COMPLETE
Wireless Consulting, Inc.

February 17, 2015

Via Overnight Mail

Washoe County Community Services Department
Planning and Development Division
Attn: Planning Intake
1001 E. Ninth Street
Bldg A - 2nd Floor
Reno, NV 89512
775-328-3600

RE: RE SUBMITTAL PLANNING PERMIT APPLICATION (APN: 049-070-49, 150 Timberline View Ct, Verizon Wireless site name: "Timberline")

This package is intended as a formal re-submittal/application for the Use Permit Application for a proposed Verizon Wireless communications facility located at the above referenced location. The items listed below are enclosed, per the County's submittal requirements:

1. ~~Planning Application Fee: $3060; Check #16783~~ (PREVIOUSLY SUPPLIED with initial application)
2. Complete Development Application (10 Copies)
3. Owner Affidavit (10 copies (original already sent in with initial submittal package))
4. Supplemental Information Form (10 Copies)
5. Site Plans and Elevations (6 copies 24"X36"; 4 copies 11"X17"; 10 copies 8 ½" X 11" reduction)
6. Updated Project Support Statement with Findings and Statement of Compliance (10 Copies)
7. Updated Photosimulations (3 views) (10 Copies)
8. Site Photos (10 Copies)
9. Updated Radio Frequency Emissions Study - Hammet & Edison (10 Copies)
10. Updated Coverage/Propagation Maps (10 Copies)
11. Updated Acoustic report – Bollard Acoustical Consultants (10 Copies)
12. Proof of Property Tax Payment (1 Copy)
13. FCC License Information (1 Copy)
14. Grant Deed (1 Copy)
15. Preliminary Title Report (1 Copy)
16. Disk (1) with application materials

Please feel free to contact me at (916) 217-7503 regarding any further information that may be required as part of this application.

Sincerely,

Jenny Blocker
Project Manager
jblocker@completewireless.net

Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Development staff at 775.328.3600.

Project Information	**Staff Assigned Case No.:** _____
Project Name: Verizon Wireless "Timberline"	
Project Description:	Proposal to construct a new wireless facility to include 61' monopine , 3 antenna sectors w/ 2 panel antennas each sector, 11'6" X16'10 1/2" prefabricated equipment shelter, 48kw emergency standby diesel generator w/ 210 gal. fuel tank, and associated equipment.
Project Address: 150 Timberline View Court	
Project Area (acres or square feet): 2500 sq. ft.	
Project Location (with point of reference to major cross streets **AND** area locator): Approx.1260' northwest of intersection of NV-431 (Mt Rose Hwy) and Timberline Drive.	

Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No(s):	Parcel Acreage:
049-070-49	7.34		

Section(s)/Township/Range: Sect. 34 T.18N R.19E

Indicate any previous Washoe County approvals associated with this application:
Case No.(s).

Applicant Information (attach additional sheets if necessary)

Property Owner:		**Professional Consultant:**	
Name: Thomas B and Kelly S Courson		Name: Complete Wireless Consulting	
Address: 1733 Kodiak Circle		Address: 2009 V Street	
Champaign Reno	Zip: 89511	Sacramento, CA	Zip: 95818
Phone:	Fax:	Phone: 916-217-7503	Fax:
Email:		Email: jblocker@completewireless.net	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person: Jenny Blocker	
Applicant/Developer:		**Other Persons to be Contacted:**	
Name: Verizon Wireless		Name:	
Address: 255 Parkshore Drive		Address:	
Folsom, CA	Zip: 95630		Zip:
Phone:	Fax:	Phone:	Fax:
Email:		Email:	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person:	

For Office Use Only

Date Received:	Initial:	Planning Area:	
County Commission District:		Master Plan Designation(s):	
CAB(s):		Regulatory Zoning(s):	

Special Use Permit Application
Supplemental Information

(All required information may be separately attached)

Chapter 110 of the Washoe County Code is commonly known as the Development Code. Specific references to special use permits may be found in Article 810, Special Use Permits.

1. What is the type of project being requested?

An unmanned wireless communication facility to include: 61' monopine , 3 antenna sectors w/ 2 panel antennas each sector, 11'6" X16'10 1/2" prefabricated equipment shelter, 48kw emergency standby diesel generator w/ 210 gal. fuel tank, and associated equipment within a 50'X50' lease area surrounded by a 6' chain link security fence w/ tan colored screening slats and retaining wall.

2. What currently developed portions of the property or existing structures are going to be used with this permit?

The proposal includes the existing access driveway and power and telco utilities from Timber View Court.

3. What improvements (e.g. new structures, roadway improvements, utilities, sanitation, water supply, drainage, parking, signs, etc.) will have to be constructed or installed and what is the projected time frame for the completion of each?

61' monopine , 3 antenna sectors w/ 2 panel antennas each sector, 11'6" X16'10 1/2" prefabricated equipment shelter, 48kw emergency standby diesel generator w/ 210 gal. fuel tank, and associated equipment within a 50'X50' lease area surrounded by a 6' chain link security fence w/ tan colored screening slats and retaining wall. Access via existing gravel driveway. Existing power and telco utilities available at existing driveway connected to site via a proposed utility easement. Construction typically lasts 2-3 months.

4. What is the intended phasing schedule for the construction and completion of the project?

Grading- Wks 1-2
Underground utilities to site : Wk 3
Retaining wall construction: Wks 3-4
Tower foundation excavation: Wks 4-5
Tower, shelter, and generator foundation concrete pour: Wk 5
Tower Installation: Wk 7
Antenna and associated equipment installation: Wks 8-10
Site operational testing and completion: Wks 10-12

5. What physical characteristics of your location and/or premises are especially suited to deal with the impacts and the intensity of your proposed use?

The proposed site is located on a mostly undeveloped 7.34-acre parcel. The nearest existing residential structure is located approximately 500' to the east of the site. The site is located outside of the 500' buffer area for the Mt Rose Highway Scenic Corridor.

6. What are the anticipated beneficial aspects or effects your project will have on adjacent properties and the community?

The proposed wireless communication site will improve wireless service for residents, businesses, and emergency responders in this area of Washoe County.

7. What will you do to minimize the anticipated negative impacts or effects your project will have on adjacent properties?

The proposed ground equipment at the site will be screened from view by a 6' tall chain link security fence with tan colored slats. The tower, antennas, and ground equipment will be finished in non-reflective, neutral colors to blend into the surrounding landscape. The generator will operate only for short durations during bi-weekly maintenance checks and emergency power outages. When operating the noise produced by the generator will be within Washoe County Noise limits. During operation, the facility will comply with FCC public limits for RF exposure and interference prohibitions.

8. Please describe operational parameters and/or voluntary conditions of approval to be imposed on the project special use permit to address community impacts:

Proposed facility to comply with all FCC public limits for RF exposure and licensing restrictions regarding interference.

9. How many improved parking spaces, both on-site and off-site, are available or will be provided? (Please indicate on site plan.)

The site will include 1 parking space suitable for a maintenance vehicle.

10. What types of landscaping (e.g. shrubs, trees, fencing, painting scheme, etc.) are proposed? (Please indicate location on site plan.)

Landscaping treatments to inlcude a 6' fence with tan colored slats to provide visual screening of ground equipment.

Per direction of Staff, facility now includes landscaping to match landscaping at existing water tank. Landscaping plan is illustrated on the "Landscaping Plan Sheet L1.1"

11. What type of signs and lighting will be provided? On a separate sheet, show a depiction (height, width, construction materials, colors, illumination methods, lighting intensity, base landscaping, etc.) of each sign and the typical lighting standards. (Please indicate location of signs and lights on site plan.)

The site will include 24-hr emergency contact information and warning signs as required by FCC guidelines. The tower will be unlit unless required by the FAA. 1 hooded, down-tilted security light will be located above the equipment shelter door.

12. Are there any restrictive covenants, recorded conditions, or deed restrictions (CC&Rs) that apply to the area subject to the special use permit request? (If so, please attach a copy.)

☐ Yes	☑ No

13. Community Sewer Not applicable

☐ Yes	☐ No

Community Water Not applicable

☐ Yes	☐ No

ZD DRAWING SIGN-OFF

DATE: TIME: % CWC-PLEASE RETURN BY:

	SIGNATURE	DATE
COMPLETE Wireless Consulting, Inc.		
SITE ACQUISITION:		
PLANNING:		
CONSTRUCTION:		
MANAGEMENT:		

	SIGNATURE	DATE
verizon WIRELESS		
CONSTRUCTION:		
REAL ESTATE:		
RF ENGINEER:		
EQUIPMENT ENGINEER:		
MW ENG./TRANSPORT:		

OTHER (IF APPLICABLE)

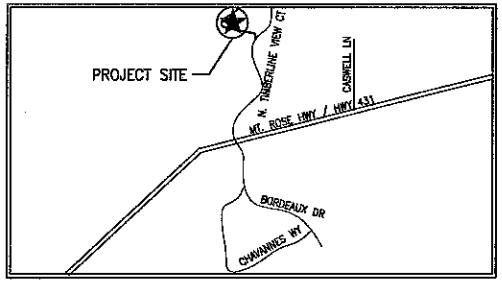
SIGNATURE	DATE

verizon WIRELESS

255 Parkshore Drive, Folsom, CA 95630

TIMBERLINE

150 TIMBERLINE VIEW COURT
RENO, NV 89511
APN: 049-070-49
LOCATION #: 278742



RENO, NV

LOCATION PLAN

DIRECTIONS

FROM VERIZON OFFICE @ 255 PARKSHORE DR., FOLSOM, CA 95630:

1. HEAD NORTHEAST ON PARKSHORE DR TOWARD COOLIDGE DR.
2. MAKE A U-TURN AT COOLIDGE DR.
3. TURN RIGHT ONTO FOLSOM BLVD.
4. CONTINUE ONTO FOLSOM-AUBURN RD.
5. CONTINUE ONTO AUBURN FOLSOM RD.
6. TURN LEFT ONTO LAIRD RD.
7. TURN RIGHT ONTO HORSESHOE BAR RD.
8. TAKE THE 1ST LEFT TO STAY ON HORSESHOE BAR RD.
9. TURN RIGHT TO MERGE ONTO I-80 E.
10. MERGE ONTO I-80 E.
11. TAKE EXIT 15 TO MERGE ONTO I-580 S/US-395 S TOWARD CARSON CITY.
12. TAKE EXIT 56 FOR NEVADA 431/MT ROSE.
13. MERGE ONTO NV-431 W/MT ROSE HWY.
14. TURN RIGHT ONTO N TIMBERLINE DR.
15. TAKE THE 1ST LEFT ONTO TIMBERLINE VIEW CT.
16. DESTINATION WILL BE ON THE LEFT.

INDEX OF DRAWINGS

PROJECT DIRECTORY

APPLICANT:
VERIZON WIRELESS
255 PARKSHORE DRIVE
FOLSOM, CA 95630

PROPERTY OWNER:
THOMAS & KELLY COURSON
1733 KOWAK CIRCLE
RENO, NV 89511

ENGINEER:
O'CONNOR FREEMAN & ASSOC.
225 30TH STREET, SUITE 201
SACRAMENTO, CA 95816
916-441-5721 PH
916-441-5687 FX

CONSTRUCTION MANAGER:
BOB SCHROEDER
COMPLETE WIRELESS CONSULTING, INC.
2009 V STREET
SACRAMENTO, CA 95818
916-217-7512
bschroeder@completewireless.net

PROJECT SUMMARY

ASSESSOR'S PARCEL NUMBER:	049-070-49
JURISDICTION:	WASHOE COUNTY
OCCUPANCY:	S-2 (UNMANNED TELECOMMUNICATIONS FACILITY) U (TOWER)
TYPE OF CONSTRUCTION:	V-B
ZONING:	GR (GENERAL RURAL)

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. 2012 INTERNATIONAL BUILDING CODE
2. 2012 INTERNATIONAL RESIDENTIAL CODE
3. 2012 INTERNATIONAL MECHANICAL CODE
4. 2012 INTERNATIONAL FUEL GAS CODE
5. 2012 UNIFORM MECHANICAL CODE
6. 2012 UNIFORM PLUMBING CODE
7. 2011 NATIONAL ELECTRIC CODE
8. 2009 INTERNATIONAL ENERGY CONSERVATION CODE W/AMENDMENTS
9. 2003 INTERNATIONAL FIRE CODE W/AMENDMENTS
10. 2012 NORTHERN NEVADA AMENDMENTS

ACCESSIBILITY REQUIREMENTS:
THIS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE.

PROJECT DESCRIPTION

PROPOSED VERIZON WIRELESS UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING:

- A 50'-0"x50'-0" LEASE AREA.
- A FENCE @ LEASE AREA PERIMETER.
- A PRE-FABRICATED EQUIPMENT SHELTER.
- POWER & TELCO UTILITIES BROUGHT TO FACILITY.
- A STANDBY GENERATOR.
- A CABLE ICE BRIDGE.
- (6) ANTENNAS W/ASSOCIATED TOWER MOUNTED EQUIPMENT MOUNTED ON A PROPOSED 61.0' TALL MONOPINE.

PROJECT MILESTONES

08/21/2014	90% ZONING DOCUMENTS
09/15/2014	100% ZONING DOCUMENTS
10/08/2014	100% ZONING DOCUMENTS REV 1
12/01/2014	100% ZONING DOCUMENTS REV 2
12/09/2014	100% ZONING DOCUMENTS REV 3
01/07/2014	100% ZONING DOCUMENTS REV 4
02/13/2015	100% ZONING DOCUMENTS REV 5
XX/XX/XXXX	90% CONSTRUCTION DOCUMENTS
XX/XX/XXXX	100% CONSTRUCTION DOCUMENTS

O'Connor Freeman & Associates
Structural Engineering Services
225 30th Street, Suite 201, Sacramento, CA 95816
Phone: (916) 441-5721 Fax: (916) 441-5687

TIMBERLINE
150 TIMBERLINE VIEW COURT
RENO, NV 89511

verizon WIRELESS

SHEET TITLE: TITLE SHEET, LOCATION PLAN, PROJECT DATA

Revisions:
09/08/2014
10/01/2014
12/09/2014
01/07/2014
02/13/2015

File: 182.1228.T1.1.dwg
Drawn By: JMF
Checked By: MEF
Scale: AS NOTED
Date: 02/13/2015

Job No. 182.1228

T1.1

DATE OF SURVEY: 07-22-14

SURVEYED BY OR UNDER DIRECTION OF: KENNETH D. CEIL, PLS 13385

LOCATED IN THE COUNTY OF WASHOE, STATE OF NEVADA

BEARINGS SHOWN ARE BASED UPON MONUMENTS FOUND AND RECORD INFORMATION. THIS IS NOT A BOUNDARY SURVEY.

ELEVATIONS SHOWN ON THIS PLAN ARE BASED UPON U.S.G.S. N.A.V.D. 88 DATUM. ABOVE MEAN SEA LEVEL UNLESS OTHERWISE NOTED.

N.G.V.D. 1929 CORRECTION: SUBTRACT 3.93' FROM ELEVATIONS SHOWN.

CONTOUR INTERVAL: 2 FT.

ASSESSOR'S PARCEL NUMBER: 049-070-49

LANDLORD(S): THOMAS & KELLY COURSON
1733 KODIAK CIRCLE
RENO, NV 89511

Project Name: Timberline

Project Site Location: 150 Timberline View Ct
Reno, NV 89511
Washoe County

Date of Observation: 07-22-14

Equipment/Procedure Used to Obtain Coordinates: Trimble Geo XT post processed with Pathfinder Office software.

