PLAPC
PARISI LAW ASSOCIATES, P.C.

APPLICATION FOR REVIEW OF
DEVELOPMENT OF REGIONAL IMPACT
(Cape Cod Commission)
FOR WIRELESS COMMUNICATIONS FACILTY

Applicant:	**Vertex Towers, LLC**
Site Id:	**VT-MA-0231E**
Property Address:	**481 Quaker Road, Falmouth, MA 02556**
Tax Assessor:	**12-05-001-010**
Property Owner:	**Roman Catholic Bishop of Fall River c/o St Elizibeth Seton Parish**
Date:	**August 7, 2024**

1. Application for Development of Regional Impact
2. Filing Fees
3. Abutters List (to be prepared by Town)
4. Memorandum of Lease
5. Letter of Authorization
6. Project Narrative
7. TOWAIR (FAA Analysis re No Hazard to Air Navigation)
8. Report of Site Acquisition Specialist
9. Report of RF Engineer and RF Coverage Maps
10. Supplemental Report of RF Engineer (Height Analysis)
11. Calculated Radio Frequency Emissions Report
12. Wetlands Investigation Report
13. Invasive Species Report
14. Equipment Specifications showing Noise Emissions.
15. Letters to Other Wireless Carriers
16. Project Notification Form
17. Photos from Visibility Demonstration and Photo Simulations
18. Site Plans

Respectfully submitted,

Francis D. Parisi, Esq.
Parisi Law Associates, P.C.
225 Dyer Street
Providence, RI 02903
(401) 447-8500 cell
fparisi@plapc.com

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Application Cover Sheet

Cape Cod Commission
3225 Main Street, PO Box 226
Barnstable, MA 02630
Tel: (508) 362-3828 • Fax: (508) 362-3136

CAPE COD COMMISSION

For Commission Use Only
Date Received:
Fee ($):
Check No:
File No:

A Type of Application (check all that apply)

- [✓] Development of Regional Impact (DRI)
- [ ] DRI Scoping
- [ ] DRI Exemption
- [ ] Hardship Exemption
- [ ] Jurisdictional Determination
- [ ] Request for Joint MEPA/DRI Review
- [ ] Decision Extension
- [ ] Decision Modification

B Project Information

Project Name: Vertex Gifford Street Falmouth WCT
Total Site Acreage: 11.6 ac
Project/Property Location: 737 Gifford Street, Falmouth, MA
Zoning: AGB Agricultural B

Brief Project Description:
Include total square footage of proposed and existing development, gross floor area, number of lots existing or to be created, specific uses, description of existing conditions, as applicable (attach additional sheets if necessary).

Construction of a wireless communications facility consiting of a 130' tall monopole-style tower ion which Verizon Wireless and other twiireless communications carriers will place antennas and necessary electronics, inside a 45 x 60 fenced-in compound which willl contain ground based electronic equipment, on a large, approximately 11.6 acre substantially undeveloped parcel in the Agricultural B (AGB) Zoning District currently used for outdoor self-storage and on which is an existing substantial powerline easement.

C Owner(s) of Record

List the following information for all involved parcels. Provide copies of each Deed and Purchase and Sale Agreement and/or evidence of leasehold interest, if applicable, for all involved parcels. Proof of ownership/legal rights for Applicant(s) to proceed with the proposed development must be documented prior to the Commission deeming any application complete. List the local, state, or federal agencies from which permits or other actions have been/will be filed (attach additional sheets if necessary).

Map/Parcel	Owner's Name	Lot & Plan	Land Court Certificate of Title #	Registry of Deeds Book/Page #
27-01-007	G. Howard Hayes, Trustee of the Falmouth Self Storage Nominee Trust			Book 4670 Page 097

There **ARE/ARE NOT** (circle one) court claims, pending or completed, involving this property (if yes, please attach relevant information).

Is there an existing CCC Decision for the Property? [ ] yes [✓] no (if so, recording information for decision, please attach relevant information).

D Certification

I hereby certify that all information provided on this application form and in the required attachments is true and accurate to the best of my knowledge. I agree to notify the Cape Cod Commission of any changes on the information provided in this application, in writing, as soon as is practicable. I understand failure to provide the required information and any fees may result in a procedural denial of my project.
NOTE: For wireless communication facilities, a licensed carrier should be either an applicant or a co-applicant.

APPLICANT
Applicant(s) Name: Vertex Towers, LLC Tel: 401-447-8500 Fax: 781-735-6192
Address: c/o Parisi Law Associates,P.C. 225 Dyer Street, Providence, RI 02903
Signature: Franklin D. Parisi, Esq Attorney-in-Fact Date: 5/15/24

CO-APPLICANT
Co-Applicant(s) Name: Tel: Fax:
Address:
Signature: Date:

CONTACT
Contact: Francis D, Parisi, Esq. Tel: 401-447-8500 Fax: 781-735-6192
Address: Parisi Law Associates,P.C. 225 Dyer Street, Providence, RI 02903
Signature: Francis D. Parisi, Esq Date: 5/15/24

PROPERTY OWNER
Property Owner: G. Howard Hayes, Trustee of the Falmouth Self Storage Nominee Trust Tel: 401-447-8500 Fax: 781-735-6192
Address: c/o Parisi Law Associates, P.C. 225 Dyer Street, Providence, RI 02903
Signature: Franklin D. Parisi, Esq Authorized Agent Date: 5/15/24

BILLABLE ENTITY
Name: Vertex Towers, LLC Tel: 401-447-8500 Fax: 781-735-6192
Address: c/o Parisi Law Associates,P.C. 225 Dyer Street, Providence, RI 02903

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GORSKI FRANCIS J GORSKI MARIA I
42 ROSLIN ST
BOSTON, MA 02124

MICELLI NICHOLAS J MICELLI SUSAN M
248 ALBION ST
WAKEFIELD, MA 01880

ROMAN CATHOLIC BISHOP OF FALL RIVER
PO BOX 861
N FALMOUTH, MA 02556-0861

HANDY TRUSTEE MARGARET B HANDY TRUSTEE ROBERT M
PO BOX 75
POCASSET, MA 02559-0075

HANDY TRUSTEE MARGARET B HANDY TRUSTEE ROBERT M
PO BOX 75
POCASSET, MA 02559-0075

CLIFFORD WILLIAM CLIFFORD LAURIE
25911 N CENTRAL AVE
PHOENIX, AZ 85085

APRIL JR PAUL APRIL MARY LOU
PO BOX 67
NORTH FALMOUTH, MA 02556-0067

LEVITT TRUSTEE DAN D DAN D LEVITT 2022 REV LIV TRST
19 ARTHUR ST
N FALMOUTH, MA 02536

M & C HARRIS FAM TRUST
PO BOX 1065
N FALMOUTH, MA 02556-1065

LEONARD TRUSTEE MARGUERITE A MARGUERITE A LEONARD 21 TR
29 ARTHUR ST
NOTH FALMOUTH, MA 02556-2944

HANDY TRUSTEE MARGARET B HANDY TRUSTEE ROBERT M
PO BOX 75
POCASSET, MA 02559-0075

FALMOUTH TOWN OF CONSERVATION COMMISSION
59 TOWN HALL SQ
FALMOUTH, MA 02540

FITZGIBBONS RYAN FITZGIBBONS MEGAN
532 QUAKER RD
N FALMOUTH, MA 02556

BAY SHORES HOME OWN ASSOC INC
PO BOX 226
NORTH FALMOUTH, MA 02556

ROMAN CATHOLIC BISHOP OF FALL RIVER
167 EAST FALMOUTH HWY
EAST FALMOUTH, MA 02536

BLANCHARD BARBARA
18 MILTON TER
RANDOLPH, MA 02368

ROMAN CATHOLIC BISHOP OF FALL RIVER
167 EAST FALMOUTH HWY
EAST FALMOUTH, MA 02536

FALMOUTH TOWN OF CONSERVATION COMMISSION
59 TOWN HALL SQ
FALMOUTH, MA 02540-2761

THREE HUNDRED COMMITTEE INC
157 LOCUST ST
FALMOUTH, MA 02540-2658

DIGIUSTO TRUSTEE STEVEN P DIGIUSTO TRUSTEE DEBRA F
2 SHORE RD
NORTH FALMOUTH, MA 02556

GALPERIN TRUSTEE LEO LEIRAL REALTY TRUST
22 GODDARD CIR
BROOKLINE, MA 02445

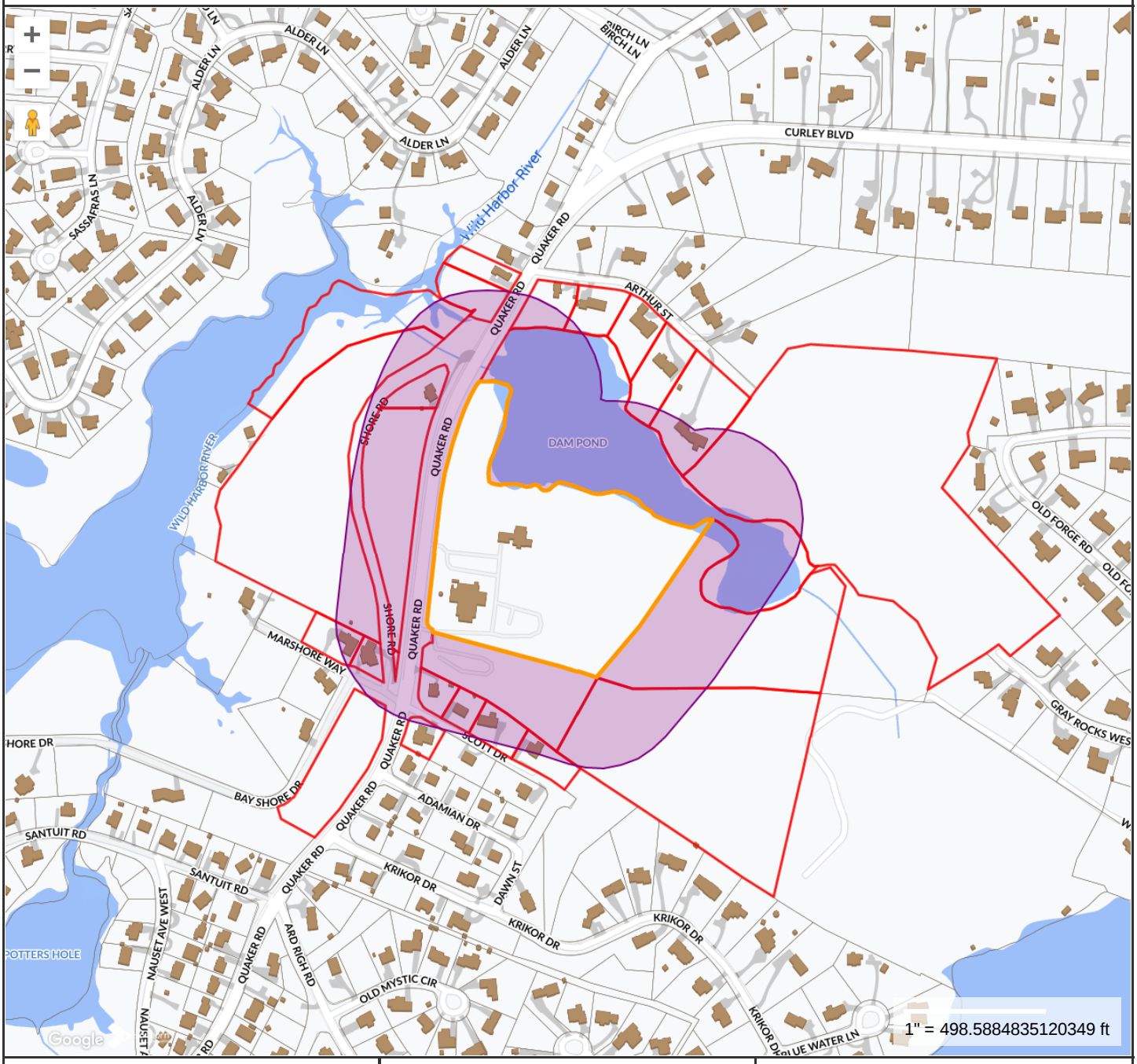
P & A REALTY TRUST
PO BOX 1224
NORTH FALMOUTH, MA 02556-1224

DEPIETRI RICHARD DEPIETRI NORMA
12 VICTORY ST
FRAMINGHAM, MA 01702

MELKONIAN TRUSTEE HAROLD K MELKONIAN TRUSTEE GABRIELE
3 RICHARD RD
HINGHAM, MA 02043-3965

OSHEA MARY KATHLEEN
453 QUAKER RD
N FALMOUTH, MA 02556

431 Quaker Road



MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Falmouth, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 08/01/2024
Data updated 08/01/2024

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

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Bk 34288 Pg239 #46411
07-13-2021 @ 08:43a

Record and Return to:
Vertex Towers, LLC
155 South Street, Suite 102
Wrentham, MA 02093

MEMORANDUM OF LEASE

This Memorandum of Lease evidences a Lease Agreement ("Agreement") by and between Vertex Towers, LLC a Massachusetts limited liability company with a mailing address of 155 South Street, Suite 102, Wrentham, MA 02093 (the "TENANT") and The Roman Catholic Bishop of Fall River, with a mailing address of P.O. Box 569, Falmouth, MA 02541 (the "LANDLORD"), which Agreement contains, among other things, the following terms:

1. LANDLORD owns certain real property located at 481 Quaker Road in the Town of Falmouth, Barnstable County, Commonwealth of Massachusetts, which is depicted as Lot 05-01-10, on Assessor's Map 12, and being further described as the same real property conveyed by that certain deed recorded in Deed Book 187 at Page 54 of the Barnstable County Registry of Deeds, (the "Subject Property") Subject to the terms of the Agreement, LANDLORD has granted to TENANT an option to lease a portion of the Subject Property and to acquire certain easements for ingress, egress and utilities collectively known as the "Leased Premises".
2. The Agreement will constitute a lease of the Leased Premises. The Agreement is for an initial term of five (5) years commencing on the date that TENANT exercises its option as defined in agreement, along with nine (9) additional five (5) year renewal terms, unless earlier terminated by TENANT.
3. The Leased Premises may be used exclusively by TENANT for all legal purposes outlined in the Agreement, including without limitation, erecting, installing, operating and maintaining radio and communications towers, buildings, and equipment; TENANT is entitled to sublease and/or sublicense the Leased Premises, including any communications towers located thereon.
4. Pursuant to the Agreement, excluding a sale of the Subject Property in its entirety, provided such sale also includes the Leased Premises, LANDLORD has granted a TENANT a right of first refusal in connection with all requests, proposals or offers from any third party other than the TENANT's to acquire, lease or obtain an easement (or other right of way) under all or any portion of the Leased Premises.
5. By this Memorandum, the parties hereto intend to record a reference to the Agreement and do hereby ratify and confirm all of the terms and conditions of the Agreement and declare that the Leased Premises are subject to all of the applicable provisions of the Agreement. In the event of a conflict between this Memorandum and the Agreement, the Agreement will control.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK, SIGNATURES BEGIN ON NEXT PAGE]

IN WITNESS WHEREOF, the parties have executed, or have caused this Memorandum of Lease to be properly executed, by their duly authorized agents or officers, all as of the date last signed by a party hereto.

TENANT:
VERTEX TOWERS, LLC

By: _____
Name: Stephen Kelleher
Title: Manager
Date: 6-22-2021

LANDLORD:
ROMAN CATHOLIC BISHOP OF FALL RIVER
A Corporation Sole

By: _____
Name: Most Reverend
Edgar M. da Cunha, S.D.V., D.D.
Title: Its Bishop
Date: JUNE 2, 2021

TENANT ACKNOWLEDGEMENT
COMMONWEALTH OF MASSACHUSETTS
COUNTY OF NORFOLK:

On the date below, before me personally appeared Stephen Kelleher, Manager of Vertex Towers, LLC, to me known (or proved to me on the basis of satisfactory evidence) to be the individual who executed the foregoing instrument, and he acknowledged said instrument by him executed to be his free act and deed in said capacity as Manager.

Date: 6/22/2021

Notary Public Signature: _____

ERIN E VOZZELLA
Notary Public, Commonwealth of Massachusetts
My Commission Expires APRIL 15, 2022

Notary Stamp or Seal

LANDLORD ACKNOWLEDGEMENT
COMMONWEALTH OF MASSACHUSETTS
COUNTY OF BRISTOL:

On the date below, before me personally appeared Edgar M. da Cunha, to me known (or proved to me on the basis of satisfactory evidence) to be the individual who executed the foregoing instrument, and he acknowledged said instrument by him executed to be his free act and deed in said capacity as Its Bishop of the Subject Property as described herein.

Date: JUNE 2, 2021

Notary Public Signature: _____

JODI-LYNNE SULLIVAN
MY COMM. EXPIRES
OCTOBER 21, 2022
NOTARY PUBLIC
COMMONWEALTH OF
MASSACHUSETTS

Notary Stamp or Seal

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LETTER OF AUTHORIZATION

I, Edgar M. da Cunha, S.D.V., D.D., Bishop of The Roman Catholic Bishop of Fall River, which owns a certain parcel of land located 481 Quaker Road in the Town of Falmouth, Barnstable County, Commonwealth of Massachusetts, which is depicted as Lot 5-01-10, on Assessor's Map 12, and being further described as the same real property conveyed by that certain deed recorded in Deed Book 187 at Page 54 of the Barnstable County Registry of Deeds (the "Property").

As Bishop of the above-referenced Property, I hereby authorize Vertex Towers, LLC and any of its designated agents or assigns, to apply for all necessary municipal, state, federal and other permits necessary to accommodate the installation of a wireless telecommunication facility on our Property.

Sign: Edgar M. da Cunha
Edgar M. da Cunha, S.D.V., D.D

Date: JUNE 2, 2021

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Property Address:	**481 Quaker Road, Falmouth, MA 02556**
Tax Assessor:	**12-05-001-010**
Property Owner:	**Roman Catholic Bishop of Fall River c/o St Elizibeth Seton Parish**
Date:	**August 2, 2024**

PROJECT NARRATIVE

INTRODUCTION

The Applicant Vertex Towers, LLC, a Massachusetts limited liability company ("Vertex") is a telecommunications infrastructure developer. Vertex develops, manages and owns telecommunications facilities in strategic locations across the country. The Vertex team has been working in the industry since the industry was founded and has the experience and expertise to navigate the challenges of the most complex markets.

Vertex is sometimes herein referred to as the "Applicant".

The Applicant's proposed Wireless Telecommunications Facility is shown on plans submitted with this Application (the "Plans"). The Applicant proposes to construct a 120' tall monopole-style tower at 481 Quaker Road, Falmouth, MA 02556, Tax Assessors Parcel 12-05-001-010 (the "Property") that will structurally accommodate at least 4 wireless broadband telecommunications carriers and associated antennas, electronic equipment and cabling; and fence in the base of the tower to accommodate ground based telecommunications equipment. As shown on the Plans that accompany this Application, Verizon Wireless will place panel style antennas and required electronic equipment at a height of approximately 115' (centerline) on the tower, it is anticipated that various telecommunications companies, including AT&T Wireless, T-Mobile, Dish Networks and other wireless communications companies will place panel style antennas and required electronic equipment at heights of approximately 105', 95' and 98' (centerline) on the tower, and each will place telecommunications equipment and backup batteries inside equipment shelter(s) and/or weatherproof cabinets to be located immediately adjacent to the base of the tower. Power/telephone cabinets will be installed just outside the fenced-in compound. Applicant's Wireless Communications Facility is similar to the other telecommunication facilities already located in the Town and the surrounding area and has been designed in accordance with the Town's Zoning Bylaw in all respects.

The Property is a large, approximately 10.49 acre substantially undeveloped parcel in the Single Residence B (RB) Zoning District currently used as a religious institution and associated parking, with a substantial vegetative buffer on three sides. Article 6 USE TABLES in the Town's Zoning Ordinance Section 240-6.6B provides that Television or Radio antennae facilities exceeding 50 feet above ground is a permitted use subject to a Special Permit from the Zoning Board of Appeals.

Accordingly, the Applicant has respectfully requested that the ZONING BOARD OF APPEALS grant a SPECIAL PERMIT to permit use of the Property as proposed.

On June 16, 2024, the Falmouth Zoning Board referred the Application to the Cape Cod Commission as a Development of Regional Impact.

THE PROJECT

Wireless telecommunications carriers are in the process of independently designing, constructing and upgrading wireless telecommunications networks to serve areas in and around the Town of Falmouth. Such a network requires a grid of radio transmitting and receiving cell sites located at varying distances depending on the location of existing and proposed installations in relation to the surrounding topography. The radio transmitting and receiving facilities require a path from the facility to the user on the ground. This requires the antennas to be located in a location above the tree line where the signal is not obstructed or degraded by buildings or topographical features.

Once constructed, the Facility will be unmanned and will involve only periodic maintenance visits. The only utilities required to operate the facility are electrical power as well as telephone service which are currently available at the property. The traffic generated by the facility will be one or two vehicle trips per month by maintenance and technical personnel to ensure the telecommunications site remains in good working order. These visits will not result in any material increase in traffic or disruption to patterns of access or egress that will cause congestion hazards or cause a substantial change in the established neighborhood character. The Applicant's and its tenant's maintenance personnel will make use of the existing access driveway off Quaker Road to the base of the proposed Facility. The proposed Facility will not obstruct existing rights-of-way or pedestrian access and will not change the daily conditions of access, egress, traffic, congestion hazard, or character of the neighborhood. The installation will not require the addition of any new parking or loading spaces.

The construction of the Applicant's Facility will enhance service coverage in the Town of Falmouth and surrounding communities. The enhancement of service coverage in the Town of Falmouth is desirable to the public convenience for personal use of wireless services and for community safety in times of public crisis and natural disaster. Wireless communications service also provides a convenience to residents and is an attractive feature and service to businesses. In addition, the requested use at this location will not result in a change in the appearance of the surrounding neighborhoods. The use is passive in nature and will not generate any traffic, smoke, dust, heat, glare, discharge of noxious substances, nor will it pollute waterways or groundwater. Once constructed, the facility will comply with all applicable local, state and federal safety regulations.

Moreover and most importantly:

1. The proposed Facility will promote and conserve the convenience and general welfare of the inhabitants of Falmouth by enhancing telecommunications services within the Town.

2. The proposed Facility will lessen the danger from fire and natural disasters by providing emergency communications in the event of such fires and natural disasters.

3. The proposed Facility will preserve and increase the amenities of the Town by enhancing telecommunications services.

4. The proposed Facility will facilitate the adequate provision of transportation by improving mobile telecommunications for business, personal and emergency uses.

Wireless service is important to public safety and convenience. As of the end of 2021 there were an estimated 457 million mobile wireless subscribers in the United States. See FCC's *2022 Communications Marketplace Report*, p. 56 (December 31, 2022). There are now more wireless subscriptions than landline telephone subscriptions in the United States, and the number of landline telephone subscribers across the nation is declining each year while the number of wireless users increases. Moreover, it is forecasted that wireless connections will become more significant as network service providers facilitate increase connectivity directly between devices, sensors, monitors, etc., and their networks. *Id. at 56-57.*

For many Americans, wireless devices have become an indispensable replacement for traditional landline telephones. Even when Americans maintain both types of telephone service, Americans are opting increasingly to use wireless devices over their landline telephones. For Americans living in "wireless-only" homes and for those others while away from their homes, cell phones are often their only lifeline in emergencies. Over 97% of Americans now own a cellphone of some kind and more than 90% own smartphones; more importantly, more than 50 percent of American households are now wireless only for voice connectivity, and 15% of adults are "smartphone-only" internet users – meaning they own a smartphone, but do not have traditional home broadband service. *http://www.pewinternet.org/fact-sheet/mobile/* Approximately 80% of the millions of 911 calls made daily are placed from cell phones, and that percentage is growing. *https://www.ctia.org/the-wireless-industry/infographics-library*. The FCC's Phase II E911 rules require wireless service providers to transmit the location of a wireless 911 call, within certain parameters for accuracy. Under the FCC's rules, wireless providers are subject to increasingly stringent 911 location accuracy requirements almost every year through 2024. See *http://www.fcc.gov/guides/wireless-911-services*

COMPLIANCE WITH TECHNICAL BULLETIN 97-001
GUIDELINES FOR DRI REVIEW
OF WIRELESS COMMUNICATIONS TOWERS

Technical Bulletin 97-001 Guidelines for DRI Review of Wireless Communication Towers sets forth the criteria for personal wireless service facilities subject to review as a Development of Regional Impact. Each section of the relevant criteria under Bulletin 97-001 will be produced below in *italics*, with the explanation or referenced exhibit to follow in **bold**.

I. Background

The Applicant acknowledges the information in Section I of the Technical Bulletin.

II Purpose and Intent

The Regional Policy Plan (RPP) sets forth the Minimum Performance Standards for all Developments of Regional Impact, including some specific performance standards and development review policies for wireless communication towers. The purpose of this Technical Bulletin is to provide general guidelines for DRI applicants regarding application requirements and conformance with the Regional Policy Plan. In reviewing proposed wireless communication towers, the Commission may waive application of the RPP's Minimum Performance Standards provided that it finds that such standards are outside the scope of the proposed project. It is the express purpose of these Guidelines to minimize the visual and environmental impacts of wireless facilities. The Commission will review proposals for wireless facilities in keeping with the Regional Policy Plan and each town's existing bylaws and historic development patterns, including the size and spacing of structures and open spaces.

The Applicant acknowledges the information in Section II of the Technical Bulletin. The proposed Facility has been designed to satisfy the purpose of the Guidelines in all respects. The Property is a large, approximately 10.49 acre substantially undeveloped parcel in the Single Residence B (RB) Zoning District currently used as a religious institution and associated parking, with a substantial vegetative buffer on three sides. The proposed Facility will be a 120' tall monopole style tower with internal cables with a non-reflective galvanized finish and, located on a property with substantial existing tree growth, which will minimize the visual impact of the Facility. The Facility will also be located far from wetlands and other environmentally sensitive areas to minimize the environmental impact of the Facility.

IV. Location

Applicants seeking Development of Regional Impact (DRI) approval for personal wireless service facilities should comply with the following:

A. If feasible, personal wireless service facilities should be located on existing structures, including but not limited to buildings, water towers, existing telecommunications facilities, utility poles and towers, and related facilities, provided that such installation preserves the character and integrity of those structures. In particular, Applicants are urged to consider use of existing telephone and electric utility structures as sites for one or more personal wireless service facilities. The Applicant shall have the burden of proving that there are no feasible existing structures upon which to locate.

Verizon Wireless has identified a significant gap in wireless coverage and a significant need for capacity relief in this area of Falmouth After a thorough analysis of all existing structures, Verizon Wireless and the Applicant determined that there are no existing structures which would be sufficient to close the significant coverage gap. Every effort was made to identify an existing structure prior to pursuing a raw land site. The Applicant has identified the proposed site as the only feasible location to close this significant gap.

B. If the Applicant demonstrates that it is not feasible to locate on an existing structure, personal wireless service facilities should be designed so as to be camouflaged to the greatest extent possible, including but not limited to use of compatible building materials and colors, screening, landscaping and placement within trees.

Verizon Wireless and the Applicant have determined that it is not feasible to locate on an existing structure. As such, the Applicant proposes to color the facility to blend in with the natural environment to the greatest extent possible with the use of natural buffer, compatible building materials and colors, screening, and landscaping, all as detailed herein.

C. The Applicant shall submit documentation of the legal right to install and use the proposed facility mount at the time of application for a Development of Regional Impact approval.

As part of this Application, the Applicant submits a Memorandum of Lease executed by the owner of the Property as well as a letter of authorization from the owner of the Property to apply for all necessary approvals for a personal wireless service facility at this location.

V. Dimensional Requirements

Personal wireless service facilities should comply with the following requirements:

A. Height, General. Personal wireless service facilities should be no higher than ten feet above the average height of buildings within 300 feet of the proposed facility. However, the height of a personal wireless service facility should not exceed the height limits of the zoning district in which the facility is proposed to be located, unless the facility is completely camouflaged such as within a flagpole, steeple, chimney, or similar structure.

The proposed Facility will be 120' tall, the minimum height necessary to close the significant gap in wireless coverage and also allow for collocation. The Property is a large, approximately 10.49 acre substantially undeveloped parcel in the Single Residence B (RB) Zoning District currently used as a religious institution and associated parking, with a substantial vegetative buffer on three sides. Article 6 USE TABLES in the Town's Zoning Ordinance Section 240-6.6B provides that Television or Radio antennae facilities exceeding 50 feet above ground is a permitted use subject to a Special Permit from the Zoning Board of Appeals. Because the proposed antennas will be more than 50' above ground level, and therefore, the Applicant has requested a Special Permit from the Falmouth Zoning Board.

B. Height, Ground-Mounted Facilities. Ground-mounted personal wireless service facilities (i.e. wireless communication towers) should not project higher than ten feet above the average building height or, if there are no buildings within 300 feet, these facilities should not project higher than ten feet above the average tree canopy height, measured from ground level (AGL). If there are no buildings within 300 feet of the proposed site of the facility, all ground-mounted personal wireless service facilities should be surrounded by dense tree growth to screen views of the facility in all directions. These trees may be existing on the subject property or proposed to be planted as part of the application.

The average tree canopy height in this area is approximately 35 to 45 feet. A personal wireless service facility of 45 feet would not close a significant gap in wireless coverage or cure capacity demand in this area of Falmouth. There is ample tree growth on the Property to screen views of the facility in all directions.

C. Height, Wireless Facility Overlay Districts. If a town has established a wireless facility overlay district (as designated on the town zoning map) where taller facilities are permitted, personal wireless service facilities of up to 150 feet in height may be allowed. Monopoles are the preferred type of mount for such taller structures.

The Town of Falmouth does not have a wireless overlay district. The proposed

Facility will be a monopole.

D. Setbacks. All personal wireless service facilities and their equipment shelters should comply with the building setback provisions of the zoning district in which the facility is located. In addition, the following setbacks should be observed:

1. In order to ensure public safety, the minimum distance from the base of any ground-mounted personal wireless service facility to any property line, road, habitable dwelling, business or institutional use, or public recreational area should be the height of the facility/mount, including any antennas or other appurtenances. This setback is considered a "fall zone." The Applicant shall provide proof of a legal interest in the fall zone, including but not limited to proof of fee ownership, an easement, or a leasehold sufficient to meet the requirements of this section.

In reviewing an application for a personal wireless service facility, the Commission may reduce the required fall zone by as much as 50% of the recommended distance, if it finds that a substantially better design will result from such reduction. In making such a finding, the Commission should consider both the visual and safety impacts of the proposed facility.

The proposed Facility will be 120' tall and will be setback substantially more than 120' from the nearest property line, road, habitable dwelling and public recreational area. The Owner of the Property operates a religious institution, and there is parking less than 120' away from the proposed Facility. Because the proposed location of the Facility results in a better design, to the extent deemed necessary by the Commission, the Applicant respectfully requests a reduction and/or Waiver of the setback guideline to permit construction of the Facility as proposed.

VI. Special Regulations. Personal wireless service facilities should comply with the Performance Standards set forth in this section.

A. Design Standards 1. Camouflage. Personal wireless service facilities should be camouflaged or hidden from public view wherever possible by incorporating them into an existing or proposed structure, by using fiberglass to replace building elements, and/or through careful selection of construction materials and/or color.

The proposed personal wireless service facility will be camouflaged to the greatest extent possible through the use of the natural landscape, construction materials and color as detailed herein and on the Site Plans and photo simulations,

2. Buffers. If personal wireless service facilities are not camouflaged from public viewing areas by existing buildings or structures, they should be surrounded by buffers of dense tree growth and understory vegetation in all directions to create an effective year-round visual buffer. Ground- mounted personal wireless service facilities should provide a vegetated buffer of

sufficient height and depth to effectively screen the facility. Trees and vegetation may be existing on the subject property or installed as part of the proposed facility or a combination of both. The Commission will work with the Applicant to determine the types and sizes of trees and plant materials and depth of the needed buffer based on site conditions.

The Property is surrounded by a year-round vegetative buffer which will effectively screen the Facility and, the base of the Facility will be setback substantially from all from the nearest property line, road, habitable dwelling and public recreational area. Because the side the compound adjacent to the parking lot and towards Quaker Road may be visible from Quaker Road, and to supplement the existing vegetive buffer to the south of the compound, the Applicant has proposed planting arborvitaes along the south and west side of the compound, and to incorporate forest green privacy slats into the fencing surrounding the compound as detailed on the Site Plans.

3. *Color. To the extent that any personal wireless service facility extends above the height of the vegetation immediately surrounding it, it should be painted in a light grey or light blue hue which blends with sky and clouds.*

The proposed Facility will be neutral, non-reflective galvanized gray which weathers over time, typical of similar facilities, which will blend in with the sky and clouds as much as possible.

4. Equipment Shelters. Equipment shelters for personal wireless service facilities should be designed consistent with one of the following design standards:

a. Equipment shelters should be located in underground vaults; or

b. Equipment shelters should be designed consistent with traditional Cape Cod architectural styles and materials, with a roof pitch of at least 10/12 and wood clapboard or shingle siding; or

c. All ground-mounted personal wireless service facilities should be surrounded by a security barrier. Equipment shelters should be camouflaged behind an effective year-round landscape buffer, equal to the height of the proposed building, and/or wooden fence. The Commission, in consultation with local officials will determine the style of fencing and/or landscape buffer that is compatible with the neighborhood.

The proposed compound area will be surrounded by a 6' tall chain link fence plus barbed wire to prevent unauthorized access. The Property is surrounded by a year-round vegetative buffer which will effectively screen the Facility and the Facility will be setback substantially from the nearest property line, road, habitable dwelling and

public recreational area. Because the side the compound adjacent to the parking lot and towards Quaker Road may be visible from Quaker Road, and to supplement the existing vegetive buffer to the south of the compound, the Applicant has proposed planting arborvitaes along the south and west side of the compound, and to incorporate forest green privacy slats into the fencing surrounding the compound as detailed on the Site Plans.

5. Lighting and Signage

a. Personal wireless service facility mounts should be lighted only if required by the Federal Aviation Administration (FAA). Lighting of equipment shelters and any other facilities on the ground should be designed in accordance with Technical Bulletin #95-001, Development of Regional Impact Guidelines for Exterior Lighting.

The proposed Facility will not require lighting under current FAA regulations. No ground exterior lighting is proposed.

b. All signs should comply with the FCC and applicable requirements of the town's sign regulations.

All signs proposed as part of the proposed Facilty will comply with all requirements of the FCC and the Town of Falmouth sign regulations. There shall be no signs except a sign identifying the facility and a telephone number where the owner and operator can be reached on a twenty-four hour basis; a no trespassing sign; and any applicable safety warning signs.

6. Historic Districts Personal wireless service facilities should not be located within an historic district unless they are completely camouflaged.

The proposed Facility is not located within an historic district.

7. Scenic Landscapes and Vistas

a. Personal wireless service facilities should not be located within open areas that are visible from public roads, recreational areas or residential development. All ground-mounted personal wireless service facilities which are not camouflaged by existing buildings or structures should be surrounded by a buffer of dense tree growth.

The proposed Facility is sited in the only feasible location to close a significant gap in wireless coverage for Verizon Wireless. While the top portion of the Facility will be visible from certain public roads, the Property is surrounded by a year-round

vegetative buffer which will effectively screen the base of the Facility. Because the side the compound adjacent to the parking lot and towards Quaker Road may be visible from Quaker Road, and to supplement the existing vegetive buffer to the south of the compound, the Applicant has proposed planting arborvitaes along the south and west side of the compound, and to incorporate forest green privacy slats into the fencing surrounding the compound as detailed on the Site Plans.

b. Any personal wireless service facility that is located within the viewshed of a scenic vista, scenic landscape or scenic road as designated by a town should not exceed the height of vegetation at the proposed location.

The proposed Facility will not be located within the viewshed of a scenic vista, scenic landscape or scenic road as designated by the Town of Falmouth.

B. Noise Standards

Ground-mounted personal wireless service facilities should not generate noise from equipment and/or wind in excess of 50 db at the property line.

The only noise generating equipment at the proposed Facility will be a generator utilized by Verizon Wireless as a third-tier back up power source (behind primary power and back-up batteries) in the event of a long term power outage and will cycle on periodically for routine testing. Included with this Application are the noise specifications for the proposed generator, indicating compliance with this standard.

C. Radiofrequency Radiation (RFR) Standards All equipment proposed for a personal wireless service facility should be authorized per the FCC Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (FCC Guidelines).

Included with the Application is a Calculated Radio Frequency Emissions Report showing compliance by Verizon Wireless with applicable FCC standards for radio frequency exposure limits.

D. Hazardous Materials Standards

Under the Regional Policy Plan, a wireless facility in a Wellhead Protection District is limited to household quantities of hazardous materials/waste. The Commission may require provisions for full containment of any hazardous materials used on-site, including an enclosed containment area with a sealed floor, designed to contain 110% of the total volume of all hazardous materials used, handled or stored on the site and a prohibition on floor drains. No hazardous waste should be discharged on the site of any personal wireless service facility.

There will be no hazardous materials or waste generated used or stored at the proposed Facility.

VII. Co-location

A. Licensed carriers should share personal wireless service facilities and sites where feasible and appropriate, thereby reducing the number of personal wireless service facilities that are stand- alone facilities. All Applicants for a personal wireless service facility should demonstrate a good faith effort to co-locate with other carriers. Such good faith effort includes:

1. A survey of all existing structures that may be feasible sites for co-locating personal wireless service facilities;

As demonstrated by the reports that accompany this Application, Verizon Wireless and the Applicant have surveyed all existing structures and determined that there are no existing structures upon which to co-locate to close the significant gap in wireless coverage in this area of Falmouth.

