CITY OF EUREKA
DEVELOPMENT SERVICES DEPARTMENT
Rob Holmlund, AICP, Director

531 K Street, Third Floor
Eureka, California 95501-1146
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www.ci.eureka.ca.gov

NOTICE OF PUBLIC HEARING

EUREKA PLANNING COMMISSION

NOTICE IS HEREBY GIVEN that the Eureka Planning Commission will hold a public hearing on **Monday, August 12, 2019,** at 5:30 p.m., or as soon thereafter as the matter can be heard, in the Council Chamber, Eureka City Hall, 531 "K" Street, Eureka, California, to consider the following application:

Project Title: Verizon Wireless Telecommunication Facility

Project Applicant: Epic Wireless **Case No:** C-19-0004/AA-19-0013/WTF-19-0005

Project Location: 1020 Wood Street **APN:** 011-182-001

Project Zoning and Land Use: P (Public)/PQP (Public/Quasi-Public)

Project Description: Verizon Wireless is proposing to install eight (8) panel antennas and 12 Remote Radio Heads (RRHs) at a height of 94 feet on the City's existing 134-foot water tower in the northwest corner of the parcel at 1020 Wood Street.

A 23 x 14-foot equipment area with a 10 x 20-foot parking area will be located east of the water tower. The proposed equipment area will contain cabinets, equipment, a fire extinguisher and a service light with auto shut-off timer and surge suppressor on another H-frame. No generator is proposed on-site because the facility will use battery backup power.

"Wireless telecommunication facilities" is a conditionally permitted use in the P (Public) zone district where the project is located. A Use Permit and Design Review are required for the addition of the antennas and equipment area.

All interested persons are invited to comment either in person at the scheduled public hearing, or in writing. Written comments may be submitted prior to or during the hearing by mailing or delivering them to the Development Services Department, Third Floor, 531 K Street, Eureka. Appeals to the City Council of the action of the Planning Commission, may be made within 10 calendar days of the action by filing a written Notice of Appeal, along with the filing fees as set by the City Council, with the City Clerk.

If you challenge the nature of the proposed action in court, you may be limited to raising only those issues that you or someone else raised at the public hearing or written correspondence received during or prior to the public hearing. Accommodations for handicapped access to City meetings must be requested of the City Clerk, 441-4175, five working days in advance of the meeting. The project file is available for review at the Development Services Department. If you have questions regarding the project or this notice, please contact Raquel Menanno, Assistant Planner, rmenanno@ci.eureka.ca.gov or (707) 441-4113.

CITY OF EUREKA
DEVELOPMENT SERVICES DEPARTMENT
Rob Holmlund, AICP, Director
Raquel Menanno, Assistant Planner
Community Development Division
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EUREKA CITY PLANNING COMMISSION

STAFF REPORT

August 12, 2019

Project Title: Verizon Wireless Telecommunication Facility

Project Applicant: **Epic Wireless** **Case No.**: C-19-0004/AA-19-0013/WTF-19-0005

Location: 1020 Wood Street **APN**: 011-182-001

Zoning and General Plan Designation: P (Public)/PQP (Public/Quasi-Public)

Project Description: Verizon Wireless is proposing to install eight (8) panel antennas and 12 Remote Radio Heads (RRHs) at a height of 94 feet on the City's existing 134-foot water tower in the northwest corner of the parcel at 1020 Wood Street.

A 23 x 14-foot equipment area with a 10 x 20-foot parking area will be located east of the water tower. The proposed equipment area will contain cabinets, equipment, a fire extinguisher and a service light with auto shut-off timer and surge suppressor on another H-frame. No generator is proposed on-site because the facility will use battery backup power.

"Wireless telecommunication facilities" is a conditionally permitted use in the P (Public) zone district where the project is located. A Use Permit and Design Review are required for the addition of the antennas and equipment area.

Simulation:


Existing


Proposed
Proposed Verizon Installation
Proposed Verizon Installation

Figure 1: view from Russ Street looking southwest

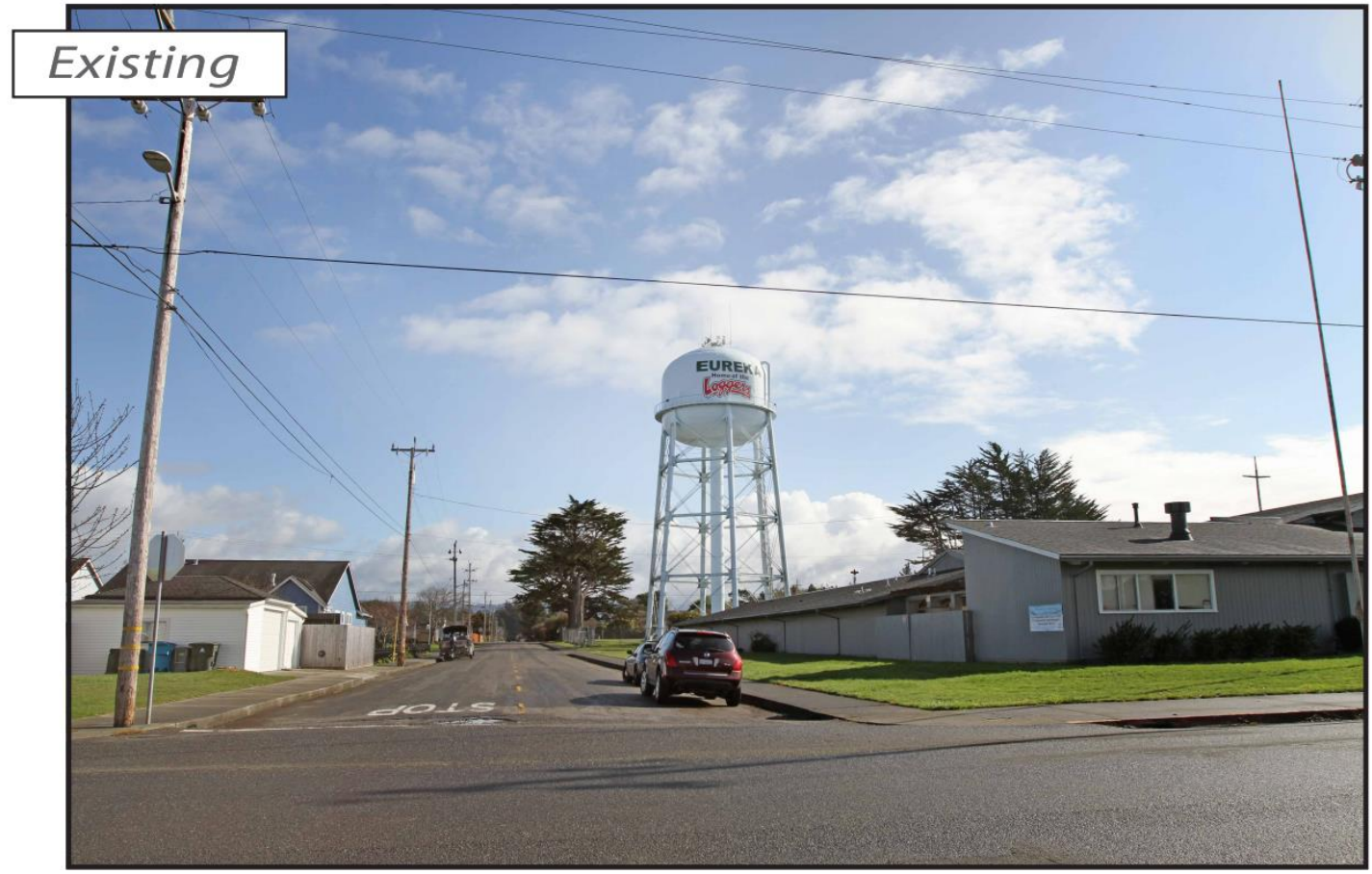


Figure 2: view from Wood Street looking east

Figure 3: view from Harris Street looking northwest

Figure 4: view from Harris Street looking northeast

Staff Contact Person: Raquel Menanno, Assistant Planner, City of Eureka, Community Development Division; 531 "K" Street, Eureka, CA 95501-1165; phone: (707) 441-4113, email: rmenanno@ci.eureka.ca.gov

Environmental: Approval of the proposed project is a discretionary action subject to environmental review in accordance with the California Environmental Quality Act (CEQA). The City of Eureka as the Lead Agency has determined the project is exempt from CEQA pursuant to a Class 1 categorical exemption (Sections 15301), which exempts the minor alteration of existing public structures involving negligible or no expansion of use. The project involves negligible additions to an existing public structure and minor land alterations to existing disturbed land. A notice of exemption (NOE) was prepared for the proposed project.

Staff Recommendation:

1. Hold a public hearing; and
2. Adopt a Resolution of the Planning Commission approving with conditions the Design Review; and
3. Adopt a Resolution of the Planning Commission approving with conditions the Use Permit

Suggested Motion:

"I move the Planning Commission adopt a Resolution of the Planning Commission, conditionally approving the Design Review; and

Adopt a Resolution of the Planning Commission conditionally approving the Use Permit for the Verizon Wireless Telecommunication Facility."

Background:

The parcel is approximately 58,800 square feet containing the City of Eureka's water tank, water tower, and the Humboldt Bay Fire Department Public Safety Training Classroom building and parking lot. The project area, located in the northern portion of the parcel, was previously disturbed through the development of the existing water tower and demolition of a previous water tower. Aerial imagery indicates another water tower was located in the central area of the eastern half of the parcel where the project equipment and parking are proposed. Approximately 24 foot-tall antennas, owned by the City of Eureka, have been previously installed on the top of the existing water tower.

Use Permit

Applicable Regulations:

In order to give the district use regulations flexibility, in certain zoning districts conditional uses may be permitted subject to the granting of a use permit. Because of their unusual characteristics, conditional uses require special consideration so that they are located properly with respect to the objectives of the Zoning Regulations and with respect to their effects on surrounding properties. In order to achieve these purposes, the Planning Commission is empowered to grant an application for a use permit and to impose reasonable conditions provided, pursuant to Eureka Municipal Code Chapter 155, §155.285 and §159.014, the Planning Commission can make the following findings:

(a) That the proposed location of the conditional use is in accord with the objectives of this chapter and the purposes of the district in which the site is located;

(b) That the proposed location of the conditional use and the conditions under which it would be operated or maintained will not be detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity;

(c) That the proposed conditional use will comply with each of the applicable provisions of this chapter;

(d) That the proposed conditional use, if located in the coastal zone, is consistent with the certified Local Coastal Program; and

(e) The proposed wireless telecommunication facility will not generate electromagnetic or radio frequency radiation in excess of the Federal Communications Commission adopted standards for human exposure; and

(f) The proposed wireless telecommunication facility will be compatible with the general character, aesthetics, scenic qualities, and existing development in the surrounding neighborhood.

1. Objectives of Chapter 155 and Purposes of District:

Pursuant to Eureka Municipal Code (EMC) § 155.002, the zoning regulations are adopted in accordance with the City Charter to protect the public health, safety, peace, comfort, convenience, prosperity, and general welfare. More specifically, the zoning regulations are adopted in order to achieve the following objectives:

a. **To provide a precise guide for the physical development of the city in such a manner as to achieve progressively the arrangement of land uses depicted in the general plan adopted by the Council.** *The subject property is designated "Public/Quasi-Public" under the adopted general plan; this land use designation allows government facilities and services and uses determined to have a public benefit. The proposed WTF is consistent with this land use designation because it is a service which provides a public benefit through communication for government agencies, emergency personnel, and private citizens.*

b. **To foster a harmonious, convenient, workable relationship among land uses.** *The surrounding land uses consist of Public/Quasi-Public directly west of the project site, Professional Office further west of the project site (approximately 330 feet), and Low Density Residential directly to the north, east, and south of the project site. The addition of the proposed WTF is a minor alteration that will not impact the existing relationship among the land uses.*

c. **To promote the stability of existing land uses that conform with the general plan and to protect them from inharmonious influences and harmful intrusions**. *Because the antennas will be façade-mounted on the legs of the existing water tower and the equipment will be located in a fenced enclosure on previously disturbed ground, the proposed development will not create a harmful intrusion or affect the stability of the existing land uses. Further, with conditions for installation of warning signs, the project complies with the Federal Communications Commission (FCC) Radiofrequency Safety Guidelines preventing the existing land uses from harmful intrusions.*

d. **To ensure that public and private lands ultimately are used for the purposes which are most appropriate and most beneficial from the standpoint of the city as a whole**. *The proposed WTF will provide improved mobile communications and serve*

as a backup to the existing landline services. This purpose appropriately serves the City as a whole because mobile communication has become part of daily commerce and recreation. Also, mobile communication has become increasingly important for public safety during times of emergency to serve as a method for immediate response, therefore, public land will continue to be used for an appropriate and beneficial purpose.

e. **To prevent excessive population densities and overcrowding of the land with structures**. *The proposed WTF does not provide for the possibility of excessive population densities as the project does not involve development that would allow for increased population. The antennas will be placed on the legs of an existing water tower and the equipment enclosure is 23 feet by 14 feet. Comparatively, the equipment enclosure covers a small area and will not overcrowd the land with structures.*

f. **To promote a safe, effective traffic circulation system**. *Antennas and equipment will be accessed and serviced through an existing driveway with a recorded access easement on the parcel. During construction, which will take place during normal business hours for a period of 8-10 weeks, a boom lift truck and two standard-size work trucks will be used and parked on site. The vehicular usage during the construction period is temporary. Vehicular usage during operation will include a technician visiting the project site approximately once a month for maintenance. Based on the discussion above, the project will support a safe, effective traffic circulation system.*

g. **To foster the provision of adequate off-street parking and off-street truck loading facilities**. *The proposed WTF provides one off-street parking space to be used by the technician during regular monthly maintenance. Off-street truck loading facilities are not applicable to this project.*

h. **To facilitate the appropriate location of community facilities and institutions**. *No community facilities or institutions exist or are proposed.*

i. **To promote commercial and industrial activities in order to strengthen the city's tax base**. *The proposed WTF is not a commercial or industrial activity, however, it will provide improved coverage to an area identified by Epic Wireless that currently has a significant gap in coverage (Attachment 4). Improved coverage will aid commercial activities that involve mobile communication, thus strengthening the city's tax base.*

j. **To protect and enhance real property values**. *The proposed project, which will include minor alterations and a comparatively small ground equipment area, is unlikely to adversely affect real property values for residential properties in the vicinity of the proposed WTF.*

k. **To safeguard and enhance the appearance of the city**. *The proposed project is subject to Design Review, which will review the project design and architecture to assure that the appearance is harmonious with the surrounding properties.*

Based on the discussion above, Staff believes that the proposed project is in accord with the objectives of the Eureka Municipal Code and the purpose of the Public zone district, as well as being consistent with the adopted general plan.

2. Public health, safety, or welfare: Since the project qualifies for a Class 1 categorical exemption (Sections 15301), the City of Eureka as the Lead Agency has determined the project will not have a significant effect on the environment. The antenna will be located 94 feet above the ground on the legs of the water tower. Safety signage will be installed to warn employees who access the tower about the effects of the transmitting antennas in areas where the radio frequency exposure may potentially exceed

Federal Communications Commission (FCC) safety limits. The ground equipment will be located within a locked, fenced area to restrict public access, and the entire site is fenced. Therefore, Staff believes that the proposed project will not be detrimental to the public health, safety or welfare.

3. Use complies with applicable provisions: As discussed above, the project complies with the objectives and purposes of the Eureka Municipal Code. The 'P' zoning district specifically gives the Planning Commission the authority to establish limits to the height, bulk, and coverage as a condition of a use permit in order to ensure compatibility with adjoining uses. By taking action to approve the project as submitted, the Planning Commission will be simultaneously establishing the limits to the height, bulk, and coverage and determining that the proposed project is compatible with the adjoining uses.

4. Use is consistent with Local Coastal Program: The project site is not located in the coastal zone.

5.Use complies with Federal Communications Commission standards: According to the Radio Frequency Electromagnetic Fields Exposure Report (Attachment 5) prepared by Dtech Communications on December 21, 2018, the Verizon WTF will be in compliance with current Federal Communications Commission (FCC) and local rules regarding human exposure to radio frequency electromagnetic fields on the conditions that:

1. Access to the facility be kept locked to restrict access by the general public.
2. Access to the antennas be locked.
3. Install Warning Sign(s), NOC information Sign(s), and Guideline Sign(s) at antennas access points, gate entrances, or climbing access points.

Therefore, as conditioned, the proposed WTF, will not generate electromagnetic or radio frequency radiation in excess of the Federal Communications Commission adopted standards for human exposure.

6. Use is compatible with the general character, aesthetics, scenic qualities, and existing development: The site is currently developed with public-serving structures including the City of Eureka's low water tank, high water tower, and the Humboldt Bay Fire Department Public Safety Training Classroom building and parking lot. The proposed WTF is a compatible use because the addition of the antennas and the relatively small equipment area are minor alterations on an existing water tower structure, on an existing site, developed with public uses. Also, the antennas will be painted to match the existing water tower, acting as a camouflaging technique.

Design Review

Site Plan and Architectural Review:
Per § 159.024, no conditional use permit for a wireless telecommunication facility shall be approved until the site plan and architectural review are approved by the Planning Commission. The project contains the following materials and design elements:

The eight antennas will be façade-mounted on the side of the legs (two per leg) of the existing water tower in four approximately 7.5 x 1.25-foot sectors that will extend out approximately 1-2 feet from the water tower leg. The antennas will be paired with four surge suppressors (one suppressor within each sector). Three Remote Radio Heads (RRHs) will be installed near the antennas in each of the four sectors for a total of 12 RRHs. Mounted antennas, equipment, and hardware will be painted to match the existing water tower. A 6-foot-high chain link fence with "light brown" vinyl slats will surround the 23 x 14-foot equipment area. Because the antennas and associated equipment will be placed on an existing structure and camouflaged by painting the equipment in each sector to match the existing water tower, the WTF will not be inharmonious. Furthermore, the ground equipment area is relatively small, at approximately 322 square feet and includes fencing to minimize adverse visual impacts on the surrounding neighborhood.

Figure 1: Proposed "Light Brown" Fence Design for the equipment enclosure

The Planning Commission should determine whether the proposed WTF and equipment area will be inharmonious with the surroundings or will have an adverse effect on the value of property or improvements in the vicinity. Pursuant to EMC §155.180 (b), the ugly, the inharmonious, the monotonous, and the hazardous shall be barred. The Commission's review includes exterior design, materials, textures, and colors but does not include elements of the design that do not affect exterior appearance.

Based on the discussion above, Staff believes the necessary findings, as mentioned above, can be made to approve the Design Review.

Education/Outreach

Eureka Municipal Code §159.022 requires the applicant host a neighborhood education and informational meeting at which, at a minimum, a summary of the information provided with the conditional use permit application shall be presented and made available to attendees in electronic and/or hard copy.

The applicant held a meeting at 139 2nd Street, Eureka, California on June 11, 2019. Approximately eight citizens were in attendance, and the applicant provided the Department the information required by §159.022(C) (Attachment 6). Therefore, the finding can be made that the applicant has complied with the Education/Outreach requirements.

Public Comment

Per EMC §159.022(C), applicants must conduct a public educational workshop regarding the information in the application. The applicant held the mandatory workshop on June 11, 2019. Approximately eight people attended the meeting and approximately four people expressed concerns about the proposed project. The concerns raised by members of the public to City staff (during and after the meeting) included:

- Whether or not other site locations had been considered
- Potential health impacts
- Radio frequency emission levels

The following addresses concerns raised by the Public.

Four sites were investigated by Epic Wireless and/or Verizon's Radiofrequency Engineer considering the development standards in the Eureka Municipal Code (EMC) Chapter 159, a willing landlord, feasible construction, road access, and existing utilities. First, Epic Wireless looked for existing telecommunication towers that would offer collocation opportunities within the designated search area. No available telecommunication towers were identified, leading Epic Wireless to search for signs, water tanks, and tall building rooftops within the designated search area. Site option 1 (Eureka High School football field) and 2 (Hebrew Christian Family Church) were deemed unsuitable because of height restrictions in the EMC (Attachment 7). The WTF at site option 1 would have to be 150 feet in height in a zone district where the height cannot exceed 100 feet. The WTF at site option 2 would have to be 85 feet in height in a zone district where the height cannot exceed 60 feet.

Site option 3 (Lattice Tower) is not suitable because it is an AM channel tower not compatible with cellular uses. Epic Wireless and Verizon Wireless considered four potential sites before concluding the water tower location at 3030 L Street as the least intrusive site that also closes the significant gap in coverage.

One of the objectives of Chapter 159 of the Eureka Municipal Code, is to "maximize use of existing wireless telecommunication towers and alternative structures so as to minimize the need to construct new towers and minimize the total number of towers throughout the city." Although using an existing tower for co-location wasn't possible, placement of the WTF on the existing water tower structure eliminates the need for a new tower, thereby meeting the objective.

The 1996 Telecommunications Act prevents local jurisdictions from denying a WTF based on potential or perceived health hazards if the project meets radio frequency emission thresholds set by the FCC. With the condition of approval requiring installation of the warning signs as recommended in the Radio Frequency Electromagnetic Fields Exposure Report prepared by Dtech Communications on December 21, 2018, the proposed WTF is compliant with the FCC's RF Safety guidelines.

Additionally, the applicant provided a summary of the issues and concerns as well as mitigation measures and responses from the Professional Engineer (Attachment 8).

Agency and Departmental Comments: Referrals were sent to agencies and City departments with interest or jurisdiction over the property or the intended use of the property.

The Wiyot, Blue Lake Rancheria, and Bear River Band of the Rohnerville Rancheria Tribal Historic Preservation Officers all recommended that the project be conditioned with the standard inadvertent archaeological discovery protocol. This condition of approval has been included.

No other comments were received that indicated the proposed project would be detrimental to the public health, safety, or welfare, or materially injurious to the properties or improvements in the vicinity. Staff believes that a finding can be made that the project as conditioned would not impact the public health, safety or welfare.

Attachments:

RESOLUTION NO. 2019-____

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF EUREKA APPROVING SITE PLAN AND ARCHITECTURAL REVIEW (AA-19-0013) FOR THE WIRELESS TELECOMMUNICATION FACILITY AT 3030 L STREET; APN 011-182-001

WHEREAS, Verizon Wireless is proposing to install eight (8) panel antennas and 12 Remote Radio Heads (RRHs) at a height of 94 feet on the City's existing 134-foot water tower in the northwest corner of the parcel at 3030 L Street; and

WHEREAS, a 23 x 14-foot equipment area with a 10 x 20-foot parking area will be located east of the water tower; and

WHEREAS The proposed equipment area will contain cabinets, equipment, a fire extinguisher and a service light with auto shut-off timer and surge suppressor on another H-frame; and

WHEREAS No generator is proposed on-site because the facility will use battery backup power; and

WHEREAS, "Wireless telecommunication facilities" is a conditionally permitted use in the zone district where the project is located; and

WHEREAS a Use Permit and Design Review are required for the addition of the antenna facility; and

WHEREAS, the parcel is approximately 58,800 square feet containing the City of Eureka's water tank, water tower, and the Humboldt Bay Fire Department Public Safety Training Classroom building and parking lot; and

WHEREAS, the eight antennas will be façade-mounted on the side of the legs (two per leg) of the existing water tower in four approximately 7.5 x 1.25-foot sectors that will extend out approximately 1-2 feet from the water tower leg.; and

WHEREAS, the antennas will be paired with four surge suppressors (one suppressor within each sector); and

WHEREAS, three Remote Radio Heads (RRHs) will be installed near the antennas in each of the four sectors for a total of 12 RRHs.; and

WHEREAS, per § 159.024, no conditional use permit for a wireless telecommunication facility shall be approved until the site plan and architectural review are approved by the Planning Commission.

NOW THEREFORE, BE IT RESOLVED by the Planning Commission of the City of Eureka, that the project, is approved and the decision to approve the subject application was made after careful, reasoned and equitable consideration of the evidence in the record, including, but not limited to: written and oral testimony submitted at the public hearing; the staff report; agency comments; project file; and, the evidence submitted with the permit application. The findings of fact listed below "bridge the analytical gap" between the raw evidence in the record and the Planning Commission's decision.

1. Mounted antennas, equipment, and hardware will be painted to match the existing water tower.
2. A 6-foot-high chain link fence with "light brown" vinyl slats will surround the 23 x 14-foot equipment area.

3. Because the antennas and associated equipment will be placed on an existing structure and camouflaged by painting the equipment in each sector to match the existing water tower, the WTF will not be inharmonious.

4. Furthermore, the ground equipment area is relatively small, at approximately 322 square feet and includes fencing to minimize adverse visual impacts on the surrounding neighborhood.

PASSED, APPROVED AND ADOPTED by the Planning Commission of the City of Eureka in the County of Humboldt, State of California, on the 12th day of August, 2019 by the following vote:

AYES: COMMISSIONER
NOES: COMMISSIONER
ABSENT: COMMISSIONER
ABSTAIN: COMMISSIONER

_____
Jeff Ragan, Chair, Planning Commission

Attest:

_____
Rob Holmlund, Executive Secretary

RESOLUTION NO. 2019-____

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF EUREKA APPROVING A CONDITIONAL USE PERMIT (C-19-0004) FOR THE WIRELESS TELECOMMUNICATION FACILITY AT 3030 L STREET; APN 011-182-001

WHEREAS, Verizon Wireless is proposing to install eight (8) panel antennas and 12 Remote Radio Heads (RRHs) at a height of 94 feet on the City's existing 134-foot water tower in the northwest corner of the parcel at 3030 L Street; and

WHEREAS, a 23 x 14-foot equipment area with a 10 x 20-foot parking area will be located east of the water tower; and

WHEREAS The proposed equipment area will contain cabinets, equipment, a fire extinguisher and a service light with auto shut-off timer and surge suppressor on another H-frame; and

WHEREAS No generator is proposed on-site because the facility will use battery backup power; and

WHEREAS, "Wireless telecommunication facilities" is a conditionally permitted use in the zone district where the project is located; and

WHEREAS a Use Permit and Design Review are required for the addition of the antenna facility; and

WHEREAS, the parcel is approximately 58,800 square feet containing the City of Eureka's water tank, water tower, and the Humboldt Bay Fire Department Public Safety Training Classroom building and parking lot; and

WHEREAS, the project area, located in the northern portion of the parcel, was previously disturbed through the development of the existing water tower and demolition of a previous water tower; and

WHEREAS, per § 159.024, no conditional use permit for a wireless telecommunication facility shall be approved until the site plan and architectural review are approved by the Planning Commission; and

WHEREAS, the project is subject to environmental review in accordance with the California Environmental Quality Act (CEQA).

NOW THEREFORE, BE IT RESOLVED by the Planning Commission of the City of Eureka, that the project, is approved with conditions and the decision to approve with conditions the subject application was made after careful, reasoned and equitable consideration of the evidence in the record, including, but not limited to: written and oral testimony submitted at the public hearing; the staff report; agency comments; project file; and, the evidence submitted with the permit application. The findings of fact listed below "bridge the analytical gap" between the raw evidence in the record and the Planning Commission's decision.

1. The City of Eureka as the Lead Agency has determined the project is exempt from CEQA pursuant to a Class 1 categorical exemption (Sections 15301), which exempts the minor alteration of existing public structures involving negligible or no expansion of use.

2. The project involves negligible additions to an existing public structure and minor land alterations to existing disturbed land.

3. The subject property is designated "Public/Quasi-Public" under the adopted general plan; this land use designation allows government facilities and services and uses determined to have a public benefit. The proposed WTF is consistent with this land use designation because it is a service which provides a public benefit through communication for government agencies, emergency personnel, and private citizens.

4. The surrounding land uses consist of Public/Quasi-Public directly west of the project site, Professional Office further west of the project site (approximately 330 feet), and Low Density Residential directly to the north, east, and south of the project site. The addition of the proposed WTF is a minor alteration that will not impact the existing relationship among the land uses.

5. Because the antennas will be façade-mounted on the legs of the existing water tower and the equipment will be located in a fenced enclosure on previously disturbed ground, the proposed development will not create a harmful intrusion or affect the stability of the existing land uses. Further, with conditions for installation of warning signs, the project complies with the Federal Communications Commission (FCC) Radiofrequency Safety Guidelines preventing the existing land uses from harmful intrusions.

6. The proposed WTF will provide improved mobile communications and serve as a backup to the existing landline services. This purpose appropriately serves the City as a whole because mobile communication has become part of daily commerce and recreation. Also, mobile communication has become increasingly important for public safety during times of emergency to serve as a method for immediate response, therefore, public land will continue to be used for an appropriate and beneficial purpose.

7. The proposed WTF does not provide for the possibility of excessive population densities as the project does not involve development that would allow for increased population. The antennas will be placed on top of an existing water tower and the equipment enclosure is 23 feet by 14 feet. Comparatively, the equipment enclosure covers a small area and will not overcrowd the land with structures.

8. Antennas and equipment will be accessed and serviced through an existing driveway with a recorded access easement on the parcel. During construction, which will take place during normal business hours for a period of 8-10 weeks, a boom lift truck and two standard-size work trucks will be used and parked on site. The vehicular usage during the construction period is temporary. Vehicular usage during operation will include a technician visiting the project site approximately once a month for maintenance. Based on the discussion above, the project will support a safe, effective traffic circulation system.

9. The proposed WTF provides one off-street parking space to be used by the technician during regular monthly maintenance.

10. No community facilities or institutions exist or are proposed.

11. The proposed WTF is not a commercial or industrial activity, however, it will provide improved coverage to an area identified by Epic Wireless that currently has a significant gap in coverage . Improved coverage will aid commercial activities that involve mobile communication, thus strengthening the city's tax base.

12. The proposed project, which will include minor alterations and ground equipment is unlikely to adversely affect real property values for residential properties in the vicinity of the proposed WTF.

13. The proposed project is subject to Design Review, which will review the project design and architecture to assure that the appearance is harmonious with the surrounding properties.

14. Since the project qualifies for a Class 1 categorical exemption (Sections 15301), the City of Eureka as the Lead Agency has determined the project will not have a significant effect on the environment. The antenna will be located 94 feet above the ground on the legs of the water tower. Safety signage will be installed to warn employees who access the tower about the effects of the transmitting antennas in areas where the radio frequency exposure may potentially exceed Federal Communications Commission (FCC) safety limits. The ground equipment will be located within a fenced area, and the entire site is fenced. Therefore, Staff believes that the proposed project will not be detrimental to the public health, safety or welfare.

15. As discussed above, the project complies with the objectives and purposes of the Eureka Municipal Code. The 'P' zoning district specifically gives the Planning Commission the authority to establish limits to the height, bulk, and coverage as a condition of a use permit in order to ensure compatibility with adjoining uses. By taking action to approve the project as submitted, the Planning Commission will be simultaneously establishing the limits to the height, bulk, and coverage and determining that the proposed project is compatible with the adjoining uses.

16. The project site is not located in the coastal zone.

17. According to the Radio Frequency Electromagnetic Fields Exposure Report prepared by Dtech Communications on December 21, 2018, the Verizon WTF will be in compliance with current Federal Communications Commission (FCC) and local rules regarding human exposure to radio frequency electromagnetic fields on the conditions that:

1. Access to the facility be kept locked to restrict access by the general public.
2. Access to the antennas be locked.
3. Install Warning Sign(s), NOC information Sign(s), and Guideline Sign(s) at antennas access points, gate entrances, or climbing access points.

Therefore, as conditioned, the proposed WTF, will not generate electromagnetic or radio frequency radiation in excess of the Federal Communications Commission adopted standards for human exposure.