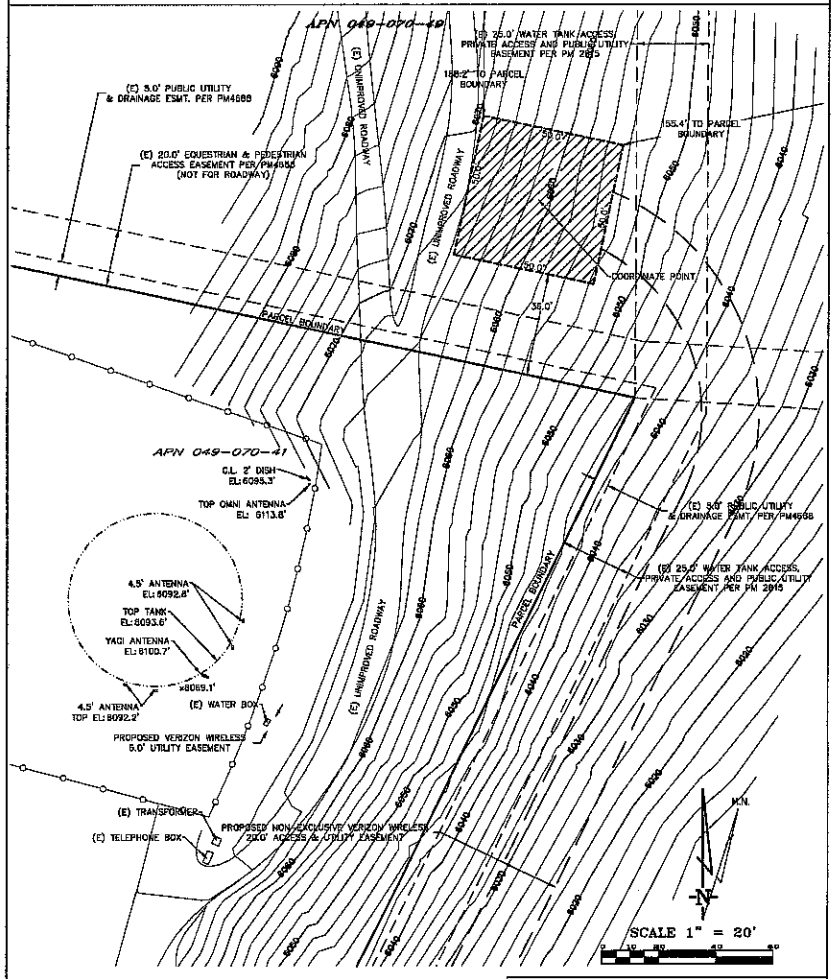
Type of Antenna Mount: Proposed Free Standing Monopine

Coordinates (Centerline Tower)

Latitude: N 39°22'53.17" (NAD83) N 39°22'53.49" (NAD27)

Longitude: W 119°50'22.19" (NAD83) W 119°50'18.91" (NAD27)

ELEVATION of Ground at Structure (NAVD88) 6060' AMSL



PROJECT AREA ENLARGEMENT

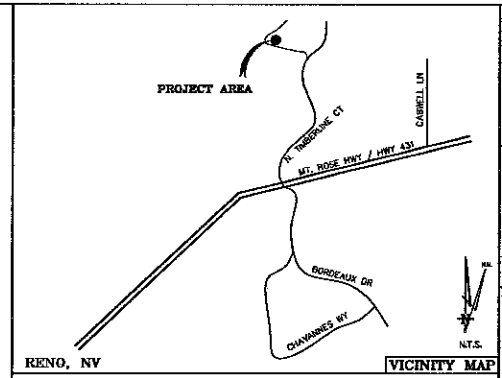
Timberline
Lease Area Description

All that certain lease area being a portion of Parcel 4 as delineated on Parcel Map 4688 filed as Document No. 3470592 Washoe County, Nevada records and being more particularly described as follows:

Commencing at the Northwest most corner of the aforementioned parcel of land thence along the West boundary thereof South 01°09'25" West 183.54 feet; thence leaving said boundary South 88°50'35" East 282.82 feet to the True Point of Beginning; thence from said point of beginning South 78°09'34" East 50.00 feet; thence South 11°50'26" West 50.00 feet; thence North 78°09'34" West 50.00 feet; thence North 11°50'26" East 50.00 feet to the true point of beginning.

Together with an easement for utility purposes, six feet in width, from the above described lease area, to the nearest or most convenient utility connection location.

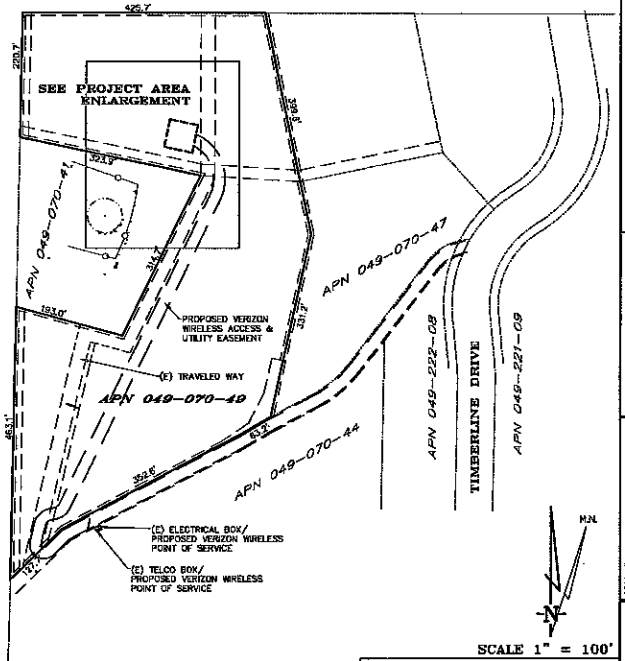
Also together with an easement for ingress, egress and utility purposes, twenty feet in width, over and across the existing traveled way, from the above described lease area, to public right of way commonly known as Timberline Court.



VICINITY MAP

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE, ARE THE EXCLUSIVE PROPERTY OF CEIL ENGINEERING AND THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE AND CARRIER FOR WHICH THEY ARE PREPARED. REUSE, REPRODUCTION OR PUBLICATION BY ANY METHOD, IN WHOLE OR IN PART, IS PROHIBITED EXCEPT BY WRITTEN PERMISSION FROM CEIL ENGINEERING. TITLE TO THESE PLANS AND/OR SPECIFICATIONS SHALL REMAIN WITH CEIL ENGINEERING WITHOUT PREJUDICE AND VISUAL CONTACT WITH THEM SHALL CONSTITUTE PRIMA FACIE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

BOUNDARY SHOWN IS BASED ON MONUMENTATION FOUND AND RECORD INFORMATION. THIS IS NOT A BOUNDARY SURVEY. THIS IS A SPECIALIZED TOPOGRAPHIC MAP WITH PROPERTY LINES AND EASEMENTS BEING A GRAPHIC DEPICTION BASED ON INFORMATION GATHERED FROM VARIOUS SOURCES OF RECORD AND AVAILABLE MONUMENTATION FOUND DURING THE FIELD SURVEY. NO EASEMENTS WERE RESEARCHED OR PLOTTED. PROPERTY LINES AND LINES OF TITLE WERE NOT INVESTIGATED NOR SURVEYED. NO PROPERTY MONUMENTS WERE SET.



OVERALL PROJECT AREA

DEPT	APPROVED	DATE
A&C		
RE		
RF		
INT		
EX.VN		
OPS		
EE\OUT		

CEIL ENGINEERING
PROFESSIONAL ENGINEERING & PLANNING
2418 ESMERALDA AVENUE
MINDEN, NEVADA 89423
PHONE: (775) 265-5448
FAX: (775) 265-5449

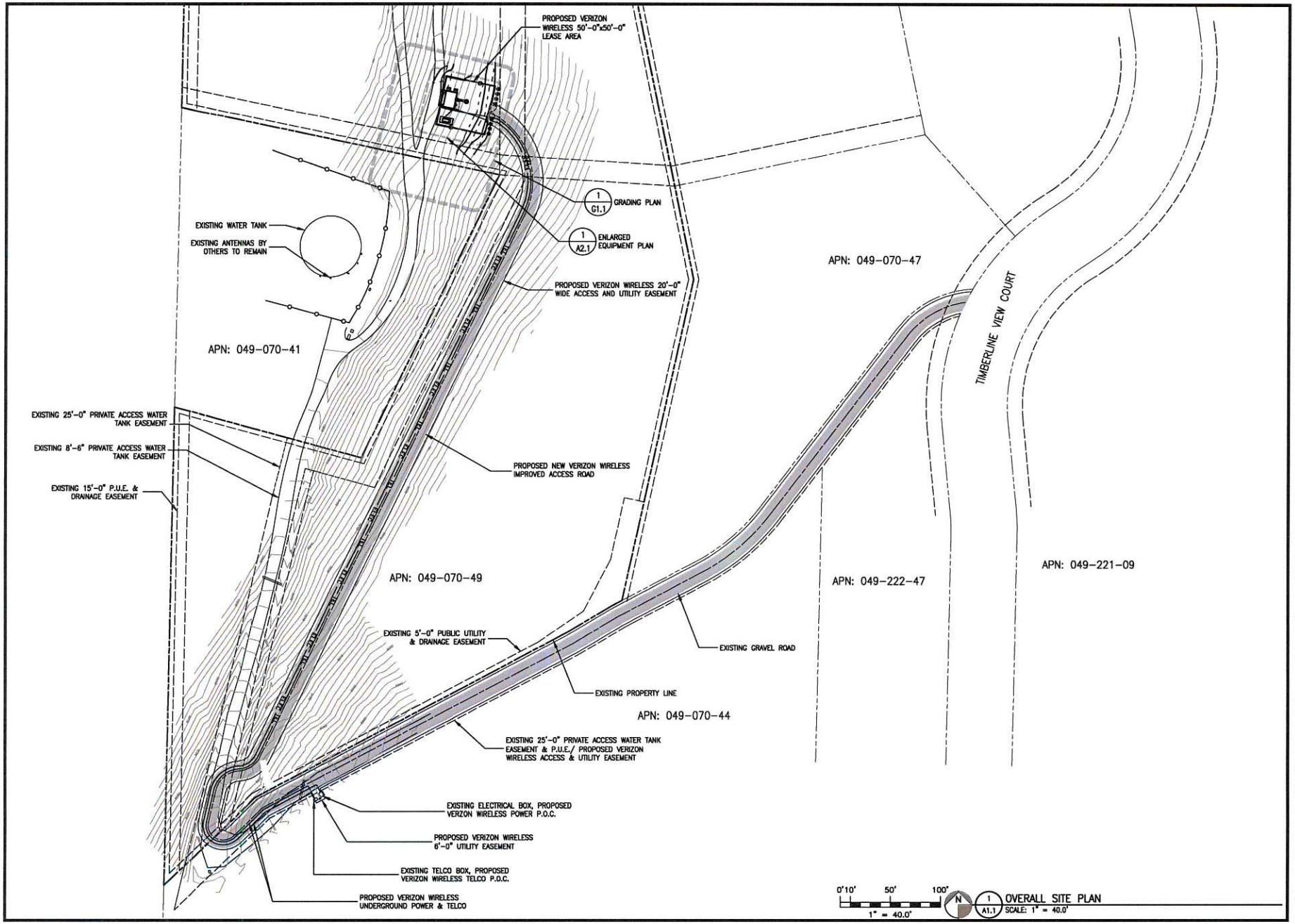
verizon wireless

TIMBERLINE
150 Timberline View Court
Reno, NV 89511

PLOT PLAN AND SITE TOPOGRAPHY

REVISIONS		
07-22-14	Preliminary Drawing	DG
08-12-14	redlines	DG
11-21-14	new lease area	DG
12-11-14	redlines	DG
12-24-14	ants/antennas added	DG
01-05-15	new access simi.	DG
02-25-15	logo added	DG
03-17-15	ants. ants. added	DG
		REV

Sheet
C-1



O'Connor Freeman & Associates
Structural Engineering Services
225 30th Street, Suite 201, Sacramento, CA 95816
Phone: (916) 441-5721 Fax: (916) 441-5697

TIMBERLINE
150 TIMBERLINE VIEW COURT
verizon WIRELESS RENO, NV 89511

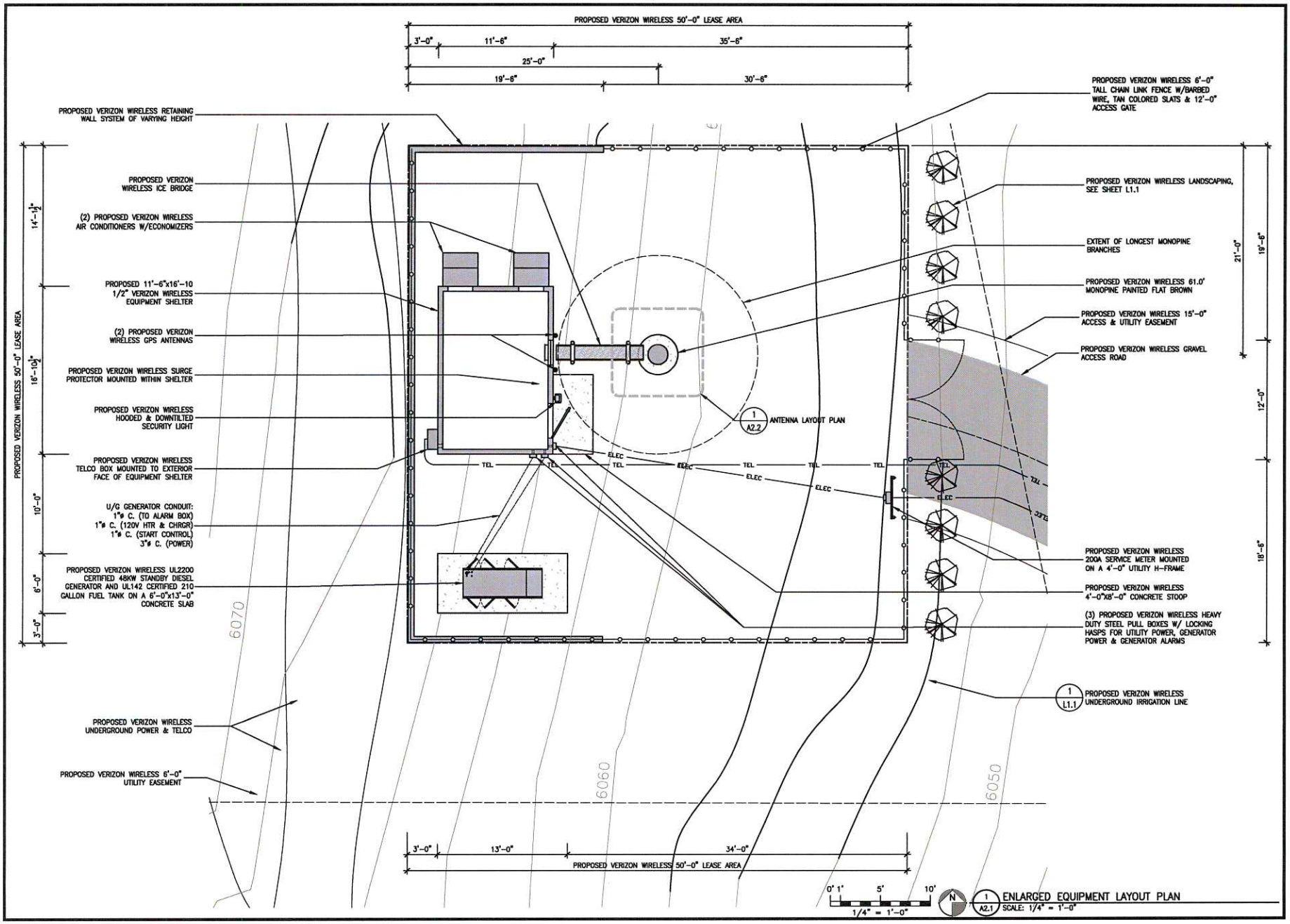
SHEET TITLE: OVERALL SITE PLAN

Revisions:
1 10/08/2014
2 12/01/2014
3 12/08/2014
4 01/07/2015
5 02/13/2015

File: 162.1228A11.dwg
Drawn By: AME
Checked By: MST
Scale: AS NOTED
Date: 02/13/2015

Job No. 162.1228

A1.1



O'Connor Freeman & Associates
Structural Engineering Services
225 30th Street, Suite 201, Sacramento, CA 95816
Phone: (916) 441-5721 Fax: (916) 441-5697