2. Contact with all the other licensed carriers for commercial mobile radio services operating in the County; and

As a wireless infrastructure developer, the Applicant encourages co-location and has relationships with all of the existing wireless telecommunications carriers licensed in this market and intends to provide space on the proposed Facility at commercially reasonable rates, which will minimize the total number of towers in the community. The Applicant has already secured a commitment from Verizon Wireless to co-locate on the Facility, and included with this Application are notices sent to all other licensed carriers for commercial mobile radio services operating in Barnstable County.

3. Sharing information necessary to determine if co-location is feasible under the design configuration most accommodating to co-location.

As a wireless infrastructure developer, the Applicant encourages co-location and has relationships with all of the existing wireless telecommunications carriers licensed in this market and has designed the Facility with the height and structural integrity to accommodate at least 4 carriers. The Applicant intends to provide space on the proposed Facility at commercially reasonable rates, which will minimize the total number of towers in the community, and will share all necessary information with interested parties to determine whether co-location is feasible under the design

configuration and will use best efforts to ensure that the design configuration accommodates maximum co-location.

B. In the event that co-location is found to be not feasible, a written statement of the reasons for the infeasibility should be submitted to the Commission. The Commission may retain a technical expert in the field of RF engineering to verify if co-location at the site is not feasible or is feasible given the design configuration most accommodating to co-location. If the Executive Director of the Commission or his/her designee determines it will require the services of an outside consultant / technical expert to assist in the project evaluation, the project Applicant will deposit with the Commission an amount of money estimated to cover 100% of these services. If this initial estimate is insufficient to adequately review the project proposal, the Applicant will provide the additional funds necessary. Any funds not expended at the conclusion of the review will be returned to the Applicant. The Commission may deny a permit to an Applicant that has not demonstrated a good faith effort to provide for co-location.

The Applicant has used best efforts to ensure that the design configuration accommodates maximum co-location.

C. If the Applicant does intend to co-locate or to permit co-location, the Commission may request drawings and studies which show the ultimate appearance and operation of the personal wireless service facility at full build-out.

The Applicant has provided photo simulations of the Facility from several vantage points at full build-out.

D. If the Commission approves co-location for a personal wireless service facility site, the permit should indicate how many facilities of what type shall be permitted on that site, including the type, size and location of storage cabinets or buildings. Facilities specified in the Development of Regional Impact (DRI) approval should require no further Commission review. Estimates of RFR emissions will be required for all facilities, including proposed and future facilities.

The proposed Facility can accommodate at least 4 wireless service providers and their equipment on the monopole and within the fenced compound at the base of the Facility. Estimated RFR emissions for Verizon Wireless have been provided, and estimated RFR emissions will be provided to the Commission showing compliance with applicable FCC regulations as and when such additional carriers co-locate on the Facility. The Applicant requests that the Commission approve the Facility for up to 4 wireless service providers as shown on the attached Site Plans.

IX. Monitoring and Maintenance

A. After the personal wireless service facility is operational, the Applicant should submit, within 90 days of beginning operations, and at annual intervals from the date of issuance of the DRI Certificate of Compliance, existing measurements of RFR from the personal wireless service facility. Such measurements should be signed and certified by a RF engineer, stating that RFR measurements are accurate and meet FCC Guidelines as specified in the Radiofrequency Standards (sub-section VI C) of these Guidelines.

The Applicant will comply with the requirements for submission within 90 days of operations and annual submission of RFR compliance.

B. After the personal wireless service facility is operational, the Applicant should submit, within 90 days of the issuance of the DRI Certificate of Compliance, and at annual intervals from the date of issuance of the DRI Certificate of Compliance, existing measurements of noise from the personal wireless service facility. Such measurements should be signed by an acoustical engineer, stating that noise measurements are accurate and meet the Noise Standards (sub-section VI.B.) of these Guidelines.

The Applicant agrees to maintain the Facility in compliance with the Noise Standards (sub-section VI.B.) of these Guidelines. Given the substantial setbacks, existing vegetative buffer and minimal noise emissions as demonstrated, as well as the unnecessary and substantial expense of this requirement the Applicant respectfully requests a WAIVER of this requirement.

C. The Applicant and co-Applicant should maintain the personal wireless service facility in good condition. Such maintenance includes, but is not be limited to, painting, structural integrity of the mount and security barrier, and maintenance of the buffer areas and landscaping.

The Applicant agrees to maintain the Facility in good condition.

X. Abandonment

A. At such time that the owner plans to abandon a personal wireless service facility, such owner should notify the Commission and the Town by certified U.S. mail of the proposed date of abandonment. Such notice should be given no less than 30 days prior to abandonment. In the event that an owner fails to give such notice, the personal wireless service facility shall be considered abandoned if it is not used for a period of six (6) months.

In the unlikely event that the Applicant intends to abandon the Facility, the Applicant will notify the Commission and the Town by certified U.S. mail of the

proposed date of abandonment.

B. Upon abandonment of the facility, the owner should physically remove the personal wireless service facility within 90 days from the date of abandonment. "Physically remove" includes, but is not limited to:

1. Removal of antennas, mount, equipment shelters and security barriers from the subject property.

2. Proper disposal of the waste materials from the site in accordance with local and state solid waste disposal regulations.

3. Restoring the location of the personal wireless service facility to its natural condition, except that any landscaping and grading should remain after removal of the personal wireless service facility.

Within 90 days of the date of abandonment, the Applicant will remove all above-ground portions the Facility.

C. If a carrier fails to remove a personal wireless service facility in accordance with this section of these Guidelines, the town shall have the authority to enter the subject property and physically remove the facility. The Commission should consider requiring the Applicant to post a bond at the time of construction to cover costs for the removal of the personal wireless service facility in the event the town must remove the facility.

No response required.

XI. General Criteria for Documenting Need for a Proposed Wireless Facility

A. Introduction

The Cape Cod Commission has an established hierarchy of preference with regard to locating personal wireless service facilities. Regional Policy Plan Minimum Performance Standard 4.3.2.1 states that "Whenever feasible, new telecommunications facilities shall be required to co-locate with existing facilities in order to minimize their visual impacts." The Commission's policy thus encourages locating on existing buildings and structures rather than permitting the construction of new towers or monopoles. Commission review is not required for facilities located on existing buildings or structures. In addition, Commission review is not required for the reinforcement, reconstruction or replacement of an existing wireless communication tower on the same site with an addition of up to 20 feet in height. The Commission's DRI review for wireless facilities first focuses on alternatives to proposed new towers or monopoles and looks very closely at existing buildings and structures in the vicinity of the proposed tower as possible alternative locations. Applicants are expected to have pursued these locations prior to application to the Commission

and the Town, and must adequately document why these sites have proven to be unsatisfactory to the carrier(s). The Commission's engineering consultants will assist in reviewing technical data provided by the primary carrier and all co-locating carriers to assess the feasibility of alternatives. For new towers or monopoles, the Commission seeks sites with limited impact on significant scenic and historic resources, and seeks proposals with siting and design features which successfully camouflage the facility. The Commission also seeks proposals with at least three committed carriers. Although the Commission has reviewed facilities with fewer co-locators than three, it requires documentation that the proposing carrier has contacted in writing all other carriers licensed for Cape Cod regarding the proposed facility. Co-location for new towers or monopoles is stressed and single-carrier facilities are not encouraged. Single-carrier facilities should incorporate creative solutions which are effectively camouflaged.

Verizon Wireless and the Applicant have reviewed all existing buildings and structures prior to proposing a personal wireless service facility at the present location. Verizon Wireless and the Applicant determined that a new monopole of 130 feet above ground level at the proposed location is the only feasible location to place a personal wireless service facility to close a significant gap in wireless coverage for Verizon Wireless.

The proposed Facility is at the least intrusive location available and at the minimal height necessary in an effort to minimize impact on scenic and historic resources.

In an effort to abide by the Commission's preference for co-location, the current application is for a monopole which can accommodate up to 4 wireless service providers. The Applicant has and intends to continue actively market this site to the other carriers and make space available at reasonable market rates to encourage co-location.

The Applicant has provided documentation that it has contacted in writing all other carriers licensed for Cape Cod regarding the proposed Facility.

It is important to point out that courts in the 1st Circuit do not take into account coverage of other providers when determining whether there is a significant gap. *Second Generation Prop. v. Town of Pelham*, 313 F.3d 620, 633-34 (1st Cir. 2002). Courts look at coverage gaps from the perspective of the individual provider. In this case, where there is a significant gap in coverage for Verizon Wireless in this area, the inability to close that gap in coverage could be considered an effective prohibition of wireless services regardless of whether it is a gap in coverage being requested to be fulfilled for one or multiple carriers.

B. Application Requirements

The following documentation is required to justify need and must be submitted as part of the DRI application. If the need for a new facility is justified, the Applicant must also demonstrate that the proposed location will have the least possible impact on surrounding scenic and historic resources, and that the proposed facility design will have the least possible impact on community character. Other information may be requested during the DRI review process.

1. Demonstration of a coverage and/or capacity problem requiring a solution.

a) Drive test data showing clear failure points in critical locations.

b) Dropped call statistics and/or capacity statistics (if RF coverage appears sufficient)

c) Zoning or assessors or USGS map (11" x 17" or smaller) showing the location of all existing and proposed personal wireless service facilities for that carrier in the town and in adjacent towns, and showing the area of the coverage or capacity problem.

The attached RF Report demonstrates that there is a significant coverage gap and insufficient network capacity in and around the area of Falmouth surrounding the proposed Facility, including the roads, residences, businesses, and community and recreational areas. The RF Report clearly demonstrates with industry standard methods of computer modeling and drive test data the clear failure points in critical locations.

The RF Report shows the location of all of the existing, approved and proposed sites used to perform the coverage analysis and generate the coverage plots provided herein. The location of the existing and proposed sites are clearly labeled on the maps provided in the Report.

The RF Report includes existing and proposed coverage maps, overloaded sectors, coverage offload with the proposed site, empirical drive test data and an area terrain map which demonstrates the manner in which the topographic features shape the evaluation of this site and determine the need.

2. Demonstration that all existing structures have been identified and fairly rejected.

a) Provide results from tower databases, town records, Cape Cod Commission maps, and other reasonably available resources to identify potential sites on existing structures.

b) Provide aerial photographs of sufficient resolution and coverage to identify significant features such as utility rights of way, towers, steeples, tanks, and other existing tall

structures.

c) For a) and b), consider area greater than the typical "search ring." Extend search for existing structures to the acceptable coverage contours of adjacent sites.

d) Provide propagation plots to demonstrate anticipated coverage from rejected sites or structures.

e) Identify whether a combination of the existing structures considered in a. and b. could address the coverage and/or capacity problem defined in item 1).

f) Provide documentation that demonstrates that sites with potentially good coverage are not available or otherwise unusable.

As indicated in the documentation provided with the Application, representatives of Verizon Wireless and the Applicant have investigated the area and utilized all databases and records available and identified no structure of sufficient height and structural integrity in the area on which it might be able to locate to close the significant gap in wireless coverage.

3. Demonstration that proposed location and height will solve problem

a) Drive test data showing:
i. Performance of proposed facility

ii. Composite performance of proposed facility and intersecting facilities

b) Propagation plots in sufficiently enlarged scale to show local terrain effects:

i. Propagation plot of proposed facility alone

ii. Propagation of each adjacent facility, separately (Identify whether each facility is complete, under construction or proposed)

iii. Composite propagation plot (See Presentation Guidelines below for details)
See Exhibit 12, Radio Frequency Report for Verizon Wireless Prepared by C Squared Systems, LLC

4. Demonstration that proposed height is minimum necessary to achieve coverage of target area.

a) Provide propagation plots at incrementally lower elevations until reaching an elevation that clearly is not sufficient. Use increments of ten percent of proposed antenna elevation above ground, or ten feet, whichever is greater.

b) Measure and provide data on height of surrounding tree, vegetation, and/or building cover. Supply photographs to corroborate. In complex environments, a plan view is recommended.

c) Provide a propagation plot with top of antenna placed ten feet above average surrounding cover line.

See RF Report and RF Coverage Maps and Supplemental Reports which accompany this Application/

5. Demonstration of visual impact of proposed new structure. A balloon test or, preferably and where appropriate, a crane at the proposed site is required. The date, time and location of the test must be advertised in a newspaper of general circulation in the town at least 14 days, but not more than 21 days, prior to the test, and the Commission and the town must be notified in writing at least 14 days prior to the test.

a) During crane/balloon test, map locations along local public ways where facility is visible above visual horizon. In addition to mapping local visibility, anticipate roads where distant views are possible. Use of line-of-sight (also called terrain shadowing) mapping software is encouraged to identify areas to send mapping personnel. However, final map must be the result of personal observation.

b) Map visibility of a lower tower height for comparison. Select height in coordination with Commission staff. Height could be half of the proposed structure's height or 10 feet above the height of local tree, vegetation or building cover. Mark balloon or crane in visible fashion at the alternate height. Visibility of lower elevation can be mapped at the same time by mapping personnel.

c) Field verify actual elevations above ground of test crane or balloon.

d) Provide map that indicates visibility of both elevations from public ways. See Presentation Guidelines below for details.

e) Confer with Commission and town staff to identify points of view of particular interest or concern to be documented at the time of the crane/balloon test.

g) Provide photographs of the proposed site during the crane/balloon test from all representative visibility locations identified in 5.a) and 5.d) and from all points identified in 5.e).

NOTE: If the visibility map and accompanying photographs demonstrate that the height and location of the proposed new structure will have significant visual impacts on surrounding scenic and historic resources, the Applicant must provide documentation described in items 3) and 4) for alternative locations outside of such resource areas.

On Friday, June 28, 2024 after notice to the Town of Falmouth and the Cape Cod Commission, the Applicant performed a visibility demonstration by floating a large

red balloon at 120' with ribbons on the tether spaced 10' apart. The date and location of the balloon test was noticed in the Cape Cod Times and sent to abutters.

At the conclusion of the test, photos and photographic simulations were rendered for the communication structure at the proposed height of 130' and are included herewith.

6. Demonstration of Camouflaged Siting and Design Features

a) 1"= 40' vicinity plan to demonstrate how the proposed siting will limit visibility of the personal wireless service facility, showing the following:

i. Property lines for the subject property and adjacent properties within 300 feet of the project property.
ii. Existing tree cover on the subject property and adjacent properties within 300 feet, by dominant species and average height, as measured by or available from a verifiable source.
iii. Outline of all existing buildings, including purpose, on subject property and adjacent properties within 300 feet.
iv. Location of all roads, public and private, on the subject property and adjacent properties within 300 feet including driveways proposed to serve the personal wireless service facility.
v. Proposed location of antenna, mount, equipment shelter(s), and security barrier.
vi. Distances, at grade, from the proposed personal wireless service facility to each building on the vicinity plan.
vii. Contours at each two feet AMSL for the subject property and adjacent properties within 300 feet.
viii. All proposed changes to the existing property, including grading, vegetation removal, parking and temporary or permanent roads and driveways.

See the detailed Site Plans included herewith.

b) Cross-sections of the proposed antennas, mounts, equipment shelter(s) and security barrier, showing dimensions of all features, to demonstrate how the design of the facility will be streamlined to limit visibility. The Commission seeks a clean architectural appearance that limits visually cluttered equipment such as mounting hardware, pipes, bolts, and cables.

c) Color and materials of the proposed personal wireless service facility, represented by a color board showing actual colors proposed for antennas, mounts, equipment shelters, cable runs and security barrier, if any.

d) Existing vegetation and proposed landscaping, identified by size and species, shown both in plan and cross- section to demonstrate how vegetation will limit the visibility of the proposed facility.

e) If lighting of the site is proposed, a manufacturer's computer-generated point-to-point printout, indicating the horizontal footcandle levels at grade within the site and 25 feet beyond the property lines. Any FAA lighting requirements and information on the types of luminaires proposed.

See the detailed Site Plans included herewith as well as the photo simulations of the Proposed Facility

7. Demonstration of Co-Location Capability

a) Documentation in writing that the proposing carrier has contacted all other carriers licensed for Cape Cod regarding the proposed facility.

See Letters to Other Wireless Carriers included herewith.

b) Information showing the proposed structure fully populated with wireless facilities, showing all positions and types of facilities which can be accommodated on the proposed facility.

See Photos from Visibility Demonstration and Photo Simulations included herewith.

8. Radiofrequency Radiation (RFR) Filing Requirements The Applicant should provide a statement listing the existing and maximum future projected measurements of RFR from the proposed personal wireless service facility, for the following situations:

a) Existing, or ambient: the measurements of existing RFR.

b) Existing plus proposed personal wireless service facilities: maximum estimate of RFR from the proposed personal wireless service facility plus the existing RFR environment.

b) Certification, signed by a RF engineer, stating that RFR measurements are accurate and meet FCC Guidelines as specified in the Radiofrequency Radiation Standards (sub-section VI.C.) of these Guidelines.

See Calculated Radio Frequency Emissions Report included herewith.

9. Hazardous Materials Filing Requirements The Applicant should provide a written description of the type(s) and quantities of any hazardous waste and/or hazardous materials

to be used, stored or generated for each wireless carrier proposed to be located on the project site, as well as provide a written description and plans for containment of any hazardous materials/waste.

There will be no hazardous materials or waste generated, stored or used at the proposed personal wireless service facility.

Noise Filing Requirements The Applicant should provide a statement listing the existing and maximum future projected measurements of noise from the proposed personal wireless service facilities, measured in decibels Ldn (logarithmic scale, accounting for greater sensitivity at night), for the following:

a) Existing, or ambient: the measurements of existing noise.

b) Existing plus proposed personal wireless service facilities: maximum estimate of noise from the proposed personal wireless service facility plus the existing noise environment. Such statement should be certified and signed by an acoustical engineer, stating that noise measurements are accurate and meet the Noise Standards (subsection VI.B.) of these Guidelines.

See Equipment Specifications showing Noise Emissions and compliance with applicable noise standards. The Applicant respectfully requests a WAIVER of the requirements to provide the measurements of existing noise and existing plus proposed noise emissions certified and signed by an acoustical engineer as such information is not needed for a thorough review of a proposed Facility.

C. The Commission may waive one or more of the application filing requirements of this section if it finds that such information is not needed for a thorough review of a proposed personal wireless service facility.

The Applicant has read and acknowledges this Section.

D. Presentation Guidelines

The Applicant has read and acknowledges the Presentation Guidelines.

COMPLIANCE WITH ENABLING REGULATIONS

Section 6(c)(viii) Findings for Approval. The Commission shall review proposed DRis for their consistency with the Act, the RPP, Districts of Critical Planning Concern (DCPC), municipal development bylaws and Local Comprehensive Plans. The Commission shall approve, or approve with conditions, a DRI and shall permit a Municipal Agency to grant a development permit for a proposed DRI if the Commission finds after a public hearing that:

[1] the probable benefit from the proposed development is greater than the probable detriment;

The construction of the Applicant's Facility will enhance service coverage in the Town of Falmouth and surrounding communities. The enhancement of service coverage in the Town of Falmouth is desirable to the public convenience for personal use of wireless services and for community safety in times of public crisis and natural disaster. Wireless communications service also provides a convenience to residents and is an attractive feature and service to businesses. In addition, the requested use at this location will not result in a change in the appearance of the surrounding neighborhoods. The use is passive in nature and will not generate any traffic, smoke, dust, heat, glare, discharge of noxious substances, nor will it pollute waterways or groundwater. Once constructed, the facility will comply with all applicable local, state and federal safety regulations. See also above, pp. 3- 4, for the substantial benefit

[2] the proposed development is consistent with the RPP and the Local Comprehensive Plan of the Municipality(ies) in which the proposed development is located if the municipality has adopted an LCP which has been certified by the Cape Cod Commission as consistent with the RPP.

As set forth below, the proposed development is consistent with the Regional Policy Plan, and also consistent with the LCP. The Town of Falmouth has approved several similar facilities throughout Falmouth, recognizing the need for enhanced wireless communications as a means of improving public safety.

[3] the proposed development is consistent with municipal development bylaws, or, if it is inconsistent, the inconsistency is necessary to enable a substantial segment of the population to secure adequate opportunities for housing, conservation, environmental protection, education, recreation or balanced economic growth;

The Property is a large, approximately 10.49 acre substantially undeveloped parcel in the Single Residence B (RB) Zoning District currently used as a religious institution and associated parking, with a substantial vegetative buffer on three

sides. Article 6 USE TABLES in the Town's Zoning Ordinance Section 240-6.6B provides that Television or Radio antennae facilities exceeding 50 feet above ground is a permitted use subject to a Special Permit from the Zoning Board of Appeals. Because the proposed antennas will be more than 50' above ground level, and therefore, the Applicant has requested a Special Permit from the Falmouth Zoning Board.

We note that the Town of Falmouth has approved several similar facilities throughout Falmouth, recognizing the need for enhanced wireless communications as a means of improving public safety

[4] if the proposed development is located in whole or in part within a designated DCPC, it is consistent with the regulations approved or adopted by the Commission pursuant to Section 11 of the Act.

The Site is not located within a designated DCPC.

COMPLIANCE WITH REGIONAL POLICY PLAN

WATER RESOURCES

Goal: To maintain a sustainable supply of high quality untreated drinking water and protect, preserve, or restore the ecological integrity of Cape Cod's fresh and marine surface water resources

The proposed Facility will not adversely impact any water resources and will not introduce any nitrogen loading. The Applicant respectfully asserts that this section of the Regional Policy Plan is not applicable in this instance.

OCEAN RESOURCES

Goal: To protect, preserve, or restore the quality and natural values and functions of ocean resources.

The proposed Facility will not have any adverse impact on ocean resources and the Applicant respectfully asserts that this section of the Regional Policy Plan is not applicable in this instance.

WETLAND RESOURCES

Goal: To protect, preserve, or restore the quality and natural values and functions of inland and coastal wetlands and their buffers.

The proposed Facility will not have any adverse impact on inland or coastal resources and the Applicant respectfully asserts that this section of the Regional Policy Plan is not applicable in this instance.

WILDLIFE AND PLANT HABITAT

Goal: To protect, preserve, or restore wildlife and plant habitat to maintain the region's natural diversity.

The proposed Facility will have a minimal impact upon existing vegetation on the Site. The Facility will only impact 9900 square feet of land immediately adjacent to a paved parking lot, and none of which is in a Biomap Core Habitat. The proposed Facility will not have any adverse impact upon wildlife, and will not produce smoke, odor, waste, unreasonable noise or vibrations.

OPEN SPACE

Goal: To conserve, preserve, or enhance a network of open space that contributes to the region's natural and community resources and systems

The installation of the proposed Facility requires minimal disturbance of the land and adds very little impervious surface to the Site, other than the concrete pads for the carriers' equipment.

The Property is a large, approximately 10.49 acre substantially undeveloped parcel in the Single Residence B (RB) Zoning District currently used as a religious institution and associated parking. As such, the proposed Facility will not involve the development of open space that contributes to the region's natural resources, but does in fact improve community resources through enhanced wireless communications. There is no nearby open space on which the land underneath the proposed Facility could be connected, nor will the proposed Facility have any impact on nearby open space. It is unlikely that a conservation agency would be interested in a donation, restriction or restoration of such a small equivalent of open space on-site, especially given the proximity to the existing paved parking lot, nor would they be interested in in a donation or restoration of such a small equivalent of open space off-site.

Given the lack of impact on open space and the fulfillment of the goal to promote economic development providing employment opportunities to a diverse workforce, the Applicant respectfully requests a WAIVER of the requirement to contribute a payment in lieu to meet the open space objective.

COMMUNITY DESIGN

Goal: To protect and enhance the unique character of the region's built and natural environment based on the local context.

The Property is a large, approximately 10.49 acre substantially undeveloped parcel in the Single Residence B (RB) Zoning District currently used as a religious institution and associated parking, with a substantial vegetative buffer on three sides. The Facility will be screened by existing trees and vegetation on the Property.

PLAPC
PARISI LAW ASSOCIATES, P.C.

COASTAL RESILIENCY

Goal: To prevent or minimize human suffering and loss of life and property or environmental damage resulting from storms, flooding, erosion, and relative sea level rise.

The installation of the proposed Facility will not be a threat to public health, safety and welfare. Rather, the proposed Facility will aid in public safety by maintaining wireless communication services to the residents, businesses, commuters, and emergency personnel utilizing wireless communications in the immediate vicinity and along the nearby roads. These services further the public interest of health and safety as they provide wireless 911 services to the community and communication services for the public. According to published reports, approximately 80% of all 911 calls are made from wireless devices. The proposed Facility will allow for improved access to these reliable and robust networks in this area of the Town of Falmouth. Today, wireless infrastructure is required to assist with public safety needs. The proposed Facility will not result in, or cause any, flooding or erosion.

CAPITAL FACILITIES AND INFRASTRUCTURE

Goal: To guide the development of capital facilities and infrastructure necessary to meet the region's needs while protecting regional resources.

Development of the proposed Facility will allow Verizon Wireless and other wireless communication services providers to improve wireless communication services coverage to this area of the Town of Falmouth.

TRANSPORTATION

Goal: To provide and promote a safe, reliable, and multi-modal transportation system.

The Facility will not have any adverse impact on transportation systems. The proposed Facility will generate insignificant traffic to and from the Site. On average, only one or two visits per month will be required for maintenance purposes. Access to the Facility will be via the existing access way.

ENERGY

Goal: To provide an adequate, reliable, and diverse supply of energy to serve the communities and economies of Cape Cod.

The proposed Facility will not have any adverse impact on energy supplies and the Applicant respectfully asserts that this section of the Regional Policy Plan is not applicable in this instance. The Facility will function using standard telephone and electric services.

WASTE MANAGEMENT

Goal: To promote a sustainable solid waste management system for the region that protects public health, safety, and the environment and supports the economy.

There will be no hazardous materials introduced or discharged at the proposed Facility. All construction waste will be transported off site and disposed of in compliance with applicable regulations. Once constructed, the proposed Facility will not generate any solid waste.

CULTURAL HERITAGE

Goal: To protect and preserve the significant cultural, historic, and archeological values and resources of Cape Cod.

The Applicant will not demolish or impact any cultural, historic or archeological resources as a part of this Facility.

ECONOMY

Goal: To promote a sustainable regional economy comprised of a broad range of businesses providing employment opportunities to a diverse workforce.

The proposed Facility will enable Verizon and other wireless carriers to provide improved w communications services to the residents, businesses, public safety personnel and travelers in this area of Falmouth, supporting a broad range of economic development. Likewise, other wireless carriers will be able to collocate at the proposed Facility, fostering competition and economic development.

HOUSING

Goal: To promote the production of an adequate supply of ownership and rental housing that is safe, healthy, and attainable for people with different income levels and diverse needs.

The Facility will not have any adverse impact on housing and the Applicant respectfully asserts that this section of the Regional Policy Plan is not applicable in this instance.

THE TELECOMMUNICATIONS ACT OF 1996

In 1996, the U.S. Congress enacted the Telecommunications Act of 1996, Pub. L. No. 104-104, § 704; 110 Stat. 56 (1996) (the "TCA"). The TCA provides that: no laws or actions by any local government or planning or zoning board may prohibit, or have the effect of prohibiting, the placement, construction, or modification of communications towers, antennas, or other wireless facilities in any particular geographic area, see 47 U.S.C. §332(c)(7)(B)(i); local government or planning or zoning boards may not unreasonably discriminate among providers of functionally equivalent services, see 47. U.S.C. §332(c)(7)(B)(i);

Moreover, the TCA provides that health concerns may not be considered so long as the emissions comply with the applicable standards of the FCC, see 47 U.S.C. §332(c)(7)(B)(iv); and, decisions must be rendered within a reasonable period of time, see 47 U.S.C. §332(c)(7)(B)(ii) and the FCC's Declaratory Ruling commonly referred to as the "Shot Clock", in this instance 150 days.

THE TELECOMMUNICATIONS ACT OF 1996

In 1996, the U.S. Congress enacted the Telecommunications Act of 1996, Pub. L. No. 104-104, § 704; 110 Stat. 56 (1996) (the "TCA" or the "Telecommunications Act'). The intent of the TCA as enacted by Congress was to institute a framework to promote competition and innovation within the telecommunications industry. Although this law specifically preserves local zoning authority with respect to the siting of wireless service facilities, it clarifies when the exercise of local zoning authority may be preempted by federal law. Section 704 of the TCA provides, in pertinent part, that

(7) PRESERVATION OF LOCAL ZONING AUTHORITY-

(A) GENERAL AUTHORITY- Except as provided in this paragraph, nothing in this Act shall limit or affect the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless service facilities.

(B) LIMITATIONS-

(i) The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof--

> **(I) shall not unreasonably discriminate among providers of functionally equivalent services; and**
>
> **(II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services.**

Moreover, the TCA provides that health concerns may not be considered so long as the emissions comply with the applicable standards of the FCC, see 47 U.S.C. §332(c)(7)(B)(iv); and, decisions must be rendered within a reasonable period of time, see 47 U.S.C. §332(c)(7)(B)(ii) and the FCC's Declaratory Ruling commonly referred to as the "Shot Clock", in this instance 150 days.

The intent of the TCA enacted by the U.S. Congress was to institute a framework to promote competition and innovation within this telecommunications industry. Under its respective licenses from the FCC, wireless telecommunications carriers are obligated to provide a reliable "product" [i.e. telecommunications service] to the population in western Massachusetts, which includes the Town of Falmouth. Likewise, consumer expectations for increasingly robust and reliable service requires competing service providers to identify and remedy existing gaps in reliable network coverage, or gaps that result from increasing subscriber voice and data traffic beyond the limits of existing network infrastructure. A carrier's failure to remedy network gaps in a timely fashion can result in a significant loss of subscribers to competing telecommunications carriers. As demonstrated in the Application and supplemental materials provided by the Applicant, the proposed Facility and corresponding relief requested are necessary to remedy a gap in reliable service coverage within the existing network infrastructure.

The TCA "is an exercise in cooperative federalism" that "attempts, subject to five limitations, to preserve state and local authority over the placement and construction of facilities." Nat'l Tower, LLC v. Plainville Zoning Bd. of Appeals, 297 F.3d 14, 19 (1st Cir. 2002) (citing 47 U.S.C. § 332(c)). "Under the TCA, state and local governments and instrumentalities may regulate the placement of wireless service facilities, provided they (1) act on requests to authorize the placement, construction, or modification of such facilities within a reasonable time, (2) do not give consideration to any environmental effects of radio frequency emissions that comply with FCC regulations, (3) do not unreasonably discriminate among providers of functionally equivalent services, (4) make all decisions in writing and support those decisions with substantial evidence contained in a written record, and (5) do not make decisions that prohibit or have the effect of prohibiting the provision of personal wireless services." Cellco P'ship v. Town of Leicester, No. 16-cv-10693-MGM, 2017 WL 4381673, *2 (D. Mass. September 29, 2017) (citing 47 U.S.C. § 332(c)(7)(B)) (internal quotation marks omitted). The provisions of the TCA preempt state and local laws to the extent that they conflict. Eco-Site, Inc. v. Town of Wilmington, No. 17-cv-10304-MBB, 2019 WL 1332621, at *9 (D. Mass. Mar. 25, 2019).

In a growing number of cases, federal courts have found that permit denials violate the TCA, even if such denials would be valid under state law. For example, in Omnipoint Communications v. Town of Lincoln, 107 F. Supp. 2d 108 (D. Mass. 2000), the court found that denial of a variance for a location outside of the town's wireless overlay district violated the TCA and ordered the variance to issue despite an Ordinance provision prohibiting use variances. The court in Nextel Communications v. Town of Wayland, 231 F. Supp. 2d 396 (D. Mass 2002) reached the same result. In that case, the court stated: "Although the Board's statement [regarding its lack of authority to issue a use variance] may be correct statement in Massachusetts regarding

variances, it is not controlling in the special case of Telecommunications facilities…Under the Telecommunications Act, the Board cannot deny the variance if in so doing it would have the effect of prohibiting wireless services." Wayland at 406-407. Most notably, in Omnipoint Holdings. Inc. v. Town of Cranston, No. 08-2491 (1st Cir. Nov. 3, 2009), the United States Court of Appeals for the First Circuit affirmed a judgment of the United States District Court for the District of Rhode Island, which found that the Cranston Zoning Board of Review violated the TCA by effectively prohibiting the provision of wireless services in Cranston when it denied an application for a special use permit and variance to construct a wireless facility in a residential area. The Court noted that "[t]he effective prohibition clause does not stand alone; it is also part of the TCA's larger goal of encouraging competition to provide consumers with cheaper, higher-quality wireless technology…. As cell phone use increases, carriers need to build more facilities, especially in populated areas, to continue providing reliable coverage, and local regulations can present serious obstacles." *Cranston*, p. 25. In New Cingular Wireless, LLC v. Town of Manchester, Case No. 11-cv-334-SM (USDC D. NH Feb. 28, 2014), the United States District Court for the District of New Hampshire indicated that the Town of Manchester impermissibly denied a variance to construct a telecommunications tower in a (non-permitted) residential zone, in that the tower addressed significant coverage gaps and provided competitive and reliable wireless services and there was no feasible alternative. The Court noted that the Town must consider the public benefits of wireless services in determining whether to grant a zoning variance for a tower. Id.

The Applicant has investigated alternative sites in and around the defined geographic area within which its engineers determined that a facility must be located to fill the gap in service coverage and to function effectively within the wireless network of existing and planned facilities. No existing structure or property in or near the vicinity of the proposed Facility is feasible to accommodate the wireless network requirements. The proposed Facility is on large substantially undeveloped parcel and provides a substantial vegetative buffer. The wireless communications systems being developed by the various telecommunications carriers operating in the Falmouth area have been designed employing the most sophisticated radio frequency engineering methods available. Radio frequency engineers determine the placement of network points-of-presence using computer engineering models that simultaneously evaluate are topography and population patterns to identify specific geographic areas to be serviced by each antenna facility in the network. As a result of this modeling, combined with actual coverage data provided by existing "on air" facilities, the carriers' radio frequency engineers have identified a limited geographic area as a necessary location for a communications facility to remedy an existing gap in reliable service coverage in the general vicinity of the Property. Without the requested relief, there would remain a substantial "gap" in reliable service coverage in the carriers' respective networks. Radio frequency coverage maps confirm that a telecommunications facility located at the Property is required to remedy the existing gap in the wireless network coverage in the area. The requested height has been determined by engineers to be the minimum height necessary to connect coverage from the proposed Facility with coverage from adjacent cell sites in the carriers' respective networks (i.e. to remedy the existing "gap" in service and to effect reliable handoffs between adjacent cell sites as a subscriber travels through the area).

Accordingly, denial of permits to construct the Facility would prevent the Applicant from eliminating an existing gap in reliable service coverage, resulting in a potential loss of subscribers for the carriers and the inability to effectively compete for subscribers with other FCC licensed competitors in the market, contrary to the intent of the Ordinance and the U.S. Congress in enacting the TCA.

CONCLUSION

As evidenced by the materials submitted with the Application and as will be further demonstrated by the Applicant through any additional evidence submitted and testimony at public hearing(s), the Facility satisfies the intent and objectives of the Technical Bulletin, the RPP and applicable regulations. The Facility will not be dangerous to the public health or safety as it is designed to comply with all applicable FCC requirements relating to radio frequency emissions and will comply with all applicable requirements of the Massachusetts building code. Indeed, the maximum radio frequency output per channel for the wireless communications facilities collocating on the proposed Facility will be well below the maximum radio frequency exposure levels established by the FCC. The proposed Facility is a passive use and will not cause any nuisance such as unreasonable noise, vibration, smoke, odor or dust. Further, the proposed Facility will maintain wireless communication coverage to residents, businesses, commercial establishments, public safety personnel and travelers through this area of the Town of Falmouth. Police and fire personnel often utilize commercial wireless services, and the proposed Facility will reduce the number and frequency of dropped and incomplete calls due to weak signals and add an additional layer of communication to traditional landlines. In fact, published reports have highlighted the fact that during and after adverse major weather events, including ice storms, wireless telecommunications have been the only form of reliable communication.

Based upon the limited impacts and review of specific findings required, and where the proposed Facility is the minimum height necessary to close a significant gap in wireless coverage at this location, the Applicant hereby requests that the Commission finds that the proposed Facility satisfies the criteria for approval by the Commission as a Development of Regional Impact. The Applicant respectfully requests that the DRI be approved so that the Applicant may seek local approval to install and operate the Facility as well as to satisfy the mandate of the federal government to facilitate competition in the telecommunications industry as set forth in the TCA. We respectfully submit that the standards for review must be interpreted and applied such that the decision issued by the Commission is in conformance with the TCA.