18. The site is currently developed with public-serving structures including the City of Eureka's low water tank, high water tower, and the Humboldt Bay Fire Department Public Safety Training Classroom building and parking lot. The proposed WTF is a compatible use because the addition of the antennas and the relatively small equipment area are minor alterations on an existing water tower structure, on an existing site, developed with public uses. Also, the antennas will be painted to match the existing water tower, acting as a camouflaging technique.

19. The applicant held a meeting at 139 2nd Street, Eureka, California on June 11, 2019. Approximately eight citizens were in attendance, and the applicant provided the Department the information required by §159.022(C). Therefore, the finding can be made that the applicant has complied with the Education/Outreach requirements.

20. Epic Wireless and Verizon Wireless considered four potential sites before concluding the water tower location at 3030 L Street as the least intrusive site that also closes the significant gap in coverage.

21. One of the objectives of Chapter 159 of the Eureka Municipal Code, is to "maximize use of existing wireless telecommunication towers and alternative structures so as to minimize the need to construct new towers and minimize the total number of towers throughout the city." Although using an existing

tower for co-location wasn't possible, placement of the WTF on the existing water tower structure eliminates the need for a new tower, thereby meeting the objective.

22. The 1996 Telecommunications Act prevents local jurisdictions from denying a WTF based on potential or perceived health hazards if the project meets radio frequency emission thresholds set by the FCC. With the condition of approval requiring installation of the warning signs as recommended in the Radio Frequency Electromagnetic Fields Exposure Report prepared by Dtech Communications on December 21, 2018, the proposed WTF is compliant with the FCC's RF Safety guidelines.

FURTHER approval of the Use Permit is conditioned on the following terms and requirements. The violation of any term or requirement of this conditional approval may result in the revocation of the permit.

1. Access to the facility be kept locked to restrict access by the general public.

2. Access to the antennas be locked.

3. Install Warning Sign(s), NOC information Sign(s), and Guideline Sign(s) at antennas access points, gate entrances, or climbing access points.

4. If archaeological resources are encountered during construction activities, all onsite work shall cease in the immediate area and within a 50 foot buffer of the discovery location. A qualified archaeologist will be retained to evaluate and assess the significance of the discovery, and develop and implement an avoidance or mitigation plan, as appropriate. For discoveries known or likely to be associated with native American heritage (prehistoric sites and select historic period sites), the Tribal Historic Preservation Officers for the Bear River Band of Rohnerville Rancheria, Blue Lake Rancheria, and Wiyot Tribe are to be contacted immediately to evaluate the discovery and, in consultation with the project proponent, City of Eureka, and consulting archaeologist, develop a treatment plan in any instance where significant impacts cannot be avoided. Prehistoric materials may include obsidian or chert flakes, tools, locally darkened midden soils, groundstone artifacts, shellfish or faunal remains, and human burials. Historic archaeological discoveries may include 19th century building foundations; structure remains; or concentrations of artifacts made of glass, ceramic, metal or other materials found in buried pits, old wells or privies.

5. If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist can assess the nature and importance of the find and, if necessary, develop appropriate treatment measures in conformance with Society of Vertebrate Paleontology standards, and in consultation with the City of Eureka.

6. In the event of discovery or recognition of any human remains during construction activities, the landowner or person responsible for excavation would be required to comply with the State Health and Safety Code Section 7050.5. Construction activities within 100 feet of the find shall cease until the Humboldt County Coroner has been contacted at 707-445-7242 to determine that no investigation of the cause of death is required. If the remains are determined to be, or potentially be, Native American, the landowner or person responsible for excavation would be required to comply with Public Resources Code Section 5097.98. In part, PRC Section 5097.98

requires that the Native American Heritage Commission (NAHC) shall be contacted within 24 hours if it is determined that the remains are Native American. The NAHC would then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the landowner or the person responsible for the excavation work for the appropriate means of treating the human remains and any associated grave goods within 48 hours of being granted access to the site. Additional provisions of Public Resources Code Section 5097.98 shall be complied with as may be required.

7. Prior to the issuance of a building permit, the applicant/agent must have an executed lease to the satisfaction of the City of Eureka Department of Public Works.

PASSED, APPROVED AND ADOPTED by the Planning Commission of the City of Eureka in the County of Humboldt, State of California, on the 12th day of August, 2019 by the following vote:

AYES: COMMISSIONER
NOES: COMMISSIONER
ABSENT: COMMISSIONER
ABSTAIN: COMMISSIONER

_____
Jeff Ragan, Chair, Planning Commission

Attest:

_____
Rob Holmlund, Executive Secretary

Attachment 3
Project Plans

PROJECT : West Buhne

1020 WOOD STREET
EUREKA, CA 95501

LOCATION NO: 445745

PROJECT DESCRIPTION

(P) UNMANNED VERIZON WIRELESS TELECOMMUNICATION 23'-0" x 14'-0" LEASE AREA CONSISTING OF THE FOLLOWING:

1. (P) 6' HIGH CHAIN LINK FENCE WITH SLATS
2. (P) 200 AMP METER, 200 AMP INTERSECT PANEL W/ GEN PLUG ATTACHED TO (P) H-FRAME
3. (P) 2A:20BC RATED FIRE EXTINGUISHER, & SERVICE LIGHT WITH AUTO SHUT-OFF TIMER ON (P) H-FRAME
4. (6) (P) SURGE SUPPRESSORS, (2) AT EQUIPMENT ON (P) H-FRAME, & (4) ON TOWER REQUIRED AT ANTENNA LOCATION
5. (1) (P) POWER / MISC CABINET.
6. (2) (P) BATTERY CABINET.
7. (1) (F) MISC. CABINETS
8. (2) (P) ANTENNAS PER SECTOR, TOTAL OF (8).
9. (4) (P) HYBRID TRUNKS
10. (3) (P) RRHs NEAR ANTENNAS PER SECTOR, TOTAL OF (12)
11. PAINT TOWER MOUNTED ANTENNAS, EQUIPMENT, HARDWARE, & CABLING TO MATCH (E) TOWER

PROJECT INFORMATION

Property Information:
Site Name: WEST BUHNE

Site Number: T-14002-105

Search Ring: WEST BUHNE

Site Address: 1020 WOOD STREET
EUREKA, CA 95501

A.P.N. Number: 011-182-001-000

Current Use: CITY OWNED PROPERTY/ WATER TOWER

Jurisdiction: CITY OF EUREKA

Property Owner:
CITY OF EUREKA
531 K STREET, RM 208
EUREKA, CA 95501
contact: Brian Gerving, Director of Public Works
email: bgervingl@ci.eurecka.ca.gov
ph: (707) 441-4152

Power Agency:
PG&E
1 MARKET STREET, SPEAR TOWER
SAN FRANCISCO, CA 94105
ph: (800) 743-5000

Telephone Agency:
AT&T California
525 MARKET STREET
San Francisco, CA 94105

PROJECT TEAM

Construction Mgr.:
EPIC WIRELESS GROUP, INC.
605 COOLIDGE DR. SUITE 100
FOLSOM, CA 95630
contact: BRETT EWING
email: brett.ewing@epicwireless.net
ph: (916) 844-9324

Agent for Applicant, Planning and Zoning Mgr:
EPIC WIRELESS GROUP, INC.
605 COOLIDGE DR. SUITE 100
FOLSOM, CA 95630
contact: CHARLENE SCHLAGER
email: charlene.schlager@epicwireless.net
cell: (773) 732-5497

Design Professional:
BORGES ARCHITECTURAL GROUP, INC.
1478 STONE POINT DRIVE, SUITE 350
ROSEVILLE, CA 95661
contact: BRIAN K. WINSLOW
email: brian@borgesarch.com
ph: (916) 782-7200

Structural Engineer:
NORM SCHEEL STRUCTURAL ENGINEER
5022 SUNRISE BLVD
FAIR OAKS, CA 95628
contact: NORM SCHEEL
email: norm@nsse.com
ph: (916) 536-9585

Survey:
Geil Engineering
1226 High Street
Auburn, Ca 95603-5015
contact: NEIL ROHDE
email: nrohde@pacbell.net
ph: (530) 305-8525

SHEET INDEX

		REV
A-0	TITLE SHEET	D
A-1	OVERALL SITE PLANS	D
A-2	ENLARGED EQUIPMENT & ANTENNA PLANS	D
A-3.1	ELEVATIONS	D
A-3.2	ELEVATIONS	D
A-3.3	ELEVATIONS	D

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1) 2016 CALIFORNIA ADMINISTRATIVE CODE, CHAPTER 10, PART 1, TITLE 24 CODE OF REGULATIONS
2) 2016 CALIFORNIA BUILDING CODE (CBC) WITH CALIFORNIA AMENDMENTS, BASED ON THE 2015 IBC (PART 2, VOL 1-2)
3) 2016 CALIFORNIA RESIDENTIAL CODE (CRC) WITH APPENDIX H, PATIO COVERS, BASED ON THE 2015 IRC (PART 2.5)
4) 2016 CALIFORNIA GREEN BUILDINGS STANDARDS CODE (CALGREEN) (PART 11) (AFFECTED ENERGY PROVISIONS ONLY
5) 2016 CALIFORNIA FIRE CODE (CFC), BASED ON THE 2015 IFC, WITH CALIFORNIA AMENDMENTS (PART 9)
6) 2016 CALIFORNIA MECHANICAL CODE (CMC), BASED ON THE 2015 UMC (PART 4)
7) 2016 CALIFORNIA PLUMBING CODE (CPC), BASED ON THE 2015 UPC (PART 5)
8) 2016 CALIFORNIA ELECTRICAL CODE (CEC) WITH CALIFORNIA AMENDMENTS, BASED ON THE 2015 NEC (PART 3)
9) 2016 CALIFORNIA ENERGY CODE (CEC)
10) ANSI / EIA-TIA-222-H
11) 2015 NFPA 101, LIFE SAFETY CODE
12) 2016 NFPA 72, NATIONAL FIRE ALARM CODE
13) 2016 NFPA 13, FIRE SPRINKLER CODE

VICINITY MAP

SPECIAL INSPECTIONS

DIRECTIONS FROM VERIZON WIRELESS

FROM: 295 PARKSHORE DR, FOLSOM, CA 95630
TO: 1020 Wood Street, Eureka, CA 95501

1. DEPART PARKSHORE DR TOWARD COOLIDGE DR
2. TURN RIGHT ONTO FOLSOM BLVD
3. TURN LEFT ONTO GREENBACK LN / CR-E14 W
4. BEAR RIGHT ONTO MADISON AVE
5. TAKE RAMP RIGHT FOR I-80 WEST TOWARD SACRAMENTO
6. TAKE RAMP RIGHT FOR CA-99 NORTH / I-5 NORTH TOWARD AIRPORT / REDDING
7. AT EXIT 578, TAKE RAMP RIGHT FOR CA-20 WEST TOWARD CLEAR LAKE
8. TURN LEFT ONTO CA-20
9. AT ROUNDABOUT, TAKE 2ND EXIT ONTO CA-20
10. AT ROUNDABOUT, TAKE 1ST EXIT
11. TAKE RAMP RIGHT FOR US-101 NORTH / CA-20 WEST TOWARD WILLITS
12. ROAD NAME CHANGES TO US-101 N
13. BEAR RIGHT ONTO W HARRIS ST
14. ROAD NAME CHANGES TO HARRIS ST
15. TURN LEFT ONTO I ST, AND THEN IMMEDIATELY TURN RIGHT ONTO WOOD ST
16. 1020 WOOD ST, EUREKA, CA 95501 ON RIGHT

VERIZON SIGNATURE BLOCK

DISCIPLINE:	SIGNATURE:	DATE:
SITE ACQUISITION:		
CONSTRUCTION:		
RF:		
MICROWAVE:		
TELCO:		
EQUIPMENT:		
PROJECT ADMINISTRATOR:		
WO ADMINISTRATOR:		

GENERAL CONTRACTOR NOTES

DO NOT SCALE DRAWINGS

THESE DRAWINGS ARE FORMATTED TO BE FULL SIZE AT 24" x 36". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOBSITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME.

811 Know what's below. Call before you dig.
CALL 811
WWW.CALL811.COM
CONTRACTOR TO CALL NATIONWIDE ONE-CALL SYSTEMS AT LEAST (2) WORKING DAYS PRIOR TO DIGGING.

PREPARED FOR
verizon
295 Parkshore Drive
Folsom, California 95630

Vendor:
EPIC WIRELESS GROUP LLC
Connecting a Wireless World
605 Coolidge Dr. Suite 100
Folsom, CA. 95630

Project Address:
1020 WOOD STREET
EUREKA, CA 95501

Architect:
ARCHITECTURAL GROUP Borges
borgesarch.com
1478 STONE POINT DRIVE, SUITE 350
ROSEVILLE CA 95661
916 782 7200 TEL
916 773 3037 FAX

PROJECT NO:	T-14002-105
LOCATION NO:	445745
DRAWN BY:	J.E.S.
CHECKED BY:	B.K.W.

WEST BUHNE
445745

REV	DATE	DESCRIPTION
D	01/14/19	100% ZD Submittal
C	10/26/18	90% ZD REV 1
B	04/23/18	100% ZD Submittal
A	04/04/18	90% ZD Submittal

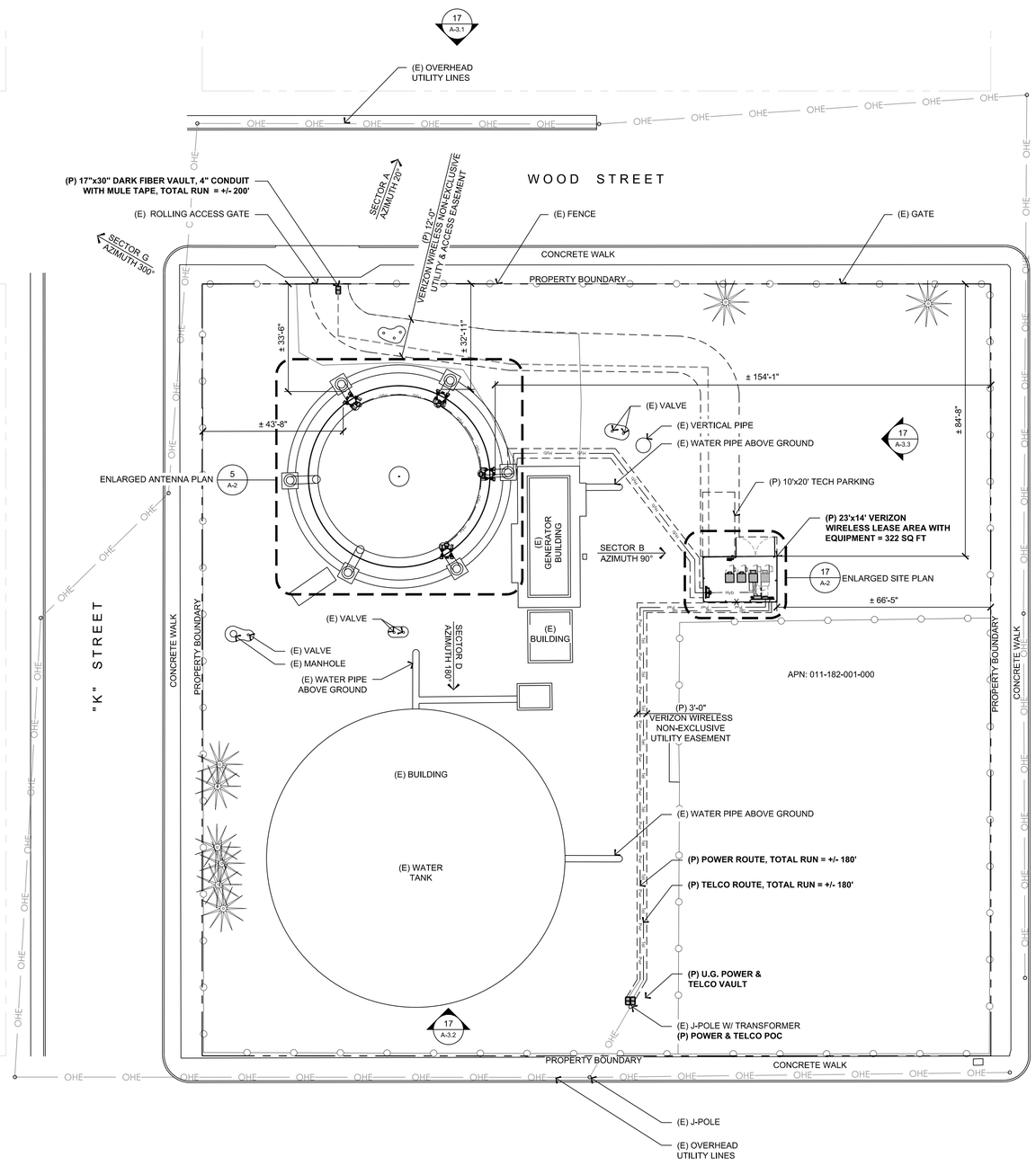
Licensor:

Issued For:
01/14/19
100% ZD SUBMITTAL

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
A-0

Plot Date: 1/14/2019 11:41:27 AM File Name: T-14002-105 - Epic Wireless V2\T-14002-105_West Buhne_A\SR\West Buhne\Sheets\A Title Sheet.dwg Plotted By: Jesus Escalante



17 OVERALL SITE PLAN
1" = 20'-0"

N

20' 10' 0 20' 40'
1"=20'-0"

THIS IS NOT A SITE SURVEY

ALL PROPERTY BOUNDARIES, ORIENTATION OF TRUE NORTH AND STREET HALF-WIDTHS HAVE BEEN OBTAINED FROM A TAX PARCEL MAP AND EXISTING DRAWINGS AND ARE APPROXIMATE.

NOTES:

1. NO GRADING OR PERMANENT CONSTRUCTION SHALL OCCUR WITHIN DRIP LINES OF TREES THAT ARE TO REMAIN WITHOUT ARBORIST APPROVAL.
2. PRIOR TO CONSTRUCTION, GENERAL CONTRACTOR TO CONTACT DIGALERT TO MARK OUT EXISTING UNDERGROUND UTILITIES. IN THE EVENT OF CONFLICTS, CONTRACTOR TO CONTACT PDC.

PREPARED FOR

verizon

295 Parkshore Drive
Folsom, California 95630

Vendor:

EPIC WIRELESS GROUP LLC
Connecting a Wireless World

605 Coolidge Dr. Suite 100
Folsom, CA. 95630

Project Address:

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EUREKA, CA 95501

Architect:

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borgesarch.com
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A	04/04/18	90% ZD Submittal

Licensor:

Issued For:

01/14/19

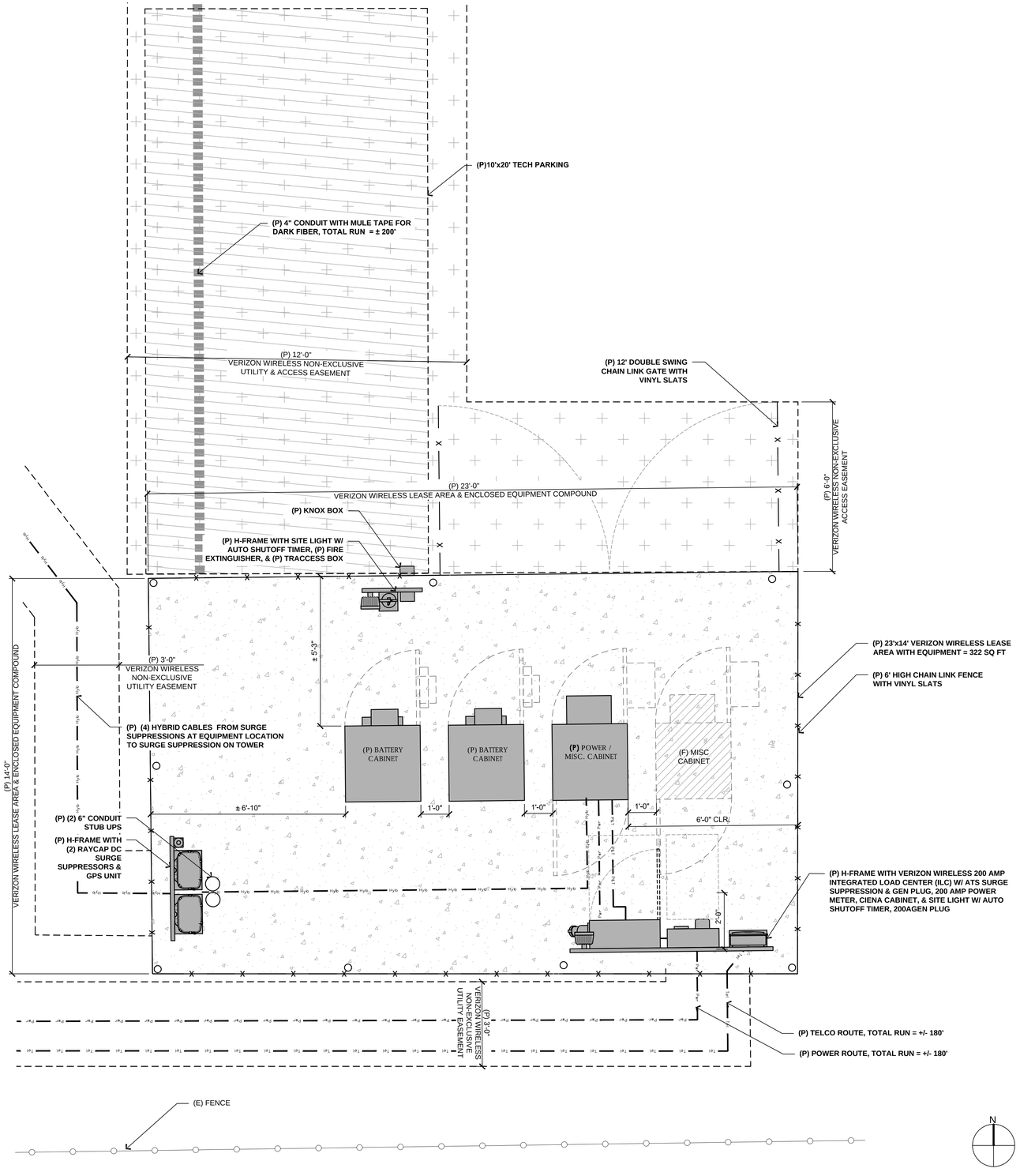
100% ZD SUBMITTAL

SHEET TITLE:

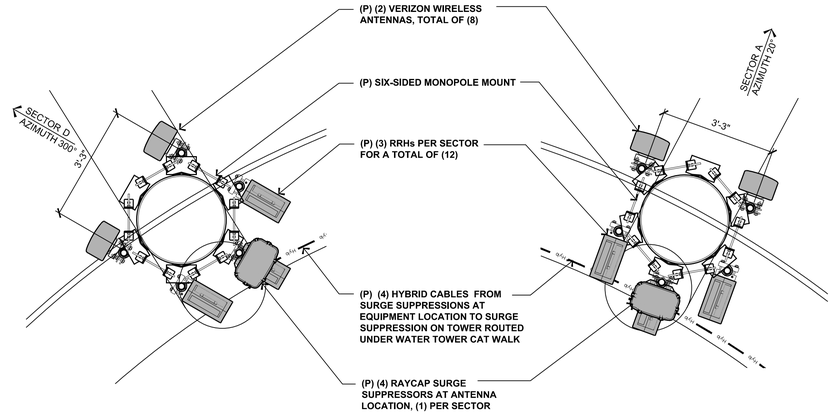
OVERALL SITE PLAN

SHEET NUMBER:

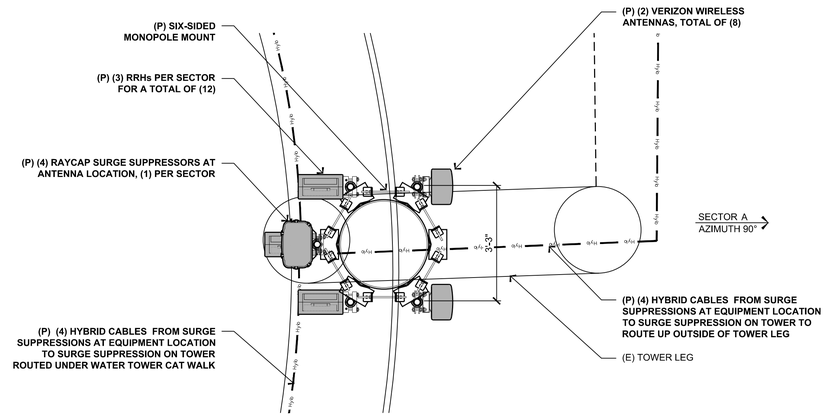
A-1



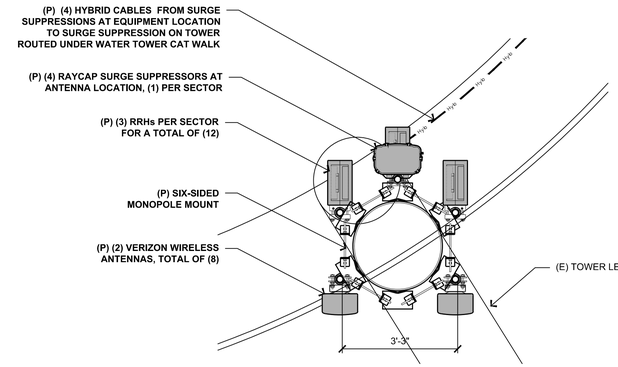
17 ENLARGED EQUIPMENT PLAN
1/2" = 1'-0"



SECTOR D SECTOR A



SECTOR B



SECTOR G

N
2' 1' 0 2' 4'
1/2"=1'-0"

5 ENLARGED ANTENNA PLAN
1/2" = 1'-0"

PREPARED FOR

verizon

295 Parkshore Drive
Folsom, California 95630

Vendor:

EPIC WIRELESS GROUP LLC
Connecting a Wireless World

605 Coolidge Dr. Suite 100
Folsom, CA. 95630

Project Address:

1020 WOOD STREET

EUREKA, CA 95501

Architect:

ARCHITECTURAL GROUP Borges

borgesarch.com

1478 STONE POINT DRIVE, SUITE 350
ROSEVILLE CA 95661

916 782 7200 TEL
916 773 3037 FAX

PROJECT NO:	T-14002-105
LOCATION NO:	445745
DRAWN BY:	J.E.S.
CHECKED BY:	B.K.W.

WEST BUHNE
445745

REV	DATE	DESCRIPTION
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C	10/26/18	90% ZD REV 1
B	04/23/18	100% ZD Submittal
A	04/04/18	90% ZD Submittal

Licensor:

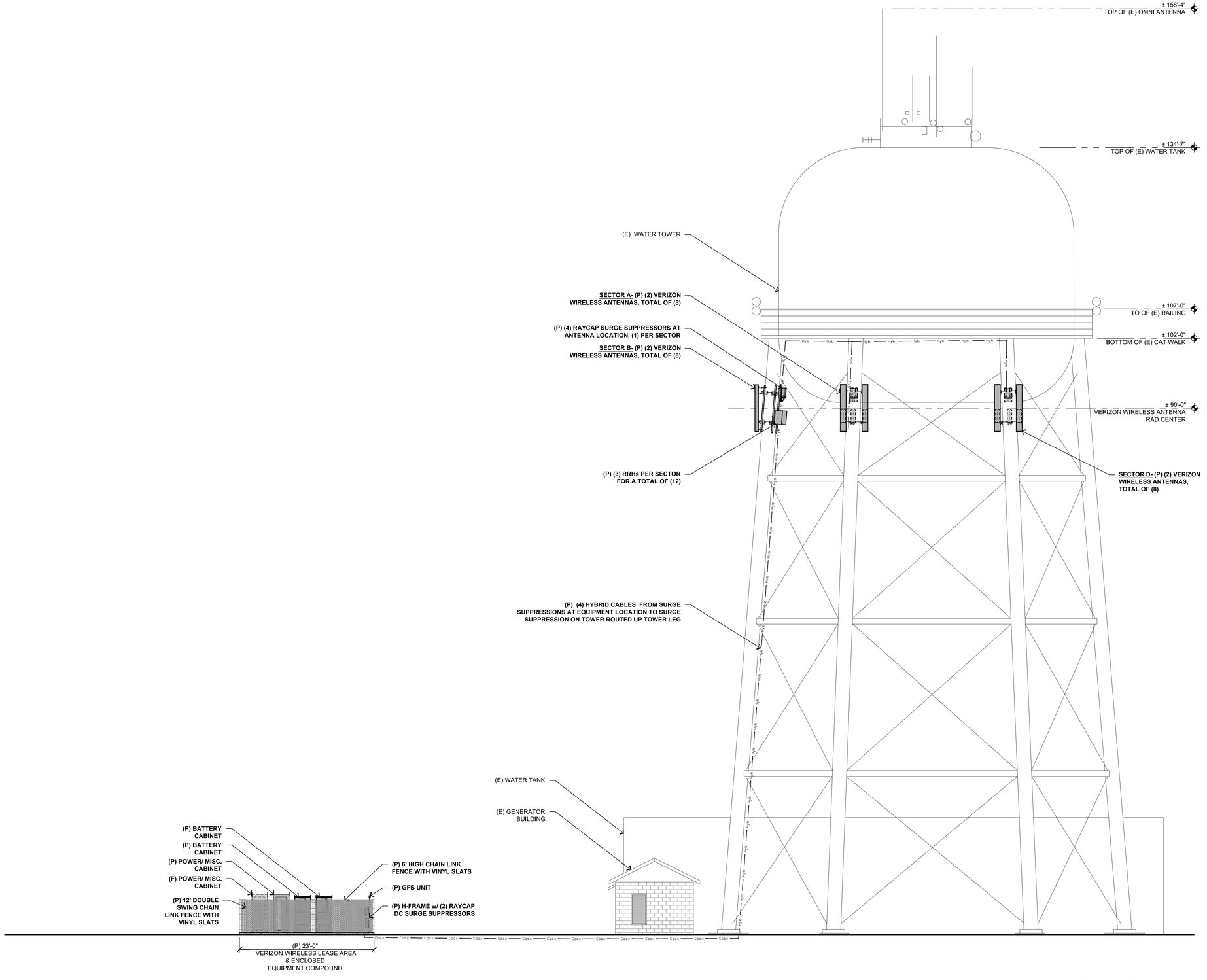
Issued For:

01/14/19

100% ZD SUBMITTAL

SHEET TITLE:
ENLARGED EQUIPMENT & ANTENNA PLANS

SHEET NUMBER:
A-2



17 PROPOSED NORTH ELEVATION
1/8" = 1'-0"

PREPARED FOR

verizon

295 Parkshore Drive
Folsom, California 95630

Vendor:

EPIC WIRELESS GROUP LLC
Connecting a Wireless World

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Folsom, CA. 95630

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EUREKA, CA 95501

Architect:

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Issued For:

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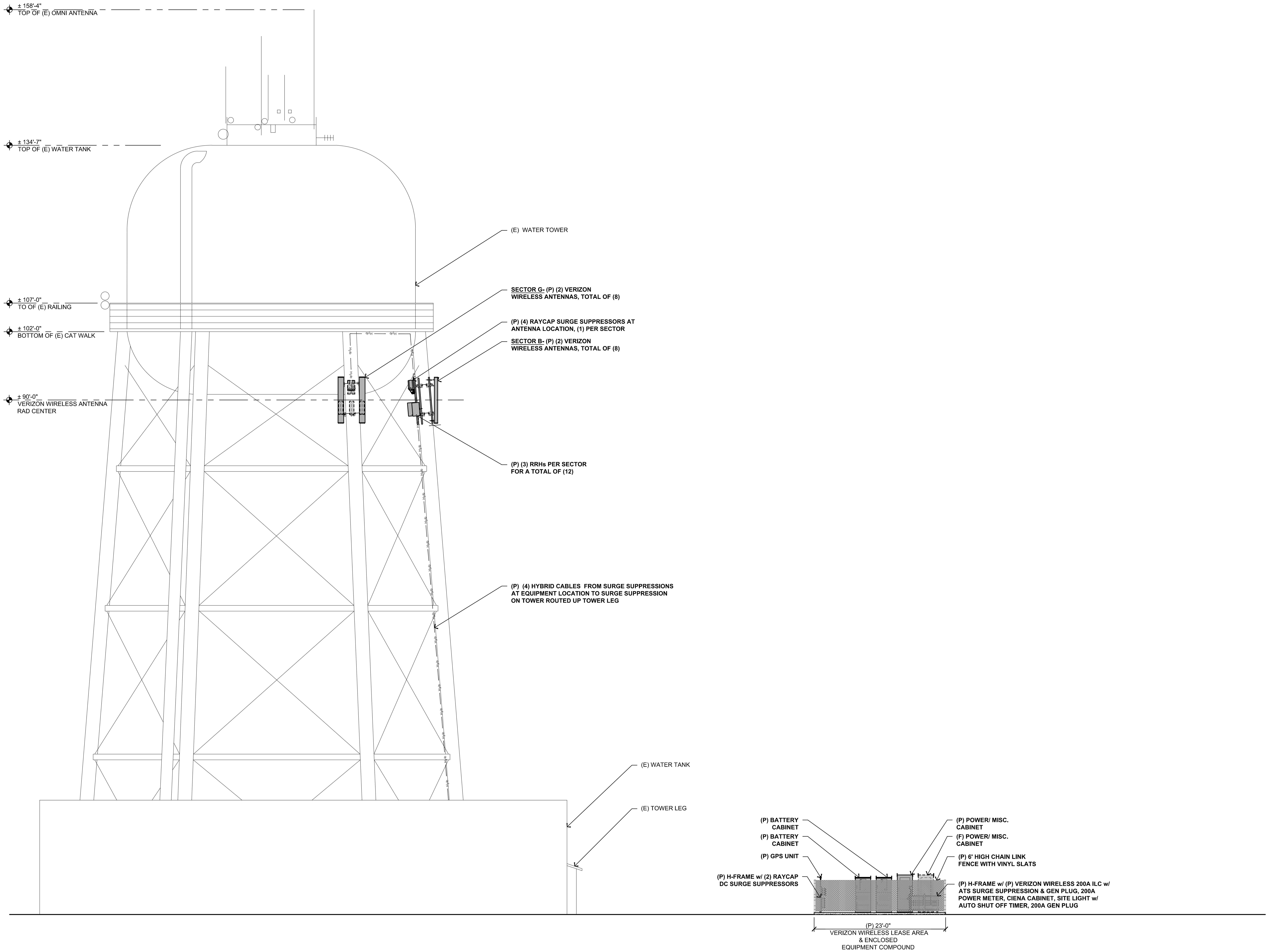
SHEET TITLE:

ELEVATIONS

SHEET NUMBER:

A-3.1



17 PROPOSED SOUTH ELEVATION
1/8" = 1'-0"

8' 4' 0 8' 16'
1/8"=1'-0"

PREPARED FOR

verizon

295 Parkshore Drive
Folsom, California 95630

Vendor:

EPIC WIRELESS GROUP LLC
Connecting a Wireless World

605 Coolidge Dr. Suite 100
Folsom, CA. 95630

Project Address:

1020 WOOD STREET
EUREKA, CA 95501

Architect:

Borges ARCHITECTURAL GROUP

borgesarch.com
1478 STONE POINT DRIVE, SUITE 350
ROSEVILLE CA 95661
916 782 7200 TEL
916 773 3037 FAX

PROJECT NO:	T-14002-105
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A	04/04/18	90% ZD Submittal

Licensor:

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.