TIMBERLINE
150 TIMBERLINE VIEW COURT
RENO, NV 89511

verizon WIRELESS

SHEET TITLE: ENLARGED EQUIPMENT PLAN

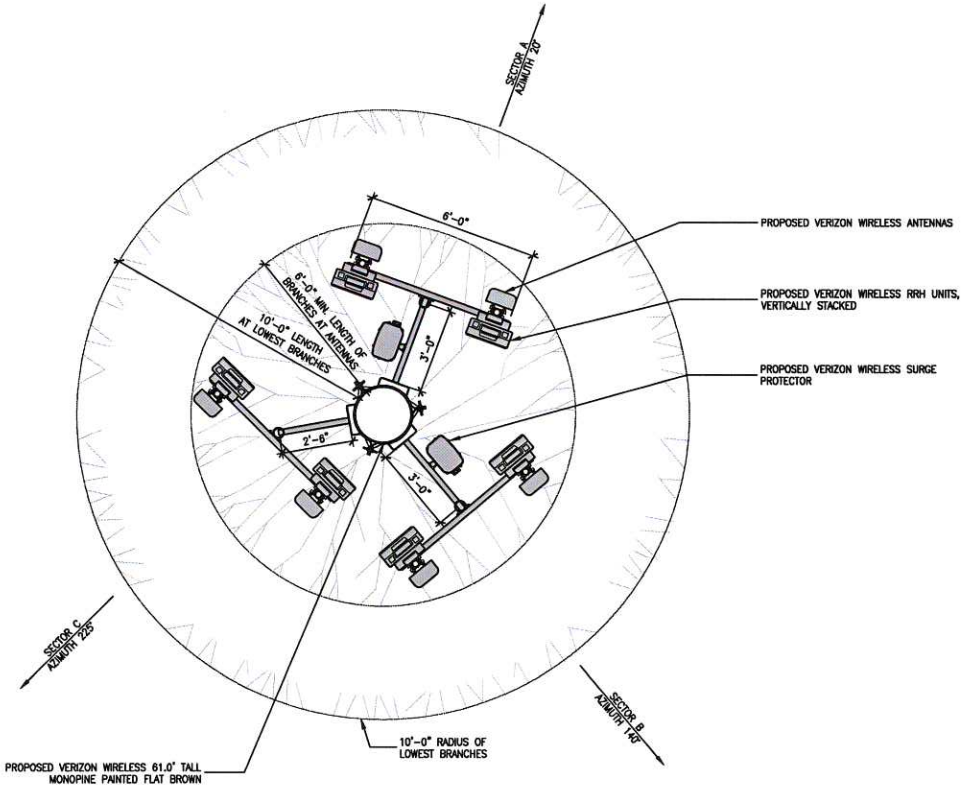
Revisions:
- 10/08/2014
- 12/01/2014
- 12/08/2014
- 01/07/2014
- 02/13/2015

File: 182.1228A21.dwg
Drawn By: AME
Checked By: MST
Scale: AS NOTED
Date: 02/13/2015

Job No. 182.1228

A2.1

EQUIPMENT SCHEDULE					
EQUIPMENT	DESCRIPTION	QUANTITY			TOTAL
		SECTOR A	SECTOR B	SECTOR C	
ANTENNA	TO BE DETERMINED	2	2	2	6
RRH	RRUS12 W/A2	4	4	4	12
TMA OR DIPLEXER	N/A				
SURGE PROTECTOR/HYBRID	RAYCAP DC1064 / HYBRID TRUNK CABLE	2/2			2/2
COAXIAL CABLE	N/A	0	0	0	0
RET CABLE	N/A	0			0



0' 1' 5' 10'
1/2" = 1'-0"

1 A2.2 ENLARGED ANTENNA LAYOUT PLAN
SCALE: 1/2" = 1'-0"

O'Connor Freeman & Associates
Structural Engineering Services
225 30th Street, Suite 201, Sacramento, CA 95816
Phone: (916) 441-5721 Fax: (916) 441-5697

TIMBERLINE
150 TIMBERLINE VIEW COURT
RENO, NV 89511

verizon WIRELESS

SHEET TITLE: ENLARGED ANTENNA PLAN

Revisions:
1 10/08/2014
2 12/01/2014
3 12/08/2014
4 01/07/2014
5 02/13/2015

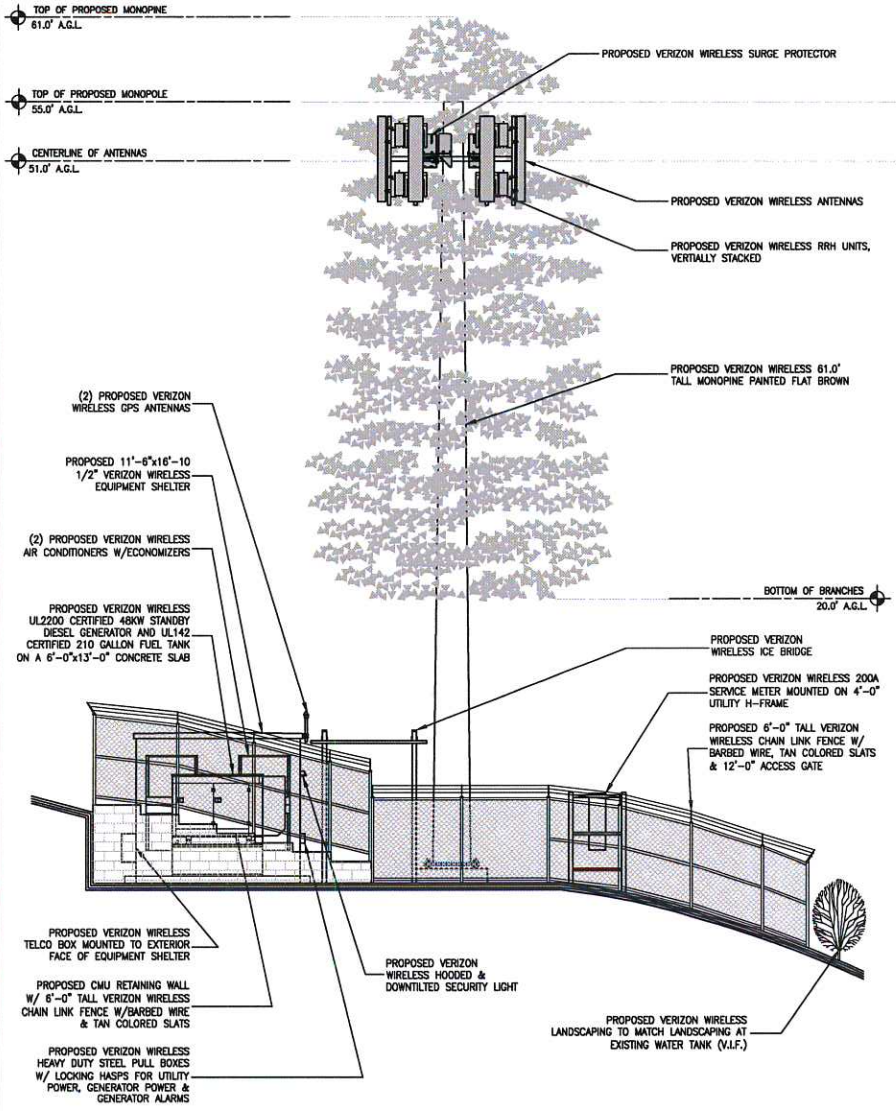
File: 162.1228A22.dwg
Drawn By: AME
Checked By: MST
Scale: AS NOTED
Date: 02/13/2015

Job No. 162.1228

A2.2

NOTE: VERIZON WIRELESS TO INSTALL "NEEDLE SOCKS" ON ALL PROPOSED PANEL ANTENNAS & RRH UNITS. ALL ANTENNAS & EQUIPMENT TO BE PAINTED FLAT GREEN

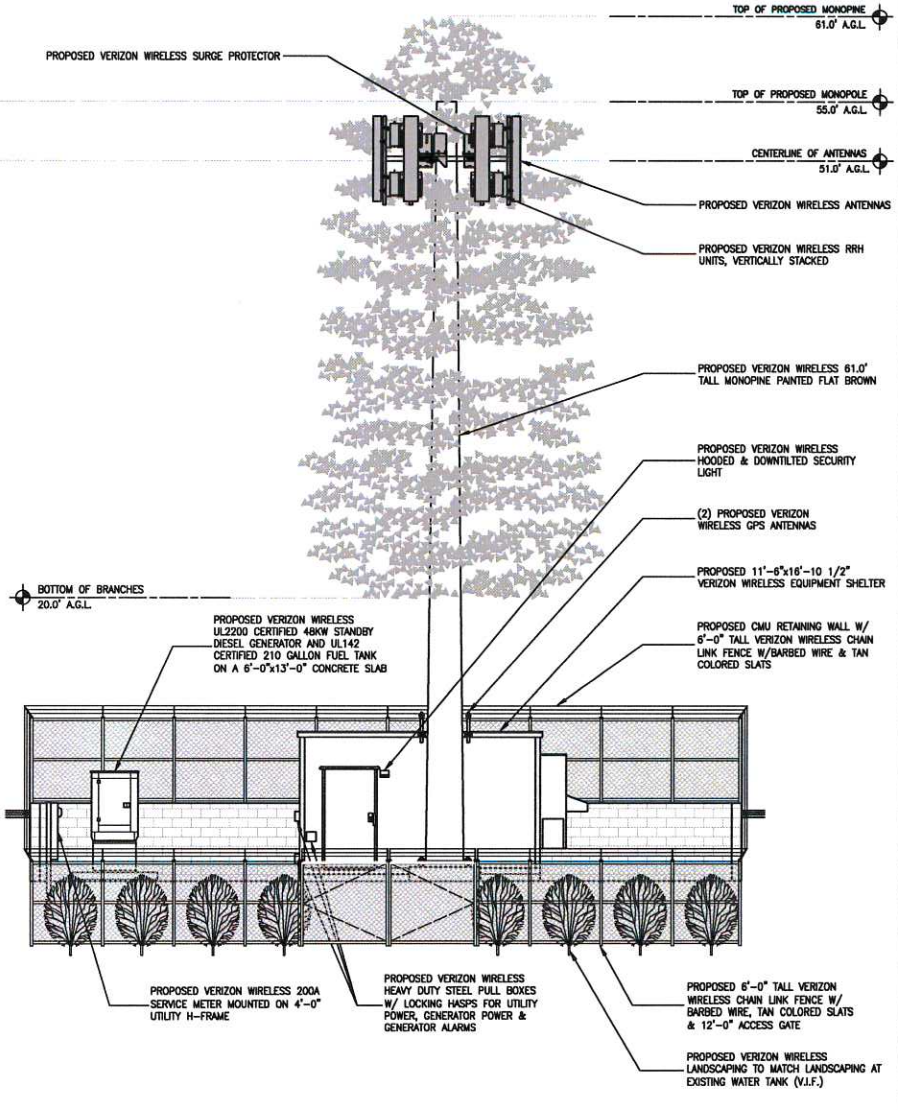
NOTE: BRANCHES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE



2 A3.1 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

NOTE: VERIZON WIRELESS TO INSTALL "NEEDLE SOCKS" ON ALL PROPOSED PANEL ANTENNAS & RRH UNITS. ALL ANTENNAS & EQUIPMENT TO BE PAINTED FLAT GREEN

NOTE: BRANCHES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE



1 A3.1 EAST ELEVATION
SCALE: 1/4" = 1'-0"

O'Connor Freeman & Associates
Structural Engineering Services
925 30th Street, Suite 201, Sacramento, CA 95816
Phone: (916) 441-5721 Fax: (916) 441-5697

TIMBERLINE
150 TIMBERLINE VIEW COURT
RENO, NV 89511

verizon wireless

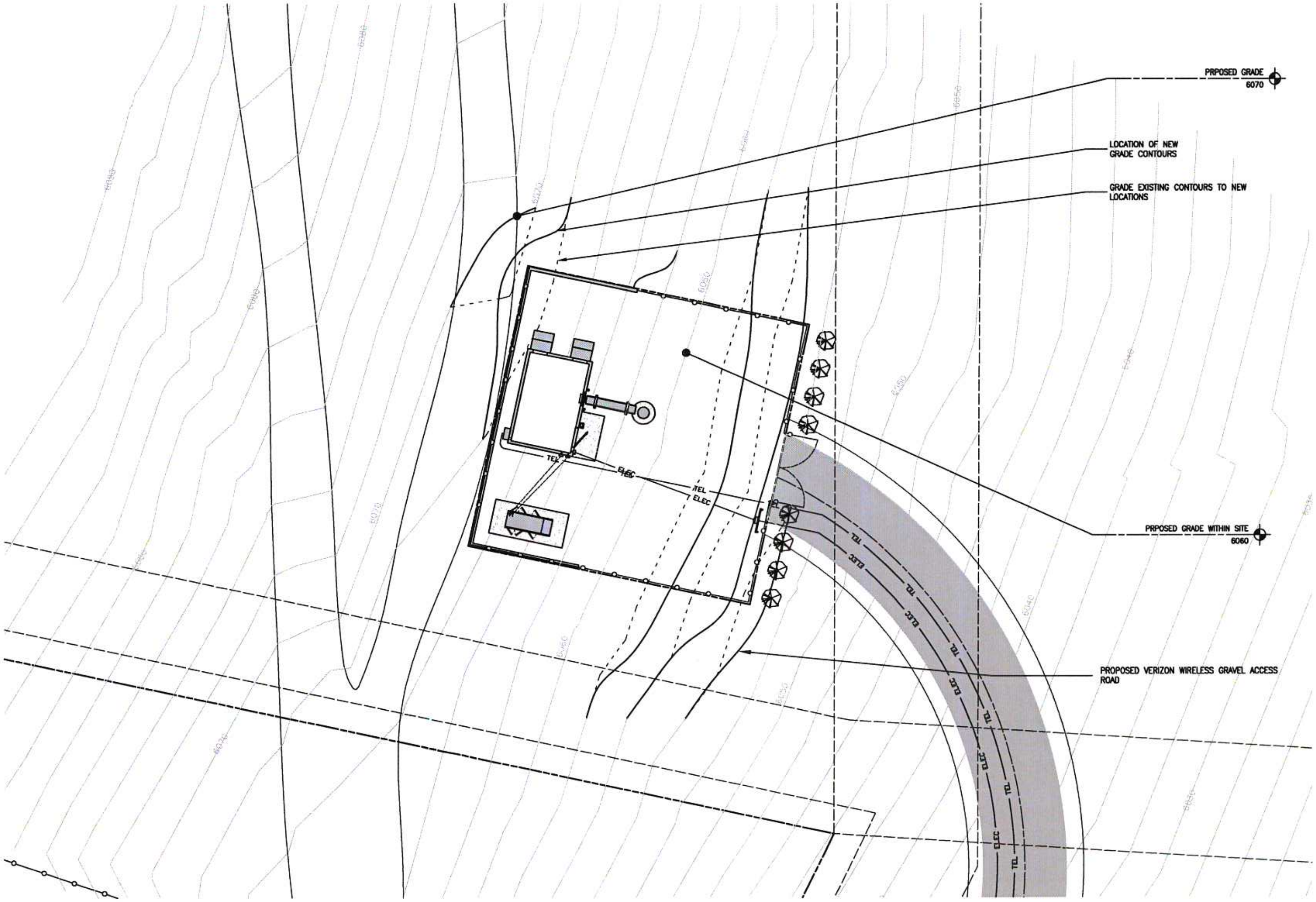
SHEET TITLE: PROJECT ELEVATIONS

Revisions:
1 10/08/2014
2 12/01/2014
3 12/08/2014
4 01/07/2014
5 02/13/2015

File: 162.1228A31.dwg
Drawn By: AME
Checked By: MST
Scale: AS NOTED
Date: 02/13/2015

Job No. 162.1228

A3.1



0' 2' 10' 20'
1/8" = 1'-0"