Respectfully submitted,

Francis D. Parisi, Esq.
Parisi Law Associates, P.C.
225 Dyer Street
Providence, RI 02903
(401) 447-8500 cell
fparisi@plapc.com

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Antenna Structure Registration

TOWAIR Determination Results

HELP

New Search Printable Page

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates	
Latitude	41-37-52.7 north
Longitude	070-37-52.7 west
Measurements (Meters)	
Overall Structure Height (AGL)	36.6
Support Structure Height (AGL)	36.6
Site Elevation (AMSL)	12.8
Structure Type	
MTOWER - Monopole	

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

ASR Help	ASR License Glossary - FAQ - Online Help - Documentation - Technical Support
ASR Online Systems	TOWAIR- CORES - ASR Online Filing - Application Search - Registration Search
About ASR	Privacy Statement - About ASR - ASR Home

Federal Communications Commission
45 L Street NE
Washington, DC 20554

Phone: 1-877-480-3201
TTY: 1-717-338-2824
Submit Help Request

8

STATEMENT OF BRENDAN M. GILL
Vertex Towers, LLC

I, Brendan M. Gill, hereby state the following in support of the application submitted by Vertex Towers, LLC for a multi-user Personal Wireless Service Facility ("PWSF") to be located at 481 Quaker Road (Map 12, Lot 05-001-010), Falmouth, MA (the "Property"), consisting of a 120' Monopole and related ground equipment contained within a fenced compound (the "Site")

1. My name is Brendan M. Gill and I am the Director of Site Acquisition and Leasing for Vertex Towers, LLC.

2. I have worked in the telecommunications industry for over 10 years overseeing and assisting in the leasing, zoning, permitting and construction of wireless communications facilities and specifically in the investigation of all feasible alternatives and options locating a wireless communications facility within a search ring which would fill a significant gap in wireless coverage.

3. I have participated directly through my present and past employment in the development and analysis of hundreds of such facilities, including wireless communication facilities similar to the proposed Site.

4. I have personally visited the Property, and the areas surrounding the Property, on numerous occasions. I submit this affidavit based on my personal knowledge of the Property and the surrounding areas, while also working together with the experience and documentation provided by civil and radio frequency engineers, environmental consultants and based on my professional experience in the development of wireless communication facilities.

5. Part of my site acquisition and development duties include identifying potential candidates within an area identified as having a significant gap in coverage. The candidate identification process includes reviewing the Town of Falmouth zoning ordinance with legal counsel, engineers, wetland scientists, and other professionals to identify areas where the proposed Site is allowed and feasible. First, I explore the area to determine whether there are any existing structures of sufficient height and structural capacity from which an antenna installation on such a structure would provide sufficient coverage. If there are no such existing structures, I identify properties, located within the narrowly defined search area, that appear to be suitable for the installation of a communications facility, while also eliminating certain properties that would not be suitable due various limitations or concerns related but not limited to, parcel size, access issues, landlocked parcels, conservation restrictions, wetlands, visibility, elevation, terrain and constructability. In order to be viable, a candidate must (i) provide adequate coverage to the identified significant gap in coverage and (ii) have a willing landowner with whom commercially reasonable lease terms may be negotiated. Preference is given to locations that closely comply with local zoning ordinances, or in the event no viable candidates are found within the search area, I attempt to identify other potentially suitable properties, with preference always given to existing structures.

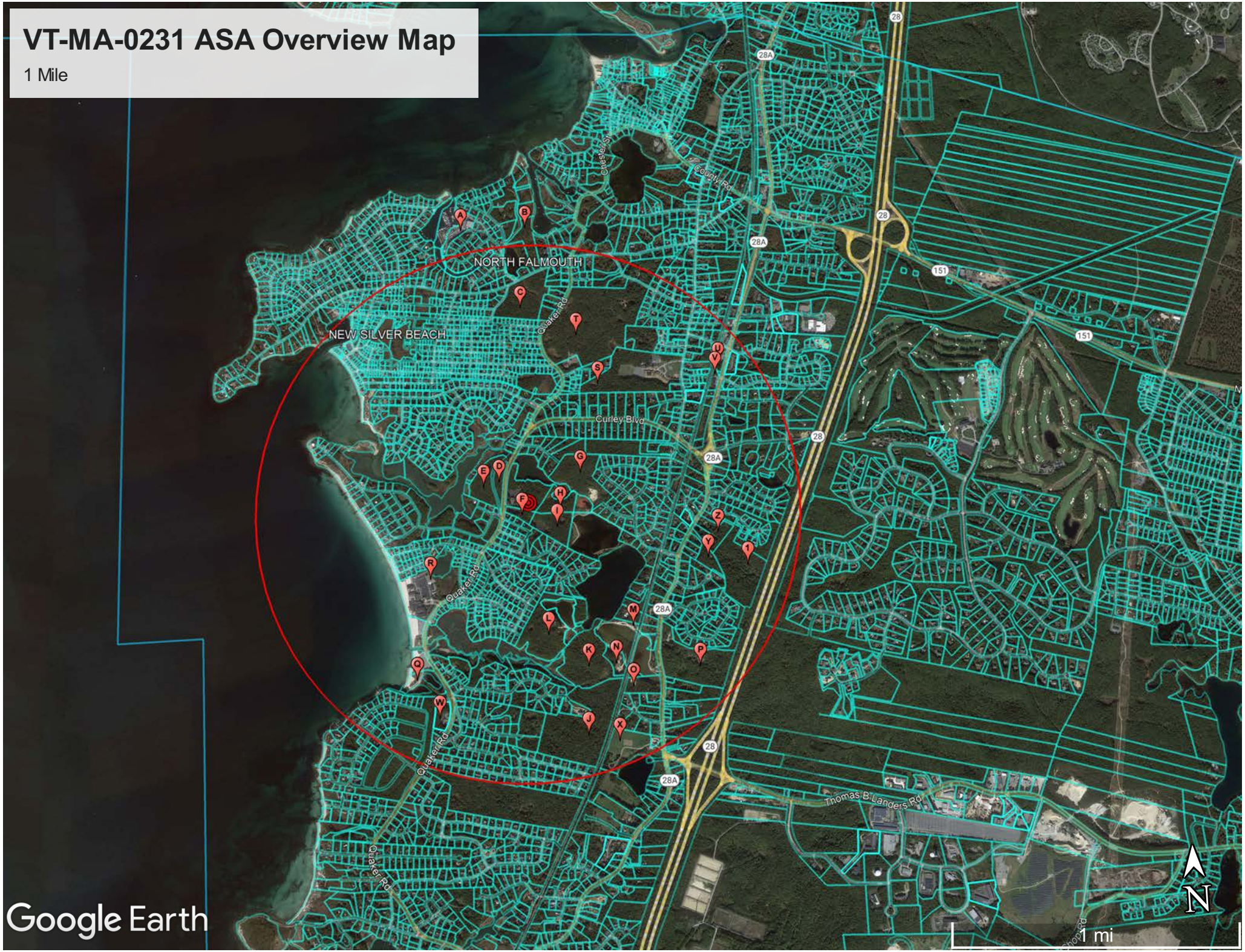
6. In connection with this site, I have provided site acquisition services, including researching the area, and identifying potential alternative candidates to the leased ground space on the Property.

7. Based on my personal knowledge of the proposed Site and the and the surrounding area, there are no potential alternative candidates located within this geographically driven search ring that would be considered superior to the proposed Site. The majority of parcels in the coverage objective area are residential lots, with limited available space. The larger parcels in the area are restricted due to wetlands/conservation restrictions.

8. Based on my experience, in my professional opinion, the proposed PWSF to be located at 481 Quaker Road is the least intrusive and only available and viable alternative to adequate meet the coverage objective to fill this significant gap in coverage.

Executed this 2nd of January 2024.

Brendan M. Gill
Vertex Towers, LLC


VT-MA-0231 ASA Overview Map
1 Mile
NORTH FALMOUTH
NEW SILVER BEACH
Quaker Rd
Curley Blvd
Thomas B Landers Rd
28
28A
151
A
B
C
D
E
F
G
H
I
J
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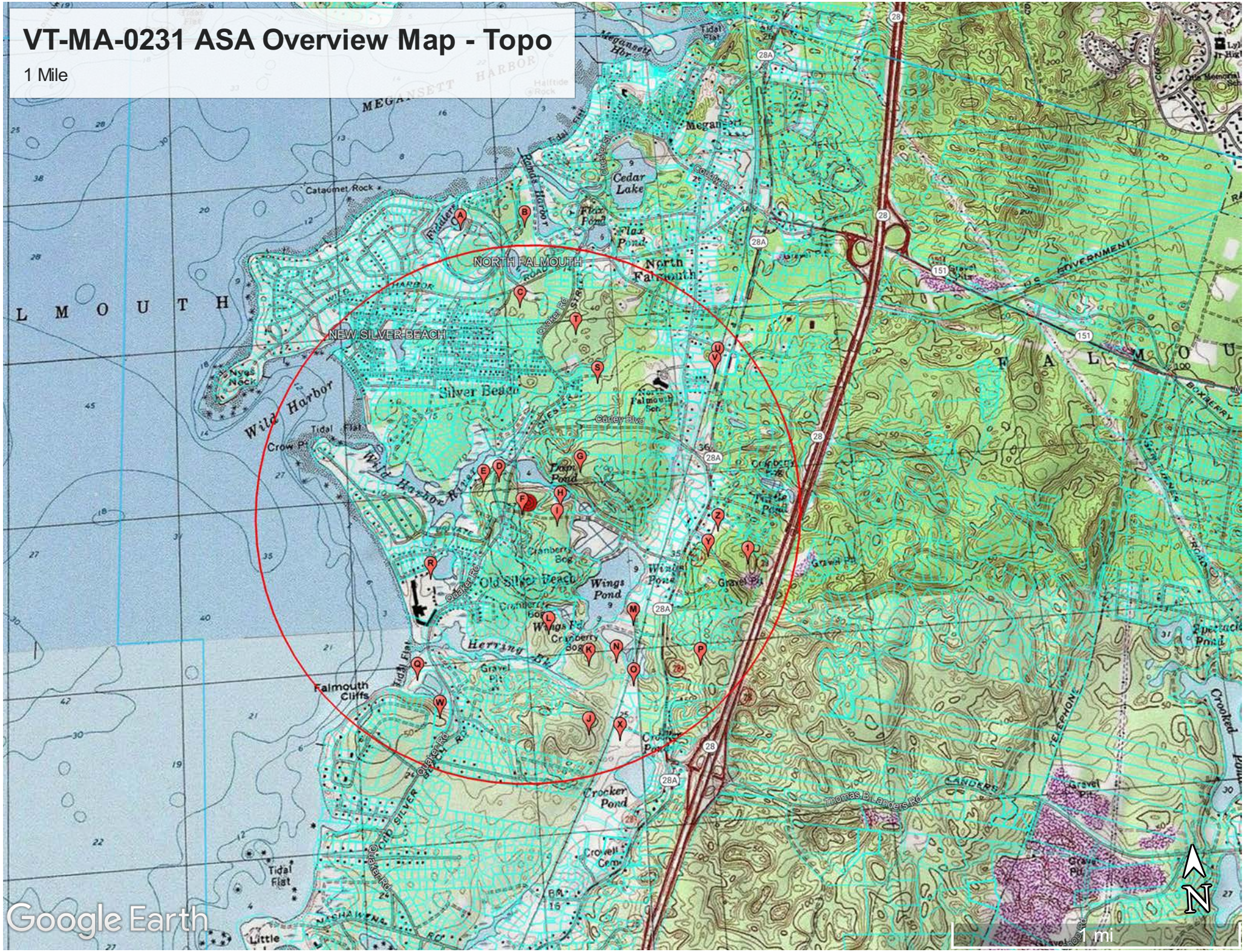
Google Earth

VT-MA-0231 ASA Overview Map - Topo

1 Mile



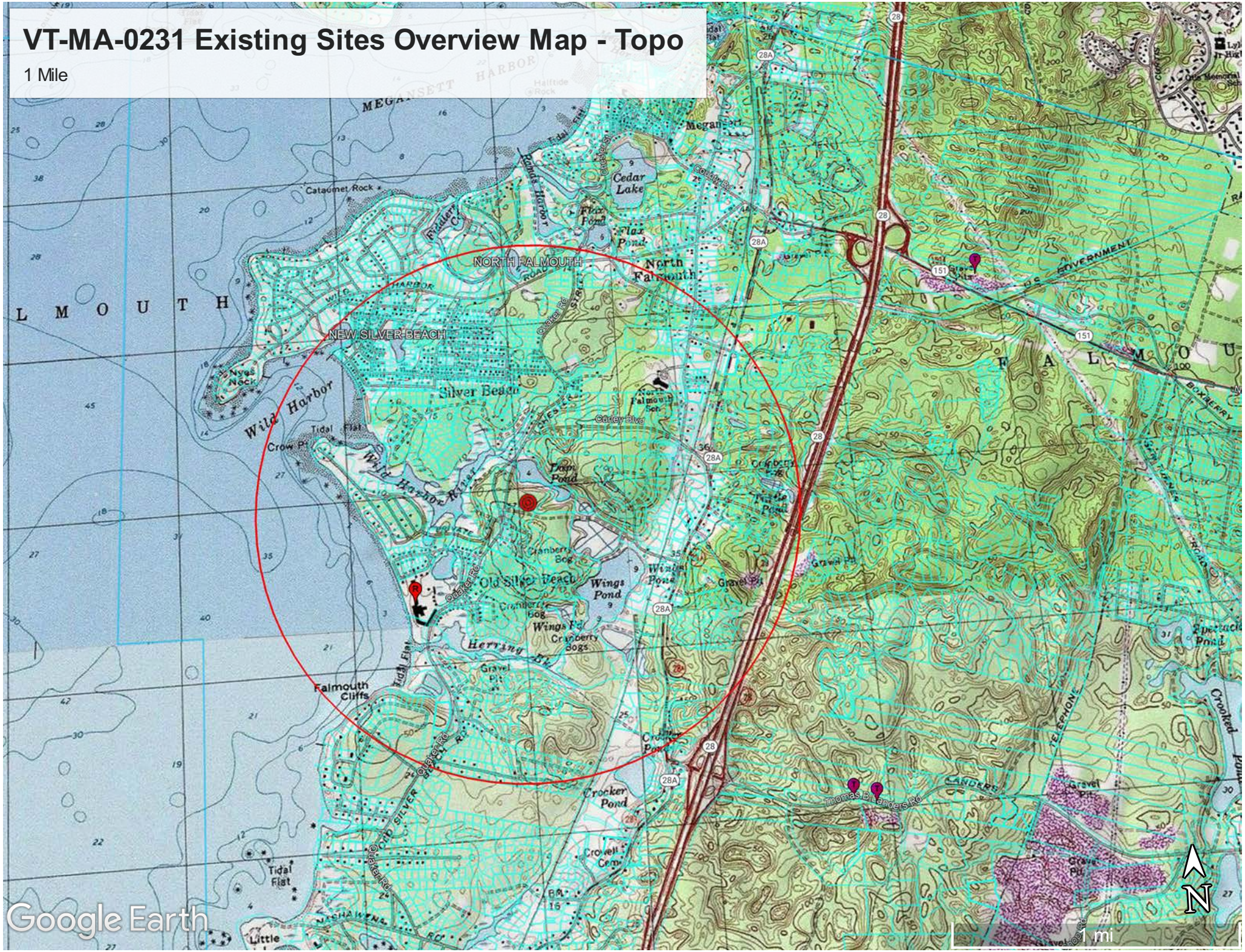
Alternative Site Analysis
for Proposed Tower at 481 Quaker Road, North Falmouth, MA

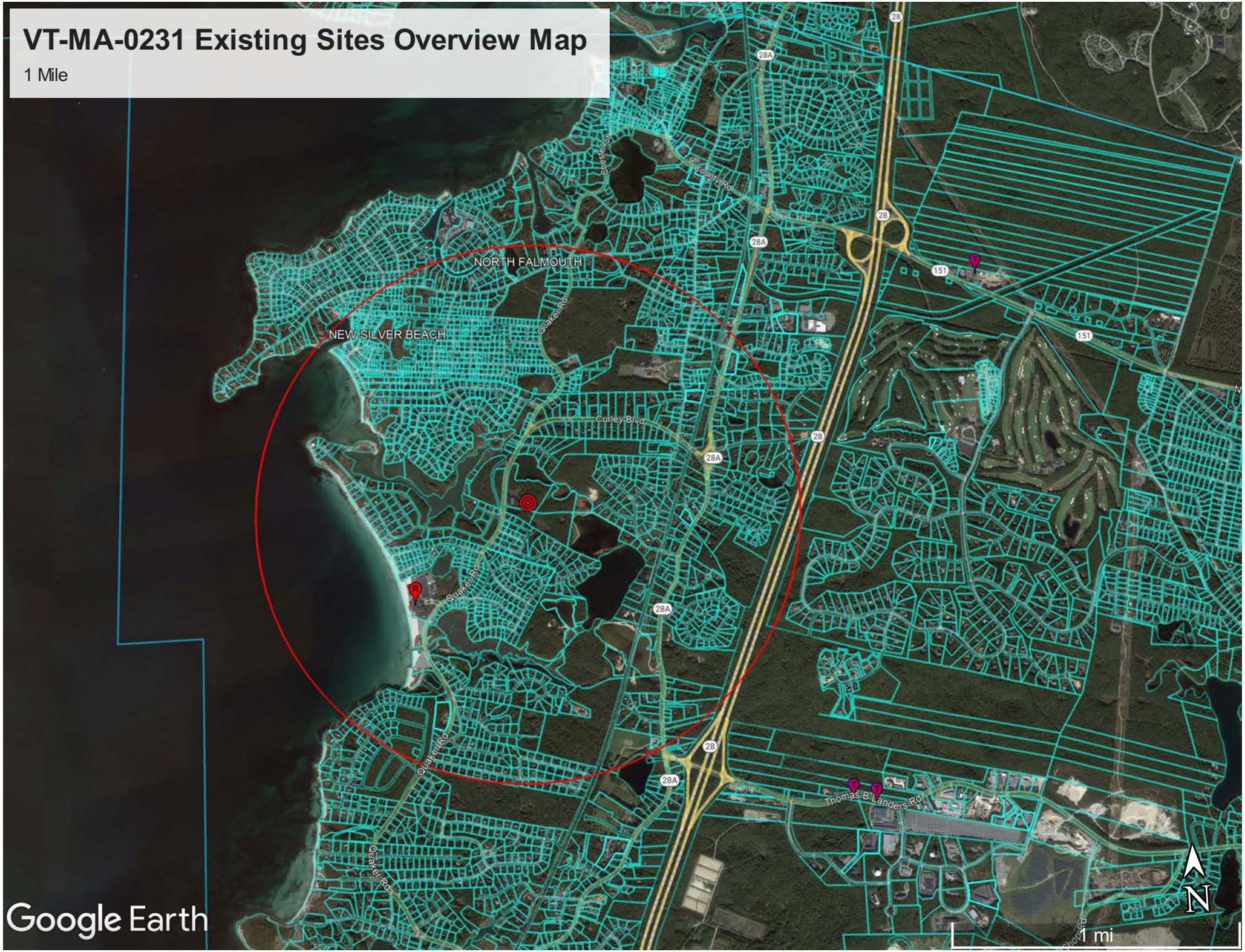
ID	Address	Parcel ID	ACRES	Latitude	Longitude	Distance from Proposed Location	Comments
A	42 Fiddlers Cove Road	04 02A 000E 128	4.697	41.646609	-70.635322	1.07	Unable to locate buildable location on parcel due to wetlands. Rooftop location does not provide adequate coverage due to height.
B	0 Rand Beach Road	05 03 002 005	4.258	41.646573	-70.630594	1.05	Landlord was unresponsive. Unable to locate buildable location on parcel due to tight boundry lines and exsiting use.
C	0 Wild Harbor Road	05 01 088 000	16.6	41.642009	-70.631232	0.74	Large amount of wetland, unable to find locate buildable location.
D	0 Shore Road	13 03 002 014	2.5	41.632458	-70.633337	0.14	Same Landlord as Tower Parcel. Landlord requested not to use this area.
E	0 Shore Road	13 03 001 012	8.088	41.632248	-70.634445	0.18	Same Landlord as Tower Parcel. Landlord requested not to use this area.
F	0 Wing Road	12 04 002 000	2.248	41.630615	-70.631812	0.04	Same Landlord as Tower Parcel. Parking lot is used, Landlord requested to use area not used.
G	0 Gray Rocks West Road	12 05 020 046	16.1	41.632714	-70.627532	0.22	Parcel has a conservation restriction.
H	0 Wing Road	12 05 002 000	4.95	41.630825	-70.629083	0.12	Parcel has a conservation restriction.
I	0 Wing Road	12 04 003 000	8.4	41.629906	-70.62937	0.13	Parcel has a conservation restriction.
J	0 Dale Drive	15 02 028 000	37.826	41.618991	-70.627952	0.86	Parcel has a conservation restriction.
K	0 N. Falmouth Highway	12 04 011 001	19.208	41.62249	-70.627691	0.63	Parcel has a conservation restriction.
L	0 Wing Pond	12 04 016 000	20	41.62425	-70.630362	0.48	Parcel has a conservation restriction.
M	0 Wing Road	12 04 010 000	9.05	41.624444	-70.624435	0.59	Parcel has a conservation restriction.
N	0 Wing Pond	12 04 011 002	3	41.622568	-70.625769	0.66	Parcel has a conservation restriction.
O	0 North Falmouth Highway	15 02 004B 000	4.9	41.621337	-70.62467	0.76	Parcel has a conservation restriction.
P	109 North Falmouth Highway	15 03 001 000	21.978	41.622169	-70.619963	0.86	Parcel further South of coverage objective, closer to exsisting site.
Q	0 Quaker Road OFF	14 03 004 000	5.753	41.6223	-70.639603	0.75	Large amount of wetland, unable to find locate buildable location.
R	350 Quaker Road	13 11 061 000	21.6	41.627501	-70.638438	0.45	Unable to locate buildable location on parcel due to wetlands and exsisting use. Rooftop location does not provide adequate coverage due to height.
S	62 Old Main Road	05 02 019 000	29.196	41.637526	-70.625918	0.52	Large amount of wetlands would push buildable location closer to residential property lines. Would be highly visable from School.
T	48 Benjamin Nyes Lane	05 02 022 004	55.698	41.640307	-70.627287	0.66	Parcel has a conservation restriction.

U	402 North Falmouth Highway	05 06 004 001	1.59	41.638198	-70.617171	0.88	Landlord was unresponsive. Unable to locate buildable location on parcel due to tight boundry lines and exsiting use.
V	362 North Falmouth Highway	05 06 002 000	1.41	41.637682	-70.617433	0.85	Unable to locate buildable location on parcel due to tight boundry lines and exsiting use.
W	222 Quaker Road	14 03 003 0000U	1.34	41.620293	-70.63814	0.83	Parcel further South of coverage objective. Large amount of wetland, unable to find locate buildable location.
X	6 North Falmouth Highway	15 02 005 002	12.348	41.618601	-70.625839	0.91	Parcel has a conservation restriction.
Y	0 North Falmouth Highway	12 08 007 001A	3.688	41.627798	-70.61888	0.69	Parcel is not accessable due to wetlands.
Z	233 North Falmouth Highway	12 08 006 002B	5.068	41.629115	-70.618046	0.7	Landlord was unresponsive.
1	0 Trickett Street	12 08 006A 000A	20.18	41.627289	-70.616116	0.83	Large amount of wetland, unable to find locate buildable location.

VT-MA-0231 Existing Sites Overview Map - Topo

1 Mile




VT-MA-0231 Existing Sites Overview Map
1 Mile
NORTH FALMOUTH
NEW SILVER BEACH
Quaker Rd
Curley Blvd
Chester St
County Rd
Thomas B Landers Rd
28
28A
151
Google Earth
N
1 mi

9

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
Phone: (603) 644 2800
support@csquaredsystems.com

RF Report

Proposed Wireless Facility
481 Quaker Road
Falmouth, MA 02556

January 10, 2024

TABLE OF CONTENTS

LIST OF TABLES

ATTACHMENTS

1. Overview

This RF Report has been prepared on behalf of Verizon Wireless in support of Vertex Towers LLC's ("Vertex") proposal to the Town of Falmouth for the installation and operation of a wireless facility located at 481 Quaker Road. Verizon Wireless' component of the proposed facility would consist of ground-based equipment cabinets along with antennas and associated equipment mounted on the proposed 120' monopole tower.

This report concludes that the proposed site will fill in coverage gaps and provide additional capacity to Falmouth, MA to improve deficient service areas along Route 28A, Quaker Road, the area generally located in New Silver Beach village and south to Old Silver Beach including the surrounding roads, neighborhoods, and businesses in proximity of the proposed site.

Included in this report is: a brief summary of the site's objectives, maps showing Verizon Wireless' current network plan, and modeled Radio Frequency coverage of the subject site and the surrounding sites in Verizon Wireless' network.

2. Introduction

Verizon Wireless provides digital voice and data communications services using 4th Generation (4G) voice and data services over LTE technology in the 700 MHz, Cellular (800 MHz), PCS (1900 MHz), and AWS (2100 MHz) frequency bands as allocated by the FCC, along with the CBRS band (3.5-3.7 GHz). It is also deploying advanced 5th generation (5G) NR services in its cellular, C-band (3.7-3.98 GHz) and 28 GHz licensed frequency bands. These 4G and 5G networks are used to provide high-speed wireless connections used by mobile devices for fast web browsing, media streaming, video conferencing, and other applications that require broadband connections. The mobile devices that benefit from these advanced networks include typical smartphones, tablets, laptops, and Wi-Fi hotspots. With the continual advancement of its networks, Verizon Wireless customers will enjoy even faster connections to people, information, and entertainment in a day and age when reliable wireless connectivity is an indispensable part of daily personal and business life.

As explained within this report, Verizon Wireless has identified the need to add a new facility to its existing network of sites in the Falmouth area to improve coverage and capacity to a gap in service that now exists in town, in order to support reliable communications and meet the growing demand in the area.

To maintain a reliable and robust communications system for the individuals, businesses, public safety workers and others who use its network, Verizon Wireless deploys a network of cell sites (also called wireless communications facilities) throughout the areas in which it is licensed to provide service. These cell sites consist of antennas mounted on structures, such as buildings and towers, supported by radio and power equipment. The receivers and transmitters at each of these sites process signals within a limited geographic area known as a "cell."

Mobile subscriber handsets and wireless devices operate by transmitting and receiving low power radio frequency signals to and from these cell sites. Handset signals that reach the cell site are transferred through land lines (or other means of backhaul transport) and routed to their destinations by sophisticated electronic equipment. In order for Verizon Wireless' network to function effectively, there must be adequate overlapping coverage between the "serving cell" and adjoining cells. This not only allows a user to access the network initially, but also allows for the transfer or

"hand-off" of calls and data transmissions from one cell to another; and prevents unintended disconnections or "dropped calls."

Verizon Wireless' antennas also must be located high enough above ground level to allow transmission (a.k.a. propagation) of the radio frequency signals above trees, buildings, and other natural or man-made structures that may obstruct or diminish the signals. Areas without adequate radio frequency coverage have substandard service, characterized by dropped and blocked calls, slow data connections, or no wireless service at all, and are commonly referred to as coverage gaps.

The size of the area potentially served by each cell site depends on several factors including the number of antennas used, the height at which the antennas are deployed, the topography of the surrounding land, vegetative cover, and natural or man-made obstructions in the area. The actual service area at any given time also depends on the number of customers who are on the network in range of that cell site. As customers move throughout the service area, the transmission from the phone or other device is automatically transferred to the Verizon Wireless facility with the best reception, without interruption in service, provided that there is overlapping coverage between the cells.

Each cell site must be primarily designed to strike a balance between the overall geographic coverage area it will serve, and the site's capacity to support the usage within the coverage footprint. In rural areas, cell sites are generally designed to have broader coverage footprints because the potential traffic is sparser and distributed over a larger area. In more densely populated suburban and urban environments, the capacity to handle calls and data transmissions is of increasing concern, and cell sites must limit their coverage footprint to an area where the offered network traffic can be supported by the radio equipment and resources. Due to the aggressive historical and projected growth of mobile usage, particularly for mobile data (more than quadrupled from 2017-2022 for mobile wireless data traffic in the U.S.[1]), instances arise where the usage demand can no longer be supported by the site(s) serving an area, and new facilities must be integrated to provide capacity relief to the overloaded sites.

We have concluded that by utilizing the proposed wireless communication facility at 481 Quaker Road at an antenna centerline height of 115' AGL (above ground level), Verizon Wireless will be able to provide substantially improved coverage and additional capacity to residents, businesses, and traffic corridors within the North Falmouth area that are currently located within gaps in service of Verizon Wireless' network.

[1] "2023 Annual Survey Highlights", July 25, 2023, CTIA.
https://www.ctia.org/news/2023-annual-survey-highlights

3. The Proposed Facility

Verizon Wireless' component of the proposed facility consists principally of the following elements:

1) A 20' x 20' lease area with telecommunication equipment cabinets and telco/power/fiber connections, within Vertex's proposed 48' x 58' fenced compound;
2) Up to twelve (12) panel antennas (3 sectors, 4 per sector) mounted on the proposed 120' monopole tower, at a centerline elevation of 115' AGL;
3) Remote Radio Heads (RRH) with accessory junction boxes and surge suppressors mounted alongside the antennas;

4. Coverage and Capacity Objectives

As mentioned above, Verizon Wireless is in the process of advancing its 4G LTE high-speed wireless broadband system in the 700 MHz, Cellular, PCS, AWS and CBRS frequency bands, in accordance with its applicable licenses from the FCC. Verizon is also deploying a 5G NR system in its licensed cellular, C-Band, and 28 GHz frequency bands. In order to expand and enhance their wireless services throughout New England, Verizon Wireless must fill in existing coverage gaps and address capacity, interference, and high-speed broadband issues. As part of this effort, Verizon Wireless has determined that significant gaps in service exist in and around sections of Falmouth, as described further below.

Verizon Wireless currently operates wireless facilities similar to the proposed facility within Falmouth and the surrounding cities/towns. Due in large part to the distances between the surrounding sites, the intervening topography, and volume of user traffic in the area, these facilities do not provide sufficient coverage to portions of Town. Specifically, Verizon Wireless determined that much of North Falmouth is without reliable service in the following areas and town roads, including but not limited to:

- Route 28A;
- Quaker Road;
- the area generally located in North Falmouth between New Silver Beach village and Old Silver Beach
- The surrounding roads, neighborhoods, businesses, and shopping areas in the proximity of the proposed site.

The proposed site located at 481 Quaker Road ("Falmouth 8 MA") is needed to fill in these targeted gaps in service, in order to improve network quality and reliability for Verizon Wireless subscribers traveling along these roads, as well as to the numerous residents, businesses, and visitors in this area.

5. Site Search and Selection Process

To find a site that provides acceptable service, adequate capacity, and fills the gaps in coverage, computer modeling software is used to define a search area. The search ring identifies the area within which a site could be located (assuming sufficient height is considered) that would have a high probability of addressing the significant coverage gap and/or meeting the capacity objectives established by the Verizon Wireless RF (Radio Frequency) engineers.

Once a search ring is determined, Verizon Wireless' real estate specialists search within the proximity of the defined area for existing buildings, towers, and other structures of sufficient height that would meet the defined objectives. If none are found, then the focus shifts to "raw land" sites. A suitable site must satisfy the technical requirements identified by the RF engineers, must be available for lease, and must have access to a road and be otherwise suitable for constructing a cell site of the required size and height. Every effort is made to use existing structures before pursuing a "raw land" build to minimize the number of new towers throughout the towns being served.

Since no suitable existing structures in the area have been identified, Verizon Wireless determined that Vertex's proposed wireless communications facility at 481 Quaker Road is necessary to address its targeted coverage and capacity objectives.

6. Pertinent Site Data

Table 1 below details the site-specific information for the on-air, planned, and proposed Verizon Wireless macro-sites used to perform the coverage analysis and generate the coverage plots provided herein.

Site Name	Address	City/Town	Location		Structure Type	Antenna Height (ft AGL)	Status
			Latitude	Longitude			
Cataumet	Lot 15 Scraggy Neck Road Ext.	Pocasset	41.6654	-70.6046	Self-Support	115	On-Air
Falmouth	Thomas Landers Road	Falmouth	41.6145	-70.6086	Self-Support	177	On-Air
Falmouth 2	250 Currier Road	Falmouth	41.6154	-70.5387	Monopole	140	On-Air
Falmouth 3	132 East Falmouth Highway	Falmouth	41.5790	-70.5686	Self-Support	86	On-Air
Falmouth 4	284 Old Meeting House Road	Falmouth	41.5944	-70.5664	Self-Support	146	On-Air
Falmouth 7	737 Gifford Street	Falmouth	41.5841	-70.6046	Monopole	125	Planned
Falmouth N	210 Nathan Ellis Highway	Falmouth	41.6424	-70.5979	Monopole	177	On-Air
Forestdale	23 Falmouth Sandwich Road	Forestdale	41.6711	-70.5164	Monopole	107	On-Air
Mashpee 2	54 Echo Road	Mashpee	41.6567	-70.4975	Monopole	138	On-Air
Mattapoisett 2	87 Marion RD (Rte 6)	Mattapoisett	41.6665	-70.7876	Monopole	131	On-Air
Pocasset	3 Port Side Dr	Pocasset	41.7009	-70.5881	Self-Support	156	On-Air
Woods Hole	7 MBL Street	Falmouth	41.5261	-70.6723	Rooftop	67	On-Air
W. Falmouth	274 Blacksmith Shop Road	Falmouth	41.6030	-70.6157	Guyed	148	On-Air
Falmouth 8	**481 Quaker Road**	**Falmouth**	**41.6312**	**-70.6313**	**Monopole**	**115**	**Proposed**

Table 1: Verizon Wireless Site Information Used in Coverage Analysis[3]

[3] Some sites listed in this table are outside the plot view but are included for completeness of information.

7. Coverage Analysis and Propagation Plots

The signal propagation plots provided in this report were produced using deciBel Planner™, a Windows-based RF propagation computer modeling program and network planning tool. The software considers the topographical features of an area, land cover, antenna models, antenna heights, RF transmitting power and receiver thresholds to predict coverage and other related RF parameters used in site design and network expansion.

The coverage plots included as attachments show coverage based on RSRP signal strengths of -95 dBm and above. All other areas (depicted in white) fall within coverage areas characterized by poor service quality, low data throughput, and the substantial likelihood of unreliable service.

Attachments A - G are discussed below:

Attachment A titled *"Falmouth 8 MA – Existing 700 MHz & 2100 MHz LTE Coverage (Macro-Sites)"* shows the coverage provided to areas of Falmouth, MA from the existing "On-Air" and "Planned" sites listed in Table 1. The green and yellow shaded areas represent the minimum desired level of coverage for much of this area for the 700 MHz and 2100 MHz network layers, respectively. Because of the superior propagation characteristics of 700 MHz relative to 2100 MHz, the 2100 MHz coverage areas (yellow) are generally contained within the 700 MHz coverage areas (green). As such, the deficient areas of 700 MHz coverage are defined by the unshaded areas, whereas the deficient areas of 2100 MHz coverage consist of both the green and white areas. As shown in this plot and described in the Coverage and Capacity Objectives section of this report, much of Falmouth is in an area of deficient coverage. These coverage gaps, particularly at 2100 MHz, include Route 28A, Quaker Road, and the area generally located in New Silver Beach village down to Old Silver Beach including the surrounding roads, neighborhoods, and businesses in proximity of the proposed site.

Attachment B titled *"Falmouth 8 MA – 700 MHz & 2100 MHz LTE Coverage with Proposed Site (Macro-Sites)"* shows the composite coverage with the proposed "Falmouth 8" facility. As shown by the additional areas of coverage, the proposed facility will provide coverage to:

- ~ 0.7 mi (700 MHz) and ~ 0.7 mi (2100 MHz) Route 28A;
- ~ 0.2 mi (700 MHz) and ~ 1.0 mi (2100 MHz) Quaker Road;
- New Silver Beach village;
- ~ 900 (700 MHz) and ~ 1,250 (2100 MHz) additional residents[4];
- ~ 360 (700 MHz) and ~ 350 (2100 MHz) additional employees[5];
- ~ 920 (700 MHz) and ~ 1,050 (2100 MHz) additional structures[6];
- The surrounding roads, neighborhoods, and businesses in the proximity of the proposed site.

[4] Residential population counts referenced here and elsewhere within this report are based upon the 2020 U.S. Census data.

[5] Employee population counts referenced here and elsewhere within this report are based upon the 2020 U.S. Census Bureau LEHD database.

[6] Structure counts referenced here in this report are based upon "roofprint" data sourced from MassGIS (Bureau of Geographic Information). The dataset contains two-dimensional roof outlines for all buildings larger than 150 ft^2 and may not necessarily include only dwellings. For additional information, refer to https://docs.digital.mass.gov/dataset/massgis-data-building-structures-2-d

Attachment C titled *"Falmouth 8 MA – Existing 700 MHz LTE Sector Footprints (Macro-Sites)"* depicts the areas primarily served by the sectors (a.k.a. signal "footprints") of the surrounding Verizon Wireless sites in the area, which are shown by the unique color for each particular sector(s) of interest. For clarity, all other sectors of less interest with respect to the proposed site are shown in grey. As demand for wireless voice and data services continues to grow, Verizon Wireless manages the footprint of each sector so that it can support the demand within the area it is primarily serving. In addition to improving coverage to the area, the proposed site will also serve existing and anticipated demand in the vicinity and thereby offload some of the burden experienced by the surrounding sites. In that way, those sites will be able to more adequately serve the demand for service in the areas nearer to those surrounding sites. Please note that the outer parts of each sector footprint may include areas that presently have signal strength below the targeted value required for reliable service to Verizon Wireless' customers. The fact that low-level signal may reach these areas does not mean that these areas experience adequate coverage. These unreliable areas of low signal level can impose a significant capacity burden on the sites primarily serving the area.