Issued For:

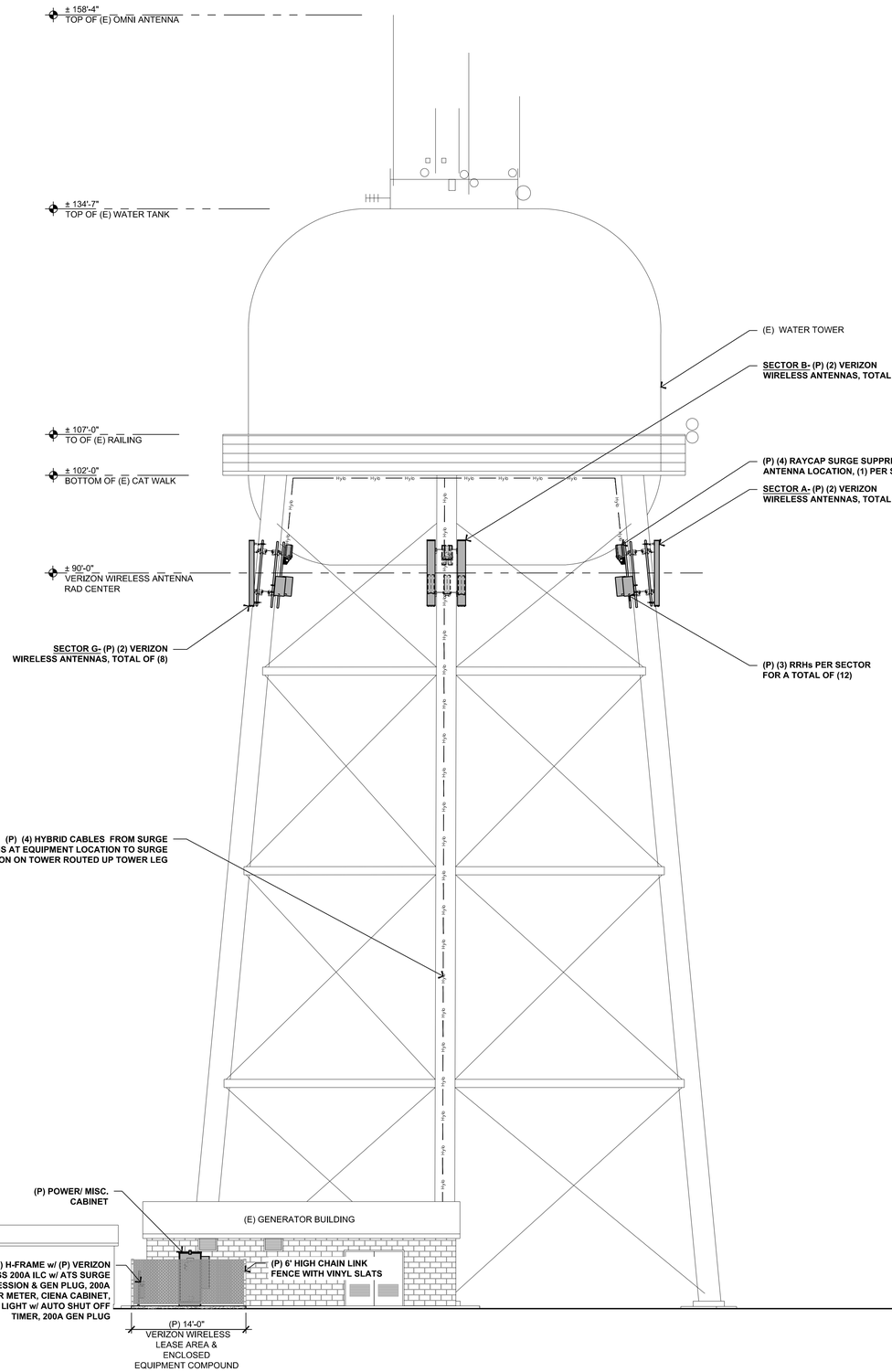
01/14/19
100% ZD SUBMITTAL

SHEET TITLE:

ELEVATIONS

SHEET NUMBER:

A-3.2



17 PROPOSED EAST ELEVATION
1/8" = 1'-0"

8' 4' 0 8' 16'
1/8"=1'-0"

PREPARED FOR
verizon
295 Parkshore Drive
Folsom, California 95630

Vendor:
EPIC WIRELESS GROUP LLC
Connecting a Wireless World
605 Coolidge Dr. Suite 100
Folsom, CA. 95630

Project Address:
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Architect:
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borgesarch.com
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Licensor:

Issued For:
01/14/19
100% ZD SUBMITTAL

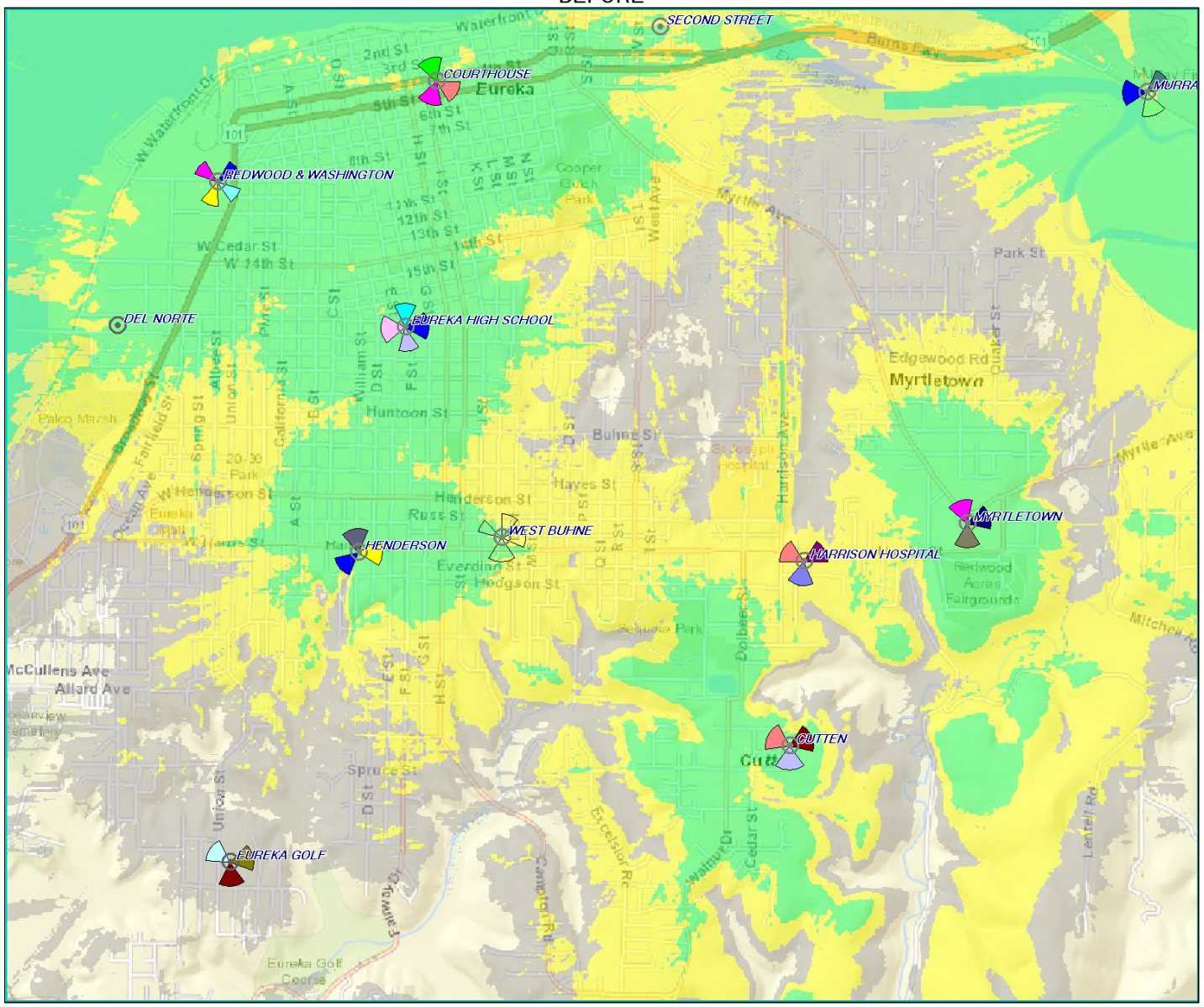
SHEET TITLE:
ELEVATIONS

SHEET NUMBER:
A-3.3

Attachment 4
Existing and Proposed Coverage Maps

WEST BUHNE

BEFORE

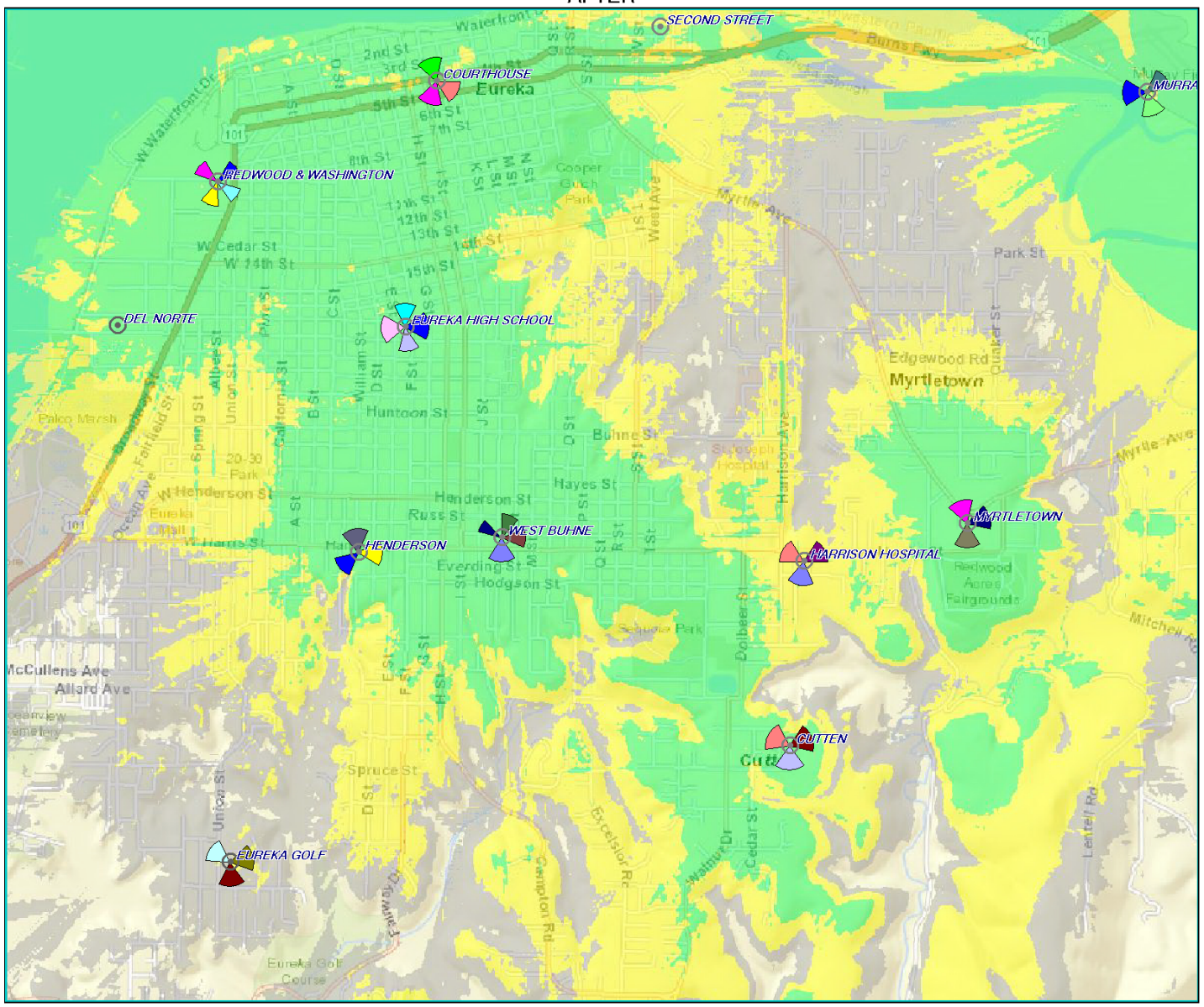


AWS LTE: RSRP Existing

- Best Signal Level (dBm) >=-85
- Best Signal Level (dBm) >=-95
- Best Signal Level (dBm) >=-105

WEST BUHNE

AFTER



AWS LTE: RSRP Proposed

- Best Signal Level (dBm) >=-85
- Best Signal Level (dBm) >=-95
- Best Signal Level (dBm) >=-105

Attachment 5

Radio Frequency Electromagnetic Fields Exposure Report

Dtech communications

YOUR RF SAFETY PARTNER

RADIO FREQUENCY ELECTROMAGNETIC FIELDS EXPOSURE REPORT

Prepared for Verizon

c/o Epic Wireless Group LLC

Site Name: West Buhne
Site Type: Water Tower

Located at:

1020 Wood Street
Eureka, CA 95501
Latitude: 40.78088 / Longitude: -124.1575

Report Date: 12/21/2018
Report By: Jamie Santos

Based on FCC Rules and Regulations, Verizon will be compliant provided recommendation(s) are implemented.

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

Dtech Communications, LLC ("Dtech") has been retained by Epic Wireless Group LLC., contractors to Verizon, to determine whether its wireless communications facility complies with the Federal Communications Commission ("FCC") Radio Frequency ("RF") Safety Guidelines. This report contains a computer-simulated with an on-site visit analysis of the Electromagnetic Fields ("EMF") exposure resulting from the facility. The analysis also includes assessment of existing wireless carriers on site, where information is provided. The table below summarizes the results at a glance:

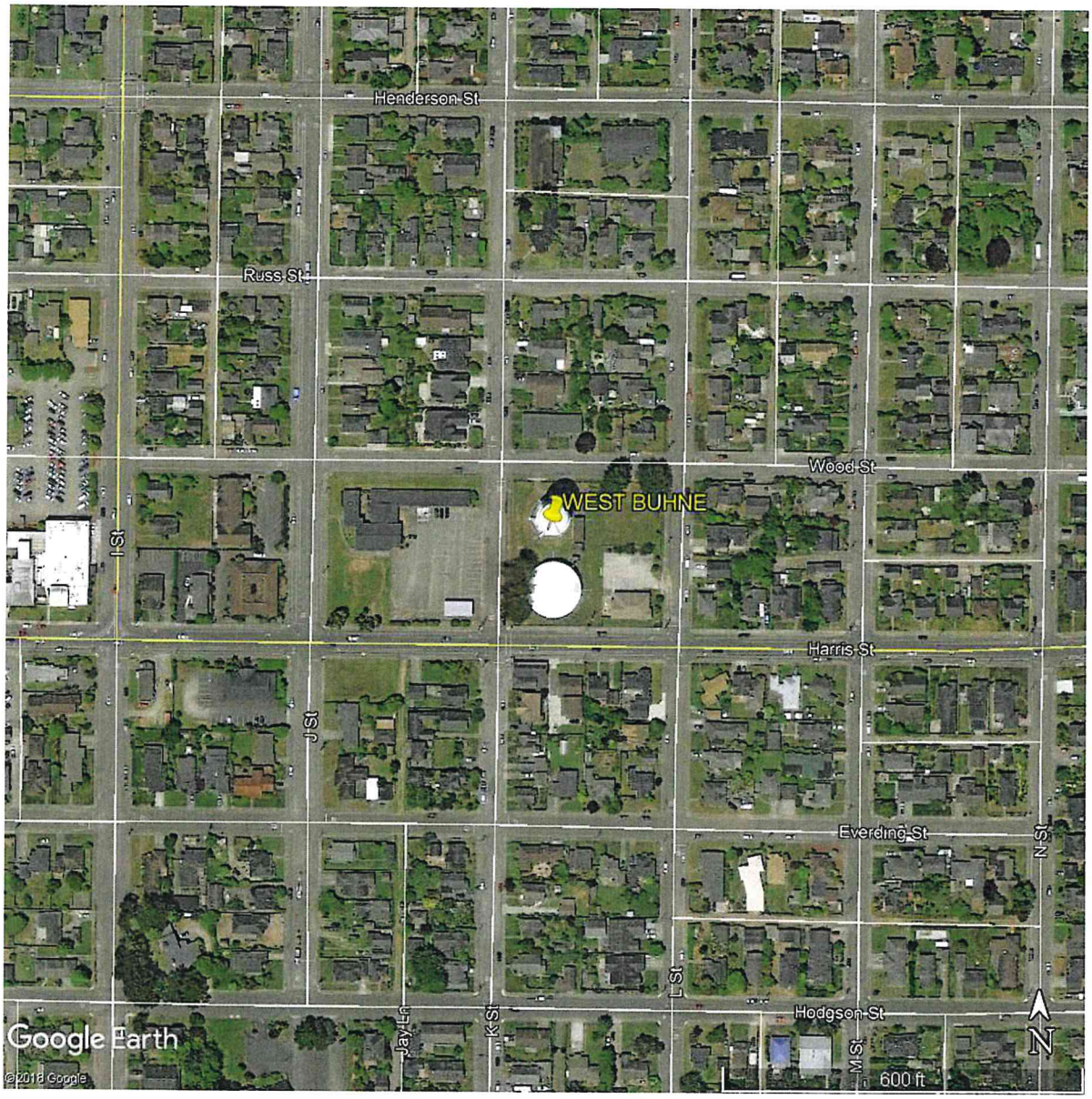
Table 1: EMF Summary

Verizon	Summary
Access Type	Ladder
Access to antennas locked	Recommended
RF Sign(s) @ access point(s)	NOC, Guidelines & Warning (Recommended)
RF Sign(s) @ antennas	None
Barrier(s) @ sectors	NA
Max EMF level for Verizon on Ground	0.5% General Population
Max cumulative EMF level for facility on Ground	0.5% General Population
Max EMF level for Verizon on Catwalk	14.5% General Population (2.9% Occupational)
Max cumulative EMF level for facility on Catwalk	14.5% General Population (2.9% Occupational)
Min Clearance Distance from Face of Verizon's Antennas	65 Feet

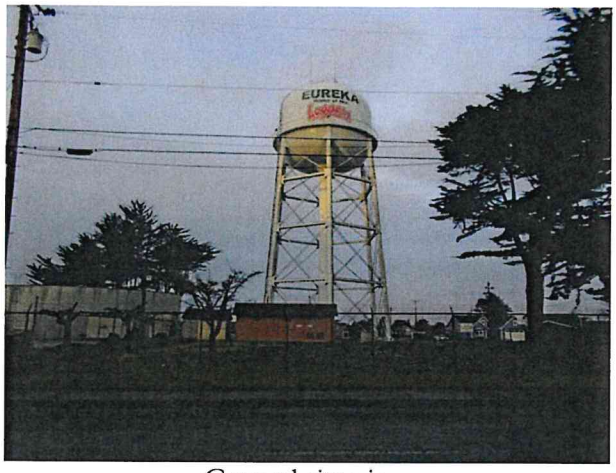
2.0 SITE DESCRIPTION

The wireless telecommunication facility is located on the ground. The facility consists of 2 wireless carrier(s) or operator(s): Verizon & Other(s). The antennas are typically grouped into sectors pointing in different direction to achieve the desired areas of coverage. Verizon's antennas will be facade-mounted on the legs of the water tower and connected to the equipment via cables.

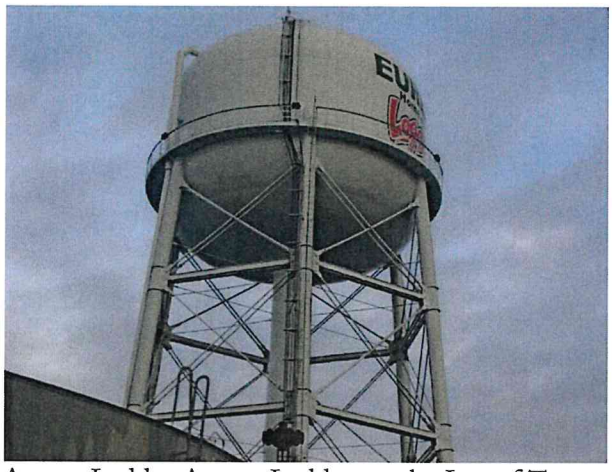
2.1 Site Map



2.2 Site Photographs



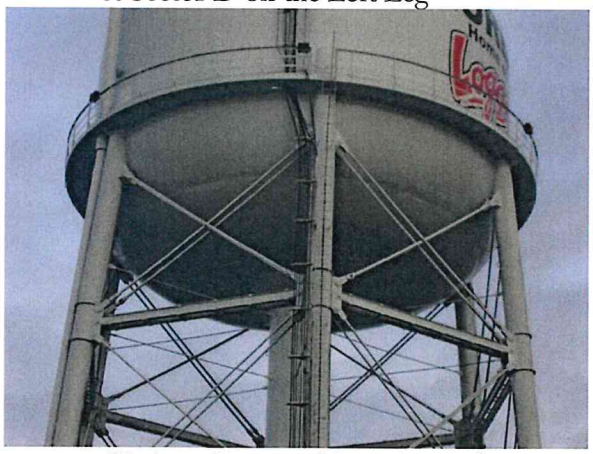
General site view



Access Ladder Access Ladder on the Leg of Tower

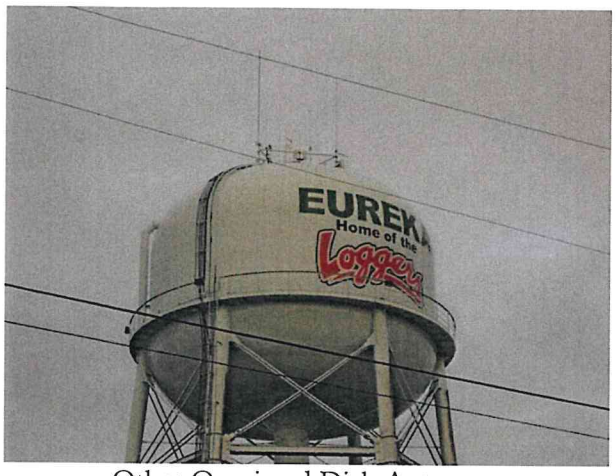
Verizon Proposed Location of Sector A on Right Leg & Sector D on the Left Leg

Verizon Proposed Location of Sector B on Center Leg

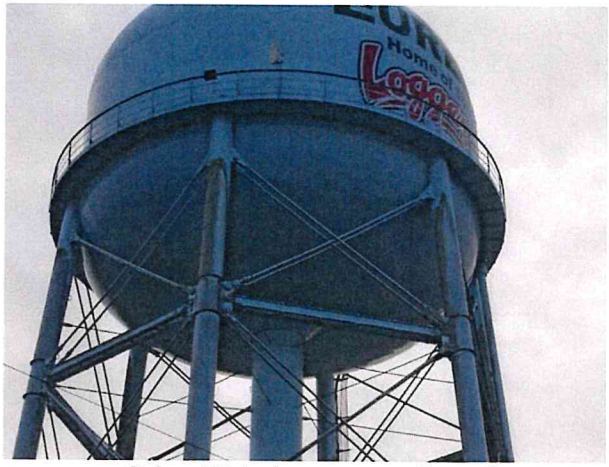


Verizon Proposed Locations of Sector C on Center Leg

Verizon Proposed Location of Equipment Shelter



Other Omni and Dish Antennas



Other Dish Antenna on Catwalk

2.3 Antenna Inventory

Technical specifications in the table below are provided by our clients and/or gathered from physical field surveys where applicable and/or possible. Conservative estimates are used where information is not provided or available.

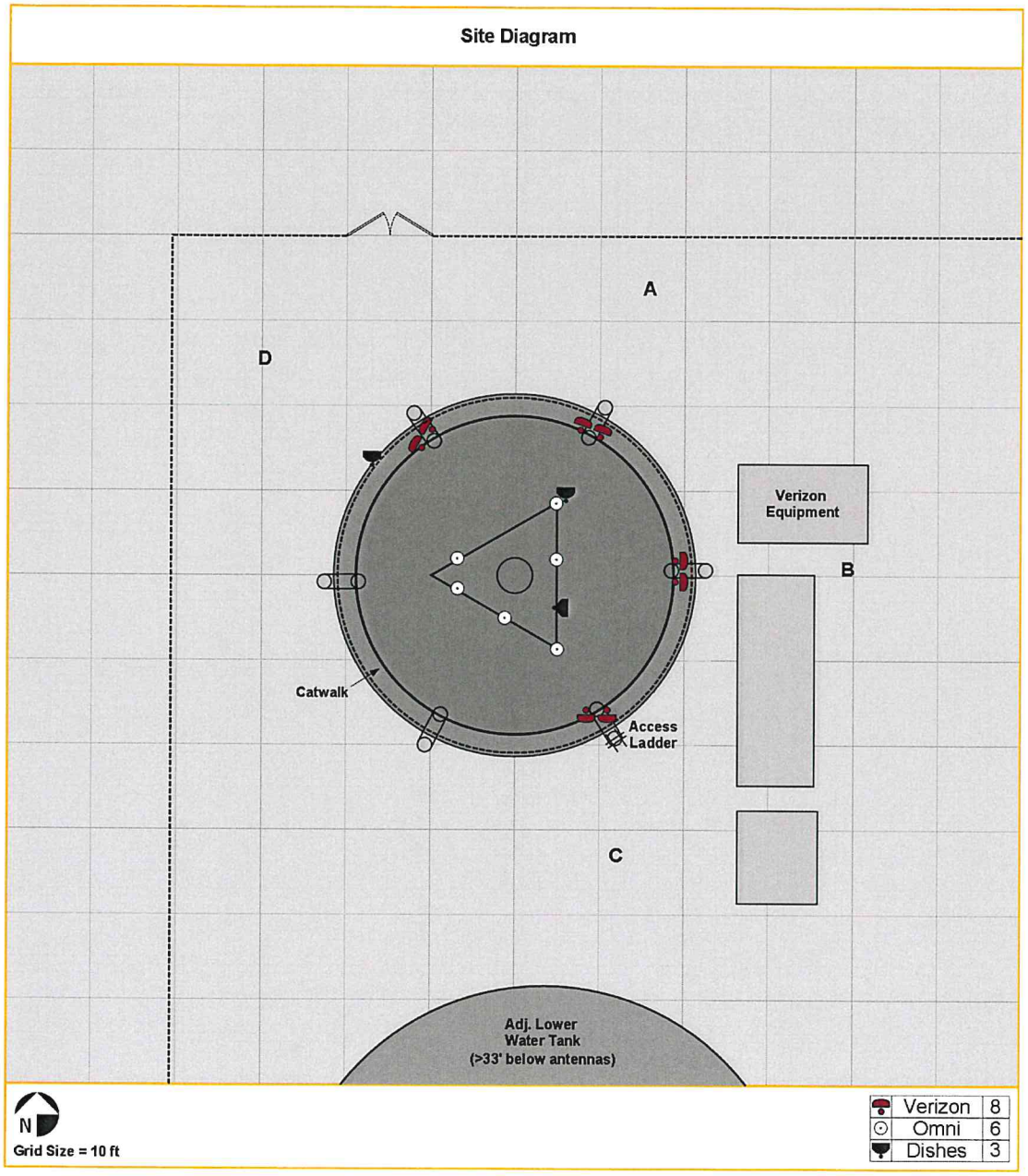
Table 2: Site Technical Specifications

Antenna ID	Operator	Antenna Mfg	Antenna Model	Type	Frequency (MHz)	Orientation (°T)	Horizontal BWdth (°)	Antenna Aperture (ft)	Antenna Gain (dBd)	Total Input Power (Watts)	Total ERP (Watts)	Bottom Tip Height Above Ground (Z) (ft)	Bottom Tip Height Above Catwalk (Z) (ft)	Bottom Tip Height Above At Ant. Level (Z) (ft)
A1	Verizon	Commscope	NHH-45B-R2B	Panel	746	20	48	6.0	14.0	283	7080	87.0	-15.0	0.0
A1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	20	41	6.0	17.9	283	17425	87.0	-15.0	0.0
A2	Verizon	Commscope	NHH-45B-R2B	Panel	880	20	43	6.0	15.1	283	9142	87.0	-15.0	0.0
B1	Verizon	Commscope	NHH-45B-R2B	Panel	746	90	48	6.0	14.0	283	7080	87.0	-15.0	0.0
B1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	90	41	6.0	17.9	283	17425	87.0	-15.0	0.0
B2	Verizon	Commscope	NHH-45B-R2B	Panel	880	90	43	6.0	15.1	283	9142	87.0	-15.0	0.0
C1	Verizon	Commscope	NHH-45B-R2B	Panel	746	180	65	6.0	12.3	283	4798	87.0	-15.0	0.0
C1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	180	64	6.0	16.4	283	12251	87.0	-15.0	0.0
C2	Verizon	Commscope	NHH-45B-R2B	Panel	880	180	60	6.0	12.6	283	5201	87.0	-15.0	0.0
D1	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	746	300	34	6.0	16.8	283	13399	87.0	-15.0	0.0
D1	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	2120	300	35	6.0	16.7	283	13097	87.0	-15.0	0.0
D2	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	880	300	30	6.0	17.4	283	15384	87.0	-15.0	0.0
1	Others 1	Unknown	Unknown	Omni	850	0	360	12.0	9.0	-	315	138.7	36.7	N/A
2	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5	36.5	N/A
3	Others 1	Unknown	Unknown	Omni	850	0	360	12.0	9.0	-	315	138.7	36.7	N/A
4	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5	36.5	N/A
5	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5	36.5	N/A
6	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5	36.5	N/A
1	Others 2	Unknown	Unknown	Dish	10000	0	2	2.0	38.0	-	65	134.0	32.0	N/A
2	Others 2	Unknown	Unknown	Dish	10000	90	2	2.0	38.0	-	65	134.0	32.0	N/A
3	Others 2	Unknown	Unknown	Dish	10000	0	2	2.0	38.0	-	65	107.0	5.0	N/A

3.0 ANALYSIS

3.1 Site Diagram

Figure 1: Site Diagram - Plan (bird's eye) view



3.2 Emission Predictions

Figure 2: Plan (bird's eye) view map of results compared to FCC's General Population MPE (Maximum Permissible Exposure) Limits. Gray represents areas where exposure levels are calculated to be at or below 5%; Green- between 5% & 100% (below MPE limits); blue, yellow & red – greater than 100% (exceeds MPE limits). Individuals can safely occupy areas in gray and green for indefinite amount of time; whereas areas in blue, yellow & red must be restricted to RF trained personnel who has been made fully aware of potential for exposure, has control and knows how to reduce their exposure with the use of personal protection equipment or has the ability to power down the transmitters.