1 G1.1 GRADING PLAN
SCALE: 1/8" = 1'-0"

O'Connor Freeman & Associates
Structural Engineering Services
225 30th Street, Suite 201, Sacramento, CA 95816
Phone: (916) 441-5721 Fax: (916) 441-5697

verizon wireless

TIMBERLINE
150 TIMBERLINE VIEW COURT
RENO, NV 89511

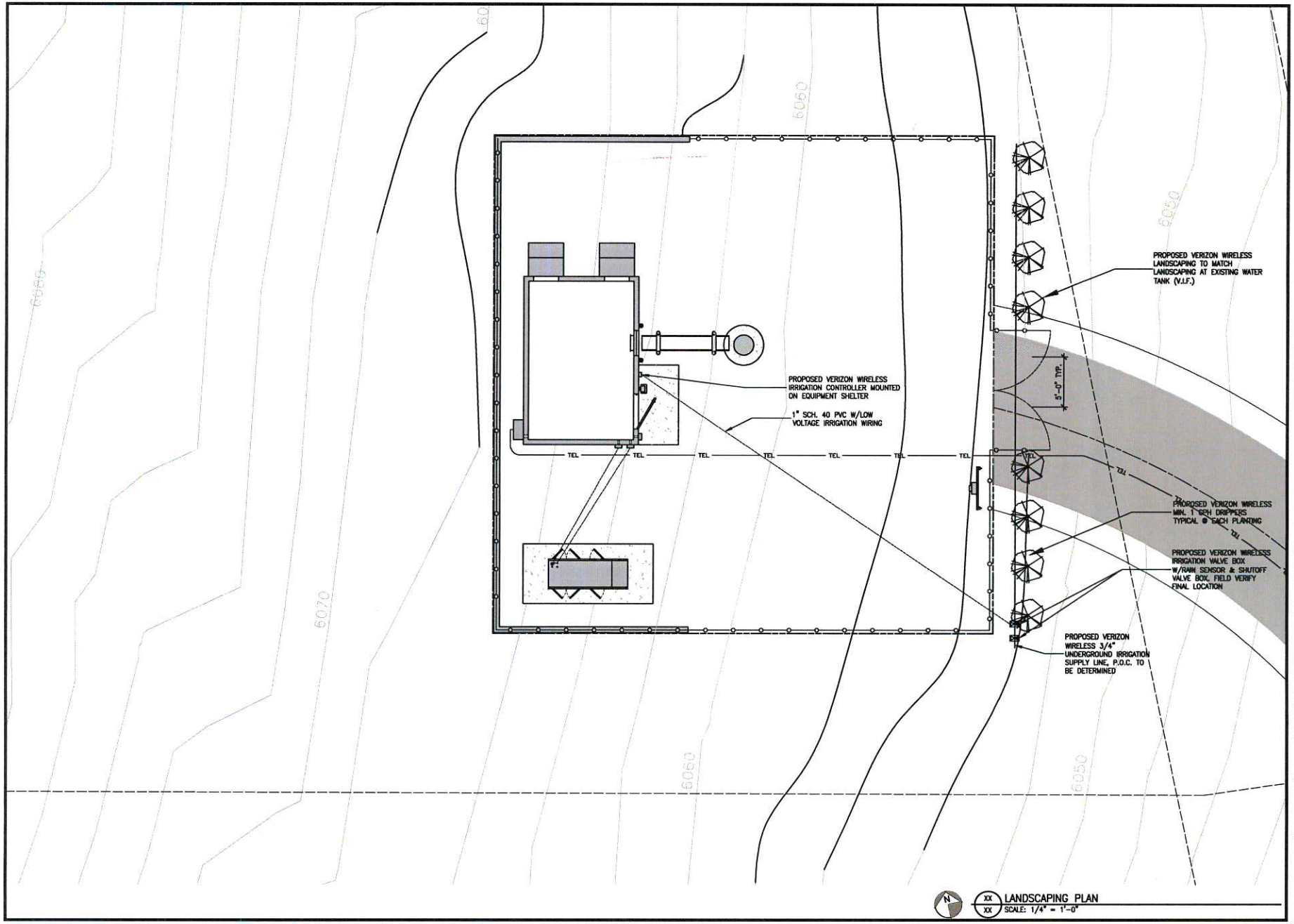
SHEET TITLE:
GRADING PLAN

Revisions:
1. 10/08/2014
2. 12/01/2014
3. 12/08/2014
4. 01/07/2014
5. 02/13/2015

File: 162.1228A11.dwg
Drawn By: AME
Checked By: MST
Scale: AS NOTED
Date: 02/13/2015

Job No. 162.1228

G1.1



XX LANDSCAPING PLAN
XX SCALE: 1/4" = 1'-0"

O'Connor Freeman & Associates
Structural Engineering Services
925 30th Street, Suite 201, Sacramento, CA 95816
Phone: (916) 441-5721 Fax: (916) 441-5697

TIMBERLINE
150 TIMBERLINE VIEW COURT
RENO, NV 89511

verizon WIRELESS

SHEET TITLE: LANDSCAPING PLAN

Revisions:
10/08/2014
12/01/2014
12/08/2014
01/07/2014
02/13/2015

File: 162.1228A11.dwg
Drawn By: AME
Checked By: MST
Scale: AS NOTED
Date: 02/13/2015

Job No. 162.1228

L1.1

PROJECT SUPPORT STATEMENT
VERIZON WIRELESS

SITE NAME: Timberline
LOCATION: 150 Timberline View Court Reno, NV 89511
APN: 049-070-49

Introduction

Verizon Wireless is seeking to improve communications service to residences, businesses and travelers in Washoe County. Verizon maintains a strong customer base in the County and strives to improve coverage for both existing and potential customers. Verizon Wireless is currently experiencing a significant coverage gap for rural areas north of the 431 Mt Rose Hwy and east of NF -047. This Washoe County site is being built to provide coverage of the N and NE of Mt Rose Hwy and of the golf course and surrounding residential areas to the S and SW in addition to off-loading Verizon's Slide Mountain and Wolf Run towers. This project will expand Verizon's existing network in an effort to improve call quality, signal strength, and wireless connection services. The increase in wireless signal strength will benefit residents, local businesses, and public safety communications systems within the City.

Location

Verizon Wireless proposes a new wireless communications facility, (6) antennas with associated tower mounted equipment on a proposed 61' monopine located at 150 Timberline View Court. The property is located in the General Rural (GR) zone and the surrounding area consists of similarly zoned properties. This roughly 7.34 acre property is used as single family residence and the lease area is located in the southern portion of the property.

Proposed Facility

The proposed facility consists of 6 Verizon Wireless panel antennas with 3 proposed antenna sectors and 2 antennas per sector to be mounted on a proposed 61' monopine. There are a total of 12 Verizon Wireless RRH units that will be mounted behind the antennas with 3 proposed Verizon Wireless surge protectors mounted on the proposed Monopine, and 1 surge protector located at the equipment shelter. An 11'6" x 16'10 ½" prefabricated equipment shelter will be installed along with a 48kw standby diesel generator and 210 gallon fuel tank. A 6' tall chain link security fence with tan colored screening slats will be installed with a 12' access gate around the 50' x 50' lease area perimeter. The power and telecommunications cables will be installed underground to the lease area. The unmanned facility will provide enhanced wireless network coverage 24 hours a day, 7 days a week.

Service Objective

The objective of the proposed facility is both to fill in a gap in coverage in Washoe County, as well as to provide support capacity to the existing overloaded facilities (Slide Mountain and Wolf Run), In order to achieve this service objective, VZW identified a potential candidate "Search Ring". A Search Ring is a circle on a map that is determined by Verizon's Radio Frequency Engineer. The circle identifies the geographic area within which the proposed facility must be located to satisfy the intended service objective. In creating the Search Ring, the RF Engineer takes into account many factors, such as topography, proximity to existing structures, current coverage areas, existing obstructions, etc.

For a visual representation of the Search Ring, see the images below.

COMPLIANCE WITH WASHOE COUNTY ZONING ORDINANCE

This project has been carefully designed to comply with all the applicable standards set forth in the Washoe County Zoning Code. Specific focus was given to Article 324 (Communication Facilities) and Section 110.324.35 (Commercial Antennas). Below is an explanation for each of the specifically relevant requirements listed in the Washoe County Zoning Code:

Article 810, Special Use Permits

Section 110.810.30 *Findings. Prior to approving an application for a special use permit, the Planning Commission, Board of Adjustment or a hearing examiner shall find that all of the following are true:*

(a) Consistency. The proposed use is consistent with the action programs, policies, standards and maps of the Master Plan and the applicable area plan;

Wireless communications facilities are a conditionally allowed use within the General Rural zoning designation. The proposed facility represents a diligent effort to comply with the Washoe County Zoning Ordinance.

(b) Improvements. Adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities have been provided, the proposed improvements are properly related to existing and proposed roadways, and an adequate public facilities determination has been made in accordance with Division Seven;

The parcel provides the necessary physical access, access to telephone utility lines, and access to power, which is needed to allow this proposed facility to function.

(c) Site Suitability. The site is physically suitable for the type of development and for the intensity of development;

This site provides an ideal location for addressing the current capacity and coverage issues experienced in the area. The size of the parcel allows for the facility to be setback from other structures and rights of way by a significant distance. This is important as it will limit public access to the facility. Finally, the proposed location contains the topography needed to allow for a quality wireless signal.

(d) Issuance Not Detrimental. Issuance of the permit will not be significantly detrimental to the public health, safety or welfare; injurious to the property or improvements of adjacent properties; or detrimental to the character of the surrounding area; and

The proposed facility will not impact the health, safety, or welfare of any person or property in the surrounding area.

(e) Effect on a Military Installation. Issuance of the permit will not have a detrimental effect on the location, purpose or mission of the military installation.

The proposed facility will not negatively impact the military. The only impact to the military that this facility could have is improved wireless service.

Article 324, Communication Facilities

Section 110.324.45 *Wireless Communication/Cellular Facilities Preferred Placement*

As is discussed in the Alternatives Analysis section (below), each of the potential facility alternative site options were considered within this search area, in the order of Washoe County's preference. Given the fact that this location is the only feasible location for the proposed facility, a free standing tower is required for this proposed facility.

Section 110.324.50 *Wireless Communication/Cellular Facilities Placement Standards*

Monopole antennas are allowed within the General Rural zoning designation. The height of the facility (55') complies with the setback requirement that the antennas from both residentially zoned property and any Public Paved Right of Way.

Section 110.324.55 *Significant Gap Coverage*

The proposed site is needed for both capacity and coverage. This area is served by two high level sites (Slide Mountain and Wolf Run) and the proposed site is needed to provide offload capacity to these two sites. Additionally, this Washoe County site is proposed to provide coverage to the north and northeast along Mt Rose Hwy, the golf course, and surrounding residential areas to the south and southwest. The proposed site is needed to close a significant gap in service for customers in this area.

Section 110.324.60 *Wireless Communication/Cellular Facilities Permitting Requirements*

(a) Information Required Prior to Issuance of Any Permit. In addition to the requirements of the Building and Safety Department, the following information must be provided to the Department of Community Development before any permit can be issued for the construction and installation of a wireless communication/cellular facility:

Regarding items 1 – 16, each items has been addressed by either the attached documents or within this Project Support Statement.

Section 110.324.75 Special Use Permit Required: Findings. *Subsequent to review under*

Sections 110.324.40 through 110.324.70, monopole antennas and lattice towers shall require the issuance of a special use permit under the process enumerated in Article 810, Special Use

Permits, by the Washoe County Planning Commission, subject to the findings enumerated below.

(a) That the communications facility meets all the standards of Sections 110.324.40 through 110.324.60 as determined by the Director of Community Development and/or his/her authorized representative;

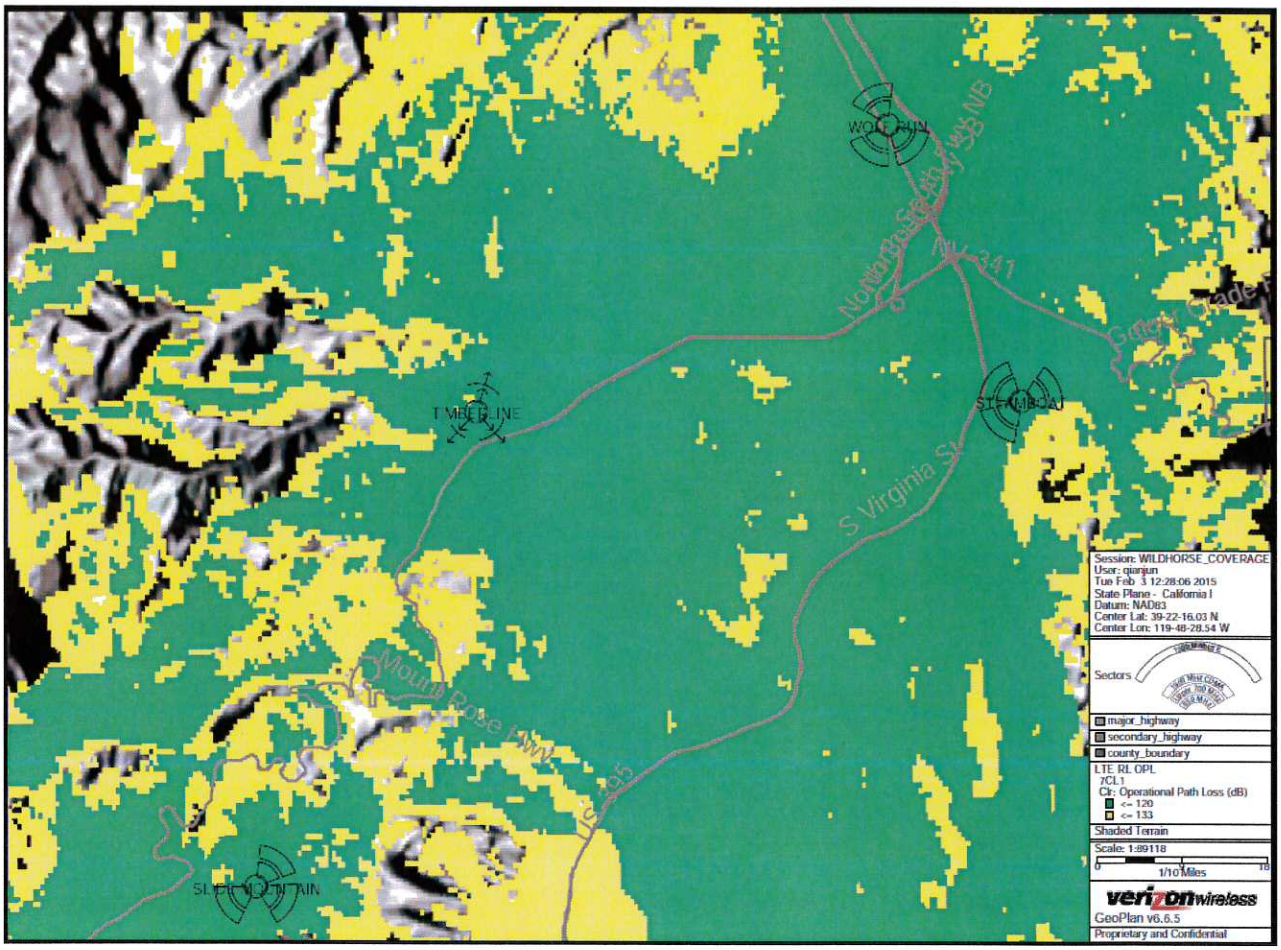
(b) That public input was considered during the public hearing review process; and

(c) That the monopole or lattice tower will not unduly impact the adjacent neighborhoods or the vistas and ridgelines of the County.

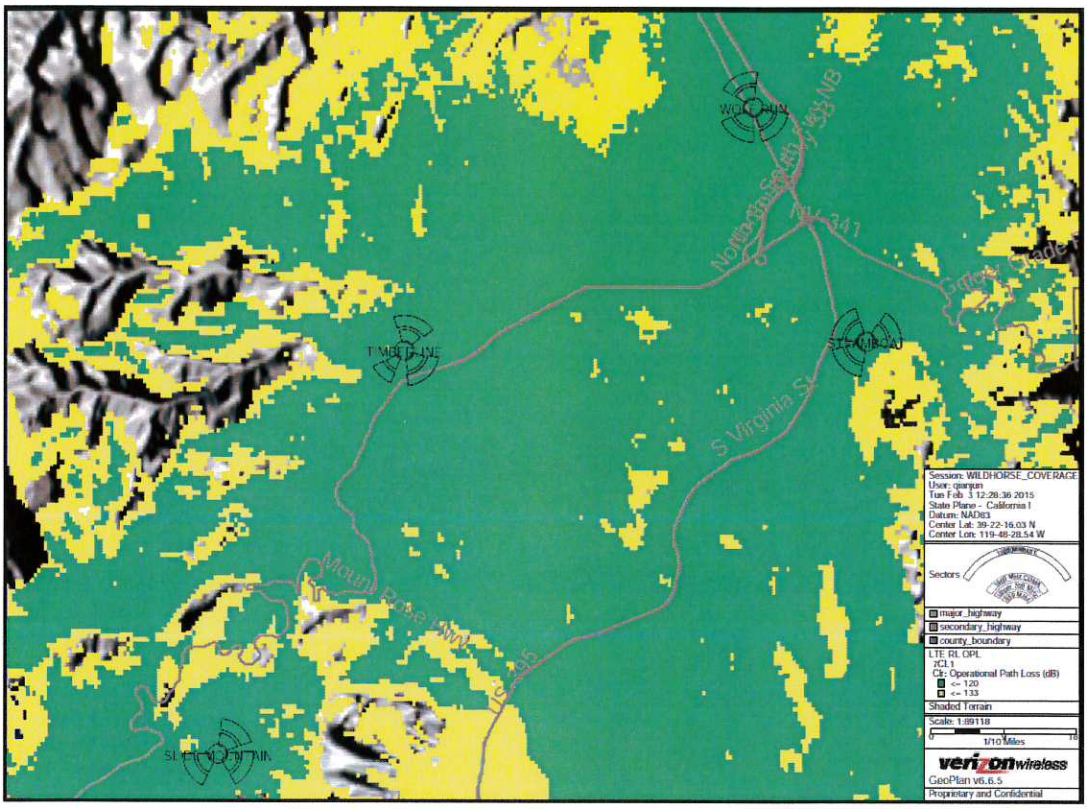
Coverage Maps

Below is a visual depiction of the improved AWS and LTE coverage to be provided by the proposed facility. The first map represents Verizon's existing AWS coverage conditions in the area. The second map represents Verizon's the AWS coverage conditions given approval of the proposed facility. Maps three and four show the before and after LTE conditions. The green areas on both maps represents areas with good indoor/outdoor coverage. The yellow areas on both maps below represents areas with good outdoor coverage. The white portions of the maps represent areas with poor quality outdoor coverage.