Attachment D titled *"Falmouth 8 MA – 700 MHz LTE Sector Footprints with Proposed Site (Macro-Sites)"* shows the composite coverage with the overall footprint of the proposed facility in dark green. As shown in this map, the proposed "Falmouth 8" facility is an effective solution to provide capacity relief to the area, particularly to the "Falmouth" alpha/gamma sectors (red), the "W. Falmouth" gamma sector (orange), and the "Falmouth N." gamma sector (yellow). The proposed facility is located near the targeted area of deficient coverage making it particularly suited to distribute the traffic load across multiple sectors and provide a dominant server to this gap in service. Table 2 below details the capacity relief based on the sector footprints shown in Attachments C and D.

Sector	Current			With "Falmouth 8"			Offload Summary		
	Employee Pops	Residental Pops	Structures	Employee Pops	Residental Pops	Structures	Total Employee Pops Offloaded	Total Residential Pops Offloaded	Structures Offloaded
Falmouth Alpha	451	1784	758	173	1289	693	278 (61.6%)	495 (27.7%)	65 (8.6%)
Falmouth Gamma	130	991	1776	100	493	585	30 (23.1%)	498 (50.3%)	1191 (67.1%)
W. Falmouth Gamma	67	1107	575	52	763	368	15 (22.4%)	344 (31.1%)	207 (36%)
Falmouth N. Gamma	293	1222	1181	234	1020	694	59 (20.1%)	202 (16.5%)	487 (41.2%)

Table 2: Capacity Offload Summary

Attachment E titled *"Falmouth 8 MA – Area Topography Map"* details the topographical features around the proposed "Falmouth 8" site. These terrain features play a key role in dictating both the unique coverage areas served from a given location, and the coverage gaps within the network. This map is included to provide a visual representation of the terrain variations that must be considered when determining the appropriate location and design of a proposed wireless facility. The blue and green shades correspond to lower elevations, whereas the orange and red shades indicate higher elevations.

Attachment F titled *"Falmouth 8 MA – Existing 700 MHz LTE Drive Data (11/7/2023)"* presents drive test data of Verizon Wireless' existing network, which was collected on November 7th, 2023. Drive testing consists of traveling along the area roadways in a vehicle equipped with a sophisticated test setup configured to collect a variety of system performance metrics on a specific operator's network. The measurement displayed is RSRP of Verizon Wireless' 700 MHz LTE network, and is the same parameter reflected in the radio frequency propagation maps presented in Attachments A & B. This data was collected with a calibrated LTE scanning receiver configured to specifically scan Verizon Wireless' 700 MHz LTE channel. The empirical drive data is an "apples-to-apples" comparison to the existing coverage modeling depicted by the green areas in Attachment A.

Attachment G titled "*Falmouth 8 MA – Existing 2100 MHz LTE Drive Data (11/7/2023)"* presents drive test data of Verizon Wireless' existing 2100 MHz LTE channel, also collected on November 7th , 2023, in the same manner as explained above. As noted earlier, the higher 2100 MHz frequencies generally have inferior propagation characteristics and overall range compared to the 700 MHz channel. Therefore, the gap in service at 2100 MHz is much more pronounced and impacts a significantly larger area in Falmouth including along Route 28A, Quaker Road, and much of Falmouth from Route 28 west to Buzzards Bay.

Because of when the drive test was conducted in the early stages of seasonal foliage loss, signal strength data collected and presented in Attachments F & G will be slightly optimistic or stronger than it would be during the late spring, summer, and early fall months. Any gaps shown in these attachments would be exacerbated during these months due to the additional attenuation from foliage.

8. Certification of Non-Interference

Verizon Wireless certifies that the proposed facility will not cause interference to any lawfully operating emergency communication system, television, telephone, or radio, in the surrounding area. The FCC has licensed Verizon Wireless to transmit and receive in specific frequency blocks of the 700 MHz band, the Cellular band, the PCS band, the AWS band, the CBRS band, the C-band, and 28 GHz band of the RF spectrum. As a condition of the FCC licenses, Verizon Wireless is prohibited from interfering with other licensed devices that are being operated in a lawful manner. Furthermore, no emergency communication system, television, telephone, or radio is licensed to operate on these frequencies, and therefore interference is highly unlikely.

9. Summary

In undertaking its build-out of 4G LTE and 5G NR service in Barnstable County, Verizon Wireless has determined that an additional facility is needed to provide reliable service and additional capacity throughout areas of Falmouth, MA. Verizon Wireless determined that locating on the proposed wireless communications facility at 481 Quaker Road in Falmouth at an antenna centerline height of 115 feet (AGL) will provide additional coverage and capacity needed in the targeted coverage areas including key roadways such as Route 28A, Quaker Road, the area generally located in New Silver Beach village and south to Old Silver Beach including the surrounding roads, neighborhoods, and businesses in proximity of the proposed site. Without the installation of the proposed site, Verizon Wireless will be unable to improve and expand their wireless communication services in this area of Falmouth; therefore, Verizon Wireless respectfully requests that the Cape Cod Commission and the Town of Falmouth act favorably upon the proposed facility.

10. Statement of Certification

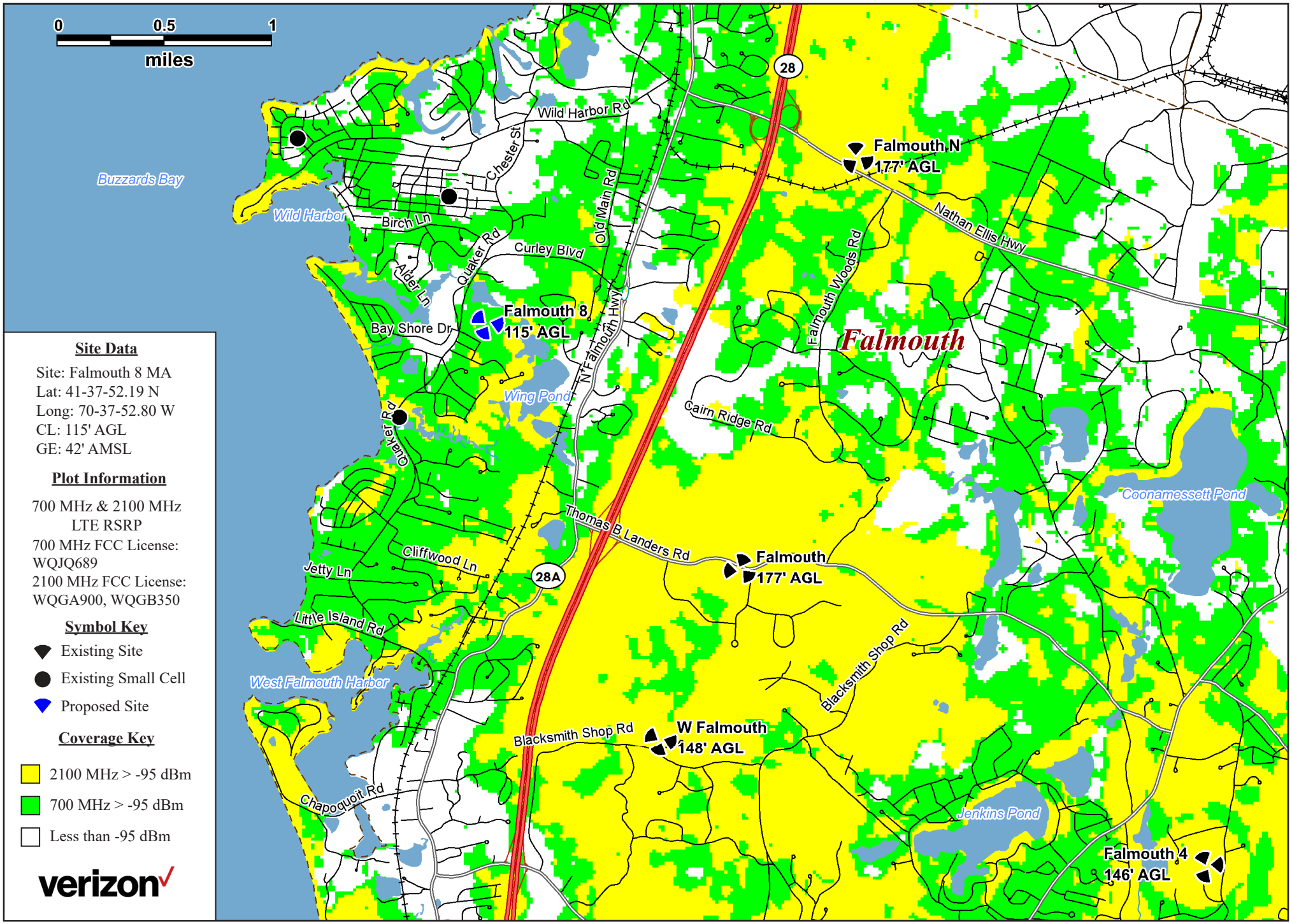
I certify to the best of my knowledge that the statements in this report are true and accurate.

Keith Vellante
RF Engineer
C Squared Systems, LLC

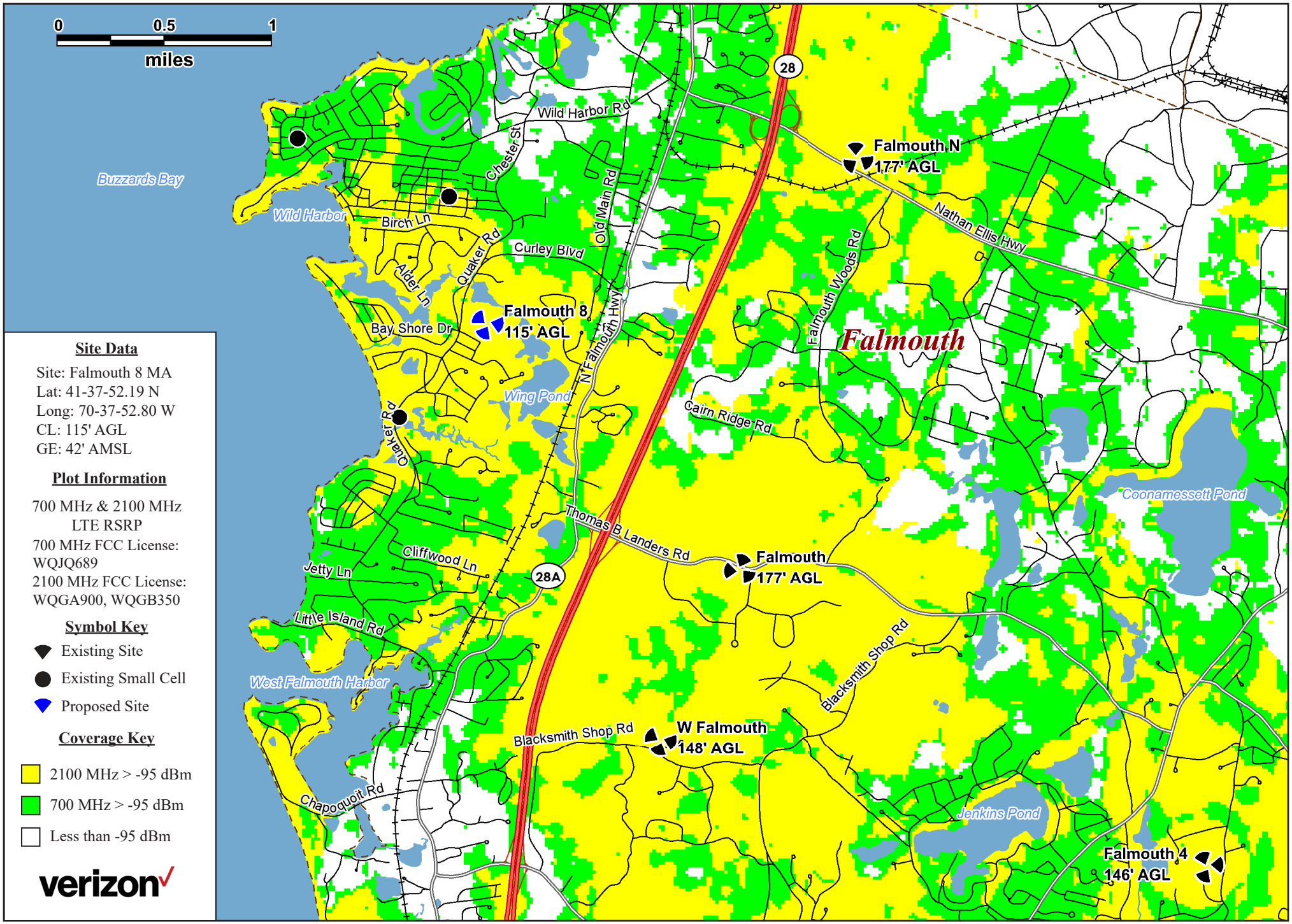
January 10, 2024
Date

11. Attachments

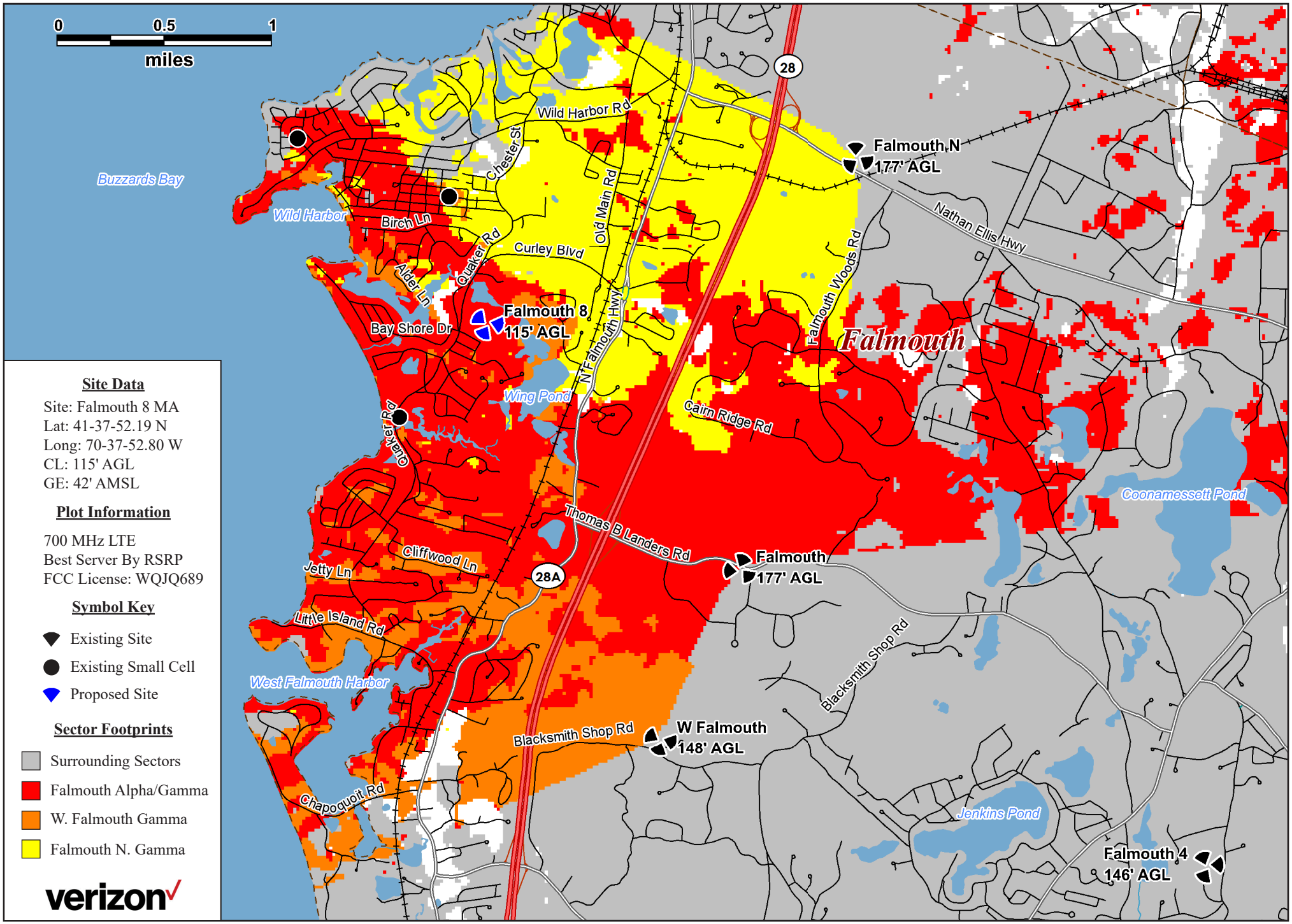
Attachment A:
Falmouth 8 MA - Existing 700 & 2100 MHz LTE Coverage (Macro-Sites)



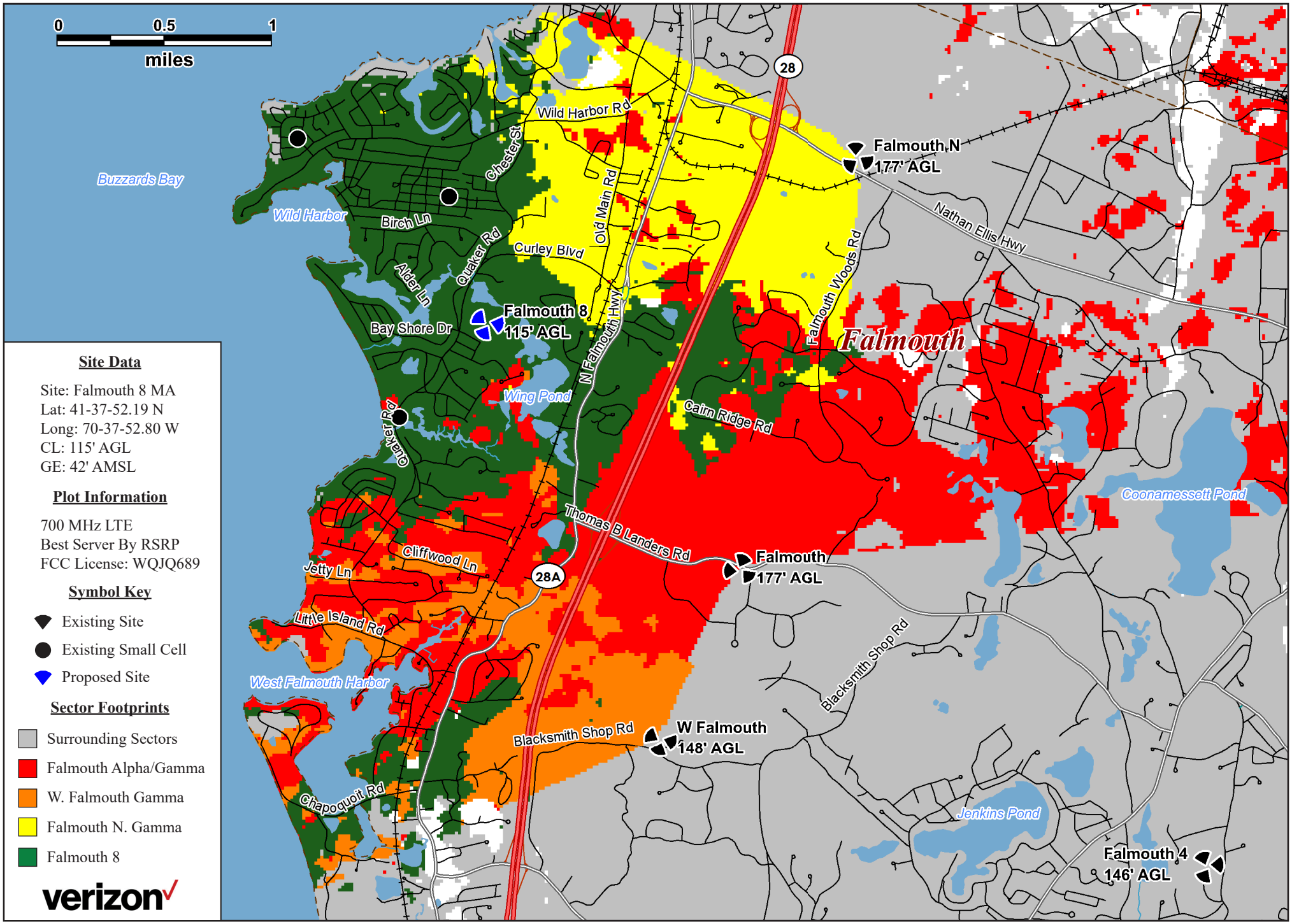
Attachment B:
Falmouth 8 MA - 700 & 2100 MHz LTE Coverage with Proposed Site (Macro-Sites)



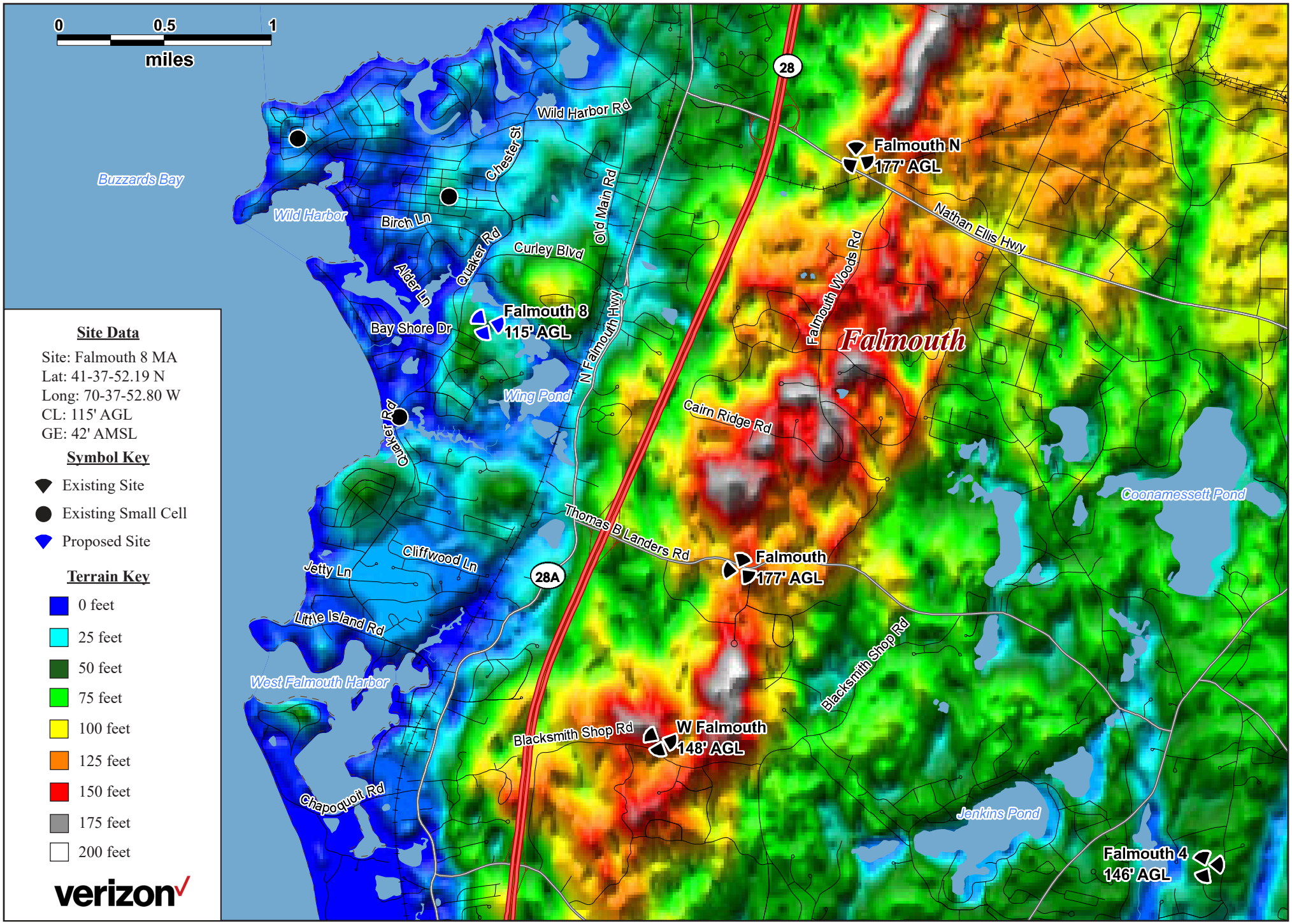
Attachment C:
Falmouth 8 MA - Existing 700 MHz LTE Sector Footprints (Macro-Sites)



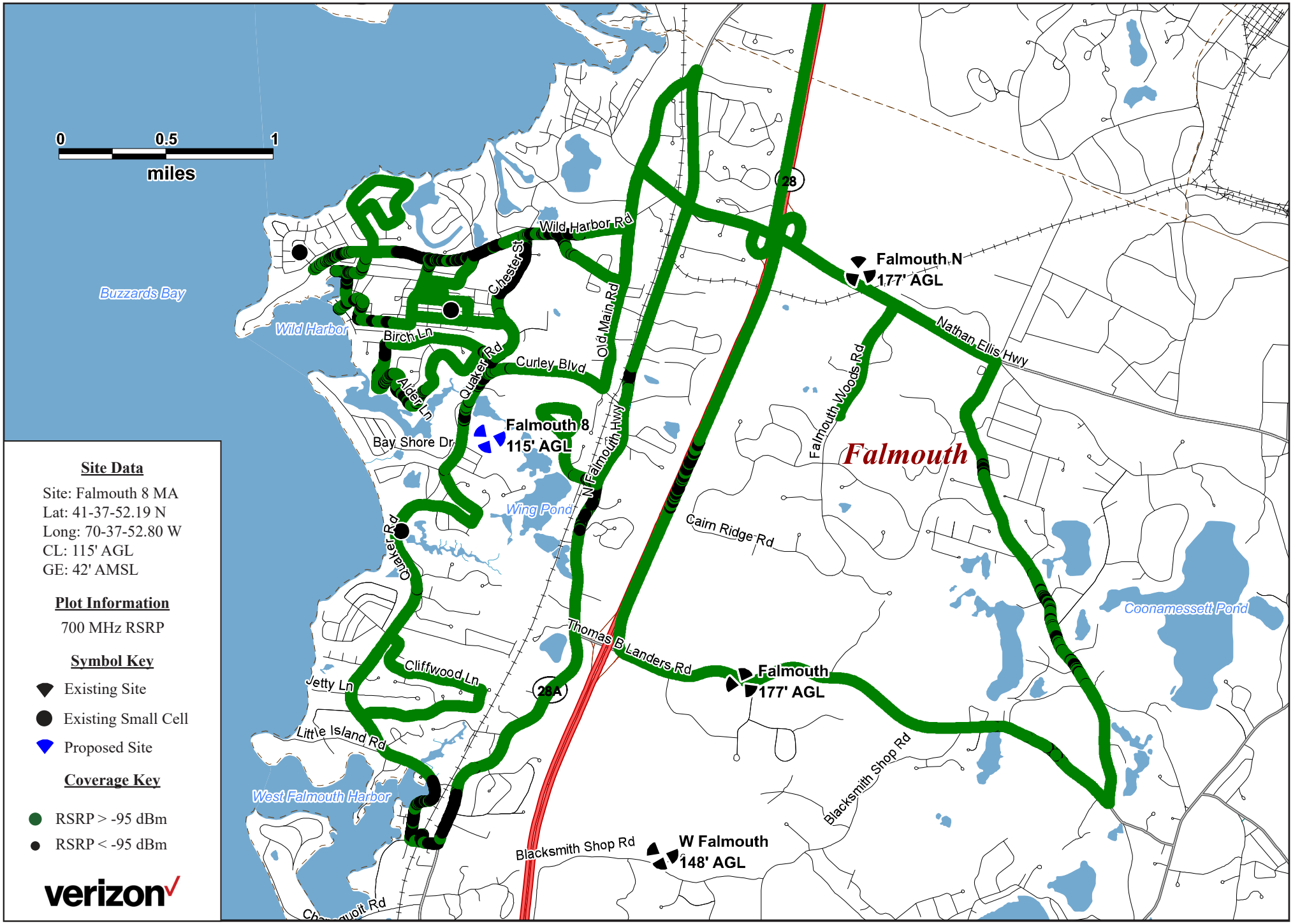
Attachment D:
Falmouth 8 MA - 700 MHz LTE Sector Footprints with Proposed Site (Macro-Sites)



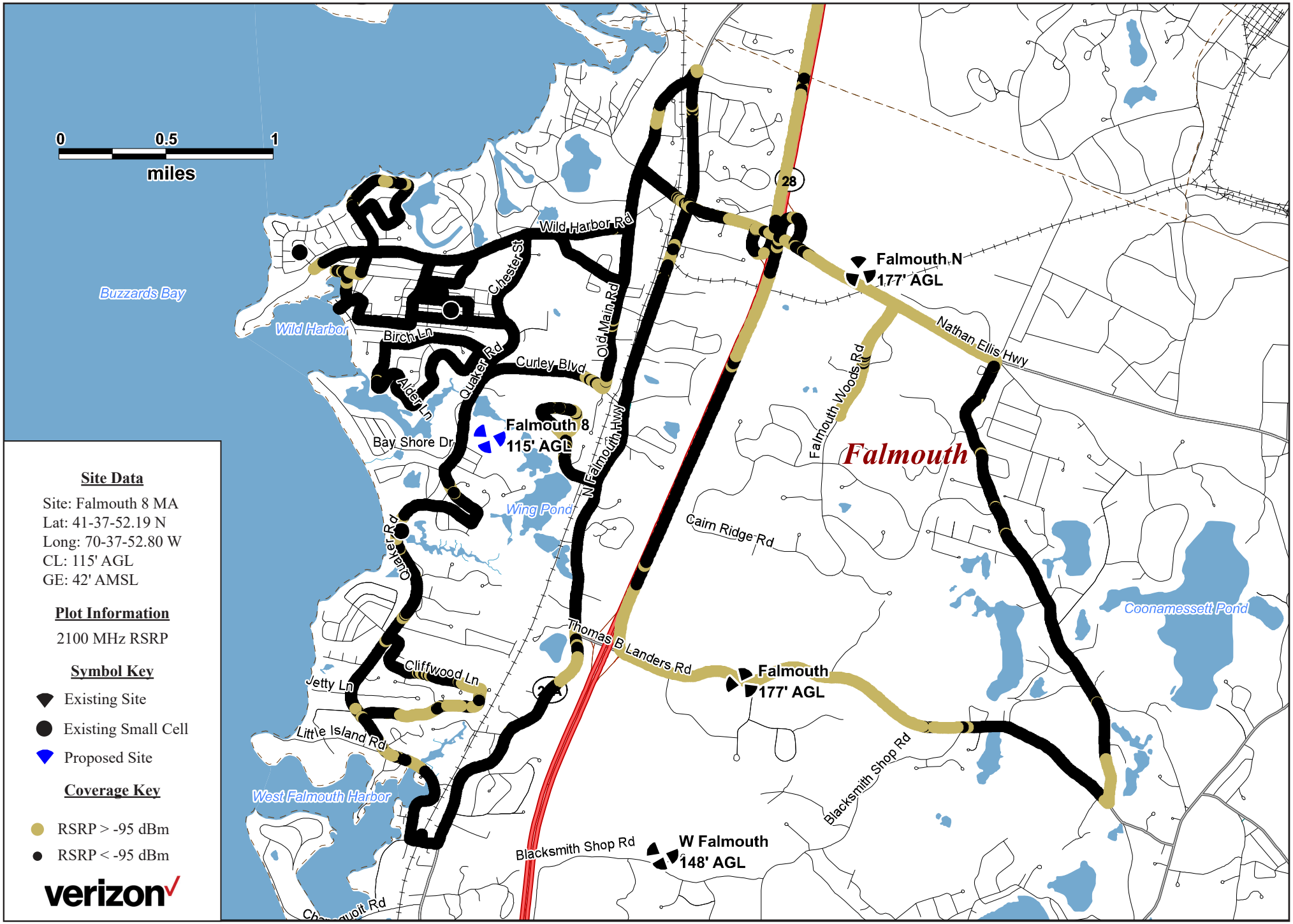
Attachment E:
Falmouth 8 MA - Area Topography Map



Attachment F:
Falmouth 8 MA - Existing 700 MHz LTE Drive Data (11/7/2023)



Attachment G:
Falmouth 8 MA - Existing 2100 MHz LTE Drive Data (11/7/2023)



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AFFIDAVIT OF RF ENGINEER

I, Jose Hernandez hereby state the following in support of the application for Vertex Tower, LLC ("Vertex") of proposed 120ft Monopole at (41.631306, -70.631311), 481 Quaker, Falmouth, MA 02556. (the "Site") and the attachment of antennas, cabling and other telecommunications equipment on and at the base of the Lattice Tower by various wireless broadband telecommunications carriers as proposed in the attached application (the "Facility").

1. I am a currently an independent consultant Principal/Manager Radio Frequency Engineer. I have been involved with the wireless telecommunications industry for 27 years, and have held various technical, operational and supervisory positions with Nextel Communications, T-Mobile, AT&T Mobility and Sprint PCS.

2. In order to satisfy its obligations under its radio licenses acquired from the FCC and under the Code of Federal Regulations 47 C.F.R. § 27.14(a), wireless broadband telecommunications carriers must have in place a system of strategically deployed "cell sites" to provide wireless communications services to their subscribers' throughout their licensed area. These cell sites generally consist of an antenna support structure such as a telecommunications tower, building, water tank, or other structures used to elevate the antennas to the height necessary for providing adequate service to the targeted area. The antennas are connected via cabling to radio equipment located near the antennas and/or at the base of the support structure. The cell sites operate by transmitting and receiving low power radio frequency signals to and from their subscribers' portable wireless communication devices such as basic handheld phones, smartphones, PDA's, tablets, and laptop aircards. These wireless voice and data signals are then transferred through ground telephone lines, fiber, microwave or other means of backhaul transport, and routed to their destinations by sophisticated electronic equipment.

3. Cell sites are a vital and necessary part of carriers' network infrastructure. In order to maintain effective, uninterrupted service throughout a given area, there must be a series of cell sites, interconnected to each other with slightly overlapping coverage areas. This allows for the subscribers to move freely about a geographic area while maintaining a consistent and reliable wireless connection to the network.

4. A proposed cell site must consider the locations and coverage provided by the surrounding cell sites in the network, and must be located within a limited geographical area, which is defined by factors such as terrain, land use characteristics, and population density. By locating within this limited area and at a sufficient height, the cell site would have a high probability of meeting the targeted objectives, thereby providing reliable coverage and capacity throughout the cell.

5. In compliance with the requirements of its FCC licenses, carriers are actively building their respective networks to provide coverage throughout its licensed area. In order to meet the responsibility of providing seamless, uninterrupted service, carriers must continue to acquire

interest in sites for additional facilities, and is applying for and obtaining local governmental zoning approvals to construct its sites in order to eliminate deficient service areas due to gaps in coverage or insufficient capacity. Any delays severely curtail carriers' ability to satisfy both mandated time requirements, and to achieve a market position that will allow it to compete for customers with other similar companies also issued licenses to operate in this area.

6. Using computer simulations to model radio frequency propagation, Vertex has determined that a wireless transmission facility located at or near to the proposed Facility would facilitate wireless communications within the local area along Quaker Rd, Krikor Dr, Shaume Rd, Webster St and surrounding areas of Falmouth, MA. These simulations model characteristics such as antenna types, antenna height, output power, terrain, ground elevations and RF propagation effects of the frequency utilized.

7. In my opinion based upon substantial research and analysis, without a cell site located at or very near the proposed site, this area of Falmouth, MA would not meet the typical coverage requirements for multiple wireless carriers, resulting in a substantial gap in wireless coverage.

8. Based upon the technologies currently being deployed by wireless carriers, it is my opinion that the proposed Facility is at the minimum height necessary to satisfy the coverage objectives of multiple wireless carriers providing in the area.

9. All of the transmitter facilities to be located at the proposed location are required to comply, and when constructed and operational will comply with, all applicable regulations of the FCC regarding radio frequency (RF) exposure as detailed in FCC OET Bulletin 65, Edition 97-1.

Signed and sworn under the pains and penalties of perjury, August 06, 2024.

