SAN FRANCISCO
PLANNING DEPARTMENT

Executive Summary
Conditional Use Authorization
HEARING DATE: MARCH 8, 2018

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

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Planning
Information:
415.558.6377

Date:	March 1, 2018
Case No.:	**2017-005841CUA**
Project Address:	**2099 Market Street**
Current Zoning:	NCT (Upper Market Neighborhood Commercial Transit) 50/55-X and 40-X Height and Bulk District
Block/Lot:	3544/065
Project Sponsor:	T-Mobile c/o Jenny Wun of Modus, Inc. 240 Stockton St., 3rd Floor San Francisco, CA 94108
Staff Contact:	Ashley Lindsay – (415) 575-9178 Ashley.Lindsay@sfgov.org
Recommendation:	Approval with Conditions

PROJECT DESCRIPTION

The proposal is to modify an existing T-Mobile Macro Wireless Telecommunications Facility consisting of the removal of two (2) omni antennas; installation of three (3) new panel antennas within three (3) new 18-inch diameter FRP radomes; installation of six (6) new TMAs adjacent to antennas but not visible from public views; installation of three (3) new RRUs; and installation and removal of ancillary equipment.

The first FRP radome will be setback 7-5" from the northwest facing building edge and will house one (1) antenna. The second FRP radome will be setback 7'-5" from the west facing building edge and will house one (1) antenna. The third FRP radome will be setback 7'-5" from the southeast facing building edge and will house one (1) antenna. All three (3) FRP radomes will be located approximately 6' above roof level as to match the height of the existing rooftop water heater panels. (1) RRU and (2) TMAs will be located at each of the three (3) antenna locations as part of the T-Mobile Telecommunications Network.

SITE DESCRIPTION AND PRESENT USE

The Project Site is located on Assessor's Block 3544, Lot 065. The lot is located near the southeast corner of Market Street and Church Street. The three-story building was constructed in 1906, and is a contributor to the Upper Market Street Commercial Historic District. The present use of the building is apartment use with approximately 9 units, over ground-floor commercial.

SURROUNDING PROPERTIES AND NEIGHBORHOOD

The Project Site is situated within the Castro/Upper Market neighborhood. Surrounding uses include a mix of residential and commercial, and public uses throughout the NCT, NCT-3, and RTO zoned

Districts. In the blocks surrounding the Project Site, the buildings generally range from 2 to 4 stories in height.

ENVIRONMENTAL REVIEW

The Project is exempt from the California Environmental Quality Act ("CEQA") as a Class 3 categorical exemption (Construction of New Communications Facilities).

HEARING NOTIFICATION

TYPE	REQUIRED PERIOD	REQUIRED NOTICE DATE	ACTUAL NOTICE DATE	ACTUAL PERIOD
Classified News Ad	20 days	February 16, 2018	February 14, 2018	22 days
Posted Notice	20 days	February 16, 2018	February 16, 2018	20 days
Mailed Notice	20 days	February 16, 2018	February 16, 2018	20 days

PUBLIC COMMENT/COMMUNITY OUTREACH

The Project Sponsor held a community on March 16, 2017 at 5:30pm at the San Francisco Public Library, 100 Larkin Street, San Francisco, CA 94102. One member of the community attended the meeting.

As of March 1, 2018, the Department has not received any calls or testimony raising concerns about, or expressing support for, the proposed project.

ISSUES AND OTHER CONSIDERATIONS

- Based on the zoning and land use, the proposed WTS facility is considered a Location Preference 5 Site (Mixed Use Buildings in High Density Districts), which is considered a "preferred location" according to the Planning Department's *WTS Facilities Siting Guidelines*, as the Project Site is a structure within the NCT Zoning District that already has housing above ground-floor commercial.

- Given the directional nature of the panel antennas, their specific orientation, and their placement on the roof, the Radio-Frequency (RF) emissions created by the proposed panel antennas would not result in exposure levels that approach or exceed the public exposure limits set by the Federal Communications Commission (FCC). As noted on RF emissions report, the combined maximum RF exposure for the proposed site at ground level would be 1.85% of the public exposure limit set by the FCC. The antennas are not accessible to any unauthorized persons due to their height and location on the roof. Health and safety aspects (e.g. engineering review for structural loads, and backup battery storage) of all wireless Projects are reviewed by the Department of Public Health, San Francisco Fire Department, and the Department of Building Inspection.

- The proposed macro WTS facility would not significantly impair commercial and residential activities within the Project Site.

- T-Mobile has an updated Five Year Plan on file with the Department that includes the approximate longitudinal and latitudinal coordinates of proposed locations, including the Project Site.

- All required public notifications were conducted in compliance with the Planning Code and adopted WTS policies.

REQUIRED COMMISSION ACTION

Pursuant to Sections 303(c) and 764 of the Planning Code, a Conditional Use Authorization is required for a new installation of a WTS facility (Utility and Infrastructure Use) in the NCT Zoning Districts.

BASIS FOR RECOMMENDATION

- This Project is necessary, desirable, and compatible with the surrounding neighborhood, in accordance with Section 303 of the Planning Code, for the following reasons: The proposed facility would be screened from view by virtue of proposed enclosures and their placement on the rooftop of the Project Site. The proposal would not significantly detract from views of the Subject building or from view of other surrounding buildings, nor would it detract from adjacent streetscapes, and vistas within the Castro/ Upper Market Historic District.
- The Project is on balance, consistent with the Objectives and Policies of the General Plan, as outlined in the draft Motion.
- The expected RF emissions fall within the limits established by the Federal Communications Commission (FCC).
- According to the Planning Department's Wireless Telecommunications Services (WTS) Facilities Siting Guidelines, the Project Site is a preferred location, as a Location Preference 5 (Mixed Use Buildings in High Density Districts) Site.
- Based on propagation maps provided by T-Mobile, the Project would provide enhanced coverage in an area that currently experiences gaps in coverage and capacity.
- Based on the analysis provided by T-Mobile, the Project would provide additional capacity in an area that currently experiences insufficient service during periods of high data usage.
- Based on independent third-party evaluation, the maps, data, and conclusions about service coverage and capacity provided by T-Mobile Wireless are accurate.

RECOMMENDATION:	**Approval with Conditions**

Attachments:
Draft Conditional Use Authorization Motion
Block Book Map
Sanborn Map
Zoning Map
Aerial Map
Categorical Exemption
Reduced Plans
Photo Simulations
Radio Frequency Report
Department of Public Health Approval

Coverage Maps
Independent Evaluation
Community Outreach Report

Attachment Checklist

☒	Draft Motion	☒	Project sponsor submittal
☒	Zoning District Map	☒	Drawings: Proposed Project
☐	Height & Bulk Map	☒	Check for legibility
☒	Block Book Map	☒	Community Outreach Report
☒	Sanborn Map	☒	Coverage Maps
☒	Aerial Map	☒	RF Report
☒	Context Photos	☒	DPH Approval
☒	Photo Simulations	☒	Independent Evaluation

Exhibits above marked with an "X" are included in this packet AL Planner's Initials

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SAN FRANCISCO
PLANNING DEPARTMENT

Subject to: (Select only if applicable)

☐ Affordable Housing (Sec. 415)
☐ Jobs Housing Linkage Program (Sec. 413)
☐ Downtown Park Fee (Sec. 412)
☐ First Source Hiring (Admin. Code)
☐ Child Care Requirement (Sec. 414)
☐ Other

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Planning Commission Draft Motion

HEARING DATE: MARCH 8, 2018

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ADOPTING FINDINGS RELATING TO THE APPROVAL OF A CONDITIONAL USE AUTHORIZATION UNDER PLANNING CODE SECTIONS 303 AND 764 TO MODIFY A T-MOBILE MACRO WIRELESS TELECOMMUNICATIONS FACILITY CONSISTING OF THE REMOVAL OF TWO (2) OMNI ANTENNAS; INSTALLATION OF THREE (3) NEW PANEL ANTENNAS WITHIN THREE (3) NEW 18-INCH DIAMETER FRP RADOMES; INSTALL SIX (6) NEW TMAS ADJACENT TO ANTENNAS BUT NOT VISIBLE FROM PUBLIC VIEWS; INSTALLATION OF THREE (3) NEW RRUS; AND INSTALLATION AND REMOVAL OF ANCILLARY EQUIPMENT AS PART OF THE T-MOBILE TELECOMMUNICATIONS NETWORK. THE PROPERTY IS LOCATED IN THE NCT (UPPER MARKET NEIGHBORHOOD COMMERCIAL TRANSIT DISTRICT), AND THE 40-X AND 50/55X HEIGHT AND BULK DISTRICTS.

PREAMBLE

On May 10, 2017, T-Mobile (hereinafter "Project Sponsor"), submitted an application (hereinafter "Application"), for a Conditional Use Authorization on the property at 2099 Market Street, Block 35440334, Lot 065 (hereinafter "Project Site") to develop a T-Mobile Macro Wireless Telecommunications Services Facility to modify a T-Mobile Macro Wireless Telecommunications Facility consisting of the removal of two (2) omni antennas; installation of three (3) new panel antennas within three (3) new 18-inch diameter FRP radomes; installation of six (6) new TMAs adjacent to antennas but not visible from public views; installation of three (3) new RRUs; and installation and removal of ancillary equipment as part of the T-Mobile Telecommunications

Network. The property is located in the NCT (Upper Market Neighborhood Commercial Transit District), and the 40-X and 50/55x Height and Bulk Districts.

The Project is exempt from the California Environmental Quality Act ("CEQA") as a Class 3 Categorical Exemption (Section 15303 of the California Environmental Quality Act). The Planning Commission has reviewed and concurs with said determination. The categorical exemption and all pertinent documents may be found in the files of the Planning Department (hereinafter "Department"), as the custodian of records, at 1650 Mission Street, Suite 400, San Francisco.

The Planning Department, Office of the Commission Secretary, is the custodian of records for these actions, and such records are located at 1650 Mission Street, Fourth Floor, San Francisco, California.

On March 8, 2018 the San Francisco Planning Commission (hereinafter "Commission") conducted a duly noticed public hearing at a regularly scheduled meeting on the Application for a Conditional Use Authorization.

The Commission has heard and considered the testimony presented to it at the public hearing and has further considered written materials and oral testimony presented on behalf of the Applicant, Department Staff, and other interested parties.

MOVED, that the Commission hereby authorizes the Conditional Use in Application No. 2017-005841CUA, subject to the conditions contained in "EXHIBIT A" of this motion, based on the following findings:

FINDINGS

Having reviewed the materials identified in the preamble above, and having heard all testimony and arguments, this Commission finds, concludes, and determines as follows:

1. The above recitals are accurate and constitute findings of this Commission.

2. **Site Description and Present Use**. The Project Site is located on Assessor's Block 3544, Lot 065. The lot is located near the southeast corner of Market Street and Church Street. The three-story building was constructed in 1906, and is a contributor to the Upper Market Street Commercial Historic District. The present use of the building is apartment use with approximately 9 units, over ground-floor commercial.

3. **Surrounding Properties and Neighborhood**. The Project Site is situated within the Castro/Upper Market neighborhood. Surrounding uses include a mix of residential and commercial, and public uses throughout the NCT, NCT-3, and RTO zoned Districts. In the blocks surrounding the Project Site, the buildings generally range from 2 to 4 stories in height.

4. **Project Description.** The proposal is to modify an existing T-Mobile Macro Wireless Telecommunications Facility consisting of the removal of two (2) omni antennas; installation of three (3) new panel antennas within three (3) new 18-inch diameter FRP radomes; installation of six (6) new TMAs adjacent to antennas but not visible from public views; installation of three (3) new RRUs; and installation and removal of ancillary equipment.

   The first FRP radome will be setback 7-5" from the northwest facing building edge and will house one (1) antenna. The second FRP radome will be setback 7'-5" from the west facing building edge and will house one (1) antenna. The third FRP radome will be setback 7'-5" from the southeast facing building edge and will house one (1) antenna. All three (3) FRP radomes will be located approximately 6' above roof level as to match the height of the existing rooftop water heater panels. (1) RRU and (2) TMAs will be located at each of the three (3) antenna locations as part of the T-Mobile Telecommunications Network.

5. **Past History and Actions.** The Planning Commission adopted the *Wireless Telecommunications Services (WTS) Facilities Siting Guidelines* ("Guidelines") for the installation of wireless telecommunications facilities in 1996. These Guidelines set forth the land use policies and practices that guide the installation and approval of wireless facilities throughout San Francisco. A large portion of the Guidelines was dedicated to establishing location preferences for these installations. The Board of Supervisors, in Resolution No. 635-96, provided input as to where wireless facilities should be located within San Francisco. The Guidelines were updated by the Commission in 2003 and again in 2012, requiring community outreach, notification, and detailed information about the facilities to be installed.

   Section 8.1 of the Guidelines outlines Location Preferences for wireless facilities. There are five primary areas were the installation of wireless facilities should be located:

   1. Publicly-used Structures: such facilities as fire stations, utility structures, community facilities, and other public structures;
   2. Co-Location Site: encourages installation of facilities on buildings that already have wireless installations;
   3. Industrial or Commercial Structures: buildings such as warehouses, factories, garages, service stations;
   4. Industrial or Commercial Structures: buildings such as supermarkets, retail stores, banks; and
   5. Mixed-Use Buildings in High Density Districts: buildings such as housing above commercial or other non-residential space.

   Section 8.1 of the WTS Siting Guidelines further stipulates that the Planning Commission will not approve WTS applications for Preference 5 or below Location Sites unless the application describes (a) what publicly-used building, co-location site or other Preferred Location Sites are located within the geographic service area; (b) what good faith efforts

and measures were taken to secure these more Preferred Locations, (c) explains why such efforts were unsuccessful; and (d) demonstrates that the location for the site is essential to meet demands in the geographic service area and the Applicant's citywide networks.

Before the Planning Commission can review an application to install a wireless facility, the Project Sponsor must submit a five-year facilities plan, which must be updated biannually, an emissions report and approval by the Department of Public Health, Section 106 Declaration of Intent, an independent evaluation verifying coverage and capacity, a submittal checklist and details about the facilities to be installed.

Under Section 704(B)(iv) of the 1996 Federal Telecommunications Act, local jurisdictions cannot deny wireless facilities based on Radio Frequency (RF) radiation emissions so long as such facilities comply with the FCC's regulations concerning such emissions.

6. **Location Preference.** The *WTS Facilities Siting Guidelines* identify different types of zoning districts and building uses for the siting of wireless telecommunications facilities. Based on the zoning and land use, the proposed WTS facility is at a Location Preference 5 Site (Mixed Use Buildings in High Density Districts) according to the WTS Facilities Siting Guidelines, making it a desired location.

7. **Radio Waves Range.** The Project Sponsor has stated that the proposed wireless network is designed to address coverage and capacity needs in the area. The network will operate in the 700, 1950, and 2100Megahertz (MHZ) bands, which are regulated by the Federal Communications Commission (FCC) and must comply with the FCC-adopted health and safety standards for electromagnetic radiation and radio frequency radiation.

8. **Radiofrequency (RF) Emissions:** The Project Sponsor retained EBI Consulting, a radio engineering consulting firm, to prepare a report describing the expected RF emissions from the proposed facility. Pursuant to the Guidelines, the Department of Public Health reviewed the report and determined that the proposed facility complies with the standards set forth in the Guidelines.

9. **Department of Public Health Review and Approval.** The Project was referred to the Department of Public Health (DPH) for emissions exposure analysis. Radio-Frequency (RF) levels from the proposed T-Mobile transmitters at any nearby publicly accessible building or area would 1.85% of the FCC public exposure limit.

   There are two (2) existing antennas on the rooftop of the building at 2900 Market Street. Existing RF levels at ground were approximately well below the FCC public exposure limit. There were observed no other antennas within 100 feet of this site. T-Mobile proposes to install three (3) new antennas. The height to the top of the antennas is approximately 43 feet above the ground. The estimated RF field from the proposed T-Mobile transmitters at ground level is calculated to be 0.041406 mW/sq cm., which is 8.8% of the FCC public exposure limit. The three dimensional perimeter of RF levels equal to the public exposure limit extends 13 feet, and the three dimensional perimeter of RF level

equal to the occupational exclusion limit extends 6 feet; both limits do not reach any publicly accessible areas. Warning signs must be posted at the antennas and roof access points in English, Spanish and Chinese. Workers should not have access to within 13 feet of the front of the antennas while they are in operation.

10. **Coverage and Capacity Verification.** The maps, data, and conclusion provided by T-Mobile to demonstrate the need for outdoor and indoor coverage and capacity have been determined by EBI Consulting, an engineering consultant and independent third party, to accurately represent the carrier's present and post-installation conclusions.

11. **Maintenance Schedule**. The facility would operate without on-site staff but with a maintenance crew visiting the property to service and monitor the facility.

12. **Community Outreach.** As required under the *Guidelines* the Project Sponsor held a community meeting on March 16, 2017 at 5:30pm at the San Francisco Public Library, 100 Larkin Street, San Francisco, CA 94102. One member of the community attended the meeting.

13. **Five-year plan:** Per the *Guidelines*, the Project Sponsor submitted an updated five-year plan, as required, in October 2017.

14. **Public Comment.** As of March 1, 2018, the Department has not received any calls or testimony raising concerns about, or expressing support for, the proposed project.

15. **Planning Code Compliance.** The Commission finds that the Project is consistent with the relevant provisions of the Planning Code in the following manner:

    A. **Use.** Per Planning Code Section 764, a Conditional Use Authorization is required for a macro WTS facility (Utility and Infrastructure Use).

16. **Planning Code Section 303** establishes criteria for the Planning Commission to consider when reviewing applications for Conditional Use approval. On balance, the Project complies with said criteria in that:

    A. The proposed new uses and building, at the size and intensity contemplated and at the proposed location, will provide a development that is necessary or desirable, and compatible with, the neighborhood or the community.

        i. *Desirable: San Francisco is a leader of the technological economy; it is important and desirable to the vitality of the City to have and maintain adequate telecommunications coverage and data capacity. This includes the installation and upgrading of systems to keep up with changing technology and increases in usage. It is desirable for the City to allow wireless facilities to be installed.*

        The Project at 2099 Market Street is generally desirable and compatible with the surrounding neighborhood because the Project will not conflict with the existing uses of

the property and will be designed to be compatible with the surrounding neighborhood. The overall location, setback from public streets, height and design of the proposed facility, including visible screening elements is situated so as to avoid intrusion into public vistas, and to insure harmony with the existing neighborhood character and promote public safety.

ii. *Necessary: In the case of wireless installations, there are two criteria that the Commission reviews: coverage and capacity.*

Coverage: San Francisco does have sufficient overall wireless coverage (note that this is separate from carrier capacity). San Francisco's unique coverage issues are due to topography and building heights. The hills and buildings disrupt lines-of-site between WTS base stations. Thus, telecommunication carriers continue to install additional installations to make sure coverage is sufficient.

Capacity: While a carrier may have adequate coverage in a certain area, the capacity may not be sufficient. With the continuous innovations in wireless data technology and demand placed on existing infrastructure, individual telecommunications carriers must upgrade and in some instances expand their facilities network to provide proper data and voice capacity. It is necessary for San Francisco, as a leader in technology, to have adequate capacity.

The Project at 2099 Market Street is necessary in order to achieve sufficient street and in-building mobile phone coverage and data capacity. Recent drive tests in the subject area conducted by the T-Mobile Radio Frequency Engineering Team provide that the Project Site is a preferable location, based on factors including quality of coverage and aesthetics.

B. The proposed project will not be detrimental to the health, safety, convenience or general welfare of persons residing or working in the vicinity. There are no features of the project that could be detrimental to the health, safety or convenience of those residing or working the area, in that:

iii. Nature of proposed site, including its size and shape, and the proposed size, shape and arrangement of structures;

The Project must comply with all applicable Federal and State regulations to safeguard the health, safety and to ensure that persons residing or working in the vicinity will not be affected, and prevent harm to other personal property.

The Department of Public Health conducted an evaluation of potential health effects from Radio Frequency radiation, and has concluded that the proposed wireless transmission facilities will have no adverse health effects if operated in compliance with the FCC-adopted health and safety standards.

iv. The accessibility and traffic patterns for persons and vehicles, the type and volume of such traffic, and the adequacy of proposed off-street parking and loading;

No increase in traffic volume is anticipated with the facilities operating unmanned, with a maintenance crew visiting the Site once a month or on an as-needed basis.

v. The safeguards afforded to prevent noxious or offensive emissions such as noise, glare, dust and odor;

While some noise and dust may result from the installation of the antennas and transceiver equipment, noise or noxious emissions from continued use are not likely to be significantly greater than ambient conditions due to the operation of the wireless communication network.

vi. Treatment given, as appropriate, to such aspects as landscaping, screening, open spaces, parking and loading areas, service areas, lighting and signs;

The facility will not affect landscaping, open space, required parking, lighting or signage at the Project Site or surrounding area.

C. That the use as proposed will comply with the applicable provisions of the Planning Code and will not adversely affect the General Plan.

The Project complies with all relevant requirements and standards of the Planning Code and is consistent with Objectives and Policies of the General Plan, as detailed below.

17. **General Plan Compliance.** The Project is, on balance, consistent with the following Objectives and Policies of the General Plan:

HOUSING ELEMENT
Objectives and Policies

BALANCE HOUSING CONSTRUCTION AND COMMUNITY INFRASTRUCTURE

OBJECTIVE 12:
BALANCE HOUSING GROWTH WITH ADEQUATE INFRASTRUCTURE THAT SERVES THE CITY'S GROWING POPULATION.

Policy 12.3:
Ensure new housing is sustainable supported by the City's public infrastructure systems.

The Project will improve T-Mobile's coverage and capacity within the Castro/Upper Market neighborhood.

COMMERCE AND INDUSTRY ELEMENT

Objectives and Policies

OBJECTIVE 1:
MANAGE ECONOMIC GROWTH AND CHANGE TO ENSURE ENHANCEMENT OF THE TOTAL CITY LIVING AND WORKING ENVIRONMENT.

Policy 1.1:
Encourage development, which provides substantial net benefits and minimizes undesirable consequences. Discourage development, which has substantial undesirable consequences that cannot be mitigated.

Policy 1.2:
Assure that all commercial and industrial uses meet minimum, reasonable performance standards.

The Project will enhance the total city living and working environment by providing communication services for residents and workers within the City. Additionally, the Project would comply with Federal, State and Local performance standards.

OBJECTIVE 2:
MAINTAIN AND ENHANCE A SOUND AND DIVERSE ECONOMIC BASE AND FISCAL STRUCTURE FOR THE CITY.

Policy 2.1:
Seek to retain existing commercial and industrial activity and to attract new such activity to the city.

Policy 2.3:
Maintain a favorable social and cultural climate in the city in order to enhance its attractiveness as a firm location.

The Site will be an integral part of a new wireless communications network that will enhance the City's diverse economic base.

OBJECTIVE 4:
IMPROVE THE VIABILITY OF EXISTING INDUSTRY IN THE CITY AND THE ATTRACTIVENESS OF THE CITY AS A LOCATION FOR NEW INDUSTRY.

Policy 4.1:
Maintain and enhance a favorable business climate in the City.

Policy 4.2:
Promote and attract those economic activities with potential benefit to the City.

The Project will benefit the City by enhancing the business climate through improved communication services for residents and workers.

VISITOR TRADE

OBJECTIVE 8:
ENHANCE SAN FRANCISCO'S POSITION AS A NATIONAL CENTER FOR CONVENTIONS AND VISITOR TRADE.

Policy 8.3:
Assure that areas of particular visitor attraction are provided with adequate public services for both residents and visitors.

The Project will ensure that residents and visitors have adequate public service in the form of T-Mobile telecommunications.

COMMUNITY SAFETY ELEMENT
Objectives and Policies

OBJECTIVE 3:
ESTABLISH STRATEGIES TO ADDRESS THE IMMEDIATE EFFECTS OF A DISASTER.

Policy 1.20
Increase communication capabilities in preparation for all phases of a disaster and ensure communication abilities extend to hard-to-reach areas and special populations.

Policy 2.4
Bolster the Department of Emergency Management's role as the City's provider of emergency planning and communication, and prioritize its actions to meet the needs of San Francisco.

Policy 2.15
Utilize advancing technology to enhance communication capabilities in preparation for all phases of a disaster, particularly in the high-contact period immediately following a disaster.

Policy 3.7:
Develop a system to convey personalized information during and immediately after a disaster.

The Project will enhance the ability of the City to protect both life and property from the effects of a fire or natural disaster by providing communication services.

18. **Planning Code Section 101.1(b)** establishes eight priority-planning policies and requires review of permits for consistency with said policies. On balance, the Project complies with said policies in that:

A. That existing neighborhood-serving retail uses be preserved and enhanced and future opportunities for resident employment in and ownership of such businesses be enhanced.

The wireless communications network will enhance personal communication services for businesses and customers in the surrounding area.

B. That existing housing and neighborhood character be conserved and protected in order to preserve the cultural and economic diversity of our neighborhoods.

No residential uses will be displaced or altered in any way by the granting of this Authorization.

C. That the City's supply of affordable housing be preserved and enhanced.

The Project will have no adverse effect on housing in the vicinity.

D. That commuter traffic not impede MUNI transit service or overburden our streets or neighborhood parking.

Due to the nature of the Project and minimal maintenance or repair, municipal transit service will not be significantly impeded and neighborhood parking will not be overburdened.

E. That a diverse economic base be maintained by protecting our industrial and service sectors from displacement due to commercial office development, and that future opportunities for resident employment and ownership in these sectors be enhanced.

The Project will not cause any displacement of industrial and service sector activity.

F. That the City achieve the greatest possible preparedness to protect against injury and loss of life in an earthquake.

Compliance with applicable structural safety and seismic safety requirements will be considered during the building permit application review process.

G. That landmarks and historic buildings be preserved.

The facility will be screened from view by virtue of equipment placement on the rooftop. While the proposed FRP radomes are minimally visible from surrounding public rights-of-way (e.g. sidewalks along surrounding streets), the size, height, and setback of the screening structures will not significantly detract from views of the subject building.

Furthermore, the proposed WTS facility has been found to be consistent with the intent and requirements outlined in Historic Preservation Commission Motion No. 0289 and Resolution

No. 764, and the project was determined to be in conformance with the Secretary of the Interior's Standards for Rehabilitation.

H. That our parks and open space and their access to sunlight and vistas be protected from development.

The Project will not adversely affect parks or open space, nor their access to sunlight or public vistas.

19. The Project is consistent with and would promote the general and specific purposes of the Code provided under Section 101.1(b) in that, as designed, the Project would contribute to the character and stability of the neighborhood and would constitute a beneficial development.

20. The Commission hereby finds that approval of the Conditional Use Authorization would promote the health, safety and welfare of the City.

DECISION

That based upon the Record, the submissions by the Applicant, the staff of the Department and other interested parties, the oral testimony presented to this Commission at the public hearings, and all other written materials submitted by all parties, the Commission hereby APPROVES Conditional Use Application No. **2017-005841CUA**, subject to the following conditions attached hereto as "EXHIBIT A" in general conformance with plans on file, dated October 31, 2017, and stamped "EXHIBIT B", which is incorporated herein by reference as though fully set forth.

APPEAL AND EFFECTIVE DATE OF MOTION: Any aggrieved person may appeal this Conditional Use Authorization to the Board of Supervisors within thirty (30) days after the date of this Motion No. XXXX. The effective date of this Motion shall be the date of this Motion if not appealed (After the 30-day period has expired) OR the date of the decision of the Board of Supervisors if appealed to the Board of Supervisors. For further information, please contact the Board of Supervisors at (415) 554-5184, City Hall, Room 244, 1 Dr. Carlton B. Goodlett Place, San Francisco, CA 94102.

Protest of Fee or Exaction: You may protest any fee or exaction subject to Government Code Section 66000 that is imposed as a condition of approval by following the procedures set forth in Government Code Section 66020. The protest must satisfy the requirements of Government Code Section 66020(a) and must be filed within 90 days of the date of the first approval or conditional approval of the development referencing the challenged fee or exaction. For purposes of Government Code Section 66020, the date of imposition of the fee shall be the date of the earliest discretionary approval by the City of the subject development.

If the City has not previously given Notice of an earlier discretionary approval of the project, the Planning Commission's adoption of this Motion, Resolution, Discretionary Review Action or the Zoning Administrator's Variance Decision Letter constitutes the approval or conditional approval of the development and the City hereby gives NOTICE that the 90-day protest period under Government Code Section 66020 has begun. If the City has already given Notice that the 90-day approval period has begun for the subject development, then this document does not re-commence the 90-day approval period.

I hereby certify that the foregoing Motion was adopted by the Planning Commission on **March 8, 2018**.