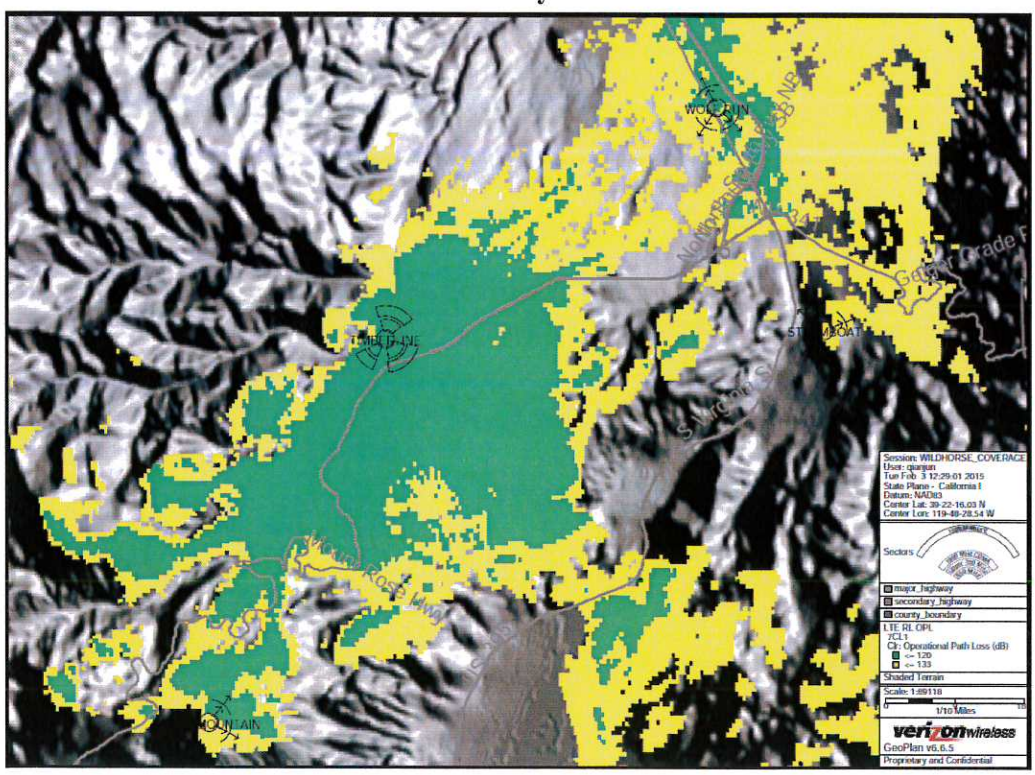
Existing Coverage



Proposed Coverage



This Facility Alone



Alternative Site Analysis

The location of a wireless telecommunications facility to fulfill the above referenced service objective is dependent upon many different factors, such as topography, zoning regulations, existing structures, co-location opportunities, available utilities, access and a willing landlord. Wireless communication is a line-of-sight technology that requires facilities to be in relative close proximity to the wireless handsets in order to be served. Each proposed site is unique and must be investigated and evaluated on its own terms. Verizon strives to minimize visual and noise impacts for each facility and seeks to incorporate ways to preserve the local community character to the greatest extent feasible at all stages of site selection for a wireless telecommunication facility.

The site selection process for this proposed facility began in September 2013 with the issuance of the above reference Search Ring. When identifying feasible wireless facility locations, VZW first looks for collocation opportunities on existing towers, which could potentially allow for the satisfaction of the necessary coverage objectives. In this instance, no feasible collocation opportunities on existing towers exist within the necessary geographic area (the Search Ring). Once collocation opportunities on existing towers were exhausted, Verizon next looked for opportunities for roof-mounts, flush-mounts, façade-mounts, etc. Verizon was not able to find any building-mounted collocation opportunities within the necessary Search Ring.

Due to the lack of feasible collocation opportunities in this area Verizon began a site search for feasible new build facility locations. After analyzing the relevant Washoe County regulations, Verizon identified all parcels within the Search Ring area which could serve as potential candidates for a new wireless facility location. A form letter was sent out to all of the potential candidates identified. Of the 8 property owners notified, 4 property owners showed an interest in having their property as a candidate for a new facility. Below is a summary of each the alternative candidates, and the reason each candidate was not selected for the new facility location.

1. **Water Tank Colocation- 16125 N Timberline Drive APN # 049-070-41 Zoned GR** - poor property owner responsiveness as site is in transition in jurisdictional ownership
2. **ATT Colocation 16255 Mount Rose Hwy APN # 049-070-30 Zoned HDR -** RF rejected due to low elevation
3. **Terrell New Build Monopole - 16100 Mount Rose Hwy APN # 049-070-27 Zoning HDR -** RF rejected due to low elevation
4. **Adams New Build Monopole - 16275 Mount Rose Hwy APN # 049-070-32 Zoned HDR** - – RF rejected due to low elevation
5. **Lee New Build Monopole - 16150 Mt Rose Hwy APN # 049-070-11 Zoned HDR** - Landlord did not respond to numerous attempts at negotiation
6. **TL Mt Rose Estates New Build Monopole - 15045 Goldenrod Drive APN # 150-420-01 Zoned GR** – property owners did not respond to numerous calls, emails and US mail
7. **Bentson New Build Monopole – 4875 Rose Rock Lane APN # 049-090-17 Zoned LDS** - property owner non- responsive

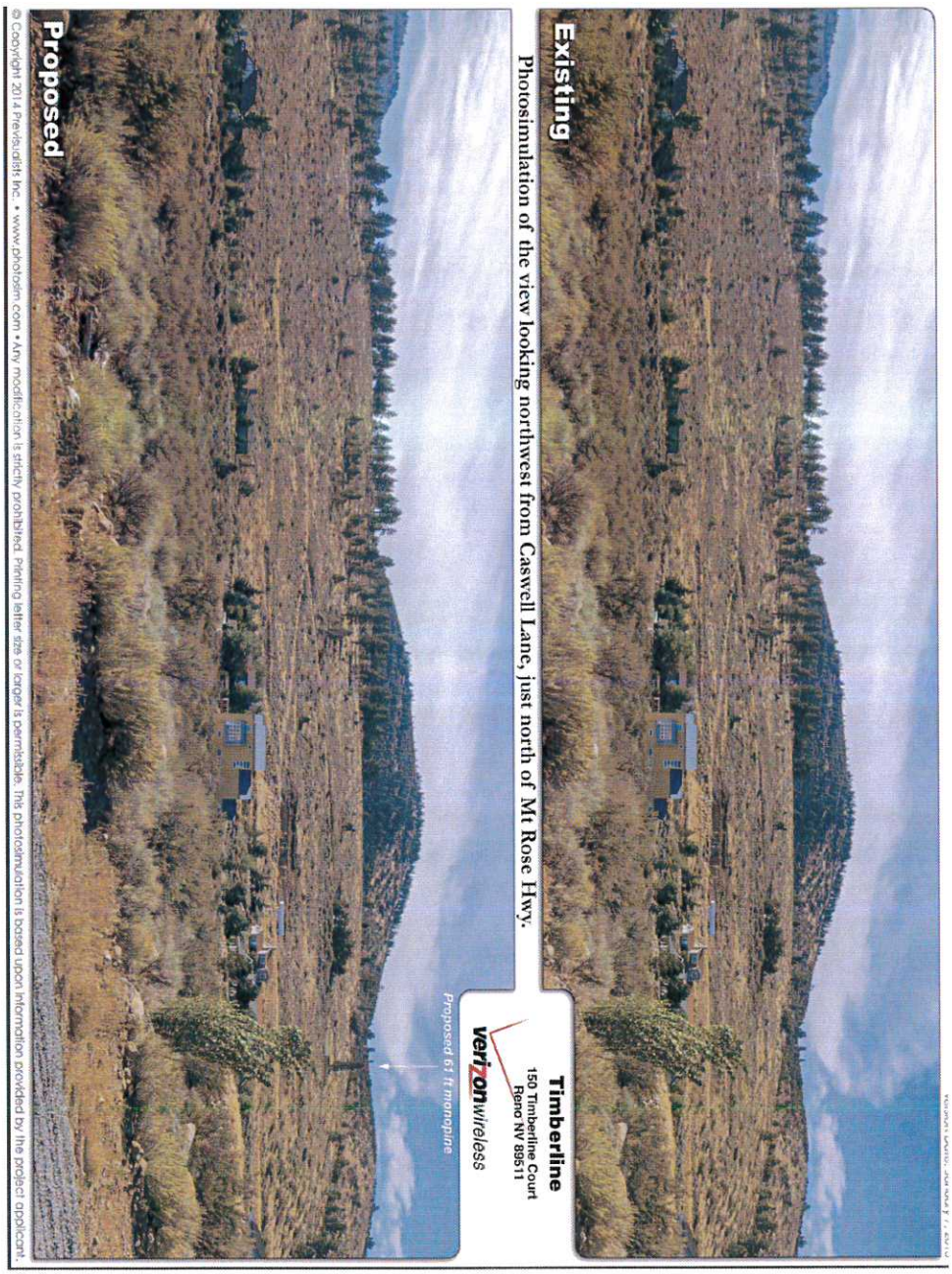
A map showing the proposed location and each alternative location considered is provided below.

Map of Alternative Sites Considered

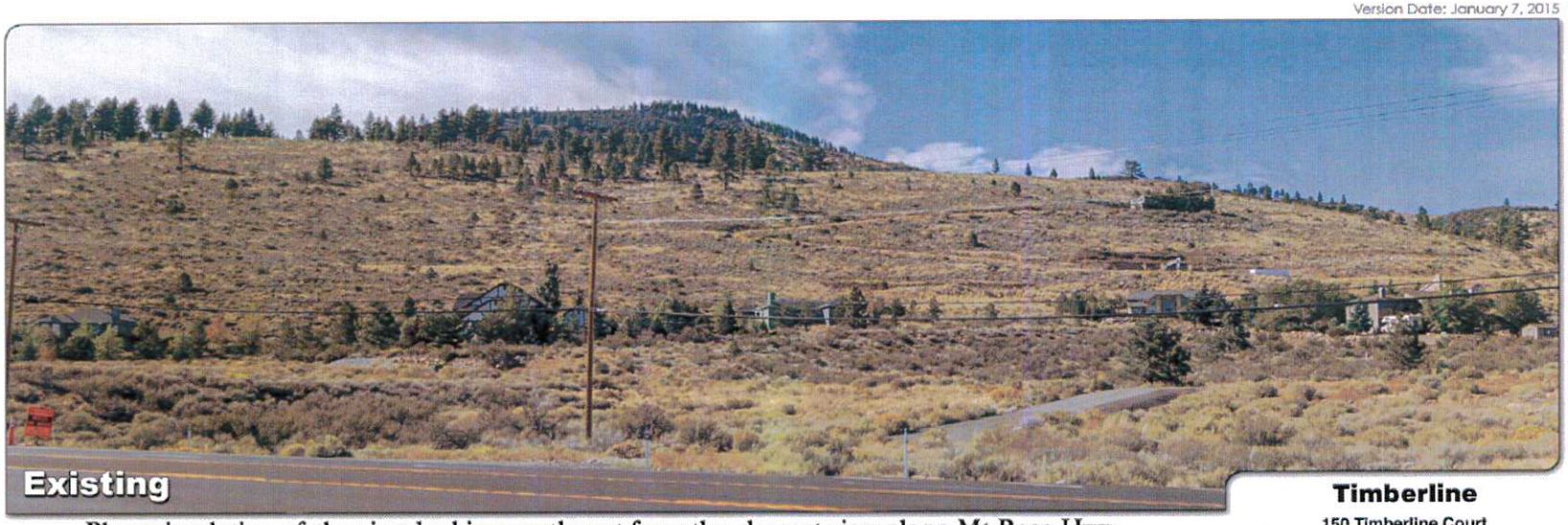
Design Justification

The Proposed facility design is a monopole. The lease area is located on a 7.34-acre parcel and situated on an open hillside with limited vegetation. The proposed facility has been designed to create the least possible visual impact to the area. While Verizon Wireless is certainly open to considering any other design options that Staff and/or the Planning Commission may feel to be appropriate for this particular location, a monopole is the least intrusive design and would blend with the surrounding area.

Photosimulation of 61' ft Monopine as viewed from Mt Rose Hwy



Version Date: January 7, 2015



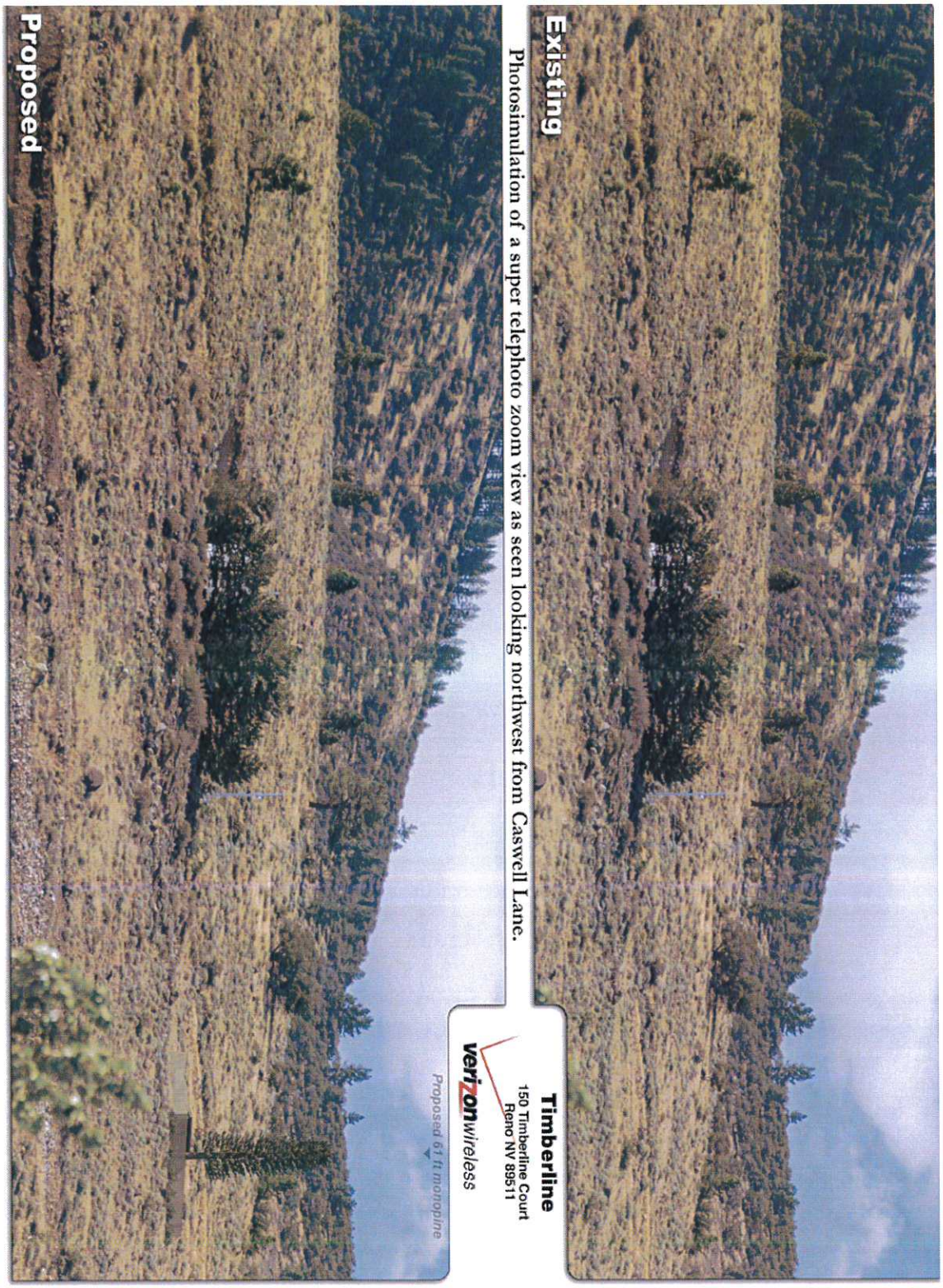
Photosimulation of the view looking northwest from the clearest view along Mt Rose Hwy.

Timberline

150 Timberline Court
Reno NV 89511

verizonwireless

© Copyright 2014 Previsualists Inc. • www.photosim.com • Any modification is strictly prohibited. Printing letter size or larger is permissible. This photosimulation is based upon information provided by the project applicant.