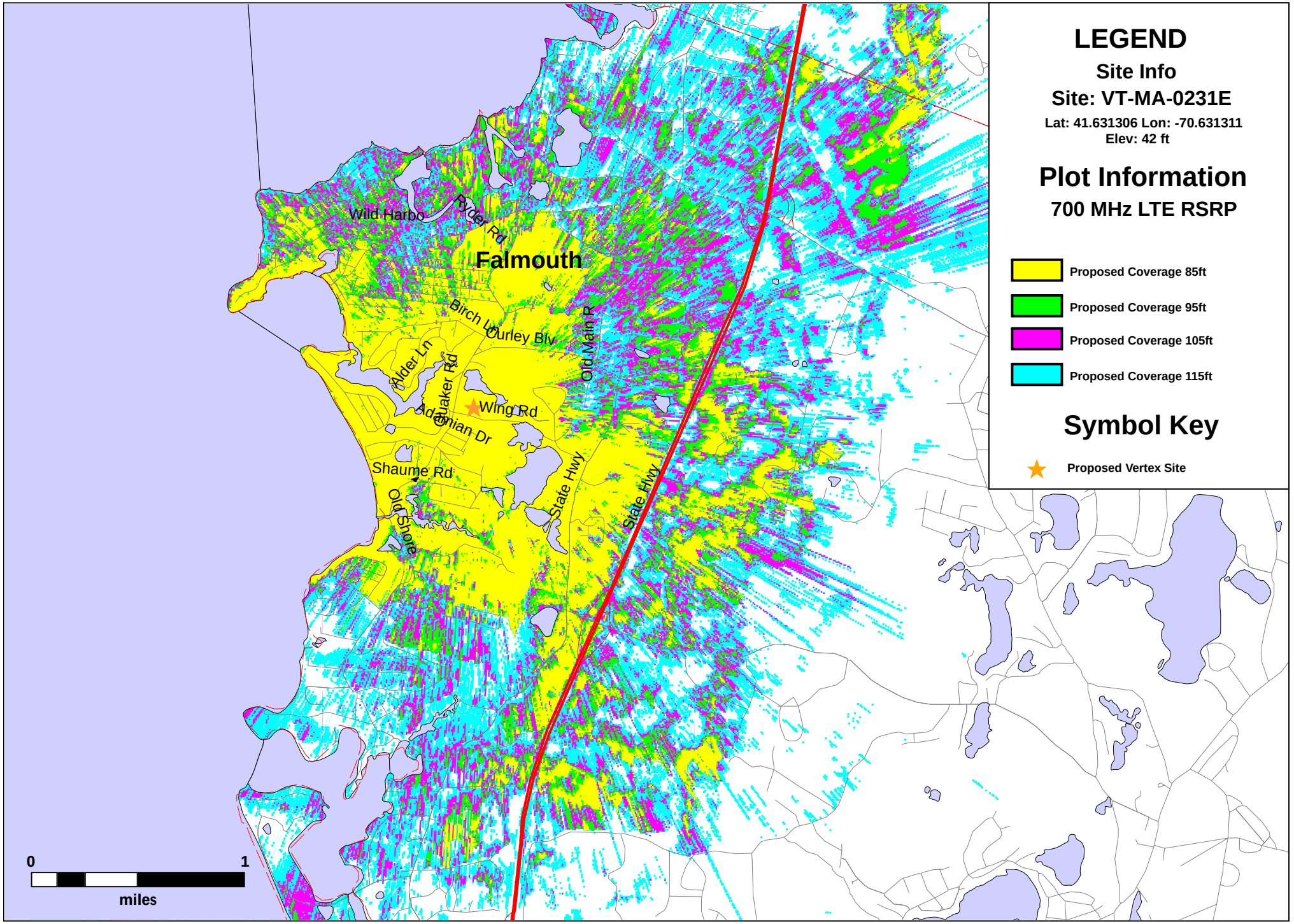
Jose Hernandez

Jose Hernandez

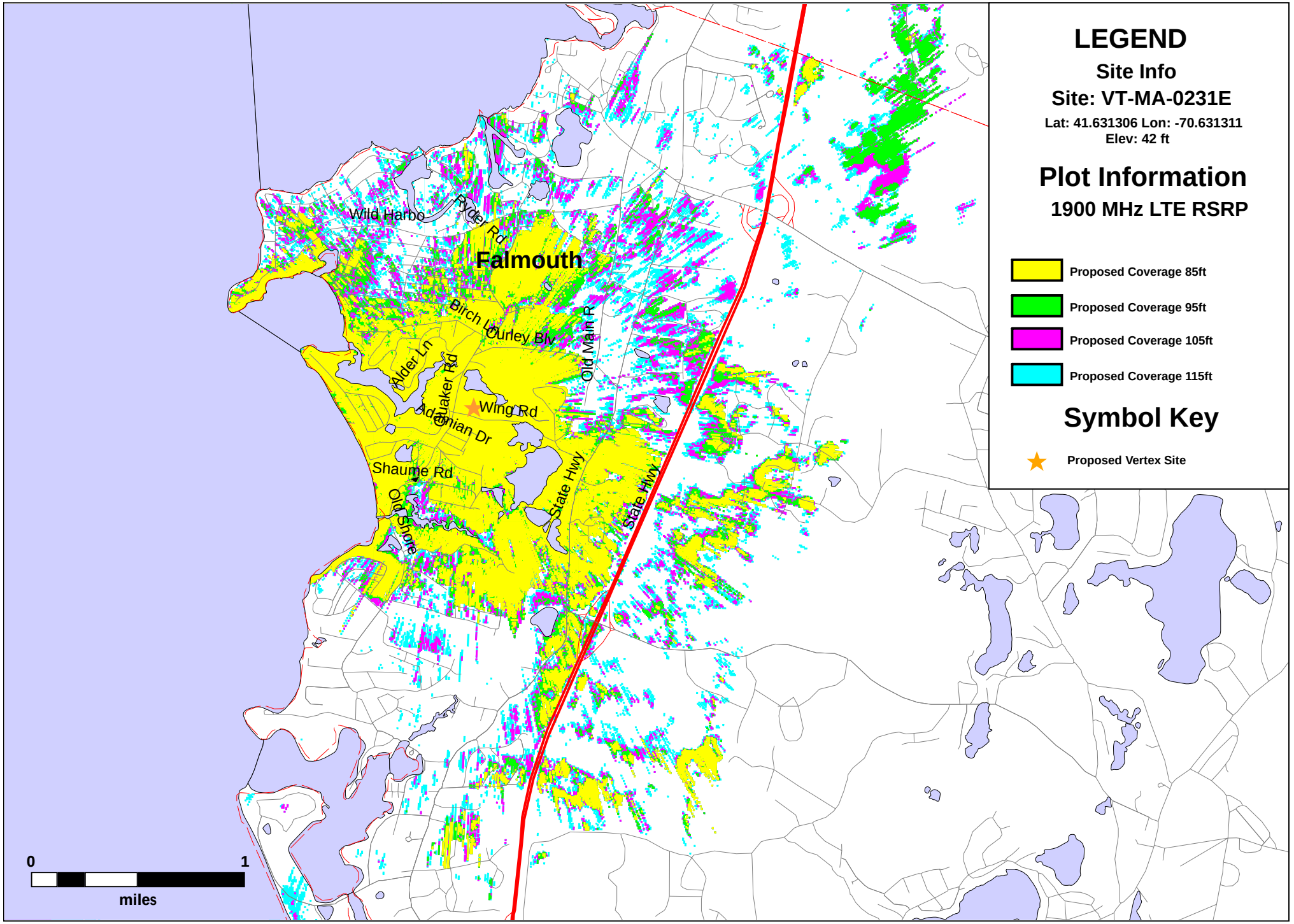
JNaerowaves.Corp

President / Principal Radio Frequency Engineer

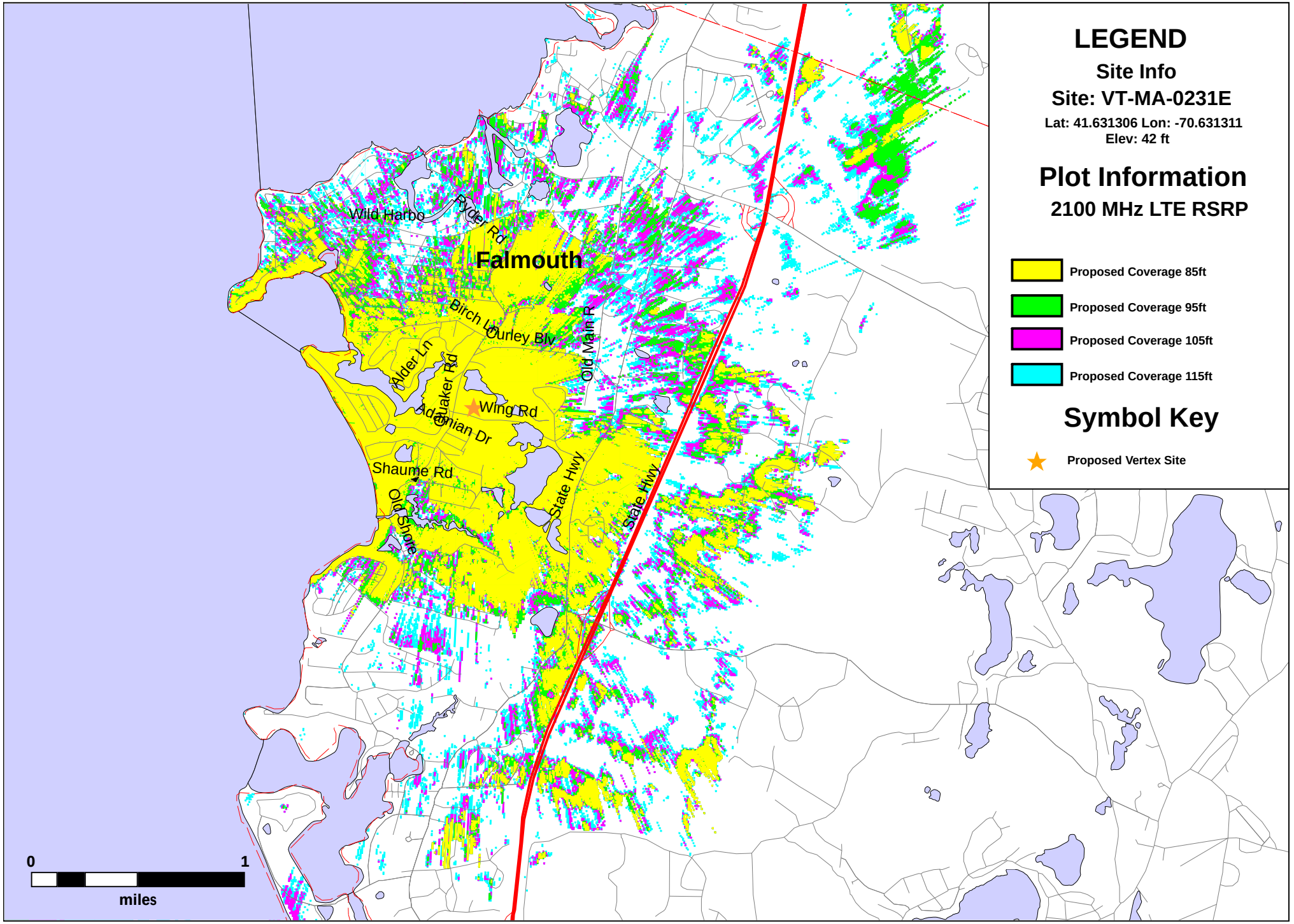
RF Height Analysis For VT-MA-0231E@-95dBm



RF Height Analysis For VT-MA-0231E@-95dBm



RF Height Analysis For VT-MA-0231E@-95dBm



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Calculated Radio Frequency Emissions Report

Falmouth 8 MA

481 Quaker Road, Falmouth, MA 02556

March 28, 2024

Table of Contents

List of Figures

List of Tables

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of Verizon's antenna arrays to be mounted at 115' AGL on the proposed monopole located at 481 Quaker Road, Falmouth, MA. The coordinates of the proposed facility are 41° 37' 52.19" N, 70° 37' 52.80" W.

Verizon is proposing the following:

1) Install six (6) multi-band antennas (two (2) antennas per sector, three sectors) to support its 4G LTE and 5G NR network;
2) Install three (3) C-band antennas (one (1) antenna per sector, three sectors) to support its 5G NR network;

This report considers the antenna configuration for Verizon's proposed installation to calculate the resulting % Maximum Permissible Exposure (MPE).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment C contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Calculation Methods

The results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{GRF^2 \times \text{EIRP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna

V = Vertical Distance from radiation center of antenna

Off Beam Loss is determined by the selected antenna patterns

GRF = Ground reflection factor of 2.0

These calculations assume that the antennas are operating at full power and 100 percent capacity, and that all antenna channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not considered. The calculations assume even terrain in the area of study and do not account for actual terrain elevations which could attenuate the signal. As a result, the calculated power density and corresponding % MPE levels reported below are much higher than the actual signal levels will be from the final installation.

4. Antenna Inventory

Table 1 below outlines Verizon's proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachment C.

Operator	Sector / Azimuth	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
Verizon	Alpha / 105°	750	160	14.9	4944	NHH-65B-R2B	65	0	6	115
		850	160	15.0	5060		60	0		
		1900	160	17.9	9866		69	0		
		2100	240	18.4	16604		64	0		
		3700	320	25.5	113540	MT6413-77A	-	0	2.46	115
	Beta / 210°	750	160	14.9	4944	NHH-65B-R2B	65	0	6	115
		850	160	15.0	5060		60	0		
		1900	160	17.9	9866		69	0		
		2100	240	18.4	16604		64	0		
		3700	320	25.5	113540	MT6413-77A	-	0	2.46	115
	Gamma / 310°	750	160	14.9	4944	NHH-65B-R2B	65	0	6	115
		850	160	15.0	5060		60	0		
		1900	160	17.9	9866		69	0		
		2100	240	18.4	16604		64	0		
		3700	320	25.5	113540	MT6413-77A	-	0	2.46	115

Table 1: Proposed Antenna Inventory [1] [2]

[1] Antenna heights and configuration are in reference to Verizon's Radio Frequency Design Sheet dated 1/2/2024 and Site Plan Drawings provided by Vertex Towers LLC and prepared by Advanced Engineering Group, P.C. (Rev. 2, dated 4/6/2023).

[2] Transmit power assumes 0 dB of cable loss.

5. Calculated % MPE Results

The calculated % MPE results for the proposed antenna configuration are shown in Figure 1 below. Each frequency band and technology is calculated as well as the resulting cumulative percent of MPE. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

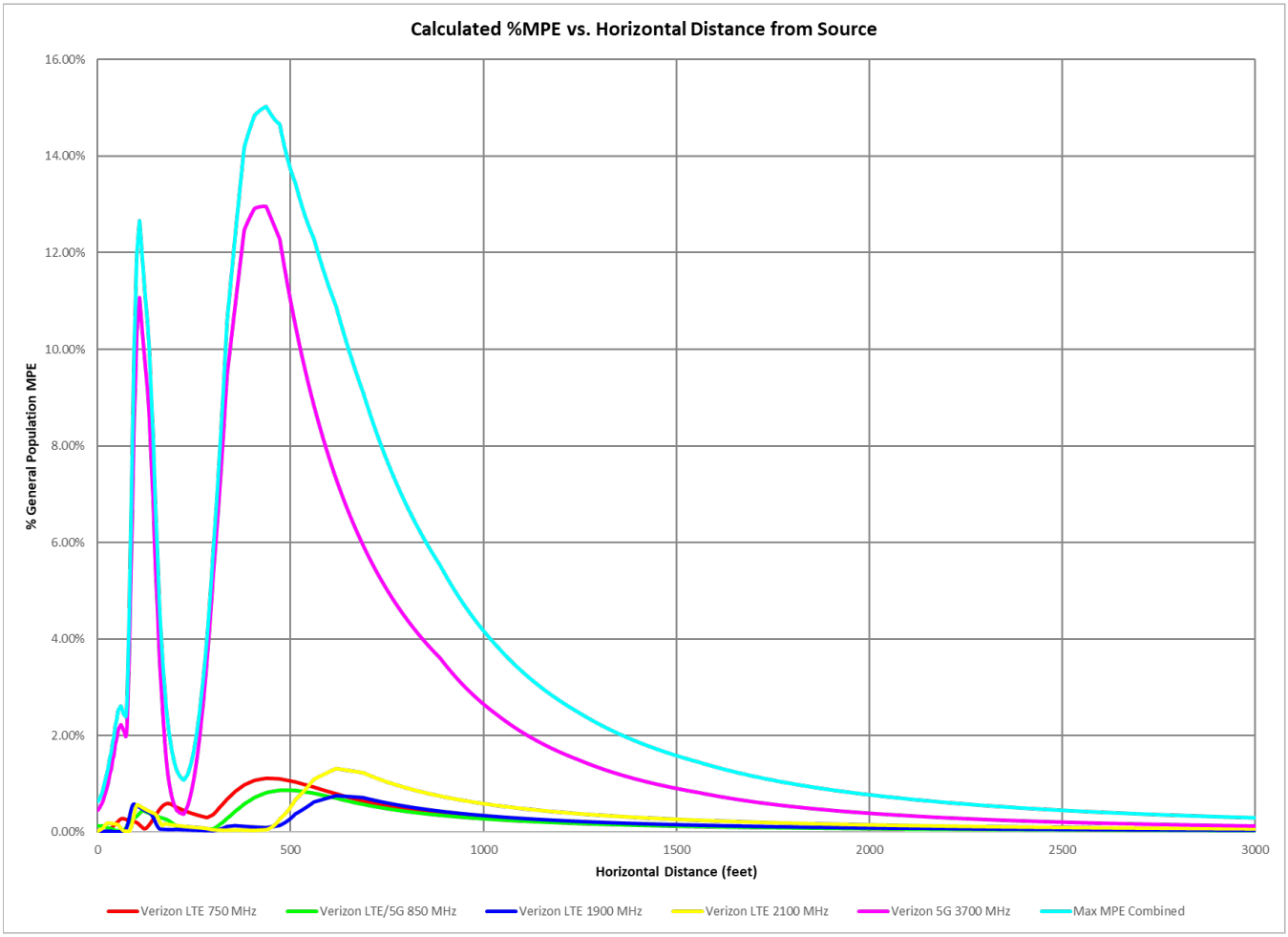


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (**15.03%** of the General Population limit) is calculated to occur at a horizontal distance of 437 feet from antennas. Please note that the percent of MPE calculations close to the site consider off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 800 feet and beyond, one would now be in the main beam of the antenna patterns and off beam loss is no longer considered. Beyond this point, power density levels vary solely based on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, and that all antenna channels are transmitting simultaneously. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. Additionally, a six-foot height offset was considered in this analysis to account for average human height standing at ground level. As a result, the calculated % MPE levels are significantly higher than the actual signal levels will be from the final installation. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the site out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm^2)	Limit (mW/cm^2)	% MPE
Verizon 5G 3700 MHz	1	320.0	115.0	437	0.129560	1.000	12.96%
Verizon LTE 1900 MHz	1	160.0	115.0	437	0.000914	1.000	0.09%
Verizon LTE 2100 MHz	1	240.0	115.0	437	0.000486	1.000	0.05%
Verizon LTE 750 MHz	1	160.0	115.0	437	0.005570	0.500	1.11%
Verizon LTE/5G 850 MHz	1	160.0	115.0	437	0.004622	0.567	0.82%
						Total	**15.03%**

Table 2: Maximum Percent of General Population Exposure Values [3][4]

[3] Frequencies listed are representative of the operating band and are not the specific operating frequency.

[4] The total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

6. Conclusion

The above analysis concludes that RF exposure levels from the proposed site will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **15.03% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 437 feet away from the site.

7. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.1, ANSI/IEEE Std. C95.3, and FCC OET Bulletin 65 Edition 97-01.

Keith Vellante

March 28, 2024

Report Prepared By: Keith Vellante
Director – RF Services
C Squared Systems, LLC

Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2019, IEEE Standard Safety Levels With Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2021, IEEE Recommended Practice for Measurements and Computations of Electric, Magnetic, and Electromagnetic Fields With Respect to Human Exposure to Such Fields, 0 Hz to 300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[6]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 3: FCC Limits for Maximum Permissible Exposure

[5] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[6] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

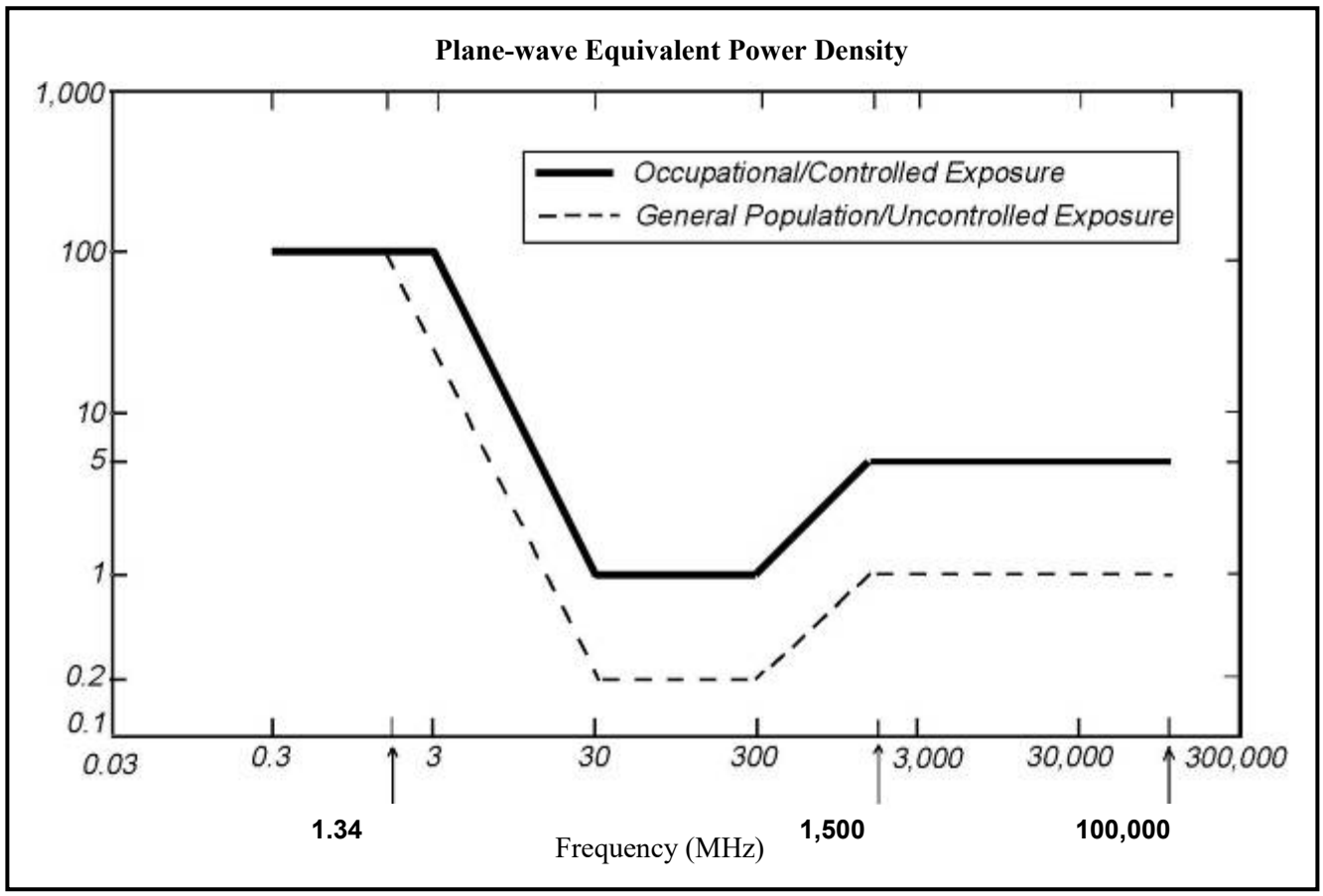
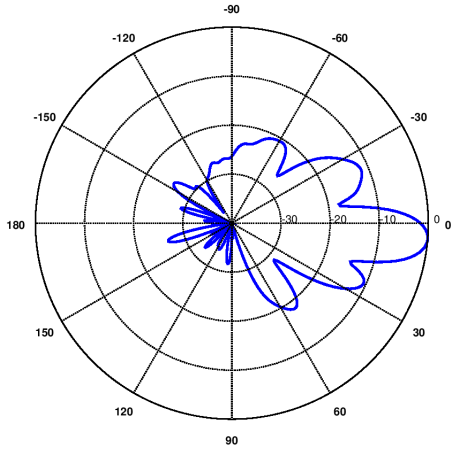


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Verizon Antenna Model Data Sheets and Electrical Patterns

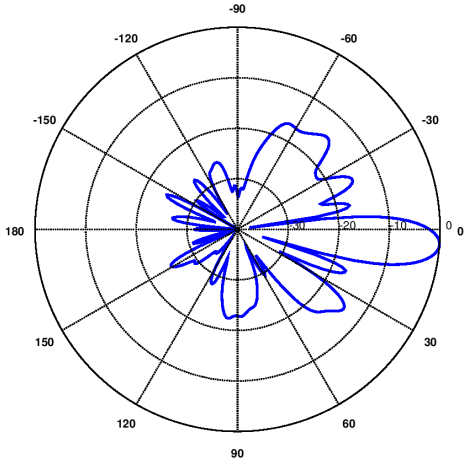
750 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-2RB
Frequency Band:	698-806 MHz
Gain:	14.9 dBi
Vertical Beamwidth:	12.4°
Horizontal Beamwidth:	65°
Polarization:	±45°
Dimensions (L x W x D):	72” x 12” x 7”



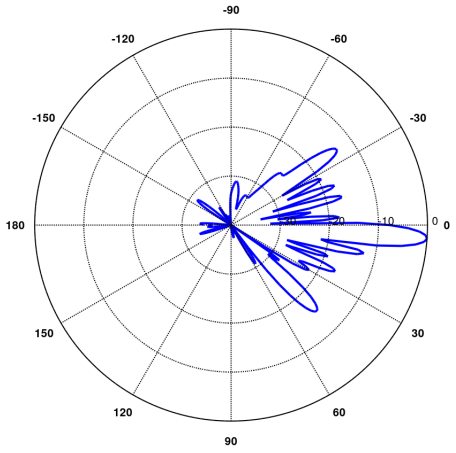
880 MHz

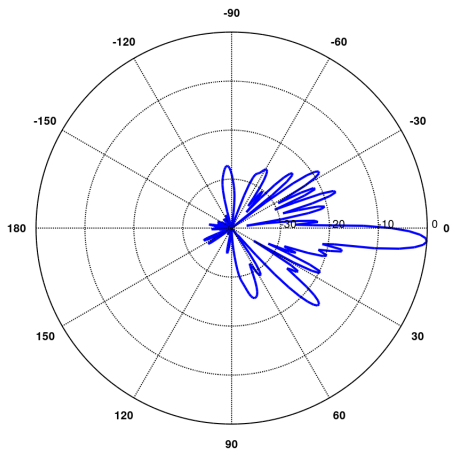
Manufacturer:	COMMSCOPE
Model #:	NHH-65B-2RB
Frequency Band:	806 - 896 MHz
Gain:	15.0 dBi
Vertical Beamwidth:	11.2°
Horizontal Beamwidth:	60°
Polarization:	±45°
Dimensions (L x W x D):	72” x 12” x 7”



1900 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-2RB
Frequency Band:	1850-1990 MHz
Gain:	17.9 dBi
Vertical Beamwidth:	5.2°
Horizontal Beamwidth:	69°
Polarization:	±45°
Dimensions (L x W x D):	72” x 12” x 7”



2100 MHz Manufacturer: COMMSCOPE Model #: NHH-65B-2RB Frequency Band: 1920-2200 MHz Gain: 18.4 dBi Vertical Beamwidth: 4.9° Horizontal Beamwidth: 64° Polarization: ±45° Dimensions (L x W x D): 72” x 12” x 7”	
3700 MHz Manufacturer: SAMSUNG Model #: MT6413-77A Frequency Band: 3700-3980 MHz Gain: 25.5 dBi Vertical Beamwidth: N/A° Horizontal Beamwidth: N/A° Polarization: N/A° Dimensions (L x W x D): 29.53” x 15.75” x 5.51”	N/A

12

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant:

Prepared by: **Ecosystem Solutions Inc.** Project Location: **481 Quaker Road, Falmouth** DEP File #:

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☑ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I.

Observation Plot Number: **U** Transect #: **A4** Date: **1/27/2023**

	Common Name	Scientific Name	Percent Cover	Percent Dominance	Dominant Plant?	Wetland Indicator Plant?	Wetland Indicator Category
Ground	Unidentified fern	*Unidentified fern*	38	100	YES	NO	NI
Shrub	Coast pepper-bush*	*Clethra alnifolia*	38	100	YES	YES	FAC+
Tree	Eastern white pine	*Pinus strobus*	38	81	YES	NO	FACU
	Red maple*	*Acer rubrum*	3	6	NO	YES	FAC
	White oak	*Quercus alba*	3	6	NO	NO	FACU-
	Northern red oak	*Quercus rubra*	3	6	NO	NO	FACU-

FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due t o physiological or morphological adaptations, describe the adaptation next to the asterisk

Vegetation conclusion:

Number of dominant wetland indicator plants: **1** Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **NO**

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

Upland @ ***A4***

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? **YES**
Title/date: **Barnstable, County**
Map number: **Accessed via Web Soil Survey**
Soil type mapped: **435E- Plymouth Icos, 15-35%**
Hydric soil inclusions: **none**

Are field observations consistent with soil survey? Yes

Remarks:

2. Soil Description

Horizon	Depth	Color	Redox
A	**0-2**	**10YR 2/2 (sil)**	**-**
Bw	**2-10**	**10YR 3/2 (sil)**	**-**
C	**10-20**	**7.5Y 4/2 (sl)**	**-**

Remarks:

3. Other:
Area located in a draw/ Start of small valley

Conclusion: Is soil hydric? **No**

Other Indicators of Hydrology: (check all that apply & describe)

- ☐ Site Inundated:
- ☐ Depth to free water in observation hole:
- ☑ Depth to soil saturation in observation hole: **2"**
  Observed outside growing season
- ☐ Water marks:
- ☐ Drift lines:
- ☐ Sediment Deposits:
- ☐ Drainage patterns in BVW:
- ☐ Oxidized rhizospheres:
- ☐ Water-stained leaves:
- ☐ Recorded Data (streams, lake, or tidal gauge; aerial photo):
- ☐ Other:

Vegetation & Hydrology Conclusion

	YES	NO
Number of wetland indicator plants ≥ # of non-wetland indicator plants	☐	☑
Wetland hydrology present		
Hydric soil	☐	☑
Other indicators of hydrology	☑	☐

Sample location is in a BVW **NO**

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant:

Prepared by: **Ecosystem Solutions Inc.** Project Location: **481 Quaker Road, Falmouth** DEP File #:

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☑ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I.

Observation Plot Number: **U** Transect #: **A4** Date: **1/27/2023**

	Common Name	Scientific Name	Percent Cover	Percent Dominance	Dominant Plant?	Wetland Indicator Plant?	Wetland Indicator Category
Ground	Unidentified fern	*Unidentified fern*	38	100	YES	NO	NI
Shrub	Coast pepper-bush*	*Clethra alnifolia*	38	100	YES	YES	FAC+
Tree	Eastern white pine	*Pinus strobus*	38	81	YES	NO	FACU
	Red maple*	*Acer rubrum*	3	6	NO	YES	FAC
	White oak	*Quercus alba*	3	6	NO	NO	FACU-
	Northern red oak	*Quercus rubra*	3	6	NO	NO	FACU-

FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due t o physiological or morphological adaptations, describe the adaptation next to the asterisk

Vegetation conclusion:

Number of dominant wetland indicator plants: **1** Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **NO**

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

Upland @ ***A4***

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? **YES**
Title/date: **Barnstable, County**
Map number: **Accessed via Web Soil Survey**
Soil type mapped: **435E- Plymouth Icos, 15-35%**
Hydric soil inclusions: **none**

Are field observations consistent with soil survey? Yes

Remarks:

2. Soil Description

Horizon	Depth	Color	Redox
A	**0-2**	**10YR 2/2 (sil)**	**-**
Bw	**2-10**	**10YR 3/2 (sil)**	**-**
C	**10-20**	**7.5Y 4/2 (sl)**	**-**

Remarks:

3. Other:
Area located in a draw/ Start of small valley

Conclusion: Is soil hydric? **No**

Other Indicators of Hydrology: (check all that apply & describe)

- ☐ Site Inundated:
- ☐ Depth to free water in observation hole:
- ☑ Depth to soil saturation in observation hole: **2"**
  Observed outside growing season
- ☐ Water marks:
- ☐ Drift lines:
- ☐ Sediment Deposits:
- ☐ Drainage patterns in BVW:
- ☐ Oxidized rhizospheres:
- ☐ Water-stained leaves:
- ☐ Recorded Data (streams, lake, or tidal gauge; aerial photo):
- ☐ Other:

Vegetation & Hydrology Conclusion

	YES	NO
Number of wetland indicator plants ≥ # of non-wetland indicator plants	☐	☑
Wetland hydrology present		
Hydric soil	☐	☑
Other indicators of hydrology	☑	☐

Sample location is in a BVW **NO**

13

ADAM W. LATHAM
Landscape Architect

136 Metropolitan Park Drive
Barrington, RI 02806
(508) 252-1033

March 30, 2024

Mr. Scott N. Adams, P.E.
Advanced Engineering Group, P.C.
500 North Broadway
East Providence, RI 02914

Re: Site Visit/Existing Plant Material – 481 Quaker Rd., Falmouth, MA

Dear Scott,

On March 18, 2023, I visited the subject site to observe and take notes on the existing plant material in the vicinity of the proposed work area.

Notes:

1. This is an easily walkable, White Pine/Oak Coastal Forest upland habitat.

2. The plant material at this location consists of native species. Existing vegetation in the proposed work area includes but is not limited to the following trees between 4-10" diameter: Red Maple, Eastern White Pine, Pitch Pine, Red Oak, White Oak, and Sassafras; shrub and groundcovers include beaked hazelnut, highbush blueberry (at the rear of the project area), catbrier, pipsissewa.

3. There were no significant trees of merit identified for protection and no invasive species were observed.

Please contact me if you have questions regarding these observations.

Sincerely,

Adam W. Latham, RLA
Landscape Architect
MA #1085, RI#307

project area

Eastern White Pine (*Pinus strobus)*

Pipsissewa (*Chimaphila maculata*)

Highbush Blueberry *(Vaccinium corymbosum)*

14

KOHLER®

Model: KG50

190- 600 V **Gas**

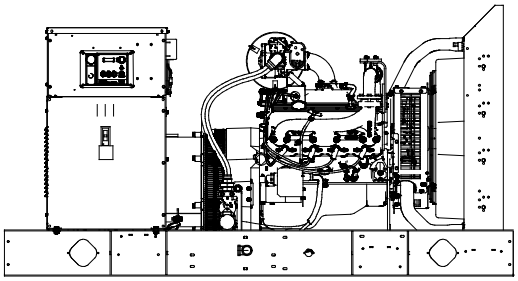
ISO 9001 KOHLER® NATIONALLY REGISTERED

EPA-Certified for 60 Hz Stationary Emergency Applications

EPA certification not applicable at 50 Hz

Ratings Range

		60 Hz	50 Hz
Standby:	**kW**	53	44
	kVA	53- 66	44- 55



Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a cULus listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Automatic dual- fuel NG/LP system with reset box is available.

Generator Set Ratings

				Natural Gas 130°C Rise Standby Rating		LP Gas 130°C Rise Standby Rating	
Alternator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**
4P8X	120/208	3	60	53/66	184	53/66	184
	127/220	3	60	53/66	174	53/66	174
	120/240	3	60	53/66	159	53/66	159
	120/240	1	60	53/53	221	53/53	221
	139/240	3	60	53/66	159	53/66	159
	220/380	3	60	53/66	101	53/66	101
	277/480	3	60	53/66	80	53/66	80
	347/600	3	60	53/66	64	53/66	64
	110/190	3	50	44/55	168	44/55	168
	115/200	3	50	44/55	159	44/55	159
	120/208	3	50	44/55	153	44/55	153
	110/220	3	50	44/55	145	44/55	145
	110/220	1	50	44/44	200	44/44	200
	220/380	3	50	44/55	84	44/55	84
	230/400	3	50	44/55	80	44/55	80
	240/415	3	50	44/55	77	44/55	77
4P10X	120/208	3	60	53/66	184	53/66	184
	127/220	3	60	53/66	174	53/66	174
	120/240	3	60	53/66	159	53/66	159
	120/240	1	60	53/53	221	53/53	221
	139/240	3	60	53/66	159	53/66	159
	220/380	3	60	53/66	101	53/66	101
	277/480	3	60	53/66	80	53/66	80
	347/600	3	60	53/66	64	53/66	64
	110/190	3	50	44/55	168	44/55	168
	115/200	3	50	44/55	159	44/55	159
	120/208	3	50	44/55	153	44/55	153
	110/220	3	50	44/55	145	44/55	145
	110/220	1	50	44/44	200	44/44	200
	220/380	3	50	44/55	84	44/55	84
	230/400	3	50	44/55	80	44/55	80
	240/415	3	50	44/55	77	44/55	77
4Q8X	120/240	1	60	53/53	221	53/53	221
	110/220	1	50	44/44	200	44/44	200
4Q10X	120/240	1	60	53/53	221	53/53	221
	110/220	1	50	44/44	200	44/44	200

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. *Standby Ratings:* The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. For dual fuel engines, use the natural gas ratings for both the primary and secondary fuels.