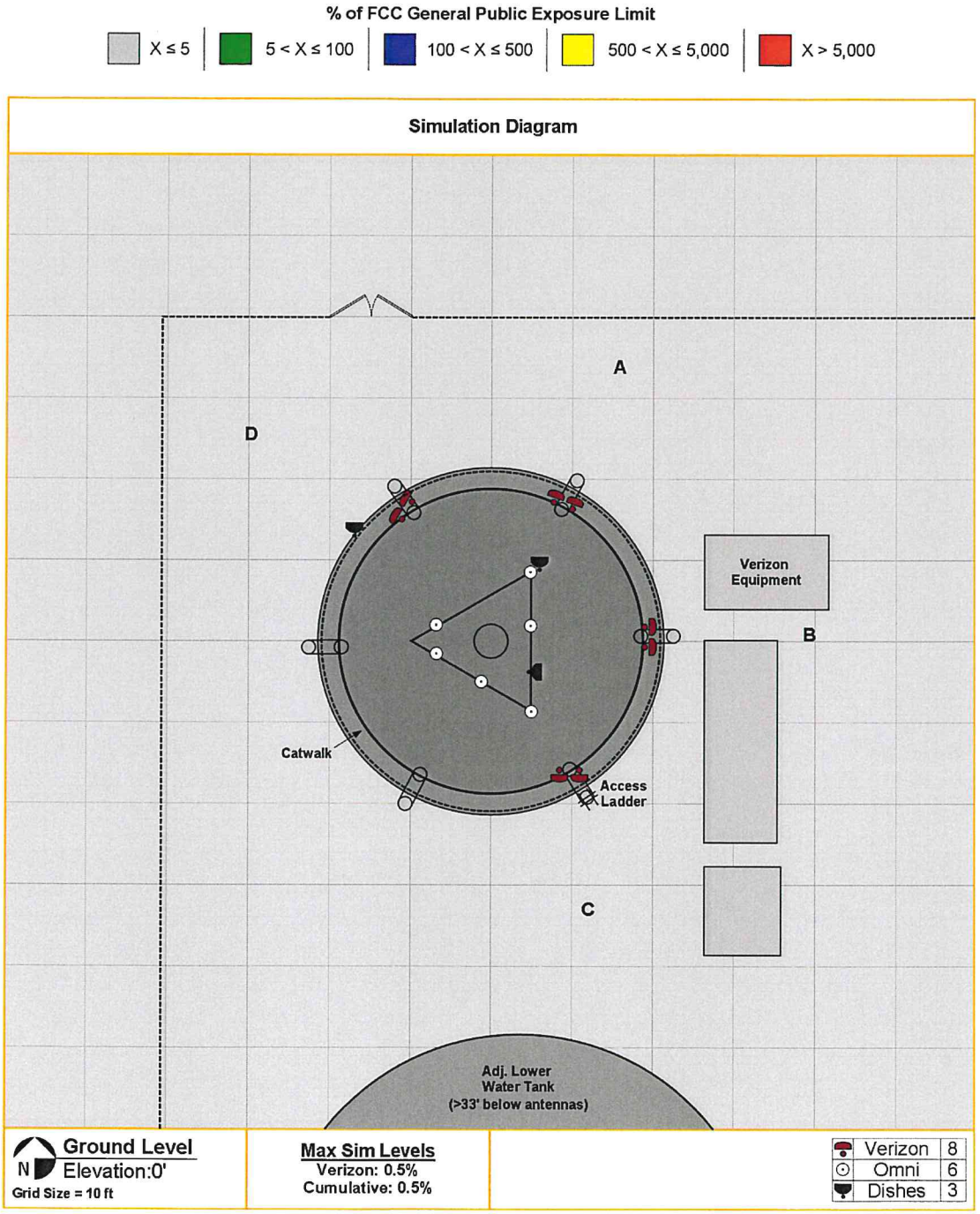


Figure 3: Plan (bird's eye) view map of results compared to FCC's General Population MPE (Maximum Permissible Exposure) Limits. Gray represents areas where exposure levels are calculated to be at or below 5%; Green- between 5% & 100% (below MPE limits); blue, yellow & red – greater than 100% (exceeds MPE limits). Individuals can safely occupy areas in gray and green for indefinite amount of time; whereas areas in blue, yellow & red must be restricted to RF trained personnel who has been made fully aware of potential for exposure, has control and knows how to reduce their exposure with the use of personal protection equipment or has the ability to power down the transmitters.

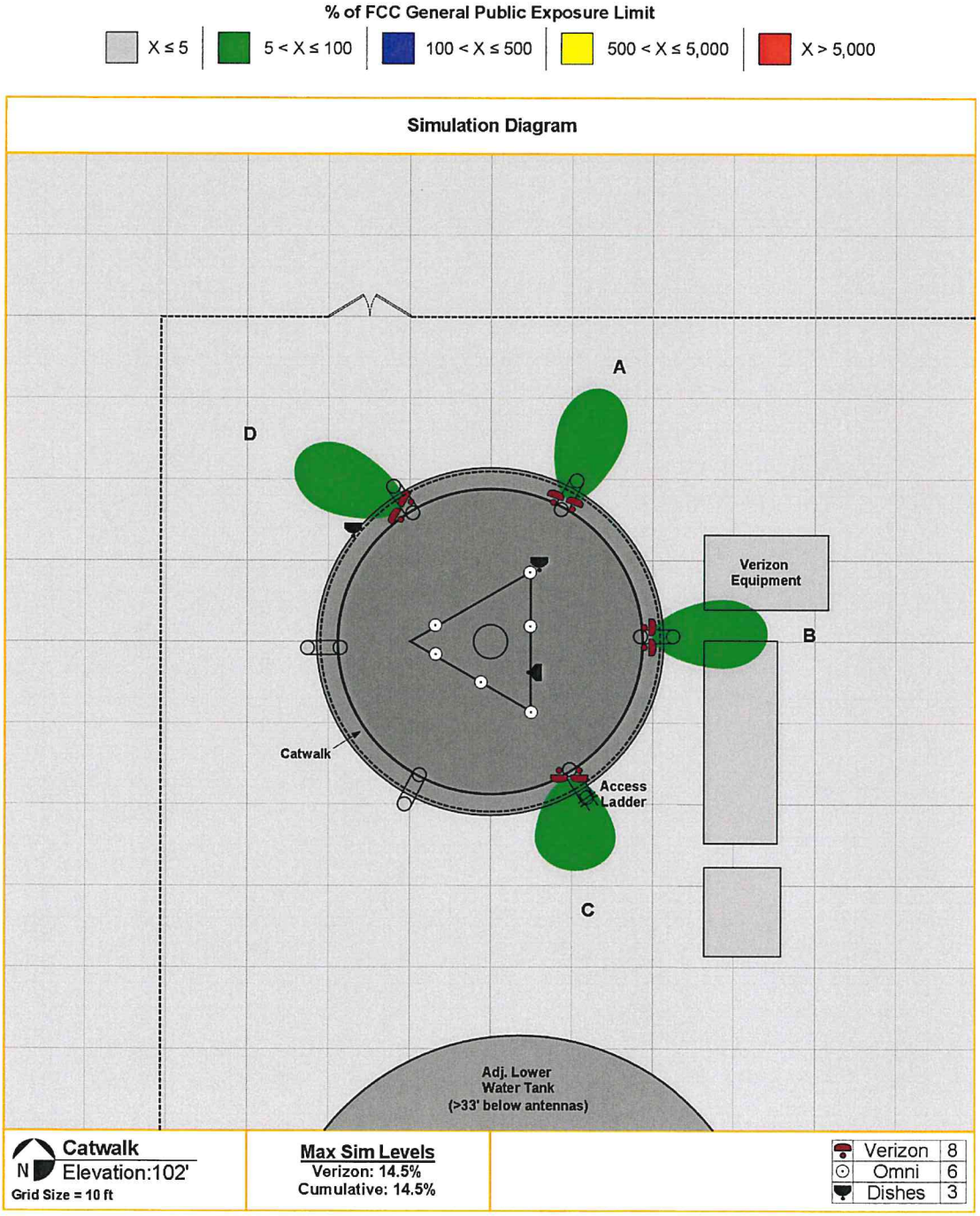
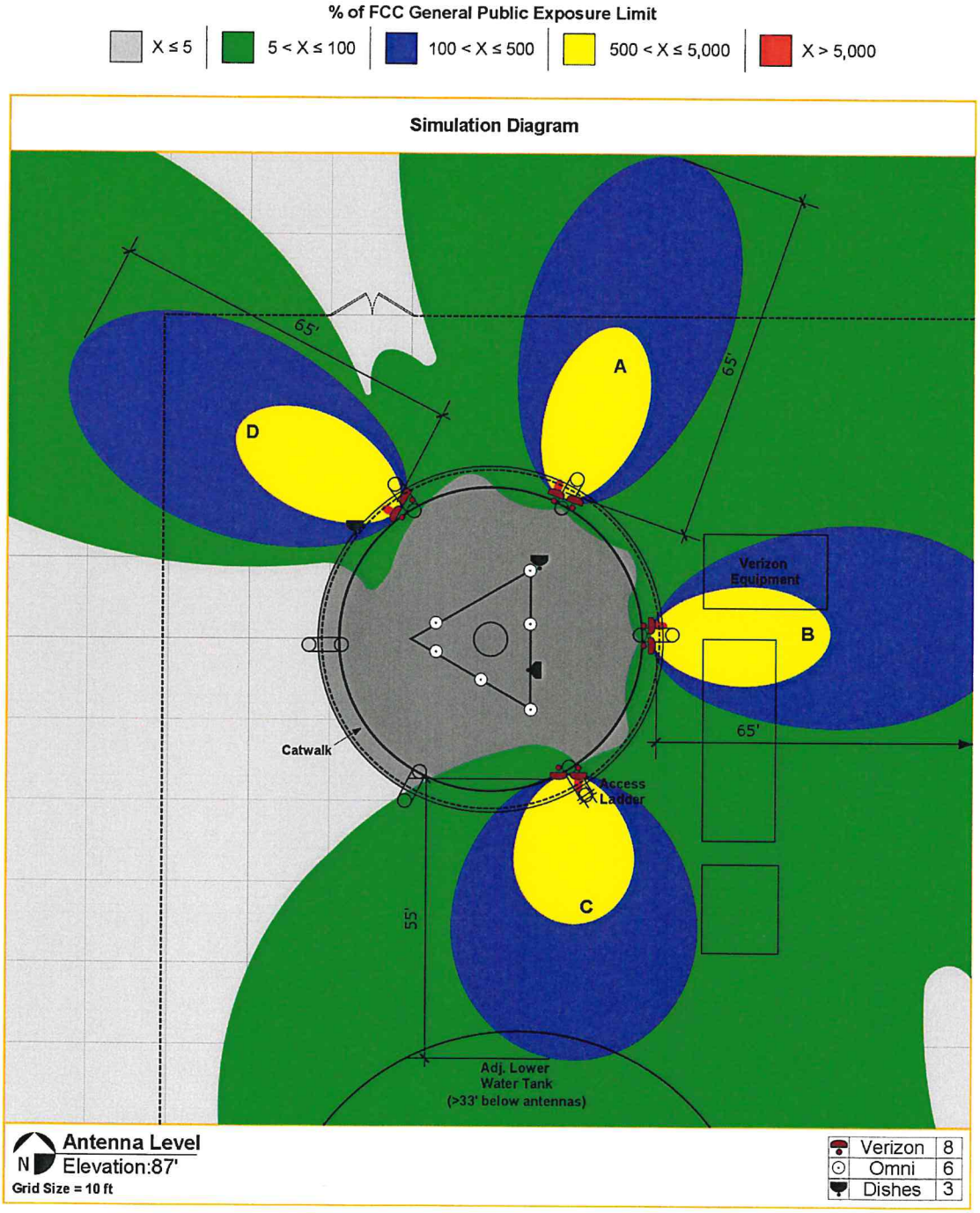


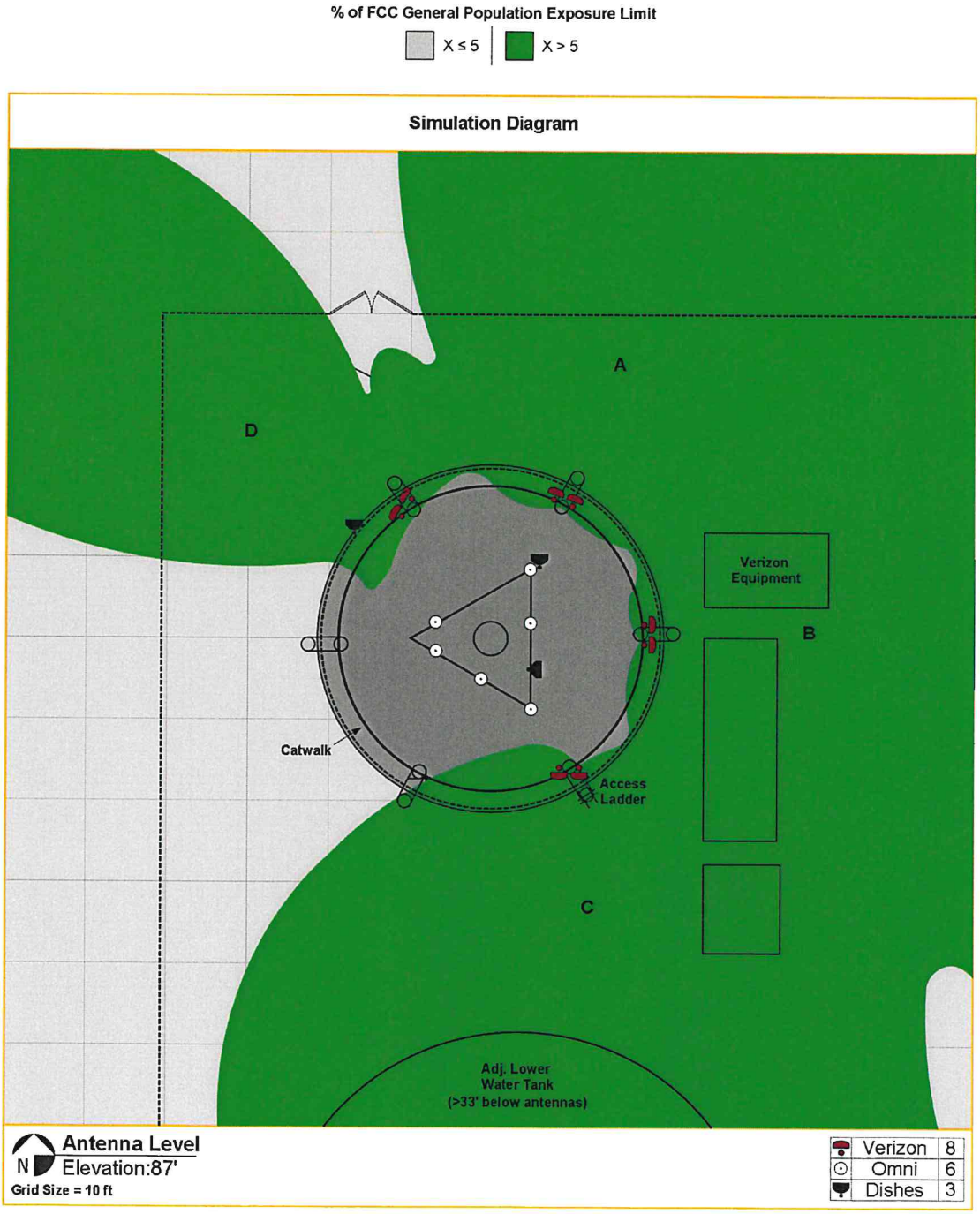
Figure 4: Plan (bird's eye) view map of results compared to FCC's General Population MPE (Maximum Permissible Exposure) Limits. Gray represents areas where exposure levels are calculated to be at or below 5%; Green- between 5% & 100% (below MPE limits); blue, yellow & red – greater than 100% (exceeds MPE limits). Individuals can safely occupy areas in gray and green for indefinite amount of time; whereas areas in blue, yellow & red must be restricted to RF trained personnel who has been made fully aware of potential for exposure, has control and knows how to reduce their exposure with the use of personal protection equipment or has the ability to power down the transmitters.



3.3 Five Percent Contributions

Mitigation measures are a shared responsibility for carriers whose RF emission levels exceed five percent of the FCC's exposure limits in areas of non-compliance.

Figure 5: Plan (bird's eye) view map of results compared to FCC's General Population MPE (Maximum Permissible Exposure) Limits. Gray represents areas where exposure levels are calculated to be at or below 5%; Green – greater than 5%.



4.0 CONCLUSION

4.1 Results

For a person standing in accessible areas on the ground and catwalk, calculations for Verizon's site including contributions from existing carriers resulted in exposure levels below the FCC's most stringent General Population MPE Limits (see figure 2 - 3).

At antenna elevation, the highest calculated exposure level is above the FCC's General Population MPE Limits near the Verizon antenna(s) (see figure 4). The overexposed (yellow, blue and red) areas extend 65-feet from the front face of the Verizon antenna(s). From the provided drawings, there are no other buildings or surrounding structures at antenna elevation within 65-feet of the Verizon antenna(s). Beyond 65-feet, exposure levels are predicted to be below the FCC's most stringent General Population MPE Limits.

The antennas are mounted on a tall tower and therefore not accessible by the general public. It is presumed that Verizon employees and facility owners are aware of the transmitting antennas and will take appropriate precautions when working near them. However, there may be situations where workers i.e. water tower personnel, painters, etc. may find themselves directly in front of the antennas where exposure levels may exceed the FCC's MPE Limits. Individuals entering the site or working near/in front of antennas must receive appropriate RF safety training[1] and be made aware of the HotZones (areas where RF exposure may potentially exceed FCC safety limits). In addition, contact information should be made available in the event work is required within the HotZones.

4.2 Recommendation(s)

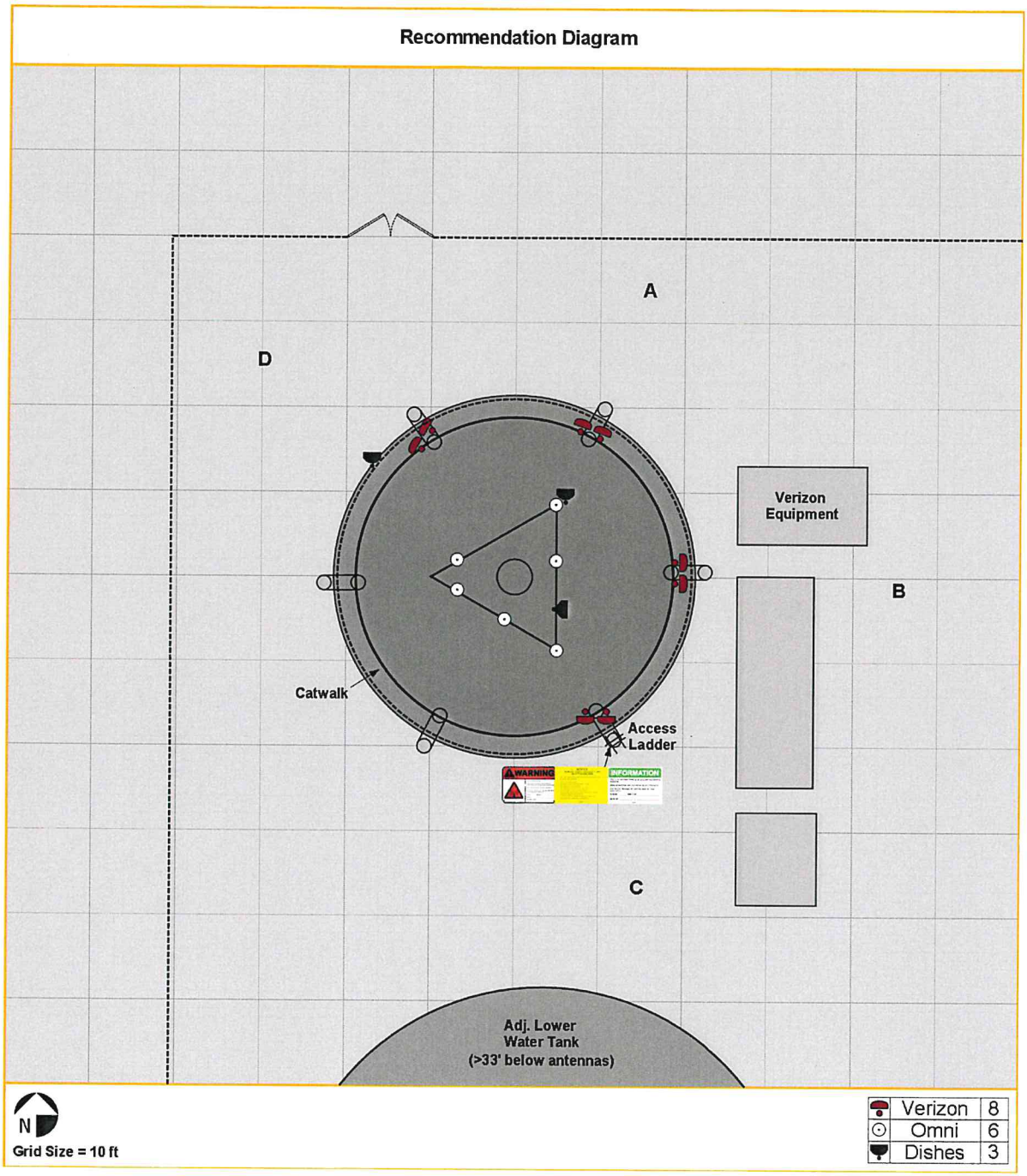
The following compliance action(s) would be sufficient to meet the FCC's and Verizon's RF Safety Guidelines[2] (see figure 6):

1) Access to the facility must be kept locked to restrict routine access by the general public.
2) Install WARNING Sign(s), NOC INFORMATION Sign(s) and GUIDELINES Sign(s) at antenna access points, gate entrances or climbing access points.

Compliance actions, if necessary, for the other carrier(s) at this site have not been determined as part of this study since estimates were used for their site specifications.

[1] See Appendix for Dtech's RF Safety training program - AntennaView®
[2] Verizon Radio Frequency Compliance (RFC) Signage & Demarcation Policy – June 2014

Figure 6: Recommendation(s)



4.3 Statement of Compliance

Based on the above results, analysis and recommendation(s), it is the undersigned's professional opinion that Verizon's site including contributions from existing carriers will be compliant with the FCC's RF Safety Guidelines provided recommendation(s) are implemented.

4.4 Engineer Certification

This report has been prepared by or under the direction of the following Registered Professional Engineer: Darang Tech, holding California registration number 16000. I have reviewed this report and believe it to be both true and accurate to the best of my knowledge.

Darang Tech, P.E.

Appendix A: Background

Dtech uses the FCC's guidelines described in detail in Office of Engineering & Technology, Bulletin No. 65 ("OET-65") "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields". The table below summarizes the current Maximum Permissible Exposure ("MPE") safety limits classified into two groups: General population and Occupational.

Table 3: FCC MPE Limits (from OET-65)

Frequency (Mhz)	General Population/ Uncontrolled MPE (mW/cm^2)	Averaging Time (minutes)	Occupational/ Controlled MPE (mW/cm^2)	Averaging Time (minutes)
30 - 300	0.2	30	1.0	6
300 - 1500	Frequency (Mhz)/1500 (0.2 – 1.0)	30	Frequency (Mhz)/300 (1.0 – 5.0)	6
1500 - 100,000	1.0	30	5.0	6

General population/uncontrolled limits apply in situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment, and may not be fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related.

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

It is important to understand that the FCC guidelines specify *exposure* limits not *emission* limits. For a transmitting facility to be out of compliance with the FCC's RF safety guidelines an area or areas where levels exceed the MPE limits must, first of all, be in some way *accessible* to the public or to workers. When accessibility to an area where excessive levels is appropriately restricted, the facility or operation can certify that it complies with the FCC requirements.

Appendix B: Measurement and/or Computer Simulation Methods

Spatial averaging measurement technique is used. An area between 2 and 6 feet, approximately the size of an average human, is scanned in single passes from top to bottom in multiple planes. When possible, measurements were made at very close proximity to the antennas and inside the main beam where most of the energy is emitted. The spatial averaged values were recorded.

Dtech uses an industry standard power density prediction computer Model[3] to assess the worse-case, cumulative EMF impact of the surrounding areas of the subject site. The Model does not take into account losses due to buildings. Its methodologies are conservative enough to account for typical down-tilts deployed in wireless communications. In addition, the analysis is performed at 100% duty cycle-all transmitters are active at all times and transmitting at maximum power. For purposes of a cumulative study, nearby transmitters are included where possible. The result is a surrounding area map color-coded to percentages of the applicable FCC's MPE Limits. A result higher than 100% exceeds the Limits.

Appendix C: Limitations

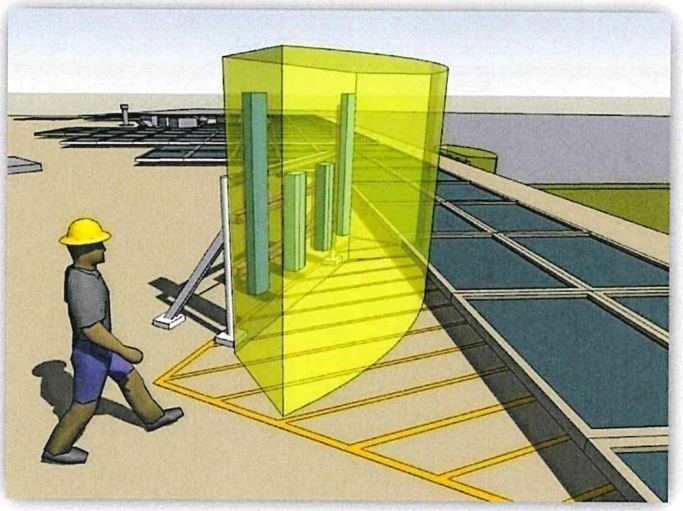
The conclusions in this document rendered by Dtech are based solely upon the information collected during the site survey and/or furnished by our Client which Dtech believes is accurate and correct. Dtech, however, has no responsibility should such Client provided information prove to be inaccurate or incorrect. Third party specification estimates used for cumulative computer simulation purposes, where applicable, are based on common industry practices and our best interpretation of available information. Data, results and conclusions in this document are valid as of its date. However, as mobile technologies continuously change, these data, results and conclusions may also be at variance with such future changes. Dtech has no responsibility to update its survey or report to account for such future technology changes. This document was prepared for the use of our Client only and cannot be utilized by any third party for any purpose without Dtech's written consent. Dtech shall have no liability for any unauthorized use of this document and any such unauthorized user shall defend, indemnify and hold Dtech and its owners, directors, officers and employees harmless from and against any liability, claim, demand, loss or expense (including reasonable attorney's fees) arising from such unauthorized use.

[3] Dtech uses Roofmaster(tm) 2015 Version 15.7.2.18 per Verizon's direction.

Appendix D: AntennaView®

Dtech Communications offers a unique, online tool (AntennaView®) to train, identify and inform individuals of site-specific HotZones – areas that may potentially exceed the FCC's Safety Limits. AntennaView® is an online, interactive training tool that will educate nontechnical people in about ten minutes. It is a site-specific, RF safety training program that requires the end user to sign an online agreement thereby limiting the liability to the landlord and carriers. Some of the advantages include:

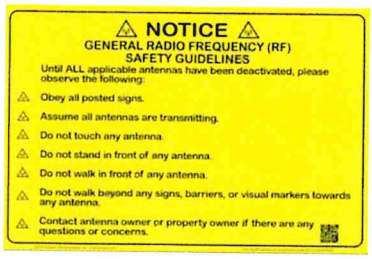
- Virtual walk-through in 3-D with corresponding photographs
- Site-specific, interactive, simple to understand
- Delivers pertinent information i.e. HotZones (areas that may potentially exceed FCC safety limits), site owners and contact numbers.
- User online agreement = accountability



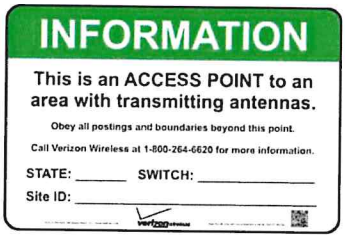
We invite you to take a quick tour at www.AntennaView.com and see how easy to understand and informative AntennaView® is.

Under Article 47 CFR § 1.1307(b), the FCC & OSHA mandates wireless operators/facility owners to have an RF survey completed including a safety plan and training to ensure that their tenants, employees and contractors who work in or around RF sites are aware of the potential risks posed by RF radiation. Most cell sites are located on building rooftops where HVAC contractors, window washers, painters, etc. routinely work and generally do not know what antennas even look like. Dtech Communications can help with ongoing FCC/OSHA compliance and provide practical training that is easy to understand by anyone regardless of their technical background.