Staff has suggested a monopine for this location. Other stealth designs would likely create more of a conflict with the rural nature of the parcel and the surrounding area.

Future Colocation Potential

The proposed site has been designed in a manner that would allow for future collocation. An approximately 41' centerline would be the highest available centerline for a future carrier. Space for future carrier's ground equipment would need to be negotiated with the property owner.

Safety Benefits of Improved Wireless Service

Verizon Wireless offers its customers multiple services such as voice calls, text messaging, mobile email, picture/video messaging, mobile web, navigation, broadband access, V CAST, and E911 services. Mobile phone use has become an extremely important tool for first responders and serves as a back-up system in the event of a natural disaster. Verizon Wireless will install a standby generator at this facility to ensure quality communication for the surrounding community in the event of a natural disaster or catastrophic event. This generator will be fully contained within the equipment shelter and will provide power to the facility in the event that local power systems are offline.

Lighting

Unless tower lighting is required by the FAA, the only lighting on the facility will be a down-tilted and shielded motion sensor light above the door on the equipment shelter.

Maintenance and Standby Generator Testing

Verizon Wireless installs a standby generator and batteries at all of its cell sites. The generator and batteries serve a vital role in Verizon's emergency and disaster preparedness plan. In the event of a power outage, Verizon Wireless communications equipment will first transition to the back-up batteries. The batteries can run the site for a few hours depending upon the demand placed upon the equipment. Should the power outage extend beyond the capacity of the batteries, the back-up generator will automatically start and continue to run the site for up to 24 hours. The standby generator will operate for approximately 15 minutes bi-weekly for maintenance purposes, during daytime business hours. Back-up batteries and generators allow Verizon Wireless' communications sites to continue providing valuable communications services in the event of a power outage, natural disaster or other emergency.

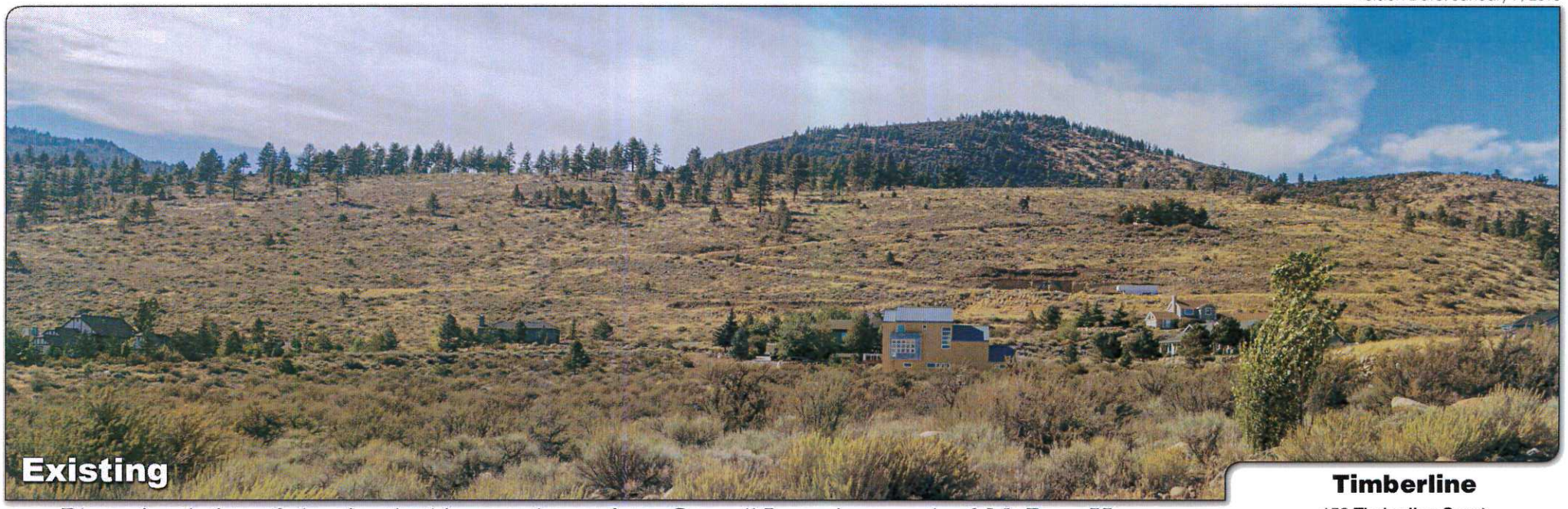
Construction Schedule

The construction of the facility will be in compliance with all local rules and regulations. The typical duration is two months. The crew size will range from two to ten individuals. The construction phase of the project will last approximately two months and will not exceed acceptable noise levels.

Notice of Actions Affecting Development Permit

In accordance with California Government Code Section 65945(a), Verizon Wireless requests notice of any proposal to adopt or amend the: general plan, specific plan, zoning ordinance, ordinance(s) affecting building or grading permits that would in any manner affect this development permit. Any such notice may be sent to Verizon Wireless c/o Complete Wireless Consulting 2009 V Street, Sacramento, CA 95818.

Version Date: January 7, 2015

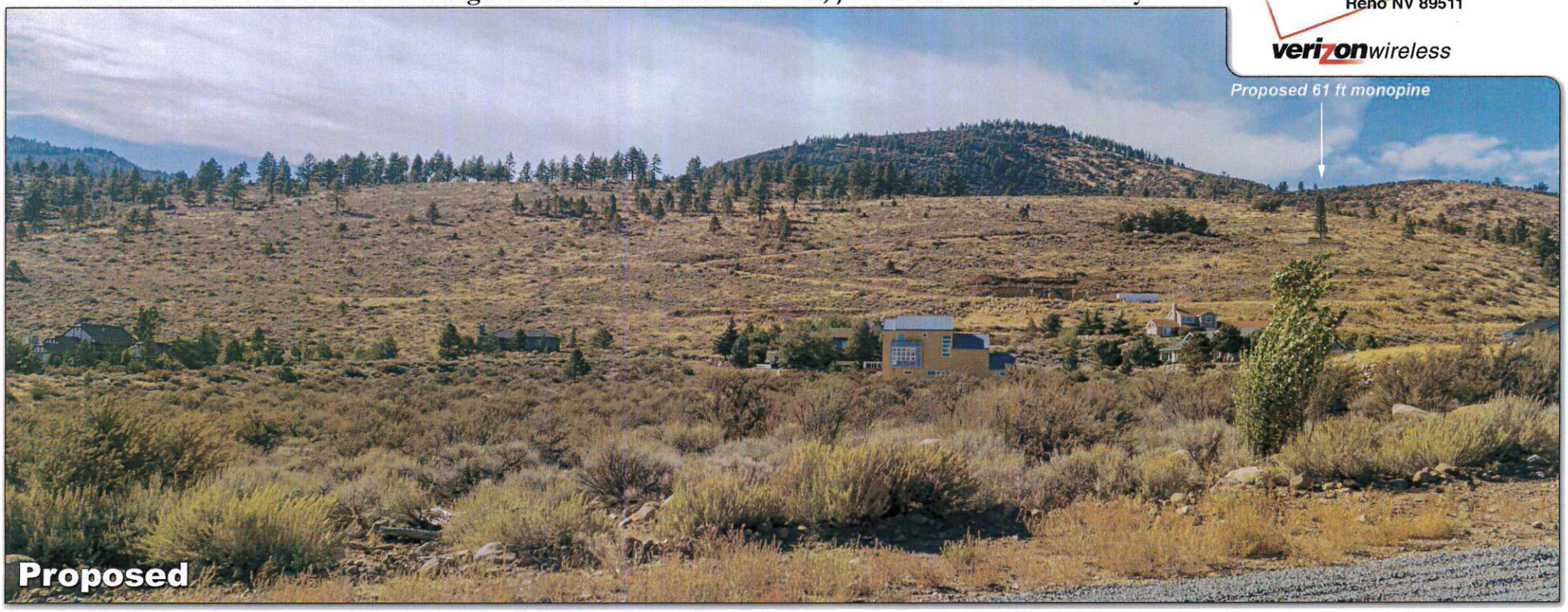


Timberline

150 Timberline Court
Reno NV 89511

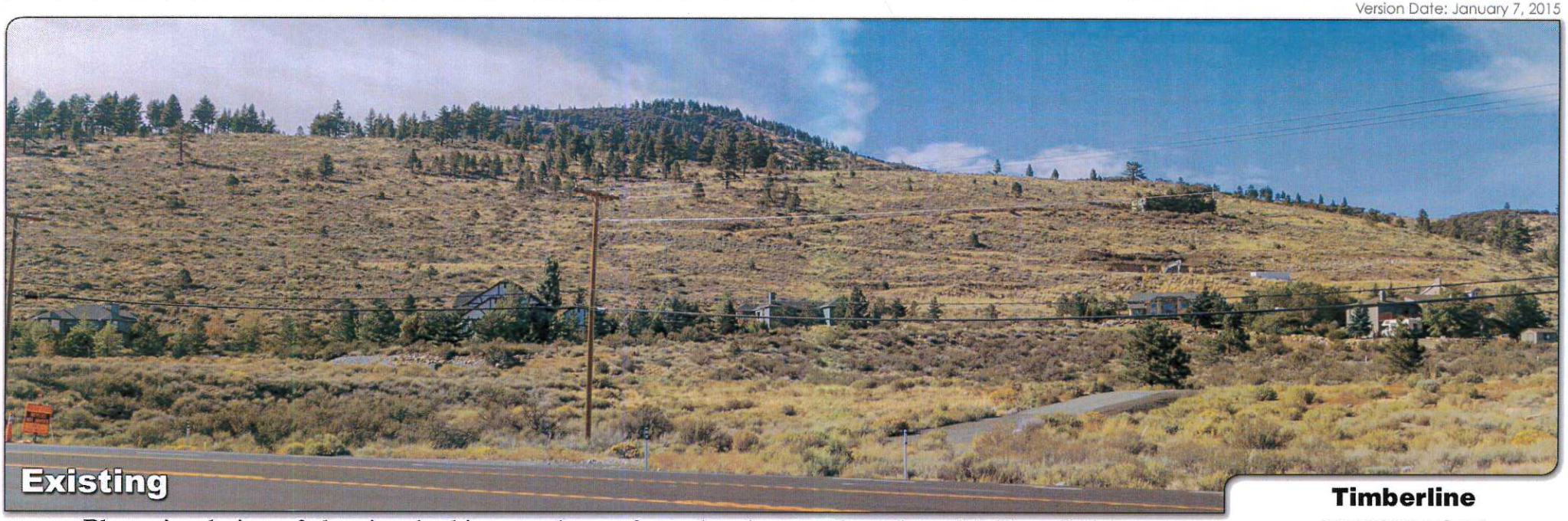
verizonwireless

Photosimulation of the view looking northwest from Caswell Lane, just north of Mt Rose Hwy.



© Copyright 2014 Previsualists Inc. • www.photosim.com • Any modification is strictly prohibited. Printing letter size or larger is permissible. This photosimulation is based upon information provided by the project applicant.

Version Date: January 7, 2015



Timberline

150 Timberline Court
Reno NV 89511

verizonwireless

Photosimulation of the view looking northwest from the clearest view along Mt Rose Hwy.

© Copyright 2014 Previsualists Inc. • www.photosim.com • Any modification is strictly prohibited. Printing letter size or larger is permissible. This photosimulation is based upon information provided by the project applicant.

Timberline

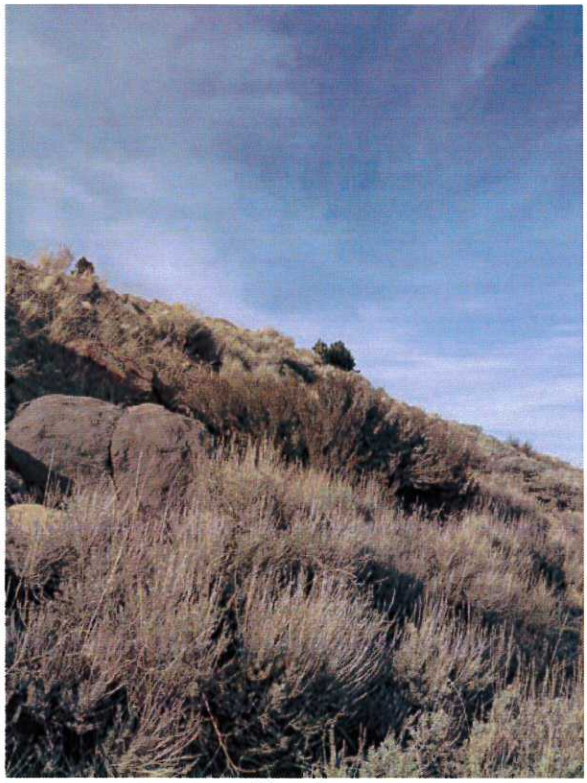
150 Timberline Court
Reno NV 89511

verizonwireless

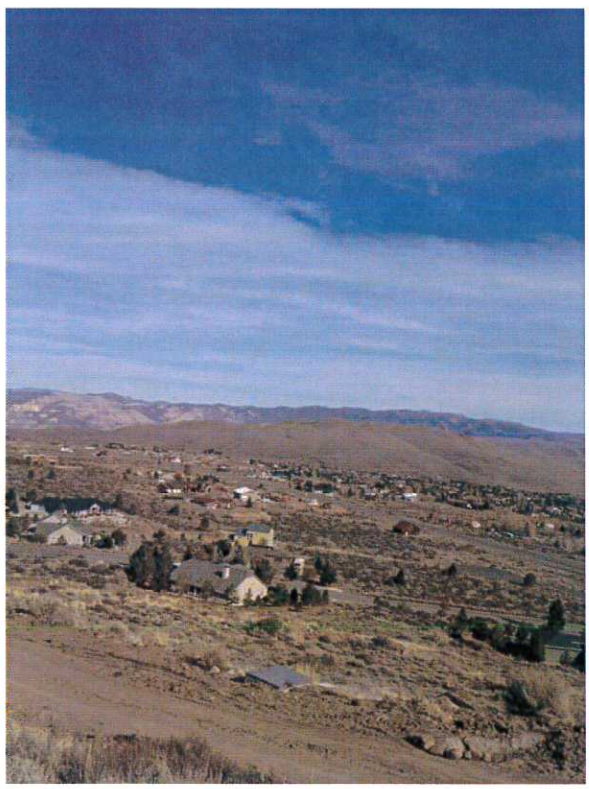
Photosimulation of a super telephoto zoom view as seen looking northwest from Caswell Lane.

© Copyright 2014 Previsualists Inc. • www.photosim.com • Any modification is strictly prohibited. Printing letter size or larger is permissible. This photosimulation is based upon information provided by the project applicant.

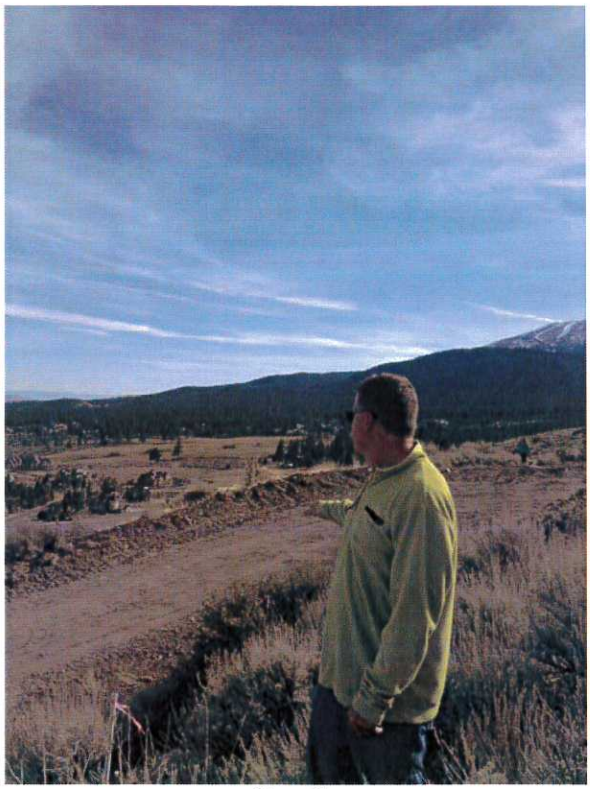
Verizon Wireless "Timberline"



North



East



South

West

Power and Telco

Lease Area

Access

Panoramic View from North to South facing East

Verizon Wireless • Proposed Base Station (Site No. 278742 "Timberline")
150 Timberline View Court • Incline Village, Nevada

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate the base station (Site No. 278742 "Timberline") proposed to be located at 150 Timberline View Court in Incline Village, Nevada, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

Verizon proposes to install directional panel antennas on a tall steel pole to be located at 150 Timberline View Court in Incline Village. The proposed operation will, together with the existing base station nearby, comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm^2	1.00 mW/cm^2
BRS (Broadband Radio)	2,600	5.00	1.00
WCS (Wireless Communication)	2,300	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.40	0.48
[most restrictive frequency range]	30–300	1.00	0.20

General Facility Requirements

Base stations typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A small antenna for reception of GPS signals is also required, mounted with a clear view of the sky.