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare- Earth Permanent Magnet
Leads: quantity, type	
4P8X, 4P10X	12, Reconnectable
4Q8X, 4Q10X	4, 110- 120/220- 240 V
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 400 V 4P8X (12 lead)	255 (60 Hz), 215 (50 Hz)
480 V, 400 V 4P10X (12 lead)	275 (60 Hz), 220 (50 Hz)
240 V, 220 V 4Q8X (4 lead)	120 (60 Hz), 96 (50 Hz)
240 V, 220 V 4Q10X (4 lead)	144 (60 Hz), 121 (50 Hz)

- The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
- The brushless, rotating-field alternator has broadrange reconnectability.
- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Kohler	
Engine: model, type	KG6208 6.2 L Natural Aspiration	
Cylinder arrangement	V-8	
Displacement, L (cu. in.)	6.2 (378)	
Bore and stroke, mm (in.)	101.6 x 95.25 (4.00 x 3.75)	
Compression ratio	10.5:1	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	77.0 (103)	64.3 (86)
Cylinder head material	Cast Aluminum	
Piston type and material	High Silicon Aluminum	
Crankshaft material	Cast Iron	
Valve (exhaust) material	Forged Steel	
Governor type	Electronic	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±1.0%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m^3/min. (cfm)	11.7 (414)	9.8 (345)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	677 (1250)	
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	76 (3.0) OD	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	Electronic, Distributor	
Ignition system	Electronic	
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	12	
Ampere rating	130	
Starter motor rated voltage (DC)	12	
Battery, recommended cold cranking amps (CCA):		
Qty., rating for - 18°C (0°F)	One, 630	
Battery voltage (DC)	12	

Fuel

Fuel System	60 Hz	50 Hz
Fuel type	Natural Gas, LP Gas, or Dual Fuel	
Fuel supply line inlet	1 NPTF	
Natural gas fuel supply pressure, kPa (in. H_2O)	1.24- 2.74 (5-11)	
LPG vapor withdrawal fuel supply pressure, kPa (in. H_2O)	1.24- 2.74 (5-11)	
Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H_2O)	1.24 (5)	

Fuel Composition Limits *	Nat. Gas	LP Gas
Methane, % by volume	90 min.	—
Ethane, % by volume	4.0 max.	—
Propane, % by volume	1.0 max.	85 min.
Propene, % by volume	0.1 max.	5.0 max.
C_4 and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass	25 max.	
Lower heating value, MJ/m^3 (Btu/ft^3), min.	33.2 (890)	84.2 (2260)

* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.) §	5.7 (6.0)	
Oil pan capacity with filter, L (qt.) §	7.1 (7.5)	
Oil filter: quantity, type §	1, Cartridge	

§ Kohler recommends the use of Kohler Genuine oil and filters.

Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F) *	50 (122)	
Engine jacket water capacity, L (gal.)	7.3 (1.93)	
Radiator system capacity, including engine, L (gal.)	20.8 (5.5)	
Engine jacket water flow, Lpm (gpm)	129 (34.1)	108 (28.5)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	61.7 (3510)	53.3 (3030)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	533 (21)	
Fan, kWm (HP)	2.2 (2.9)	1.3 (1.7)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)	

* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m^3/min. (scfm) †	136 (4800)	113 (4000)
Combustion air, m^3/min. (cfm)	4.6 (163)	3.9 (136)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	30.9 (1760)	26.5 (1510)
Alternator, kW (Btu/min.)	7.7 (440)	6.9 (390)

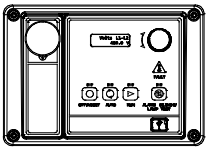
† Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption ‡	60 Hz	50 Hz
Natural Gas, m^3/hr. (cfh) at % load	**Standby Ratings**	
100%	24.9 (879)	20.4 (721)
75%	19.7 (696)	14.8 (524)
50%	13.9 (490)	9.8 (345)
25%	7.9 (277)	5.8 (204)
LP Gas, m^3/hr. (cfh) at % load	**Standby Ratings**	
100%	9.5 (337)	8.5 (300)
75%	7.6 (267)	5.7 (199)
50%	5.1 (178)	4.2 (146)
25%	3.2 (113)	2.7 (96)

‡ Nominal fuel rating: Natural gas, 37 MJ/m^3 (1000 Btu/$ft.^3$)
LP vapor, 93 MJ/m^3 (2500 Btu/$ft.^3$)

LP vapor conversion factors:
8.58 $ft.^3$ = 1 lb.
0.535 m^3 = 1 kg.
36.39 $ft.^3$ = 1 gal.

Controllers



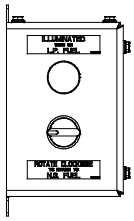
APM402 Controller
Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.

Dual Fuel Model Features

- Natural gas is the primary fuel. Automatically transfers back to primary fuel when LPG fuel becomes low or generator stops and restarts.
- The patented reset box on the generator provides the ability to manually transfer back to natural gas.



Dual Fuel Reset Box

KOHLER

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Gas Fuel System (includes fuel mixer, electronic secondary gas regulator, gas solenoid valve, and flexible fuel line between the engine and the skid-mounted fuel system components)
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Approvals and Listings

- ❑ cULus (UL 2200 and CSA)
- ❑ Hurricane Rated Enclosure
- ❑ IBC Seismic Certification

Enclosed Unit

- ❑ Sound Enclosure (with enclosed critical silencer)
- ❑ Weather Enclosure (with enclosed critical silencer)

Open Unit

- ❑ Exhaust Silencer, Critical (kit: PA-352663)
- ❑ Flexible Exhaust Connector, Stainless Steel

Fuel System

- ❑ Dual Fuel NG/LPG (automatic changeover)
- ❑ Flexible Fuel Line
  (required when the generator set skid is spring mounted)
- ❑ Fuel Filter Kit

Controller

- ❑ Common Fault Relay
- ❑ Two Input/Five Output Module
- ❑ Remote Annunciator Panel
- ❑ Remote Emergency Stop
- ❑ Run Relay
- ❑ Manual Speed Adjust

Cooling System

- ❑ Block Heater, 1500 W, 110- 120 V
  Required for ambient temperatures below 10°C (50°F)
- ❑ Radiator Duct Flange

Electrical System

- ❑ Alternator Strip Heater
- ❑ Battery
- ❑ Battery Charger
- ❑ Battery Charger Temperature Compensation
- ❑ Battery Heater
- ❑ Line Circuit Breaker (NEMA1 enclosure)
- ❑ Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

Miscellaneous

- ❑ Air Cleaner Restrictor Indicator
- ❑ Certified Test Report
- ❑ Engine Fluids (oil and coolant) Added
- ❑ Rated Power Factor Testing
- ❑ Rodent Guards
- ❑ Open Unit Accessory Kit
  (stone guards, radiator duct flange, flexible exhaust)

Literature

- ❑ General Maintenance
- ❑ NFPA 110
- ❑ Overhaul
- ❑ Production

Warranty

- ❑ 2-Year Basic Limited Warranty
- ❑ 5-Year Basic Limited Warranty
- ❑ 5-Year Comprehensive Limited Warranty

Other Options

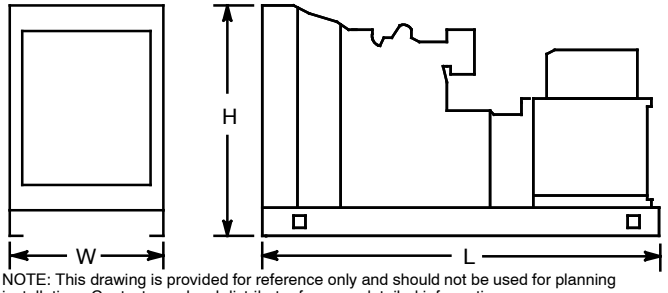
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.):

Wide Skid	2200 x 1040 x 1170 (86.6 x 40.9 x 46.1)
Narrow Skid	2200 x 864 x 1170 (86.6 x 34.0 x 46.1)

Weight (radiator model), wet, kg (lb.): 862 (1900)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

DISTRIBUTED BY:

TECHNICAL INFORMATION BULLETIN

Generator Set Sound Data Sheet

			Sound Pressure Data in dB(A)			
Generator Set Model	**Hz**	**Load**	**Raw Exhaust**	**Open Unit, Isolated Exhaust**	**Weather Enclosure**	**Sound Enclosure**
KG50	60	100% Load	110.3	80.9	79.0	67.5
		No Load	101.0	80.4	78.5	66.1
Note: Sound pressure data is the logarithmic average of eight perimeter measurement points at a distance of 7 m (23 ft.), except Raw Exhaust data which is a single measurement point at 1 m (3.3 ft.) from the mouth of a straight pipe exhaust.						

KG50	**60 Hz**

				Sound Pressure Levels dB(A)								
				Octave Band Center Frequency (Hz)								Overall Level
Load	Distance, m (ft.)	Enclosure	Measurement Clock Position	63	125	250	500	1000	2000	4000	8000	
100% Load	7 (23)	Sound	3:00	40.8	53.4	56.8	61.1	62.2	59.4	54.5	49.0	66.9
			1:30	41.5	47.1	55.7	64.1	62.2	60.3	53.8	48.7	67.8
			12:00-Engine	45.8	52.1	56.1	64.9	65.3	61.8	56.1	50.0	69.6
			10:30	43.4	53.8	57.3	61.8	64.7	59.4	54.4	47.8	68.1
			9:00	41.1	54.6	56.3	60.8	60.4	56.5	50.3	44.4	65.6
			7:30	41.3	53.1	57.8	62.5	62.6	57.5	52.8	44.3	67.2
			6:00-Alternator	42.9	55.3	57.0	62.3	61.8	57.3	52.2	43.6	66.8
			4:30	41.2	51.1	56.4	62.6	62.6	57.7	54.3	47.7	67.1
			8-pos. log avg.	42.6	53.1	56.7	62.7	63.0	59.1	53.8	47.5	67.5

				Sound Pressure Levels dB(A)								
Load	Distance, m (ft.)	Enclosure	Measurement Clock Position	3:00	1:30	12:00 Eng.	10:30	9:00	7:30	6:00 Alt.	4:30	8-pos. log avg.
100% Load	7 (23)	Weather	Overall Levels	78.6	78.2	80.5	81.7	78.9	78.3	73.5	78.2	79.0

				Sound Pressure Levels dB(A)								
				Octave Band Center Frequency (Hz)								Overall Level
Load	Distance, m (ft.)		Measurement Clock Position	63	125	250	500	1000	2000	4000	8000	
100% Load	7 (23)	Open Unit, Isolated Exhaust	3:00	41.3	55.1	68.6	73.2	75.8	75.3	70.5	61.3	80.5
			1:30	40.3	54.6	67.2	70.2	76.0	74.5	71.6	65.1	80.1
			12:00-Engine	46.9	60.6	69.6	75.6	76.6	77.2	73.9	65.8	82.4
			10:30	43.9	59.5	68.9	74.2	77.5	79.9	75.3	66.7	83.6
			9:00	42.0	54.2	69.8	73.8	74.5	76.3	71.5	62.7	80.8
			7:30	44.0	56.5	66.8	72.0	74.7	76.1	70.6	60.7	80.2
			6:00-Alternator	44.0	57.0	67.1	71.0	69.8	67.3	61.2	51.8	75.4
			4:30	43.9	57.4	66.3	72.7	74.8	75.8	70.0	60.0	80.1
			8-pos. log avg.	43.7	57.4	68.2	73.1	75.4	76.3	71.8	63.3	80.9

			Sound Pressure Levels dB(A)								
			Octave Band Center Frequency (Hz)								Overall Level
Load	Distance, m (ft.)	Exhaust	63	125	250	500	1000	2000	4000	8000	
100% Load	1 (3.3)	Raw Exhaust (No Silencer)	74.4	90.4	101.4	103.1	103.7	105.2	101.5	82.3	110.3

KG50	60 Hz

Load	Distance, m (ft.)	Enclosure	Measurement Clock Position	Sound Pressure Levels dB(A)								
				Octave Band Center Frequency (Hz)								Overall Level
				63	125	250	500	1000	2000	4000	8000	
No Load	7 (23)	Sound	3:00	40.6	51.1	54.5	60.1	59.2	54.7	46.2	39.0	64.2
			1:30	37.6	45.3	54.5	64.7	60.2	54.5	48.9	36.0	66.7
			12:00-Engine	43.1	51.3	55.2	65.2	63.3	60.1	52.8	43.9	68.6
			10:30	42.8	49.3	55.4	62.0	63.4	56.8	50.4	41.4	66.9
			9:00	41.6	50.0	53.3	59.5	58.6	54.5	46.7	39.0	63.6
			7:30	40.6	49.3	56.6	61.7	60.6	55.1	49.5	37.6	65.6
			6:00-Alternator	42.5	50.8	54.9	61.7	60.0	55.3	49.8	36.9	65.3
			4:30	40.9	48.5	55.7	62.4	60.3	55.2	48.1	37.6	65.6
			8-pos. log avg.	41.5	49.8	55.1	62.6	61.0	56.2	49.5	39.7	66.1

Load	Distance, m (ft.)	Enclosure	Measurement Clock Position	Sound Pressure Levels dB(A)								
				3:00	1:30	12:00 Eng.	10:30	9:00	7:30	6:00 Alt.	4:30	8-pos. log avg.
No Load	7 (23)	Weather	Overall Levels	78.2	77.8	79.3	81.3	78.2	78.1	72.8	78.1	78.5

Load	Distance, m (ft.)		Measurement Clock Position	Sound Pressure Levels dB(A)								
				Octave Band Center Frequency (Hz)								Overall Level
				63	125	250	500	1000	2000	4000	8000	
No Load	7 (23)	Open Unit, Isolated Exhaust	3:00	39.9	52.9	66.8	72.5	75.7	75.1	69.8	60.8	80.1
			1:30	37.3	51.3	65.6	69.8	75.7	74.2	71.4	64.7	79.7
			12:00-Engine	42.4	53.4	68.7	75.7	75.5	75.4	71.3	63.2	81.2
			10:30	41.5	53.2	66.1	73.9	77.3	79.6	74.7	65.8	83.2
			9:00	40.3	51.5	66.9	73.1	73.8	76.0	71.0	62.0	80.1
			7:30	39.8	51.6	65.3	72.0	74.6	76.0	70.0	60.1	80.0
			6:00-Alternator	40.4	54.3	65.5	70.5	69.0	67.4	60.2	49.6	74.7
			4:40	40.9	52.8	66.0	72.4	74.7	75.9	69.9	60.0	80.0
			8-pos. log avg.	40.5	52.7	66.5	72.8	75.0	75.9	71.0	62.4	80.4

Load	Distance, m (ft.)	Exhaust	Sound Pressure Levels dB(A)								
			Octave Band Center Frequency (Hz)								Overall Level
			63	125	250	500	1000	2000	4000	8000	
No Load	1 (3.3)	Raw Exhaust (No Silencer)	63.8	74.8	92.5	95.5	94.3	95.4	90.0	81.0	101.0

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VIA FEDEX
Tracking # 7775 1050 9468

April 5, 2024

AT&T Mobility
Attn: Rachelle M. Lewis
Associate Director, Network Design Engineering
84 Deerfield Lane, Floor 2
Meriden, CT 06450

Dear Rachelle,

Vertex Towers, LLC appreciates the opportunity to work with you on the development of wireless sites throughout New England. In an effort to keep you apprised of our development efforts in this region, we wanted to inform you of a proposed new tower build in the town of Falmouth, Massachusetts on Cape Cod. The proposed tower will be 120-foot monopole facility located at 481 Quaker Road in Falmouth, MA.

If a facility at this location is of interest to you as a candidate within your current or future network design, or, if you are interested in learning more about this facility, please feel free to contact me at the number listed below. We would be more than happy to offer you space on this tower, in an effort to assist in the development of your network.

Sincerely,

Vertex Towers, LLC

By: Stephen Kelleher

Mobile : 617.817.8564
E-mail : stephen@vertextowers.com
www.vertextowers.com

VIA FEDEX
Tracking # 7758 3810 2925

April 5, 2024

T-Mobile Northeast LLC
Attn: Steven Andrade
Senior Director of Network Operations and Engineering
15 Commerce Way, Suite B
Norton, MA 02766

Dear Steven,

Vertex Towers, LLC appreciates the opportunity to work with you on the development of wireless sites throughout New England. In an effort to keep you apprised of our development efforts in this region, we wanted to inform you of a proposed new tower build in the town of Falmouth, Massachusetts on Cape Cod. The proposed tower will be 120-foot monopole facility located at 481 Quaker Road in Falmouth, MA.

If a facility at this location is of interest to you as a candidate within your current or future network design, or, if you are interested in learning more about this facility, please feel free to contact me at the number listed below. We would be more than happy to offer you space on this tower, in an effort to assist in the development of your network.

Sincerely,

Vertex Towers, LLC

By: Stephen Kelleher

Mobile : 617.817.8564
E-mail : stephen@vertextowers.com
www.vertextowers.com

VIA FEDEX
Tracking # 7760 9115 7088

April 24, 2024

Dish Wireless, LLC
ATTN: Brad Rainey- Market General Manager
603 West Street, Suite 3
Mansfield, MA 02048

Dear Brad,

Vertex Towers, LLC appreciates the opportunity to work with you on the development of wireless sites throughout New England. In an effort to keep you apprised of our development efforts in this region, we wanted to inform you of a proposed new tower build in the town of Falmouth, Massachusetts on Cape Cod. The proposed tower will be 120-foot monopole facility located at 481 Quaker Road in Falmouth, MA.

If a facility at this location is of interest to you as a candidate within your current or future network design, or, if you are interested in learning more about this facility, please feel free to contact me at the number listed below. We would be more than happy to offer you space on this tower, in an effort to assist in the development of your network.

Sincerely,

Vertex Towers, LLC

By: Stephen Kelleher

Mobile : 617.817.8564
E-mail : stephen@vertextowers.com
www.vertextowers.com

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APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

Project Name: 481 Quaker Road / EBI# 014040-PR

Location / Address: 481 Quaker Road

City / Town: Falmouth, MA

Project Proponent

Name: Vertex Towers, LLC

Address: 2 Commercial Street

City/Town/Zip/Telephone: Sharon, MA 02067 617-817-8564

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name	Type of License or funding (specify)
FCC	Wireless License

Project Description (narrative):

Installation of a 120-foot monopole telecommunications facility

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

No

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

Yes. See attached plans.

APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

Unknown

What is the total acreage of the project area?

Woodland	_____ acres	Productive Resources:	
Wetland	_____ acres	Agriculture	_____ acres
Floodplain	_____ acres	Forestry	_____ acres
Open space	_____ acres	Mining/Extraction	_____ acres
Developed	_____ acres	Total Project Acreage	_____ acres

What is the acreage of the proposed new construction? 0.4 acres

What is the present land use of the project area?

Commercial (Church)

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: _____ Date: 5/30/2024

Name: Nikki Renquin, EBI Consulting

Address: 21 B Street

City/Town/Zip: Burlington, MA 01803

Telephone: 781-252-9503

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

APE DE (0.4 Acres)

USGS 24K Quad: Onset, MA 1986

APE DE USGS Topographic Location Map

0 0.05 0.1 0.2 Miles

N

North Falmouth RT28
481 Quaker Road
Falmouth, Massachusetts 02556

014040-PR

EBI BUILDING VALUE SUSTAINABLY

VT-MA-0231E

NORTH FALMOUTH RT28

481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SITE NO: VT-MA-0231E

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE LESEE/LICENSEE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETCETERA DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.

14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

15. THE CONTRACTOR SHALL NOTIFY THE LESEE/LICENSEE REPRESENTATIVE. WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESEE/LICENSEE REPRESENTATIVE.

16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FULL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY: DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233 CALL BEFORE YOU DIG (CT): 1-800-922-4455

18. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS SHOWN HEREIN.

19. ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH PROJECT OWNER PRIOR TO CONSTRUCTION.

20. NORTH ARROW SHOWN ON PLANS REFERS TO APPROXIMATE TRUE NORTH. PRIOR TO THE START OF CONSTRUCTION, ORDERING OR FABRICATING OF ANTENNA MOUNTS, CONTRACTOR SHALL CONSULT WITH PROJECT OWNER'S RF ENGINEER AND FIELD VERIFY ALL ANTENNA SECTOR LOCATIONS AND ANTENNA AZIMUTHS.

21. THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

22. ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.

23. COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE PROJECT OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF PROJECT OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE EXHIBIT 3). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.

24. WHEN "PAINT TO MATCH" IS SPECIFIED FOR ANTENNA CONCEALMENT, PAINT PRODUCT FOR ANTENNA RADOME SHALL BE SHERWIN WILLIAMS CORONTHANE II. SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND PROJECT OWNER'S GUIDELINE'S.

25. COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

26. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.

27. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.

28. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY ENGINEERING. THE AREAS OF THE PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR LEASE AREA SHALL BE RESTORED TO ORIGINAL CONDITION.

29. GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED AND COVERED WITH MULCH UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SOIL EROSION AND SEDIMENTATION CONTROLS AT ALL TIMES.

30. DURING CONSTRUCTION. PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS.

31. FOR WIRELESS COMMUNICATIONS SYSTEMS. PROJECT OWNER'S IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. PROJECT OWNER RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

32. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

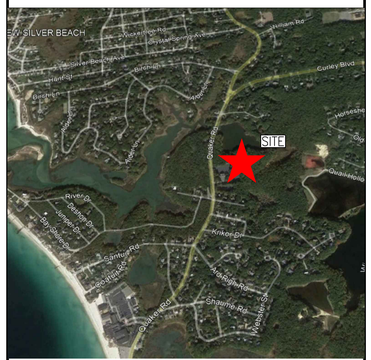
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

VICINITY MAP



NORTH

VICINITY MAP
SCALE: NTS

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	2
C-1	ORTHO PLOT PLAN	2
C-2	EXISTING CONDTION PLAN	2
Z-1	PROPOSED SITE PLAN	2
Z-2	PROPOSED COMPOUND PLAN AND ELEVATION	2
Z-3	DETAILS	2
EC-1	EROSION CONTROL	2

ZONING NOTE:

PER SECTION 5.1.10 AND 5.1.11 OF THE KENSINGTON ZONING THE PLANNING BOARD SHALL SET THE FORM AND AMOUNT OF SECURITY THAT REPRESENTS THE COST FOR REMOVAL AND DISPOSAL OF ABANDONED TOWERS IN THE EVENT THE TOWER IS ABANDONED AND THE TOWER OWNER IS INCAPABLE AND UNWILLING TO REMOVE THE TOWER IN ACCORDANCE WITH 5.1.11, ALL SECURITY SHALL BE MAINTAINED FOR THE LIFE OF THE TOWER. ORDNANCE ANY ANTENNA OR TOWER THAT IS NOT OPERATED FOR A CONTINUOUS PERIOD OF 12 MONTHS SHALL BE CONSIDERED ABANDONED AND HAZARDOUS TO THE PUBLIC HEALTH AND SAFETY, UNLESS THE OWNER OF SAID TOWER PROVIDES PROOF OF QUARTERLY INSPECTIONS. THE OWNER SHALL REMOVE THE ABANDONED STRUCTURE WITHIN 90 DAYS OF RECEIPT OF A DECLARATION OF ABANDONMENT FROM THE TOWN NOTIFYING THE OWNER OF SUCH ABANDONMENT.

PROJECT SUMMARY

SITE NUMBER:	VT-MA-0231E
SITE NAME:	NORTH FALMOUTH RT28
SITE ADDRESS:	481 QUAKER ROAD FALMOUTH, MA 02556
ASSESSOR'S PARCEL NO.:	MAP:12 BLOCK:05 LOT:001-010
CONSTRUCTION TYPE:	NEW SITE BUILD
PROPERTY OWNER:	ROMAN CATHOLIC BISHOP OF FALL RIVER C/O ST ELIZABETH SETON PARISH P.O. BOX 681 NORTH FALMOUTH, MA 02556
APPLICANT, LESSEE/LICENSEE, PROJECT OWNER:	VERTEX TOWERS LLC 2 COMMERCIAL STREET SHARON, MA 02067
TOWER TYPE:	MONOPOLE
TOWER HEIGHT:	120'±

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

Vertex Towers LLC
VERTEX TOWER LLC
155 SOUTH STREET, SUITE 102
WRENTHAM, MA 02093

ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development
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500 North Broadway
East Providence, RI 02914
Tel: (401) 354-2403
Fax: (401) 633-6354

COMMONWEALTH OF MASSACHUSETTS
SCOTT N. ADAMS
CIVIL
No. 49008
REGISTERED PROFESSIONAL ENGINEER

AEG PROJECT #: 2023-0008

DRAWN BY: JWH

CHECKED BY: SNA

SUBMITTALS

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1	03/27/23	REVISED
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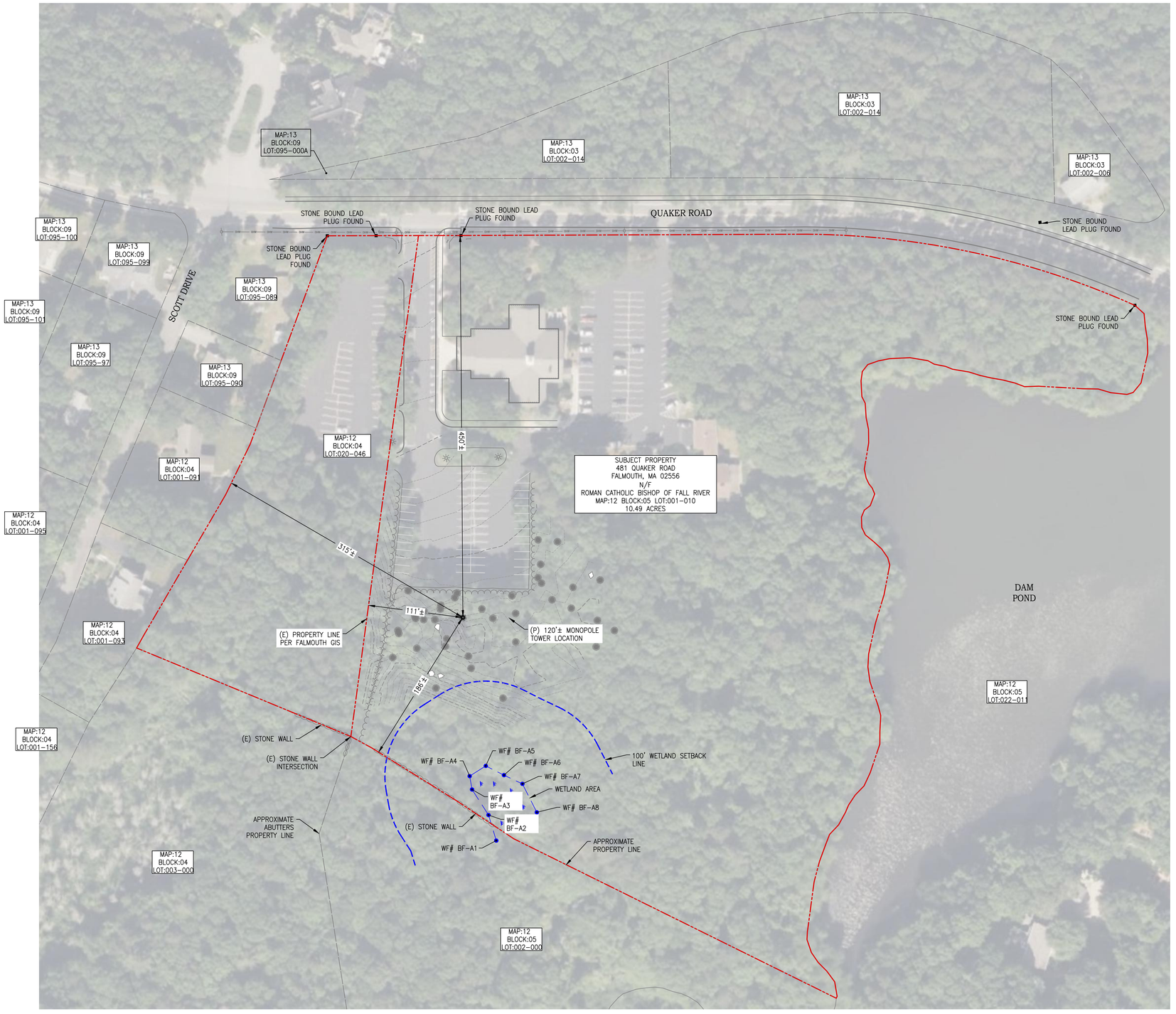
NORTH FALMOUTH RT28
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



NORTH

1 / C-1 ORTHO PLOT PLAN

SCALE: 1"=60'

0 60' 120'

LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EXIST. R.O.W. LAYOUT
- PROP. EASEMENT/LEASE AREA
- WETLAND SETBACK LINE
- EXIST. FENCE
- PROP. FENCE
- EXIST. CHAIN LINK FENCE
- PROP. CHAIN LINK FENCE
- LIMITS OF WORK
- EROSION CONTROL
- EXIST. EDGE OF TREE CANOPY
- PROP. EDGE OF TREE CANOPY
- 5' MAJOR CONTOURS
- 1' MINOR CONTOURS
- WETLAND LINE
- ZONING LINE

GENERAL NOTES:

1. FIELD SURVEY DATE: JANUARY 27, 2023
2. VERTICAL DATUM: NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
3. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83)
4. CENTER OF PROPOSED TOWER: LATITUDE: 41° 37' 52.70" N
   LONGITUDE: 70° 37' 52.72" W
   ELEVATION: 42'± AMSL
5. PROPERTY OWNER: ROMAN CATHOLIC BISHOP OF FALL RIVER
   C/O ST ELIZABETH SETON PARISH
   P.O. BOX 681
   NORTH FALMOUTH, MA 02556
6. SITE NUMBER: VT-NH-0231
7. SITE ADDRESS: 481 QUAKER ROAD
   FALMOUTH, MA 02556
8. APPLICANT, LESSEE/LICENSEE & PROJECT OWNER: VERTEX TOWERS, LLC
   2 COMMERCIAL STREET
   SHARON, MA 02067
9. JURISDICTION: TOWN OF FALMOUTH
10. TAX ID: MAP:12 BLOCK:05 LOT:001-010
11. DEED REFERENCE: BOOK: 00187 PAGE: 0054
12. ZONING JURISDICTION: RB – SINGLE RESIDENCE B
13. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY: DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233 CALL BEFORE YOU DIG (CT): 1-800-922-4455
14. PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLANS, DEEDS, AND PLANS OF RECORD AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. A FULL BOUNDARY SURVEY WAS NOT PERFORMED.
15. WETLANDS WERE NOT OBSERVED WITHIN 100' OF THE LIMIT OF WORK. WETLAND LOCATION PER ECOSYSTEM SOLUTIONS INC. WETLAND REPORT DATED 1/23/2023.
16. THE PURPOSE OF THIS SURVEY IS TO SUPPORT THE DESIGN AND CONSTRUCTION OF A TELECOMMUNICATION FACILITY. USE OF THIS SURVEY BY ANYONE OTHER THAN VERTEX TOWERS, LLC AND USE OF THIS SURVEY FOR ANY PURPOSE NOT RELATED TO THE DESIGN OF THE INTENDED FACILITY IS STRICTLY PROHIBITED.
17. BEARING SYSTEM OF THIS PLAN IS BASED ON TRUE NORTH. TRUE NORTH WAS ESTABLISHED FROM GPS READINGS ON JANUARY 27, 2023.
18. LIMIT OF WORK IS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP BARNSTABLE COUNTY, TOWN OF FALMOUTH MAP NUMBER: 25001C0494J, EFFECTIVE DATE JULY 16, 2014
19. IN THE EVENT THAT BENCHMARKS (TBM'S), ESTABLISHED FOR THIS PROJECT AND PUBLISHED ON THIS SURVEY, ARE DESTROYED, NOT RECOVERABLE OR A DISCREPANCY IS FOUND, THE USER SHOULD NOTIFY THIS FIRM IN WRITING PRIOR TO COMMENCING OR CONTINUING ANY WORK.
20. THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIPS, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
21. ORTHOGRAPHIC IMAGE IS FROM NEAR MAP. ADJACENT BUILDING WERE NOT FIELD LOCATED BY ADVANCED ENGINEERING GROUP.

ZONING SUMMARY TABLE

ZONING DISTRICT: RB – SINGLE RESIDENCE B
ASSESSORS ID: MAP:12 BLOCK:05 LOT:001-010
PROPOSED USE: WIRELESS COMMUNICATION FACILITY

DIMENSION:	REQUIRED MINIMUM	PROVIDED
FRONT YARD SETBACK*	25 FT	447± FT
SIDE YARD SETBACK*	10 FT	161± FT
REAR YARD SETBACK*	10 FT	213± FT

* DIMENSIONS MEASURED FROM PROPOSED TOWER TO THE NEAREST PROPERTY LINE

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AEG PROJECT #: 2023-0008

DRAWN BY: JWH

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NORTH FALMOUTH RT28

481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE

ORTHO PLOT PLAN

SHEET NUMBER

C-1

ZONING SUMMARY TABLE

ZONING DISTRICT: RB – SINGLE RESIDENCE B		
ASSESSORS ID: MAP:12 BLOCK:05 LOT:001–010		
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DIMENSION:	REQUIRED MINIMUM	PROVIDED
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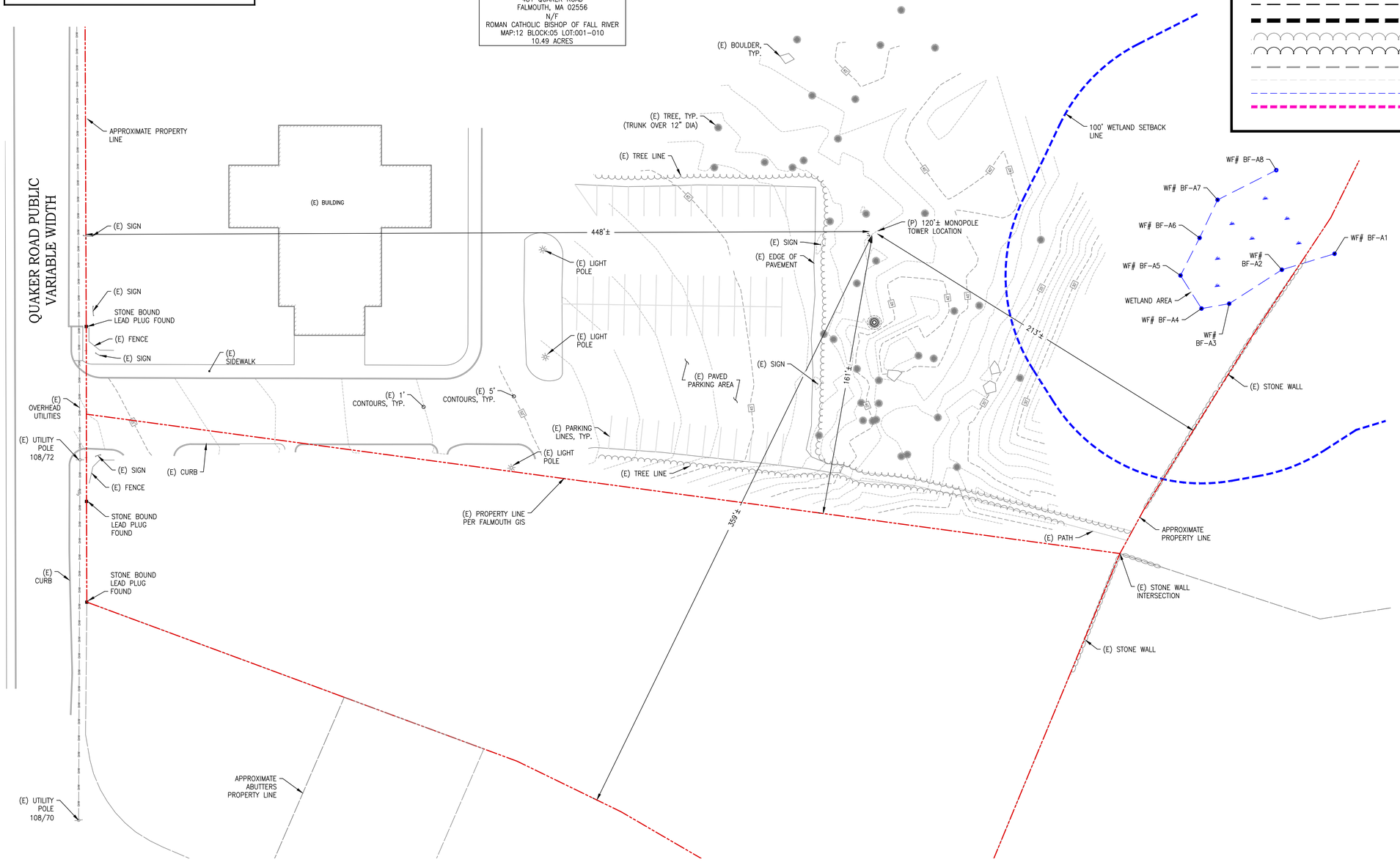
REAR YARD SETBACK*	10 FT	213± FT
* DIMENSIONS MEASURED FROM PROPOSED TOWER TO THE NEAREST PROPERTY LINE		

SUBJECT PROPERTY
481 QUAKER ROAD
FALMOUTH, MA 02556
N/F
ROMAN CATHOLIC BISHOP OF FALL RIVER
MAP:12 BLOCK:05 LOT:001–010
10.49 ACRES



NORTH

1 / C–2 EXISTING CONDITIONS PLAN
SCALE: 1"=30'

0 30' 60'

LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EXIST. R.O.W. LAYOUT
- PROP. EASEMENT/LEASE AREA
- WETLAND SETBACK LINE
- EXIST. FENCE
- PROP. FENCE
- EXIST. CHAIN LINK FENCE
- PROP. CHAIN LINK FENCE
- LIMITS OF WORK
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FALMOUTH RT28