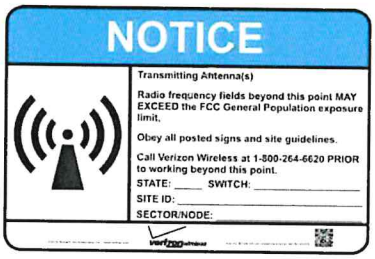
Appendix E: Verizon's RF Advisory Signs



GUIDELINES Sign



NOC INFORMATION Sign



NOTICE Sign

CAUTION Sign

WARNING Sign

Attachment 6
Public Meeting Materials

CITY OF EUREKA
NOTICE OF PUBLIC MEETING

NOTICE IS HEREBY GIVEN that a neighborhood informational meeting will be held at the Historic Eagle House located at **139 2nd Street, Old Town Eureka, CA 95501 on Tuesday June 11th at 5pm** to consider the following application under review by the City Planning Department:

Application No.: C-19-0004

Applicant: Verizon Wireless c/o Epic Wireless Group

Site Address: 1020 Wood Street, Eureka Ca, 95501

Property Owner: City of Eureka

APN: 011-182-001-000

Description: The application is a request for a new Verizon Wireless cell facility. The cell facility will include the collocation of 8 antennas and associated equipment on the legs of the existing water tank. Associated ground equipment will be located within a 14' x 23' fenced lease area approximately 66' form the nearest public right-of-way.

Environmental Determination: The project is categorically exempt from the provisions of the California Environmental Quality Act (CEQA)

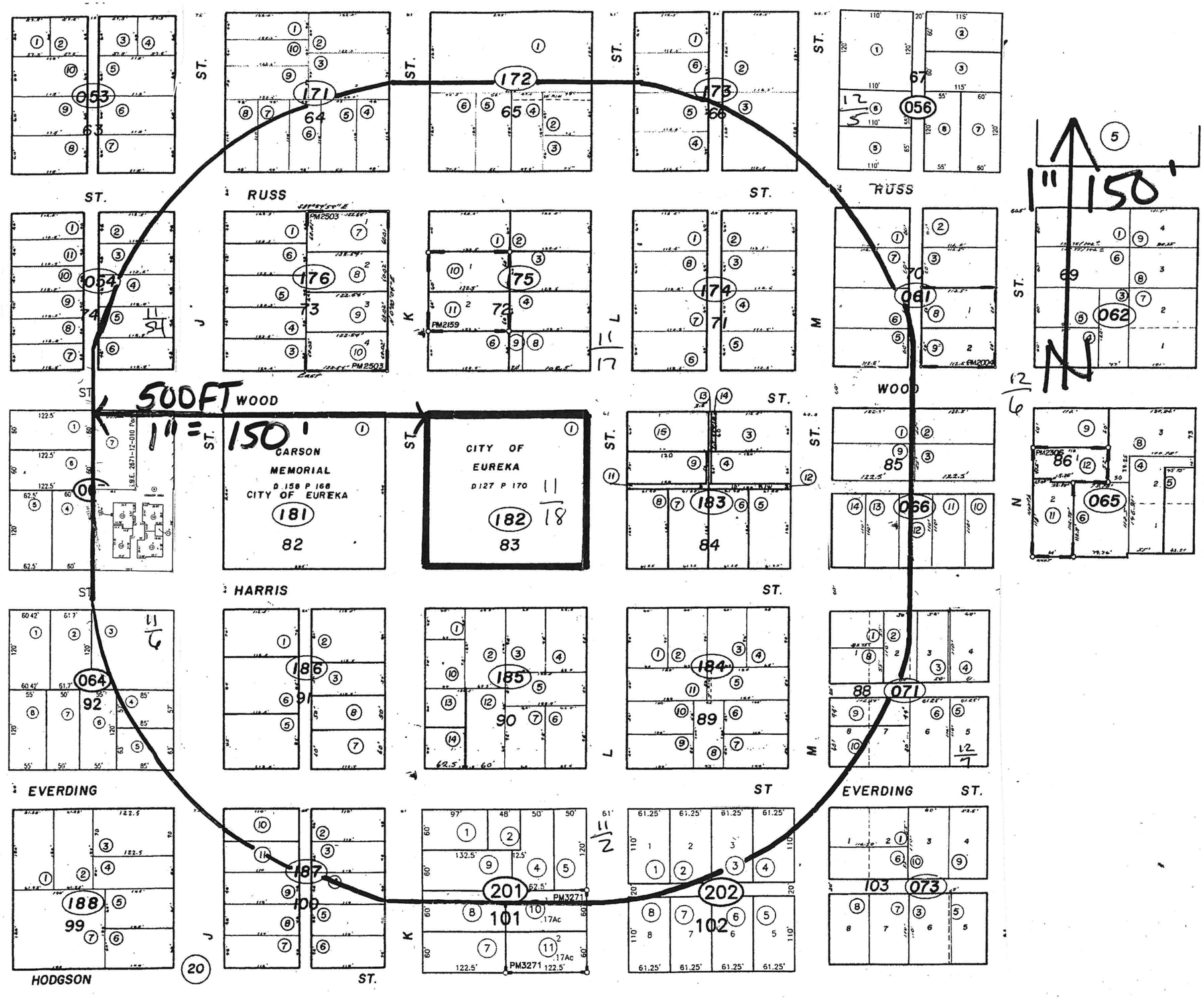
Additional Information: For additional information and to RSVP attendance to the informational neighborhood meeting, please call or email Andrew Lesa at the below contact information.

Andrew Lesa
530-368-2357
Andrew.lesa@epicwireless.net

RSVP is not required but is appreciated. No overhead projector will be available for this meeting but displays and information will be made available for discussion.

Community Meeting 6/11/19

Name	Address	Email
Stephanie Gai	2914 K Street	stephygai79@gmail.com
Sean Mclaughlin	2635 P Street	sean@accesshumboldt.net
Sonia Waraich	6th St.	swaraich@times-standard.com
Joe Baldwin	2123 Harris St	Jeb531@gmail.com
joaquinjohndominick@gmail.com	2904 L Street	Joaquin, Dulce, Eli
Marilyn Fields	2686 D St.	jmfield@pacbell.net
Joel Ziegler	216 Del Norte St	
Dulce Ziegler	2904 L St.	dulceadazieglerr@gmail.com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HARRIS
EVERDING
HODGSON
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CARSON MEMORIAL
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CITY OF EUREKA
CITY OF EUREKA
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PM2159
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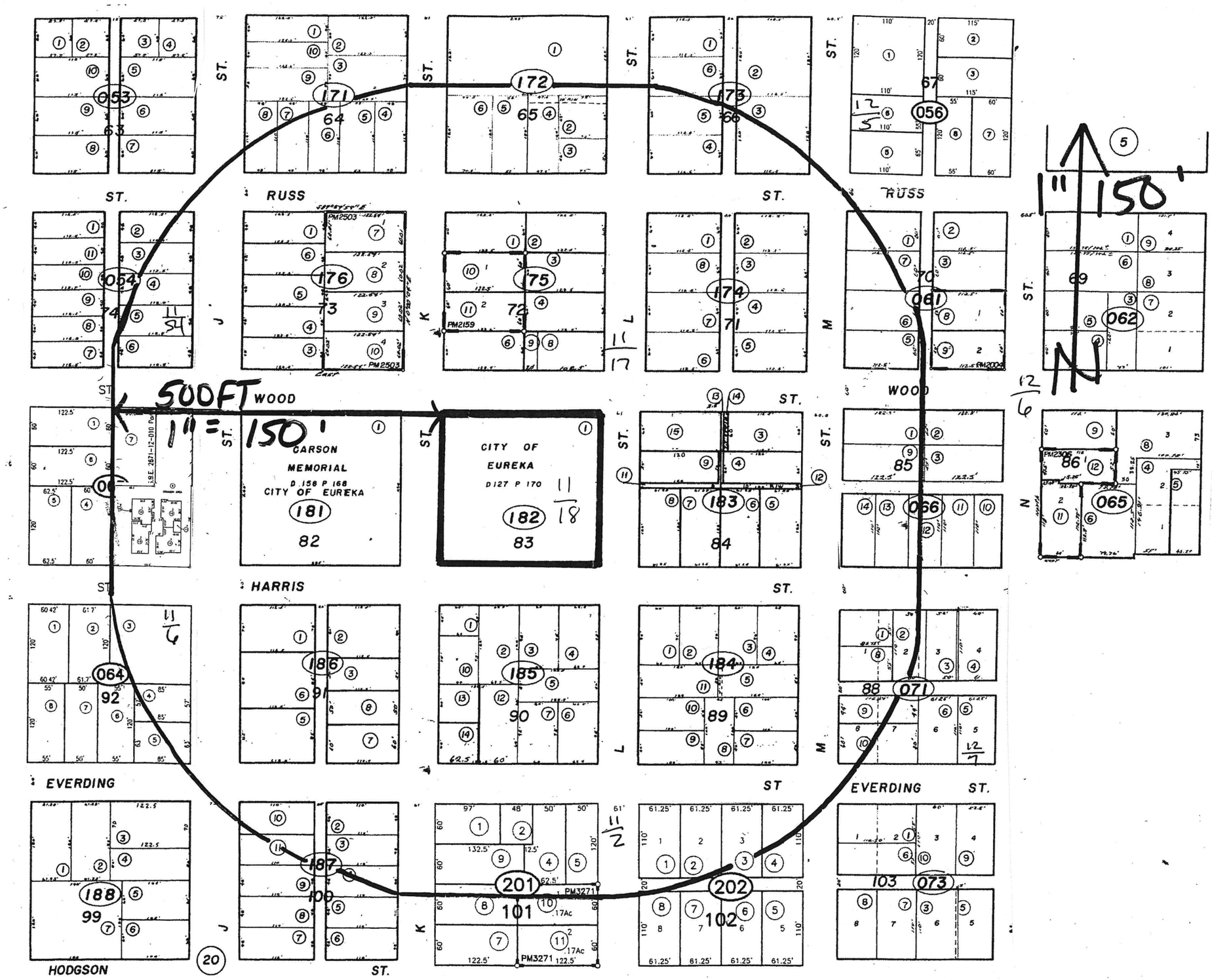
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Certified Property Owner's
Affidavit

I, Michael Haggerson

Hereby certify that the attached list contains the names and addresses of all persons to whom all property is assessed as they appear on the latest available assessment roll of the county within the area described on the attached application and for all properties within 500 feet from the exterior boundaries of the property described on the attached application, as of 5/22/19.

Subject Parcel number 011182001.

I certify under penalty of perjury the forgoing is true and correct to the best of my knowledge.

(Signed) [signature]

Name Michael Haggerson

Address 2045 Knights Ferry Dr. Plumas Lake, CA 95961

Phone # 800-568-7104

CITY OF EUREKA
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Additional Information: For additional information and to RSVP attendance to the informational neighborhood meeting, please call or email Andrew Lesa at the below contact information.

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530-368-2357
Andrew.lesa@epicwireless.net

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EPIC WIRELESS GROUP LLC
Connecting a Wireless World

West Buhne: A New Verizon Wireless Telecommunications Facility Serving the City of Eureka

EPIC WIRELESS GROUP LLC
Connecting a Wireless World

Scope of Work:

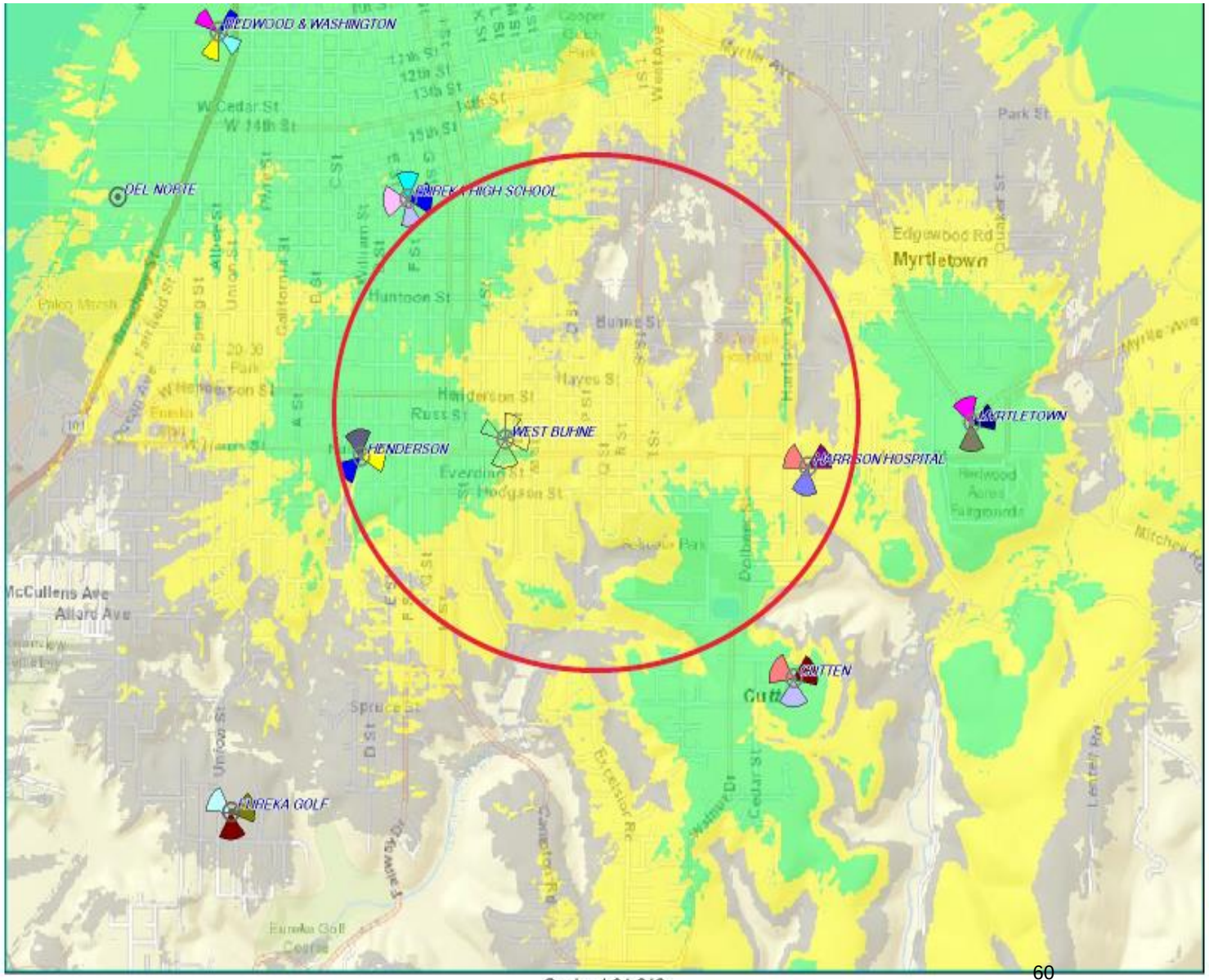
- fenced 23’ x 14’ lease area containing (3) cabinets and (2) H-Frames with associated equipment.
- (8) antennas, (12) radios, and (4) surge protectors mounted on the existing water tank with a center height of 90 feet

EPIC WIRELESS GROUP LLC
Connecting a Wireless World

OBJECTIVE:

- Enhance Coverage where a significant gap has been identified
- Offload cell sites that have met their capacity of users in order to prevent dropped calls and lack of data availability

Existing Coverage



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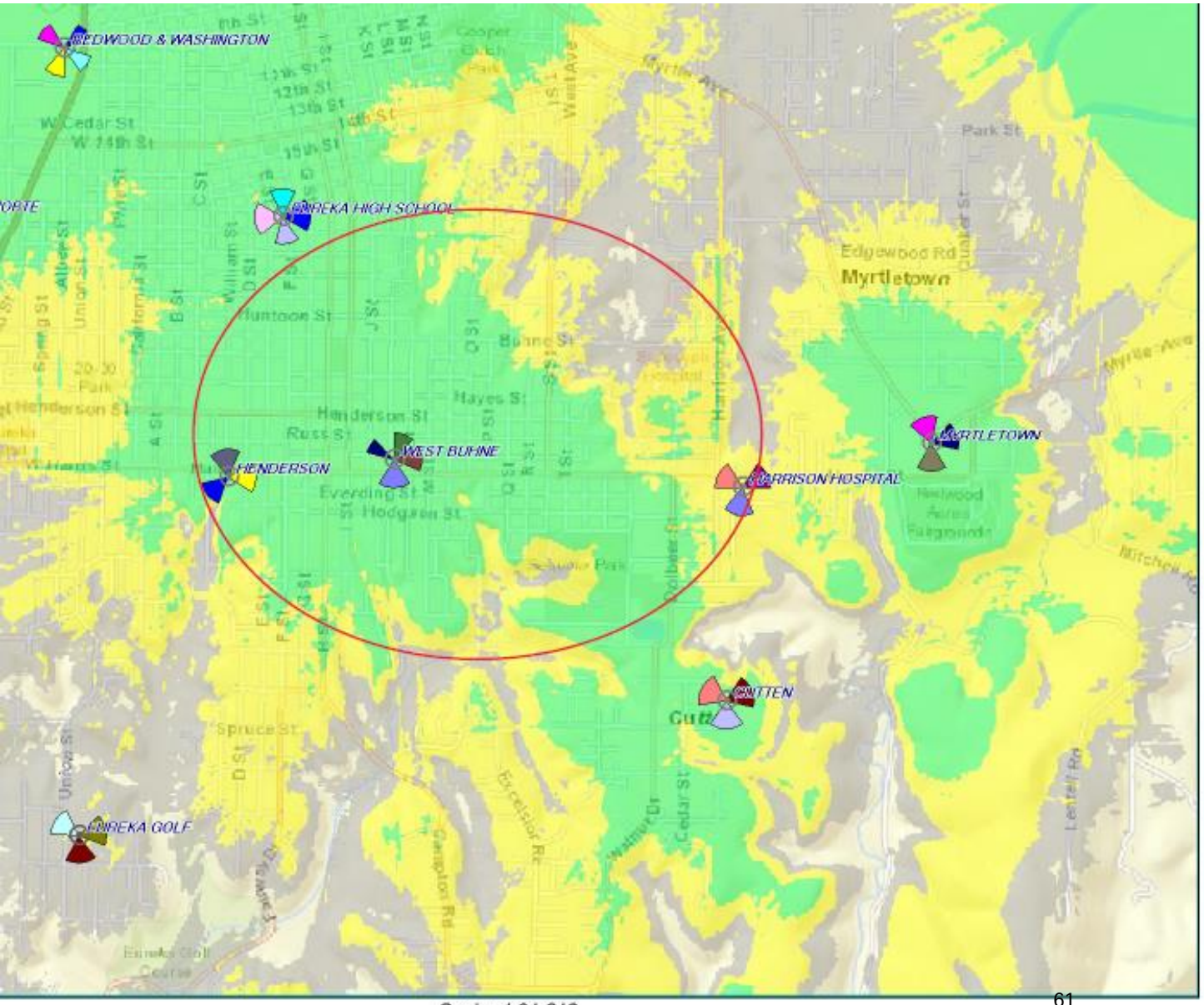
Scale: 1:31,613

0 0.2 0.4 0.6 0.8mi

AWS LTE: RSRP Existing

- Best Signal Level (dBm) >=-85
- Best Signal Level (dBm) >=-95
- Best Signal Level (dBm) >=-105

Proposed Coverage



AWS LTE: RSRP Proposed

- Best Signal Level (dBm) >=-85
- Best Signal Level (dBm) >=-95
- Best Signal Level (dBm) >=-105

Existing

Proposed

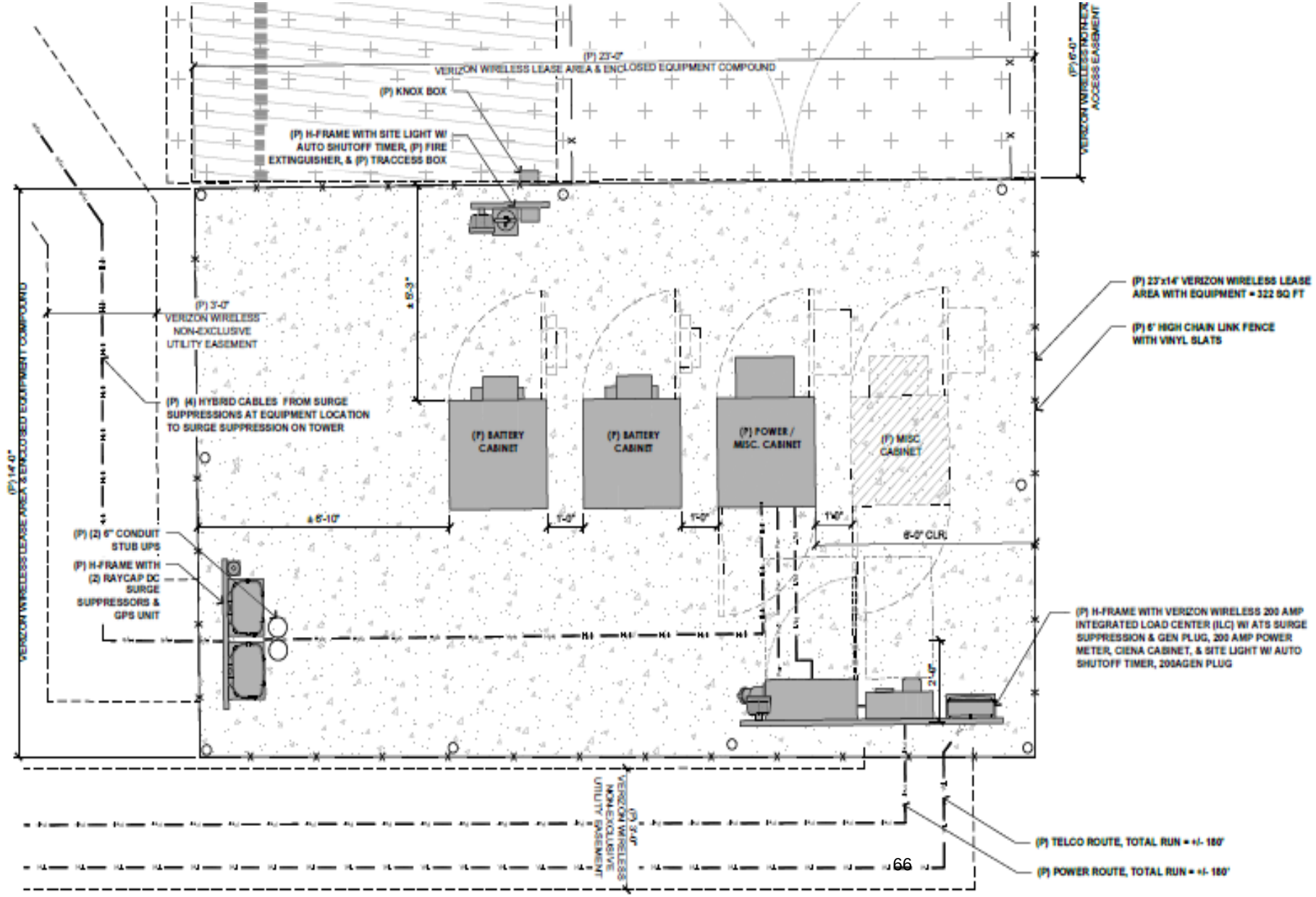

Proposed Verizon Installation
Proposed Verizon Installation
EUREKA

Existing

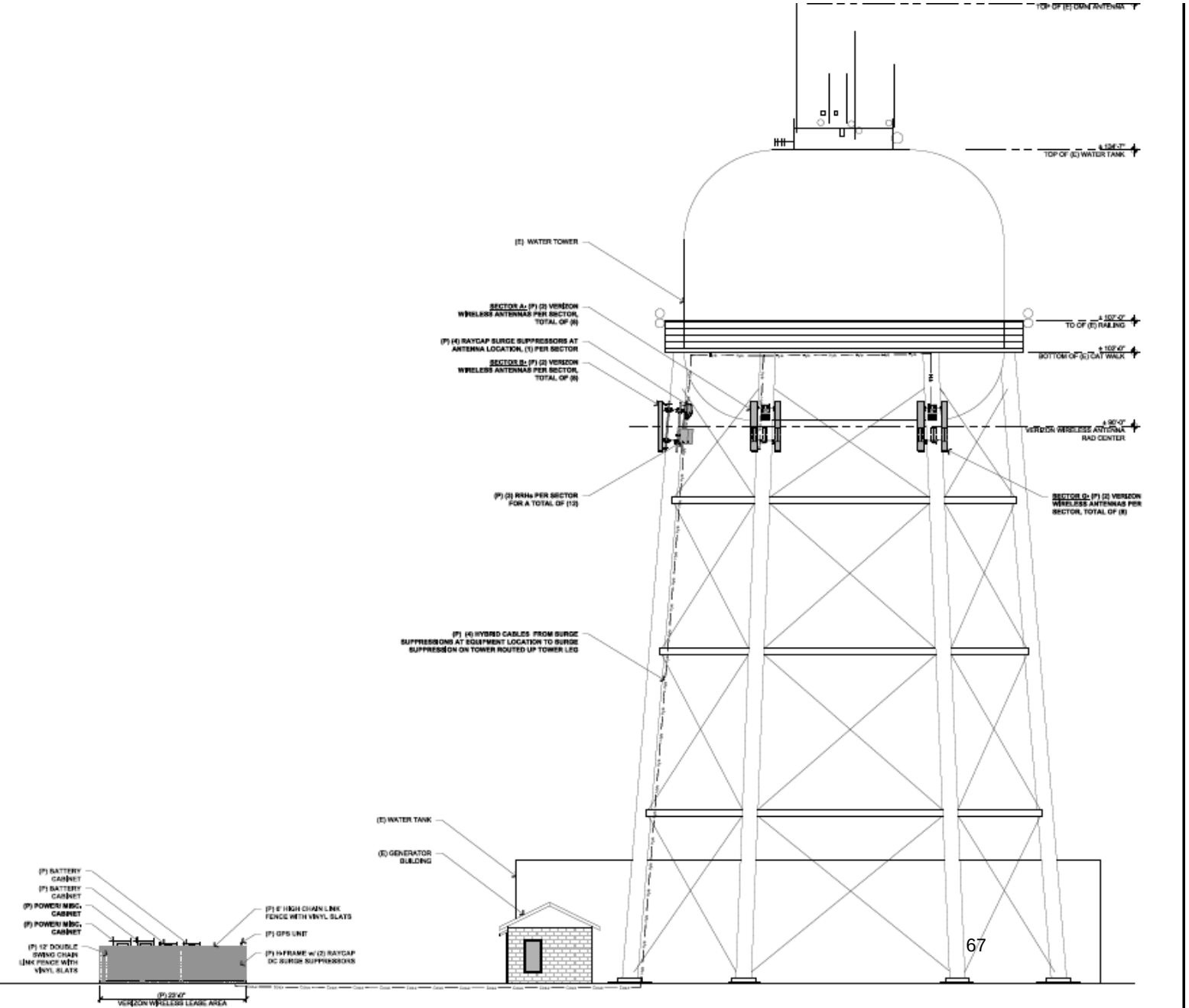
Proposed


Proposed Verizon Installation
Proposed Verizon Installation
EUREKA

Site Plan


(P) 23'-0"
VERIZON WIRELESS LEASE AREA & ENCLOSED EQUIPMENT COMPOUND
(P) KNOX BOX
(P) H-FRAME WITH SITE LIGHT W/ AUTO SHUTOFF TIMER, (P) FIRE EXTINGUISHER, & (P) TRACCESS BOX
(P) 6'-0" VERIZON WIRELESS NON-EXCLUSIVE ACCESS EASEMENT
(P) 14'-0" VERIZON WIRELESS LEASE AREA & ENCLOSED EQUIPMENT COMPOUND
(P) 3'-0" VERIZON WIRELESS NON-EXCLUSIVE UTILITY EASEMENT
± 8'-3"
(P) (4) HYBRID CABLES FROM SURGE SUPPRESSIONS AT EQUIPMENT LOCATION TO SURGE SUPPRESSION ON TOWER
(P) BATTERY CABINET
(P) BATTERY CABINET
(P) POWER / MISC. CABINET
(P) MISC CABINET
± 6'-10"
1'-0"
1'-0"
1'-0"
6'-0" CLR
(P) (2) 6" CONDUIT STUB UPS
(P) H-FRAME WITH (2) RAYCAP DC SURGE SUPPRESSORS & GPS UNIT
(P) 23'x14' VERIZON WIRELESS LEASE AREA WITH EQUIPMENT = 322 SQ FT
(P) 6' HIGH CHAIN LINK FENCE WITH VINYL SLATS
(P) H-FRAME WITH VERIZON WIRELESS 200 AMP INTEGRATED LOAD CENTER (ILC) W/ ATS SURGE SUPPRESSION & GEN PLUG, 200 AMP POWER METER, CIENA CABINET, & SITE LIGHT W/ AUTO SHUTOFF TIMER, 200AGEN PLUG
2'-6"
(P) 3'-0" VERIZON WIRELESS NON-EXCLUSIVE UTILITY EASEMENT
(P) TELCO ROUTE, TOTAL RUN = +/- 180'
(P) POWER ROUTE, TOTAL RUN = +/- 180'

Antenna Plan



Added Community Benefit

- Emergency responders rely heavily on the Verizon Wireless network in times of emergency.
  - Enhanced, reliable cell coverage can increase emergency responders' ability to communicate in times of natural disasters when more conventional lines of communication are disabled.
  - Wireless in-vehicle systems allow first responders to access vital data on the fly during emergency situations.
  - The Office of Emergency Services (OES) utilize Verizon Wireless coverage for large emergencies such as the recent Valley Fire. The proposed location will offer coverage to both the previously used OES command center at Lakeside Park and the Red Cross shelter located on Live Oak Dr.
- Increased Verizon Wireless cell coverage will offer residents, business owners, and travelers better cell coverage for calls, internet service, and text and email communication.
- 39% of American households rely entirely on wireless communication for phone service.

Connecting our homes, businesses and communities.

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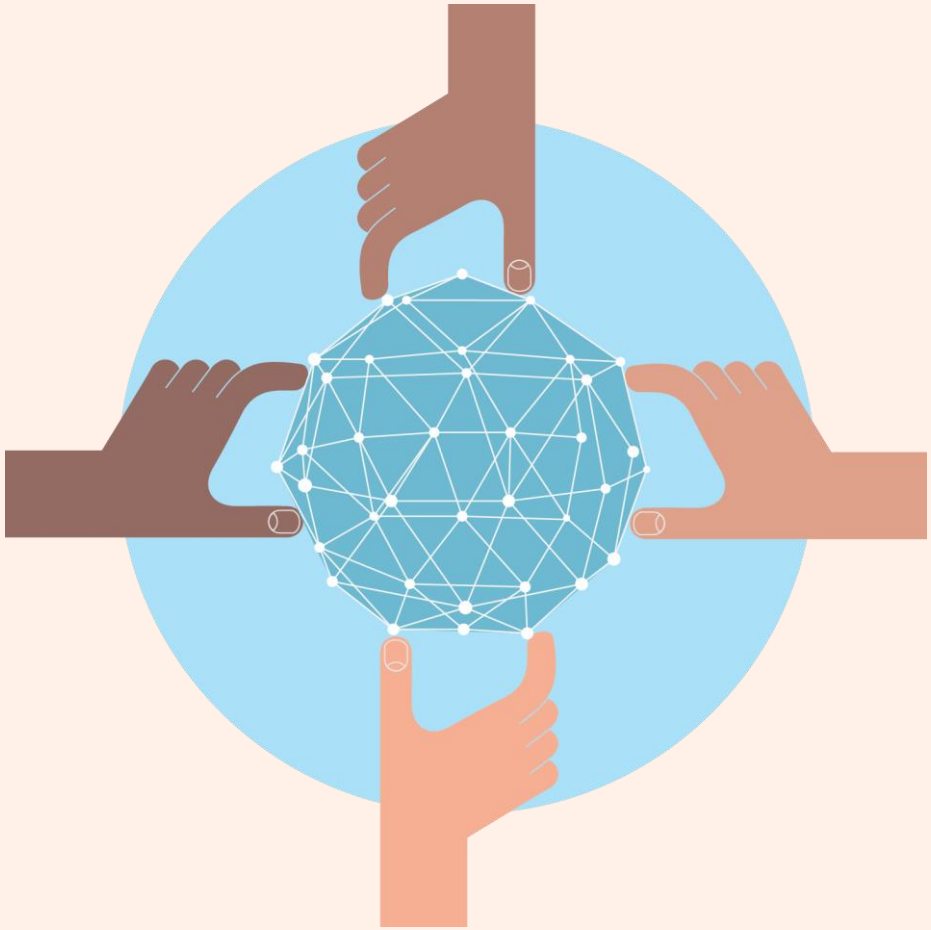


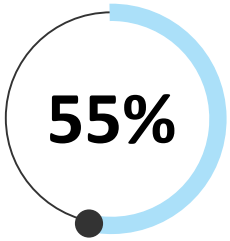
Why are we expanding the wireless network?

More people than ever before rely on wireless connections to manage their lives and businesses.

Verizon is expanding its wireless network to meet the growing demands of today and tomorrow.

But it takes time.

The average North American smartphone user will consume 48 GB of data per month in 2023, up from just 5.2 GB per month in 2016 and 7.1 GB per month in 2017 .[1]



Of American homes are wireless only.[2]

In North America, the average household has 13 connected devices with smartphones outnumbering tablets 6 to 1.[3]

1. Ericsson Mobility Report, November 2017
2. CDC's 2018 Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, January-July, 2018
3. IHS Market Connected Device Market Monitor: Q1 2016 , June 7, 2016

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What it takes to keep families and businesses connected.

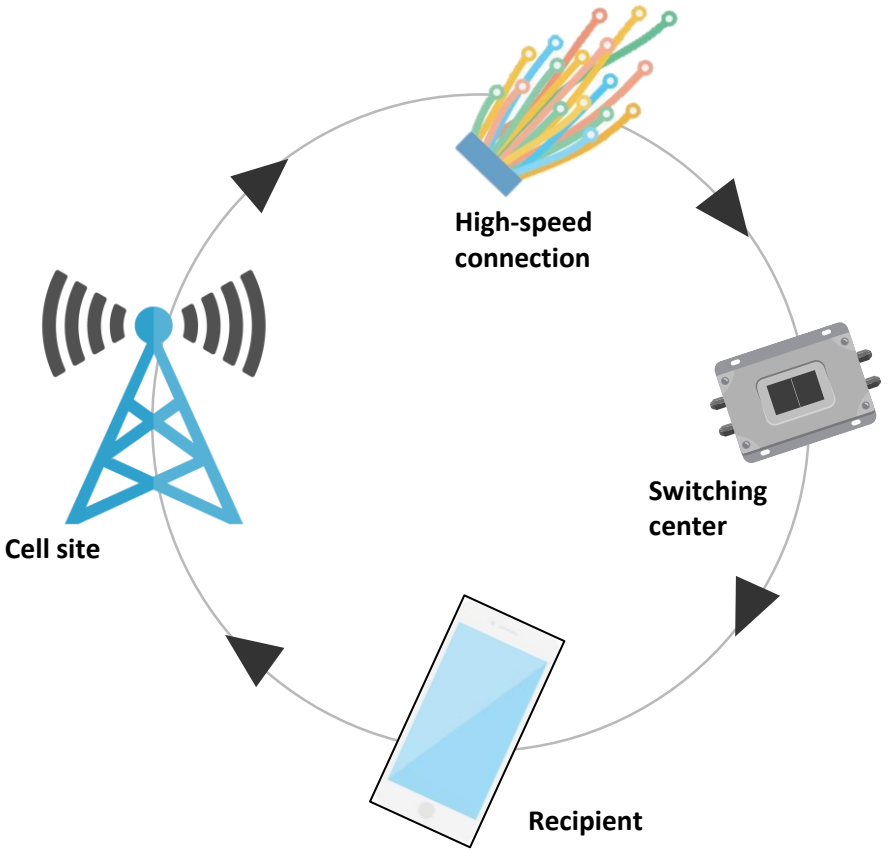
How does wireless service work?

Radio frequencies can carry signals from radios and televisions, to baby monitors, garage door openers, home Wi-Fi service, and cordless phones.

Cell service uses these radio frequencies to wirelessly connect a mobile device with the nearest antenna. That antenna may be hidden in a church steeple, sitting on a rooftop, attached to a building façade or mounted on a freestanding tower structure. All are known generically as cell sites.

From the cell site, the call or data session then travels through a high-speed connection to a network switching center where it is then directed to the recipient.

This all happens in fractions of a second.



The many types of wireless technologies include cellular and fixed wireless, or Wi-Fi.

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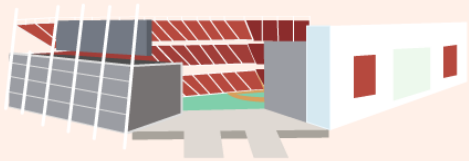
Different locations require different solutions.

Verizon uses a balanced approach to engineering the best possible network given the local community's needs.

Traditional, or macro cell sites, are most often the best choice for meeting coverage and capacity needs. Macro sites are traditional cell sites or towers that provide coverage to a broad area, up to several miles.

Small cells are just like the name implies – short range cell sites used to complement macro cell towers in a smaller geographic area ranging from a few hundred feet to upwards of 1,000 feet. These lower power antennas enhance capacity in high traffic areas, dense urban areas, suburban neighborhoods, and more. Small cells use small radios and a single antenna placed on existing structures including utility poles and street lights.

Distributed Antenna Systems (DAS) are a group of antennas in outdoor or indoor locations that connect to a base station. DAS systems are typically used in large venues including stadiums and shopping centers.



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Staying ahead of demand.

A wireless network is like a highway system…

More wireless traffic needs more wireless facilities just like more vehicle traffic needs more lanes.

- Many wireless users share each cell site and congestion may result when too many try to use it at the same time.
- Wireless coverage may already exist in an area, but with data usage growth increasing exponentially each year, more capacity is needed.
- To meet capacity demands, we need to add more wireless antennas closer to users and closer to other cell sites to provide the reliable service customers have come to expect from Verizon.

In the US, mobile data traffic was 1.3 Exabytes per month in 2016, the equivalent of 334 million DVDs each month or 3,687 million text messages each second.*

*Cisco VNI Mobile Forecast Highlights, 2016-2021, February 2017

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Finding the right location.

To meet customer needs and expectations, wireless providers need the ability to expand and enhance their networks where users live, work, travel and play.

Verizon gathers information from many sources including customer feedback, results of our own exhaustive network testing, and data from third parties.

When an area for improvement is identified, utilizing our existing network is always our first effort. If that is not possible, we then look at adding a new site.

Steps to finding a new site

Our engineers analyze the areas that need improvement to figure out the ideal location based on customer needs, terrain and modeling results.

Using existing structures is considered first.

Network teams perform exhaustive searches in the area needing improvement to find a location that will meet our technical needs. We also look at interest from property owners.

We pick a location that has the highest likelihood of meeting technical needs and works for the community.

Guidelines for new sites

We comply fully with all requirements for community notification and review, zoning and permitting.

Potential antenna locations must meet all local, state and federal regulations.

Verizon holds Federal Communications Commission (FCC) licenses for the frequencies utilized and we strictly follow their regulations.

Wireless facilities and property values.

Cell service in and around the home has emerged as a critical factor in home-buying decisions.

National studies demonstrate that most home buyers value good cell service over many other factors including the proximity of schools when purchasing a home.

75%

More than 75% of prospective home buyers said a good cellular connection was important to them.[1]

83%

The same study showed that 83% of Millennials (those born between 1982 and 2004) said cell service was the most important fact in purchasing a home.

90%

90% of U.S. households use wireless service. Citizens need access to 911 and reverse 911 and wireless may be their only connection.[2]

1. RootMetrics/Money, The Surprising Thing Home Buyers Care About More than Schools, June 2, 2015
2. CTIA, June 2015

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Health and safety background.

Health and safety organizations world-wide have studied potential health effects of RF emissions for decades, and studies continue.

1,000 times less

According to the FCC, measurements made near a typical 40 foot cell site have shown that ground-level power densities are 1,000 times less than the FCC's limits for safe exposure.

The Federal Communications Commission (FCC) guidelines for operating wireless networks are based on the recommendations of federal health and safety agencies including:

- The Environmental Protection Agency (EPA)
- The Food and Drug Administration (FDA)
- The National Institute for Occupational Safety and Health (NIOSH)
- The Occupational Safety and Health Administration (OSHA)
- The Institute of Electrical and Electronics Engineers (IEEE)
- The National Council on Radiation Protection and Measurements (NCRP)

Wireless technology, equipment and network operations are highly regulated.

More information can be found through these organizations:

Federal Communications Commission Radio Frequency Safety Program:

http://wireless.fcc.gov/siting/FCC_LSGAC_RF_Guide.pdf

http://www.fcc.gov/oet/rfsafety/

Food & Drug Administration "Cell phone facts":

http://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/HomeBusinessandEntertainment/CellPhones/ucm116282.htm

World Health Organization:

http://www.who.int/peh-emf/publications/facts/fs304/en/

American Cancer Society

http://www.cancer.org/cancer/cancercauses/othercarcinogens/athome/cellular-phone-towers

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Building a wireless network you can rely on in a crisis.

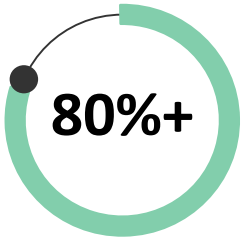
The reliability of your cell phone is never more important than when crisis strikes. That's when a simple call or text message can make the difference between life and death.

We build reliability into every aspect of our wireless network to keep customers connected when you need it most.

Reliability starts when we choose the safest, most secure locations for our wireless equipment. The likelihood of earthquakes, and risk from wildfires, mudslides, floods, hurricanes and more are all considered.

When disaster strikes, we coordinate with first responders and can mobilize charging stations, special equipment, emergency vehicles and more to support local, state and federal agencies in all 50 states.

It's who we are.



With over 80% of 9-1-1 calls now coming from cell phones…[1]

240 million

911 calls are made annually. In many areas, 80% or more are from wireless devices.[1]

1. National Emergency Number Association, Enhancing 9-1-1 Operations With Automated Abandoned Callback & Location Accuracy (Motorola Solutions) (August 23, 2018)
2. National Emergency Number Association, 9-1-1 Statistics (January 7, 2019)

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Did You Know?

Wireless and Education

Wireless connectivity is critical in schools and communities.

Wireless is a critical component in schools and for today's students.

- **20,000 learning apps are available for iPads. 72% of iTunes top selling educational apps are designed for preschoolers and elementary students.**
- **600+ school districts replaced text books with tablets in classrooms.**
- **77% of parents think tablets are beneficial to kids.**
- **74% of school administrators feel digital content increases student engagement.**
- **70% of teens use cellphones to help with homework.**

Source: CTIA's Infographics Today's Wireless Family, October, 2017

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Did You Know?

Wireless and Medicine

Wireless is a critical component in today's medical fields.

- **Smart pill bottles and cases can help patients and their care-givers track medication usage, ensuring medications are taken on time and correctly. This supports increased medical compliance, provides more consistent care, and enables preventative care, keeping patients in their homes longer and reducing the number of emergency visits to the doctor's office or hospital.**
- **Wireless connected glucose monitors, blood-pressure cuffs, and EKGs can track a patient's vital signs and catch an issue before it turns into an emergency.**
- **Pace makers and sleep apnea monitors can be tracked remotely.**
- **Routine eye exams can be conducted with a wireless device connected to a smart phone, bringing solutions and services to low-income and remote areas that would otherwise go unsupported.**

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Source: Verizon Innovation Center, February. 2018

Did You Know?

Wireless in Communities

Wireless is a critical component in today's communities.

- Wireless smart city solutions are being used to track available parking and minimize pollution and wasted time.
- These same solutions are being used to track pedestrian and bike traffic to help planning and minimize accidents.
- Smart, wireless connected lighting enables cities to control lighting remotely, saving energy and reducing energy costs by 20%.
- 4G technology is utilized to track and plan vehicle deliveries to minimize travel, maximize efficiency, and minimize carbon footprint.
- 4G technology is also used to monitor building power usage down to the circuit level remotely, preventing energy waste and supporting predictive maintenance on machines and equipment.
- Wireless sensors placed in shipments are being used to track temperature-sensitive medications, equipment, and food. This is important for preventing the spread of food-borne diseases that kill 3,000 Americans each year.

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Source: Verizon Innovation Center, February. 2018

Verizon is part of your community.

Because we live and work there too.

We believe technology can help solve our biggest social problems.

We're working with innovators, community leaders, non-profits, universities and our peers to address some of the unmet challenges in education, healthcare and energy management.

Learn more about our corporate social responsibility at www.verizon.com.

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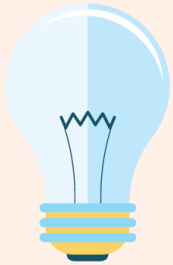


Attachment 7
Alternative Site Analysis

Alternative Site Analysis

Verizon Wireless Telecommunications Facility "West Buhne" at 1020 Wood Street, Eureka CA

APN: 011-182-001

June 24, 2019

Summary of Site Evaluations and Technical Evidence
Conducted by Epic Wireless Group, LLC.

I. Executive Summary

In the March of 2017 Epic Wireless Group was contracted to identify a wireless site location and design to serve a significant gap in wireless coverage identified by Verizon Wireless in a heavily residential area of Eureka, California centered around Buhne & P Streets. After conducting a thorough research and evaluation of existing buildings and structures in the area that would accommodate a collocation, Verizon Wireless, in cooperation with the City of Eureka Planning Department determined that a collocating on the existing City of Eureka's water tank would adequately meet the coverage and capacity goals. Epic Wireless investigated a total of four(4) potential sites and concluded that the presently proposed water tank collocation located on a public use zoned parcel (1020 Wood St.) is the least intrusive site that can offer the needed coverage to the area suffering from a significant gap in coverage. The other three (3) alternative site locations were investigated by Epic Wireless and/or Verizon's Radiofrequency Engineer and determined not to be viable for the reasons described below.

II. Coverage Objective

Area resident requests, customer complaints, and Verizon Wireless RF Engineers have confirmed a significant wireless coverage gap in this area of Eureka, CA from Harrison Street, between L & V Streets, north to Del Norte Street. The coverage objective is detailed in the attached coverage maps provided by Verizon Wireless Radiofrequency Engineers. The coverage maps indicate a lack in coverage denoted as yellow and grey coloring. The new facility is required to offload two existing Verizon Wireless towers located about 1.5 miles from the center of the issued search ring. This area of Eureka consists mostly of residential parcels. It is Verizon Wireless's goal to provide exceptional coverage to all of its current and future customers by filling existing significant gaps in coverage as identified in this section of Eureka. The number of residents, business owners, and travelers that would benefit from this proposal each day are numbered in the thousands.

III. Methodology

In identifying the least intrusive site location and design, Verizon Wireless looks to the local municipal code, ordinances, and general plans to identify the values significant to the local community for placement of wireless facilities. In addition, each proposed site must meet minimum requirements of a site located within the designated search area, a willing landlord, feasible construction, road access, available telephone and electrical utilities as well as compliance with local zoning requirements. In completing its Alternative Site Analysis, Epic Wireless first looked to the City of Eureka's wireless use regulations in Chapter 159 in the Municipal Code, which establishes standards for the placement of antennae. The subject property is located within the City of Eureka planning jurisdiction. This property is zoned P (Public Use). Wireless facilities will be reviewed by the local jurisdiction through a Wireless Telecommunication Permit application process and will require a conditional use permit approved by the Planning Commission. If deemed necessary, a review from the Design Review Committee (DRC) may be required. In the City of Eureka, the Planning Commission may act as the DRC if requested. Epic Wireless evaluated site locations per the below siting preferences as stated in §159.006 (B):

1) Facilities shall be designed to be visually unobtrusive. Colors and designs should be compatible with the existing improvements on or adjacent to the site;
2) In an R District or within 100 feet of an R District, or in the HM District within 150 feet of an R District, facilities located shall be camouflaged or of an innovative design to minimize negative visual impacts of the facility on the surrounding residential neighborhood;
3) Screening and landscaping:
    a. In an R, OR, or C District, or within 100 feet of an R District, or in the HM District within 150 feet of an R District, for facilities located at or near ground level screening six feet in height shall be located adjoining the facility, and an area ten feet in depth adjoining the facility shall be landscaped with plant materials including a buffer of trees, unless the Planning Commission finds that topographic or other conditions make screening or landscaping unnecessary;
    b. In all other districts, for facilities located at or near ground level screening six feet in height shall be located adjoining the facility including a buffer of trees, unless the Planning Commission finds that topographic or other conditions make screening unnecessary;
    c. Screening of the facility should take into account the existing improvements on or adjacent to the site, including landscaping, walls, fences, berms or other devices specifically designed to screen development.
4) Facilities shall not be of a bright, shiny or glare reflective finish; Antennae built into architectural features or which appear to be architectural features themselves, added to existing structures (such as chimneys, cupolas, dormers, bell towers, steeples, water tanks, stadium lights, utility poles, and other similar features) where the height limit for such architectural features is not exceeded. All equipment must be located as described in subsection (F)(2) of this section.
5) If feasible, the base station and all wires and cables necessary for the operation shall be placed underground; and
6) Co-location on existing facilities with the same types of antennae as those currently present and where the height of the existing antennae pole does not increase.
7) If the base station is located within or on the roof of a building, it may be placed in any location not visible from the surrounding neighborhood, with any wires and cables attached to the base station screened from public view.

Epic Wireless first looked for viable existing telecommunications towers offering collocation opportunities within the designated search area, including PG&E transmission towers. No existing telecommunications towers nor transmission towers were identified. Second, Epic Wireless looked for signs, water tanks, and tall building rooftops within the designated search area. The existing water tank is located just outside the desired search ring in the southwestern corner. Generally, Verizon Wireless only allows sites outside of the designated search area to be pursued if no viable locations are found inside of the search area.

Since no viable opportunities were found within the designated search area, Epic Wireless looked outside the ring for existing infrastructures to collocate on. Epic Wireless found that all of the parcels inside of the search area are zoned residential except for two other Public Use areas, one of which was the high school and the other a middle school. The high school would not work for the coverage object and still comply with the City's code due to the height restrictions. As such, Epic Wireless decided to pursue a collocation facility on the existing City owned water tank. This was determined to be the least intrusive viable site design that would achieve Verizon's coverage and capacity goals for this project.

Below is a list of alternative sites evaluated and the conclusions of those evaluations.

1. Eureka High School_ 40°47'22.29"N, 124° 9'17.41"W_Address: 1915 J St.

Epic Wireless Group inquired about the viability of a new Verizon Wireless ("VZW") telecommunications facility on the football field via replacement of an existing light standard with one that is structurally sound to support VZW's antenna and associated equipment. This candidate is located at 74' AMSL which is a ~50' drop in elevation from the surrounding area around the football field. The tree line around the stadium is roughly 215' AMSL. The existing 90' light poles would need to be replace with a minimum 150' pole in order to clear the surrounding treeline. The City of Eureka does not permit WTFs at heights above 100'. The permit for the HS would be processed with the California Division of State Architects (DSA). DSA would take into consideration City of Eureka height limits. Therefore, this is not a viable candidate.

2. Hebrew Christian_ 40°46'51.62"N, 124° 9'33.52"W_ Address: 3014 J St.

Epic Wireless Group inquired about the viability of a new Verizon Wireless (“VZW”) telecommunications facility that was close by the Eureka water tower. The nearest facility discovered was a church that currently has several wireless operators onsite. The height limit for a wireless facility in this zone would be 60', limiting antenna centerline to 56'+/-, which is 25' below the required height needed to meet the coverage objective.

3. AM Tower_ 40°48'10.44"N, 124° 8'19.02"W_Address not available

This property was deemed not viable for as a collocation. Epic Wireless spoke with Kyle Sargent at KOBI Channel 5. Mr. Sargent informed Epic Wireless that this lattice tower is an AM channel tower which is not compatible with cellular uses. The property is also 9/10 of a mile outside the coverage objective and the candidate was rejected by VZW's Radiofrequency Engineer.

IV. Conclusion

The identified site location and design of the proposed facility represents a thorough and responsible investigation of alternative site locations. Verizon Wireless, with the help of Epic Wireless and Verizon Wireless RF Engineers, has determined the proposed site to be the least intrusive means to service the identified significant gap in coverage. This facility is believed to have the least impacts to the community while meeting the networks coverage needs.

Attachment 8
Summary of Issues and Concerns

Summary of Issues and Concerns

Verizon Wireless Telecommunications Facility "West Buhne" at 1020 Wood Street, Eureka CA

APN: 011-182-001

June 26, 2019

Summary of the Issues and Concerns of Attendees at the Community Meeting Held on June 11, 2019 Held at the Historical Eagle House 139 2nd St. in Eureka California and The Proposed Mitigation to Address Them Conducted by Epic Wireless Group, LLC.

I. Executive Summary

On April 12, 2019 Epic Wireless Group, representing Verizon Wireless, applied for a Conditional Use Permit with the City of Eureka, California. Per the City's wireless regulations § 159.022 "Education/Outreach", Epic Wireless held an education and informational meeting within 60 days of the submittal. Notices were sent out to the property owners within 500 feet of the proposed wireless telecommunications facility as stated in § 159.023 "Noticing". The information presented and available at the meeting included a Power Point presentation, coverage maps, photo simulations, site plans, elevations, and an educational handout on the benefits and safety of wireless. There was a total of eight (8) attendees, one (1) of which was a member of the press.

II. Issues and Concerns

The attendee's issues and concerns were generally health driven with concerns about radio frequency emissions and the effects it may have on themselves, their children and children's clubs in close proximity to the proposed site. Some also voiced concern of what they see it of a multitude of other towers in the area they feel Verizon could collocate on instead of locating on the water tank.

III. Mitigation

In identifying the above concerns brought forth by the attendees of the community meeting, Epic Wireless is addressing each with the utmost care in order to help alleviate concerns. Each concern and how it was addressed follows.

1) EME: its effects on human health and the possibility of accumulation.
    a. An EME study was provided to the City of Eureka Planning Department.
    b. One of the attendees had further questions regarding the study. Please see the attached "RF Study Feedback" document.
2) Viability of Collocations on other towers in the area.
    a. Addressed via an Alternative Site Analysis which was submitted to the City of Eureka's Planning Department.
        i. Additional antennas within a 3-mile radius that Verizon is not on and that were not included in the Alternative Site Analysis are listed below. All the below listed towers are outside of Verizon's coverage objective.
            1. PMC Tower_1020 W. Del Norte St, Eureka
            2. Cebridge Acquisition_ 1982 Gass St, Fairhaven
            3. US Cellular_4275 Union St, Eureka
            4. PWM_5497 Elk River Rd, Eureka
            5. PGE_Humboldt Substation, Mitchell & Ocean St, Eureka
            6. Eureka Broadcasting_Twr 2 – 1101 Marsh Rd, Eureka
            7. Eureka Broadcasting_Twr 1 – 1101 Marsh Rd, Eureka

RF Study Feedback

COMMENTS FROM PUBLIC:

1. On its page titled "Human Exposure to Radio Frequency Fields: Guidelines for Cellular Antenna Sites," the FCC states that, "Although the FCC permits an effective radiated power (ERP) of up to 500 watts per channel (depending on the tower height), the majority of cellular or PCS [personal communications service] cell sites in urban and suburban areas operate at an ERP of 100 watts per channel or less". Yet in DTech Communications' report "Radio Frequency Electromagnetic Fields Exposure Report" dated December 21, 2018, which estimates the RF and EMF of Verizon's proposed cell facility, "Table 2: Site Technical Specifications" lists the ERP in watts for each ERP emitting piece of equipment. In this table, DTech states that Verizon's 11 pieces of equipment emits ERP watts ranging from 4,798 to 17,425 ERP watts, with six of them listed as emitting over 10,000 ERP watts. In other words, Verizon's proposed cell equipment will emit 100 times more ERP than the majority of cellular or PCS cell sites in urban and suburban areas (FCC website) according to DTech Communications' report (see table below). This level of ERP seems a bit high. Why is Eureka allowing such high ERP? It is interesting to note, too, that the effective radiating power of Verizon's proposed cell facility is significantly MORE than that emitted by the existing equipment atop the water tower(DTech p. 7).

Table 2: Site Technical Specifications

Antenna ID	Operator	Antenna Mfg	Antenna Model	Type	Frequency (MHz)	Orientation (°T)	Horizontal BWdth (°)	Antenna Aperture (ft)	Antenna Gain (dBd)	Total Input Power (Watts)	Total ERP (Watts)	Bottom Tip Height Above Ground (Z) (ft)	Bottom Tip Height Above Catwalk (Z) (ft)	Bottom Tip Height Above At Ant. Level (Z) (ft)
A1	Verizon	Commscope	NHH-45B-R2B	Panel	746	20	48	6.0	14.0	283	7080	87.0	-15.0	0.0
A1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	20	41	6.0	17.9	283	17425	87.0	-15.0	0.0
A2	Verizon	Commscope	NHH-45B-R2B	Panel	880	20	43	6.0	15.1	283	9142	87.0	-15.0	0.0
B1	Verizon	Commscope	NHH-45B-R2B	Panel	746	90	48	6.0	14.0	283	7080	87.0	-15.0	0.0
B1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	90	41	6.0	17.9	283	17425	87.0	-15.0	0.0
B2	Verizon	Commscope	NHH-45B-R2B	Panel	880	90	43	6.0	15.1	283	9142	87.0	-15.0	0.0
C1	Verizon	Commscope	NHH-45B-R2B	Panel	746	180	65	6.0	12.3	283	4798	87.0	-15.0	0.0
C1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	180	64	6.0	16.4	283	12251	87.0	-15.0	0.0
C2	Verizon	Commscope	NHH-45B-R2B	Panel	880	180	60	6.0	12.6	283	5201	87.0	-15.0	0.0
D1	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	746	300	34	6.0	16.8	283	13399	87.0	-15.0	0.0
D1	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	2120	300	35	6.0	16.7	283	13097	87.0	-15.0	0.0
D2	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	880	300	30	6.0	17.4	283	15384	87.0	-15.0	0.0
1	Others 1	Unknown	Unknown	Omni	850	0	360	12.0	9.0	-	315	138.7	36.7	N/A
2	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5	36.5	N/A
3	Others 1	Unknown	Unknown	Omni	850	0	360	12.0	9.0	-	315	138.7	36.7	N/A
4	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5	36.5	N/A
5	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5	36.5	N/A
6	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5	36.5	N/A
1	Others 2	Unknown	Unknown	Dish	10000	0	2	2.0	38.0	-	65	134.0	32.0	N/A
2	Others 2	Unknown	Unknown	Dish	10000	90	2	2.0	38.0	-	65	134.0	32.0	N/A
3	Others 2	Unknown	Unknown	Dish	10000	0	2	2.0	38.0	-	65	107.0	5.0	N/A

From DTech Communications' "Radio Frequency Electromagnetic Fields Exposure Report": "Antenna Inventory" (red box added by me, p. 7)

4) The FCC goes on to explain the "actual radiated power" of "effective radiated power" (ERP): "An ERP of 100 watts corresponds to an actual radiated power of 5-10 watts [5-10% of the ERP], depending on the type of antenna used. In urban areas, cell sites commonly emit an ERP of 10 watts per channel or less. For PCS cell sites, even lower ERPs are typical" (see FCC link). That seems to mean that the 17,425 ERP corresponds to an actual radiated power of 871.25 - 1,742.5 watts. If this is the actual radiated power of Verizon's proposed antennas, these emissions are 174 times the FCC's description of "typical." These emissions are significantly MORE -- and at a relatively lower height -- than the FCC notes in their guidelines, "Human Exposure to Radio Frequency Fields: Guidelines for Cellular Antenna Sites." In other words, if most urban cell sites emit only 100 ERP watts AND those sites are usually between 50 and 200 feet high, how can we be sure that 1,742.5 ERP watts will dissipate enough to be safe for hours-long exposure in only 87 feet? Why is our ERP wattage so much higher than is typical, at least according to the FCC?

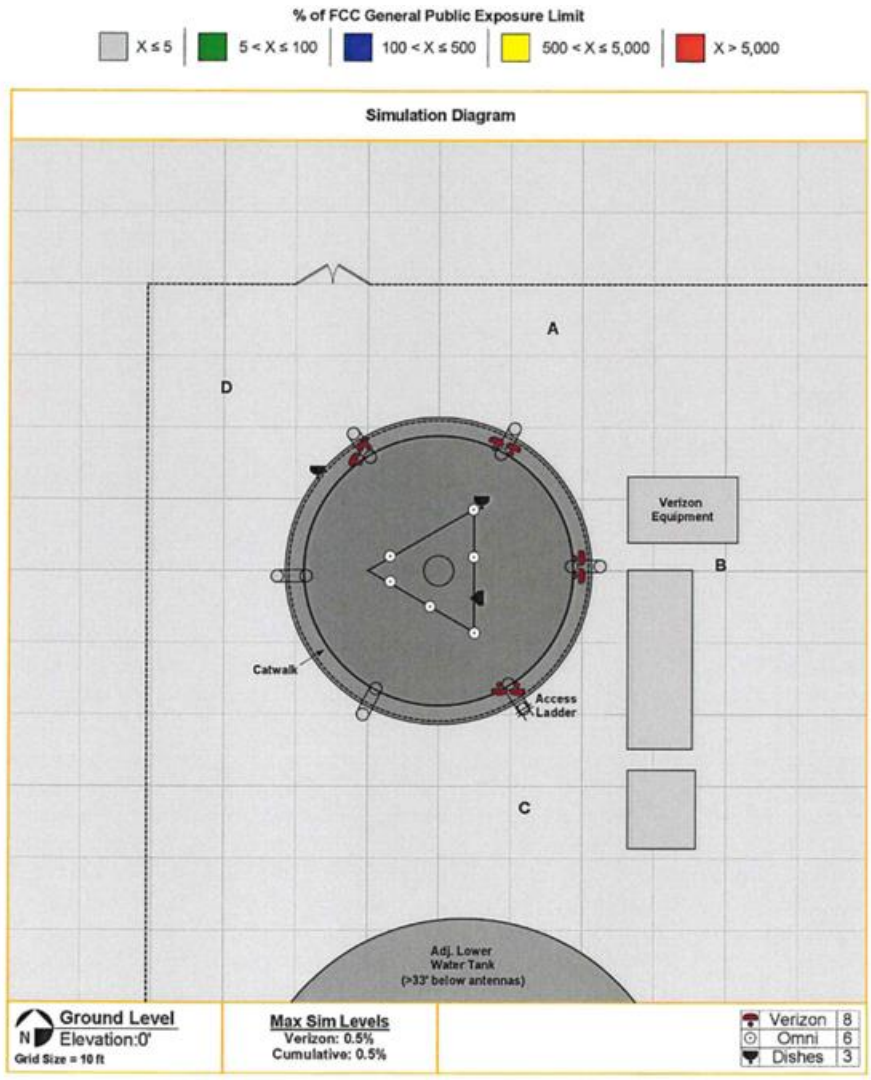
DARANG TECH, P.E. DTECH COMMUNICATIONS RESPONSE:

The key word from the FCC link is "500 watts per channel". The article addressed cellular and PCS frequency bands which were use during the early wireless explosion (1-2G). The cellular frequency band ranges from 869-894 Mhz whereas the PCS frequency band ranges from 1930-1990 Mhz. Considering just the PCS band alone, there could conceivably be 1841 channels altogether. Therefore, the total allowed power could be (1841 x 500) = 920,500 watts. Note that Verizon is not using the PCS frequency band at this site - please refer to the Frequency(Mhz) column in table 2 of the Dtech Report. Fast-forward to today's technology (4-5G), each channel is much wider. The ERP powers in the Dtech Report are the total, combined power for the entire frequency bands. Note also, that Verizon is transmitting in 3 different bands: 746 (700-band), 880 (cellular band) & 2120 (AWS-band).

With regard to "An ERP of 100 watts corresponds to an actual radiated power of 5-10 watts, depending on the type of antenna used.", the article is explaining the gain or amplification of antennas. For instance, if the antenna has a gain or amplification of 20X, then an input of 5 Watts would equate to (5 x 20) = 100 Watts ERP. The Dtech Report specified Watts ERP which is the total power that hit the air.

COMMENTS FROM PUBLIC:

Furthermore, the FCC continues, "In the case of cellular and PCS cell site transmitters, the FCC's RF exposure guidelines recommend a maximum permissible exposure level to the general public of approximately 580 microwatts per square centimeter" (see above link). Since DTech Communications' report does not identify the RF or wattage of the simulated ground measurement in their report, it is difficult for a layperson to draw any real conclusions about the wattage measurement at the ground level and thereby the safety of Verizon's proposed cell equipment. So my question is, "What is the actual radiated power at ground level according to DTech Communications' estimate?"



DTech Communications' "Radio Frequency Electromagnetic Fields Exposure Report": "Emission Predictions" (p. 9)

Again, I am not an expert in this field, so for the health of my three children, I am working towards understanding both the FCC's guidelines and how to interpret the associated DTech Communications' report. I understand that the FCC regulates exposure to RF (not emissions), but in order to figure out my family's 19-hour exposure to the constant RF, it seems that I need to know the ground-level emissions measurement. To this end, the "Emission Predictions" for the ground level (p. 9) of DTech Communications' report uses color coding to exhibit the percentage of of the FCC's Maximum Permissible Exposure (MPE) Limits. DTech Communications "Emission Predictions" map (seen above) of ground level emissions is entirely grey, indicating that the area will contain radiation emissions of less than 5% of the maximum permissible exposure (MPE), MPE of 580 microwatts according to the FCC's website. Again, DTech does not use any ERP or Wattage measurements in these maps and poorly labels other numbers such as the "Max Sim Level" table at the bottom which obscurely identifies the "Max Sim Level" as "0.5%." Since the map is not in "plain language" as the city ordinance requires, as a layperson I

must interpret the meaning of "Max Sim Level"; I interpret it to mean that the "maximum level of actual radiated power tested in the simulation" was 0.5% of 1,742.5 watts. If that is true, 0.5% of 1,742.5 watts is 8.7 watts. Using a conversion calculator, 8.7 watts equals 8,700,000 microwatts. Clearly, this 8,700,000 microwatts is far above the FCC's MPE of 580 microwatts. In plain language, please explain in real numbers -- not percentages -- what the "Emissions Predictions" map indicates. How many microwatts can I expect to be exposed to when I garden for hours in my front yard approximately 300 feet from this site? When I walk to the market at Harris and K Street (one block south of the water tower), how many microwatts can I expect to be exposed to in that 30 minutes as a pedestrian at the public sidewalk at 1020 Wood Street?

DARANG TECH, P.E. DTECH COMMUNICATIONS RESPONSE:

The FCC specifies different safety limits for different frequencies. For instance, the FCC's Maximum Permissible Exposure (MPE) limits for 746 Mhz, 880 Mhaz, and 2120 Mhz are 497, 587, and 1000 microwatts per square centimeter. Please note that this engineering unit describes the power density which is different from the ERP powers. The Dtech Report analyzes power densities at different frequencies, compare them to the FCC's MPE limits, combine the results and present the cumulative in percentages of the FCC's MPE limits. Figure 2, page 9 shows for a person standing anywhere on the ground, the maximum, simulated exposure levels (Max Sim Level) are calculated to be no higher than 0.5% of the FCC's general population MPE limits for all the frequencies combined. This means that the exposure levels are calculated to be 200 times less the FCC's MPE limits for continuous exposure. As a side note, this level is less than ambient EMF generated from appliances in a typical home.

Attachment 9
Public Comment

Raquel Menanno

From: Brian Gerving
Sent: Tuesday, June 11, 2019 4:50 PM
To: Dulce
Cc: Greg Sparks; Pam Powell; Natalie Arroyo; Raquel Menanno
Subject: RE: Verizon wireless cell facility

Dulce,

I apologize for the delay in getting back to you. The City is leasing space on its water tower for Verizon to install antennas that will provide more coverage reliability in the area. I am unsure of the construction schedule for the work, but the project is subject to the standard Wireless Transmission Facility permit requirements as any other wireless project in the City. If you have any questions about that process, you can contact Raquel Menanno in the Planning Division, whom I've copied on this message.

Best regards,
Brian

Brian Gerving
Director of Public Works
Chief Building Official
531 K Street, Eureka, CA 95501
707-441-4152
bgerving@ci.eureka.ca.gov

-----Original Message-----
From: Natalie Arroyo <narroyo@ci.eureka.ca.gov>
Sent: Wednesday, June 5, 2019 12:47 PM
To: Dulce <dulceadaziegler@gmail.com>
Cc: Brian Gerving <bgerving@ci.eureka.ca.gov>; Greg Sparks <gsparks@ci.eureka.ca.gov>; Pam Powell <ppowell@ci.eureka.ca.gov>
Subject: Re: Verizon wireless cell facility

Hello Dulce,
Thanks for the email. I'm ccing our city manager and staff so they can help get the information to both of us. I'm out of town on military duty, but will be back in town soon.
Brian, Pam and Greg - can you please help with this request and keep me in the loop? Thank you!

Sincerely,
Natalie Arroyo
Eureka City Council, ward 3

Sent from my iPhone

> On Jun 4, 2019, at 8:11 PM, Dulce <dulceadaziegler@gmail.com> wrote:

>
> Hello Natalie,
> I received a letter about a neighborhood informational meeting regarding the application for cell towers to be placed on the water tower located a block from my house. This is in your ward. I am wondering if you know more regarding the application process. Will the city council be voting on this? Will you be attending this meeting? Who receives notice of this meeting since it is considered a "neighborhood" informational meeting? I'm concerned about the potential health and safety issues and potential loss of property value to my home. I'm also concerned that the letter came only 1 week prior to the meeting which limits people being able to attend. A neighbor I spoke to will not be able to go due to the short notice. I also see that the planning commission meets the day before the meeting. Is there a possibility that this will be approved prior to the public being able to learn more and weigh in?
> Any information you can provide as my council member would be greatly
> appreciated Thank you, Dulce Ziegler
> 2904 L st
> Eureka, CA
>
>
> Sent from my iPad

Raquel Menanno

From: Raquel Menanno
Sent: Friday, June 21, 2019 4:13 PM
To: Sean McLaughlin
Subject: RE: Wireless Telecommunication Facility
Attachments: ExecutedLease.pdf

Hi Sean,

The executed lease is attached. It was reviewed by City staff, including the City Manager and City Attorney, and approved administratively. There are other WTF sites on City properties, such as 101 Netlink at the Municipal Auditorium, but I am not sure how the leases are structured.

Thank you,
Raquel

From: Raquel Menanno
Sent: Friday, June 21, 2019 3:48 PM
To: Sean McLaughlin <sean@accesshumboldt.net>
Subject: RE: Wireless Telecommunication Facility

Hi Sean,

I am in the process of answering your questions. Thank you for your patience.

From: Sean McLaughlin <sean@accesshumboldt.net>
Sent: Monday, June 17, 2019 4:36 PM
To: Raquel Menanno <rmenanno@ci.eureka.ca.gov>
Subject: Re: Wireless Telecommunication Facility

Thanks Raquel -

I would like to see a copy of the lease with Verizon (or whoever holds the lease) and help to identify when and how it was approved.

Also would like to identify any other wireless antenna site leases the City has with any provider.

Appreciate your help.

- Sean

_____
Sean Taketa McLaughlin
Executive Director
Access Humboldt
P.O. Box 157, Eureka, CA 95502
tel: 707-476-1798
cel: 707-616-2381

DC: 202-495-0616
e: sean@accesshumboldt.net

Visit our Website http://accesshumboldt.net
Follow us on Facebook http://www.facebook.com/accesshumboldt
and Twitter http://twitter.com/accesshumboldt

"Local Voices Through Community Media"

On Fri, Jun 14, 2019 at 3:15 PM Raquel Menanno <rmenanno@ci.eureka.ca.gov> wrote:

> Hi Sean,
>
> I am following up with your questions regarding the proposed wireless telecommunication facility. Please let me know how I can help.
>
> Thanks!
>
> Raquel
>
> *Raquel Menanno* | Assistant Planner
>
> Community Development | City of Eureka
>
> rmenanno@ci.eureka.ca.gov | (707) 441-4113
>
>

Raquel Menanno

From: Andrew Lesa <Andrew.Lesa@epicwireless.net>
Sent: Wednesday, June 26, 2019 4:21 PM
To: Stephy G
Cc: sean@accesshumboldt.net; jeb@gmail.com; Joaquin Dominick; jmfield@pacbell.net; dulceadaziegler@gmail.com; Raquel Menanno; Rebecca Carbone; Andrew Lesa
Subject: RE: Proposed Verizon Wireless Cell Facility - 1020 Wood Street - West Buhne

Hi Stephanie:

Thank you for your attendance at the neighborhood meeting and your thoughtful concerns outlined in the below email. We are working closely with City Staff to address concerns and provide updated materials as required by City application requirements. These additional documents will include answers to your questions outlined in sections 1 and 2 below. Additional information regarding RF emissions will also be provided to City Staff as we gather more clarity from our 3rd party engineering consultants.

Thank you again for your interest.

Andrew Lesa, Director of Site Development
Epic Wireless Group LLC
605 Coolidge Drive, Suite 100, Folsom, CA 95630
530.368.2357
andrew.lesa@epicwireless.net

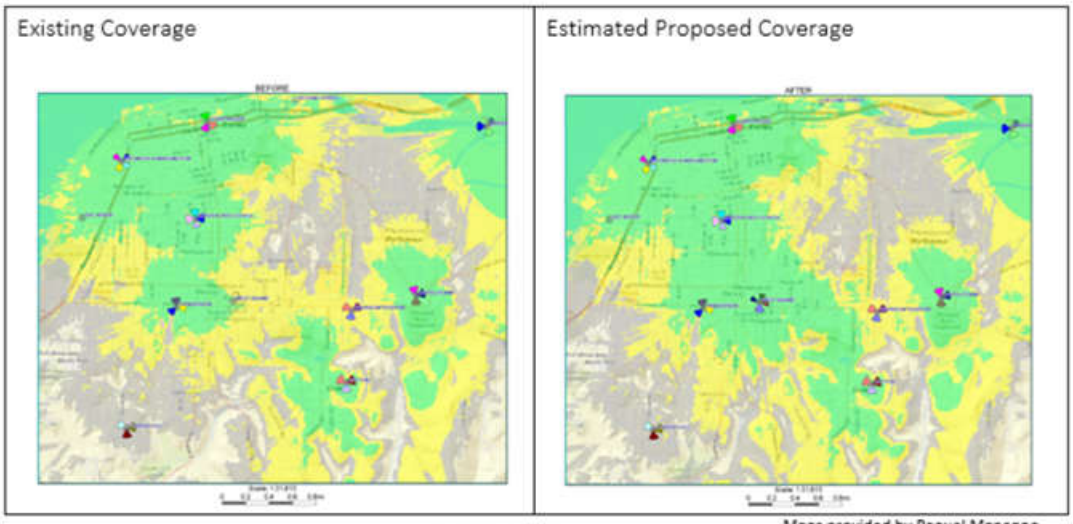
From: Stephy G <stephygai79@gmail.com>
Sent: Wednesday, June 19, 2019 3:18 PM
To: Andrew Lesa <Andrew.Lesa@epicwireless.net>
Cc: sean@accesshumboldt.net; jeb@gmail.com; Joaquin Dominick <joaquinjohndominick@gmail.com>; jmfield@pacbell.net; dulceadaziegler@gmail.com; Raquel Menanno <rmenanno@ci.eureka.ca.gov>; Rebecca Carbone <Rebecca.Carbone@epicwireless.net>
Subject: Re: Proposed Verizon Wireless Cell Facility - 1020 Wood Street - West Buhne

Hello,

Thank you, Andrew, for your presentation last week. I still have a few questions.

1) According to section 159.011 (C) 4.d of the city ordinance, the application requires that a geographic service area map showing "All other existing facilities that could be used for co-location within three miles in all directions of the proposed wireless telecommunication facility." In the documents we received from the City, we saw an "area map," but according to the scale and legend, it **did NOT extend for "three miles in all directions" as is required**. I'm interested in this map particularly because the Cummings Road Landfill off of Mitchell Road seems like a viable location, which seems to have the necessary height and proximity to improve reception (and thereby safety) in Myrtletown and is likely not "residential." Is an area map with the three-mile radius available?

2) What is Verizon's plan for improving service in Myrtletown? In the maps of existing coverage and proposed coverage, Myrtletown is conspicuously grey in both maps while Henderson Center goes from yellow (already decent service) to green (even better service). I have great reception in Henderson Center, but very poor reception in Myrtletown, and I know I'm not alone. I suspect that it is easier to build a cell facility on an existing tall structure such as the water tower at 1020 Wood Street, but clearly, there is a need in Myrtletown, and if we're truly concerned about improving safety, then let's do it in the place that needs it most.



Maps provided by Raquel Manenno

AWS LTE: RSRP Existing
Best Signal Level (dBm) >=-85
Best Signal Level (dBm) >=-95
Best Signal Level (dBm) >=-105

2) As you heard last week, **four cell towers already exist** at the corner of J Street and Wood, approximately 600 feet from the proposed site at 1020 Wood Street. The tall, existing water tower must be very appealing to Verizon -- they wouldn't have to build a tower or erect a pole -- but another cell carrier beat them to the neighborhood. Again, four towers already exist here. The Eureka City ordinance (section 159.011 (C.8)) states that the application must include a **"public health report [that includes] the cumulative analysis** of the electromagnetic and radio frequency radiation **of all other existing** and anticipated future wireless **telecommunication facilities within 2,000 feet of the proposed facility."** I look forward to reading the report on the cumulative effects of the 12 towers/antennas. When will the "cumulative analysis" report be available?

Google Street View photo captured only one of the four existing cell towers in its photo.

3) As of Verizon's proposal, I've been working to understand cell facilities and the radio frequency and electromagnetic fields they emit. Please forgive me if my terms are slightly off, and please help me understand if my interpretation seems inaccurate.

On its page titled "Human Exposure to Radio Frequency Fields: Guidelines for Cellular Antenna Sites," the FCC states that

"Although the FCC permits an effective radiated power (ERP) of up to 500 watts per channel (depending on the tower height), the majority of cellular or PCS [personal communications service] cell sites in urban and **suburban areas operate at an ERP of 100 watts per channel or less**"
(emphasis mine).

Yet in DTech Communications' report "Radio Frequency Electromagnetic Fields Exposure Report" dated December 21, 2018, which estimates the RF and EMF of Verizon's proposed cell facility, "Table 2: Site Technical Specifications" lists the ERP in watts for each ERP emitting piece of equipment. In this table, DTech states that Verizon's 11 pieces of equipment emits**ERP watts ranging from 4,798 to 17,425 ERP watts**, with six of them listed as emitting over 10,000 ERP watts. In other words, **Verizon's proposed cell equipment will emit 100 times more ERP than the majority of cellular or PCS cell sites in urban and suburban areas** (FCC website) according to DTech Communications' report (see table below). This level of ERP seems a bit high. Why is Eureka allowing such high ERP? It is interesting to note, too, that the effective radiating power of Verizon's proposed cell facility is significantly MORE than that emitted by the existing equipment atop the water tower(DTech p. 7).

Table 2: Site Technical Specifications

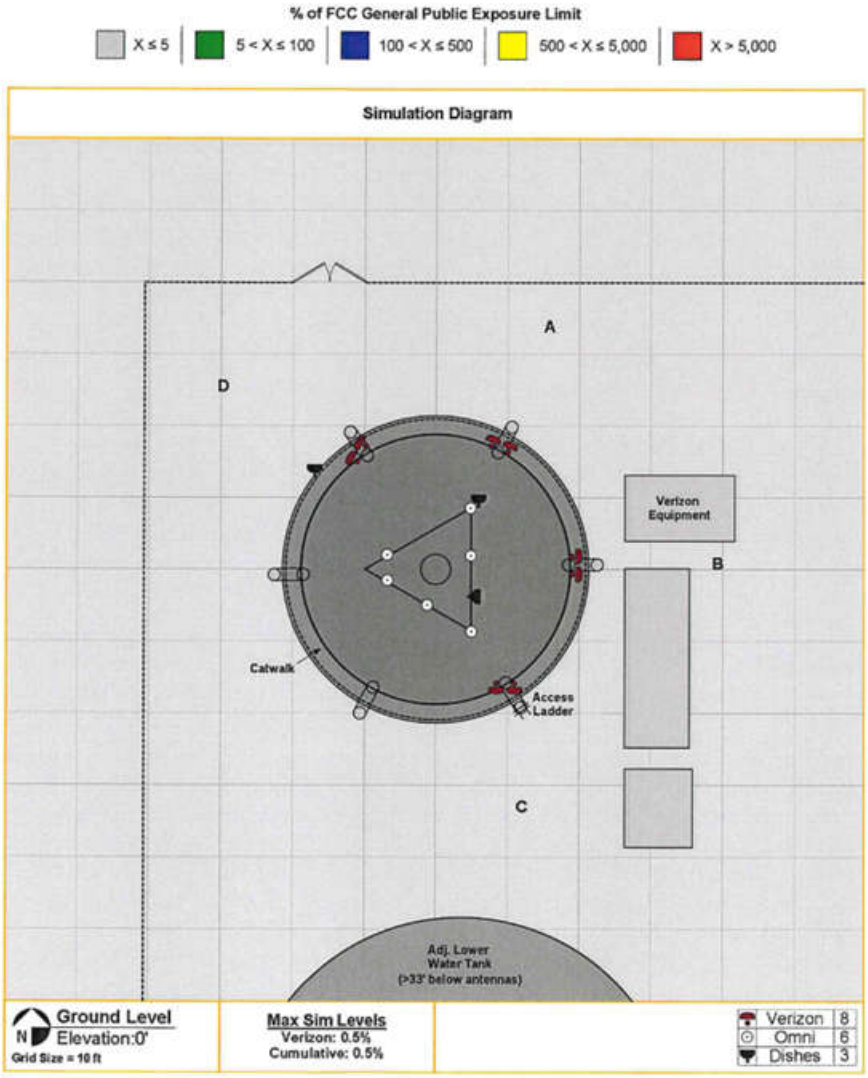
Antenna ID	Operator	Antenna Mfg	Antenna Model	Type	Frequency (MHz)	Orientation (°T)	Horizontal BWdth (°)	Antenna Aperture (ft)	Antenna Gain (dBd)	Total Input Power (Watts)	Total ERP (Watts)	Bottom Tip Height Abo Ground (Z) (
A1	Verizon	Commscope	NHH-45B-R2B	Panel	746	20	48	6.0	14.0	283	7080	87.0
A1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	20	41	6.0	17.9	283	17425	87.0
A2	Verizon	Commscope	NHH-45B-R2B	Panel	880	20	43	6.0	15.1	283	9142	87.0
B1	Verizon	Commscope	NHH-45B-R2B	Panel	746	90	48	6.0	14.0	283	7080	87.0
B1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	90	41	6.0	17.9	283	17425	87.0
B2	Verizon	Commscope	NHH-45B-R2B	Panel	880	90	43	6.0	15.1	283	9142	87.0
C1	Verizon	Commscope	NHH-45B-R2B	Panel	746	180	65	6.0	12.3	283	4798	87.0
C1	Verizon	Commscope	NHH-45B-R2B	Panel	2120	180	64	6.0	16.4	283	12251	87.0
C2	Verizon	Commscope	NHH-45B-R2B	Panel	880	180	60	6.0	12.6	283	5201	87.0
D1	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	746	300	34	6.0	16.8	283	13399	87.0
D1	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	2120	300	35	6.0	16.7	283	13097	87.0
D2	Verizon	JMA	X7CQAP-FRO-633-VR	Panel	880	300	30	6.0	17.4	283	15384	87.0
1	Others 1	Unknown	Unknown	Omni	850	0	360	12.0	9.0	-	315	138.7
2	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5
3	Others 1	Unknown	Unknown	Omni	850	0	360	12.0	9.0	-	315	138.7
4	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5
5	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5
6	Others 1	Unknown	Unknown	Omni	1900	0	360	6.0	10.0	-	125	138.5
1	Others 2	Unknown	Unknown	Dish	10000	0	2	2.0	38.0	-	65	134.0
2	Others 2	Unknown	Unknown	Dish	10000	90	2	2.0	38.0	-	65	134.0
3	Others 2	Unknown	Unknown	Dish	10000	0	2	2.0	38.0	-	65	107.0

From DTech Communications' "Radio Frequency Electromagnetic Fields Exposure Report": "Antenna Inventory" (red box added by me, p. 7)

4) The FCC goes on to explain the "actual radiated power" of "effective radiated power" (ERP): "An ERP of 100 watts corresponds to an actual radiated power of 5-10 watts [5-10% of the ERP], depending on the type of antenna used. In urban areas, cell sites commonly emit an ERP of 10 watts per channel or less. For PCS cell sites, even lower ERPs are typical" (see FCC link). That seems to mean that the 17,425 ERP corresponds to an actual radiated power of 871.25 - 1,742.5 watts. **If this is the actual radiated power of Verizon's proposed antennas, these emissions are 174 times the FCC's description of "typical." These emissions are significantly MORE -- and at a relatively lower height -- than the FCC notes in their guidelines**, "Human Exposure to Radio Frequency Fields: Guidelines for Cellular Antenna Sites." In other words, if most urban cell sites emit only 100 ERP watts AND those sites are usually between 50 and 200 feet high, how can we be sure that 1,742.5 ERP watts will dissipate enough to be safe for hours-long exposure in only 87 feet? Why is our ERP wattage so much higher than is typical, at least according to the FCC?

5) Furthermore, the FCC continues, "In the case of cellular and PCS cell site transmitters, the FCC's RF exposure guidelines recommend a maximum permissible exposure level to the general public of approximately 580 microwatts per square centimeter" (see above link). Since DTech Communications' report does not identify the RF or wattage of the

simulated ground measurement in their report, it is difficult for a layperson to draw any real conclusions about the wattage measurement at the ground level and thereby the safety of Verizon's proposed cell equipment. So my question is, "What is the actual radiated power at ground level according to DTech Communications' estimate?"



DTech Communications' "Radio Frequency Electromagnetic Fields Exposure Report": "Emission Predictions" (p. 9)

5) Again, I am not an expert in this field, so for the health of my three children, I am working towards understanding both the FCC's guidelines and how to interpret the associated DTech Communications' report. I understand that the FCC regulates exposure to RF (not emissions), but in order to figure out my family's 19-hour exposure to the constant RF, it seems that I need to know the ground-level emissions measurement. To this end, the "Emission Predictions" for the ground level (p. 9) of DTech Communications' report uses color coding to exhibit the percentage of of the FCC's Maximum Permissible Exposure (MPE) Limits. DTech Communications "Emission Predictions" map (seen above) of ground level emissions is entirely grey, indicating that the area will contain radiation emissions of less than 5% of the maximum permissible exposure (MPE), MPE of 580 microwatts according to the FCC's website. Again, DTech does not use any ERP or Wattage measurements in these maps and poorly labels other numbers such as the "Max Sim Level" table at the bottom which obscurely identifies the "Max Sim Level" as "0.5%." Since the map is not in "plain language" as the city ordinance requires, as a layperson I must interpret the meaning of "Max Sim Level"; I interpret it to mean that the "maximum level of actual radiated power tested in the simulation" was 0.5% of 1,742.5 watts. If that is true, 0.5% of 1,742.5 watts is 8.7 watts. Using a conversion calculator, 8.7 watts equals 8,700,000 microwatts. Clearly, this 8,700,000 microwatts is far above the FCC's MPE of 580 microwatts. In plain language, please explain in real numbers -- not percentages -- what the "Emissions Predictions" map indicates. How many microwatts can I expect to be exposed to when I garden for hours in my front yard approximately 300 feet from this site? When I walk to the market at Harris and

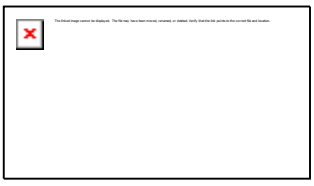
K Street (one block south of the water tower), how many microwatts can I expect to be exposed to in that 30 minutes as a pedestrian at the public sidewalk at 1020 Wood Street?

Obviously, we're concerned about the safety of our family and neighbors. Before we expose our neighboring citizens to increased RF and EMF simply because the existing structure is appealing, we should proceed with caution. I look forward to receiving answers to these questions and concerns.

Sincerely,

Stephanie Gai

On Mon, Jun 17, 2019 at 3:30 PM Andrew Lesa <Andrew.Lesa@epicwireless.net> wrote:

> Good Afternoon:
>
> Thank you all for attending the neighborhood informational meeting regarding the proposed Verizon Wireless cell facility located at 1020 Wood Street. We appreciate your feedback at the meeting. Please use this as an opportunity to formally memorialize your comments and concerns. I have included City Planner Raquel Menanno on this email chain so as to ensure all comments are received by the City.
>
> I look forward to your feedback and appreciate the spirited discussion we conducted last week.
>
> Sincerely,
>
> Andrew Lesa, Director of Site Development
>
> Epic Wireless Group LLC
>
> 605 Coolidge Drive, Suite 100, Folsom, CA 95630
>
> 530.368.2357
>
> andrew.lesa@epicwireless.net
>
> 

Meetings
City Council: June 18th, 6:00-9:00pm
July 2nd
Planning Commission meeting: *
Monday July 8th at city council chambers - to voice your concern. thank You!

Dulce Ziegler
2904 L St. Eureka, CA
707-267-5344
dulceadaziegler@gmail.com

INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS

DIVISION OF OCCUPATIONAL HEALTH, SAFETY AND MEDICINE

Position on the Health Effects from Radio Frequency/Microwave (RF/MW) Radiation in Fire Department Facilities from Base Stations for Antennas and Towers for the Conduction of Cell Phone Transmissions

The International Association of Fire Fighters' position on locating cell towers commercial wireless infrastructure on fire department facilities, as adopted by its membership in August 2004 [1], is that the IAFF oppose the use of fire stations as base stations for towers and/or antennas for the conduction of cell phone transmissions until a study with the highest scientific merit and integrity on health effects of exposure to low-intensity RF/MW radiation is conducted and it is proven that such sitings are not hazardous to the health of our members.

Further, the IAFF is investigating funding for a U.S. and Canadian study that would characterize exposures from RF/MW radiation in fire houses with and without cellular antennae, and examine the health status of the fire fighters as a function of their assignment in exposed or unexposed fire houses. Specifically, there is concern for the effects of radio frequency radiation on the central nervous system (CNS) and the immune system, as well as other metabolic effects observed in preliminary studies.

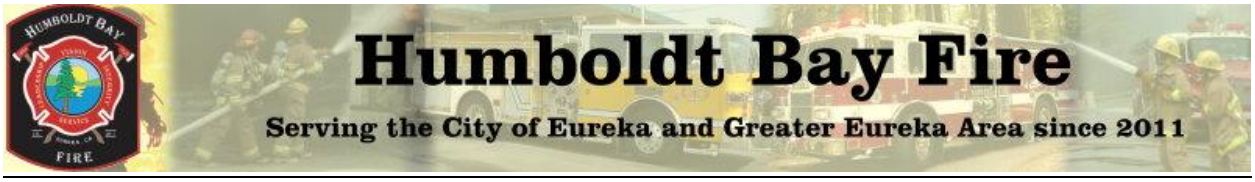
It is the belief of some international governments and regulatory bodies and of the wireless telecommunications industry that no consistent increases in health risk exist from exposure to RF/MW radiation unless the intensity of the radiation is sufficient to heat body tissue. However, it is important to note that these positions are based on non-continuous exposures to the general public to low intensity RF/MW radiation emitted from wireless telecommunications base stations. Furthermore, most studies that are the basis of this position are at least five years old and generally look at the safety of the phone itself. IAFF members are concerned about the effects of living directly under these antenna base stations for a considerable stationary period of time and on a daily basis. There are established biological effects from exposure to low-level RF/MW radiation. Such biological effects are recognized as markers of adverse health effects when they arise from exposure to toxic chemicals for example. The IAFF's efforts will attempt to establish whether there is a correlation between such biological effects and a health risk to fire fighters and emergency medical personnel due to the siting of cell phone antennas and base stations at fire stations and facilities where they work.

Background

Critical questions concerning the health effects and safety of RF/MW radiation remain. Accordingly, should we allow exposure of our fire fighters and emergency medical personnel to this radiation to continue for the next twenty years when there is ongoing controversy over many aspects of RF/MW health effects? While no one disagrees that serious health hazards occur when living cells in the body are heated, as happens with high intensity RF/MW exposure (just like in a microwave oven), scientists are currently investigating the health hazards of low intensity RF/MW exposure. Low intensity RF/MW exposure is exposure which does not raise the temperature of the living cells in the body.

Additionally, a National Institute of Environmental Health Sciences panel designated power frequency electromagnetic fields (ELF/EMF) as "possible human carcinogens." [2] In March 2002 The International Association on Research on Cancer of the World Health Organization also assigned this designation to ELF/EMF in Volume 80 of its *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.* [3]

Attachment 10
Humboldt Bay Fire Response and Research



Humboldt Bay Fire Position on Proposed Addition of Cell Phone Antennas on City of Eureka Water Tower located at 1020 Wood St.

Issue:

In a partnership with Verizon/Epic Wireless Group, the City of Eureka is exploring installation of four cellular service antennas of the city-owned water tower located at 1020 Wood St. The Fire Chief has received e-mails from concerned citizens that live in the vicinity due to potential health concerns not only for residents in the vicinity but also Humboldt Bay Fire personnel who utilize the fire classroom on a regular basis. In response, the Fire Chief tasked our department's Community Risk Reduction (CRR) Staff to gather information and form a position for Humboldt Bay Fire on the matter.

Process:

CRR staff, consisting of the Deputy Fire Chief/Fire Marshal and Community Risk Reduction Specialist divided the task into two legs consisting of "pros" and "cons" of the project. "Pros" would be defined as information and evidence that definitively point to there being no health concerns for citizens and/or fire personnel in the vicinity of such towers. "Cons" would be information and evidence that show health and safety issues directly caused by such equipment.

Findings:

In research of this issue, there is a lot of information available both on and offline regarding the topic.

Two of the best resources we have available regarding the lack of hazard posed by cell phone towers/antennas come from the following:

1. Radio Frequency Electromagnetic Fields Exposure Report provided to Humboldt Bay Fire by Darang Tech (Electrical Engineer) via Verizon/Epic Wireless dated 12/21/2019. The report is written specific to the project and details the equipment proposed to be used, the Federal Communications Commission (FCC) safety guidelines on RF waves, and computer simulations of the electromagnetic fields generated by the project. The report details that the antennas, mounted 90 feet above the ground on the water tower, meet and exceed the minimum clearances required from the emissions for maximum permissible exposure (MPE). In fact, the only area(s) that could potentially be hazardous would be the catwalk area on the tower itself for personnel working on/maintaining the equipment. Personnel performing said maintenance would require special training and personal protective measures to ensure their safety. This however would not affect the surrounding area including HBF's classroom due to the distance and elevation.
2. The American Cancer Society's official website position on the issue is that there is currently "very little evidence to support this idea" that cell phone towers indeed cause cancer. They cite low energy levels, long wavelengths, and distance from the wave emitters as evidence that the risk posed is low. They do however state that there are few studies on human

exposure to emissions from cell phone towers, but in the studies that have been conducted do not show conclusive proof that exposure leads to cancer.

In regard to the "cons" or negative information found the following information was provided:

1. The International Association of Firefighters (IAFF) in a study from 2004 opposed the placement of cell phone towers on fire stations occupied by firefighters. They cite dated safety standards used by the U.S. Government circa 1985 as not being adequate or up to date with current technology. The study specifically opposes the use of Fire Stations as cell phone base location if mounted on the fire station with firefighters who live and work in the station 24/7 having increased exposure. They also cite the lack of specific studies on human beings and will remain opposed to such placements until definitive results are produced.
2. The Physicians for Safe Technology provided a report 3/14/2019 regarding exposure to cell towers. They cite studies from India, Brazil, and other countries that they claim shows some evidence of significant effects caused by cell phone tower emissions.

Conclusion:

Given the information that can be found online and in the Electrical Engineer's report, and the distance and elevation from the unstaffed HBF Classroom at 3030 L St. from the proposed cellular antenna equipment, there is virtually no hazard posed to Humboldt Bay Fire personnel. If the distances were MUCH shorter placing personnel in a staffed 24/7 fire station in closer proximity to the emitters on a constant basis there would be cause for concern. However, the 90 feet of elevation of the equipment plus the distance from the equipment emitted fields, and the lack of constant staffing at the location all point to little to no hazard.

Resources:

Radio Frequency Electromagnetic Fields Exposure Report provided to Humboldt Bay Fire by Darang Tech (Electrical Engineer) via Verizon/Epic Wireless dated 12/21/2019 – REPORT ATTACHED

American Cancer Society Official Position from their official website:

https://www.cancer.org/cancer/cancer-causes/radiation-exposure/cellular-phone-towers.html

International Association of Firefighters Position:

http://www.iaff.org/hs/resi/celltowerfinal.htm

Physicians for Safe Technology Position:

https://mdsafetech.org/cell-tower-health-effects/

UNDERSTANDING EMF
Electric and Magnetic Fields

During recent years, questions have been raised about the possible health effects of 60-Hertz (power frequency) electric and magnetic fields (EMF), which are found wherever you have electricity. This brochure contains easy-to-read information that will help you understand the EMF issue, plus practical tips you can use if you want to reduce your exposure at home and at work.

Can EMF Harm Your Health?

Electric and Magnetic Fields (EMF) are present wherever electricity flows--around appliances and power lines, and in offices, schools and homes. Most, but not all, childhood studies have reported a weak association between estimates of residential magnetic field exposure and certain types of childhood cancer. Worker studies have shown mixed results. Given the uncertainty of the issue, the medical and scientific communities have been unable to determine that EMF causes health effects or to establish any standard or level of exposure that is known to be either safe or harmful.

The Two Types of Fields

60-Hertz Magnetic Fields. . . . . 60-Hertz Electric Fields

Get weaker with distance. . . . . Get weaker with distance

Are created by the current-. . . . . Are produced by the voltage-
or flow of electricity--through. . . . . or electrical "pressure"-- in a
a wire, such as when an . . . . . .wire, such as when an
appliance is turned on. . . . . .appliance is plugged in (but
. . . . . .not turned on.)

Can pass through most. . . . . Can be blocked or partially
objects. . . . . .shielded.

Many researchers believe that if there is a risk of adverse health effects from EMF, it is probably low, but warrants further investigation. recent concern focuses on exposure to magnetic fields rather than electric fields.

Magnetic Fields at Home
(measurements are in millGauss)

Microwave Oven -- 1.2" away 750-2000, 12" 40-80, 39" 3-8
Clothes Washer -- 1.2" away 8-400, 12" 2-30, 39" .1-2
Electric Range -- 1.2" away 60-2000, 12" 4-40, 39" .1-1
Fluorescent Lamp -- 1.2" away 400-4000, 12" 5-20, 39" .1-3
Hair Dryer -- 1.2" away 60-20,000, 12" 1-70, 39" .1-3
Television -- 1.2" away 25-500, 12" .4-20, 39" .1-2

Magnetic Fields Outside
(Maximum range in California utilities will vary)

Distribution Lines -- 1 to 80 mG Under the Line
Transmission Lines -- 1 to 300 mG Edge of Right of Way

Research is Ongoing

A number of research studies are now under way to determine if magnetic fields do indeed pose any health risk and, if so, what aspect of the fields might be harmful. For example, at this time, no one knows whether the length of time in a field, the field strength, going "in and out" of a field, or combinations of these with other factors might be relevant.

What is Being Done about EMF in California?

Late in 1993, the California Public Utilities Commission (CPUC) voted to adopt many of the recommendations of the EMF Consensus Group--an advisory body made up of private citizens, consumer groups, health and state officials, and labor and utility representatives. The CPUC interim decision includes developing design guidelines for utilities to use in reducing EMF from new and upgraded facilities, developing public information and research programs directed by the California Department of Health Services (CDHS), and offering free measurement services for homes and businesses. Financial support by utilities of the $65 million Federal Reserach Program was also authorized. This annual bill insert was prepared as a result of cooperation between California utilities, the CPUC and the CDHS.

What You Can Do

Studies of EMF have not shown that people need to change the way they use electric appliances or equipment. But if you feel reducing your EMF exposure would be beneficial, the following steps may be taken:

AT HOME:

Keep telephone answering machines and electric clocks away from the head of your bed.

Don't stay any closer than necessary to electric appliances

Use personal appliances, such as hair dryers, less often or for less time

If you use an electric blanket, turn it off before going to sleep

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AT WORK:

Locate sources of EMF in your work environment, and spend break time in lower-field areas

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TO SUMMARIZE:

EMF exists wherever there is electricity: in homes, in workplaces and near power lines. Electric fields exist whenever equipment is plugged in, but magnetic fields exist only when equipment is turned on. Both types of fields get weaker with distance from their source.

Until more is known, your best strategy is to stay informed and, if you think it's necessary, to limit your exposure. You may be able to reduce your exposure by identifying EMF sources, changing the way you use electric appliances, and increasing your distance from EMF sources.

Reviewed by:

Public Advisor's Office, California Public Utilities Commission

California Department of Health Services

Commission Advisory & Compliance Division, California Public Utilities Commission

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For More Information

Call PG&E for a free information package or home/business measurements at 1-800-743-5000

Compilation of Peer-Reviewed Research Studies on Cell Tower Radiation and Health

Original list compiled by Environmental Health Trust < https://ehtrust.org/ >
Copied and redistributed 06/10/2019 by Stephanie Gai, M.A.

The following list cites peer-reviewed studies and a brief highlight of the researchers finding or recommendation. View the original at https://ehtrust.org/science/cell-towers-and-cell-antennae/compilation-of-research-studies-on-cell-tower-radiation-and-health/.

NOTE: In the transition from web to document, some formatting features, such as hyperlinks and italics, were unintentionally removed. For ease of reading, the list was reorganized and links were added as url, but the content is otherwise untouched.

Anthony B. Miller, L. Lloyd Morgan, Iris Udasin, Devra Lee Davis, Cancer epidemiology update, following the 2011 IARC evaluation of radiofrequency electromagnetic fields (Monograph 102), Environmental Research, Volume 167, 2018, Pages 673-683, ISSN 0013-9351 https://www.sciencedirect.com/science/article/pii/S0013935118303475

Radiofrequency radiation is emitted by cell towers. This review paper concludes that "Based on the evidence reviewed it is our opinion that IARC's current categorization of RFR as a possible human carcinogen (Group 2B) should be upgraded to Carcinogenic to Humans (Group 1)."

Zothansiama, et al. "Impact of radiofrequency radiation on DNA damage and antioxidants in peripheral blood lymphocytes of humans residing in the vicinity of mobile phone base stations." Electromagnetic Biology and Medicine 36.3 (2017): 295-305. http://www.tandfonline.com/doi/abs/10.1080/15368378.2017.1350584

This study evaluated effects in the human blood of individuals living near mobile phone base stations (within 80 meters) compared with healthy controls (over 300 meters). The study found higher radiofrequency radiation exposures and statistically significant differences in the blood of people living closer to the cellular antennas. The group living closer to the antennas had for example, statistically significant higher frequency of micronuclei and a rise in lipid peroxidation in their blood. These changes are considered biomarkers predictive of cancer.

Meo, S. A., Almahmoud, M., Alsultan, Q., Alotaibi, N., Alnajashi, I., & Hajjar, W. M. (2018). Mobile Phone Base Station Tower Settings Adjacent to School Buildings: Impact on Students' Cognitive Health. American Journal of Men's Health. https://www.ncbi.nlm.nih.gov/pubmed/?term=Mobile+Phone+Base+Station+Tower+Settings+Adjacent+to+School+Buildings%3A+Impact+on+Students%E2%80%99+Cognitive+Health

High exposure to RF-EMF produced by mobile phone base station towers was associated with delayed fine and gross motor skills, spatial working memory, and attention in school adolescents compared to students who were exposed to low RF-EMF.

Long-term exposure to microwave radiation provokes cancer growth: evidences from radars and mobile communication systems. Yakymenko (2011) Exp Oncology, 33(2):62-70. https://www.ncbi.nlm.nih.gov/pubmed/21716201

Even a year of operation of a powerful base transmitting station for mobile communication reportedly resulted in a dramatic increase of cancer incidence among population living nearby.

Association of Exposure to Radio-Frequency Electromagnetic Field Radiation (RF-EMFR) Generated by Mobile Phone Base Stations (MPBS)with Glycated Hemoglobin (HbA1c) and Risk of Type 2 Diabetes Mellitus , Sultan Ayoub Meo et al, International Journal of Environmental Research and Public Health, 2015 https://www.researchgate.net/publication/283726472_Association_of_Exposure_to_Radio-Frequency_Electromagnetic_Field_Radiation_RF-EMFR_Generated_by_Mobile_Phone_Base_Stations_with_Glycated_Hemoglobin_HbA1c_and_Risk_of_Type_2_Diabetes_Mellitus

Elementary school students who were exposed to high RF-EMFR generated by MPBS had a significantly higher risk of type 2 diabetes mellitus relative to their counterparts who were exposed to lower RF-EMFR.

Neurobehavioral effects among inhabitants around mobile phone base stations Abdel-Rassoul et al, Neurotoxicology, 2007 https://www.ncbi.nlm.nih.gov/pubmed/16962663

This study found that living nearby mobile phone base stations (cell antennas) increased the risk for neuropsychiatric problems such as headaches, memory problems, dizziness, tremors, depression, sleep problems and some changes in the performance of neurobehavioral functions.

Meo SA, Almahmoud M, Alsultan Q, Alotaibi N, Alnajashi I, Hajjar WM, Mobile Phone Base Station Tower Settings Adjacent to School Buildings: Impact on Students' Cognitive Health. Am J Mens Health. 2018 Dec 7:1557988318816914. doi: 10.1177/1557988318816914. https://www.ncbi.nlm.nih.gov/pubmed/?term=Mobile+Phone+Base+Station+Tower+Settings+Adjacent+to+School+Buildings%3A+Impact+on+Students&fbclid=IwAR129y1Degcg1-5HWkRLZksYW1ihzP15iMZ2knctvTKJVU7w2NS9QDIqOlk

This study investigated the impact of exposure to radiofrequency electromagnetic field (RF-EMF) radiation generated by mobile phone base station towers (MPBSTs) on cognitive functions. Two hundred and seventeen volunteer male students aged between 13 and 16 registered from two different intermediate schools: 124 students were from School 1 and 93 students were from School 2. The MPBSTs were located within 200 m from the schoolbuildings. In School 1, RF-EMF was 2.010 µW/cm2 with a frequency of 925 MHz and in School 2, RF-EMF was 10.021 µW/cm2 with a frequency of 925 MHz. Students were exposed to EMFR for 6 hr a day, 5 days a week for a total period of 2 years. The Narda Safety Test Solution device SRM-3006 was used to measure RF-EMF in both schools, and cognitive functions tasks were measured by the Cambridge Neuropsychological Test Automated Battery (CANTAB). Significant impairment in Motor Screening Task (MOT; p = .03) and Spatial Working Memory (SWM) task (p = .04) was identified among the group of students who were exposed to high RF-EMF produced by MPBSTs. High exposure to RF-EMF produced by MPBSTs was associated with delayed fine and gross motor skills, spatial working memory, and attention in school adolescents compared to students who were exposed to low RF-EMF.

Biological Effects from Exposure to Electromagnetic Radiation Emitted by Cell Tower Base Stations and Other Antenna Arrays, Levitt & Lai, Environmental Reviews, 2010. https://www.researchgate.net/publication/233593841_Biological_effects_from_exposure_to_electromagnetic_radiation_emitted_by_cell_tower_base_stations_and_other_antenna_arrays

This review of 100 studies found approximately 80% showed biological effects near towers. "Both anecdotal reports and some epidemiology studies have found headaches, skin rashes, sleep disturbances, depression,

decreased libido, increased rates of suicide, concentration problems, dizziness, memory changes, increased risk of cancer, tremors, and other neurophysiological effects in populations near base stations."

Mortality by neoplasia and cellular telephone base stations. Dode et al. (Brazil), Science of the Total Environment, Volume 409, Issue 19, 1 September 2011, Pages 3649–3665. https://www.sciencedirect.com/science/article/pii/S0048969711005754

This 10 year study on cell phone antennas by the Municipal Health Department in Belo Horizonte and several universities in Brazil found a clearly elevated relative risk of cancer mortality at residential distances of 500 meters or less from cell phone transmission towers. Shortly after this study was published, the city prosecutor sued several cell phone companies and requested that almost half of the cities antennas be removed. Many antennas were dismantled.

Epidemiological Evidence for a Health Risk from Mobile Phone Base Stations Khurana, Hardell et al., International Journal of Occupational Environmental Health, Vol 16(3):263-267, 2010. https://www.researchgate.net/publication/45387389_Epidemiological_evidence_for_a_health_risk_from_mobile_phone_base_stations

A review of 10 epidemiological studies that assessed for negative health effects of mobile phone base stations (4 studies were from Germany, and 1 each from Austria, Egypt, France, Israel, Poland, Spain) found that seven showed altered neurobehavioral effects near cell tower and three showed increased cancer incidence.

The review also found that eight of the 10 studies reported increased prevalence of adverse neurobehavioral symptoms or cancer in populations living at distances < 500 meters from base stations. None of the studies reported exposure above accepted international guidelines, **suggesting that current guidelines may be inadequate in protecting the health of human populations**.

Health effects of living near mobile phone base transceiver station (BTS) antennae: a report from Isfahan, Iran. Shahbazi-Gahrouei et al, Electromagnetic Biology Medicine, 2013. https://www.ncbi.nlm.nih.gov/pubmed/23781985

This cross-sectional study found the symptoms of nausea, headache, dizziness, irritability, discomfort, nervousness, depression, sleep disturbance, memory loss and lowering of libido were statistically increased in people living closer than 300 m from cell antennas as compared to those living farther away. The study concludes that "antennas should not be sited closer than 300 m to people to minimize exposure."

How does long term exposure to base stations and mobile phones affect human hormone profiles? Eskander EF et al, (2011), Clin Biochem. https://www.ncbi.nlm.nih.gov/pubmed/22138021

RFR exposures significantly impacted ACTH, cortisol, thyroid hormones, prolactin for females, and testosterone levels for males.

Investigation on the health of people living near mobile telephone relay stations: Incidence according to distance and sex Santini et al, 2002 , Pathol Bio. https://www.ncbi.nlm.nih.gov/pubmed/12168254

People living near mobile phone masts reported more symptoms of headache, sleep disturbance, discomfort, irritability, depression, memory loss and concentration problems the closer they lived to the installation. Study

authors recommend that the minimal distance of people from cellular phone base stations should not be < 300 m.

Navarro EA, Segura J, Portoles M, Gomez-Perretta C, The Microwave Syndrome: A preliminary Study. 2003 (Spain) Electromagnetic Biology and Medicine, Volume 22, Issue 2, (2003): 161 – 169. http://www.emrpolicy.org/science/research/docs/navarro_ebm_2003.pdf

Statistically significant positive exposure-response associations between RFR intensity and fatigue, irritability, headaches, nausea, loss of appetite, sleeping disorder, depressive tendency, feeling of discomfort, difficulty in concentration, loss of memory, visual disorder, dizziness and cardiovascular problems.

Cindy L. Russell, 5 G wireless telecommunications expansion: Public health and environmental implications, Environmental Research, 2018, ISSN 0013-9351. https://www.sciencedirect.com/science/article/pii/S0013935118300161

Radiofrequency radiation (RF) is increasingly being recognized as a new form of environmental pollution. This article reviews relevant electromagnetic frequencies, exposure standards and current scientific literature on the health implications of 2G, 3G, 4G and 5G.

Effects can also be non-linear. Because this is the first generation to have cradle-to-grave lifespan exposure to this level of man-made microwave (RF EMR) radiofrequencies, it will be years or decades before the true health consequences are known. Precaution in the roll out of this new technology is strongly indicated.

Noa Betzalel, Paul Ben Ishai, Yuri Feldman, The human skin as a sub-THz receiver – Does 5G pose a danger to it or not?, Environmental Research, Volume 163, 2018, Pages 208-216, ISSN 0013-9351, https://www.sciencedirect.com/science/article/pii/S0013935118300331

Researchers have developed a unique simulation tool of human skin, taking into account the skin multi-layer structure together with the helical segment of the sweat duct embedded in it. They found that the presence of the sweat duct led to a high specific absorption rate (SAR) of the skin in extremely high frequency band that will be used in 5G. “One must consider the implications of human immersion in the electromagnetic noise, caused by devices working at the very same frequencies as those, to which the sweat duct (as a helical antenna) is most attuned. We are raising a warning flag against the unrestricted use of sub-THz technologies for communication, before the possible consequences for public health are explored.”

Mobile phone infrastructure regulation in Europe: Scientific challenges and human rights protection Claudia Roda, Susan Perry, Environmental Science & Policy, Volume 37, March 2014, Pages 204-214. https://www.sciencedirect.com/science/article/pii/S146290111300186X

This article was published in Environmental Science & Policy by human rights experts. It argues that cell tower placement is a human rights issue for children.

“We argue that (1) because protection of children is a high threshold norm in Human Right law and (2) the binding language of the Convention on the Rights of the Child obliges States Parties to provide a higher standard of protection for children than adults, any widespread or systematic form of environmental pollution that poses a long-term threat to a child’s rights to life, development or health may constitute an international human rights violation.

In particular we have explained how the dearth of legislation to regulate the installation of base stations (cell towers) in close proximity to children’s facilities and schools clearly constitutes a human rights concern

according to the language of the Convention on the Rights of the Child, a treaty that has been ratified by all European States.

Safety Zone Determination for Wireless Cellular Tower Nyakyi et al, Tanzania (2013). http://ijret.org/Volumes/V02/I09/IJRET_110209029.pdf

This research looked at the radiation that cell towers emit and states a safety zone is needed around the towers to ensure safe sleeping areas. The authors state that "respective authorities should ensure that people reside far from the tower by 120m or more depending on the power transmitted to avoid severe health effect."

A cross-sectional case control study on genetic damage in individuals residing in the vicinity of a mobile phone base station. Ghandi et al, 2014 (India). https://www.ncbi.nlm.nih.gov/pubmed/25006864

This cross-sectional case control study on genetic damage in individuals living near cell towers found genetic damage parameters of DNA were significantly elevated. The authors state," The genetic damage evident in the participants of this study needs to be addressed against future disease-risk, which in addition to neurodegenerative disorders, may lead to cancer."

Human disease resulting from exposure to electromagnetic fields, Carpenter, D. O. Reviews on Environmental Health, Volume 28, Issue 4, Pages 159172. https://www.ncbi.nlm.nih.gov/pubmed/24280284

This review summarizes the evidence stating that excessive exposure to magnetic fields from power lines and other sources of electric current increases the risk of development of some cancers and neurodegenerative diseases, and that excessive exposure to RF radiation increases risk of cancer, male infertility, and neurobehavioral abnormalities.

Signifikanter Rückgang klinischer Symptome nach Senderabbau – eine Interventionsstudie. (English-Significant Decrease of Clinical Symptoms after Mobile Phone Base Station Removal – An Intervention Study) Tetsuharu Shinjyo and Akemi Shinjyo, 2014 Umwelt-Medizin-Gesellschaft, 27(4), S. 294-301. http://nebula.wsimg.com/d1e65ba8eb587c44cba6164dfef44ed2?AccessKeyId=045114F8E0676B9465FB&disposition=0&alloworigin=1

Japanese study Showed Statistically Significant Adverse Health Effects from electromagnetic radiation from mobile phone base stations. Residents of a condominium building that had cell tower antennas on the rooftop were examined before and after cell tower antennas were removed. In 1998, 800MHz cell antennas were installed, then later in 2008 a second set of antennas (2GHz) were installed. Medical exams and interviews were conducted before and after the antennas were removed in 2009 on 107 residents of the building who had no prior knowledge about possible. These results lead researchers to question the construction of mobile phone base stations on top of buildings such as condominiums or houses.

Effect of GSTM1 and GSTT1 Polymorphisms on Genetic Damage in Humans Populations Exposed to Radiation From Mobile Towers. Gulati S, Yadav A, Kumar N, Kanupriya, Aggarwal NK, Kumar R, Gupta R., Arch Environ Contam Toxicol. 2015 Aug 5. [Epub ahead of print] https://1.usa.gov/1hlQmoj

In our study, 116 persons exposed to radiation from mobile towers and 106 control subjects were genotyped for polymorphisms in the GSTM1 and GSTT1 genes by multiplex polymerase chain reaction method. DNA damage in peripheral blood lymphocytes was determined using alkaline comet assay in terms of tail moment (TM) value

and micronucleus assay in buccal cells (BMN). Our results indicated that TM value and BMN frequency were higher in an exposed population compared with a control group and the difference is significant. In our study, we found that different health symptoms, such as depression, memory status, insomnia, and hair loss, were significantly associated with exposure to EMR. Damaging effects of nonionizing radiation result from the generation of reactive oxygen species (ROS) and subsequent radical formation and from direct damage to cellular macromolecules including DNA.

Subjective symptoms, sleeping problems, and cognitive performance in subjects living near mobile phone base stations, Hutter HP et al, (May 2006), Occup Environ Med. 2006 May;63(5):307-13. https://www.ncbi.nlm.nih.gov/pubmed/16621850

Found a significant relationship between some cognitive symptoms and measured power density in 365 subjects; highest for headaches. Perceptual speed increased, while accuracy decreased insignificantly with increasing exposure levels.

Oberfeld, A.E. Navarro, M. Portoles, C. Maestu, C. Gomez-Perretta, The microwave syndrome: further aspects of a Spanish study. http://www.powerwatch.org.uk/pdfs/20040809_kos.pdf

A health survey was carried out in La Ñora, Murcia, Spain, in the vicinity of two GSM 900/1800 MHz cellular phone base stations. The adjusted (sex, age, distance) logistic regression model showed statistically significant positive exposure-response associations between the E-field and the following variables: fatigue, irritability, headaches, nausea, loss of appetite, sleeping disorder, depressive tendency, feeling of discomfort, difficulty in concentration, loss of memory, visual disorder, dizziness and cardiovascular problems.

Bortkiewicz et al, 2004 (Poland), Subjective symptoms reported by people living in the vicinity of cellular phone base stations: review,Med Pr.2004;55(4):345-51. https://www.ncbi.nlm.nih.gov/pubmed/15620045

Residents close to mobile phone masts reported: more incidences of circulatory problems, sleep disturbances, irritability, depression, blurred vision and concentration difficulties the nearer they lived to the mast.

The performed studies showed the relationship between the incidence of individual symptoms, the level of exposure, and the distance between a residential area and a base station.

Wolf R and Wolf D, Increased Incidence of Cancer Near a Cell-phone Transmitter Station, International Journal of Cancer Prevention, (Israel) VOLUME 1, NUMBER 2, APRIL 2004. http://www.powerwatch.org.uk/news/20050207_israel.pdf

A significantly higher rate of cancer (300% increase) among all residents living within 300m radius of a mobile phone mast for between three and seven years was detected.

[There was a] 900% cancer increase among women alone.

In the area of exposure (area A) eight cases of different kinds of cancer were diagnosed in a period of only one year. This rate of cancers was compared both with the rate of 31 cases per 10,000 per year in the general population and the 2/1222 rate recorded in the nearby clinic (area B). The study indicates an association between increased incidence of cancer and living in proximity to a cell-phone transmitter station.

Changes of Neurochemically Important Transmitters under the influence of modulated RF fields – A Long Term Study under Real Life Conditions(Germany), Bucher and Eger, 2011. http://apps.fcc.gov/ecfs/document/view?id=7521095891

German study showing elevated levels of stress hormones (adrenaline, noradrenaline), and lowered dopamine and PEA levels in urine in area residents during 1st 6 months of cell tower installation. Even after 1.5 years, the levels did not return to normal.

The Influence of Being Physically Near to a Cell Phone Transmission Mast on the Incidence of Cancer (Umwelt·Medizin·Gesellschaft 17,4 2004) Eger et al, 2004 (Germany). http://www.tetrawatch.net/papers/naila.pdf

200% increase in the incidence of malignant tumors was found after five years' exposure in people living within 400m radius of a mobile phone mast. The proportion of newly developing cancer cases is significantly higher among patients who live within 400 meters of a cell phone transmitter. Early age of cancer diagnosis.

Microwave electromagnetic fields act by activating voltage-gated calcium channels: why the current international safety standards do not predict biological hazard. Martin L. Pall. Recent Res. Devel. Mol. Cell Biol. 7(2014). https://bit.ly/1nQjboA

"It can be seen from the above that 10 different well-documented microwave EMF effects can be easily explained as being a consequence of EMF VGCC activation: oxidative stress, elevated single and double strand breaks in DNA, therapeutic responses to such EMFs, breakdown of the blood-brain barrier, cancer, melatonin loss, sleep dysfunction, male infertility and female infertility."

Pall ML. 2015. Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression. J. Chem. Neuroanat. 2015 Aug 20. http://electromagnetichealth.org/wp-content/uploads/2015/05/reveh-2015.pdf

Non-thermal microwave/lower frequency electromagnetic fields (EMFs) act via voltage-gated calcium channel (VGCC) activation.

Two U.S. government reports from the 1970s to 1980s provide evidence for many neuropsychiatric effects of non-thermal microwave EMFs, based on occupational exposure studies. 18 more recent epidemiological studies, provide substantial evidence that microwave EMFs from cell/mobile phone base stations, excessive cell/mobile phone usage and from wireless smart meters can each produce similar patterns of neuropsychiatric effects, with several of these studies showing clear dose–response relationships.

Lesser evidence from 6 additional studies suggests that short wave, radio station, occupational and digital TV antenna exposures may produce similar neuropsychiatric effects. Among the more commonly reported changes are sleep disturbance/insomnia, headache, depression/depressive symptoms, fatigue/tiredness, dysesthesia, concentration/attention dysfunction, memory changes, dizziness, irritability, loss of appetite/body weight, restlessness/anxiety, nausea, skin burning/tingling/dermographism and EEG changes. In summary, then, the mechanism of action of microwave EMFs, the role of the VGCCs in the brain, the impact of non-thermal EMFs on the brain, extensive epidemiological studies performed over the past 50 years, and five criteria testing for causality, all collectively show that various non-thermal microwave EMF exposures produce diverse neuropsychiatric effects.

Two Important Animal Studies on Radiofrequency Radiation

These studies indicate that government limits are non-protective. Government limits are based on the assumption that radiofrequency radiation is only harmful at thermal levels. However, the cancers developed in animals in these studies at radiation levels that were non thermal.

Belpoggi et al. 2018, "Report of final results regarding brain and heart tumors in Sprague-Dawley rats exposed from prenatal life until natural death to mobile phone radiofrequency field representative of a 1.8 GHz base station environmental emission" Environmental Research Journal. https://ehtrust.org/wp-content/uploads/Belpoggi-Heart-and-Brain-Tumors-Base-Station-2018-First-page-.pdf

Researchers with the renowned Ramazzini Institute (RI) in Italy performed a large-scale lifetime study of lab animals exposed to environmental levels (comparable to allowable limits from cell towers) of RFR radiation and found the rats developed increased cancers- schwannoma of the heart in male rats. This study confirms the $25 million US National Toxicology Program study which used much higher levels of cell phone radiofrequency (RF) radiation, but also reported finding the same unusual cancers as the Ramazzini- schwannoma of the heart in male rats. In addition, the RI study of cell tower radiation also found increases in malignant brain (glial) tumors in female rats and precancerous conditions including Schwann cells hyperplasia in both male and female rats.

"Our findings of cancerous tumors in rats exposed to environmental levels of RF are consistent with and reinforce the results of the US NTP studies on cell phone radiation, as both reported increases in the same types of tumors of the brain and heart in Sprague-Dawley rats. Together, these studies provide sufficient evidence to call for the International Agency for Research on Cancer (IARC) to re-evaluate and re-classify their conclusions regarding the carcinogenic potential of RFR in humans," said Fiorella Belpoggi PhD, study author and RI Director of Research.

The Ramazzini study exposed 2448 Sprague-Dawley rats from prenatal life until their natural death to "environmental" cell tower radiation for 19 hours per day (1.8 GHz GSM radiofrequency radiation (RFR) of 5, 25 and 50 V/m). RI exposures mimicked base station emissions like those from cell tower antennas, and exposure levels were far less than those used in the NTP studies of cell phone radiation.

Watch Press Conference: https://ehtrust.org/worlds-largest-animal-study-on-cell-tower-radiation-confirms-cancer-link/

Wyde, Michael, et al. "National Toxicology Program Carcinogenesis Studies of Cell Phone Radiofrequency Radiation in Hsd: Sprague Dawley® SD rats (Whole Body Exposure).Statement on conclusions of the peer review meeting by NIEHS < https://ntp.niehs.nih.gov/ntp/about_ntp/trpanel/2018/march/actions20180328_508.pdf>, released after external peer review meeting and the DNA damage presentation < https://ehtrust.org/wp-content/uploads/Evaluation-of-Genotoxicity-of-Cell-Phone-Radiofrequency-Radiation-in-Male-and-f-the-Genot-d-Female-notoxicity-e-Rats-and-y-Ce-d-Mice-ell-Ra-e-Following-g-Subchronic-ncy-c-Exposure-Poster-.pdf>.

This 25 million dollar study is the most complex study completed by the NTP and the world's largest rodent study on radiofrequency radiation exposure to date which found long term exposure at non thermal levels associated with brain cancer and schwannomas of the heart in male rats. In addition damage to heart was found in all exposure levels. The full report is expected to be released in Fall 2018.