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

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna's radiation pattern is not fully formed at locations very close by (the "near-field" effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the "inverse square law"). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

Site and Facility Description

Based upon information provided by Verizon, including zoning drawings by O'Connor Freeman & Associates, dated January 7, 2015, it is proposed to install six directional panel antennas – four Andrew Model SBNHH-1D65B and two CSS Model X7CAP-640-V – on a new 55-foot steel pole, configured to resemble a pine tree, to be installed about 160 feet to the northeast of the water tank located at 150 Timberline View Court in Incline Village. The Andrew antennas would be mounted with up to 14° downtilt at an effective height of about 51 feet above ground and would be oriented in pairs toward 20°T and 140°T. The CSS antennas would be mounted with up to 4° downtilt at an effective height of about 51 feet above ground and would be oriented toward 225°T. The maximum effective radiated power in any direction from the Andrew antennas would be 12,200 watts, representing simultaneous operation at 4,130 watts for AWS, 4,030 watts for PCS, 2,870 watts for cellular, and 1,170 watts for 700 MHz service. The maximum effective radiated power in any direction from the CSS antennas would be 23,600 watts, representing simultaneous operation at 7,150 watts for AWS, 7,150 watts for PCS, 6,730 watts for cellular, and 2,570 watts for 700 MHz service.

Located on the sides of the nearby water tank are similar antennas for use by Sprint. For the limited purpose of this study, the transmitting facilities of that carrier are assumed to be as follows:

Service	Maximum ERP	Antenna Model	Downtilt	Height
BRS	1,500 watts	KMW ET-X-WM-18-65-8P	0°	17 ft
PCS	3,000	KMW ET-X-TS-70-15-62-18	0	17
SMR	1,500	KMW ET-X-TS-70-15-62-18	0	17

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation by itself is calculated to be 0.091 mW/cm^2, which is 13% of the applicable public exposure limit. The maximum calculated cumulative level at ground, for the simultaneous operation of both carriers, is 34% of the public exposure limit. The maximum calculated cumulative level at the second-floor elevation of any nearby residence* is 0.72% of the public exposure limit. The maximum calculated level due to the proposed Verizon operation by itself at the nearby water tank is calculated to be 34% of the public limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels.

No Recommended Mitigation Measures

Due to their mounting locations, the Verizon antennas would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. It is presumed that the carriers will, as FCC licensees, take adequate steps to ensure that their employees or contractors receive appropriate training and comply with FCC occupational exposure guidelines whenever work is required near the antennas themselves.

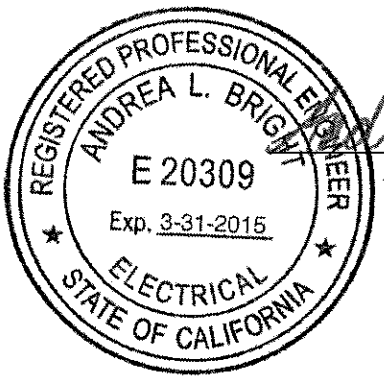
Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the base station proposed by Verizon Wireless at 150 Timberline View Court in Incline Village, Nevada, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations.

* Located at least 470 feet away, based on photographs from Google Maps.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-20309, which expires on March 31, 2015. This work has been carried out under her direction, and all statements are true and correct of her own knowledge except, where noted, when data has been supplied by others, which data she believes to be correct.



Andrea L. Bright, P.E.
707/996-5200

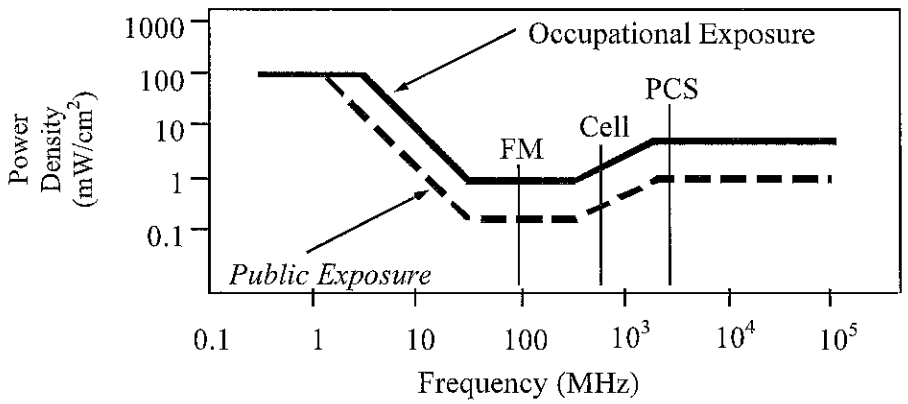
February 13, 2015

FCC Radio Frequency Protection Guide

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

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

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



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

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

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

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

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

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

where θ_{BW} = half-power beamwidth of the antenna, in degrees, and
P_{net} = net power input to the antenna, in watts,
D = distance from antenna, in meters,
h = aperture height of the antenna, in meters, and
η = aperture efficiency (unitless, typically 0.5-0.8).

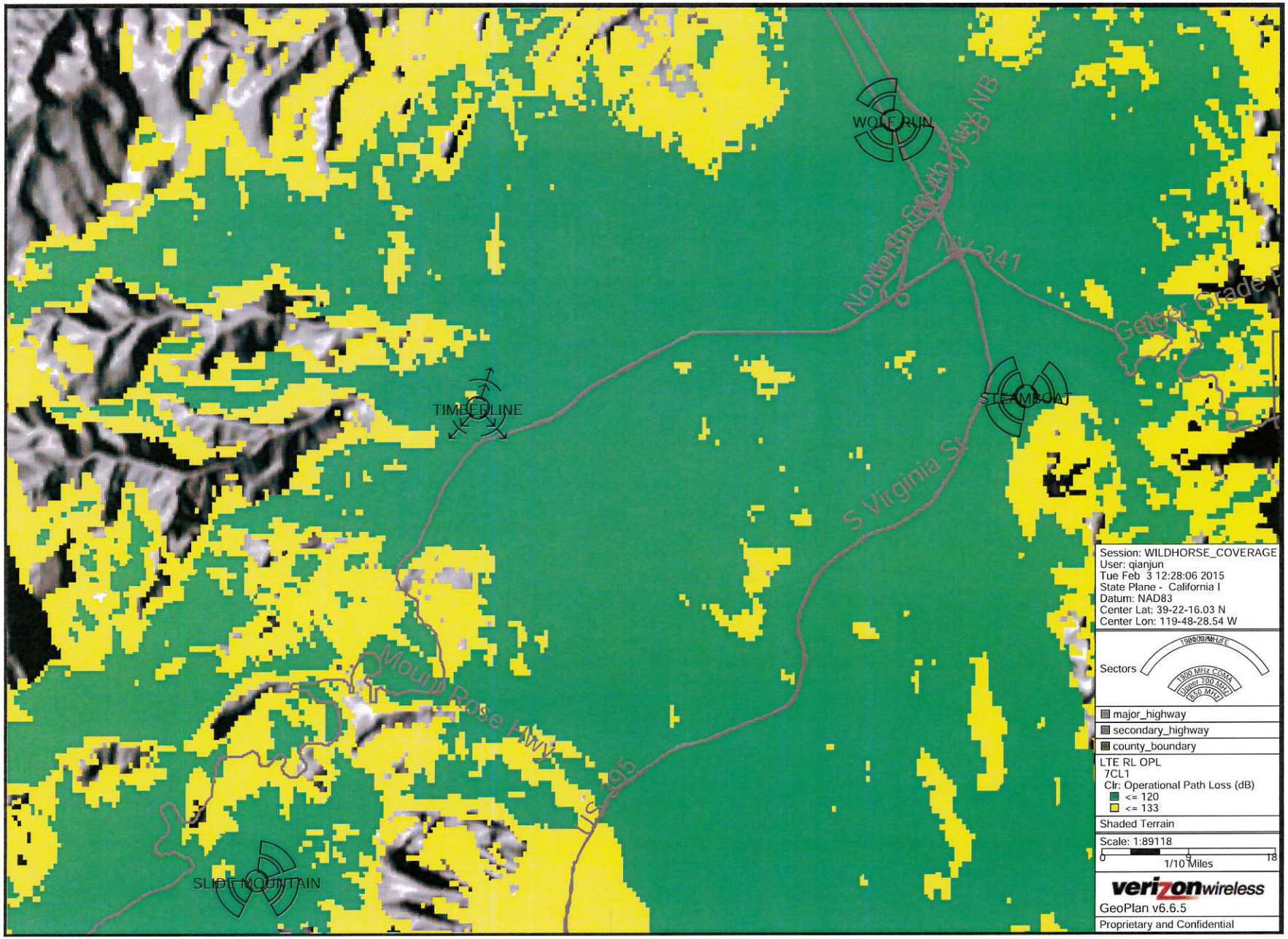
The factor of 0.1 in the numerators converts to the desired units of power density.

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

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

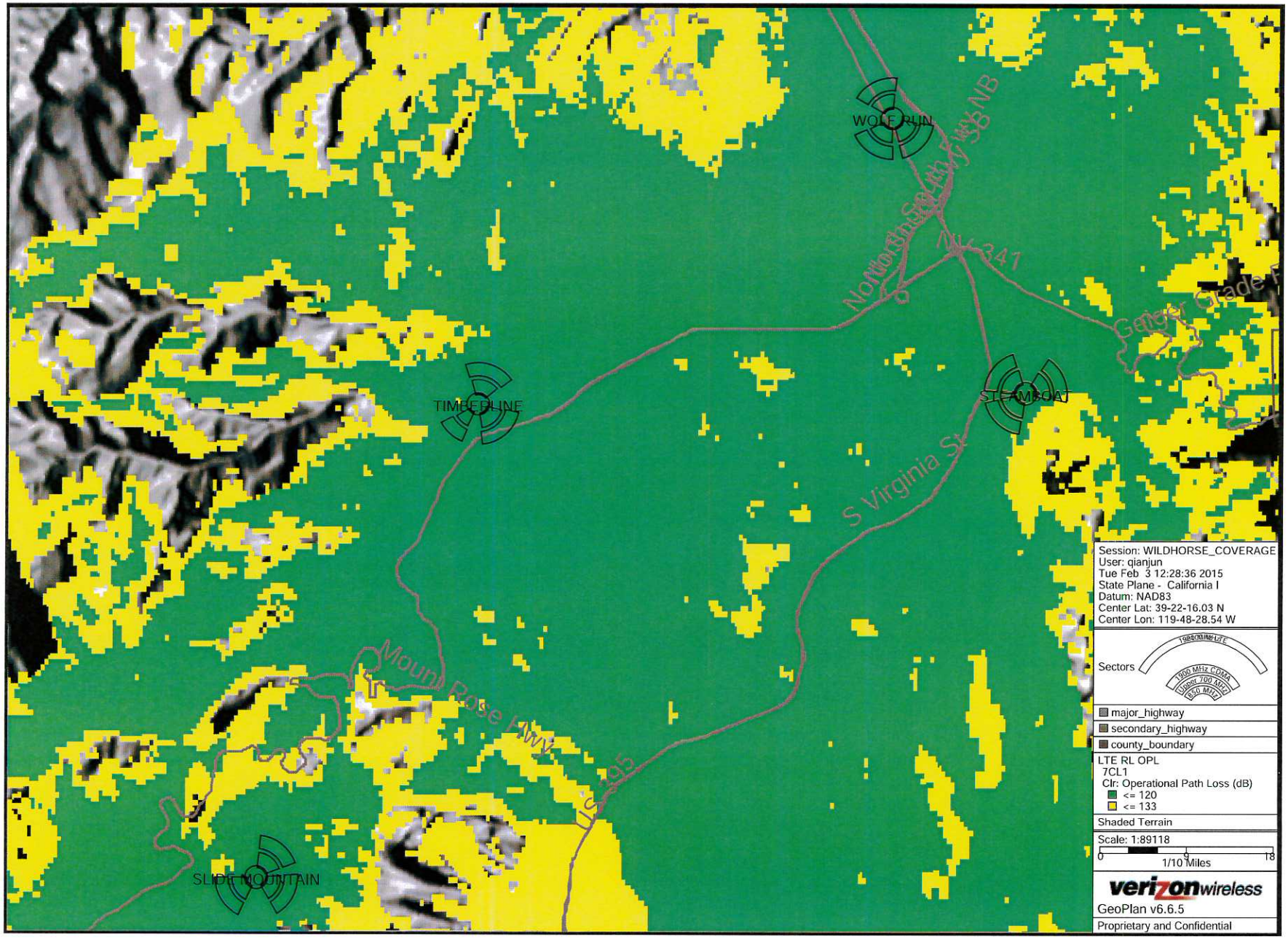
where ERP = total ERP (all polarizations), in kilowatts,
RFF = relative field factor at the direction to the actual point of calculation, and
D = distance from the center of radiation to the point of calculation, in meters.

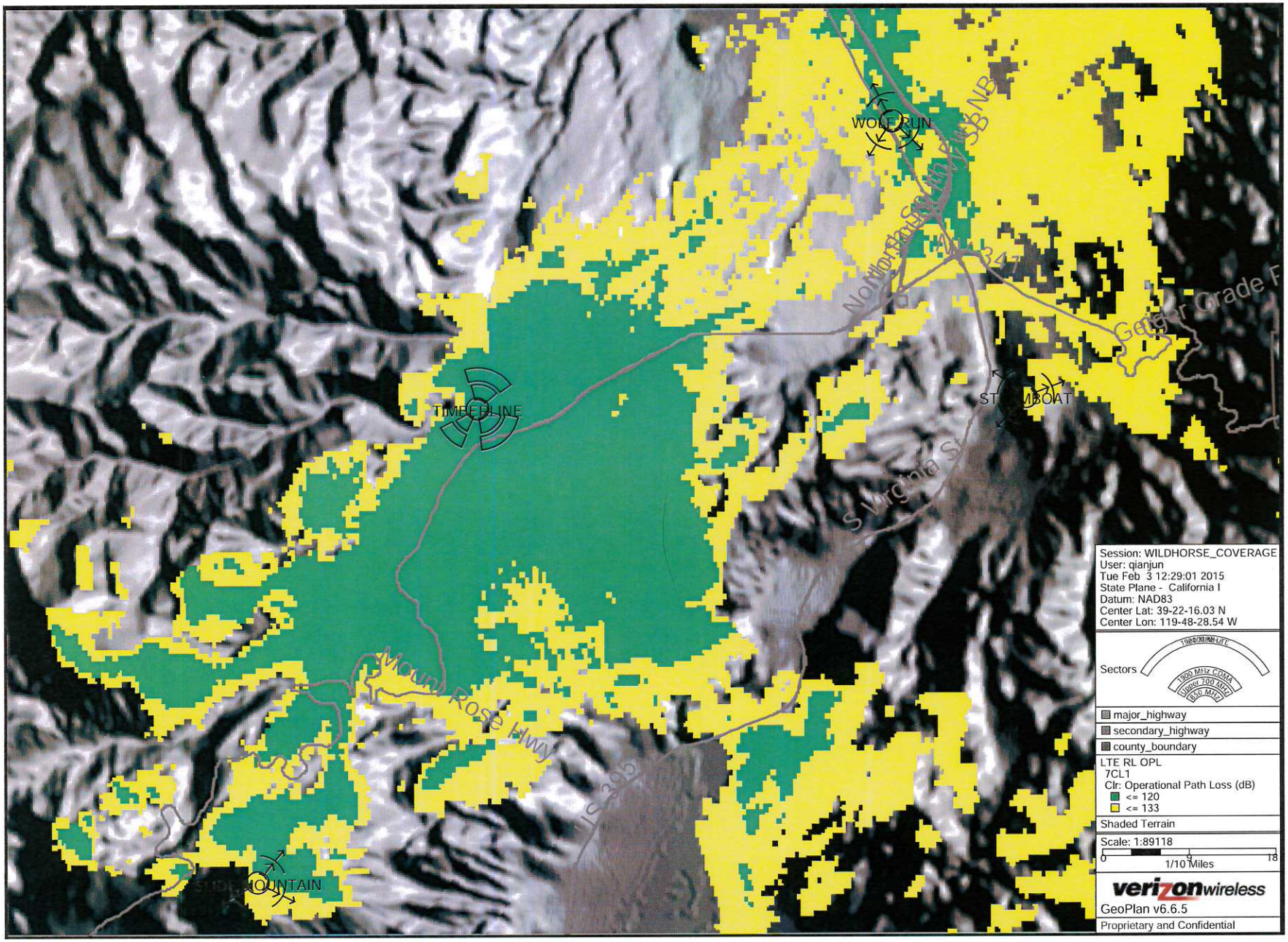
The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units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


WOLF RUN
TIMBERLINE
STEAMBOAT
SLIDE MOUNTAIN
Mount Rose Hwy
S Virginia St
Session: WILDHORSE_COVERAGE
User: qianjun
Tue Feb 3 12:28:06 2015
State Plane - California I
Datum: NAD83
Center Lat: 39-22-16.03 N
Center Lon: 119-48-28.54 W
Sectors
major_highway
secondary_highway
county_boundary
LTE RL OPL
7CL1
Clr: Operational Path Loss (dB)
<= 120
<= 133
Shaded Terrain
Scale: 1:89118
0
9
18
1/10 Miles
verizonwireless
GeoPlan v6.6.5
Proprietary and Confidential

BEFORE

BEFORE


WOLF RUN
TIMBERLINE
STEAMBOAT
SLIDE MOUNTAIN
S Virginia St
Mount Rose Hwy
US 395
Session: WILDHORSE_COVERAGE
User: qianjun
Tue Feb 3 12:28:36 2015
State Plane - California I
Datum: NAD83
Center Lat: 39-22-16.03 N
Center Lon: 119-48-28.54 W
Sectors
major_highway
secondary_highway
county_boundary
LTE RL OPL
7CL1
Clr: Operational Path Loss (dB)
<= 120
<= 133
Shaded Terrain
Scale: 1:89118
0
9
18
1/10 Miles
verizonwireless
GeoPlan v6.6.5
Proprietary and Confidential



THIS FACILITY ONLY

Environmental Noise Analysis

Timberline Cellular Facility

Washoe County, Nevada

BAC Job # 2014-265

Prepared For:

Complete Wireless Consulting

Attn: Ms. Danielle Hanover
2009 V Street
Sacramento, CA 95818

Prepared By:

Bollard Acoustical Consultants, Inc.