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BARNSTABLE COUNTY

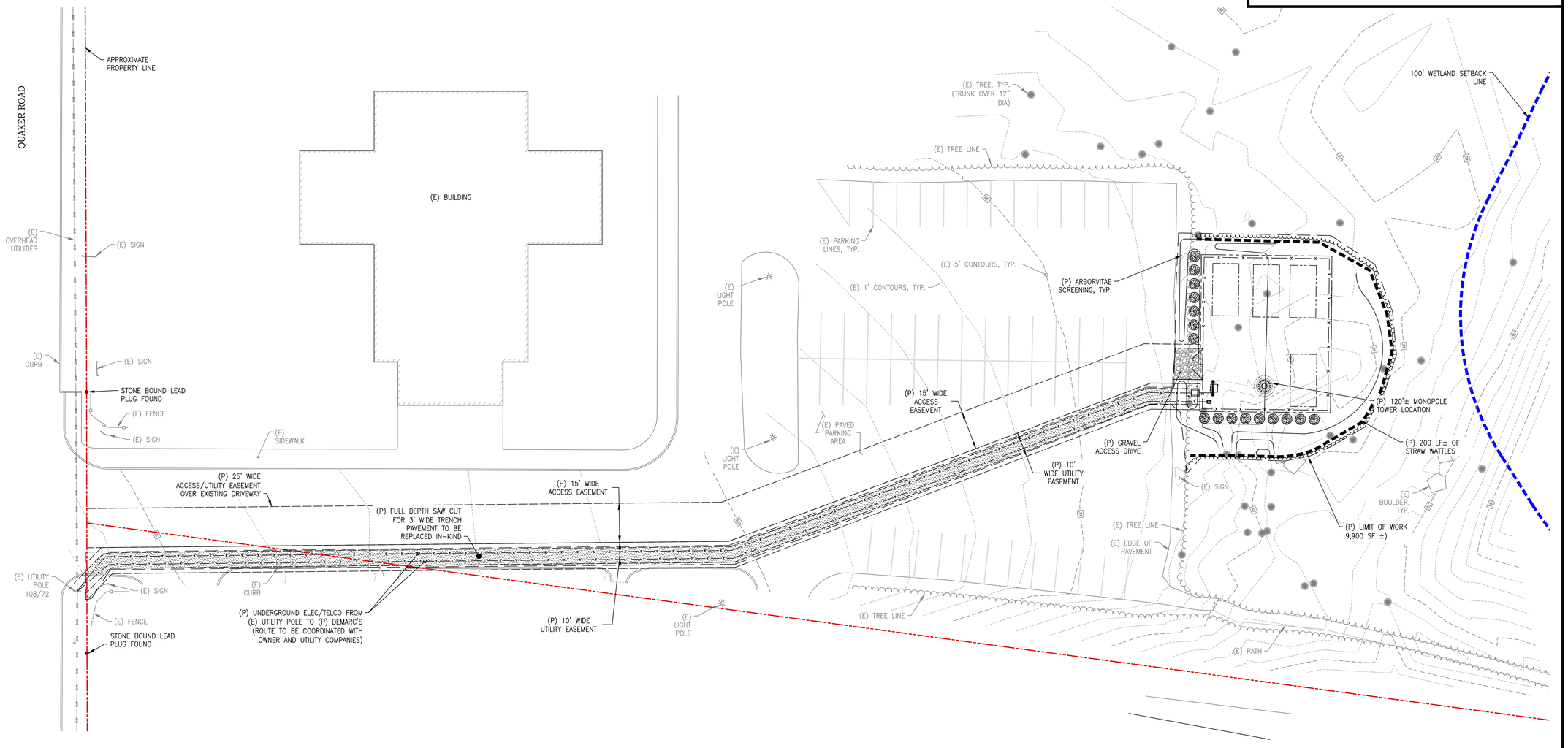
SHEET TITLE

EXISTING CONDITIONS PLAN

SHEET NUMBER

C-2

SUBJECT PROPERTY
481 QUAKER ROAD
FALMOUTH, MA 02556
N/F
ROMAN CATHOLIC BISHOP OF FALL RIVER
MAP:12 BLOCK:05 LOT:001-010
10.49 ACRES



NORTH

1 / Z-1 PROPOSED SITE PLAN

SCALE: 1"=50'

0 20' 40'

LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EXIST. R.O.W. LAYOUT
- PROP. EASEMENT/LEASE AREA
- WETLAND SETBACK LINE
- EXIST. FENCE
- PROP. FENCE
- EXIST. CHAIN LINK FENCE
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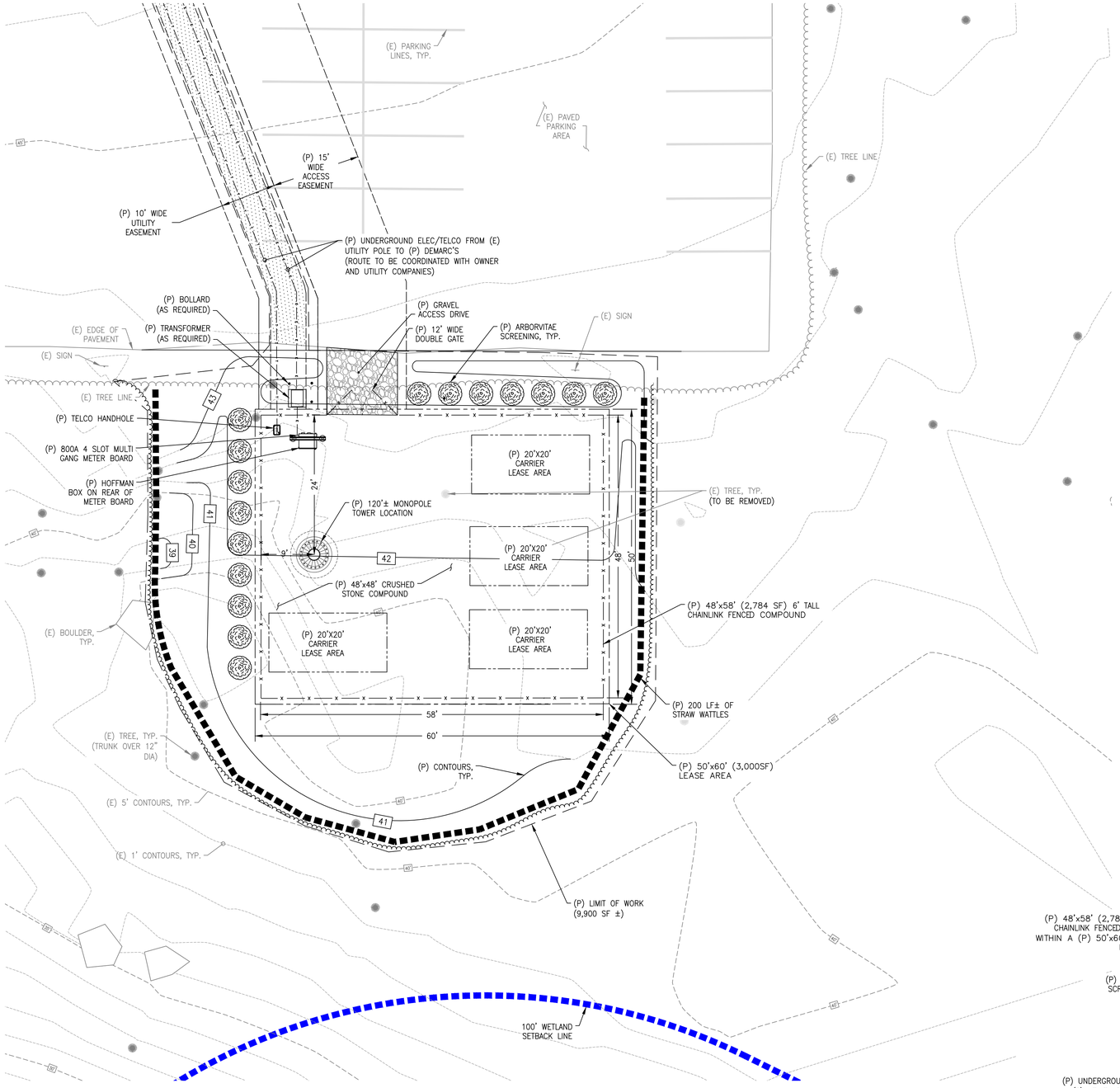
SHEET TITLE

PROPOSED SITE PLAN

SHEET NUMBER

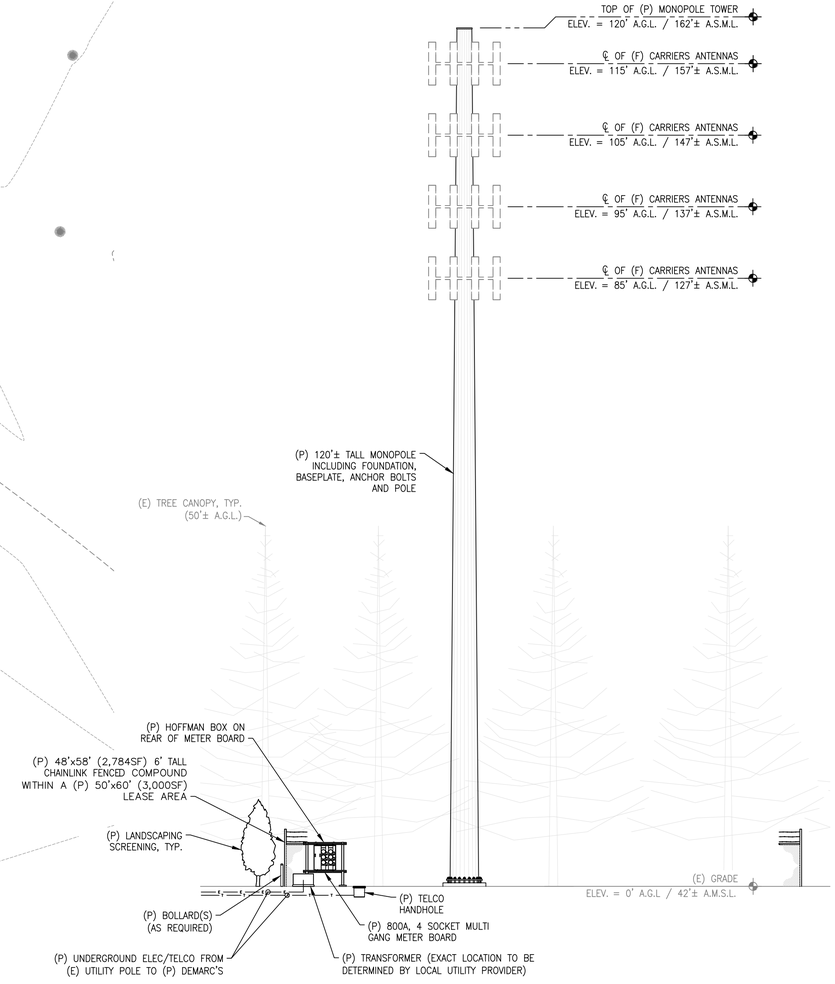
Z-1



1 Z-2 **PROPOSED COMPOUND PLAN**

SCALE: 1"=10'

0 10' 20'



2 Z-2 **ELEVATION**

SCALE: 1"=10'

0 10' 20'

LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EXIST. R.O.W. LAYOUT
- PROP. EASEMENT/LEASE AREA
- WETLAND SETBACK LINE
- EXIST. FENCE
- PROP. FENCE
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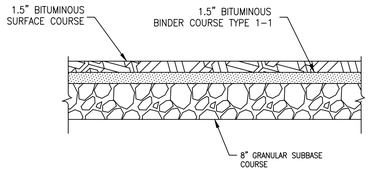
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE

PROPOSED COMPOUND PLAN AND ELEVATION

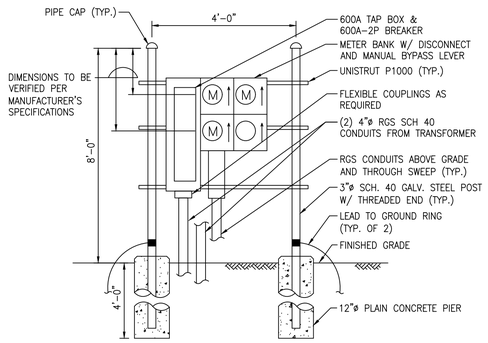
SHEET NUMBER

Z-2



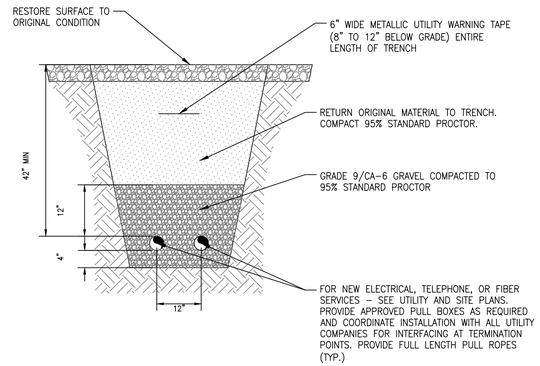
1 Z-3 **BITIMINIOUS CONCRETE DETAIL**

SCALE: N.T.S.



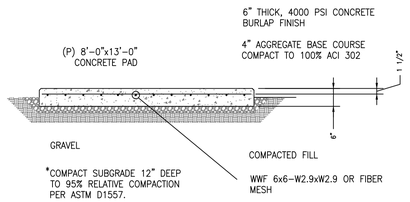
2 Z-3 **METER BOARD DETAIL**

SCALE: N.T.S.



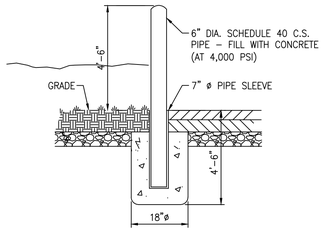
3 Z-3 **TRENCH DETAIL AT ACCESS CROSSING**

SCALE: N.T.S.



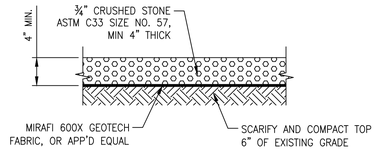
4 Z-3 **CONCRETE PAD DETAIL**

SCALE: N.T.S.



5 Z-3 **BOLLARD DETAIL**

SCALE: N.T.S.

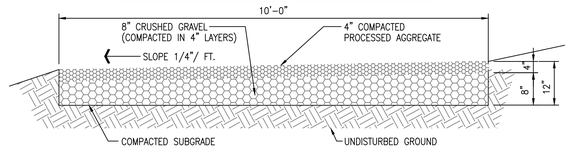


6 Z-3 **GRAVEL COMPOUND DETAIL**

SCALE: N.T.S.

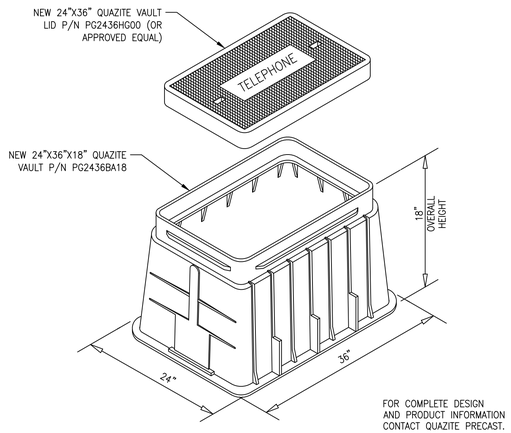
CRUSHED GRAVEL	
SIEVE	% PASSING BY WEIGHT
5"	100
3 1/2"	90-100
1 1/2"	55-95
1/4"	25-60
#10	15-45
#40	5-25
#100	0-10
#200	0-5

PROCESSED AGGREGATE	
SIEVE	% PASSING BY WEIGHT
2 1/4"	100
2"	95-100
3/4"	50-75
1/4"	25-45
#40	5-20
#100	2-12



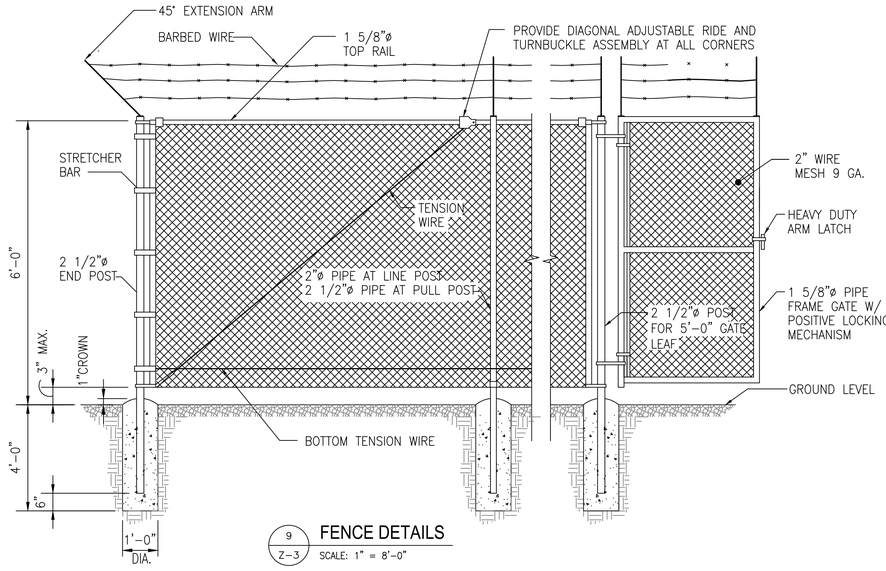
7 Z-3 **GRAVEL ACCESS CROSS SECTION**

SCALE: NTS



8 Z-3 **TELCO HANDHOLE ISOMETRIC**

SCALE: N.T.S.



9 Z-3 **FENCE DETAILS**

SCALE: 1" = 8'-0"

FENCE NOTES:

1. INSTALL FENCING PER ASTM F-567, SWING GATE PER ASTM F-900.
2. ALL END POSTS, LINE POSTS, PULL POSTS, POSTS FOR GATE LEAF, PIPES FOR GATE FRAME AND TOP RAILS SHALL BE SCHEDULE 40 PIPE PER ASTM F-1083.
3. FABRIC SHALL BE 12 GA. CORE WIRE SIZE 2" MESH CONFORMING TO ASTM A-392.
4. TENSION WIRE SHALL BE 7 GA. GALV. STEEL.
5. TIE WIRE SHALL BE 11 GA. GALV. STEEL (MIN.) AT POSTS AND RAILS. A SINGLE WRAP FABRIC TIE AT TENSION WIRE BY HOG RINGS SPACED MAX. OF 24" INTERVALS
6. BARBED WIRE SHALL BE DOUBLE STRAND 12 1/2" O.D. TWISTED WIRE TO MATCH W/FABRIC 14 GA., 4 PT. BARBS SPACES AT APPROXIMATELY 5" O.C.
7. STEEL FENCE SYSTEM SHALL INCLUDE THE FENCE POSTS, FABRIC, GATE SYSTEM AND ALL NECESSARY ERECTION ACCESSORIES, FITTINGS AND FASTENINGS. ALL FENCE SYSTEM COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. GATES SHALL BE SWING GATES WITH 5'-0" LEAFS. REFER TO TYPICAL FENCE DETAIL FOR ADDITIONAL INFORMATION. INSTALL FENCE AFTER CONCRETE HAS ATTAINED 75% OF 28 DAY DESIGN STRENGTH.
8. SCREENING SLATS SHALL BE INSTALLED ON PROPOSED FENCING (COLOR: GREEN OR AS DET'S BY PROJECT OWNER)
9. COMPLY WITH LOCAL ORDINANCES OF BARBED WIRE PERMIT REQUIREMENTS, IF REQUIRED.

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COMMONWEALTH OF MASSACHUSETTS
SCOTT N. ADAMS
CIVIL
No. 49008
REGISTERED PROFESSIONAL ENGINEER

AEG PROJECT #: 2023-0008

DRAWN BY: JWH

CHECKED BY: SNA

SUBMITTALS

REV#	DATE	DESCRIPTION
0	03/16/23	ISSUED FOR REVIEW
1	03/27/23	REVISED
2	04/06/23	REVISED

NORTH FALMOUTH RT28

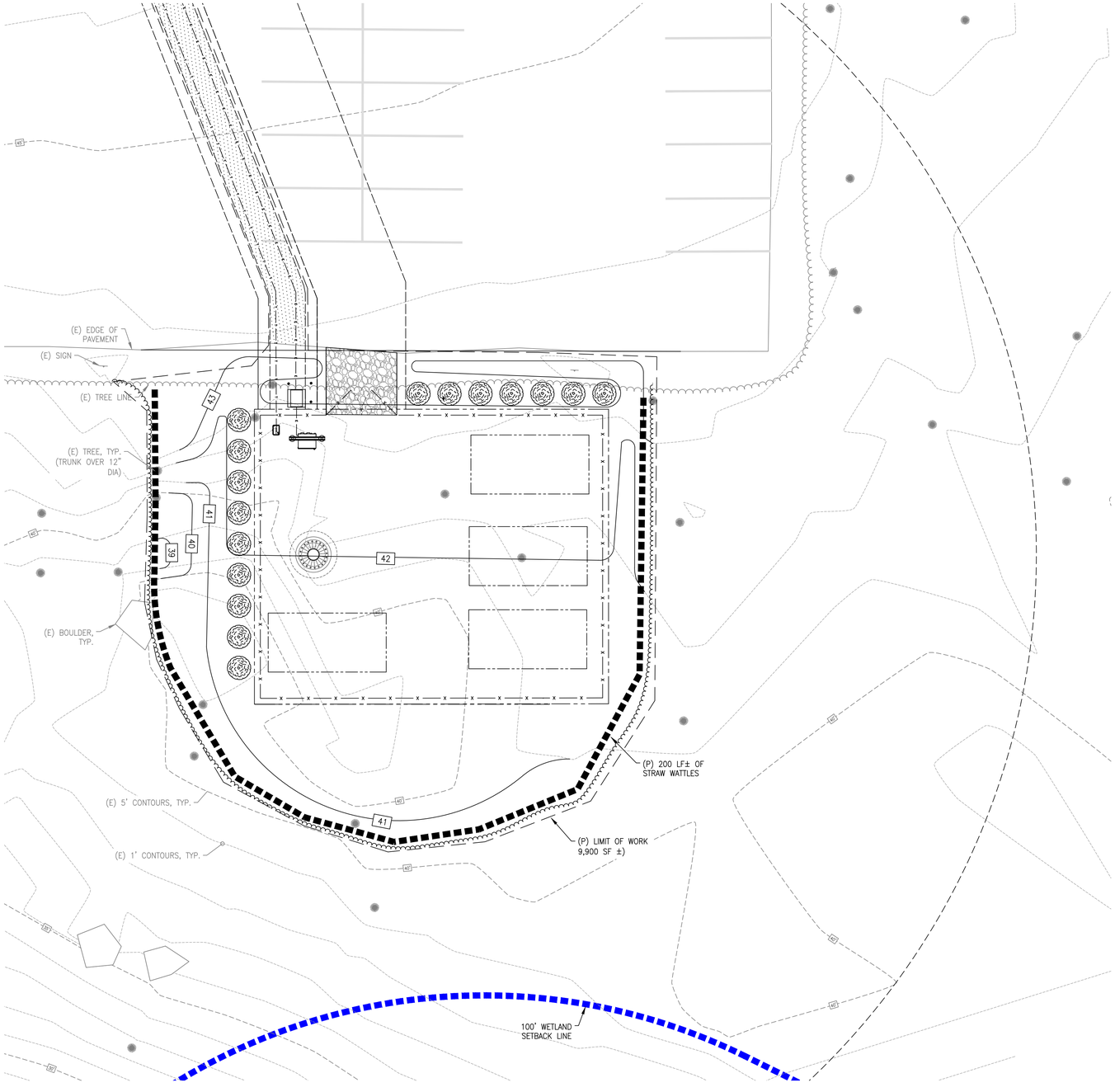
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE

DETAILS

SHEET NUMBER

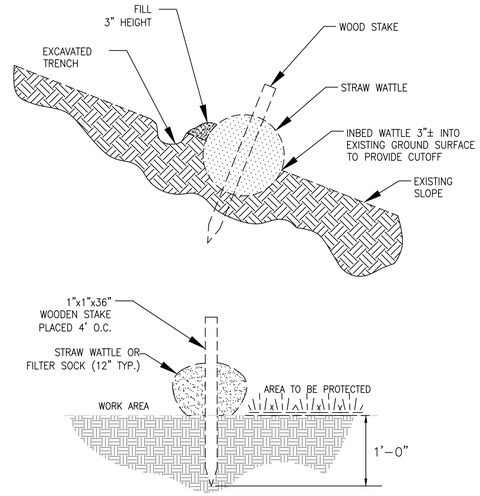
Z-3



1 EC-1 EROSION CONTROL PLAN

SCALE: 1"=10'

0 10' 20'



1 EC-1 EROSION CONTROL BARRIER DETAIL

SCALE: NTS

EROSION AND SEDIMENT CONTROL NOTES:

1. PRIOR TO STARTING ANY WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONRTOL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE SYSTEM.

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AEG PROJECT #: 2023-0008

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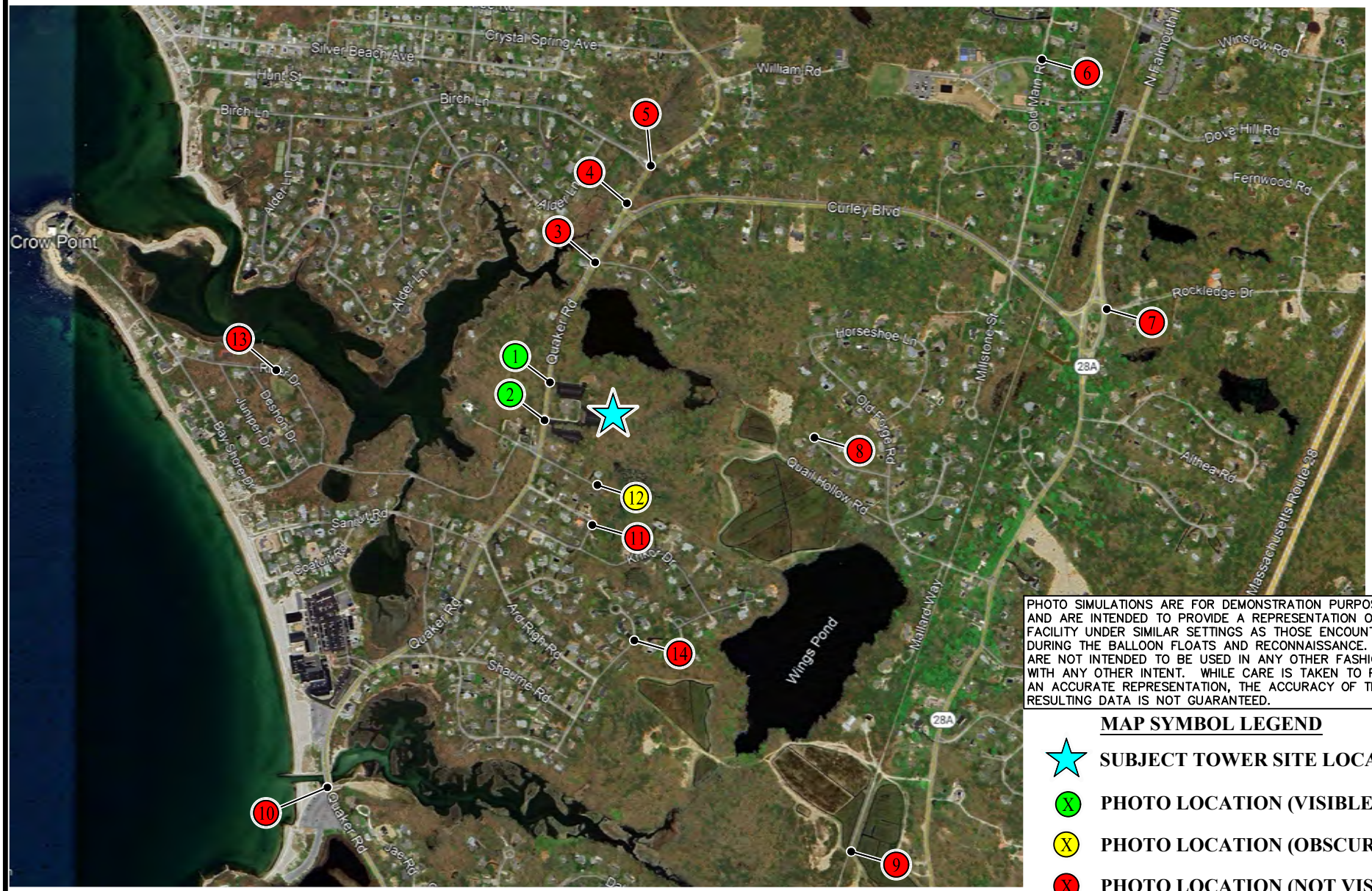
SHEET TITLE

EROSION CONTROL PLAN

SHEET NUMBER

EC-1

17



APPROX. TRUE NORTH

PHOTO SIMULATIONS ARE FOR DEMONSTRATION PURPOSES ONLY AND ARE INTENDED TO PROVIDE A REPRESENTATION OF THE FACILITY UNDER SIMILAR SETTINGS AS THOSE ENCOUNTERED DURING THE BALLOON FLOATS AND RECONNAISSANCE. THEY ARE NOT INTENDED TO BE USED IN ANY OTHER FASHION OR WITH ANY OTHER INTENT. WHILE CARE IS TAKEN TO PROVIDE AN ACCURATE REPRESENTATION, THE ACCURACY OF THE RESULTING DATA IS NOT GUARANTEED.

MAP SYMBOL LEGEND

- SUBJECT TOWER SITE LOCATION
- (X) PHOTO LOCATION (VISIBLE)
- (X) PHOTO LOCATION (OBSCURED)
- (X) PHOTO LOCATION (NOT VISIBLE)

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SHARON, MA 02067

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KEY MAP OF PHOTOS

PAGE: MAP1
DATE: 07/24/2024
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VIEW #1

EXISTING VIEW FROM THE WEST ON QUAKER ROAD @ CHURCH'S NORTH PARKING LOT ENTRANCE

PAGE: V-1E

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VIEW #1

PROPOSED VIEW FROM THE WEST ON QUAKER ROAD @ CHURCH'S NORTH PARKING LOT ENTRANCE

PAGE: V-1P

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VIEW #2

EXISTING VIEW FROM THE WEST ON QUAKER ROAD @ CHURCH'S SOUTH PARKING LOT ENTRANCE

PAGE: V-2E

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VIEW #2

PROPOSED VIEW FROM THE WEST ON QUAKER ROAD @ CHURCH'S SOUTH PARKING LOT ENTRANCE

PAGE: V-2P

DATE: 07/24/2024

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VIEW #3

EXISTING VIEW FROM THE NORTH ON
QUAKER ROAD @ ARTHUR STREET

PAGE: V-3E

DATE: 07/24/2024

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VIEW #4

EXISTING VIEW FROM THE NORTH ON
QUAKER ROAD @ CURLY BOULEVARD

PAGE: V-4E

DATE: 07/24/2024

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VIEW #5

EXISTING VIEW FROM THE NORTH ON
QUAKER ROAD @ BIRCH LANE

PAGE: V-5E

DATE: 07/24/2024

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VIEW #6

EXISTING VIEW FROM THE NORTHEAST,
ON OLD MAIN ROAD @ NORTH
FALMOUTH ELEMENTARY SCHOOL

PAGE: V-6E

DATE: 07/24/2024

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VIEW #7

EXISTING VIEW FROM THE NORTHEAST,
ON MA ROUTE 28A @ ROTARY

PAGE: V-7E

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VIEW #8
EXISTING VIEW FROM THE EAST, ON
GRAY ROCKS WEST ROAD

PAGE: V-8E

DATE: 07/24/2024

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VIEW #9
EXISTING VIEW FROM THE SOUTHEAST,
ON SHINING SEA BIKEWAY

PAGE: V-9E

DATE: 07/24/2024

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VIEW #10

EXISTING VIEW FROM THE SOUTHWEST,
ON QUAKER ROAD @ OLD SILVER BEACH

PAGE: V-10E

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VIEW #11
EXISTING VIEW FROM THE SOUTH,
ON ADAMIAN DRIVE

PAGE: V-11E

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TEST BALLOON WAS OBSERVED FROM THIS LOCATION, OBSCURED BY TREES

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VIEW #12
EXISTING VIEW FROM THE SOUTH,
ON SCOTT DRIVE

PAGE: V-12E

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VIEW #13
EXISTING VIEW FROM THE WEST,
ON RIVER DRIVE

PAGE: V-13E

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VIEW #14
EXISTING VIEW FROM THE SOUTH,
ON WEBSTER STREET

PAGE: V-14E

DATE: 07/24/2024

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18

VT-MA-0231E

NORTH FALMOUTH RT28

481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SITE NO: VT-MA-0231E

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE LESEE/LICENSEE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETCETERA DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.

14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

15. THE CONTRACTOR SHALL NOTIFY THE LESEE/LICENSEE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESEE/LICENSEE REPRESENTATIVE.

16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY: DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233 CALL BEFORE YOU DIG (CT): 1-800-922-4455

18. ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH PROJECT OWNER PRIOR TO CONSTRUCTION.

19. NORTH ARROW SHOWN ON PLANS REFERS TO APPROXIMATE TRUE NORTH. PRIOR TO THE START OF CONSTRUCTION, ORDERING OR FABRICATING OF ANTENNA MOUNTS, CONTRACTOR SHALL CONSULT WITH PROJECT OWNER'S RF ENGINEER AND FIELD VERIFY ALL ANTENNA SECTOR LOCATIONS AND ANTENNA AZIMUTHS.

20. THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

21. ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.

22. COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE PROJECT OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF PROJECT OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE EXHIBIT 3). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.

23. WHEN "PAINT TO MATCH" IS SPECIFIED FOR ANTENNA CONCEALMENT, PAINT PRODUCT FOR ANTENNA RADOME SHALL BE SHERWIN WILLIAMS COROTHANE II. SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND PROJECT OWNER'S GUIDELINE'S.

24. COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

25. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.

26. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.

27. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY ENGINEERING. THE AREAS OF THE PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR LEASE AREA SHALL BE RESTORED TO ORIGINAL CONDITION.

28. GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED AND COVERED WITH MULCH UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SOIL EROSION AND SEDIMENTATION CONTROLS AT ALL TIMES.