Jonas P. Ionin
Commission Secretary

AYES:

NAYS:

ABSENT:

ADOPTED:

EXHIBIT A

AUTHORIZATION

This authorization is for a Conditional Use to modify an existing T-Mobile Macro Wireless Telecommunications Facility consisting of the removal of two (2) omni antennas; installation of three (3) new panel antennas within three (3) new 18-inch diameter FRP radomes; installation of six (6) new TMAs adjacent to antennas but not visible from public views; installation of three (3) new RRUs; and installation and removal of ancillary equipment. The first FRP radome will be setback 7-5" from the northwest facing building edge and will house one (1) antenna. The second FRP radome will be setback 7'-5" from the west facing building edge and will house one (1) antenna. The third FRP radome will be setback 7'-5" from the southeast facing building edge and will house one (1) antenna. All three (3) FRP radomes will be located approximately 6' above roof level as to match the height of the existing rooftop water heater panels. (1) RRU and (2) TMAs will be located at each of the three (3) antenna locations as part of the T-Mobile Telecommunications Network at 2099 Market Street, Block 3544, Lot 065, pursuant to Planning Code Sections 303(c) and 764 within the NCT (Upper Market Neighborhood Commercial Transit District), and the 40-X and 50/55x Height and Bulk Districts; in general conformance with plans dated October 31, 3017 and stamped

"EXHIBIT B" included in the docket for Record No. 2017-005841CUA and subject to conditions of approval reviewed and approved by the Commission on March 8, 2018, under Motion No. **XXXX**. This authorization and the conditions contained herein run with the property and not with a particular Project Sponsor, business, or operator.

RECORDATION OF CONDITIONS OF APPROVAL

Prior to the issuance of the building permit or commencement of use for the Project, the Zoning Administrator shall approve and order the recordation of a Notice in the Official Records of the Recorder of the City and County of San Francisco for the subject property. This Notice shall state that the Project is subject to the conditions of approval contained herein and reviewed and approved by the Planning Commission on **March 8, 2018** under Motion No. **XXXX**.

PRINTING OF CONDITIONS OF APPROVAL ON PLANS

The conditions of approval under the 'Exhibit A' of this Planning Commission Motion No. **XXXX** shall be reproduced on the Index Sheet of construction plans submitted with the Site or Building permit application for the Project. The Index Sheet of the construction plans shall reference to the Conditional Use Authorization and any subsequent amendments or modifications.

SEVERABILITY

The Project shall comply with all applicable City codes and requirements. If any clause, sentence, section or any part of these conditions of approval is for any reason held to be invalid, such invalidity shall not affect or impair other remaining clauses, sentences, or sections of these conditions. This decision conveys no right to construct, or to receive a building permit. "Project Sponsor" shall include any subsequent responsible party.

CHANGES AND MODIFICATIONS

Changes to the approved plans may be approved administratively by the Zoning Administrator. Significant changes and modifications of conditions shall require Planning Commission approval of a new Conditional Use Authorization.

Conditions of Approval, Compliance, Monitoring, and Reporting

PERFORMANCE

1. **Validity.** The authorization and right vested by virtue of this action is valid for three (3) years from the effective date of the Motion. The Department of Building Inspection shall have issued a Building Permit or Site Permit to construct the project and/or commence the approved use within this three-year period.
   For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

2. **Expiration and Renewal.** Should a Building or Site Permit be sought after the three (3) year period has lapsed, the project sponsor must seek a renewal of this Authorization by filing an application for an amendment to the original Authorization or a new application for Authorization. Should the project sponsor decline to so file, and decline to withdraw the permit application, the Commission shall conduct a public hearing in order to consider the revocation of the Authorization. Should the Commission not revoke the Authorization following the closure of the public hearing, the Commission shall determine the extension of time for the continued validity of the Authorization.
   For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

3. **10-Year Renewal.** This authorization is valid for ten (10) years from date of approval. The project sponsor must seek a renewal of this Authorization prior to expiration, but no earlier than 24 months prior to expiration, by filing an application for an amendment to the original Authorization or a new application for Authorization. Should the project sponsor decline to so file, and decline to decommission the wireless facility, the Commission shall conduct a public hearing in order to consider the revocation of the Authorization. Should the Commission not revoke the Authorization following the closure of the public hearing, the Commission shall determine the extension of time for the continued validity of the Authorization.
   For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

4. **Diligent pursuit.** Once a site or Building Permit has been issued, construction must commence within the timeframe required by the Department of Building Inspection and be continued diligently to completion. Failure to do so shall be grounds for the Commission to consider revoking the approval if more than three (3) years have passed since this Authorization was approved.

For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

5. **Extension.** All time limits in the preceding three paragraphs may be extended at the discretion of the Zoning Administrator where implementation of the project is delayed by a public agency, an appeal or a legal challenge and only by the length of time for which such public agency, appeal or challenge has caused delay.
   For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

6. **Conformity with Current Law.** No application for Building Permit, Site Permit, or other entitlement shall be approved unless it complies with all applicable provisions of City Codes in effect at the time of such approval.
   For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

DESIGN – COMPLIANCE AT PLAN STAGE

7. **Plan Drawings - WTS**. Prior to the issuance of any building or electrical permits for the installation of the facilities, the Project Sponsor shall submit final scaled drawings for review and approval by the Planning Department ("Plan Drawings"). The Plan Drawings shall describe:
   a. Structure and Siting. Identify all facility related support and protection measures to be installed. This includes, but is not limited to, the location(s) and method(s) of placement, support, protection, screening, paint and/or other treatments of the antennas and other appurtenances to insure public safety, insure compatibility with urban design, architectural and historic preservation principles, and harmony with neighborhood character.
   b. For the Project Site, regardless of the ownership of the existing facilities. Identify the location of all existing antennas and facilities; and identify the location of all approved (but not installed) antennas and facilities.
   c. Emissions. Provide a report, subject to approval of the Zoning Administrator, that operation of the facilities in addition to ambient RF emission levels will not exceed adopted FCC standards with regard to human exposure in uncontrolled areas.
      For information about compliance, contact the Case Planner, Planning Department at 415-575-9078, www.sf-planning.org.

8. **Screening - WTS.** To the extent necessary to ensure compliance with adopted FCC regulations regarding human exposure to RF emissions, and upon the recommendation of the Zoning Administrator, the Project Sponsor shall:
   a. Modify the placement of the facilities;
   b. Install fencing, barriers or other appropriate structures or devices to restrict access to the facilities;
   c. Install multi-lingual signage, including the RF radiation hazard warning symbol identified in ANSI C95.2 1982, to notify persons that the facility could cause exposure to RF emissions;

d. Implement any other practice reasonably necessary to ensure that the facility is operated in compliance with adopted FCC RF emission standards.
e. To the extent necessary to minimize visual obtrusion and clutter, installations shall conform to the following standards:
    a. Antennas and back up equipment shall be painted, fenced, landscaped or otherwise treated architecturally so as to minimize visual effects;
    b. Rooftop installations shall be setback such that back up facilities are not viewed from the street;
    c. Although co location of various companies' facilities may be desirable, a maximum number of antennas and back up facilities on the Project Site shall be established, on a case by case basis, such that "antennae farms" or similar visual intrusions for the site and area is not created.

For information about compliance, contact the Case Planner, Planning Department at 415-575-9078, www.sf-planning.org .

MONITORING - AFTER ENTITLEMENT

9. **Enforcement.** Violation of any of the Planning Department conditions of approval contained in this Motion or of any other provisions of Planning Code applicable to this Project shall be subject to the enforcement procedures and administrative penalties set forth under Planning Code Section 176 or Section 176.1. The Planning Department may also refer the violation complaints to other city departments and agencies for appropriate enforcement action under their jurisdiction.
For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

10. **Revocation due to Violation of Conditions.** Should implementation of this Project result in complaints from interested property owners, residents, or commercial lessees which are not resolved by the Project Sponsor and found to be in violation of the Planning Code and/or the specific Conditions of Approval for the Project as set forth in Exhibit A of this Motion, the Zoning Administrator shall refer such complaints to the Commission, after which it may hold a public hearing on the matter to consider revocation of this authorization.
For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org.

11. **Implementation Costs - WTS**. The Project Sponsor, on an equitable basis with other WTS providers, shall pay the cost of preparing and adopting appropriate General Plan policies related to the placement of WTS facilities. Should future legislation be enacted to provide for cost recovery for planning, the Project Sponsor shall be bound by such legislation.

    The Project Sponsor or its successors shall be responsible for the payment of all reasonable costs associated with implementation of the conditions of approval contained in this authorization, including costs incurred by this Department, the Department of Public Health, the Department of Technology, Office of the City Attorney, or any other appropriate City Department or agency. The Planning Department shall collect such costs on behalf of the City.

The Project Sponsor shall be responsible for the payment of all fees associated with the installation of the subject facility, which are assessed by the City pursuant to all applicable law.

For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

12. **Implementation and Monitoring - WTS**. In the event that the Project implementation report includes a finding that RF emissions for the site exceed FCC Standards in any uncontrolled location, the Zoning Administrator may require the Applicant to immediately cease and desist operation of the facility until such time that the violation is corrected to the satisfaction of the Zoning Administrator.

    For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

13. **Project Implementation Report - WTS**. The Project Sponsor shall prepare and submit to the Zoning Administrator a Project Implementation Report. The Project Implementation Report shall:
    a. Identify the three dimensional perimeter closest to the facility at which adopted FCC standards for human exposure to RF emissions in uncontrolled areas are satisfied;
    b. Document testing that demonstrates that the facility will not cause any potential exposure to RF emissions that exceed adopted FCC emission standards for human exposure in uncontrolled areas.
    c. The Project Implementation Report shall compare test results for each test point with applicable FCC standards. Testing shall be conducted in compliance with FCC regulations governing the measurement of RF emissions and shall be conducted during normal business hours on a non-holiday weekday with the subject equipment measured while operating at maximum power.
    d. Testing, Monitoring, and Preparation. The Project Implementation Report shall be prepared by a certified professional engineer or other technical expert approved by the Department. At the sole option of the Department, the Department (or its agents) may monitor the performance of testing required for preparation of the Project Implementation Report. The cost of such monitoring shall be borne by the Project Sponsor pursuant to the condition related to the payment of the City's reasonable costs.
    e. Notification and Testing. The Project Implementation Report shall set forth the testing and measurements undertaken pursuant to Conditions 2 and 4.
    f. Approval. The Zoning Administrator shall request that the Certification of Final Completion for operation of the facility not be issued by the Department of Building Inspection until such time that the Project Implementation Report is approved by the Department for compliance with these conditions.

    For information about compliance, contact the Environmental Health Section, Department of Public Health at (415) 252-3800, www.sfdph.org.

14. **Coverage and Capacity Verification.** Use is authorized as long as an independent evaluator, selected by the Planning Department, determines that the information and conclusions submitted by the wireless service provider in support of its request for conditional use are

accurate. The wireless service provider shall fully cooperate with the evaluator and shall provide any and all data requested by the evaluator to allow the evaluator to verify that the maps, data, and conclusions about service coverage and capacity submitted are accurate. The wireless service provider shall bear all costs of said evaluation. The independent evaluator, upon request by the wireless service provider shall keep the submitted data confidential and shall sign a confidentiality agreement acceptable to the wireless service provider. The independent evaluator shall be a professional engineer licensed by the State of California.
For information about compliance, contact the Case Planner, Planning Department at 415-575-9079, www.sf-planning.org .

15. **Notification prior to Project Implementation Report - WTS.** The Project Sponsor shall undertake appropriate tests for residents of any dwelling units located within 25 feet of the transmitting antenna.
    a. At least twenty calendar days prior to conducting the testing required for preparation of the Project Implementation Report, the Project Sponsor shall mail notice to the Department, as well as to the resident of any legal dwelling unit within 25 feet of a transmitting antenna of the date on which testing will be conducted. The Applicant will submit a written affidavit attesting to this mail notice along with the mailing list.
    b. When requested in advance by a resident notified of testing pursuant to subsection (a), the Project Sponsor shall conduct testing of total power density of RF emissions within the residence of that resident on the date on which the testing is conducted for the Project Implementation Report.

    For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

16. **Installation - WTS.** Within 10 days of the installation and operation of the facilities, the Project Sponsor shall confirm in writing to the Zoning Administrator that the facilities are being maintained and operated in compliance with applicable Building, Electrical and other Code requirements, as well as applicable FCC emissions standards.
    For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

17. **Periodic Safety Monitoring - WTS.** The Project Sponsor shall submit to the Zoning Administrator 10 days after installation of the facilities, and every two years thereafter, a certification attested to by a licensed engineer expert in the field of EMR/RF emissions, that the facilities are and have been operated within the then current applicable FCC standards for RF/EMF emissions.
    For information about compliance, contact the Environmental Health Section, Department of Public Health at (415) 252-3800, www.sfdph.org.

OPERATION

18. **Community Liaison.** Prior to issuance of a building permit application to construct the project and implement the approved use, the Project Sponsor shall appoint a community liaison officer to deal with the issues of concern to owners and occupants of nearby properties. The Project Sponsor shall provide the Zoning Administrator written notice of the

name, business address, and telephone number of the community liaison. Should the contact information change, the Zoning Administrator shall be made aware of such change. The community liaison shall report to the Zoning Administrator what issues, if any, are of concern to the community and what issues have not been resolved by the Project Sponsor.
For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

19. **Out of Service – WTS**. The Project Sponsor or Property Owner shall remove antennas and equipment that has been out of service or otherwise abandoned for a continuous period of six (6) months.
For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

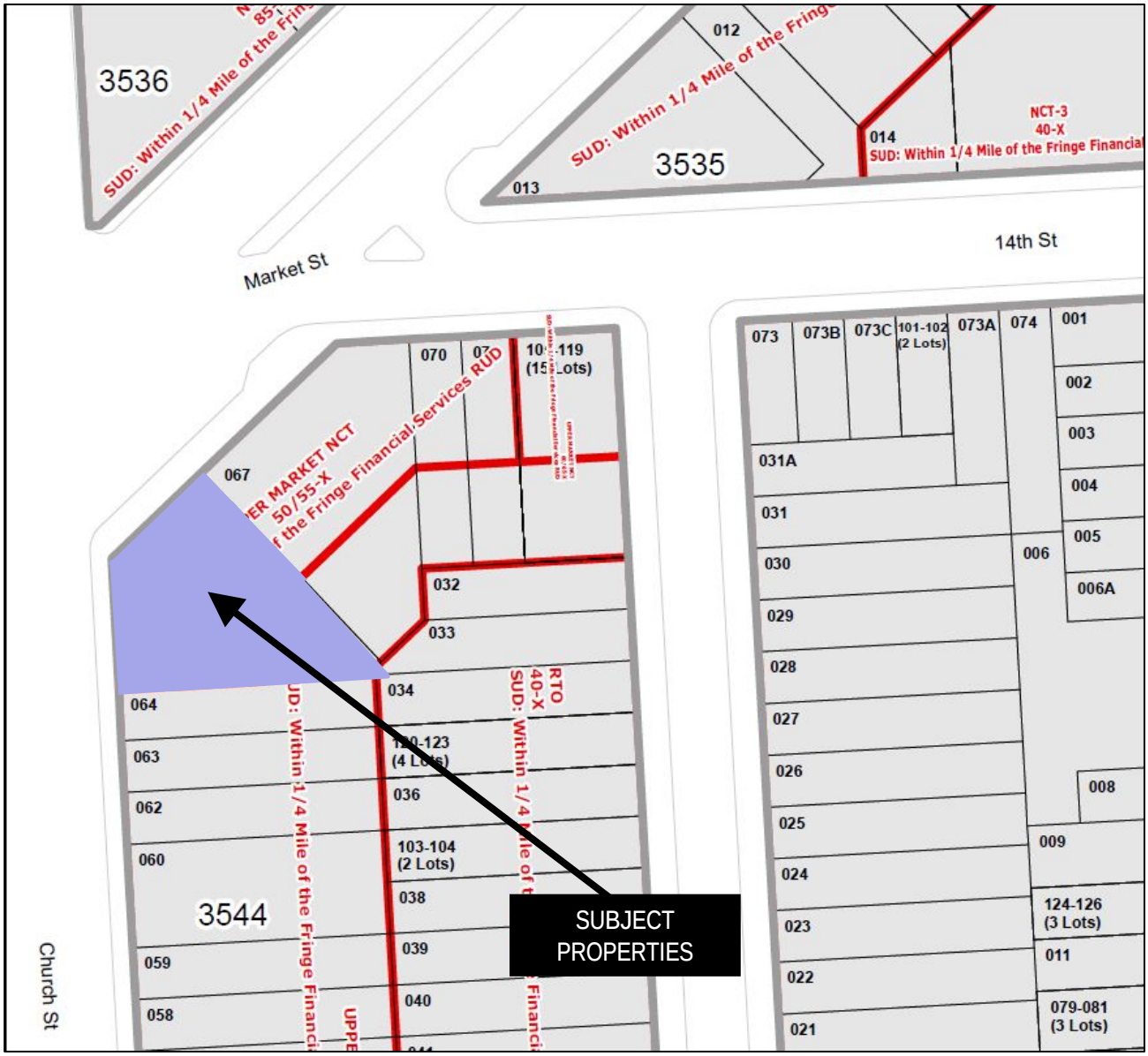
20. **Emissions Conditions – WTS**. It is a continuing condition of this authorization that the facilities be operated in such a manner so as not to contribute to ambient RF/EMF emissions in excess of then current FCC adopted RF/EMF emission standards; violation of this condition shall be grounds for revocation.
For information about compliance, contact the Environmental Health Section, Department of Public Health at (415) 252-3800, www.sfdph.org.

21. **Noise and Heat – WTS**. The WTS facility, including power source and cooling facility, shall be operated at all times within the limits of the San Francisco Noise Control Ordinance. The WTS facility, including power source and any heating/cooling facility, shall not be operated so as to cause the generation of heat that adversely affects a building occupant.
For information about compliance, contact the Environmental Health Section, Department of Public Health at (415) 252-3800, www.sfdph.org.

22. **Transfer of Operation – WTS**. Any carrier/provider authorized by the Zoning Administrator or by the Planning Commission to operate a specific WTS installation may assign the operation of the facility to another carrier licensed by the FCC for that radio frequency provided that such transfer is made known to the Zoning Administrator in advance of such operation, and all conditions of approval for the subject installation are carried out by the new carrier/provider.
For information about compliance, contact Code Enforcement, Planning Department at 415-575-6863, www.sf-planning.org

23. **Compatibility with City Emergency Services – WTS**. The facility shall not be operated or caused to transmit on or adjacent to any radio frequencies licensed to the City for emergency telecommunication services such that the City's emergency telecommunications system experiences interference, unless prior approval for such has been granted in writing by the City.
For information about compliance, contact the Department of Technology, 415-581-4000, http://sfgov3.org/index.aspx?page=1421

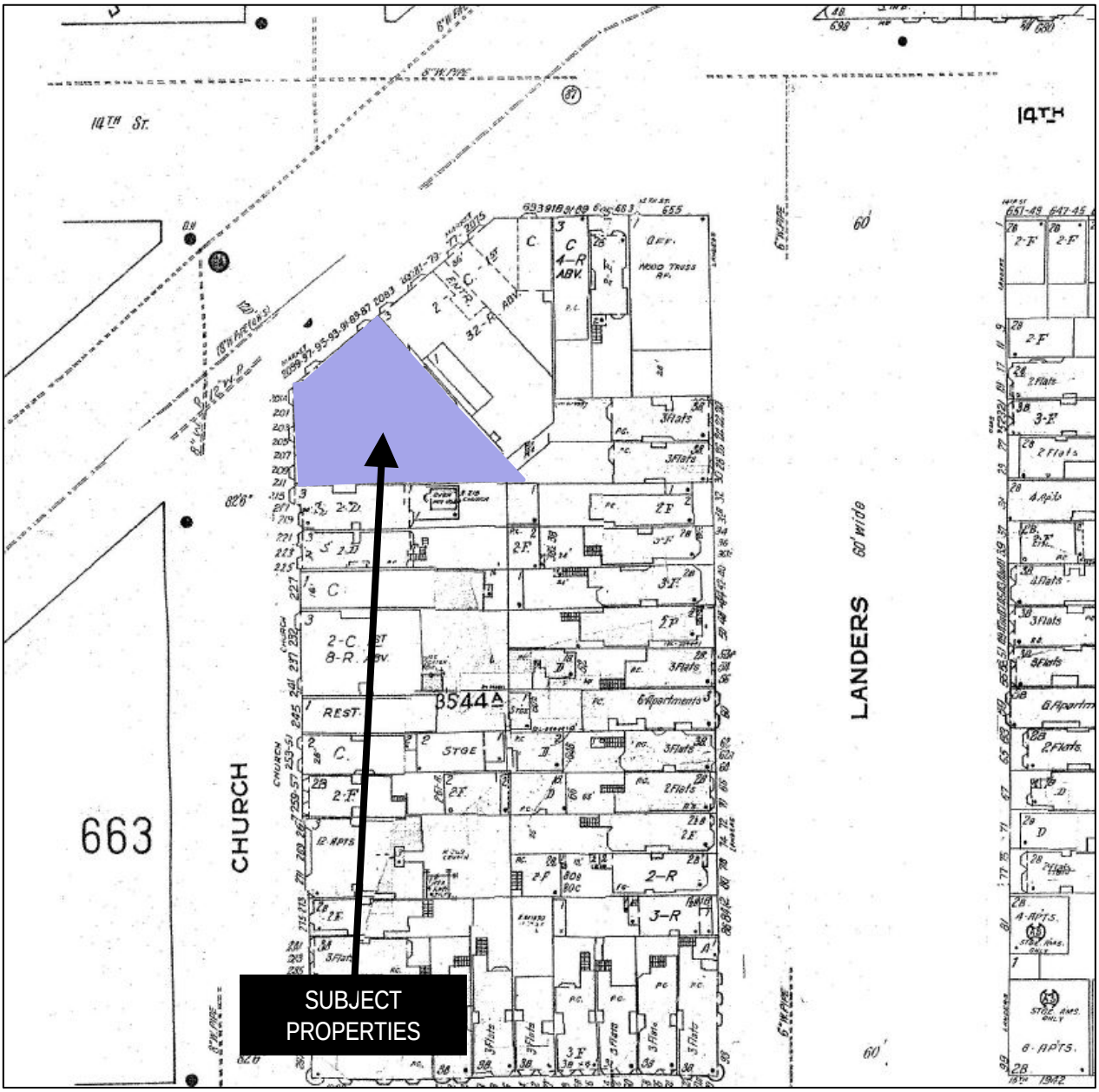
Block Book Map



Case Number 2017-005841CUA
T-Mobile
Macro WTS Facility
2099 Market Street

SAN FRANCISCO
PLANNING DEPARTMENT

Sanborn Map*



**The Sanborn Maps in San Francisco have not been updated since 1998, and this map may not accurately reflect existing conditions.*

Case Number 2017-005841CUA
T-Mobile
Macro WTS Facility
2099 Market Street

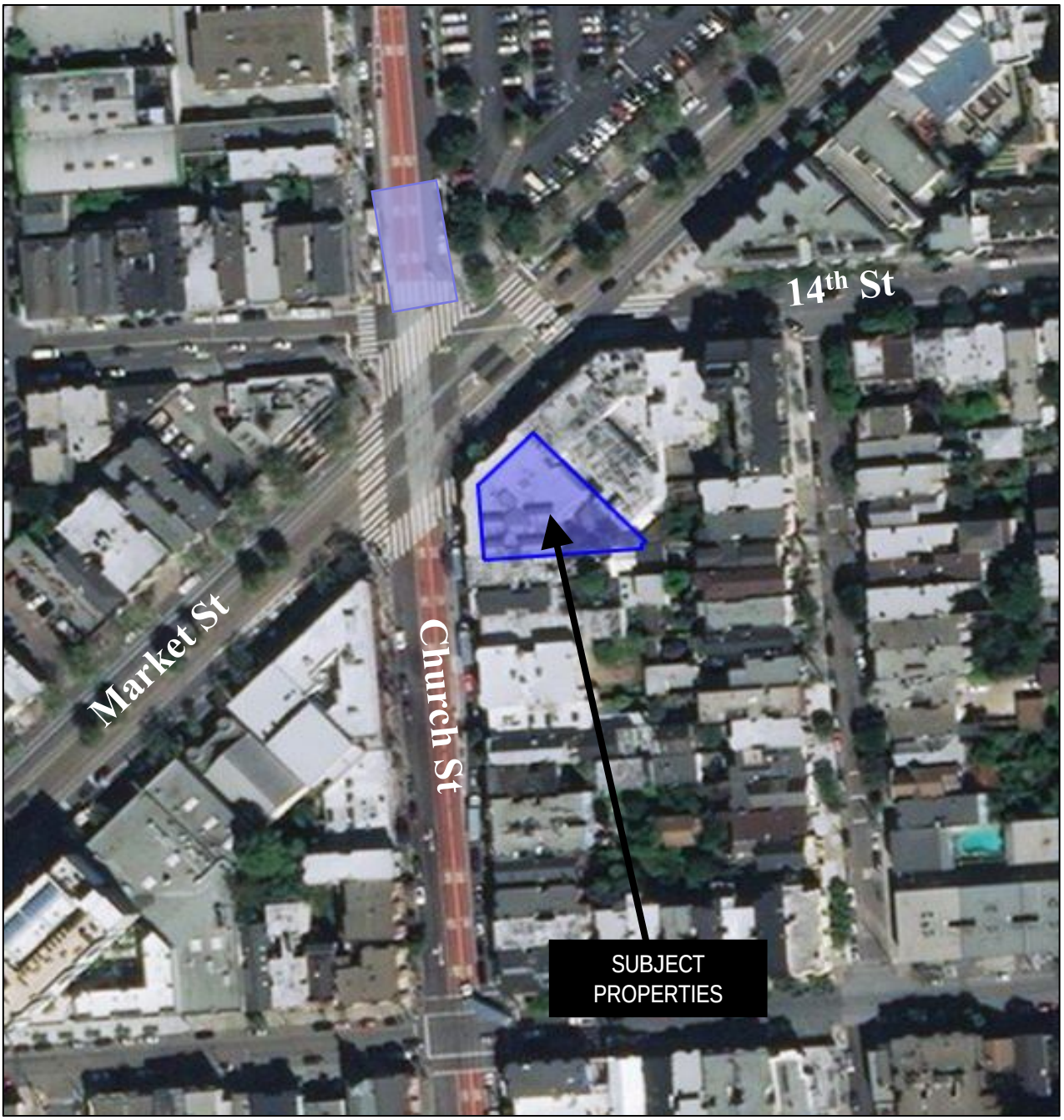
SAN FRANCISCO
PLANNING DEPARTMENT

Zoning Map

Case Number 2017-005841CUA
T-Mobile
Macro WTS Facility
2099 Market Street

SAN FRANCISCO
PLANNING DEPARTMENT

Aerial Photo



Case Number 2017-005841CUA
T-Mobile
Macro WTS Facility
2099 Market Street

SAN FRANCISCO
PLANNING DEPARTMENT

T··Mobile·®

SITE NUMBER: SF03252A
SITE NAME: LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
COUNTY: SAN FRANCISCO

ENGINEERING

2016 CALIFORNIA BUILDING CODE
2016 CALIFORNIA ELECTRICAL CODE
2015 INTERNATIONAL BUILDING CODE
2014 NATIONAL ELECTRICAL CODE
TIA/EIA-222-G-2 (2009) OR LATEST EDITION
LOCAL BUILDING/PLANNING CODE

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

SITE INFORMATION

PROPERTY OWNER:	LEMBI FAMILY REVOCABLE TRUST
ADDRESS:	2101 MARKET ST. SAN FRANCISCO, CA 94114
APPLICANT:	T-MOBILE USA
ADDRESS:	1855 GATEWAY BOULEVARD, STE. 900 CONCORD, CA 94520
LATITUDE:	37° 46' 2.49" N (37.767358)
LONGITUDE:	122° 25' 43.24" W (-122.428678)
LAT/LONG TYPE:	NAD 83
GROUND ELEVATION:	±145.0' AMSL
APN #:	3544-065
ZONING JURISDICTION:	SAN FRANCISCO COUNTY
CURRENT ZONING:	UPPER MARKET-NCT
PROPOSED USE:	UNMANNED TELECOMMUNICATIONS FACILITY
TELEPHONE:	AT¢T
POWER:	PG¢E

PROJECT TEAM

SITE ACQUISITION MANAGER:
MODUS, INC.
240 STOCKTON ST. 3RD FLOOR
SAN FRANCISCO, CA 94108
CONTACT: NICK VOTAW
PHONE: (415) 622-8706
EMAIL: nvotaw@modus-corp.com

CONSTRUCTION MANAGER:
T-MOBILE USA
1855 GATEWAY BLVD, 9TH FLOOR
CONCORD, CA 84520
CONTACT: JASON KEY
PHONE: (916) 801-4924
EMAIL: Jason.Key5@T-Mobile.com

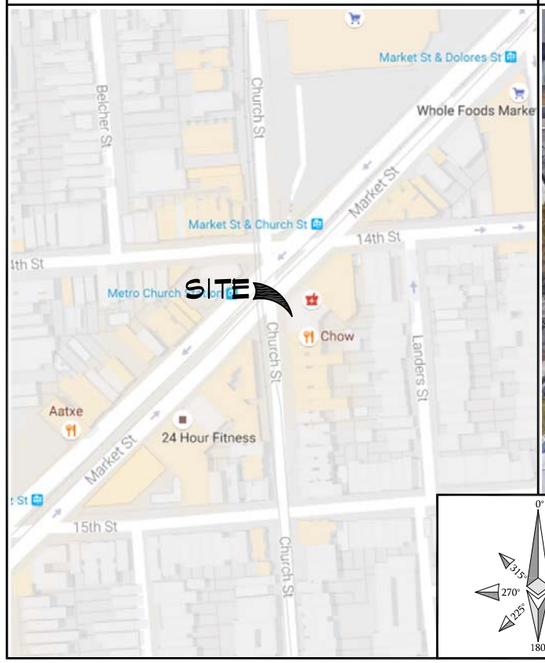
RF ENGINEER:
T-MOBILE USA
SAN FRANCISCO /
SACRAMENTO MARKETS
CONTACT: JOE SALUTA
EMAIL: Joe.Saluta@T-Mobile.com

ENGINEER:
ZALZALI & ASSOCIATES INC.
dba ALL STATES ENGINEERING & SURVEYING
23675 BIRTCHER DR.
LAKE FOREST, CA 92630
OFFICE: (949) 273-0996
PRINCIPAL: WISSAM ZALZALI (C-71655)
CELL: (949) 609-9559
PM: ROGER FLORES
CELL: (562) 841-1264
EMAIL: roger@zalzali.com

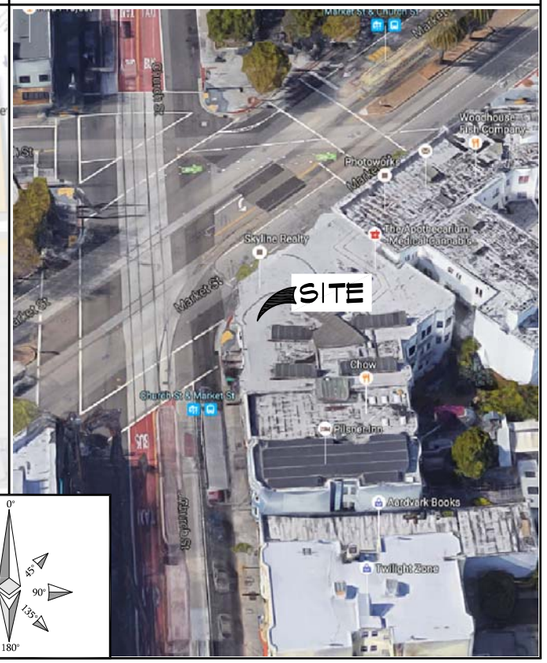
LAND USE PLANNER:
MODUS, INC.
240 STOCKTON ST. 3RD FLOOR
SAN FRANCISCO, CA 94108
CONTACT: LAUREL FERGUSON
PHONE: (916) 342-0298
EMAIL: lferguson@modus-corp.com

LOCATION MAPS

VICINITY MAP



LOCAL MAP



DRIVING DIRECTIONS

DIRECTIONS FROM T-MOBILE OFFICE IN CONCORD:

START OUT GOING SOUTHEAST ON GATEWAY BLVD. TAKE THE 1ST RIGHT ONTO CLAYTON RD. MERGE ONTO CA-242 S TOWARD OAKLAND. MERGE ONTO I-680 S VIA THE EXIT ON THE LEFT. MERGE ONTO CA-24 W VIA EXIT 46 TOWARD OAKLAND/LAFAYETTE. MERGE ONTO I-580 W VIA EXIT 2B. MERGE ONTO I-80 W VIA EXIT 19A ON THE LEFT (PORTIONS TOLL). 434A, TOWARD G G BR. KEEP LEFT TO TAKE THE DUBOCE AVE RAMP. KEEP LEFT TO TAKE THE DUBOCE AVE RAMP. KEEP STRAIGHT TO TAKE THE DUBOCE AVE RAMP. MERGE ONTO DUBOCE AVE. TURN SLIGHT LEFT ONTO MARKET ST. MAKE A U-TURN AT CHURCH ST ONTO MARKET ST.

*2099 MARKET ST IS ON THE RIGHT.

EXHIBIT
B

RFDS VERSION 12 DATE: 04/12/2016

CONSTRUCTION DRAWINGS

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

PROJECT DESCRIPTION

T-MOBILE WIRELESS PROPOSES TO MODIFY AN EXISTING WIRELESS COMMUNICATION SITE ON A BUILDING. THE SCOPE WILL CONSIST OF THE FOLLOWING:

- REMOVE (1) EXISTING EQUIPMENT CABINET
- REPLACE EXISTING PBC6500 POWER CABINET W/ NEW PBC6200 BATTERY/POWER CABINET
- REMOVE (2) EXISTING OMNI ANTENNAS
- INSTALL NEW 18"W. CABLE TRAY ALONG ROOFTOP
- INSTALL (3) NEW 18"Φ RADOMES (BY OTHERS)
- INSTALL (3) NEW 4'-0" PANEL ANTENNAS WITHIN NEW ROOF MOUNTED RADOMES
- REPLACE EXISTING DUL20 W/ NEW DUS41 MAIN UNIT WITHIN (E) EQUIPMENT CABINET
- REMOVE (2) EXISTING TMA'S
- INSTALL (6) NEW TMAs MOUNTED ADJACENT TO NEW PANEL ANTENNAS
- INSTALL (3) NEW RRUS-11 B12s MOUNTED ADJACENT TO EXISTING EQUIPMENT CABINETS
- INSTALL (3) NEW AWS/700 DIPLEXERS MOUNTED NEAR EQUIPMENT CABINETS
- RE-USE EXISTING COAX CABLE RUNS & ADD (6) NEW 1-5/8"Φ RUNS OF COAX

DRAWING INDEX

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS & AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT & MAY IMPOSE CHANGES OR MODIFICATIONS.

T-MOBILE RF ENGINEER: _____ DATE: _____
T-MOBILE OPERATIONS: _____ DATE: _____
SITE ACQUISITION: _____ DATE: _____
CONSTRUCTION MANAGER: _____ DATE: _____
PROPERTY OWNER: _____ DATE: _____
ZONING: _____ DATE: _____
PROJECT MANAGER: _____ DATE: _____

DO NOT SCALE DRAWINGS

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

811 Dig Alert
Know what's below. Call before you dig.
California
Call Two Working Days Before You Dig!
811 / 800-227-2600

T··Mobile·
1855 GATEWAY BLVD., 9th FLOOR
CONCORD, CA 94520

MODUS
240 STOCKTON ST., 3RD FLOOR
SAN FRANCISCO, CA 94108

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT NO:	SF03252A
DRAWN BY:	NB
CHECKED BY:	KM

REV	DATE	DESCRIPTION	
1	10/31/2017	REVISED SETBACK	RF
0	10/10/2017	100% CD'S FOR SUBMITTAL	RF
C	07/25/2017	100% CD'S FOR APPROVAL	KM
B	09/15/2016	100% CD'S FOR REVIEW	RF
A	07/25/2016	90% CD'S FOR REDLINE	NB/KM

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

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.

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

PENDING EMF REPORT

T-Mobile
1855 GATEWAY BLVD., 9th FLOOR
CONCORD, CA 94520

MODUL
240 STOCKTON ST., 3RD FLOOR
SAN FRANCISCO, CA 94108

ALL STATES
ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT NO:	SF03252A
DRAWN BY:	NB
CHECKED BY:	KM

REV	DATE	DESCRIPTION	
I	10/31/2017	REVISED SETBACK	RF
O	10/10/2017	100% CD'S FOR SUBMITTAL	RF
C	07/25/2017	100% CD'S FOR APPROVAL	KM
B	09/15/2016	100% CD'S FOR REVIEW	RF
A	07/25/2016	90% CD'S FOR REDLINE	NB/KM

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE

EMF REPORT

SHEET NUMBER

T-2

2.06 SUBMITTAL REQUIREMENTS FOR CELLULAR ANTENNA SITES

REFERENCE: 2010 SFBC, 2010 SFFC, 2010 SFMC AND FCC OET BULLETIN 65 (97-01)

1. PROVIDE A DESCRIPTION OF WORK ON THE PLANS.
   - **PROVIDED. PLEASE SEE SHEET T-1 PROJECT DESCRIPTION.**

2. PLANS SHALL INCLUDE PLAN VIEWS AND ELEVATIONS SHOWING ALL EQUIPMENT LOCATIONS AND CABLE RUNS.
   - **PROVIDED. PLEASE SEE SHEETS A-1, A-2, A-3, A-4, A-5 AND A-6.**

3. PLANS SHALL INCLUDE ANTENNA CUT-SHEETS AND EQUIPMENT LIST ON A DRAWING SHEET.
   - **PROVIDED. PLEASE SEE SHEET D-2.**

4. INCLUDE A COPY OF THE SIGNED AND STAMPED RF REPORT ON A DRAWING SHEET AS A REFERENCE TO IDENTIFY THE EXCLUSION AREA REQUIRED TO PREVENT OCCUPATIONAL EXPOSURES IN EXCESS OF THE FCC GUIDELINES (47CFR1.1310 AND FCC OET BULLETIN 65 EDITION 97-01).
   - **PROVIDED. PLEASE SEE SHEET T-2 RF REPORT.**

5. THE RF REPORT SHALL INDICATE WHETHER OR NOT THE SITE UNDER REVIEW IS A PART OF A MULTIPLE TRANSMITTER SITE AND SHALL SHOW COMPLIANCE WITH FCC 47CFR1.1307(B)(3), AS AMENDED - ALL TRANSMITTERS SHALL NOT EXCEED 5% OF THE POWER DENSITY EXPOSURE LIMIT.
   - **PLEASE SEE SHEET T-2 RF REPORT.**

6. DRAWINGS SHALL REFLECT THE STRIPED/EXCLUSION AREAS FOR WORKERS PER THE ABOVE RF REPORT WITH A MINIMUM RADIUS OF 1 FOOT.
   - **PROPOSED PROJECT ENTAILS REPLACEMENT OF EXISTING ROOF MOUNTED ANTENNAS.**

7. PLANS SHALL INCLUDE A QUANTITATIVE THREE-DIMENSIONAL IMAGE OF THE RF LEVELS FROM EACH ANTENNA LOCATED NEAR AN EGRESS POINT (E.G. PENTHOUSE STAIR; FIRE ESCAPE, ROOF WALKING PATHS; SKYLIGHTS, ETC.).
   - **PLEASE SEE RF REPORT ON SHEET2 T-2**

8. "NOTICE TO WORKERS" WARNING SIGNAGE, AS APPLICABLE PER THE ABOVE RF REPORT, SHALL BE PERMANENTLY MOUNTED AT THE STAIRWELL SIDE OF THE ROOF-ACCESS DOOR (ANSI C95.2-1982 (REFERENCE [3]) -YELLOW OR MORE DURABLE COLOR FOR OUTDOOR LONGEVITY)
   - **RF WARNING SIGNAGE TO WORKERS ALREADY EXIST ON ROOF ACCESS DOOR**

9. CAMOUFLAGED ANTENNAS SHALL HAVE 4INCH X 4INCH SIGNAGE PERMANENTLY MOUNTED TO THE EXTERIOR OF THE RF SCREEN AS PROVIDED BELOW. THE SIGN SHALL BE WEATHERPROOF WITH CONTRASTING BACKGROUND COLOR AND SHALL CONTAIN THE YELLOW TRIANGLE AROUND THE ANTENNA SYMBOL (ANSI C95.2-1982 (REFERENCE [3]) -YELLOW OR MORE DURABLE COLOR FOR OUTDOOR LONGEVITY). SIGNAGE LOCATION(S) AND DETAIL OF THE SIGN SHALL BE INCLUDED ON THE PLANS.
   - **NO CAMOUFLAGED ANTENNAS ARE PROPOSED.**

10. CABLES/WIRING SHALL NOT BE ALLOWED IN EXIT ENCLOSURES, SMOKE-PROOF TOWERS, ELEVATOR SHAFTS, OR IN FRONT OF DRY STANDPIPES. 2010 CFC 1022.4 AND 509.2
    - **ANTENNA CABLES ARE ROOF MOUNTED ON SLEEPERS. PLEASE SEE SHEET A-1 AND A-2.**

11. ANTENNAS SHALL NOT BE MOUNTED CLOSER THAN THE EXCLUSION ZONE PLUS 4 FEET FOR INSTALLATIONS NEAR FIRE ESCAPES, STAIR PENTHOUSE DOORS, EXTERIOR STANDPIPE OUTLETS, SKYLIGHTS, OR OTHER FIRE DEPARTMENT OPERATIONS CONSIDERATION.
    - **NOT APPLICABLE.**

12. THERE IS NO GUARANTEE THAT THE FIRE DEPARTMENT WILL NOT SHUT DOWN THE POWER TO THE SITE IN AN EMERGENCY SITUATION ALTHOUGH IN ORDER TO REDUCE THE SITE OPERATOR'S POSSIBLE LOSS OF SERVICE THE FOLLOWING INFORMATION MAY BE PROVIDED AT THE EQUIPMENT ROOM ENTRANCE:
    - PROVIDE EMERGENCY SHUTDOWN PROCEDURE SIGNAGE. THE SIGN SHALL INCLUDE THE FOLLOWING:

      1. EMERGENCY 24 HOUR/7 DAY A WEEK NOC / FIELD TECHNICIAN TELEPHONE NUMBER FOR RF SHUT-DOWN
      2. CELL SITE IDENTIFICATION NUMBER
      3. MAP TO LOCATION OF ELECTRICAL MAIN -ELECTRICAL MAIN SHALL BE CLEARLY IDENTIFIED WITH A PERMANENT RED LABEL AND WHITE LETTERING.
      4. MAP TO LOCATION OF BATTERY CABINETS AND BREAKERS -CABINETS AND BREAKERS SHALL BE CLEARLY IDENTIFIED WITH A PERMANENT RED LABEL AND WHITE LETTERING.
      5. ANY OTHER RELEVANT INFORMATION OR PROCEDURES AS REQUIRED FOR THE INDIVIDUAL CELLULAR SITE.

    - THE SIGN SHALL BE CLEARLY LABELED IN A PHENOLIC LABEL WITH A WHITE BACKGROUND AND BLACK LETTERING. THE TITLE BLOCK SHALL BE A RED BACKGROUND AND 1" HIGH WHITE LETTERING. MULTIPLE SIGNS MAY NEED TO BE INSTALLED BASED UPON THE CELLULAR SITE CONFIGURATION.
    - A COPY OF THE SIGNAGE SHALL BE INCLUDED ON A DRAWING SHEET.

    - **PROVIDED. PLEASE SEE SIGNAGE DETAILS ON SHEET GS-1.**

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PROJECT NO:	SF03252A
DRAWN BY:	NB
CHECKED BY:	KM

REV	DATE	DESCRIPTION	
1	10/31/2017	REVISED SETBACK	RF
0	10/10/2017	100% CD'S FOR SUBMITTAL	RF
C	07/25/2017	100% CD'S FOR APPROVAL	KM
B	09/15/2016	100% CD'S FOR REVIEW	RF
A	07/25/2016	90% CD'S FOR REDLINE	NB/KM

REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
FIRE DEPARTMENT CHECKLIST

SHEET NUMBER
T-3

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. CONTRACTOR SHALL CONSTRUCT SITE IN ACCORDANCE WITH THESE DRAWINGS AND CONSTRUCTION SPECIFICATIONS 80-T1196-1 REV H. THE SPECIFICATION IS THE RULING DOCUMENT AND ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND THESE DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION
3. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OF FIELD CONDITIONS
4. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. OWNER PROVIDED MATERIALS WILL INCLUDE THE FOLLOWING, UNLESS NOTED OTHERWISE:
   A) TRANSMITTER
   B) RF FILTER
   C) MFTS RACK
   D) AUXILIARY EQUIPMENT IN MFTS RACK
   E) PUMP ASSEMBLY
   F) HEAT EXCHANGER
   G) HOSE AND HOSE MANIFOLDS (ANY COPPER OR STEEL SECTIONS PROVIDE BY CONTRACTOR)
   H) UHF ANTENNA AND MOUNTING BRACKETS, GPS ANTENNAS AND KU ANTENNAS
   I) UHF COAX AND HANGERS
   K) 480-208 ∉ 208-400 ELECTRICAL TRANSFORMERS (RE: E-2 FOR SPECIALIZED TRANSFORMERS PROVIDED BY CONTRACTOR)
   L) AUTOMATIC TRANSFER SWITCH AND GENERATOR
   M) EQUIPMENT SHELTER (SHELTERS FURNISHED IN FACTORY W/ HVAC EQUIPMENT AND ELECTRICAL DISTRIBUTION PANEL)
   N) INTEGRATED LOAD CENTER
5. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE WORK.
6. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
7. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
8. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
10. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE SUPERINTENDENT OF BUILDINGS ∉ GROUNDS AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
12. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
13. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATELY REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.
14. IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS NOTED OTHERWISE). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT.
15. REPAIR ALL EXISTING WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.
16. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS.
17. KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
18. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.
19. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO APPLICABLE REGULATORY AUTHORITIES
20. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH JURISDICTIONAL OR STATE AND LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH LOCAL REGULATORY AUTHORITIES.
21. ALL CONSTRUCTION IS TO ADHERE TO T-MOBILE'S INTEGRATED CONSTRUCTION STANDARDS UNLESS CALIFORNIA CODE IS MORE STRINGENT.
22. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PERFORM THE CONSTRUCTION IN ACCORDANCE WITH THE CALIFORNIA BUILDING STANDARDS CODE, TITLES 19 AND 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE JURISDICTION BEFORE PROCEEDING WITH THE WORK.

ELECTRICAL NOTES

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE W/DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY 'CONSTRUCTION MANAGER' AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE 'CONSTRUCTION MANAGER' HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.
2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL EXISTING CONDITIONS OF ELECTRICAL EQUIP., LIGHT FIXTURES, ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF HIS BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND ALL CODES AND LOCAL ORDINANCES OF THE LOCAL POWER ∉ TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT NOT BE LIMITED TO:
   C - NATIONAL FIRE CODES
   A. UL - UNDERWRITERS LABORATORIES
   B. NEC - NATIONAL ELECTRICAL CODE
   C. NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
   D. OSHA - OCCUPATIONAL SAFETY AND HEALTH ACT
   E. SBC - STANDARD BUILDING CODE
4. DO NOT SCALE ELECTRICAL DRAWINGS, REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH 'CONSTRUCTION MANAGER' ANY SIZES AND LOCATIONS WHEN NEEDED.
5. EXISTING SERVICES: CONTRACTOR SHALL NOT INTERRUPT EXISTING SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.
6. CONTRACTOR SHALL PAY FOR ANY/ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO THE WORK BEGINNING OR ORDERING EQUIPMENT.
7. THE TERM "PROVIDE" USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.
8. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER, PRIOR TO BEGINNING ANY WORK.
9. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION.
10. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.
11. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
12. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTH BY T-MOBILE.
13. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND SUBJECT TO REGULATORY INSPECTION AND APPROVAL BY CONSTRUCTION MANAGER.
14. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
15. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.
16. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.
17. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.
18. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.
19. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO NOTES AND REQUIREMENTS 'EXCAVATION, AND BACKFILLING.
20. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IECE.
21. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURES CATALOG INFORMATION OF ANY/ALL LIGHTING FIXTURES, SWITCHES AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
22. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE 'CONSTRUCTION MANAGER' UPON FINAL ACCEPTANCE.
23. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
24. DISCONNECT SWITCHES SHALL BE H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.
25. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND SUCH AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.
26. RACEWAYS: CONDUIT SHALL BE SCHEDULE 40 PVC MEETING OR EXCEEDING NEMA TC2 - 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'GOLD GALV'.
27. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.
28. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, 600 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.
29. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.
30. SERVICE: 240/120V, SINGLE PHASE, 3 WIRE CONNECTION AVAILABLE FROM UTILITY COMPANY. OWNER OR OWNERS AGENT WILL APPLY FOR POWER.
31. TELEPHONE SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.
32. ELECTRICAL AND TELCO RACEWAYS TO BE BURIED A MINIMUM OF 2' DEPTH.
33. CONTRACTOR SHALL PLACE TWO LENGTHS OF WARNING TAPE AT A DEPTH OF 12" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOMM".
34. ALL BOLTS SHALL BE STAINLESS STEEL

GROUNDING NOTES

1. COMPRESSION CONNECTIONS (2), 2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. EC SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
3. ALL HARDWARE 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8 INCH DIAMETER OR LARGER.
4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
5. NUT ∉ WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE.
6. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
7. WHEN THE SCOPE OF WORK REQUIRES THE ADDITION OF A GROUNDING BAR TO AN EXISTING TOWER,THE SUBCONTRACTOR SHALL OBTAIN APPROVAL FROM THE TOWER OWNER PRIOR TO MOUNTING THE GROUNDING BAR TO THE TOWER.
8. ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.

ADDITIONAL NOTES:

9. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
10. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #2 GROUND WIRES AND CONNECT TO SURFACE MOUNTED GROUND BUS BARS AS SHOWN. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS USING MANUFACTURERS PRACTICES. ALL UNDERGROUND WATER PIPES, METAL CONDUITS AND GROUNDS THAT ARE A PART OF THIS SYSTEM SHALL BE BONDED TOGETHER.
11. ALL GROUND CONNECTIONS SHALL BE #2 AWG U.N.O. ALL WIRES SHALL BE COPPER THHN/THWN. ALL GROUND WIRE SHALL BE SOLID TIN COATED OR STRANDED GREEN INSULATED WIRE.
12. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE, 5 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE T-MOBILE REPRESENTATIVE.
13. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
14. BARE GROUNDING CONDUCTOR SHALL BE HARD DRAWN TINNED COPPER SIZES AS NOTED ON PLAN.
15. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED MINIMUM 12" BELOW GRADE/FROST-LINE IN TRENCH, U.N.O., AND BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT.
16. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.
17. ALL SUPPORT STRUCTURES, CABLE CHANNEL WAYS OR WIRE GUIDES SHALL BE BONDED TO GROUND SYSTEM AT A POINT NEAREST THE MAIN GROUNDING BUS "MGB" (OR DIRECTLY TO GROUND-RING).
18. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
   a. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR INDOOR USE OR AS APPROVED BY T-MOBILE PROJECT MANAGER.
   b. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
   c. TWO -(2) HOLE TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS (BUS BAR CONNECTIONS).
19. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES).
20. PRIOR TO ANY LUG-BUSSBAR CONNECTIONS, THE BUSSBAR SHALL BE CLEANED BY USE OF "SCOTCH-BRITE" OR PLAIN STEEL WOOL AS TO REMOVE ALL SURFACE OXIDATION AND CONTAMINANTS. A COATING OF "NO-OX-ID" SHALL BE APPLIED TO THE CONNECTION SURFACES.
21. ALL CONNECTION HARDWARE SHALL BE TYPE 316 SS (NOT ATTRACTED TO MAGNETS).
22. THE GROUND RING SHALL BE INSTALLED 24" MINIMUM BEYOND ANY BUILDING DRIP LINE.
23. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL EXISTING AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS, GROUND RING IF SERVICE IS WITHIN THE RADIO EQUIPMENT LOCATION, BUILDING STEEL IF APPLICABLE, COLD WATER CONNECTIONS MUST BE MADE ON THE STREET SIDE OF MAIN SHUT-OFF VALVE.

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LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

SITE WORK NOTES

1. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.
2. DO NOT SCALE BUILDING DIMENSIONS FROM DRAWING.
3. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-BUILT DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.
4. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL EXISTING UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING EXISTING UTILITIES.
5. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS/HER OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL DIGGER HOT LINE FOR UTILITY LOCATIONS 48 HOURS PRIOR TO START OF CONSTRUCTION.
6. ALL NEW AND EXISTING UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK.
7. GRADING OF THE SITE WORK AREA IS TO BE SMOOTH AND CONTINUOUS IN SLOPE AND IS TO FEATHER INTO EXISTING GRADES AT THE GRADING LIMITS.
8. ALL TEMPORARY EXCAVATIONS FOR THE INSTALLATION OF FOUNDATIONS, UTILITIES, ETC., SHALL BE PROPERLY LAID BACK OR BRACED IN ACCORDANCE WITH CORRECT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.
9. STRUCTURAL FILLS SUPPORTING PAVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY.
10. NEW GRADES NOT IN BUILDING AND DRIVEWAY IMPROVEMENT AREA TO BE ACHIEVED BY FILLING WITH APPROVED CLEAN FILL AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.
11. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS. THE LIFTS THICKNESS SHOULD NOT EXCEED THAT WHICH CAN BE PROPERLY COMPACTED THROUGHOUT ITS ENTIRE DEPTH WITH THE EQUIPMENT AVAILABLE.
12. ANY FILLS PLACED ON EXISTING SLOPES THAT ARE STEEPER THAN 10 HORIZONTAL TO 1 VERTICAL SHALL BE PROPERLY BENCHED INTO THE EXISTING SLOPE AS DIRECTED BY A GEOTECHNICAL ENGINEER.
13. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, WEEDS, BRUSH OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE GENERAL CONTRACTOR.
14. ALL TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH THE IMPROVEMENTS SHALL BE PROTECTED BY THE GENERAL CONTRACTOR.
15. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ENVIRONMENTAL NOTES

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.
2. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS AND SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.
3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.
4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES WITH SILT AND EROSION CONTROL MEASURES MAINTAINED ON THE DOWNSTREAM SIDE OF SITE DRAINAGE. ANY DAMAGE TO ADJACENT PROPERTY AS A RESULT OF EROSION WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.
7. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.
8. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.
9. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.
10. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES

FOUNDATION, EXCAVATION AND BACKFILL NOTES

1. ALL FINAL GRADED SLOPES SHALL BE A MAXIMUM OF 3 HORIZONTAL TO 1 VERTICAL.
2. ALL EXCAVATIONS PREPARED FOR PLACEMENT OF CONCRETE SHALL BE OF UNDISTURBED SOILS, SUBSTANTIALLY HORIZONTAL AND FREE FROM ANY LOOSE, UNSUITABLE MATERIAL OR FROZEN SOILS, AND WITHOUT THE PRESENCE OF FOUNDING WATER. DEWATERING FOR EXCESS GROUND WATER SHALL BE PROVIDED WHEN REQUIRED. COMPACTION OF SOILS UNDER CONCRETE PAD FOUNDATIONS SHALL NOT BE LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR THE SOIL IN ACCORDANCE WITH ASTM D1557.
3. CONCRETE FOUNDATIONS SHALL NOT BE PLACED ON ORGANIC OR UNSUITABLE MATERIAL. IF INADEQUATE BEARING CAPACITY IS REACHED AT THE DESIGNED EXCAVATION DEPTH, THE UNSATISFACTORY SOIL SHALL BE EXCAVATED TO ITS FULL DEPTH AND EITHER BE REPLACED WITH MECHANICALLY COMPACTED GRANULAR MATERIAL OR THE EXCAVATION SHALL BE FILLED WITH CONCRETE OF THE SAME TYPE SPECIFIED FOR THE FOUNDATION. CRUSHED STONE MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. ANY STONE SUB BASE MATERIAL, IF USED, SHALL NOT SUBSTITUTE FOR REQUIRED THICKNESS OF CONCRETE.
4. ALL EXCAVATIONS SHALL BE CLEAN OF UNSUITABLE MATERIAL SUCH AS VEGETATION, TRASH, DEBRIS, AND SO FORTH PRIOR TO BACK FILLING. BACK FILL SHALL CONSIST OF APPROVED MATERIALS SUCH AS EARTH, LOAM, SANDY CLAY, SAND AND GRAVEL, OR SOFT SHALE, FREE FROM CLODS OR LARGE STONES OVER 2 1/2" MAX DIMENSIONS. ALL BACK FILL SHALL BE PLACED IN COMPACTED LAYERS.
5. ALL FILL MATERIALS AND FOUNDATION BACK FILL SHALL BE PLACED IN MAXIMUM 6"THICK LIFTS BEFORE COMPACTION. EACH LIFT SHALL BE WETTED IF REQUIRED AND COMPACTED TO NOT LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR SOIL IN ACCORDANCE WITH ASTM D1557.
6. NEWLY PLACED CONCRETE FOUNDATIONS SHALL CURE A MINIMUM OF 72 HRS PRIOR TO BACK FILLING.
7. FINISHED GRADING SHALL BE SLOPED TO PROVIDE POSITIVE DRAINAGE AND PREVENT STANDING WATER. THE FINAL (FINISH) ELEVATION OF SLAB FOUNDATIONS SHALL SLOPE AWAY IN ALL DIRECTIONS FROM THE CENTER. FINISH GRADE OF CONCRETE PADS SHALL BE A MAXIMUM OF 4 INCHES ABOVE FINAL FINISH GRADE ELEVATIONS. PROVIDE SURFACE FILL GRAVEL TO ESTABLISH SPECIFIED ELEVATIONS WHERE REQUIRED.
8. NEWLY GRADED SURFACE AREAS TO RECEIVE GRAVEL SHALL BE COVERED WITH GEOTEXTILE FABRIC TYPE: TYPAR-3401 AS MANUFACTURED BY "CONSTRUCTION MATERIAL 1-800-239-3841" OR AN APPROVED EQUIVALENT, SHOWN ON PLANS. THE GEOTEXTILE FABRIC SHALL BE BLACK IN COLOR TO CONTROL THE RECURRENCE OF VEGETATIVE GROWTH AND EXTEND TO WITHIN 1 FOOT OUTSIDE THE SITE FENCING OR ELECTRICAL GROUNDING SYSTEM PERIMETER WHICH EVER IS GREATER. ALL FABRIC SHALL BE COVERED WITH A MINIMUM OF 4" DEEP COMPACTED STONE OR GRAVEL AS SPECIFIED. I.E. FDOT TYPE No. 57 FOR FENCED COMPOUND; FDOT TYPE No. 67 FOR ACCESS DRIVE AREA.
9. IN ALL AREAS TO RECEIVE FILL, REMOVE ALL VEGETATION, TOPSOIL, DEBRIS, WET AND UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE. PLOW STRIP OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL SUCH THAT FILL MATERIAL WILL BIND WITH EXISTING/PREPARED SOIL SURFACE.
10. WHEN SUB GRADE OR PREPARED GROUND SURFACE HAS A DENSITY LESS THAN THAT REQUIRED FOR THE FILL MATERIAL, SCARIFY THE GROUND SURFACE TO DEPTH REQUIRED, PULVERIZE, MOISTURE-CONDITION AND/OR AERATE THE SOILS AND RECOMPACT TO THE REQUIRED DENSITY PRIOR TO PLACEMENT OF FILLS.
11. IN AREAS WHICH EXISTING GRAVEL SURFACING IS REMOVED OR DISTURBED DURING CONSTRUCTION OPERATIONS, REPLACE GRAVEL SURFACING TO MATCH ADJACENT GRAVEL SURFACING AND RESTORED TO THE SAME THICKNESS AND COMPACTION AS SPECIFIED. ALL RESTORED GRAVEL SURFACING SHALL BE FREE FROM CORRUGATIONS AND WAVES.
12. EXISTING GRAVEL SURFACING MAY BE EXCAVATED SEPARATELY AND REUSED WITH THE CONDITION THAT ANY UNFAVORABLE AMOUNTS OF ORGANIC MATTER, OR OTHER DELETERIOUS MATERIALS ARE REMOVED PRIOR TO REUSE. FURNISH ANY ADDITIONAL GRAVEL RESURFACING MATERIAL AS NEEDED TO PROVIDE A FULL DEPTH COMPACTED SURFACE THROUGHOUT SITE.
13. GRAVEL SUB SURFACE SHALL BE PREPARED TO REQUIRED COMPACTION AND SUB GRADE ELEVATIONS BEFORE GRAVEL SURFACING IS PLACED AND/OR RESTORED. ANY LOOSE OR DISTURBED MATERIALS SHALL BE THOROUGHLY COMPACTED AND ANY DEPRESSIONS IN THE SUB GRADE SHALL BE FILLED AND COMPACTED WITH APPROVED SELECTED MATERIAL. GRAVEL SURFACING MATERIAL SHALL NOT BE USED FOR FILLING DEPRESSIONS IN THE SUB GRADE.
14. PROTECT EXISTING GRAVEL SURFACING AND SUB GRADE IN AREAS WHERE EQUIPMENT LOADS WILL OPERATE. USE PLANKING 'MATTS' OR OTHER SUITABLE PROTECTION DESIGNED TO SPREAD EQUIPMENT LOADS AS MAY BE NECESSARY. REPAIR ANY DAMAGE TO EXISTING GRAVEL SURFACING OR SUB GRADE WHERE SUCH DAMAGE IS DUE TO THE CONTRACTORS OPERATIONS.
15. DAMAGE TO EXISTING STRUCTURES AND/OR UTILITIES RESULTING FROM CONTRACTORS NEGLIGENCE SHALL BE REPAIRED AND/ OR REPLACED TO THE OWNERS SATISFACTION AT NO ADDITIONAL COST TO THE CONTRACT.
16. ALL SUITABLE BORROW MATERIAL FOR BACK FILL OF THE SITE SHALL BE INCLUDED IN THE BID. EXCESS TOPSOIL AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF SITE AT LOCATIONS APPROVED BY GOVERNING AGENCIES AT NO ADDITIONAL COST TO THE CONTRACT.

STRUCTURAL STEEL NOTES

1. ALL STEEL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION. STEEL SECTIONS SHALL BE IN ACCORDANCE WITH ASTM AS INDICATED BELOW:
   W-SHAPES: ASTM A992, 50 KSI
   ANGLES, BARS CHANNELS: ASTM A36, 36 KSI
   HSS SECTIONS: ASTM 500, 46 KSI
   PIPE SECTIONS: ASTM A53-E, 35 KSI
2. ALL EXTERIOR EXPOSED STEEL AND HARDWARE SHALL BE HOT DIPPED GALVANIZED.
3. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC.WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
4. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE 3/4"ϕ CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
5. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
6. FIELD MODIFICATIONS ARE TO BE COATED WITH ZINC ENRICHED PAINT.

CONCRETE MASONRY NOTES

1. CONCRETE MASONRY UNITS SHALL BE MEDIUM WEIGHT UNITS CONFORMING TO ASTM C90, GRADE N-1, (F'M=1,500 PS). MEDIUM WEIGHT (115 PCF).
2. MORTAR SHALL BE TYPE "S" (MINIMUM 1,800 PSI AT 28 DAYS).
3. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS.
4. ALL CELLS CONTAINING REINFORCING STEEL OR EMBEDDED ITEMS AND ALL CELLS IN RETAINING WALLS AND WALLS BELOW GRADE SHALL BE SOLID GROUTED.
5. ALL HORIZONTAL REINFORCEMENT SHALL BE PLACED IN BOND BEAM OR LINTEL BEAM UNITS.
6. WHEN GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE GROUT POUR 1-1/2" BELOW TOP OF THE UPPERMOST UNIT.
7. ALL BOND BEAM BLOCK SHALL BE "DEEP CUT" UNITS.
8. PROVIDE INSPECTION AND CLEAN-OUT HOLES AT BASE OF VERTICAL CELLS HAVING GROUT LIFTS IN EXCESS OF 4'-0" OF HEIGHT.
9. ALL GROUT SHALL BE CONSOLIDATED WITH A MECHANICAL VIBRATOR.
10. CEMENT SHALL BE AS SPECIFIED FOR CONCRETE.
11. REINFORCING BARS - SEE NOTES UNDER "REINFORCING STEEL" FOR REQUIREMENTS.
12. PROVIDE ONE BAR DIAMETER (A MINIMUM OF 1/2") GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.
13. LOW LIFT CONSTRUCTION, MAXIMUM GROUT POUR HEIGHT IS 4 FEET.
14. HIGH LIFT GROUTED CONSTRUCTION MAY BE USED IN CONFORMANCE WITH PROJECT SPECIFICATIONS AND SECTION 2104A.5.1.2.3 OF U.B.C.
15. ALL CELLS IN CONCRETE BLOCKS SHALL BE FILLED SOLID WITH GROUT, EXCEPT AS NOTED IN THE DRAWINGS OR SPECIFICATIONS.
16. CELLS SHALL BE IN VERTICAL ALIGNMENT, DOWELS IN FOOTINGS SHALL BE SET TO ALIGN WITH CORES CONTAINING REINFORCING STEEL.
17. REFER TO ARCHITECTURAL DRAWINGS FOR SURFACE AND HEIGHT OF UNITS, LAYING PATTERN AND JOINT TYPE.
18. SAND SHALL BE CLEAN, SHARP AND WELL GRADED, FREE FROM INJURIOUS AMOUNTS OF DUST, LUMPS, SHALE, ALKAU OR ORGANIC MATERIAL.
19. BRICK SHALL CONFORM TO ASTM C-62 AND SHALL BE GRADE MW OR BETTER.

STRUCTURAL CONCRETE NOTES

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301-10, ACI 318-08 AND THE SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH fc'=2,500 PSI AT 28 DAYS UNLESS NOTED OTHERWISE.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES CLASS "B" AND ALL HOOKS SHALL BE STANDARD UNLESS NOTED OTHERWISE.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER.....2 IN.
   #5 AND SMALLER & WWF .....1-1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS.....1-1/2 IN.
5. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE U.N.O. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. HOLES TO RECEIVE EXPANSION/WEDGE ANCHORS SHALL BE 1/8" LARGER IN DIAMETER THAN THE ANCHOR BOLT, DOWEL OR ROD AND SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. LOCATE AND AVOID CUTTING EXISTING REBAR WHEN DRILLING HOLES IN ELEVATED CONCRETE SLABS.
7. USE AND INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER ICC ER# & MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURES.

FIRE DEPARTMENT NOTES

1. THE T-MOBILE PROJECT MANAGER'S DIRECTION, THE CONTRACTOR SHALL PROVIDE "HILTI" HIGH PERFORMANCE FIRE STOP SYSTEM # FS-ONE AT ALL FIRE RATED PENETRATION INSTALLED PER MANUFACTURE'S LATEST INSTALLATION SPECIFICATION.
2. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE CONSTRUCTED SO AS TO MAINTAIN AN EQUAL OR GREATER FIRE RATING.
3. BUILDINGS UNDERGOING CONSTRUCTION, ALTERATION OR DEMOLITION SHALL BE IN ACCORDANCE WITH CFC ARTICLE 87. [CFC 8701]
4. ADDRESS SHALL BE PROVIDED FOR ALL NEW AND EXISTING BUILDINGS IN A POSITION AS TO BE PLAINLY SEEN VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY [CFC 901.4.4, FHPS POLICY P-00-6]
5. DECORATIVE MATERIALS SHALL BE MAINTAINED IN A FLAME-RETARDANT CONDITION. [CALIF. CODE OF REGS., TITLE 19, 3.08, 3.21, CEC 2501.5]
6. ALL VALVES CONTROLLING THE WATER SUPPLY FOR AUTOMATIC SPRINKLER SYSTEM AND WATER-FLOW SWITCHES ON AL SPRINKLER SYSTEMS SHALL BE ELECTRICALLY MONITORED WHERE THE NUMBER OF SPRINKLERS IS A 100 OR MORE. [CBC 904.3.1, CFC 1003.3.1]
7. INSTALLATION OF FIRE ALARM SYSTEMS SHALL BE IN ACCORDANCE WITH CFC 1007.
8. AT LEAST ONE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 2A-10BC SHALL BE PROVIDED WITHIN 75 FT. MAXIMUM TRAVEL DISTANCE FOR EACH 6,000 SQ. FT. OR PORTION THEREOF ON EACH FLOOR [CFC 1002, UFC STANDARD 10-1, CALIF. CODE OF REGS., TITLE 19, 3.29]
9. CONTRACTOR SHALL VERIFY IN FIELD THE EXISTENCE OR INSTALLATION OF A FIRE EXTINGUISHER WITH A MINIMUM RATING OF 2A-10BC, WITH A CHARGE STATUS ACCEPTABLE TO THE LOCAL FIRE AUTHORITY HAVING JURISDICTION.
10. COMPLETE PLANS AND SPECIFICATIONS FOR ALARM SYSTEMS: FIRE-EXTINGUISHING SYSTEMS, INCLUDING AUTOMATIC SPRINKLERS AND OTHER FIRE-PROTECTION SYSTEMS SHALL BE SUBMITTED TO FIRE AND LIFE SAFETY FOR REVIEW AND APPROVAL TO INSTALLATION. [CFC 100.3]

T-Mobile
1855 GATEWAY BLVD., 9th FLOOR
CONCORD, CA 94520

MODUS
240 STOCKTON ST., 3RD FLOOR
SAN FRANCISCO, CA 94108

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT NO:	SF03252A
DRAWN BY:	NB
CHECKED BY:	KM

REV	DATE	DESCRIPTION	
I	10/31/2017	REVISED SETBACK	RF
0	10/10/2017	100% CD'S FOR SUBMITTAL	RF
C	07/25/2017	100% CD'S FOR APPROVAL	KM
B	09/15/2016	100% CD'S FOR REVIEW	RF
A	07/25/2016	90% CD'S FOR REDLINE	NB/KM

REGISTERED PROFESSIONAL ENGINEER
WISAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

NOT USED

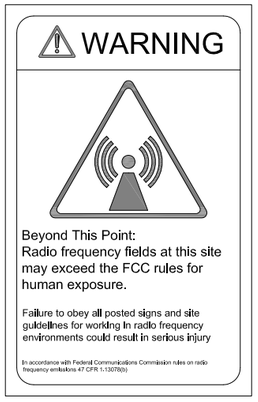
24"x36" SCALE: NTS
11"x17" SCALE: NTS

8

SITE SIGNAGE

24"x36" SCALE: NTS
11"x17" SCALE: NTS

5

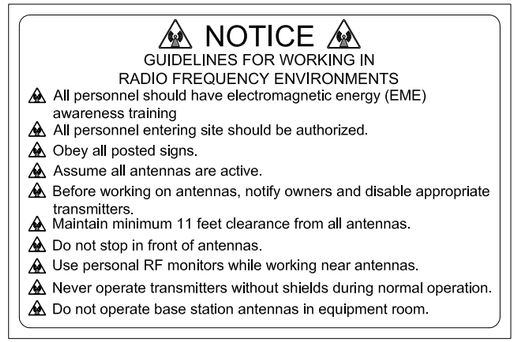


NOTES:

1. WARNING SIGN TO BE PERMANENTLY MOUNTED AT ANTENNA LOCATIONS, STAIRWELL SIDE OF THE ROOF ACCESS STAIRWELL, ROOF ACCESS DOOR, IN THE FIR CONTROL ROOM WITHIN PROXIMITY OF THE SHUT-DOWN SIGNAGE AND AS NOTED IN THE PLANS.
2. SIGN SHALL COMPLY WITH ANSI C95.2 COLOR, SYMBOL AND CONTENT CONVENTIONS.
3. SIGNAGE SHALL BE CLEARLY LABELED IN A PHENOLIC LABEL WITH WITH BACKGROUND AND BLACK LETTERING AND SHALL BE READABLE FROM AT LEAST (15) FEET FROM SIGN.
4. CONTRACTOR TO VERIFY WITH THE CARRIER THE CORRECT CONTACT PHONE NUMBER PRIOR TO SIGN FABRICATION AND INSTALLATION.

IN CASE OF EMERGENCY
CALL
1-888-662-4662 X3231
Site No: SF03252A

UNLESS OTHERWISE SPECIFIED
TO BE PLACED IN A CLEAR AND VISIBLE LOCATION AT:
-INSIDE FACE OF ROOF ACCESS DOOR
-BTS CABINET
CONTRACTOR TO VERIFY CORRECT CONTACT NUMBER PRIOR TO FABRICATION



NOTE:

1. RICHARD TELL & ASSOCIATES PART #8X12RFSGPM

RF WARNING SIGN

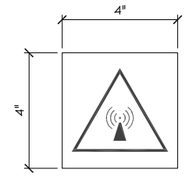
24"x36" SCALE: NTS
11"x17" SCALE: NTS

7

NOTICE SIGN

24"x36" SCALE: NTS
11"x17" SCALE: NTS

4



4"x4" SIGNAGE NOTE

1. 4"x4" WARNING SIGN SHALL BE PERMANENTLY MOUNTED TO EXTERIOR OF CAMOFLAGED ANTENNAS RF SCREENS.

PVC PLASTIC SIGN

NOTES:

1. WARNING SIGN TO BE PERMANENTLY MOUNTED AT ANTENNA LOCATIONS, STAIRWELL SIDE OF THE ROOF ACCESS DOOR AND AS NOTED IN THE PLANS.
2. SIGN SHALL COMPLY WITH ANSI C95.2-1982 COLOR, SYMBOL AND CONTENT CONVENTIONS.
3. SIGNAGE SHALL BE CLEARLY LABELED IN A PHENOLIC LABEL WITH WHITE BACKGROUND AND BLACK LETTERING AND SHALL BE READABLE FROM AT LEAST (15) FEET FROM SIGN.
4. CONTRACTOR TO VERIFY WITH THE CARRIER THE CORRECT CONTACT PHONE NUMBER PRIOR TO SIGN FABRICATION AND INSTALLATION.

RF WARNING SIGN

24"x36" SCALE: NTS
11"x17" SCALE: NTS

2

'CAUTION' TYPE TO BE INSTALLED AT ANTENNA LOCATION AS PER EMF ENGINEER'S REPORT

NOTES:

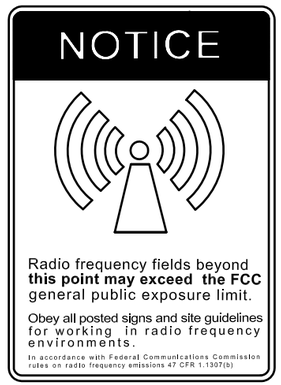
1. CAUTION SIGN TO BE PERMANENTLY MOUNTED AT ANTENNA LOCATIONS, STAIRWELL SIDE OF THE ROOF ACCESS STAIRWELL, ROOF ACCESS DOOR, IN THE FIR CONTROL ROOM WITHIN PROXIMITY OF THE SHUT-DOWN SIGNAGE AND AS NOTED IN THE PLANS.
2. SIGN SHALL COMPLY WITH ANSI C95.2 COLOR, SYMBOL AND CONTENT CONVENTIONS.
3. SIGNAGE SHALL BE CLEARLY LABELED IN A PHENOLIC LABEL WITH WITH BACKGROUND AND BLACK LETTERING AND SHALL BE READABLE FROM AT LEAST (15) FEET FROM SIGN.
4. CONTRACTOR TO VERIFY WITH THE CARRIER THE CORRECT CONTACT PHONE NUMBER PRIOR TO SIGN FABRICATION AND INSTALLATION.

RF CAUTION SIGN

24"x36" SCALE: NTS
11"x17" SCALE: NTS

6

'NOTICE' TYPE TO BE INSTALLED ON ROOFTOP ENTRY POINT AS PER EMF ENGINEER'S REPORT



NOTES:

1. NOTICE SIGN TO BE PERMANENTLY MOUNTED AT ANTENNA LOCATIONS, STAIRWELL SIDE OF THE ROOF ACCESS STAIRWELL, ROOF ACCESS DOOR, IN THE FIR CONTROL ROOM WITHIN PROXIMITY OF THE SHUT-DOWN SIGNAGE AND AS NOTED IN THE PLANS.
2. SIGN SHALL COMPLY WITH ANSI C95.2 COLOR, SYMBOL AND CONTENT CONVENTIONS.
3. SIGNAGE SHALL BE CLEARLY LABELED IN A PHENOLIC LABEL WITH WITH BACKGROUND AND BLACK LETTERING AND SHALL BE READABLE FROM AT LEAST (15) FEET FROM SIGN.
4. CONTRACTOR TO VERIFY WITH THE CARRIER THE CORRECT CONTACT PHONE NUMBER PRIOR TO SIGN FABRICATION AND INSTALLATION.

RF NOTICE SIGN

24"x36" SCALE: NTS
11"x17" SCALE: NTS

3

NOTES:

1. SIGN SHALL BE A PHENOLIC LABEL WITH WHITE BACKGROUND AND BLACK LETTERING. THE TITLE BLOCK SHALL BE RED BACKGROUND AND 1" HIGH WHITE LETTERING.
2. CONTRACTOR TO PLACE SIGNS IN THE FOLLOWING LOCATIONS:
   a. CELL SITE EQUIPMENT DOOR
   b. BATTERY LOCATION WITHIN PROXIMITY OF BATTERY DISCONNECT
   c. FCC ROOM WITH PROXIMITY OF THE FIRE ALARM PANEL
   d. BUILDING'S MAIN ELECTRICAL ROOM WITHIN PROXIMITY OF THE MAIN SHUT-OFF AND/OR AT THE CELL SITE MAIN ELECTRICAL DISCONNECT.

EMERGENCY SHUT DOWN SIGN

24"x36" SCALE: NTS
11"x17" SCALE: NTS

1

T-Mobile
1855 GATEWAY BLVD., 9th FLOOR
CONCORD, CA 94520

MODUS
240 STOCKTON ST., 3RD FLOOR
SAN FRANCISCO, CA 94108

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT NO:	SF03252A
DRAWN BY:	NB
CHECKED BY:	KM

REV	DATE	DESCRIPTION	
I	10/31/2017	REVISED SETBACK	RF
0	10/10/2017	100% CD'S FOR SUBMITTAL	RF
C	07/25/2017	100% CD'S FOR APPROVAL	KM
B	09/15/2016	100% CD'S FOR REVIEW	RF
A	07/25/2016	90% CD'S FOR REDLINE	NB/KM

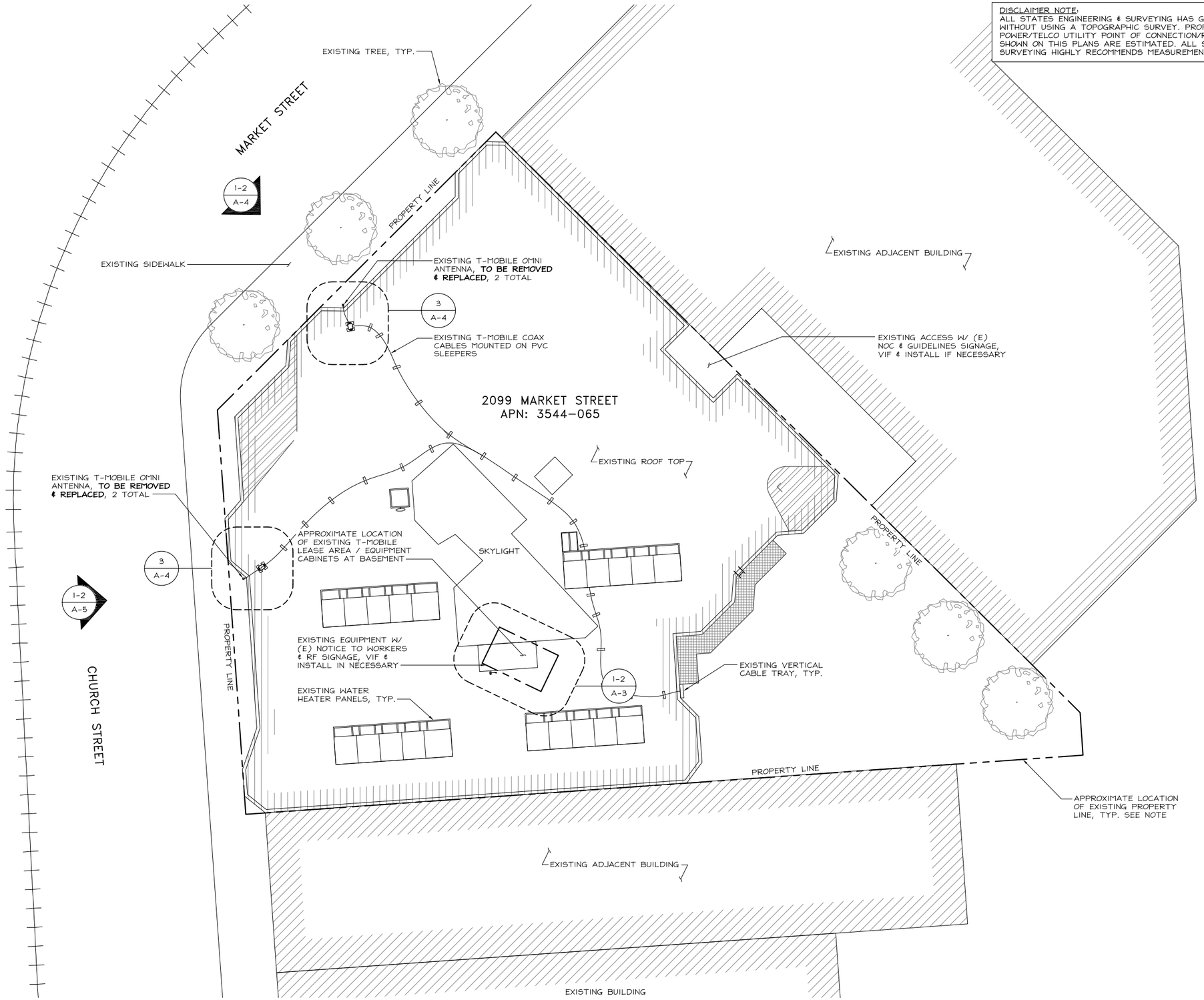
REGISTERED PROFESSIONAL ENGINEER
WISAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
GENERAL SIGNAGE DETAILS

SHEET NUMBER
GS-1

DISCLAIMER NOTE:
ALL STATES ENGINEERING & SURVEYING HAS GENERATED A SITE PLAN WITHOUT USING A TOPOGRAPHIC SURVEY. PROPERTY LINES, POWER/TELCO UTILITY POINT OF CONNECTION/ROUTES AND EASEMENT SHOWN ON THIS PLANS ARE ESTIMATED. ALL STATES ENGINEERING & SURVEYING HIGHLY RECOMMENDS MEASUREMENTS AND ACCURACY.



SITE PLAN

24"x36" SCALE: 1/8" = 1'-0"
11"x17" SCALE: 1/16" = 1'-0"
8' 6' 4' 2' 0" 8'

1

T-Mobile
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REGISTERED PROFESSIONAL ENGINEER
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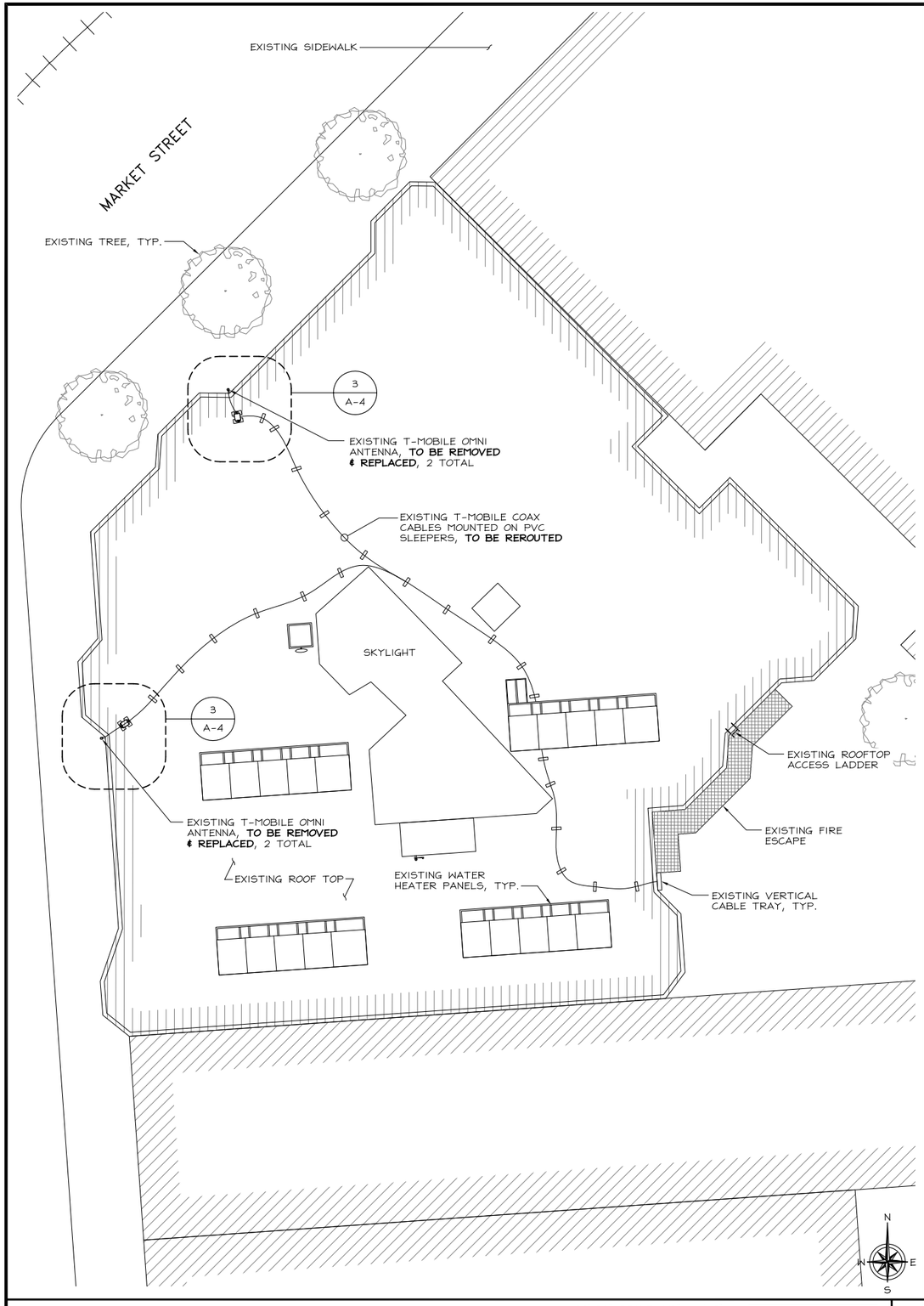
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
SITE PLAN

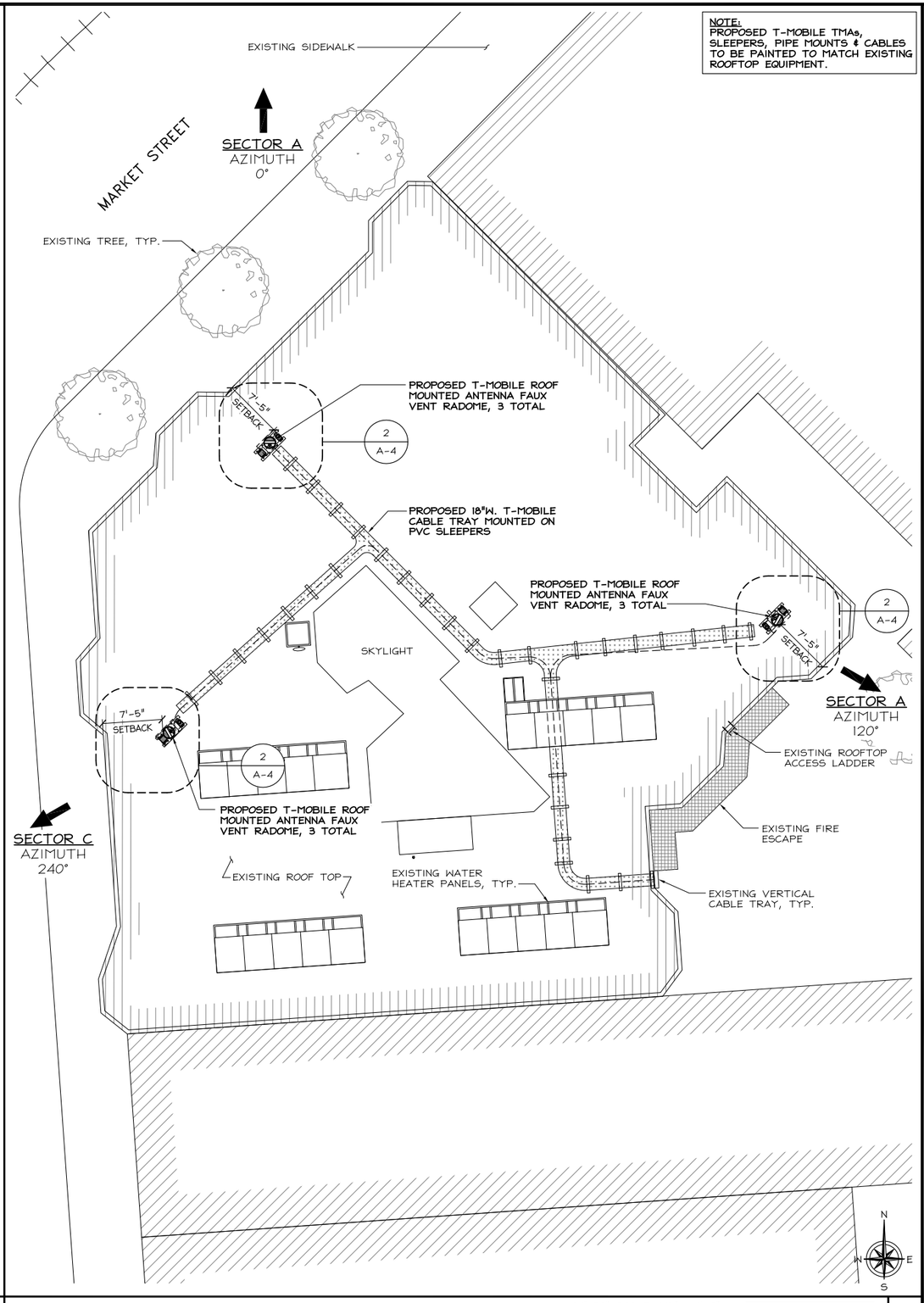
SHEET NUMBER
A-1



EXISTING ENLARGED ROOF PLAN

24"x36" SCALE: 1/8" = 1'-0"
11"x17" SCALE: 1/16" = 1'-0"
8' 6' 4' 2' 0" 8'

2



PROPOSED ENLARGED ROOF PLAN

24"x36" SCALE: 1/8" = 1'-0"
11"x17" SCALE: 1/16" = 1'-0"
8' 6' 4' 2' 0" 8'

1

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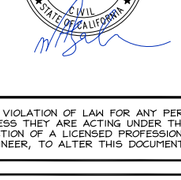
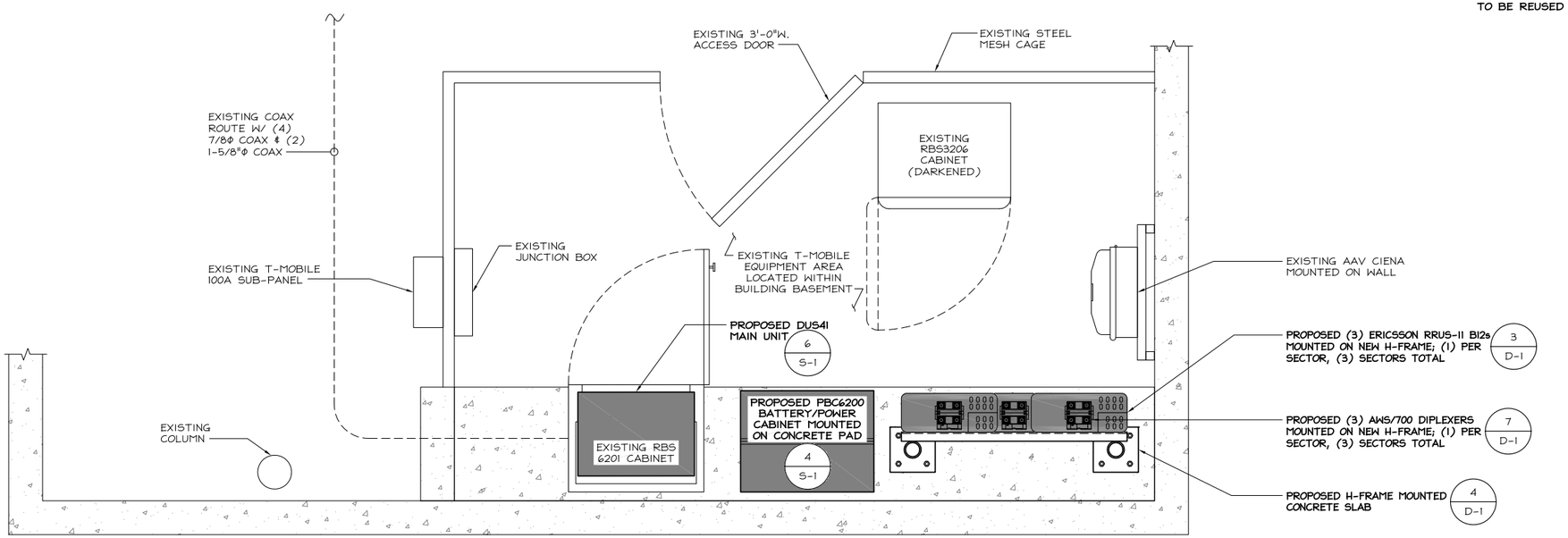


SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
ENLARGED ROOF PLAN

SHEET NUMBER
A-2

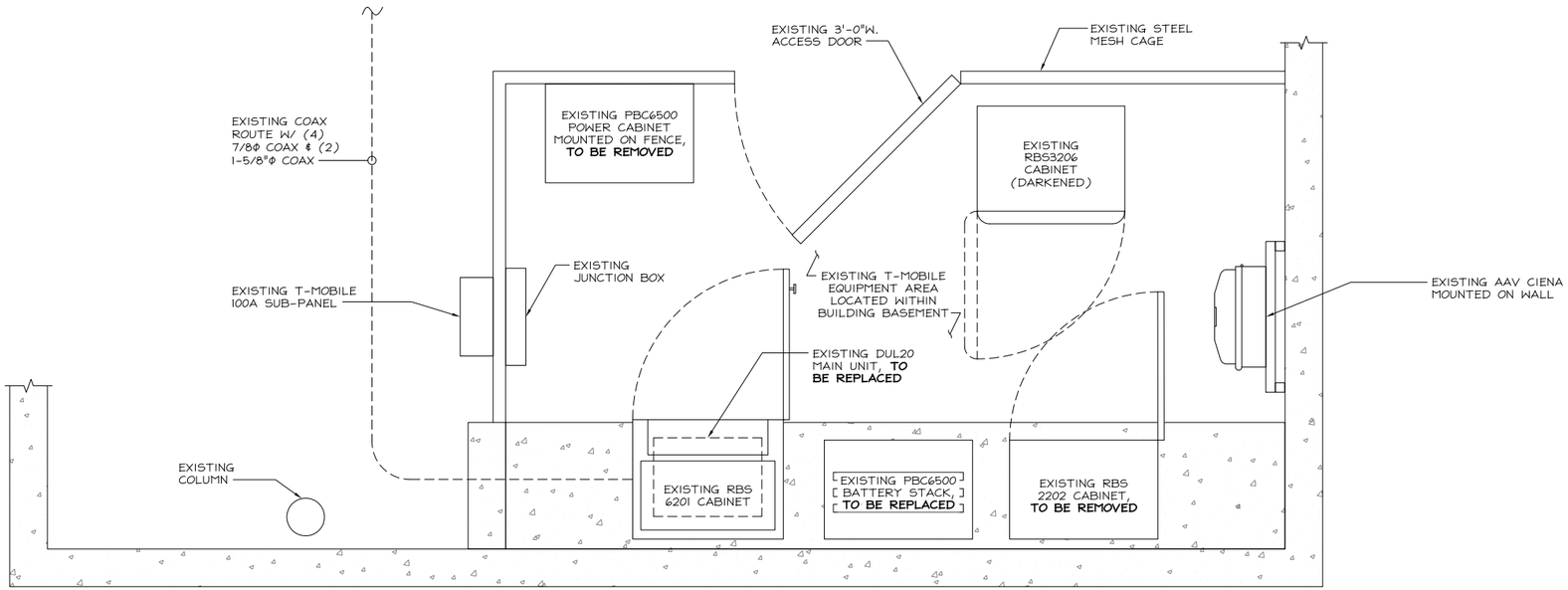
NOTE:
EXISTING COAX CABLES TO BE REUSED



PROPOSED EQUIPMENT LAYOUT PLAN

24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"

2



EXISTING EQUIPMENT LAYOUT PLAN

24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"

1

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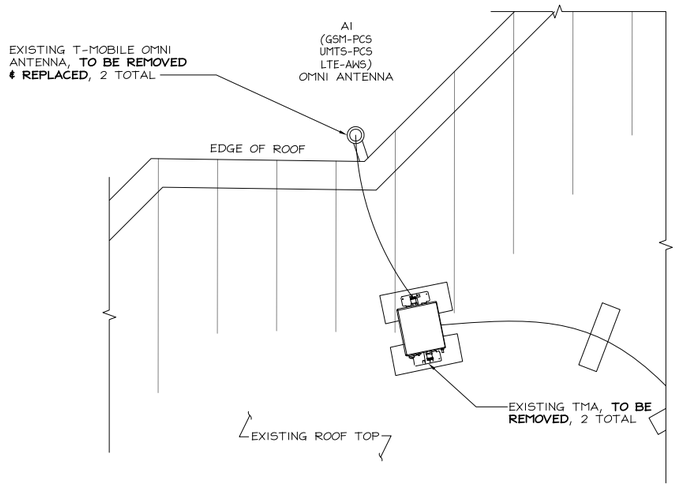
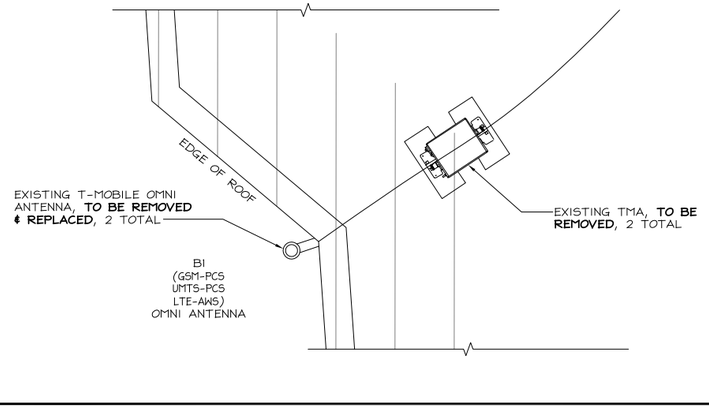
REGISTERED PROFESSIONAL ENGINEER
WISAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
EQUIPMENT LAYOUT PLAN

SHEET NUMBER
A-3

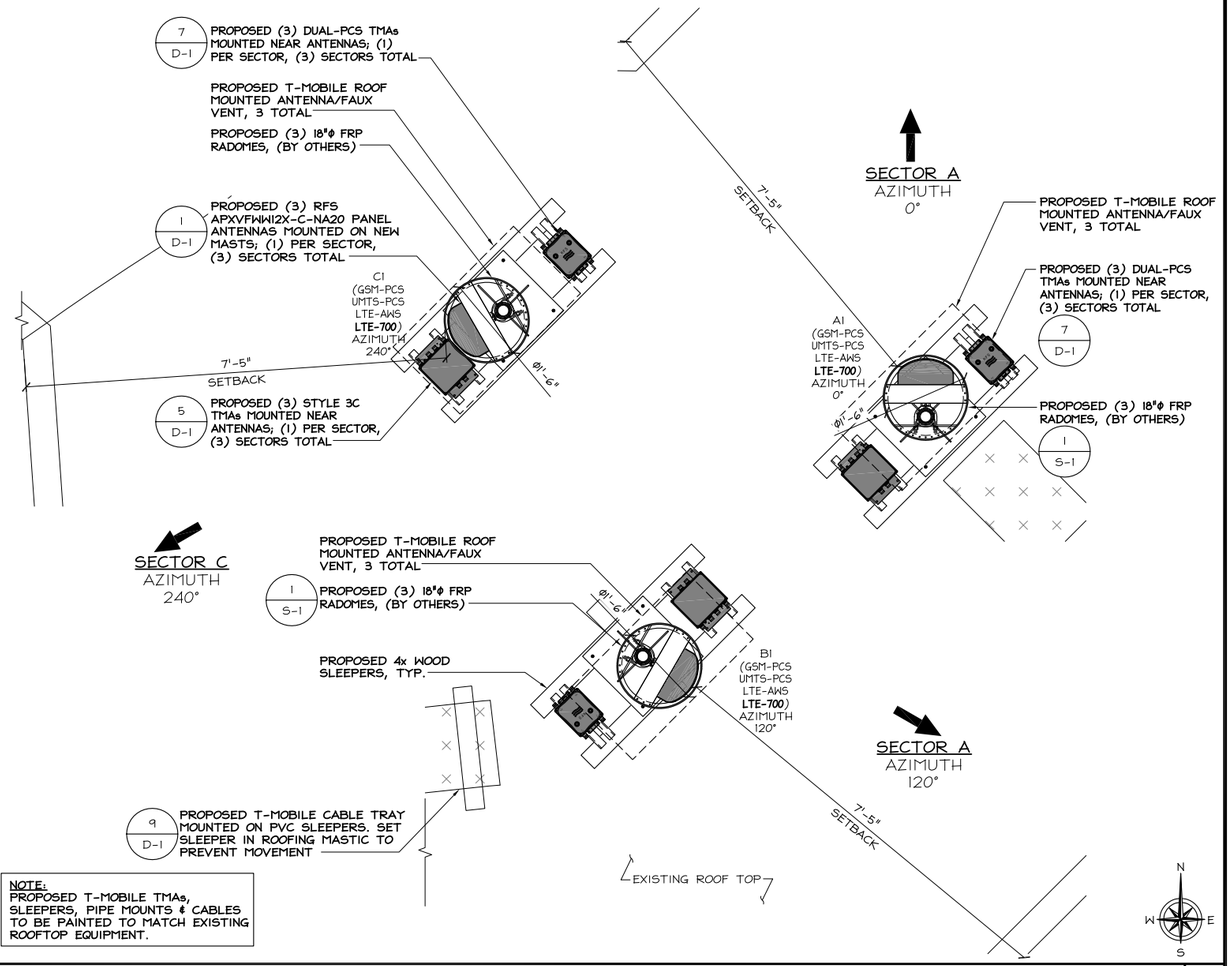




EXISTING ANTENNA LAYOUT

24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"
1' 6" 0" 1'

3



PROPOSED ANTENNA LAYOUT

24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"
1' 6" 0" 1'

2

NOTES TO CONTRACTOR:

1. CONTRACTOR IS TO REFER TO T-MOBILE'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION
2. CABLE LENGTHS WERE DETERMINED BASED ON VISUAL INSPECTION DURING SITE-WALK. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK

EXISTING OPTIMAL ANTENNA AND TRANSMISSION CABLES REQUIREMENT (VERIFY WITH CURRENT RFDS)

	ANTENNA	TECHNOLOGY		ANTENNA MODEL		ANTENNA AZIMUTH		RAD CENTER		TRANSMISSION LINE	
		EXISTING	**PROPOSED**	EXISTING	**PROPOSED**	EXISTING	**PROPOSED**	EXIST	PROP	LENGTH	PART NUMBER
SECTOR A	A1	GSM-PCS UMTS-PCS LTE-AWS	GSM-PCS UMTS-PCS LTE-AWS **LTE-700**	dbSPECTRA DSIZ03F36U-N (OMNI)	**RFS APXVFWWI12X-C-NA20**	(OMNI)	**0°**	35'-7"	**41'-0"**	±170'	(1) EXISTING 1-5/8"ϕ COAX CABLE & **(1) NEW 1-5/8"ϕ COAX CABLES**
	–	–	–	–	–	–	–	–	–	–	–
SECTOR B	B1	GSM-PCS UMTS-PCS LTE-AWS	GSM-PCS UMTS-PCS LTE-AWS **LTE-700**	dbSPECTRA DSIZ03F36U-N (OMNI)	**RFS APXVFWWI12X-C-NA20**	(OMNI)	**120°**	35'-7"	**41'-0"**	±170'	(1) EXISTING 7/8"ϕ COAX CABLE & **(1) NEW 7/8"ϕ COAX CABLES**
	–	–	–	–	–	–	–	–	–	–	–
SECTOR C	C1	–	**GSM-PCS UMTS-PCS LTE-AWS LTE-700**	–	**RFS APXVFWWI12X-C-NA20**	–	**240°**	–	**41'-0"**	±150'	(1) EXISTING 1-5/8"ϕ COAX CABLE & **(1) NEW 1-5/8"ϕ COAX CABLES**
	–	–	–	–	–	–	–	–	–	–	–

REMOTE RADIO UNITS (RRU'S)

	ANTENNA	RRU TYPE	QTY. (E)	QTY. (N)	RRU LOCATION (DISTANCE FROM ANTENNA)	RRU MINIMUM CLEARANCES ABOVE	RRU MINIMUM CLEARANCES BELOW	RRU MINIMUM CLEARANCES SIDES	DC CABLE LENGTH	DC CABLE AWG
SECTOR A	A1	**ERICSSON RRUS-11 B12 LTE (700MHz)**		1	**±170'-0"**	**16"**	**8"**	**8"**	**±15'**	**8**
	–	–	–		–	–	–	–	–	–
SECTOR B	B1	**ERICSSON RRUS-11 B12 LTE (700MHz)**		1	**±170'-0"**	**16"**	**8"**	**8"**	**±15'**	**8**
	–	–	–		–	–	–	–	–	–
SECTOR C	C1	**ERICSSON RRUS-11 B12 LTE (700MHz)**		1	**±150'-0"**	**16"**	**8"**	**8"**	**±15'**	**8**
	–	–	–		–	–	–	–	–	–

ANTENNA & EQUIPMENT SCHEDULES

1

T-Mobile
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PHONE: (949) 273-0996

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CHECKED BY:	KM

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REGISTERED PROFESSIONAL ENGINEER
WASSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
ANTENNA LAYOUT & SCHEDULE

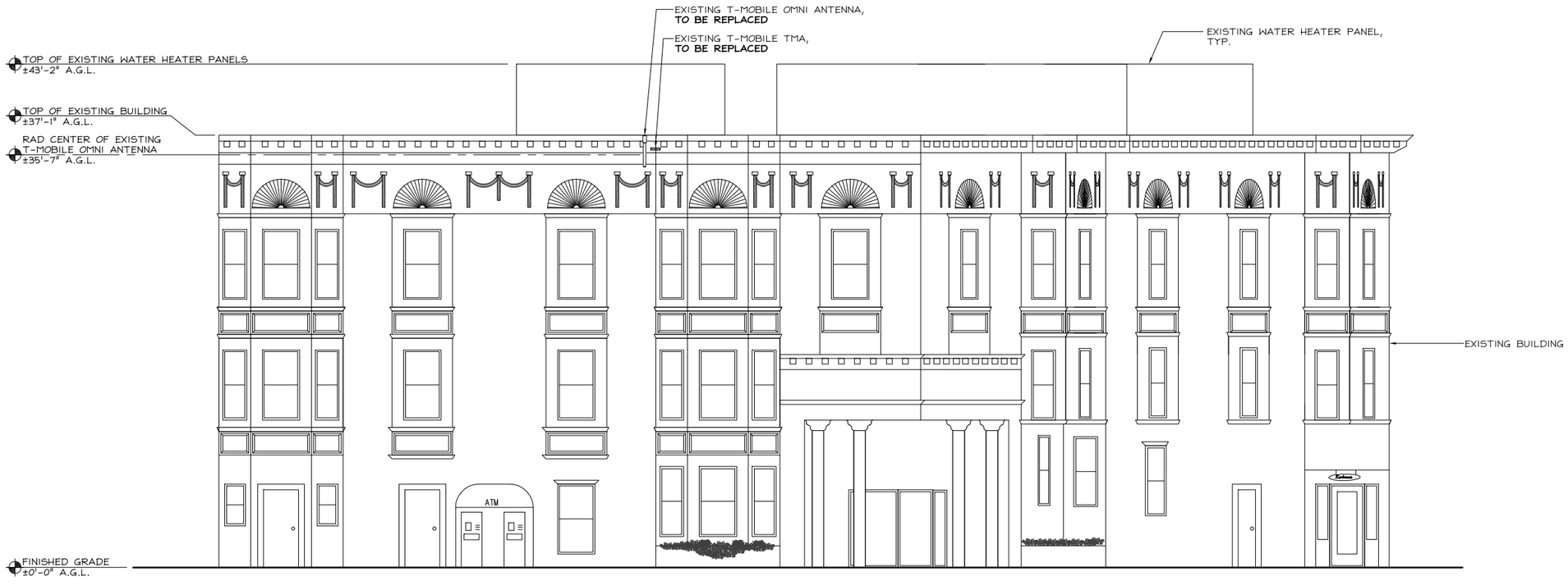
SHEET NUMBER
A-4

NOTE:
PROPOSED T-MOBILE TMAs, SLEEPERS, PIPE MOUNTS & CABLES TO BE PAINTED TO MATCH EXISTING ROOFTOP EQUIPMENT.

PROPOSED NORTHWEST ELEVATION

24"x36" SCALE: 3/16" = 1'-0"
11"x17" SCALE: 3/32" = 1'-0"
4' 2' 0" 4'

2



EXISTING NORTHWEST ELEVATION

24"x36" SCALE: 3/16" = 1'-0"
11"x17" SCALE: 3/32" = 1'-0"
4' 2' 0" 4'

1

T-Mobile
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REGISTERED PROFESSIONAL ENGINEER
WISAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A-5

NOTE:
PROPOSED T-MOBILE TMAs, SLEEPERS, PIPE MOUNTS & CABLES TO BE PAINTED TO MATCH EXISTING ROOFTOP EQUIPMENT.

PROPOSED WEST ELEVATION

24"x36" SCALE: 3/16" = 1'-0"
11"x17" SCALE: 3/32" = 1'-0"
4' 2' 0" 4'

2

EXISTING WEST ELEVATION

24"x36" SCALE: 3/16" = 1'-0"
11"x17" SCALE: 3/32" = 1'-0"
4' 2' 0" 4'

1

T-Mobile
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STATE OF CALIFORNIA

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LEMBI BUILDING
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L700 PROJECT

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A-6

CABLE TRAY WITH COVER, 9" RUNGS, 4" LOADING DEPTH. SUPPORT CABLES WITH TIE-WRAPS OR STAINLESS STEEL CLAMP EVERY 6 FT

HOLD DOWN CLAMP FASTENED TO 4"X4" WITH 3/8" X 2 1/2" LONG LAG SCREWS

PROVIDE SOLID BOTTOM TRAY AT GRADE

#2 AWG GREEN INSULATED GROUNDING JUMPER. CONNECT TO ALL CABLE TRAY CONNECTIONS WITH MECHANICAL CONNECTIONS

PER PLAN

4"X4"X18" (FOR 12" TRAY)
4"X4"X12" (FOR 6" TRAY)
INSTALL PVC SLEEPER MICROFLECT 25156 OR EQUAL EVERY 6'-0" WHEN MOUNT ON ROOF. SET SLEEPER IN ROOFING MASTIC TO PREVENT MOVEMENT

NOTES:
1. RUN #2 AWG BCW GROUND CONDUCTOR ALONG CABLE TRAY PER ELEC. AND GROUND AT BOTH ENDS.

2. CABLE TRAYS SHALL BE FREE OF SHARP OBJECTS AND BURRS WHICH COULD INJURE CABLES. COVERS SHALL BE FASTENED USING HOLD DOWN CLIPS. SHEET METAL SCREWS ARE NOT ACCEPTABLE.

CABLE TRAY DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS

9

4x8 FLAT PRESSURE TREATED ROOF SLEEPER

GALVANIZED SHEET METAL CAP-FLASHING

CONT. FIBER CANT STRIP, TYP.

ROLLED ROOFING, LAYER WITH MASTIC

ROOF SHEATHING, PATCH AND REPAIR AS REQUIRED

NEW BLOCKING TO EXISTING JOISTS AT EACH END, CONTINUOUS BENEATH SLEEPER

SLEEPER WEATHERPROOFING

24"x36" SCALE: NTS
11"x17" SCALE: NTS

8

COMMSCOPE CBC721-DF-2X ONEBASE CROSSBAND COUPLER

COLOR: GRAY

DIMENSIONS, HxWxD: (7.7"X6.0"X3.7")

WEIGHT, WITHOUT MOUNTING HARDWARE: (11.5 lbs)

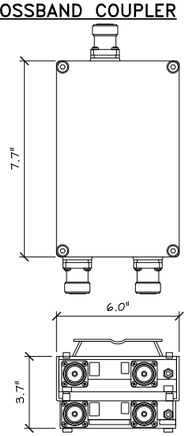
CONNECTOR INTERFACE: 7-16 DIN FEMALE

ELECTRICAL SPECIFICATIONS (BAND 1):

OPERATING FREQUENCY: 698-960 MHz
INSERTION LOSS, MAXIMUM: 0.15 dB
OUTPUT POWER, MAXIMUM: 500 W

ELECTRICAL SPECIFICATIONS (BAND 2):

OPERATING FREQUENCY: 1710-2170 MHZ
INSERTION LOSS, MAXIMUM: 0.20 DB
OUTPUT POWER, MAXIMUM: 500 W



DIPLEXER SPECIFICATION

24"x36" SCALE: NTS
11"x17" SCALE: NTS

6

COMMSCOPE TMAT1921B78-21A TOWER MOUNTED AMPLIFIER (TMA)

COLOR: GRAY

DIMENSIONS, HxWxD: 230.0x220.5x104.0mm (9.1"X8.7"X4.1")

WEIGHT: 8.0Kg (17.6 lbs)

CONNECTOR INTERFACE: 7-16 DIN FEMALE

ELECTRICAL SPECIFICATIONS Rx (UPLINK):

BANDWIDTH: 60.00MHz
LICENSE BAND: PCS
FREQUENCY BAND: 1850-1910MHz
RETURN LOSS, min: 18dB

ELECTRICAL SPECIFICATIONS Tx (DOWNLINK):

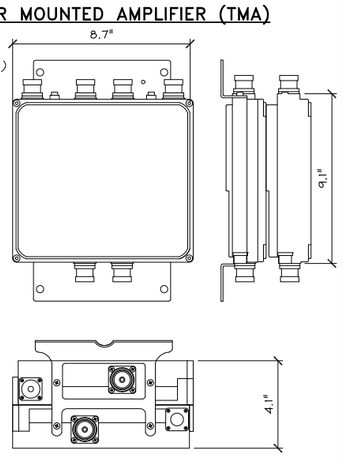
BANDWIDTH: 60.00MHz
LICENCE BAND: PCS
FREQUENCY BAND: 1930-1990MHz
RETURN LOSS, min: 20dB

ELECTRICAL SPECIFICATIONS 2 Rx (UPLINK):

BANDWIDTH: 45.00MHz
LICENCE BAND: AWS
PASSBAND: 1710-1755MHz
RETURN LOSS, min: 18dB

ELECTRICAL SPECIFICATIONS 2 Rx (UPLINK):

BANDWIDTH: 45.00MHz
LICENCE BAND: AWS
PASSBAND: 2110-2155MHz
RETURN LOSS, min: 20dB



TMA SPECIFICATION

24"x36" SCALE: NTS
11"x17" SCALE: NTS

5

RFS ATM1900D-1A20 DUAL DUPLEX TOWER MOUNTED AMPLIFIER (TMA)

COLOR: GRAY

DIMENSIONS, HxWxD: 220x254x66mm (8.6"x10"x2.6")

WEIGHT: 3.8 Kg (8.4 lbs)

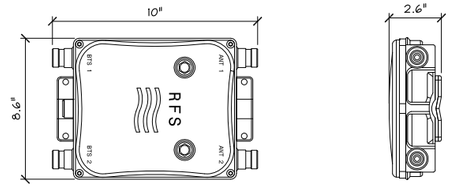
CONNECTOR INTERFACE: 7-16 DIN FEMALE LONG-NECK
LICENSE BAND: PCS

ELECTRICAL SPECS Rx:

BANDWIDTH: 60 MHz
FREQUENCY BAND: 1850-1990 MHz
RETURN LOSS MINIMUM: 18 dB

ELECTRICAL SPECS Tx:

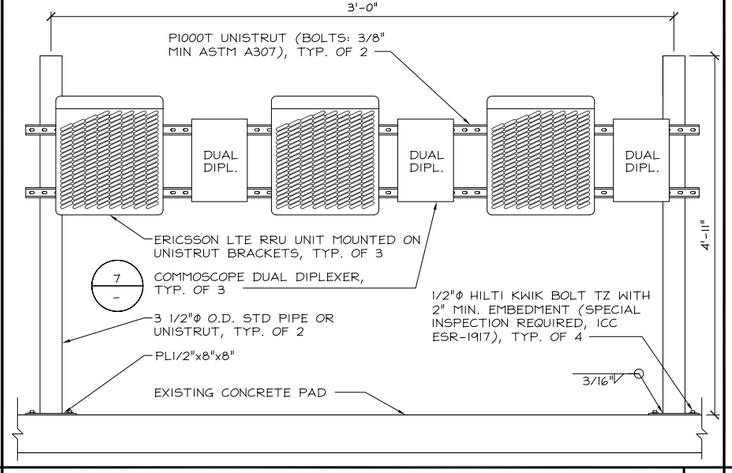
BANDWIDTH: 60 MHz
FREQUENCY BAND: 1930-1990 MHz
RETURN LOSS, MINIMUM: 18 dB



TMA SPECIFICATION

24"x36" SCALE: NTS
11"x17" SCALE: NTS

7



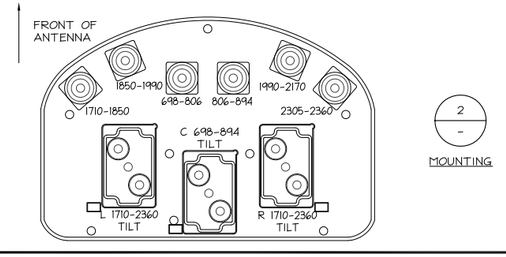
RACK MOUNTED RRU DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS

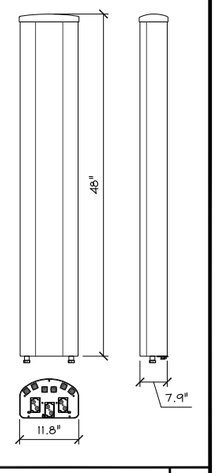
4

RFS ANTENNA APXVFWW12X-C-NA20

ANTENNA COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	1220x299x200mm (48"x11.8"x7.9")
WEIGHT, W/OUT PRE-MOUNTED BRACKETS:	20.9 kg (46 lbs)
SURVIVAL/RATED WIND SPEED:	240/150 km/h (150/93.2 mph)
CONNECTOR:	(6) 7/16 LONG NECK FEMALE (BOTTOM)
DUAL POLARIZED, +/-45°:	57-74 DEG, 15.9-18 dBi, 0-10 deg, RET



2
-
MOUNTING



ANTENNA SPECIFICATION

24"x36" SCALE: NTS
11"x17" SCALE: NTS

1

ANTENNA MOUNTING DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS

2

ERICSSON RRUS-11 B12 RRU

MAST MOUNTED

COLOR: LIGHT GRAY

DIMENSIONS, HxWxD: 442x288x220MM (17.4"X11.3"X8.7")

WEIGHT, WITH PRE-MOUNTED BRACKETS: 20Kg (44 lbs)

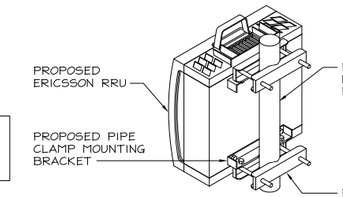
WIND LOAD, FRONTAL/LATERAL/REAR
SIDE 149.8 MPH, CD=1: N/A lbs

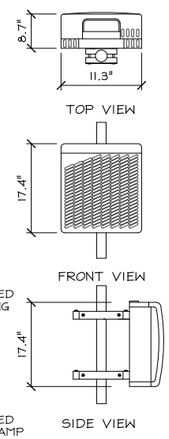
CONNECTOR: (4) 1/2 DIN FEMALE

CLIMATE: -40°C TO +55°C (SELF CONVECTION SILENT, NO FANS, IP55)

POWER CONSUMPTION: 190 WATTS, TYP.

NOTES:
RRU CAN ONLY BE PAINTED ON SOLAR SHIELD.





RRU DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS

3

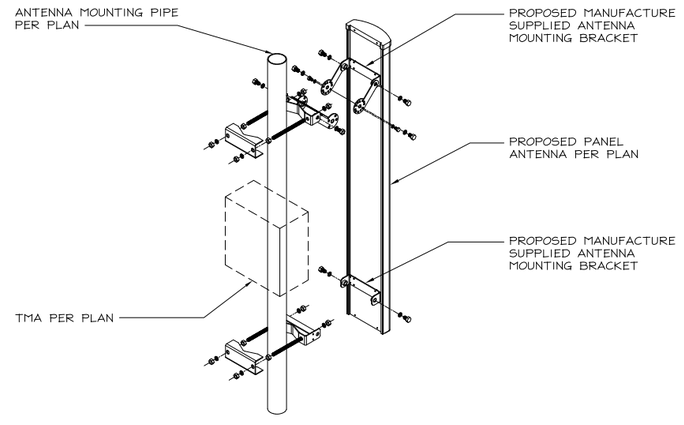
ANTENNA MOUNTING PIPE PER PLAN

PROPOSED MANUFACTURE SUPPLIED ANTENNA MOUNTING BRACKET

PROPOSED PANEL ANTENNA PER PLAN

PROPOSED MANUFACTURE SUPPLIED ANTENNA MOUNTING BRACKET

TMA PER PLAN



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A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT NO:	SF03252A
DRAWN BY:	NB
CHECKED BY:	KM

REV	DATE	DESCRIPTION	
I	10/31/2017	REVISED SETBACK	RF
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C	07/25/2017	100% CD'S FOR APPROVAL	KM
B	09/15/2016	100% CD'S FOR REVIEW	RF
A	07/25/2016	90% CD'S FOR REDLINE	NB/KM

REGISTERED PROFESSIONAL ENGINEER
WISAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE

DETAILS

SHEET NUMBER

D-1

Product Data Sheet **APXVFWW12X-C-NA20** RFS

RF X-TREME™ Cross Polarized Triple Band Antenna, 698-2360MHz, 65deg, 13.9/16.0/16.8dBi, 4ft, VET

Product Description

The new RF X-TREME base station antenna design provides the highest gain and cross polar discrimination combined with the best vertical pattern control of any triple band antenna for its size. It is an ideal choice for site upgrades and new deployments where three frequency bands, or MIMO/4 RX diversity, is used to add capacity and increase coverage. Only 12 inches wide and 4 feet high, it maintains the size of a dual band antenna, while adding a third antenna path with no compromise in RF performance. It can be used for 2G, 3G and 4G technologies. This multi-band antenna features superior pattern symmetry and a phase shifter for each radiating dipole providing exceptional patterns at all tilt settings. It is supplied with an integrated and field replaceable AISG 2.0 antenna control unit (ACU) for remote electrical tilt (RET) compatibility.

RF X-TREME Series

Features/Benefits

- Cross polarization – triple band version with 6 ports (2x 698-894 MHz and 4x 1710-2360 MHz)
- One phase shifter per radiating element – improves radiating patterns
- Superior X-Pol Discrimination – Improves Rx diversity
- High suppression of upper sidelobes – reduces cell interference
- Enhanced tilt range from 0-8 degrees for 698-894MHz and 0-10 degrees for 1710-2360MHz – ideal for applications in dense areas
- Variable electrical downtilt – provides enhanced precision in controlling intercell interference
- High reliability – designed to last in a tower top environment
- Design incorporates low windload and low weight – minimizes tower loading
- Quick and easy to install – reduces installation time and costs
- Includes two 0.5m AISG Jumper

Technical Specifications

Electrical Specifications

Frequency Range, MHz	698-806	806-894	1710-1880	1850-1990	1920-2170	2305-2360
Horizontal Beamwidth, deg	74	71	69	67	65	55
Vertical Beamwidth, deg	21.0	17.0	10.0	9.2	8.8	8.4
Electrical Downtilt Range, deg	2-10	2-10	0-10	0-10	0-10	0-10
Gain, dBi (dBd)	13.6 (11.5)	13.9 (11.8)	15.5 (13.4)	16.0 (13.9)	16.3 (14.2)	16.8 (14.7)
1st Upper Sidelobe Suppression, dB	18					
Front-To-Back Ratio, dB (+/-20° cone)	> 24	> 32	> 27	> 26	> 26	> 29
Polarization	Dual pol +/-45°					
VSWR	< 1.5:1					
Isolation between Ports, dB	>30 typ.					
XPol Ratio ±60 degrees, dB	> 10	> 10	> 10	> 10	> 10	> 10
3rd Order IMP @ 2 x 43 dBm, dBc	>153					
Impedance, Ohms	50					
Maximum Power Input, W 5	500	500	300	300	300	300
Lightning Protection	Direct Ground					
Connector Type/Location	(6) 7-16 Long Neck Female/Bottom					

Mechanical Specifications

Dimensions - HxWxD, mm (in)	1220 x 299 x 200 (48 x 11.8 x 7.9)
Weight with Mtg Hardware, kg (lb)	20.9 (46)
Survival/Rated Wind Speed, km/h (mph)	240 (150) / 150 (93.2)
Applied Wind Load Standard	DIN 1055-4
Wind Load @ Rated Wind, Front, N (lbf)	275 (62)
Wind Load @ Rated Wind, Max., N (lbf)	340 (77)
Wind Load @ Rated Wind, Side, N (lbf)	340 (77)
Wind Load @ Rated Wind, Rear, N (lbf)	312 (71)
Operation temperature, °C (°F)	-40 to +60 (-40 to +140)
Radome Material/Color	ASA/Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum and Galvanized Steel

Ordering Information

Mounting Hardware	APM40-2
Mounting Pipe Diameter, mm (in)	60-120 (2.36-4.72)
Mounting Hardware Weight, kg (lb)	3.4 (7.5)

* This data is provisional and subject to change.

RFS The Clear Choice* | APXVFWW12X-C-NA20 | Rev: P3 | Print Date: 14.8.2014

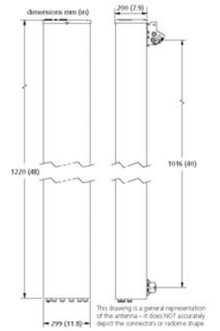
Please visit us on the internet at http://www.rfsworld.com — Radio Frequency Systems

All information contained in the present datasheet is subject to confirmation at time of ordering.

Product Data Sheet **APXVFWW12X-C-NA20** RFS

RF X-TREME™ Cross Polarized Triple Band Antenna, 698-2360MHz, 65deg, 13.9/16.0/16.8dBi, 4ft, VET

Antenna Array



Antenna Drawing

External Document Links

APM40 Series Datasheet
APM40 Series Installation Instructions

* This data is provisional and subject to change.

RFS The Clear Choice* | APXVFWW12X-C-NA20 | Rev: P3 | Print Date: 14.8.2014

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REMOTE RADIO HEAD – RRUS11

TECHNICAL SPECIFICATIONS

Frequency
- ✓ Band 12 (Lower 700 MHz)
- ✓ Band 4 (AWS, 17/2100 MHz) — 2Q2011

MIMO Capable
- ✓ 2x30W MIMO
- ✓ IBW of 20 MHz

Size & Weight
- ✓ Band 4: 44 lbs
- ✓ Band 12: 50 lbs
- ✓ 15.9 x 16.3 x 5.8 in. excl. sun shield
- ✓ 17.8 x 17.3 x 7.2 in. incl. sun shield

Power
- ✓ Input voltage: -48 VDC or AC (Indoor)
- ✓ Fuse size: 13 – 32 A
  - Recommended: 25 A

RRUS 11 MOUNTING

- Clearing distances:
  - Above >= 16 in.
  - Below >= 8 in.
  - Side >= 0 mm
- DC connector
  - Bayonet
  - Screw terminals in connector plug
  - Supported outer cable diameter: 8-18 mm
- CPRI connector
  - LCD with proprietary cover
  - Separate cover available from 1Q2011

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LEMBI BUILDING
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L700 PROJECT

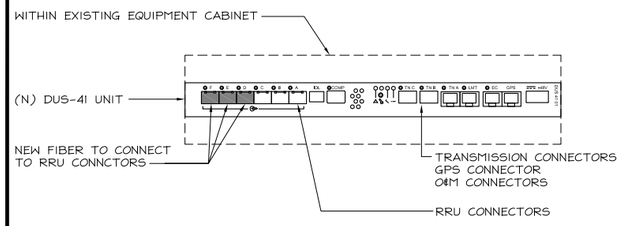
SHEET TITLE
EQUIPMENT SPECIFICATION SHEETS

SHEET NUMBER
D-2

ERICSSON DUS41 MAIN UNIT (MU) SPECIFICATIONS

DC POWER SUPPLY
NOMINAL VOLTAGE -48 V DC
OPERATING VOLTAGE RANGE -40.0 TO -57.6V DC
NON-DESTRUCTIVE VOLTAGE RANGE 0 TO -60 V DC
POWER CONSUMPTION: 250W

DIMENSIONS
HEIGHT 1.2"
WIDTH 11"
DEPTH 13.8"
WEIGHT (FULLY EQUIPPED) 6.6 LBS
COLOR WHITE



ERICSSON PBC6200 CABINET

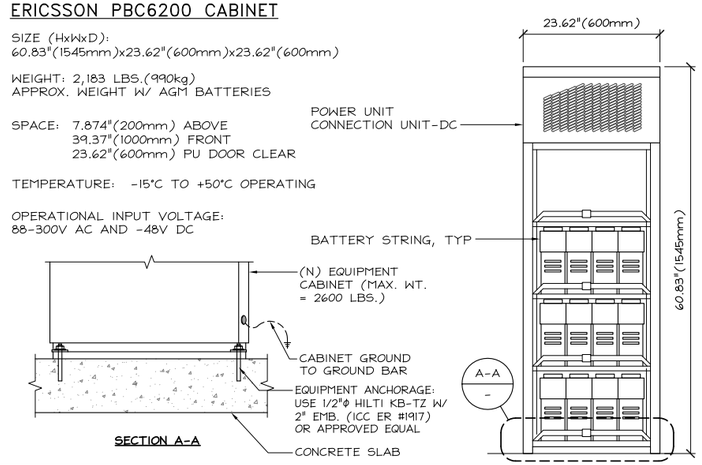
SIZE (HxWxD):
60.83"(1545mm)x23.62"(600mm)x23.62"(600mm)

WEIGHT: 2,183 LBS.(990kg)
APPROX. WEIGHT W/ AGM BATTERIES

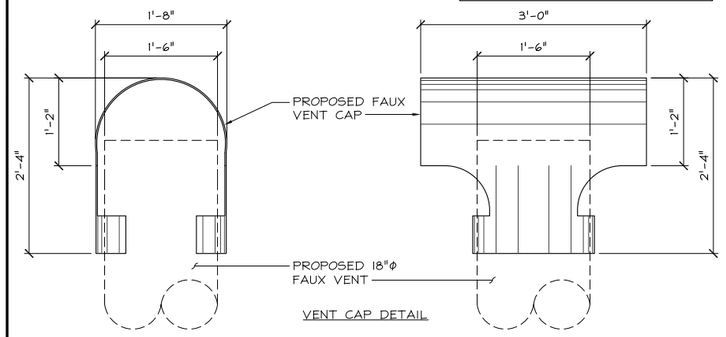
SPACE: 7.874"(200mm) ABOVE
39.37"(1000mm) FRONT
23.62"(600mm) PU DOOR CLEAR

TEMPERATURE: -15°C TO +50°C OPERATING

OPERATIONAL INPUT VOLTAGE:
88-300V AC AND -48V DC



NOTE:
FAUX VENT CAP DESIGN TO BE PROVIDED BY STEALTH MANUFACTURER, DIMENSIONS SHOWN ARE APPROXIMATE AND WILL BE DETERMINED BY FINAL MANUFACTURER SPECIFICATIONS

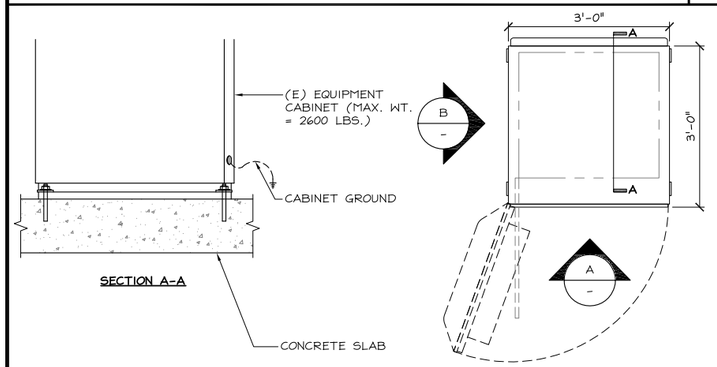


VENT CAP DETAIL

ERICSSON DUS41 MAIN UNIT DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS

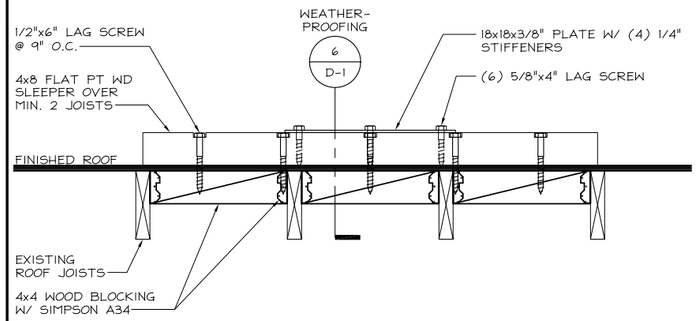
6



PBC 6200 CABINET SPECIFICATIONS

24"x36" SCALE: NTS
11"x17" SCALE: NTS

4



SLEEPER TO BLOCKING DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS

3

ERICSSON ODE 6201 OUTDOOR CABINET

CONFIGURATIONS: 3X20 MHz MIMO LTE + 3X20 MHz LTE DUALBAND
DIMENSIONS: 72"H X 36"W X 36"D
WEIGHT: 715 LBS
-340 LBS (ENCLOSURE + SUPPORT)
-374 LBS (RBS 6201)
SITE POWER: 180-250 VAC (L+L+N+PE) 60A SERVICE (MAX)
TRANSMISSION: 100/1000 BASE-T ETHERNET, SPACE FOR SIU 02
TEMPERATURE RANGE: -33°C TO +50°C

NOTE:
EXISTING RBS 6201 CABINET SHOWN HERE IS FOR REFERENCE ONLY. EXISTING CABINET TO REMAIN

ERICSSON RBS 6201 CABINET

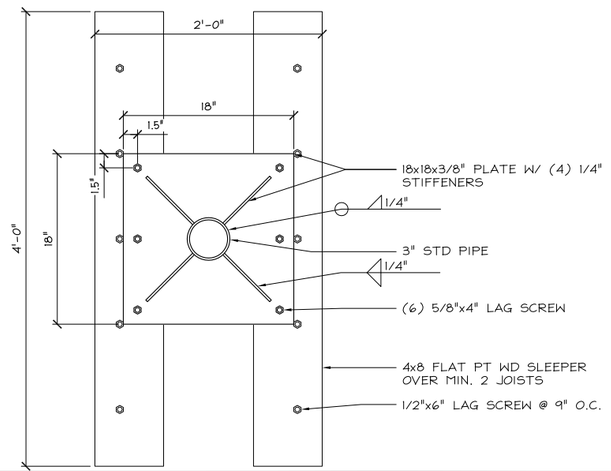
24"x36" SCALE: NTS
11"x17" SCALE: NTS

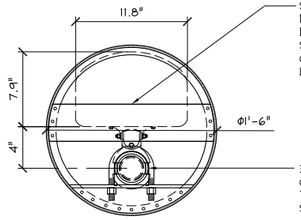
5

PIPE MOUNT PLATE

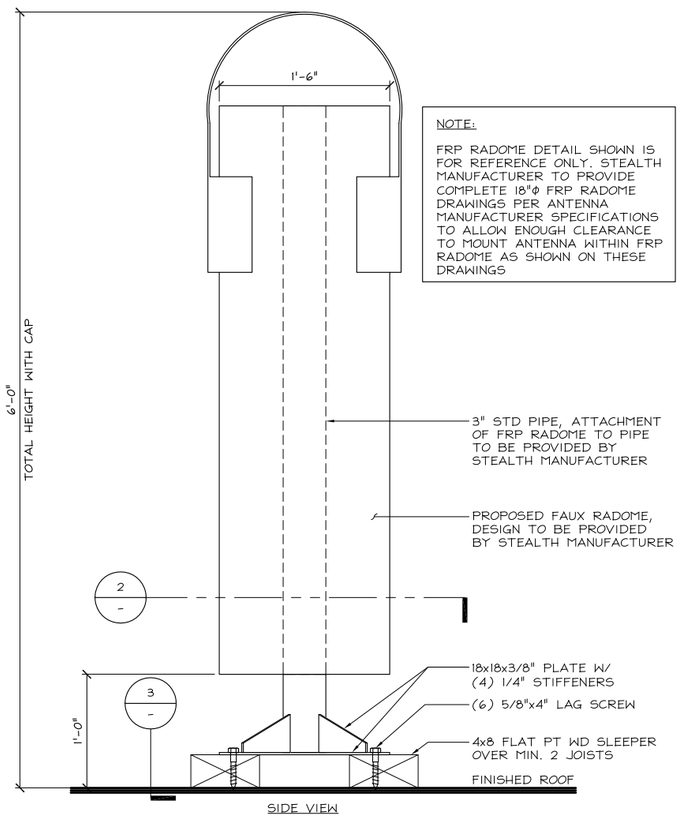
24"x36" SCALE: NTS
11"x17" SCALE: NTS

2





PLAN VIEW



SIDE VIEW

ANTENNA PIPE MOUNT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

1

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2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

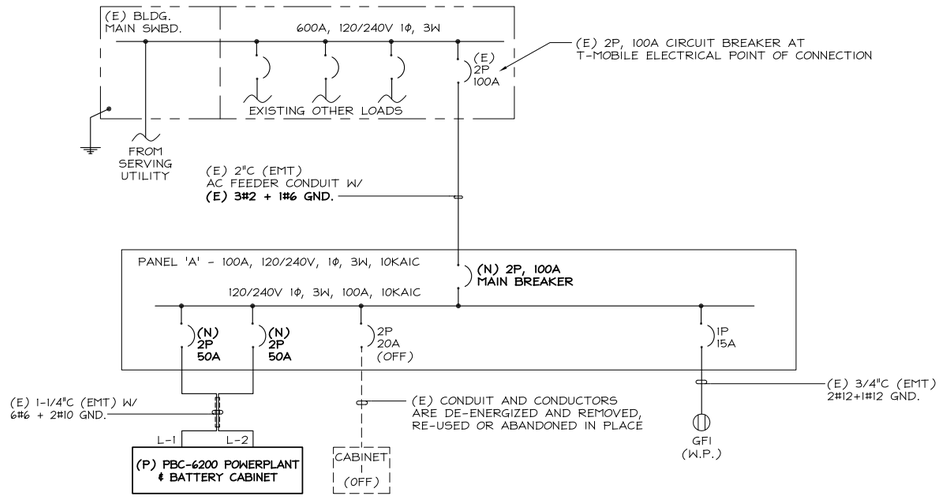
SHEET TITLE
STRUCTURAL SHEET

SHEET NUMBER
S-1

NOTES:

1. SUBCONTRACTOR SHALL PROVIDE "100"AMP, SINGLE PHASE, 120/240 VAC, 60HZ SERVICE FOR T-MOBILE SITE
2. SUBCONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY BEFORE THE START OF CONSTRUCTION. POWER AND TELEPHONE CONDUIT SHALL BE PROVIDED AND INSTALLED PER UTILITY REQUIREMENTS
3. FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO DRAWINGS PROVIDED BY PPC MANUFACTURER.
4. ALL SERVICE EQUIPMENT AND INSTALLATIONS SHALL COMPLY WITH THE N.E.C. AND UTILITY COMPANY AND LOCAL CODE REQUIREMENTS
5. SUBCONTRACTOR SHALL INSTALL 36" OF FLEX CONDUIT WITH ALL CONDUIT FITTINGS (NUTS, REDUCING BUSHINGS, ELBOWS, COUPLINGS, ETC.) NECESSARY FOR CONNECTION TO THE BTS CABINET
6. SUBCONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE EQUIPMENT WITH FAULT CURRENT RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT FROM THE POWER UTILITY
7. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT. SHALL BE SINGLE CONDUCTOR (#14 AWG AND LARGER), 600V, OIL RESISTANT. THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY.) OPERATION; LISTED

NOTES 4



ONE LINE DIAGRAM 3

PROPOSED PANEL SCHEDULE

PANEL 'A'

SITE NAME: SF03252A - Lembi Building
PANEL DESIGNATION: AC PANEL 'A'
VOLTAGE: 120/240 V
PHASE: 1
WIRE: 3
MAIN BREAKER: 100 AMP
BUSS RATING: 125 AMP
LOCATION: SURFACE EXTERIOR

CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	PBC6200	50	2	ON	3960	1.25	4950		0				ON	2	100	MAIN BREAKER	2
3					3960	1.25		4950		0							4
5	PBC6200	50	2	ON	3960	1.25	4950		0				OFF	2	20	SPARE	6
7					3960	1.25		4950		0							8
9	LIGHTS (RELOCATED)	15	1	ON	200	1.25	250		0							SPACE	10
11	SPACE							0		0						SPACE	12

PHASE A TOTAL VA	10150
PHASE B TOTAL VA	9900
TOTAL KVA	20.05
TOTAL AMPS	83.54

NOTES:
1. ALL LOADS CALCED AS LCL/MCL LOADS (OK TO DESIGN TO 100% CAPACITY)
2. ALL UNUSED BREAKERS SHALL BE LABELED 'SPARE' AND SWITCHED 'OFF'
3. CIRCUITS 9 -12 IS 'SPACE' W/ PANEL MFR. METAL KNOCKOUT INTACT

EXISTING PANEL SCHEDULE

PANEL 'A'

SITE NAME: SF03252A - Lembi Building
PANEL DESIGNATION: AC PANEL 'A'
VOLTAGE: 120/240 V
PHASE: 1
WIRE: 3
MAIN BREAKER: NONE AMP
BUSS RATING: 125 AMP
LOCATION: SURFACE EXTERIOR

CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	PBC6500	50	1	ON	1900	1.25	2375		0				OFF	2	20	BTS #2	2
3	PBC6500	50	1	ON	1900	1.25		2375		0							4
5	PBC6500	50	1	ON	1900	1.25	2375		0				OFF	2	20	BTS #1	6
7	LIGHTS	15	1	ON	200	1.25		250		0							8
9	SPACE						0		0							SPACE	10
11	SPACE							0		0						SPACE	12

PHASE A TOTAL VA	4750
PHASE B TOTAL VA	2625
TOTAL KVA	7.38
TOTAL AMPS	30.73

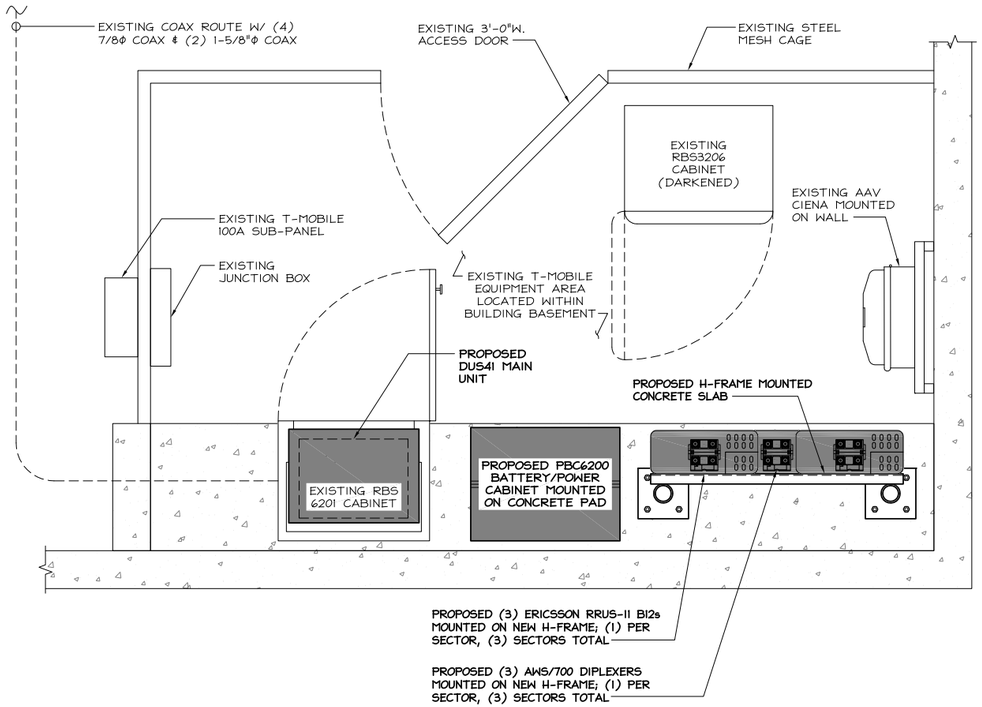
NOTES:
1. ALL LOADS CALCED AS LCL/MCL LOADS (OK TO DESIGN TO 100% CAPACITY)
2. ALL UNUSED BREAKERS SHALL BE LABELED 'SPARE' AND SWITCHED 'OFF'
3. CIRCUITS 9 -12 IS 'SPACE' W/ PANEL MFR. METAL KNOCKOUT INTACT

PANEL SCHEDULE 2

OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED.

ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL CODES.
2. SERVICE TO EQUIPMENT CABINETS SHALL BE 120/240VAC, 80A, 1-PHASE.
3. ALL CONDUCTORS SHALL BE THWN, COPPER 600V. 75° C;
4. ALL WORK TO COMPLY WITH NFPA 70E, OSHA TITLE 29, AND T-24, CALIFORNIA CODE OF REGULATIONS
5. REFER TO PANEL SCHEDULE FOR T-MOBILE 'PANEL A' & NOTES FOR PROPOSED IMPROVEMENTS & CONFORMANCE ITEMS.
6. PER EXISTING DE-ENERGIZED CONDUCTORS & CONDUIT ABANDONED IN PLACE, ALL UNUSED/UNLOADED CIRCUIT BREAKERS SHALL BE LABELLED 'SPARE' & TURNED OFF
7. CONTRACTOR TO PROVIDE A NEW OR UPDATED PANEL SCHEDULE WITH COMPLETED SOW CIRCUIT ASSIGNMENT LABELS, AND ATTACH IT TO THE INSIDE OF THE AC PANEL 'A' ACCESS DOOR



ELECTRICAL PLAN 1

24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"

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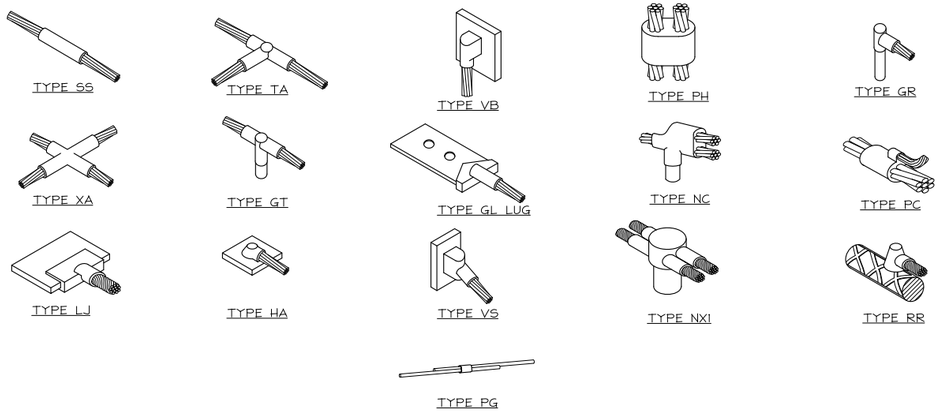
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE
ELECTRICAL PLAN & PANEL SCHEDULE

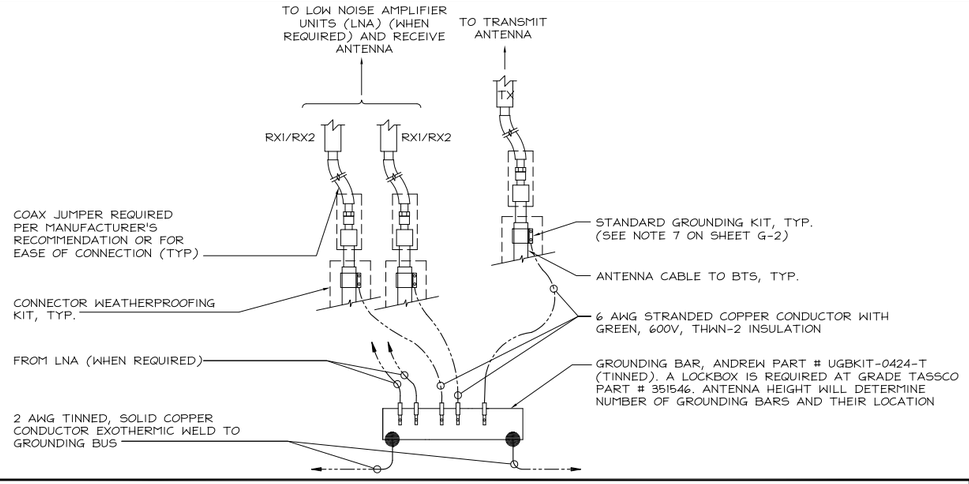
SHEET NUMBER
E-1



TYPICAL CADWELD TYPES

24"x36" SCALE: NTS
11"x17" SCALE: NTS

4



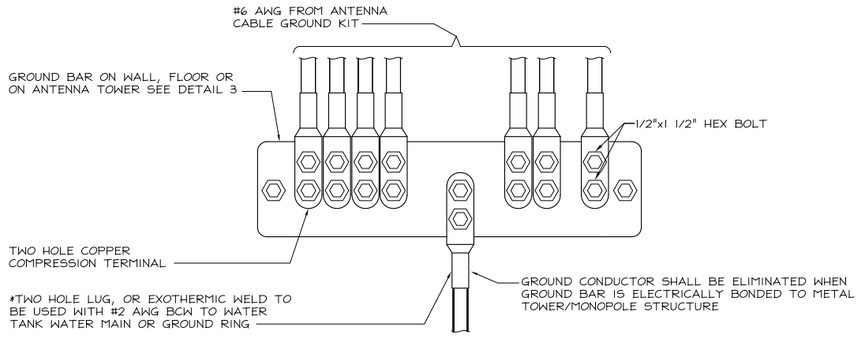
GROUNDING BAR CONNECTION

24"x36" SCALE: NTS
11"x17" SCALE: NTS

3

NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS AND TO BE APPLIED PRIOR TO ADDING HARDWARE.



* — GROUND BARS AT THE BOTTOM OF TOWERS/MONOPOLES SHALL ONLY USE EXOTHERMIC WELDS.

WIRE TO GROUND BAR CONNECTION

24"x36" SCALE: NTS
11"x17" SCALE: NTS

2

1. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.

2. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #2 GROUND WIRES AND CONNECT TO SURFACE MOUNTED GROUND BUS BARS AS SHOWN. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS USING MANUFACTURERS PRACTICES. ALL UNDERGROUND WATER PIPES, METAL CONDUITS AND GROUNDS THAT ARE A PART OF THIS SYSTEM SHALL BE BONDED TOGETHER.

3. ALL GROUND CONNECTIONS SHALL BE #2 AWG U.N.O. ALL WIRES SHALL BE COPPER THHN/THWN. ALL GROUND WIRE SHALL BE SOLID TIN COATED OR STRANDED GREEN INSULATED WIRE.

4. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE, 5 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE T-MOBILE REPRESENTATIVE.

5. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.

6. BARE GROUNDING CONDUCTOR SHALL BE HARD DRAWN TINNED COPPER SIZES AS NOTED ON PLAN.

7. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED MINIMUM 12" BELOW GRADE/FROST-LINE IN TRENCH, U.N.O., AND BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT.

8. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.

9. ALL SUPPORT STRUCTURES, CABLE CHANNEL WAYS OR WIRE GUIDES SHALL BE BONDED TO GROUND SYSTEM AT A POINT NEAREST THE MAIN GROUNDING BUS "MGB" (OR DIRECTLY TO GROUND-RING).

10. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
    a. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR INDOOR USE OR AS APPROVED BY T-MOBILE PROJECT MANAGER.
    b. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
    c. TWO -(2) HOLE TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS (BUS BAR CONNECTIONS).

11. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES).

12. PRIOR TO ANY LUG-BUSSBAR CONNECTIONS, THE BUSSBAR SHALL BE CLEANED BY USE OF "SCOTCH-BRITE' OR PLAIN STEEL WOOL AS TO REMOVE ALL SURFACE OXIDATION AND CONTAMINANTS. A COATING OF "NO-OX-ID" SHALL BE APPLIED TO THE CONNECTION SURFACES.

13. ALL CONNECTION HARDWARE SHALL BE TYPE 316 SS (NOT ATTRACTED TO MAGNETS).

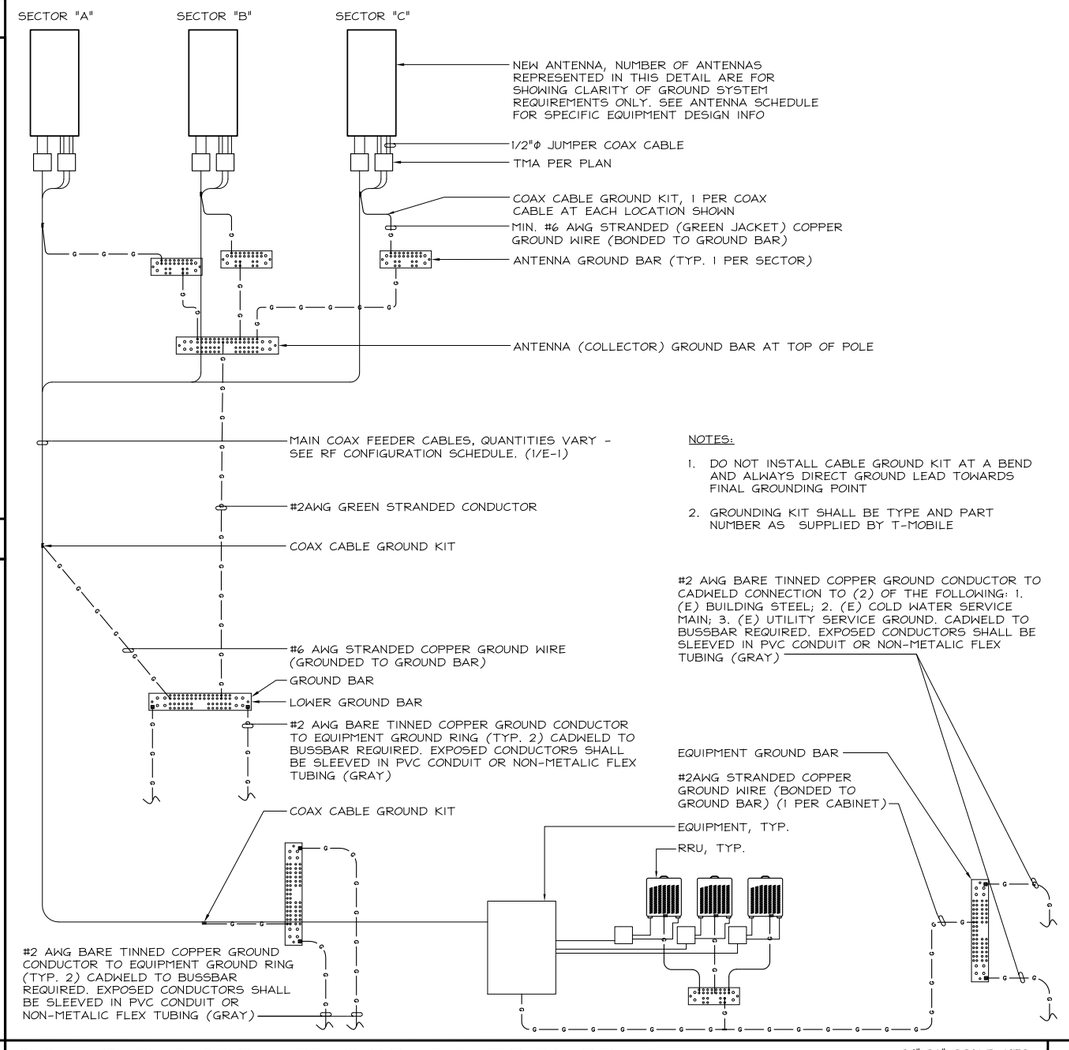
14. THE GROUND RING SHALL BE INSTALLED 24" MINIMUM BEYOND ANY BUILDING DRIP LINE.

15. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL EXISTING AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS, GROUND RING IF SERVICE IS WITHIN THE RADIO EQUIPMENT LOCATION, BUILDING STEEL IF APPLICABLE, COLD WATER CONNECTIONS MUST BE MADE ON THE STREET SIDE OF MAIN SHUT-OFF VALVE.

GROUNDING NOTES

24"x36" SCALE: NTS
11"x17" SCALE: NTS

2



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND LEAD TOWARDS FINAL GROUNDING POINT
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED BY T-MOBILE

COAX CABLE GROUNDING SCHEMATIC DIAGRAM

24"x36" SCALE: NTS
11"x17" SCALE: NTS

1

T-Mobile
1855 GATEWAY BLVD., 9th FLOOR
CONCORD, CA 94520

MODUS
240 STOCKTON ST., 3RD FLOOR
SAN FRANCISCO, CA 94108

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT NO:	SF03252A
DRAWN BY:	NB
CHECKED BY:	KM

REV	DATE	DESCRIPTION	
1	10/31/2017	REVISED SETBACK	RF
0	10/10/2017	100% CD'S FOR SUBMITTAL	RF
C	07/25/2017	100% CD'S FOR APPROVAL	KM
B	09/15/2016	100% CD'S FOR REVIEW	RF
A	07/25/2016	90% CD'S FOR REDLINE	NB/KM

REGISTERED PROFESSIONAL ENGINEER
WASAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

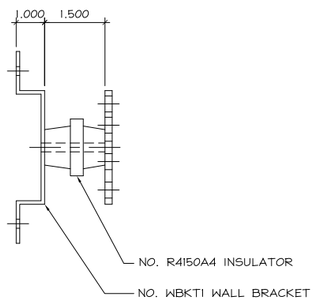
SHEET TITLE
GROUNDING SCHEMATIC & GROUNDING DETAILS

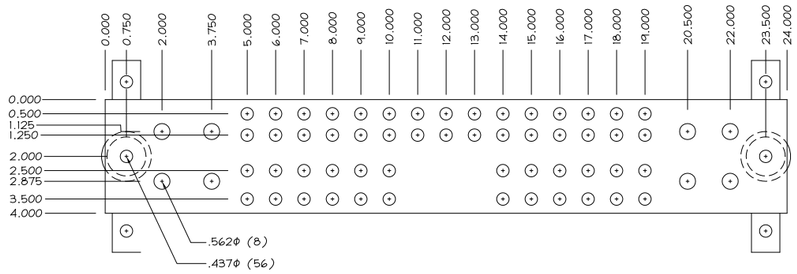
SHEET NUMBER
G-1

NOT USED

24"x36" SCALE: NTS
11"x17" SCALE: NTS

6



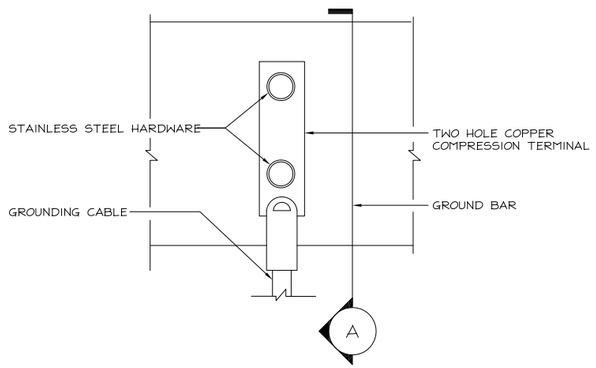


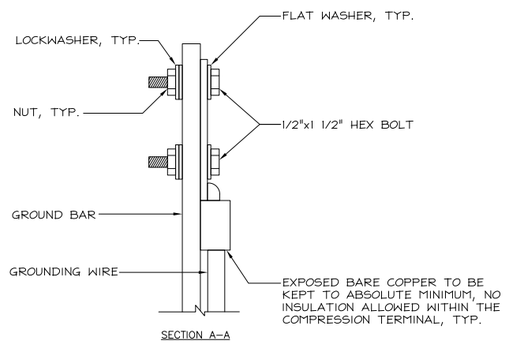
MANUFACTURER: HARGER

24" GROUND BAR

24"x36" SCALE: NTS
11"x17" SCALE: NTS

5





SECTION A–A

NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
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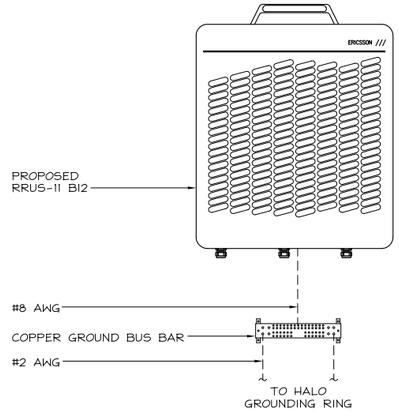
TYPICAL GROUND BAR CONNECTION

24"x36" SCALE: NTS
11"x17" SCALE: NTS

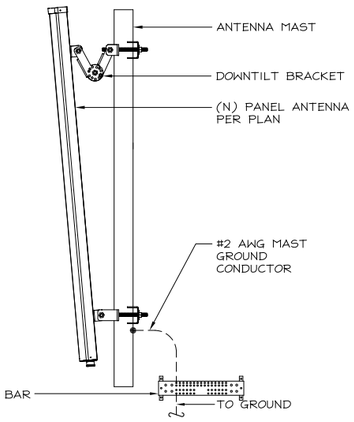
4



RRU GROUNDING DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS

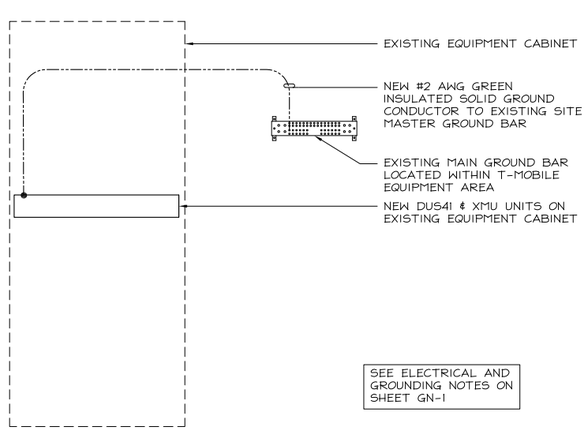
3



ANTENNA/RRU GROUNDING

24"x36" SCALE: NTS
11"x17" SCALE: NTS

2



SEE ELECTRICAL AND GROUNDING NOTES ON SHEET GN-1

EQUIPMENT GROUNDING DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS

1

T-Mobile
1855 GATEWAY BLVD., 9th FLOOR
CONCORD, CA 94520

MODUS
240 STOCKTON ST., 3RD FLOOR
SAN FRANCISCO, CA 94108

ALL STATES ENGINEERING & SURVEYING
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23675 BIRTCHER DRIVE
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PHONE: (949) 273-0996

PROJECT NO:	SF03252A
DRAWN BY:	NB
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REV	DATE	DESCRIPTION	
I	10/31/2017	REVISED SETBACK	RF
O	10/10/2017	100% CD'S FOR SUBMITTAL	RF
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B	09/15/2016	100% CD'S FOR REVIEW	RF
A	07/25/2016	90% CD'S FOR REDLINE	NB/KM

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF03252A
LEMBI BUILDING
2099 MARKET STREET
SAN FRANCISCO, CA 94114
L700 PROJECT

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

G-2

Existing

Proposed

view from Church Street looking north at site

SF03252A Lembi Building
2099 Market Street, San Francisco, CA
Photosims Produced on 11-29-2017

AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507

Existing

Proposed

view from Market Street looking east at site

T-Mobile

SF03252A Lembi Building
2099 Market Street, San Francisco, CA
Photosims Produced on 11-29-2017

AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507

Existing

Proposed

view from Market Street looking southwest at site

AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507

T-Mobile

SF03252A Lembi Building
2099 Market Street, San Francisco, CA
Photosims Produced on 11-29-2017

Radio Frequency – Electromagnetic Energy (RF-EME) Compliance Report (L700)

T-Mobile Proposed Facility

Site ID: SF03252A
Lembi Building
2099 Market Street, San Francisco, California 94114

October 20, 2016

EBI Project Number:
6216004595

Status:	**The proposed site will be compliant with the installation of the mitigation measures.**
Recommended Signage	
Sign Count	Sign Type
1	
1	
6	
3	

Remarks: See attached signage plan. See signage plan for mitigation measures to be installed upon upgrade/installation of the site to comply with FCC and T-Mobile standards.

Prepared by:

EBI Consulting
environmental | engineering | due diligence

INTRODUCTION

Maximum Composite Emissions Value: 2371.9000% of the FCC's general public limit (474.3800% of the FCC's occupational limit). The proposed site will be compliant with Federal regulations regarding (radio frequency) RF Emissions with the installation of the mitigation measures.

EBI Consulting was directed to analyze the proposed T-Mobile rooftop facility (SF03252A) located at 2099 Market Street in San Francisco, California for the purpose of determining whether the emissions from the proposed T-Mobile Antenna Installation located on this property are within specified federal limits. This report contains a detailed summary of the RF EME analysis for the site.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 and 800 MHz Bands is 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

MPE CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna rooftop facility located at 2099 Market Street in San Francisco, California using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed a distance above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of in areas in the immediate vicinity of the antennas.

For all calculations, equipment was calculated using the following assumptions:

1) 2 GSM/UMTS channels (PCS Band – 1950 MHz) were considered for each sector of the proposed installation. The transmit power for these channels is 30 watts per channel.

2) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. The transmit power for these channels is 60 watts per channel.

3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. The transmit power for this channel is 30 watts.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration.

5) EBI has performed theoretical worst case modeling using Roofview® to estimate the maximum potential power density from each antenna based on worst-case assumptions for the number of antennas and power.

6) The data for all T-Mobile antennas used in this analysis is shown below in Table 1. Actual antenna gains for each antenna were used per manufacturer's specifications.

7) There are no additional carriers located on this facility.

8) Emissions values for additional carriers were taken from the data provided by T-Mobile in the supplied drawings. For each additional carrier, known configuration values were utilized to approximate each systems contribution.

All calculations were done with respect to uncontrolled / general public threshold limits.

Antenna Inventory

Antenna Number	Sector	Antenna Make	Antenna Model	Height (ft) Above Nearest Walking Surface	Frequency Band	Technology	Power Per Channel	ERP (w)	Azimuth	Number of Channels
1	A	RFS	APXVFWW12X-C-NA20	2.0	AWS - 2100 MHz	LTE	60	1805	0	2
1	A	RFS	APXVFWW12X-C-NA20	2.0	PCS - 1950 MHz	GSM/UMTS	30	842	0	2
1	A	RFS	APXVFWW12X-C-NA20	2.0	700 MHz	LTE	30	363	0	1
1	B	RFS	APXVFWW12X-C-NA20	2.0	AWS - 2100 MHz	LTE	60	1805	120	2
1	B	RFS	APXVFWW12X-C-NA20	2.0	PCS - 1950 MHz	GSM/UMTS	30	842	120	2
1	B	RFS	APXVFWW12X-C-NA20	2.0	700 MHz	LTE	30	363	120	1
1	C	RFS	APXVFWW12X-C-NA20	2.0	AWS - 2100 MHz	LTE	60	1805	240	2
1	C	RFS	APXVFWW12X-C-NA20	2.0	PCS - 1950 MHz	GSM/UMTS	30	842	240	2
1	C	RFS	APXVFWW12X-C-NA20	2.0	700 MHz	LTE	30	363	240	1

Table 1: T-Mobile Site Inventory and Power Value

Additional Carriers Located on Site	
Carrier	MPE %
N/A	No additional carriers are located onsite.

Table 2: Additional Carrier Inventory and Emissions Levels

Summary and Conclusions

All calculations performed for this analysis yielded results that were above the allowable limits for exposure to RF Emissions. Based on predictive modeling, the worst-case emitted power density may exceed the FCC's general public limit within approximately 13 feet of T-Mobile's proposed antennas at the main roof level. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 6 feet of T-Mobile's proposed antennas at the main roof level. Installation of mitigation measures will bring the proposed site into compliance.

The anticipated maximum contribution from each sector of the proposed T-Mobile facility is 2371.9000% of the allowable FCC established general public limit (474.3800% of the FCC occupational limit). This was determined through calculations along a radial from each sector taking full power values into account as well as actual vertical plane antenna gain values per the manufacturers supplied specifications for gain.

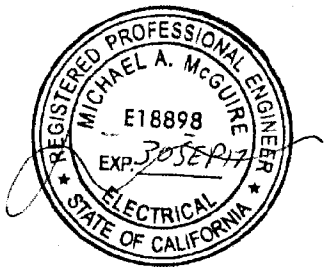
The anticipated maximum composite MPE value for this site is 2371.9000% of the allowable FCC established general public limit (474.3800% of the FCC occupational limit). This is based upon worst case modeling performed on the rooftop taking emissions contributions from all carriers present into account. This value will determine whether the proposed site will be in compliance with regards to electromagnetic emissions.

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards. For this facility, the composite values calculated were above the allowable 100% threshold standard per the federal government.

EBI's modeling indicates that there are areas in front of the T-Mobile antennas at the rooftop level that exceed the FCC standards for general public and occupational exposure. In order to alert any workers potentially accessing the site, a blue Notice sign and a yellow Guidelines sign are recommended at the first points of access to the rooftop. Additionally, yellow Caution signs and barriers are recommended 13 feet in front of the T-Mobile antennas at each sector to alert workers they are entering areas that exceed the FCC's general population and/or occupational MPE levels. Red Warning signs and barriers are recommended 6 feet in front of the T-Mobile antennas at each sector to alert workers they are entering areas that exceed the FCC's occupational MPE levels. To minimize risk, it is recommended that access to the roof be restricted. Recommended signs are depicted on the Signage Plan – Attachment 2.

Daniel Jack
RF-EME Technician
EBI Consulting
21 B Street
Burlington, MA 01803

Reviewed and Approved by:

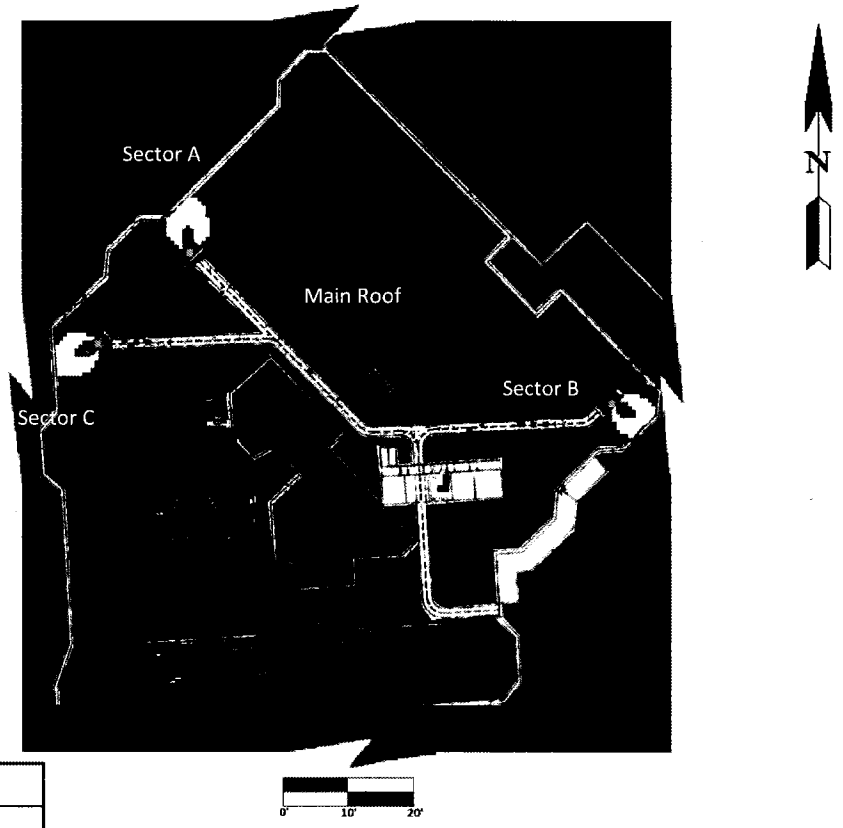


sealed 19oct2016

Michael McGuire
Electrical Engineer

Note that EBI's scope of work is limited to an evaluation of the Radio Frequency – Electromagnetic Energy (RF-EME) field generated by the antennas and broadcast equipment noted in this report. The engineering and design of the building and related structures, as well as the impact of the antennas and broadcast equipment on the structural integrity of the building, are specifically excluded from EBI's scope of work.

Attachment 1: Walking/Working Surface Emissions Thresholds



% FCC Public Exposure Limit
500 < Exposure Level
100 < Exposure Level ≤ 500
Exposure Level ≤ 100

T-Mobile Antennas

PLAN VIEW

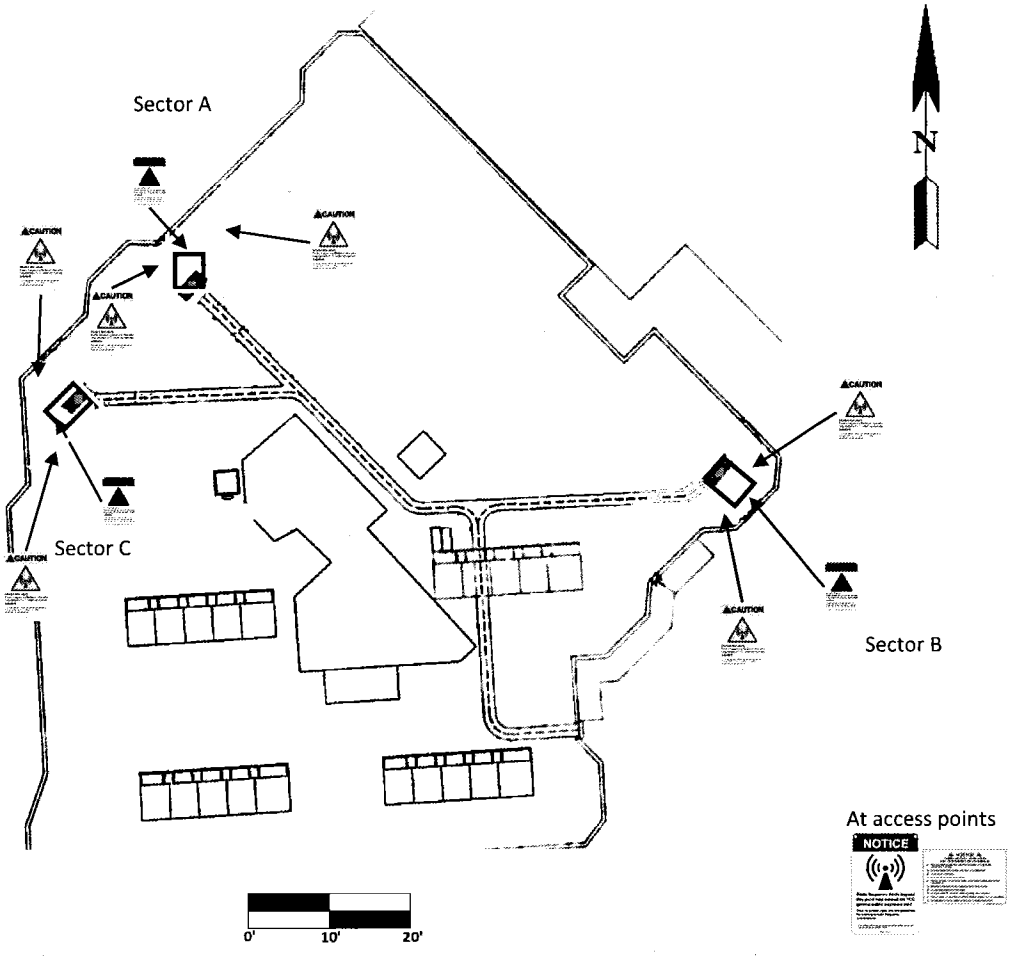
Sector A	There is an area that extends **13** feet from the antenna face that exceeds the FCC's allowable limit for general public exposure on the walking/working surface. There is an area that extends **6** feet from the antenna face that exceeds the FCC's allowable limit for occupational exposure on the walking/working surface.
Sector B	There is an area that extends **13** feet from the antenna face that exceeds the FCC's allowable limit for general public exposure on the walking/working surface. There is an area that extends **6** feet from the antenna face that exceeds the FCC's allowable limit for occupational exposure on the walking/working surface.
Sector C	There is an area that extends **13** feet from the antenna face that exceeds the FCC's allowable limit for general public exposure on the walking/working surface. There is an area that extends **6** feet from the antenna face that exceeds the FCC's allowable limit for occupational exposure on the walking/working surface.
Other Carriers	There are no other carrier antennas included in the modeling.

Attachment 2: Plan View – Signage Locations

Status:	The proposed site will be compliant with the installation of the mitigation measures.
Recommended Signage for Compliance	
Sign Count	Sign Type
1	
1	
6	
3	

Notes:
The proposed site will be compliant with the installation of the mitigation measures.

*Actual number of access points may vary if no site survey was conducted. Signage locations are based on T-Mobile's guidance. Actual installation is dependent on accessibility of the roof/antennas. Locations deemed inaccessible due to OSHA safety standards (proximity to unprotected roof edge or slope) will be compliant upon installation of signage at closest accessible point.



Sign	Description	Posting Instructions
	**Blue Notice Sign** Used to notify individuals they are entering an area where the power density emitted from transmitting antennas may exceed the FCC's MPE limit for the general public.	Securely post at the first points of access to the site (At access points) in a manner conspicuous to all individuals entering thereon.
	**Guidelines** Informational sign used to notify workers that there are active antennas installed and provide guidelines for working in RF environments.	Securely post adjacent to the Blue Notice signs at the first points of access to the site (At access points) in a manner conspicuous to all individuals entering thereon.
	**Yellow Caution Sign** Used to notify individuals that they are entering an area where the power density emitted from transmit antennas may exceed the FCC's MPE limit for the general public or occupational exposures.	Securely post near areas where the general public or occupational MPE limit could be exceeded (At each sector, 13 feet in front of the antennas, on the barrier) in a manner conspicuous to all individuals entering thereon.
	**Red Warning Sign** Used to notify individuals that they are entering an area where the power density emitted from transmit antennas exceeds the FCC's MPE limit for general public and occupational exposures.	Securely post near areas where the general public and occupational MPE limits are exceeded (At each sector, 6 feet in front of the antennas, on the barrier)in a manner conspicuous to all individuals entering thereon.

San Francisco Planning Department Wireless Telecommunications

Services Facility Siting Checklist for T-Mobile Site: SF03252A

1. The location, identity and total number of all operational radiating antennas installed at this site.

T-Mobile reportedly has a total of two (2) wireless telecommunication antennas on this rooftop located at 2099 Market Street, San Francisco, California. There are two sectors with one antenna per sector. There are no other antennas or facilities installed based on information provided to EBI and T-Mobile at the time of this report.

2. List all radiating antennas located within 100 feet of the site which could contribute to the cumulative radio frequency energy at this location.

There were no other wireless facilities observed within 100 feet of the site.

3. Provide a narrative description of the proposed work for this project. The description should be consistent with scope of work for the final installation drawings.

This project involves the installation of three (3) proposed T-Mobile wireless telecommunication antennas on a rooftop located at 2099 Market Street in San Francisco, California. There are three sectors (A, B, and C) proposed to be modified at the site, with one (1) existing antenna to be removed at Sectors A and B.

4. Provide an inventory of the make and model of antennas or transmitting equipment being installed or removed. The antenna inventory should also include the proposed installation height above the nearest walking/working surface as well as the height above ground level. Also include the orientations of the antennas.

Antennas to be Removed

Carrier	Antenna Number	Sector	Antenna Make	Antenna Model	Height (ft) Above Nearest Walking Surface	Height (ft) Above Ground	Azimuth	Antenna To Be Removed
T-Mobile	1	A	DBSpectra	DS1Z03F36U-N	2	34.56	Omni	Yes
T-Mobile	1	B	DBSpectra	DS1Z03F36U-N	2	34.56	Omni	Yes

Proposed Antennas

Carrier	Antenna Number	Sector	Antenna Make	Antenna Model	Height (ft) Above Nearest Walking Surface	Height (ft) Above Ground	Azimuth	Antenna Status (existing or proposed)
T-Mobile	1	A	RFS	APXVFWW12X-C-NA20	2	39	0	Proposed
T-Mobile	1	B	RFS	APXVFWW12X-C-NA20	2	39	120	Proposed
T-Mobile	1	C	RFS	APXVFWW12X-C-NA20	2	39	240	Proposed

5. Describe the existing radio frequency energy environment at the nearest walking/working surface to the antennas and at ground level. This description may be based on field measurements or calculations. Please include a description of any assumptions made when doing the calculations.

At the nearest walking/working surfaces to the existing T-Mobile antennas, the maximum power density is 1.018 mW/cm2, which is 218.2 percent of the FCC's general public limit (43.64 percent of the FCC's occupational limit).

At ground level, the maximum power density generated by the existing T-Mobile antennas on-site is 0.0028 mW/cm2, which is 0.6 percent of the FCC's general public limit (0.12 percent of the FCC's occupational limit).

6. Provide the maximum effective radiated power per sector for the proposed installation. The power should be reported in Watts and reported both as a total and broken down by the frequency band width (i.e. PCS, AWS, Cellular, etc...)

Effective Radiated Power (ERP) per Frequency and Sector		
Sector	**Frequency (MHz)**	**ERP (Watts)**
A	2100	1805
A	1950	842
A	700	363
Total ERP (Watts) for Sector A is 3,010.		

B	2100	1805
B	1950	842
B	700	363
Total ERP (Watts) for Sector B is 3,010.		
C	2100	1805
C	1950	842
C	700	363
Total ERP (Watts) for Sector C is 3,010.		

7. Based on the antenna orientation, describe the maximum cumulative predicted radio frequency energy level for any nearby publicly accessible building or area. Include the address of the building or structure and the maximum predicted amount of radio frequency energy both as a percent of the FCC standard and in mW/cm2. Include a description of any assumptions made when doing these calculations.

The surrounding buildings consist mainly of commercial and residential properties. The closest building is described below and includes worst-case predicted exposures.

Maximum Permissible Exposure (MPE) Closest Surrounding Structure					
Building Type	**Address**	**Distance**	**% of FCC General Public/Uncontrolled Exposure Limit**	**% of FCC Occupational/Controlled Exposure Limit**	**Power Density (mW/cm^2)**
Residential	2101 Market street	Approx. 75 feet from T-Mobile Sector C	1.85	0.37	0.008633

8. Report the estimated cumulative radio frequency fields for the proposed site at ground level. State the percentage of the FCC standard utilized and power density exposure level in mW/cm2.

At ground level, the maximum power density generated by the proposed T-Mobile antennas on-site is 0.04106 mW/cm2, which is 8.8 percent of the FCC's general public limit (1.76 percent of the FCC's occupational limit).

At the nearest walking/working surfaces to the proposed T-Mobile antennas, the maximum power density is 11.068866 mW/cm2, which is 2371.9 percent of the FCC's general public limit (474.38 percent of the FCC's occupational limit).

9. Provide the maximum distance (in feet) the three dimensional perimeter of the radio frequency energy level equal to the public and occupational exposure limit is calculated to extend from the face of the antennas. Indicate if this will include any walking/working surfaces or if it extends only into free space.

Based on worst-case there will be an occupational exceedance of 6 feet and a general public exceedance within 13 feet of the Sector A, B, and C antennas at the main roof level.

10. Provide a description of whether or not the public has access to the antennas. Describe any existing or proposed warning signs, barricades, barriers, rooftop striping or other safety precautions for people nearing the equipment as may be required by any applicable FCC-adopted standards. At a minimum, signs should be provided in English, Spanish and Chinese.

Access to this site is unknown. To be conservative, the results are reported as though the general public is able to access the rooftop.

EBI's modeling indicates that there are areas in front of the T-Mobile antennas at the rooftop level that exceed the FCC standards for general public and occupational exposure. In order to alert any workers potentially accessing the site, a blue Notice sign and a yellow Guidelines sign are recommended at the first points of access to the rooftop. Additionally, yellow Caution signs and barriers are recommended 13 feet in front of the T-Mobile antennas at each sector to alert workers they are entering areas that exceed the FCC's general population and/or occupational MPE levels. Red Warning signs and barriers are recommended 6 feet in front of the T-Mobile antennas at each sector to alert workers they are entering areas that exceed the FCC's occupational MPE levels.

11. Statement on who produced this report and qualifications. Report must be signed off by a licensed engineer expert in the field of radio frequency emissions. Typically, this is a licensed electrical engineer. The engineer must be licensed in the State of California.

Please see report for this information.

San Francisco City and County
Department of Public Health
Environmental Health Section

Edwin M. Lee, *Mayor*
Barbara Garcia, *Director of Health*
Stephanie K.J. Cushing, MSPH, CHMM, REHS
Director of Environmental Health

Review of Cellular Antenna Site Proposals

Project Sponsor : *T-Mobile* **Planner:** *Elizabeth Watty*

RF Engineer Consultant: *EBI Consulting* **Phone Number:** *(707) 996-5200*

Project Address/Location: *2099 Market St*

Site ID: *1337* **SiteNo.:** *SF03252* **Report Dated:** *10/10/2016*

The following information is required to be provided before approval of this project can be made. These information requirements are established in the San Francisco Planning Department Wireless Telecommunications Services Facility Sitting Guidelines dated August 1996.

In order to facilitate quicker approval of this project, it is recommended that the project sponsor review this document before submitting the proposal to ensure that all requirements are included.

X 1. The location, identity and total number of all operational radiating antennas installed at this site was provided. (WTS-FSG, Section 10.4.1, Section 11, 2b)

Number of Existing Antennas: **2**

X 2. A list of all radiating antennas located within 100 feet of the site which could contribute to the cumulative radio frequency energy at this location was provided. (WTS-FSG, Section 10.5.2)

◉ **Yes** ○ **No**

X 3. A narrative description of the proposed work for this project was provided. The description should be consistent with scope of work for the final installation drawings. (WTS-FSG, Section 10)

◉ **Yes** ○ **No**

X 4. An inventory of the make and model of antennas or transmitting equipment being installed or removed was provided. The antenna inventory included the proposed installation height above the nearest walking/working surface, the height above ground level and the orientations of the antennas. (WTS-FSG, Section 10.5.2)

◉ **Yes** ○ **No**

X 5. A description of the existing radio frequency energy environment at the nearest walking/working surface to the antennas and at ground level was provided. A description of any assumptions made when doing the calculations was also provided. (WTS-FSG, Section 10.4.1a, Section 10.4.1c, Section 10.5)

◉ **Yes** ○ **No**

X 6. The maximum effective radiated power per sector for the proposed installation was provided along with the frequency bands used by the antennas. (WTS-FSG, Section 10.1.2, Section 10.5.1)

Maximum Effective Radiated Power: **3010** Watts

X 7. Based on the antenna orientation, the maximum cumulative predicted radio frequency energy level for any nearby publicly accessible building or area was provided. (WTS-FSG, Section 10.4, Section 10.5.1)

Maximum percent of applicable FCC public standard at the nearest building or structure: **1.85** %

Distance to this nearby building or structure: **75** feet

X 8. The estimated maximum cumulative radio frequency fields for the proposed site at ground level. (WTS-FSG, Section 10.5)

Maximum RF Exposure: **0.04106** mW/cm^2 Maximum RF Exposure Percent: **8.8** %

X 9. The maximum distance (in feet) the three dimensional perimeter of the radio frequency energy level equal to the public and occupational exposure limit is calculated to extend from the face of the antennas was provided. Any potential walking/working surfaces exceeding regulatory standards were identified. (WTS-FSG, Section 10.9.2)

☑ Public Exclusion Area — Public Exclusion In Feet: **13**

☑ Occupational Exclusion Area — Occupational Exclusion In Feet: **6**

X 10. A description of whether or not the public has access to the antennas was provided. A description was also provided of any existing or proposed warning signs, barricades, barriers, rooftop stripping or other safety precautions for people nearing the equipment as may be required by any applicable FCC-adopted standards. All signs will be provided in English, Spanish and Chinese. (WTS-FSG, Section 9.5, Section 10.9.2)

◉ **Yes** ○ **No**

X 11. Statement regarding the engineer who produced the report and their qualifications was provided. The engineer is licensed in the State of California. (WTS-FSG, Section 11,8)

◉ **Yes** ○ **No**

___ **Approved.** Based on the information provided the following staff believes that the project proposal will comply with the current Federal Communication Commission safety standards for radiofrequency radiation exposure. FCC standard CFR47 1.1310 **Approval of the subsequent Project Implementation Report is based on project sponsor completing recommendations by project consultant and DPH.**

Comments:

There are 2 antennas operated by T-Mobile installed on the roof top of the building at 2099 Market Street. Existing RF levels at ground level were around .6% of the FCC public exposure limit. No other antennas were observed within 100 feet of this site. T-Mobile proposes to install 3 new antennas. The antennas are mounted at a height of 35 feet above the ground. The estimated ambient RF field from the proposed T-Mobile transmitters at ground level is calculated to be 0.041 mW/sq cm., which is 8.8 % of the FCC public exposure limit. The three dimensional perimeter of RF levels equal to the public exposure limit extends 13 feet and does not reach any publicly accessible areas. Warning signs must be posted at the antennas and roof access points in English, Spanish and Chinese. Workers should not have access to within 6 feet of the front of the antennas while they are in operation. Rooftop areas predicted to exceed the FCC public standard should be marked with yellow striping and areas exceeding the FCC occupational standard should be marked with red striping on the rooftop.

___ **Not Approved**, additional information required.

___ **Not Approved**, does not comply with Federal Communication Commission safety standards for radiofrequency radiation exposure. FCC Standard

1 Hours spent reviewing

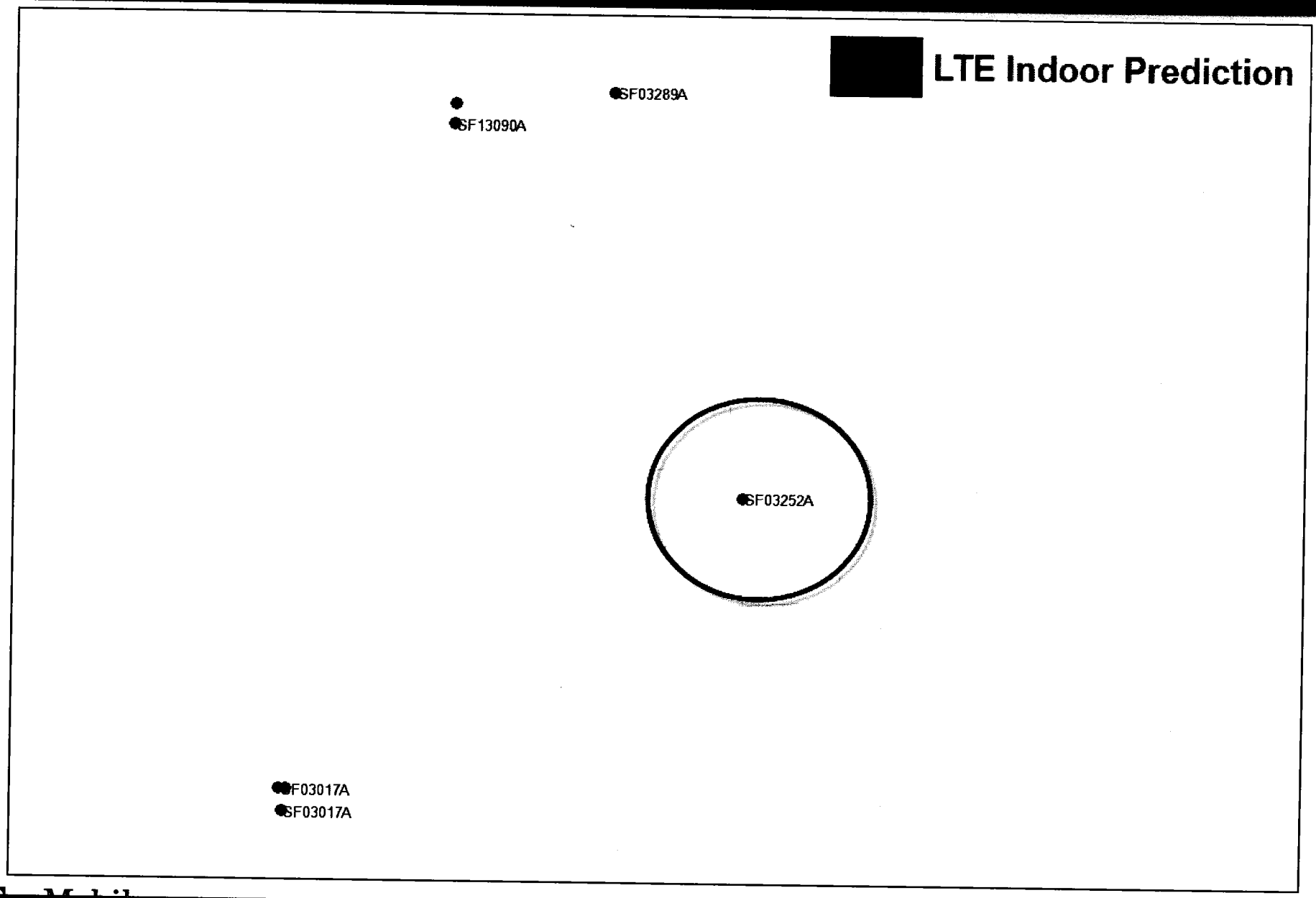
Charges to Project Sponsor (in addition to previous charges, to be received at time of receipt by Sponsor)

Dated: 5/5/2017

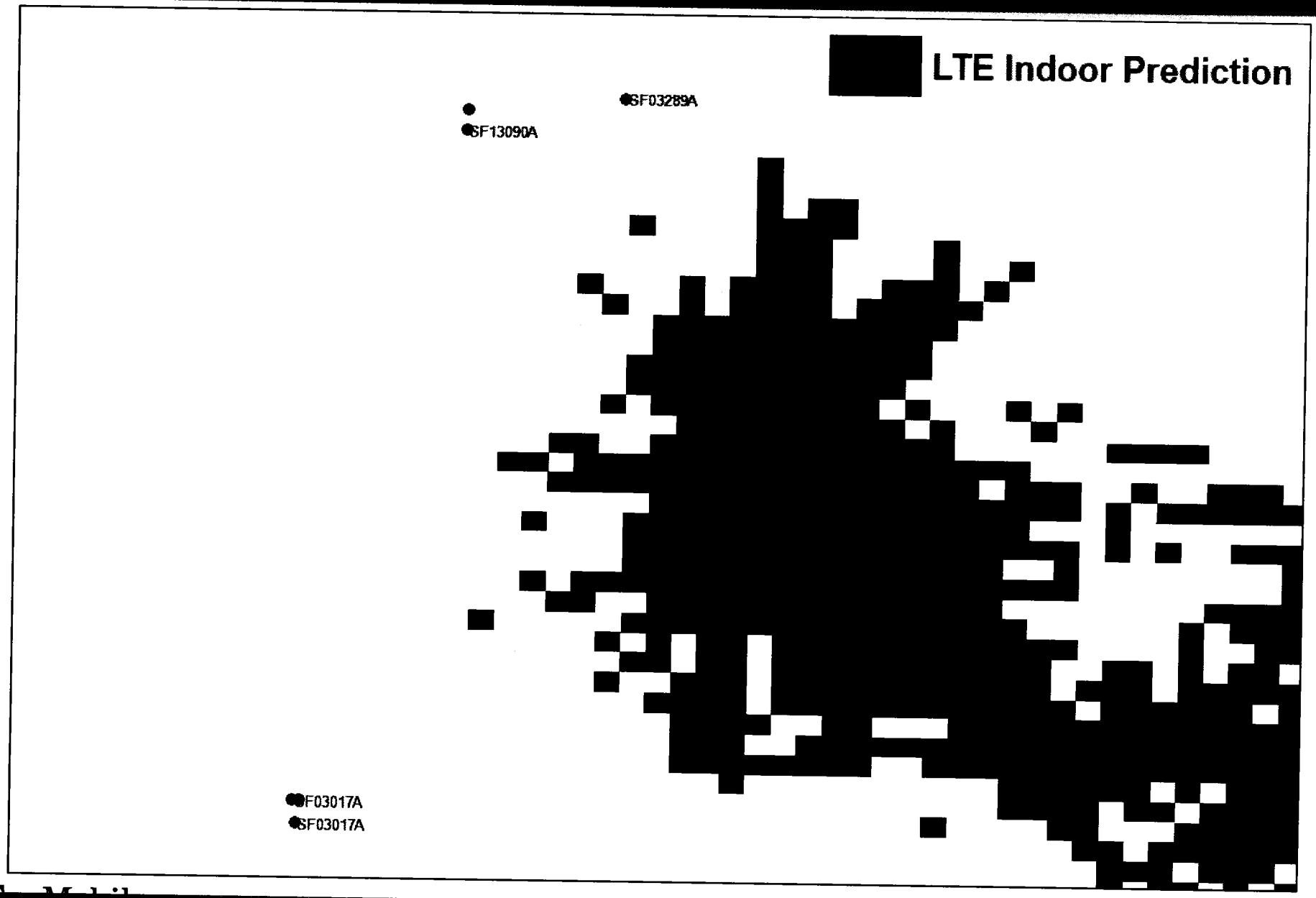
Signed: LK

Larry Kessler
Environmental Health Management Section
San Francisco Dept. of Public Health
1390 Market St., Suite 210,
San Francisco, CA. 94102
(415) 252-3841

Existing LTE 700 Coverage with SF03252A "OFF-AIR"



Future LTE 700 Coverage with SF03252A "ON-AIR"



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
BROADCAST & WIRELESS

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CONSULTANTS

BY E-MAIL FCHANG@MODUS-CORP.COM

May 5, 2017

Mr. Fritz Chang
Project Manager
Modus, Inc.
240 Stockton Street, 3rd Floor
San Francisco, California 94108

Dear Fritz:

As requested, we have conducted the review required by the City of San Francisco of the coverage maps that T-Mobile will submit as part of its application package for proposed modifications to its existing base station located at 2099 Market Street (Site No. SF03252A). This is to fulfill the submittal requirements for Planning Department review.

Executive Summary

We concur with the maps provided by T-Mobile. The maps provided to show the before and after conditions accurately represent the carrier's present and post-installation in-building coverage.

Based on information provided by T-Mobile, including zoning drawings by All States Engineering & Surveying, dated July 25, 2016, that carrier presently has two omnidirectional "whip" antennas installed high on the sides of the three-story mixed-use building located at 2099 Market Street. T-Mobile proposes to remove the existing antennas and to install three RFS Model APXVFWW12X-C-NA20 directional panel antennas within cylindrical enclosures, configured to resemble vents, above the roof of the subject building. The antennas would be mounted at an effective height of about 41 feet above ground, 4 feet above the roof, and would be oriented toward 0°T, 120°T, and 240°T, to provide service in all directions.

T-Mobile provided for review two coverage maps, attached for reference. The maps show T-Mobile's LTE coverage in the 700 MHz band in the area before and after the proposed modifications. Both maps show a single level of coverage, which T-Mobile defines as acceptable in-building coverage in the area.

We undertook a two-step process in our review. As a first step, we obtained information from T-Mobile on the software and the service thresholds that were used to generate its coverage maps. This carrier uses commercially available software to produce the maps. The outdoor

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service thresholds that T-Mobile uses to estimate indoor service are in line with industry standards, similar to the thresholds used by other wireless service providers.

As a second step, we conducted our own drive test, using an Ascom TEMS Pocket network diagnostic tool with built-in GPS, to measure the actual T-Mobile LTE 700 MHz signal strength in the vicinity of the proposed site. Our fieldwork was conducted on April 6, 2017, between 12:40 PM and 3:00 PM, along a measurement route selected to cover all the streets within the map area that T-Mobile had indicated would receive improved service.

Based on the measurement data, we conclude that the T-Mobile LTE 700 MHz coverage map showing the service area without the proposed modifications includes areas of relatively weak signal levels in the carrier's present coverage. The map submitted to show the after coverage with the proposed modifications completed was reportedly prepared on the same basis as the map of the existing conditions and so is expected to accurately illustrate the improvements in coverage.

We appreciate the opportunity to be of service. Please let us know if any questions arise on this matter.

Sincerely yours,

Bill Hammett

REGISTERED PROFESSIONAL ENGINEER
WILLIAM F. HAMMETT
E-13026
M-20676
Exp. 6-30-2017
ELECTRICAL
MECHANICAL
STATE OF CALIFORNIA

William F. Hammett, P.E.

bb

Enclosures

cc: Mr. Aris Antons (w/encl) – BY E-MAIL ARIS.ANTONS@T-MOBILE.COM

STATE OF CALIFORNIA)
)
COUNTY OF ORANGE)

DECLARATION OF MAILING RE: COMMUNITY OUTREACH MEETING ON A WIRELESS COMMUNICATION FACILITY PROPOSED IN YOUR NEIGHBORHOOD

I, Norah Jaffan, do hereby declare as follows:

1. I am a Project Manager of NotificationMaps.com. I am over 18 years of age and I am a resident of the County of Orange, State of California.

2. On Mar 3, 2017 I caused to be mailed and/or distributed a copy of "COMMUNITY OUTREACH MEETING ON A WIRELESS COMMUNICATION FACILITY PROPOSED IN YOUR NEIGHBORHOOD " to the following location(s) within the 500 foot boundaries of the proposed site and also including neighborhood association within 500 foot boundaries of site:

a. See Attached Map
See Attached Mailing List
See Attached Notice

b. 2099 Market St

c.

d.

3. The attached list was prepared using the latest available data per the County Assesor's Office.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed 03/03/2017 at County of Orange, California.

By:

Norah Jaffan
[Please Print Name]

500' Radius Map
2099 Market St, San Francisco

Neighborhood Meeting Sign-In Sheet
T-Mobile Wireless Facility at 2099 Market St
March 16, 2017 at 5:30 pm
San Francisco Public Library
Paley Room
100 Larkin St.
SF, CA 94102

2099 Market St, San Francisco, CA
T-Mobile # SF03252A Lembi Building

NAME	ADDRESS	CONTACT INFORMATION
Harold Allen		530 210-1028