Paul Bollard, President

January 16, 2015

BOLLARD
Acoustical Consultants

3551 Bankhead Road • Loomis, CA 95650 • Phone: (916) 663-0500 • Fax: (916) 663-0501 • BACNOISE.COM

Introduction

The Timberline Verizon Wireless Unmanned Telecommunications Facility Project (project) proposes the construction of a cellular tower (monopole), a cellular equipment shelter, and an emergency diesel standby generator inside a fenced area located at 150 Timberline View Court, Washoe County, Nevada. The external HVAC units of the equipment shelter and the emergency diesel standby generator have been identified as primary noise sources associated with the project. Please see Figure 1 for the general site location. The studied site design is dated January 7, 2015.

Bollard Acoustical Consultants, Inc. has been contracted by Complete Wireless Consulting, Inc. to complete an environmental noise assessment regarding the proposed project cellular equipment operations. Specifically, the following addresses daily noise production and exposure associated with operation of the project emergency generator and external HVAC equipment.

Please refer to Appendix A for definitions of acoustical terminology used in this report.

Criteria for Acceptable Noise Exposure

Section 110.414.05 of the Washoe County Development Code establishes a 65 dB L_{dn} noise level standard for determining compatibility of noise sources affecting residential uses, applied at the property line of the receiving land use.

Project Noise Generation

Noise exposure from the proposed project HVAC units is expected to be approximately 67 dB (L_{eq}) at a distance of 10 feet from the equipment. This reference noise level of 67 dB at 10 feet is based on a Bard WA3S1 Wall-Mount Step Capacity Air Conditioner, which is reportedly similar to the type of equipment being proposed at the project site.

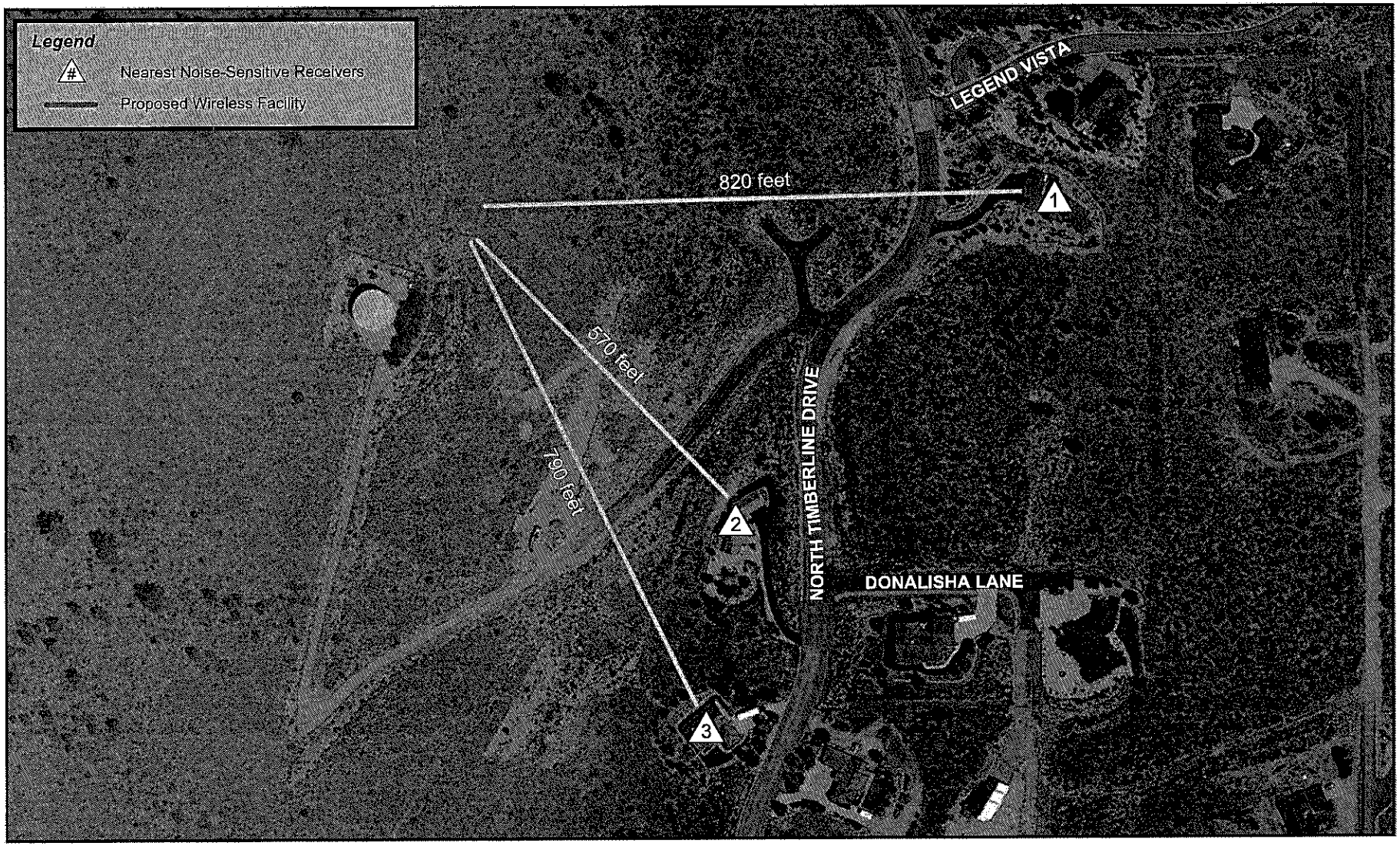
The generator which is proposed at this site would only operate during emergencies (power outages) and brief daytime periods for periodic maintenance/lubrication. The reference noise level for the generator is 63 dB at 23 feet (Generac Power Systems, Inc. 48 kW SD050 Diesel). The generator noise level data specification sheet is provided as Appendix B.

The project emergency generator would be tested during daytime hours only, and even then only for brief periods of time. The emergency generator would only operate at night during power outages. It is expected that nighttime operation of the project emergency generator would be exempt from the County's exterior noise exposure criteria due to the need for continuous cellular service provided by the project equipment.

Figure 1

Timberline Cellular Facility - Washoe County, Nevada

Project Area and Nearest Noise-Sensitive Receivers



Predicted Facility Noise Levels at Nearby Sensitive Receptors

As indicated in Figure 1, the project equipment maintains a separation of 570-820 feet from the nearest noise-sensitive land uses identified as receivers 1-3. Assuming standard spherical spreading loss (-6 dB per doubling of distance), project-equipment noise exposure at the closest receivers was calculated and the results of those calculations are presented in Table 1.

For the purpose of this analysis, the HVAC units were conservatively assumed to be operating continuously for 24 hours. Additionally, the proposed generator was conservatively assumed to be operating continuously for a one hour period during daytime hours for routine testing and maintenance.

Table 1
Summary of Project-Related Noise Exposure at Nearest Residences
Timberline Verizon Wireless Telecommunications Facility Project

Nearest Receiver[1]	Distance from Cellular Equipment (feet)	Predicted Noise Levels, L_{dn} (dBA)		
		HVAC[2]	Generator[3]	Combined
1	820	35	18	35
2	570	38	21	38
3	790	35	18	36

Notes:
1. Receiver locations can be seen in Figure 1.
2. HVAC units were assumed to be running continuously for 24 hours.
3. Generator was assumed to be running continuously for 1 daytime hour for routine testing and maintenance.

As shown in Table 1 above, the predicted HVAC noise levels of 35-38 dB L_{dn} would satisfy the County's 65 dB L_{dn} noise level standard. The predicted generator noise levels of 18-21 dB L_{dn} would also satisfy the County's 65 dB L_{dn} noise level standard. Furthermore, the combined project noise exposure at the nearest noise-sensitive locations were calculated and determined to satisfy the Washoe County noise level criteria.

Conclusions

Based on the equipment noise level data and analyses presented above, project-related equipment noise exposure is expected to satisfy the applicable Washoe County noise exposure limits at the closest receivers.

This concludes our environmental noise assessment for the proposed Timberline Cellular Facility in Washoe County, Nevada. Please contact me at (916) 663-0500 or paulb@bacnoise.com if you have any questions or require additional information.

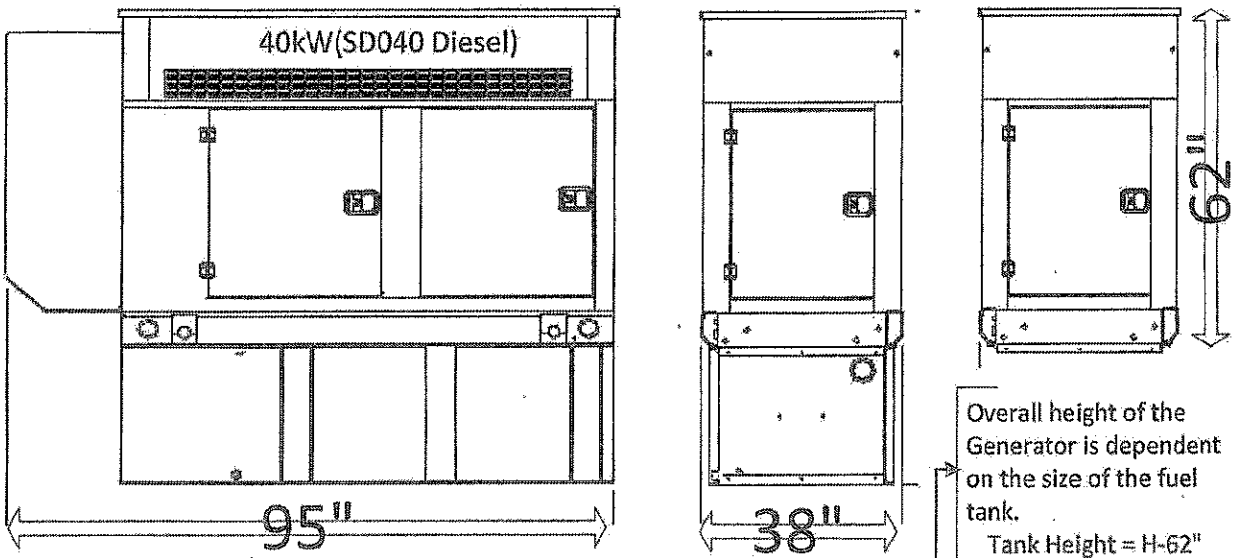
Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

APPENDIX B

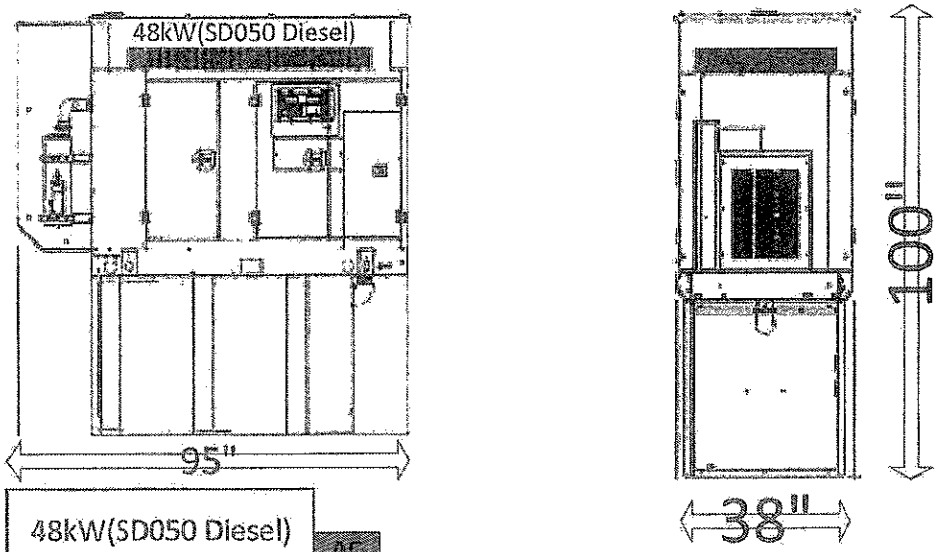
Generac — 40kW & 48kW Diesel



Overall height of the Generator is dependent on the size of the fuel tank.
Tank Height = H-62"

40kW(SD030 Diesel) — AC

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*	85 Rated Engine HP
38	132	95	38	87	2986	70	Indoor and Outdoor Available
60	211	95	38	99	3195		



48kW(SD050 Diesel) — AC

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*	85 Rated Engine HP
48	210	95	38	100	3390	63	Indoor and Outdoor Available

REFERENCE COPY
This is not an official FCC license. It is a record of public information contained in the FCC's licensing database on the date that this reference copy was generated. In cases where FCC rules require the presentation, posting, or display of an FCC license, this document may not be used in place of an official FCC license.

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY #150 GASA5REG
ALPHARETTA, GA 30009-7630

Call Sign	File Number
WQJQ694	
Radio Service	
WU - 700 MHz Upper Band (Block C)	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
11-26-2008	01-14-2014	06-13-2019	

Market Number	Channel Block	Sub-Market Designator
REA006	C	0

Market Name
West

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-13-2013	06-13-2019		

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

This authorization is conditioned upon compliance with section 27.16 of the Commission's rules.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

ULS License

700 MHz Upper Band (Block C) License - WQJQ694 - Cellco Partnership

PA **This license has pending applications:** 0006109255, 0005977860, 0005962233, 0005826931

Call Sign	WQJQ694	Radio Service	WU - 700 MHz Upper Band (Block C)
Status	Active	Auth Type	Regular

Market

Market	REA006 - West	Channel Block	C
Submarket	0	Associated Frequencies (MHz)	000746.00000000-000757.00000000 000776.00000000-000787.00000000

Dates

Grant	11/26/2008	Expiration	06/13/2019
Effective	01/14/2014	Cancellation	

Buildout Deadlines

1st	06/13/2013	2nd	06/13/2019

Notification Dates

1st		2nd	

Licensee

FRN	0003290673	Type	General Partnership

Licensee

Cellco Partnership
1120 Sanctuary Pkwy, #150 GASA5REG
Alpharetta, GA 30009-7630
ATTN Regulatory

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Contact

Verizon Wireless
Licensing Manager
LicensingCompliance@VerizonWireless.com
Alpharetta, GA 30009-7630
ATTN Regulatory

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership

Is the applicant a foreign government or the representative of any foreign government?	No
Is the applicant an alien or the representative of an alien?	No
Is the applicant a corporation organized under the laws of any foreign government?	No
Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	No
Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country?	**Yes**
If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application?	

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender