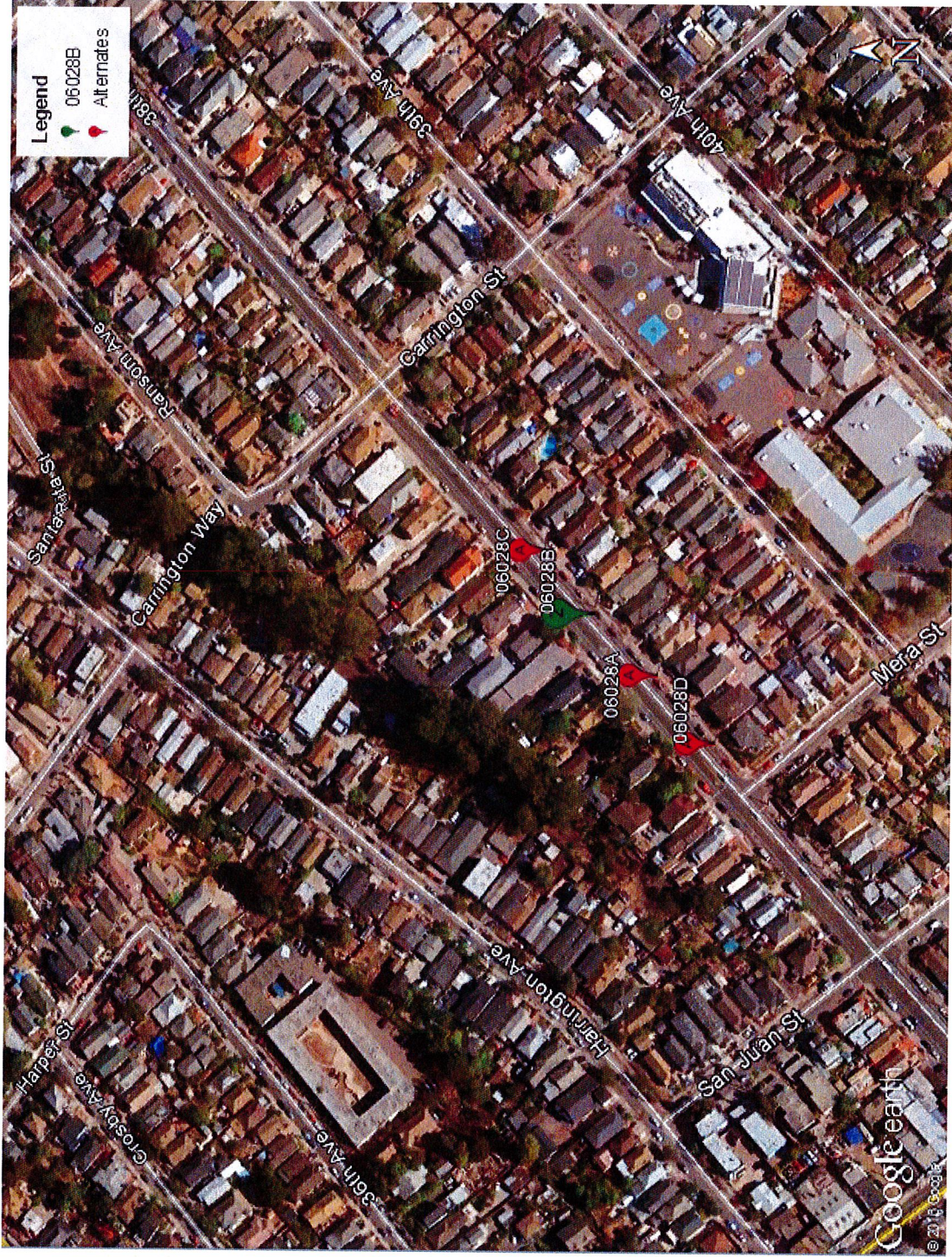
Applied Imagination 510 914-0500



# **EXTENET OAKLAND NODE 06028B ALTERNATIVE SITE ANALYSIS**

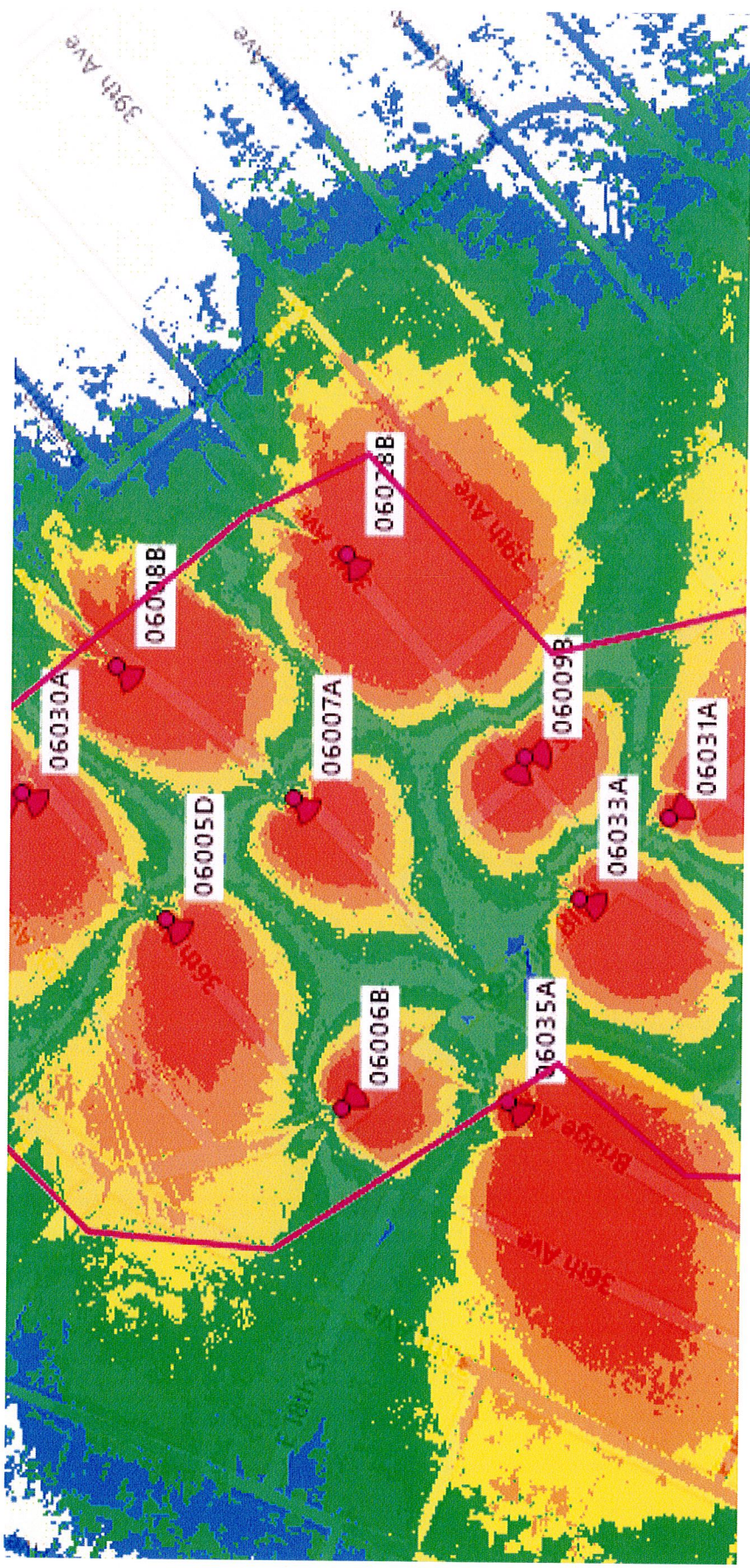
**ATTACHMENT E**

## MAP OF ALTERNATIVE POLES EVALUATED FOR NODE 06028B



- The above maps depict ExteNet's proposed Node 06028B in relation to other poles in the area that were evaluated as possibly being viable alternative candidates.
- The following is an analysis of each of those 3 alternative locations.

# PROPAGATION MAP OF NODES 06028B



This propagation map depicts the ExteneNet proposed Node 06028B in relation to surrounding proposed ExteneNet small cell nodes.

## 06028B - PROPOSED LOCATION



The location for ExteNet's proposed Node 06028B is a joint utility pole located adjacent to PROW at 2038 38th Avenue (37.780764, - 122.214165).

ExteNet's objective is to provide T-Mobile 4G wireless coverage and capacity to the Oakland area.

ExteNet evaluated this site and nearby alternatives to verify that the selected site is the least intrusive means to close T-Mobile's significant service coverage gap.

## ALTERNATIVE NODE 06028A



- Node 06028A is a joint utility pole next to 2016 38th Avenue (37.780505, -122.214484).
- This pole is not a viable alternative candidate because cross lines and cross arms prevent adequate climbing space on the pole pursuant to CPUC General Order 95, thus prohibiting a wireless facility from being installed at this location.
- This pole is not a viable alternative candidate because this pole is located too close to primary Node 6009B.

## ALTERNATIVE NODE 06028C



- Node 06028C is a joint utility pole at 2054 38th Avenue (37.780966, -122.213829)
- This pole is not a viable alternative candidate because cross lines and cross arms prevent adequate climbing space on the pole pursuant to CPUC General Order 95, thus prohibiting a wireless facility from being installed at this location.
- This pole is not a viable alternative candidate because this pole is located too far to primary Node 06030A.

## ALTERNATIVE NODE 06028D

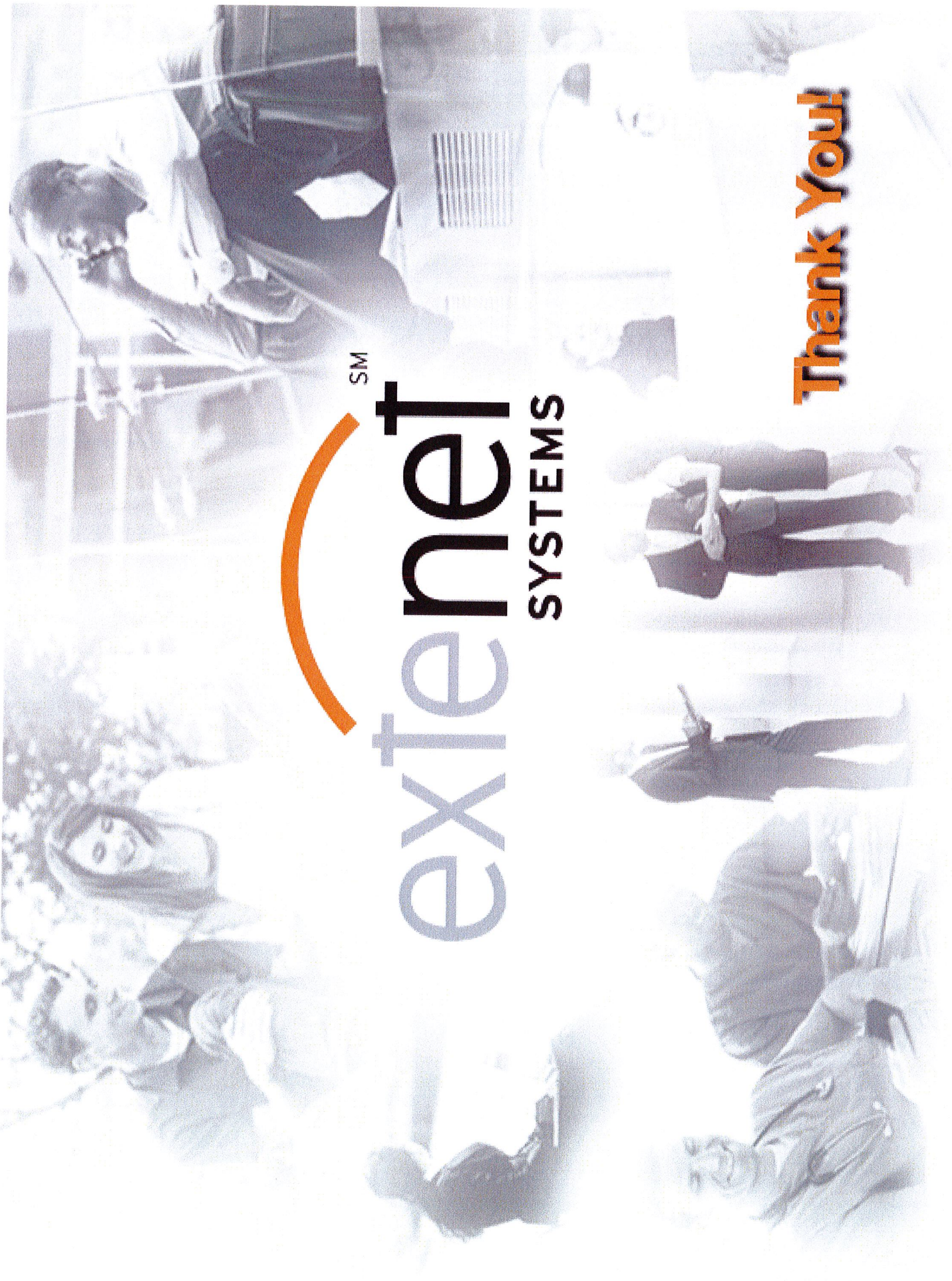


- Node 06028D is a joint utility pole near 2006 38th Avenue (37.780268, -122.214833).
- This pole is not a viable alternative candidate because cross lines and cross arms prevent adequate climbing space on the pole pursuant to CPUC General Order 95, thus prohibiting a wireless facility from being installed at this location.
- This pole is not a viable alternative candidate because this pole is located too close to primary Node 6009B.



## **ALTERNATIVE SITE ANALYSIS CONCLUSION**

**Based on ExteNet's analysis of alternative sites, the currently proposed Node 06028B is the least intrusive location from which to fill the surrounding significant wireless coverage gaps.**



SM  
**extenet**  
SYSTEMS

**Thank You!**

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 06028B)  
2038 38th Avenue • Oakland, California**

**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 carrier, to evaluate the addition of Node No. 06028B to be added to the ExteNet distributed antenna system (“DAS”) in Oakland, 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 2038 38th Avenue in Oakland. 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 <sup>2</sup>	1.00 mW/cm <sup>2</sup>
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.



**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 06028B)  
2038 38th Avenue • Oakland, 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 Black & Veatch Corporation, dated September 23, 2016, it is proposed to install one CommScope Model 3X-V65S-GC3-3XR, 2-foot tall, tri-directional cylindrical antenna, with one direction activated, 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 2038 38th Avenue in Oakland. The antenna would employ no downtilt, would be mounted at an effective height of about 20 feet above ground, and its principal direction would be oriented toward 230°T. T-Mobile proposes to operate from this facility with a maximum effective radiated power in any direction of 214 watts, representing simultaneous operation 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 0.0046 mW/cm<sup>2</sup>, which is 0.46% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 2.1% 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.

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 06028B)  
2038 38th Avenue • Oakland, California**

**Recommended Mitigation Measures**

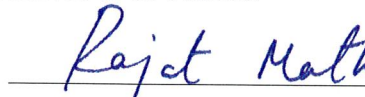
Due to its mounting location and height, the ExteNet antenna would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate 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 2038 38th Avenue in Oakland, 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, P.E.  
707/996-5200



October 6, 2016

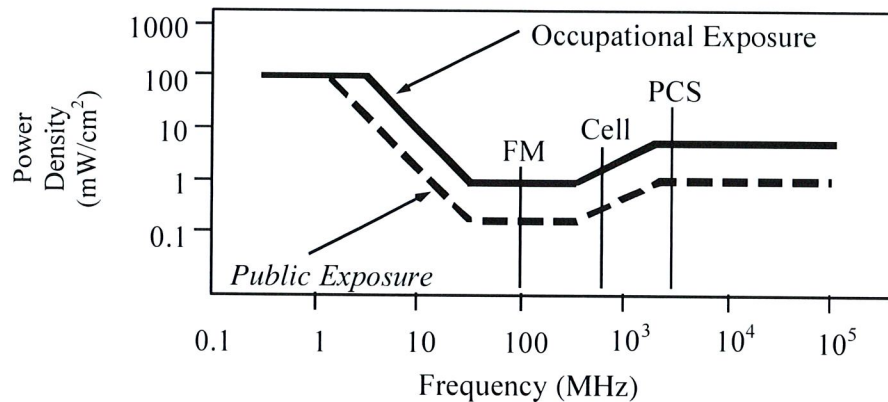
\* Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health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

## FCC Radio Frequency Protection Guide

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

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

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



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



## RFR.CALC™ Calculation Methodology

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

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

#### Near Field.

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

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

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

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

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

$D$  = distance from antenna, in meters,

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

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

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

#### Far Field.

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

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

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

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

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

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



April 14, 2017

City Planner  
Planning Department  
City of Oakland  
250 Frank H. Ogawa Plaza, 2<sup>nd</sup> Floor  
Oakland, CA 94612

**Re: GO 95 Required Two Feet Clearance Between Antenna and Pole**  
**Applicant: ExteNet Systems (California) LLC**  
**Nearest Site Address: Public Right of Way near 2038 38<sup>th</sup> Avenue.**  
**Site ID: NW-CA-SANFRNMC-TMO Node 06028B**  
**Latitude/Longitude: 37.780764, -122.214165**  
**Planning Application: PLN16390**

Dear City Planner,

This letter is in response to discussions with City of Oakland Planning Department seeking clarification on the proposed antenna placement on the utility pole.

Wireless facility attachments to utility poles must comply with CPUC General Order 95 design, safety and clearance standards. Specifically, Rule 94.4(E) states: *Antennas shall maintain a 2 ft horizontal clearance from centerline of pole when affixed between supply and communication lines or below communication lines.* This rule precludes ExteneNet from placing the antennas flush mounted to the utility pole when there is a power source attached to the pole. ExteneNet minimized the clearance as much as possible by placing the antenna shroud just over two feet from the centerline of the utility pole.

Feel free to contact me if you have any questions. Thank you.

Thank you.

Best Regards,

Ana Gomez  
ExteneNet Permitting Contractor