29. DURING CONSTRUCTION. PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS.

30. FOR WIRELESS COMMUNICATIONS SYSTEMS. PROJECT OWNER'S IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. PROJECT OWNER RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

31. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

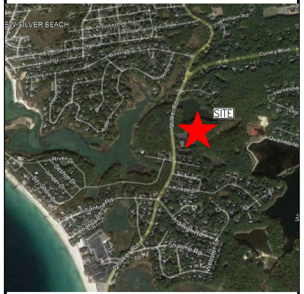
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

VICINITY MAP



NORTH
VICINITY MAP
SCALE: NTS

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	3
C-1	ORTHO PLOT PLAN	3
C-2	EXISTING CONDITION PLAN	3
C-3	ORTHO SITE PLAN	3
Z-1	PROPOSED SITE PLAN	3
Z-2	PROPOSED COMPOUND PLAN AND ELEVATION	3
Z-3	DETAILS	3
EC-1	EROSION CONTROL	3

PROJECT SUMMARY

SITE NUMBER:	VT-MA-0231E
SITE NAME:	NORTH FALMOUTH RT28
SITE ADDRESS:	481 QUAKER ROAD FALMOUTH, MA 02556
ASSESSOR'S PARCEL NO.:	MAP:12 BLOCK:05 LOT:001-010
CONSTRUCTION TYPE:	NEW SITE BUILD
PROPERTY OWNER:	ROMAN CATHOLIC BISHOP OF FALL RIVER C/O ST ELIZABETH SETON PARISH P.O. BOX 681 NORTH FALMOUTH, MA 02556
APPLICANT, LESSEE/LICENSEE, PROJECT OWNER:	VERTEX TOWERS LLC 2 COMMERCIAL STREET SHARON, MA 02067
TOWER TYPE:	MONOPOLE
TOWER HEIGHT:	120'±

ZONING NOTE:

PER SECTION 5.1.10 AND 5.1.11 OF THE KENSINGTON ZONING THE PLANNING BOARD SHALL SET THE FORM AND AMOUNT OF SECURITY THAT REPRESENTS THE COST FOR REMOVAL AND DISPOSAL OF ABANDONED TOWERS IN THE EVENT THE TOWER IS ABANDONED AND THE TOWER OWNER IS INCAPABLE AND UNWILLING TO REMOVE THE TOWER IN ACCORDANCE WITH 5.1.11, ALL SECURITY SHALL BE MAINTAINED FOR THE LIFE OF THE TOWER. ORDNANCE ANY ANTENNA OR TOWER THAT IS NOT OPERATED FOR A CONTINUOUS PERIOD OF 12 MONTHS SHALL BE CONSIDERED ABANDONED AND HAZARDOUS TO THE PUBLIC HEALTH AND SAFETY, UNLESS THE OWNER OF SAID TOWER PROVIDES PROOF OF QUARTERLY INSPECTIONS. THE OWNER SHALL REMOVE THE ABANDONED STRUCTURE WITHIN 90 DAYS OF RECEIPT OF A DECLARATION OF ABANDONMENT FROM THE TOWN NOTIFYING THE OWNER OF SUCH ABANDONMENT.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

Vertex Towers LLC
VERTEX TOWER LLC
155 SOUTH STREET, SUITE 102
WRENTHAM, MA 02093

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Civil Engineering - Site Development
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500 North Broadway
East Providence, RI 02914
Tel: (401) 354-2403
Fax: (401) 633-6354

AEG PROJECT #: 2023-0008

DRAWN BY: MFR

CHECKED BY: SNA

SUBMITTALS

REV#	DATE	DESCRIPTION
0	03/16/23	ISSUED FOR REVIEW
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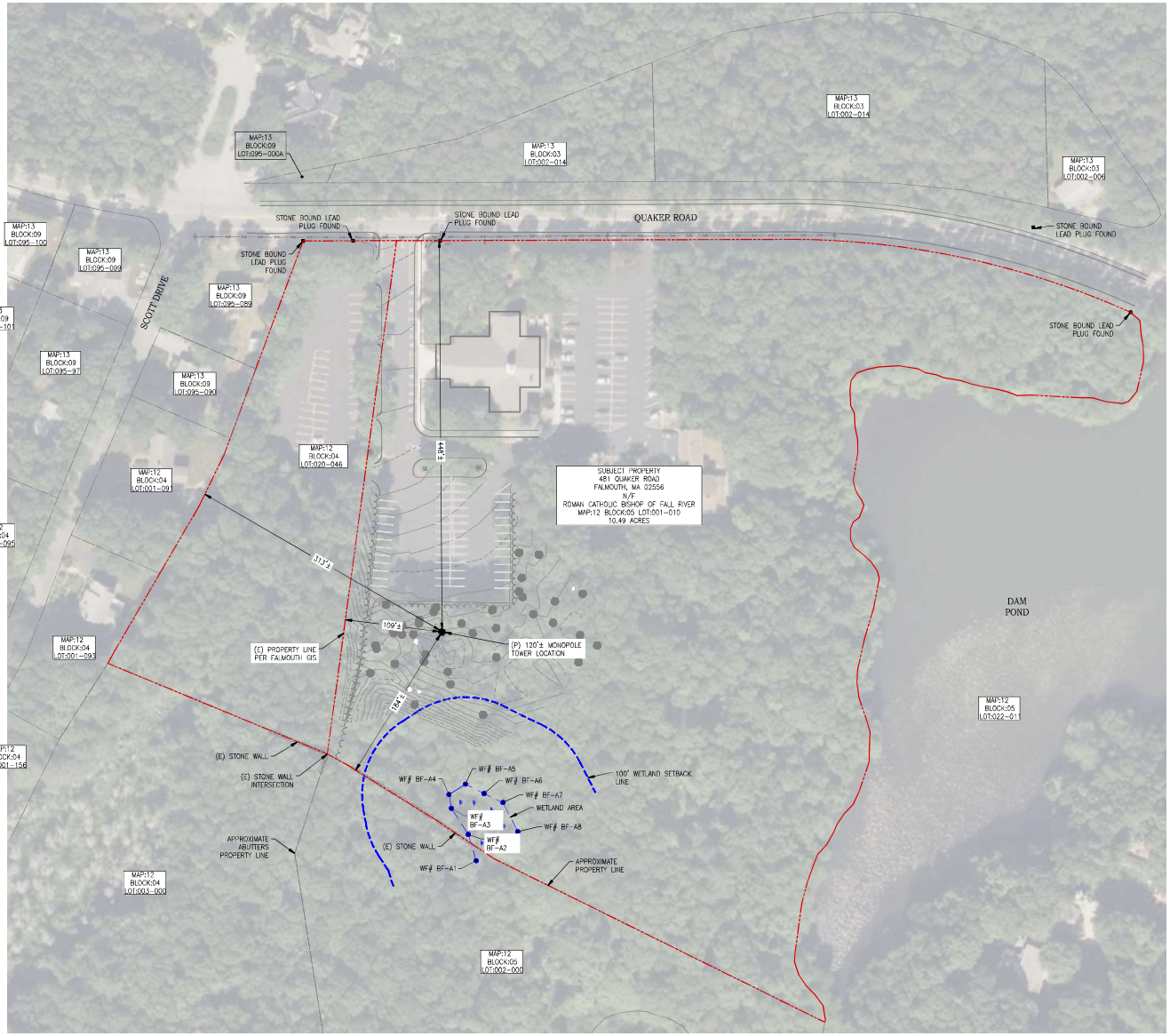
NORTH FALMOUTH RT28
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



NORTH

1 / C-1 ORTHO PLOT PLAN

SCALE: 1"=60'

0 60' 120'

LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EXIST. R.O.W. LAYOUT
- PROP. EASEMENT/LEASE AREA
- WETLAND SETBACK LINE
- EXIST. FENCE
- PROP. FENCE
- EXIST. CHAIN LINK FENCE
- PROP. CHAIN LINK FENCE
- LIMITS OF WORK
- EROSION CONTROL
- EXIST. EDGE OF TREE CANOPY
- PROP. EDGE OF TREE CANOPY
- 5' MAJOR CONTOURS
- 1' MINOR CONTOURS
- WETLAND LINE
- ZONING LINE

GENERAL NOTES:

1.	FIELD SURVEY DATE:	JANUARY 27, 2023
2.	VERTICAL DATUM:	NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
3.	HORIZONTAL DATUM:	NORTH AMERICAN DATUM OF 1983 (NAD83)
4.	CENTER OF PROPOSED TOWER:	LATITUDE: 41° 37' 52.70" N LONGITUDE: 70° 37' 52.72" W ELEVATION: 42'± AMSL
5.	PROPERTY OWNER:	ROMAN CATHOLIC BISHOP OF FALL RIVER C/O ST ELIZABETH SETON PARISH P.O. BOX 681 NORTH FALMOUTH, MA 02556
6.	SITE NUMBER:	VT-NH-0231
7.	SITE ADDRESS:	481 QUAKER ROAD FALMOUTH, MA 02556
8.	APPLICANT, LESSEE/LICENSEE & PROJECT OWNER:	VERTEX TOWERS, LLC 2 COMMERCIAL STREET SHARON, MA 02067
9.	JURISDICTION:	TOWN OF FALMOUTH
10.	TAX ID:	MAP:12 BLOCK:05 LOT:001-010
11.	DEED REFERENCE:	BOOK: 00187 PAGE: 0054
12.	ZONING JURISDICTION:	RB – SINGLE RESIDENCE B

13. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY: DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233 CALL BEFORE YOU DIG (CT): 1-800-922-4455
14. PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLANS, DEEDS, AND PLANS OF RECORD AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. A FULL BOUNDARY SURVEY WAS NOT PERFORMED.
15. WETLANDS WERE NOT OBSERVED WITHIN 100' OF THE LIMIT OF WORK. WETLAND LOCATION PER ECOSYSTEM SOLUTIONS INC. WETLAND REPORT DATED 1/23/2023.
16. THE PURPOSE OF THIS SURVEY IS TO SUPPORT THE DESIGN AND CONSTRUCTION OF A TELECOMMUNICATION FACILITY. USE OF THIS SURVEY BY ANYONE OTHER THAN VERTEX TOWERS, LLC AND USE OF THIS SURVEY FOR ANY PURPOSE NOT RELATED TO THE DESIGN OF THE INTENDED FACILITY IS STRICTLY PROHIBITED.
17. BEARING SYSTEM OF THIS PLAN IS BASED ON TRUE NORTH. TRUE NORTH WAS ESTABLISHED FROM GPS READINGS ON JANUARY 27, 2023.
18. LIMIT OF WORK IS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP BARNSTABLE COUNTY, TOWN OF FALMOUTH MAP NUMBER: 25001C0494J, EFFECTIVE DATE JULY 16, 2014
19. IN THE EVENT THAT BENCHMARKS (TBM'S), ESTABLISHED FOR THIS PROJECT AND PUBLISHED ON THIS SURVEY, ARE DESTROYED, NOT RECOVERABLE OR A DISCREPANCY IS FOUND, THE USER SHOULD NOTIFY THIS FIRM IN WRITING PRIOR TO COMMENCING OR CONTINUING ANY WORK.
20. THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIPS, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
21. ORTHOGRAPHIC IMAGE IS FROM NEAR MAP. ADJACENT BUILDING WERE NOT FIELD LOCATED BY ADVANCED ENGINEERING GROUP.

ZONING SUMMARY TABLE

ZONING DISTRICT: RB – SINGLE RESIDENCE B
ASSESSORS ID: MAP:12 BLOCK:05 LOT:001-010
PROPOSED USE: WIRELESS COMMUNICATION FACILITY

DIMENSION:	REQUIRED MINIMUM	PROVIDED
FRONT YARD SETBACK*	25 FT	448± FT
SIDE YARD SETBACK*	10 FT	109± FT
REAR YARD SETBACK*	10 FT	184± FT

* DIMENSIONS MEASURED FROM PROPOSED TOWER TO THE NEAREST PROPERTY LINE

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COMMONWEALTH OF MASSACHUSETTS
SCOTT N. ADAMS
CIVIL
No. 49008
REGISTERED PROFESSIONAL ENGINEER

AEG PROJECT #: 2023-0008

DRAWN BY: MFR

CHECKED BY: SNA

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NORTH FALMOUTH RT28

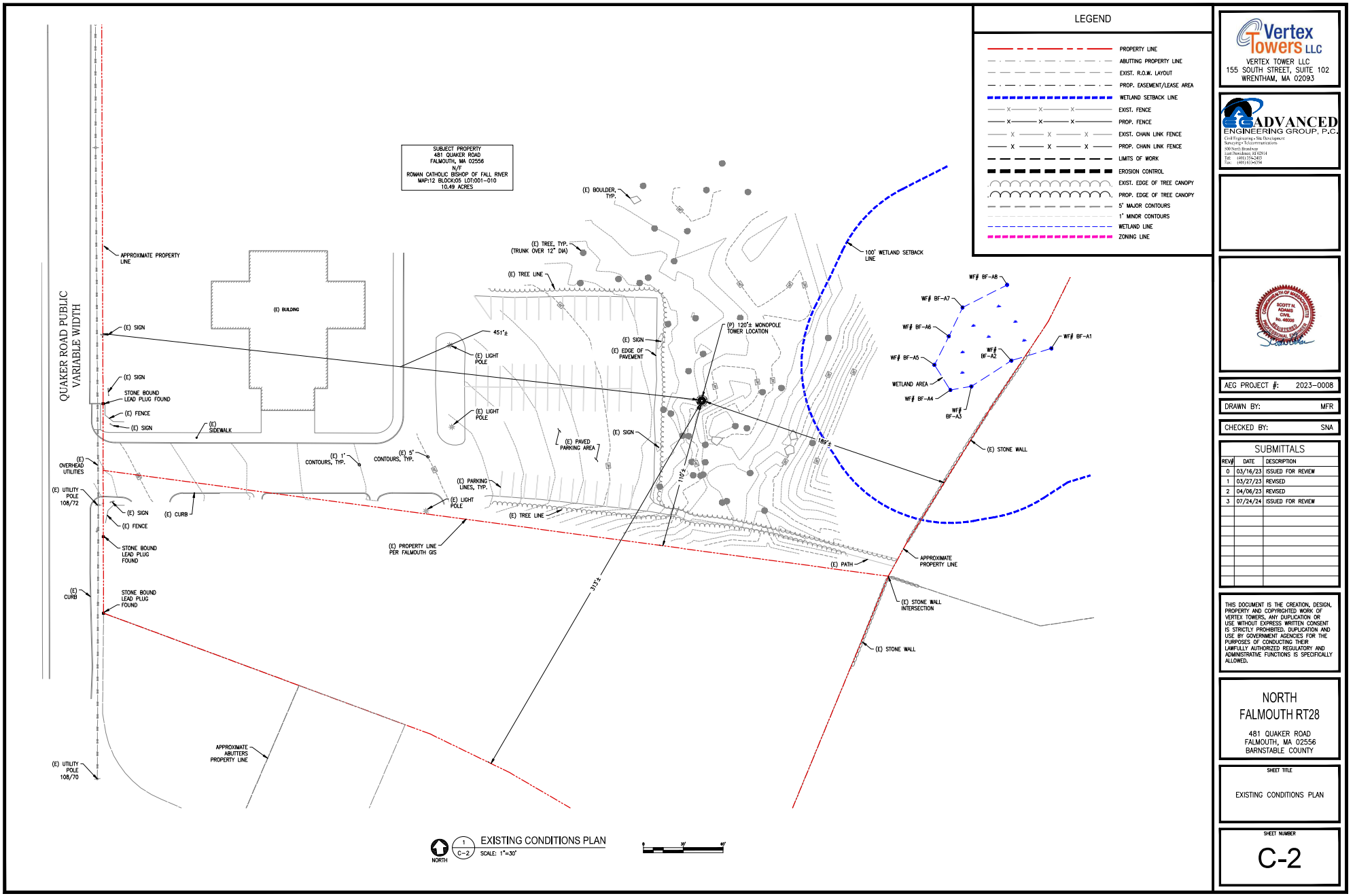
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE

ORTHO PLOT PLAN

SHEET NUMBER

C-1



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NORTH FALMOUTH RT28

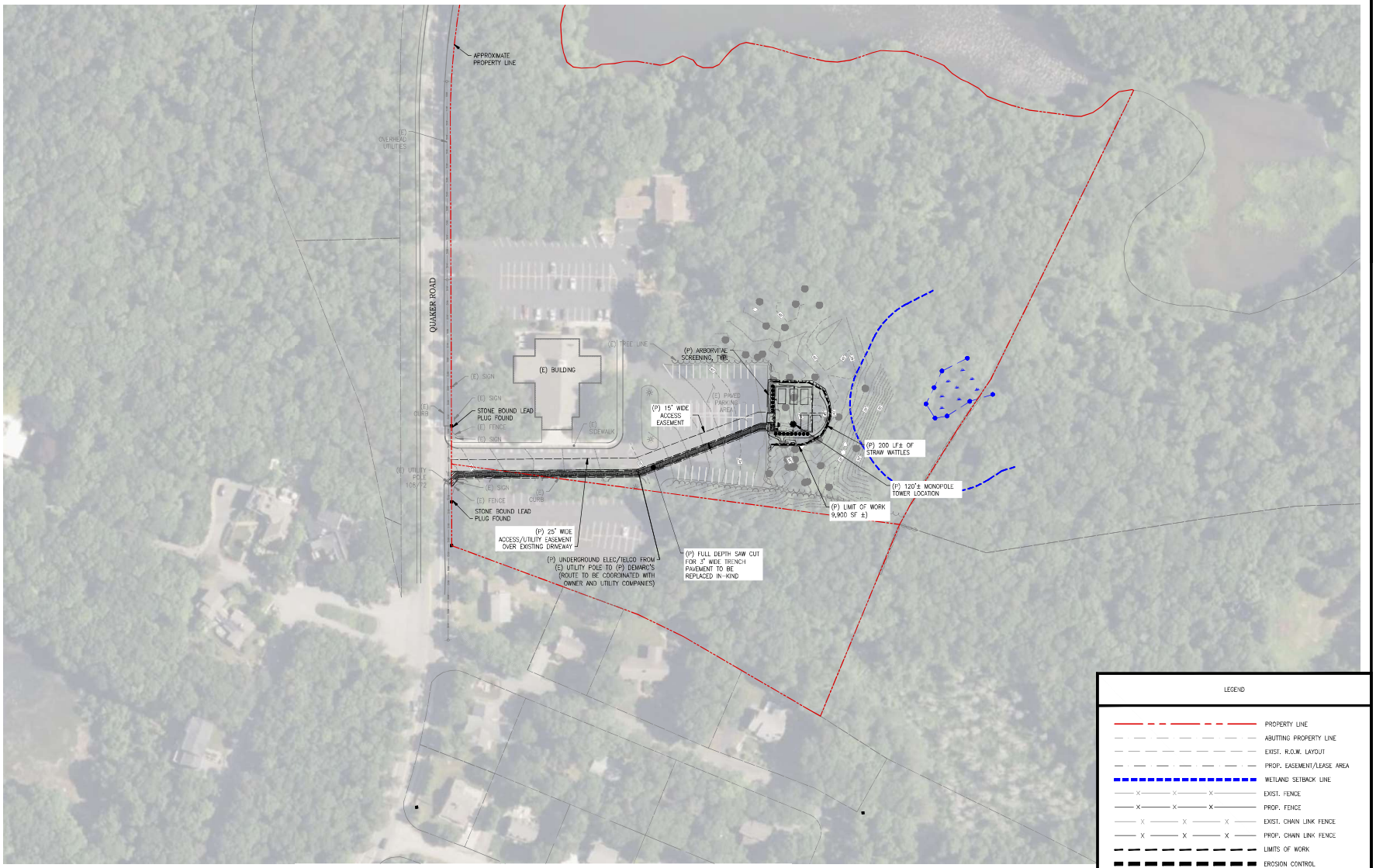
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE

EXISTING CONDITIONS PLAN

SHEET NUMBER

C-2



SUBJECT PROPERTY
481 QUAKER ROAD
FALMOUTH, MA 02556
N/F
ROMAN CATHOLIC BISHOP OF FALL RIVER
MAP:12 BLOCK:05 LOT:001-010
10.49 ACRES

NORTH

1 C-3 ORTHO SITE PLAN

SCALE: 1"=60'

0 60' 120'

LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EXIST. R.O.W. LAYOUT
- PROP. EASEMENT/LEASE AREA
- WETLAND SETBACK LINE
- EXIST. FENCE
- PROP. FENCE
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NORTH FALMOUTH RT28

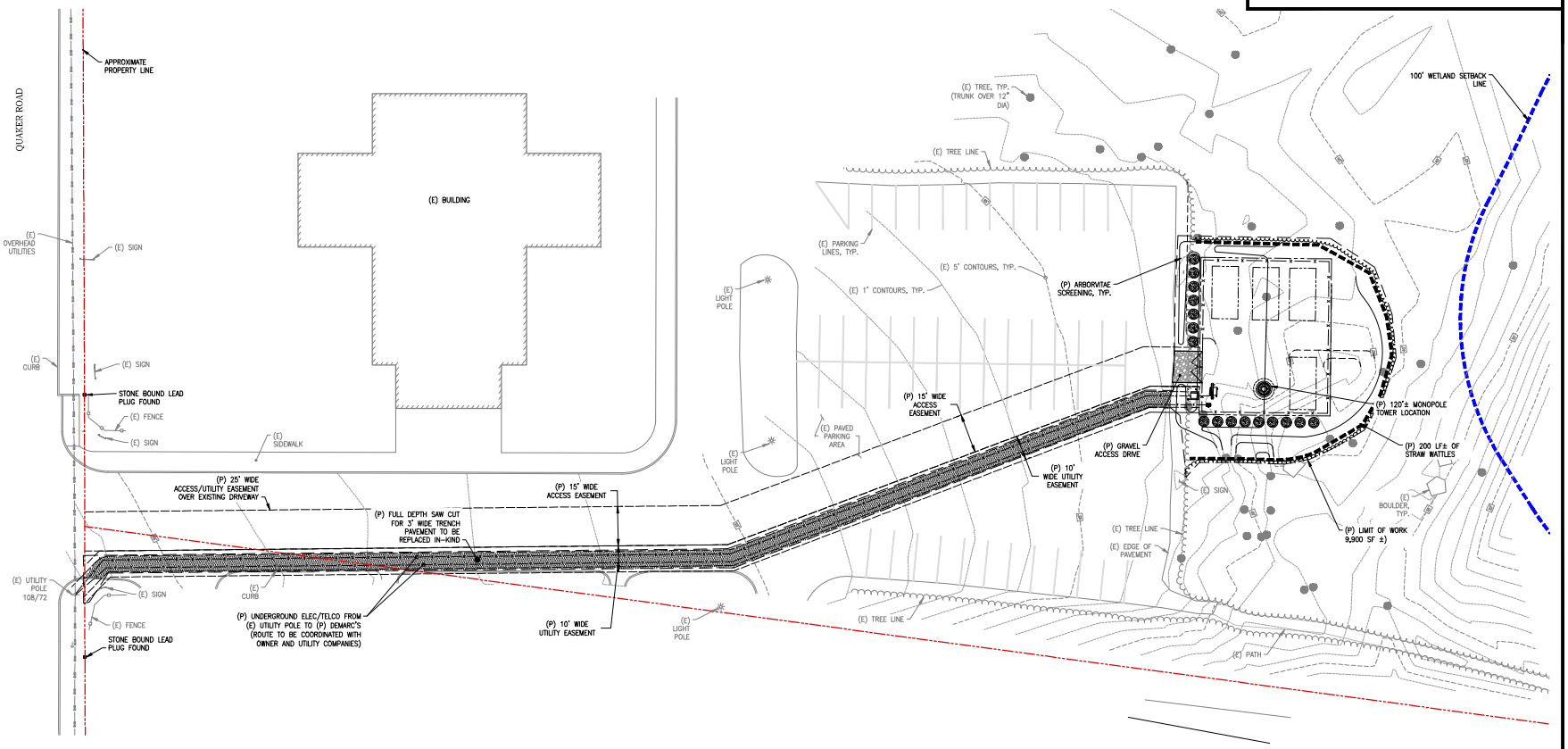
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE

ORTHO SITE PLAN

SHEET NUMBER

C-3



LEGEND

- PROPERTY LINE
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NORTH FALMOUTH RT28

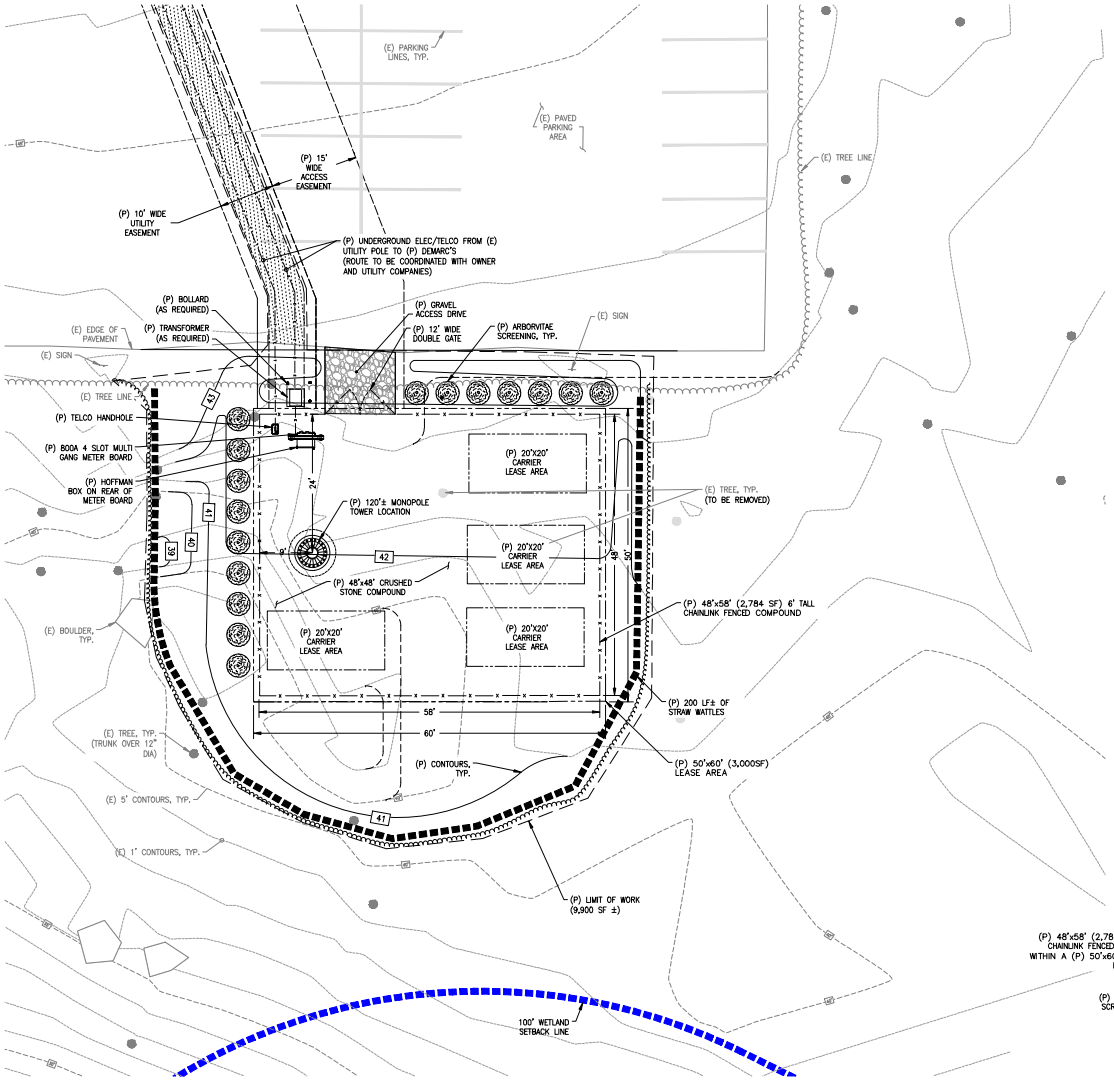
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

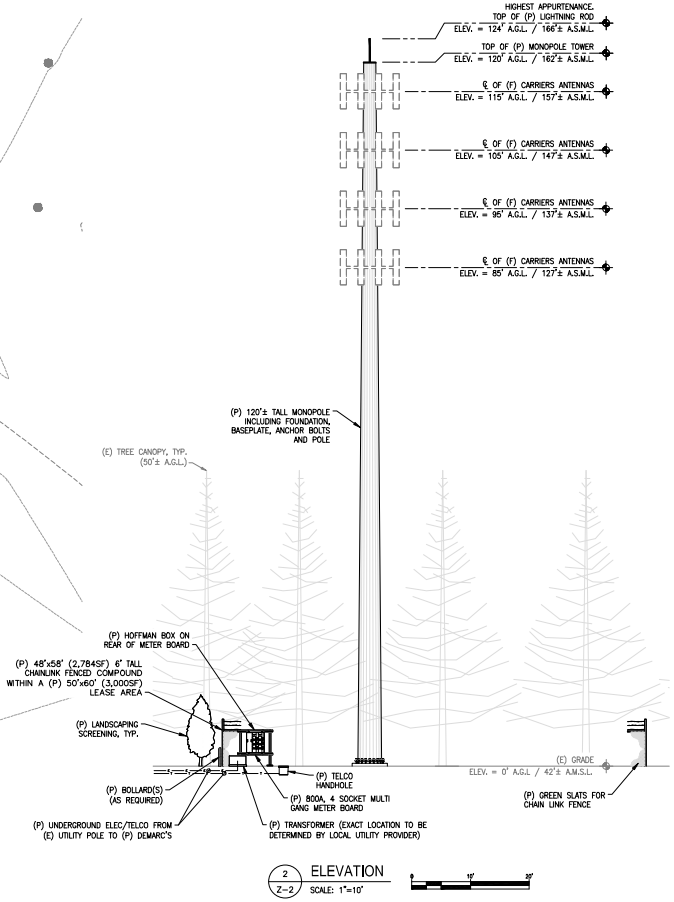
SHEET TITLE

PROPOSED SITE PLAN

SHEET NUMBER

Z-1





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COMMONWEALTH OF MASSACHUSETTS — SCOTT N. ADAMS — CIVIL — No. 48008 — REGISTERED PROFESSIONAL ENGINEER

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NORTH FALMOUTH RT28

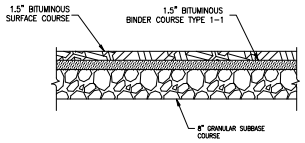
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE

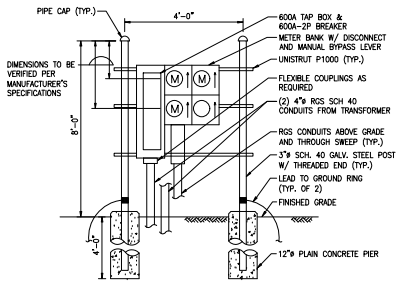
PROPOSED COMPOUND PLAN AND ELEVATION

SHEET NUMBER

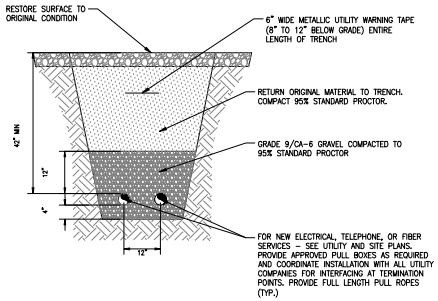
Z-2



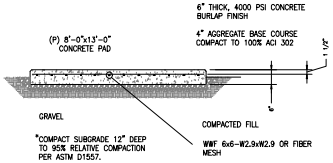
1 / Z-3 BITIMINIOUS CONCRETE DETAIL
SCALE: N.T.S.



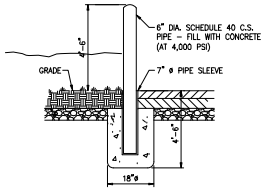
2 / Z-3 METER BOARD DETAIL
SCALE: N.T.S.



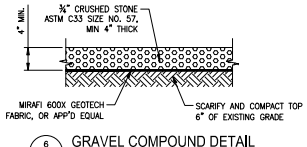
3 / Z-3 TRENCH DETAIL AT ACCESS CROSSING
SCALE: N.T.S.



4 / Z-3 CONCRETE PAD DETAIL
SCALE: N.T.S.



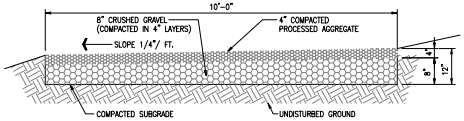
5 / Z-3 BOLLARD DETAIL
SCALE: N.T.S.



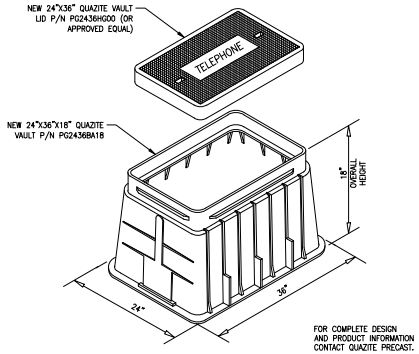
6 / Z-3 GRAVEL COMPOUND DETAIL
SCALE: N.T.S.

CRUSHED GRAVEL	
SIEVE	% PASSING BY WEIGHT
5"	100
3 1/2"	90-100
1 1/2"	55-95
1/4"	25-60
#10	15-45
#40	5-25
#100	0-10
#200	0-5

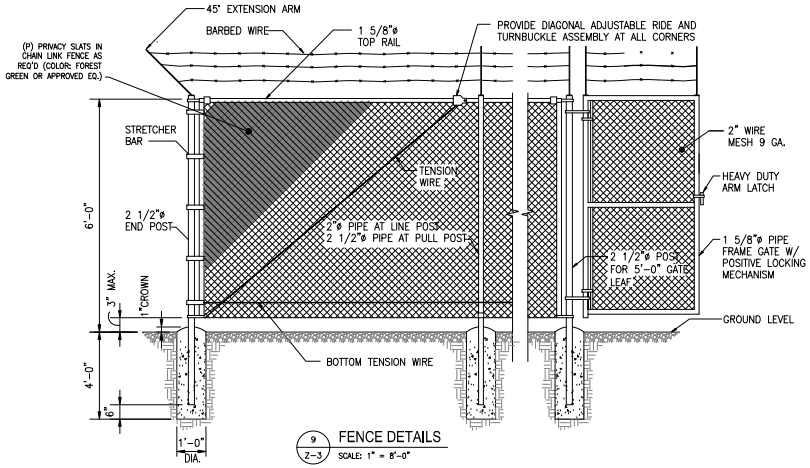
PROCESSED AGGREGATE	
SIEVE	% PASSING BY WEIGHT
2 1/4"	100
2"	95-100
3/4"	50-75
1/4"	25-45
#40	5-20
#100	2-12



7 / Z-3 GRAVEL ACCESS CROSS SECTION
SCALE: NTS



8 / Z-3 TELCO HANDHOLE ISOMETRIC
SCALE: N.T.S.



9 / Z-3 FENCE DETAILS
SCALE: 1" = 8'-0"

FENCE NOTES:

1. INSTALL FENCING PER ASTM F-567. SWING GATE PER ASTM F-900.
2. ALL END POSTS, LINE POSTS, PULL POSTS, POSTS FOR GATE LEAF, PIPES FOR GATE FRAME AND TOP RAILS SHALL BE SCHEDULE 40 PIPE PER ASTM F-1083.
3. FABRIC SHALL BE 12 GA. CORE WIRE SIZE 2" MESH CONFORMING TO ASTM A-392.
4. TENSION WIRE SHALL BE 7 GA. GALV. STEEL.
5. TIE WIRE SHALL BE 11 GA. GALV. STEEL (MIN.) AT POSTS AND RAILS. A SINGLE WRAP FABRIC TIE AT TENSION WIRE BY HOG RINGS SPACED MAX. OF 24" INTERVALS
6. BARBED WIRE SHALL BE DOUBLE STRAND 12 1/2" O.D. TWISTED WIRE TO MATCH W/FABRIC 14 GA., 4 PT. BARBS SPACES AT APPROXIMATELY 5" O.C.
7. STEEL FENCE SYSTEM SHALL INCLUDE THE FENCE POSTS, FABRIC, GATE SYSTEM AND ALL NECESSARY ERECTION ACCESSORIES, FITTINGS AND FASTENINGS. ALL FENCE SYSTEM COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. GATES SHALL BE SWING GATES WITH 5'-0" LEAFS. REFER TO TYPICAL FENCE DETAIL FOR ADDITIONAL INFORMATION. INSTALL FENCE AFTER CONCRETE HAS ATTAINED 75% OF 28 DAY DESIGN STRENGTH.
8. SCREENING SLATS SHALL BE INSTALLED ON PROPOSED FENCING (COLOR: GREEN OR AS DET'S BY PROJECT OWNER)
9. COMPLY WITH LOCAL ORDINANCES OF BARBED WIRE PERMIT REQUIREMENTS, IF REQUIRED.

Vertex Towers LLC
VERTEX TOWER LLC
155 SOUTH STREET, SUITE 102
WRENTHAM, MA 02093

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SCOTT N. ADAMS CIVIL No. 46008 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

AEG PROJECT #: 2023-0008
DRAWN BY: MFR
CHECKED BY: SNA

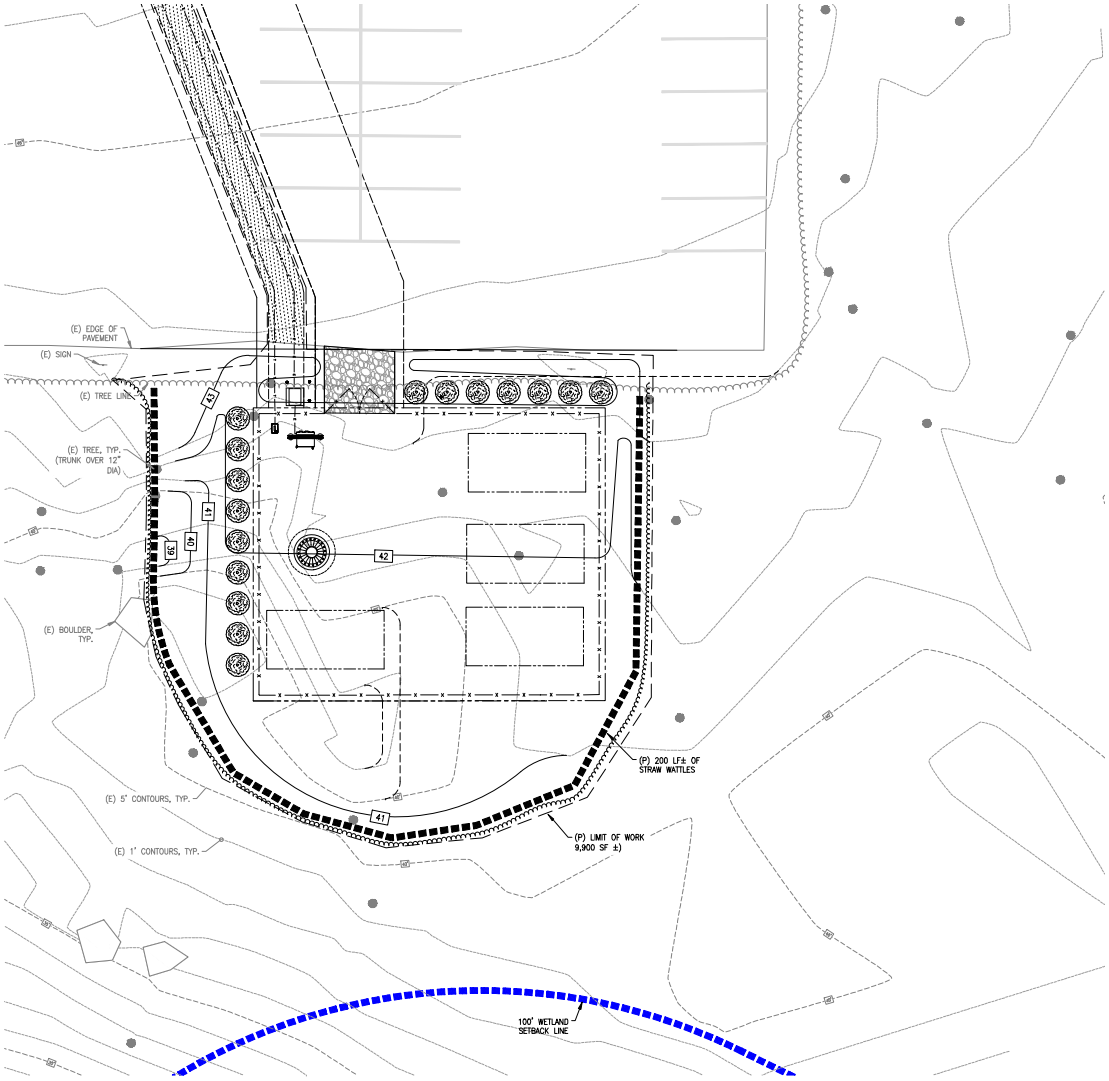
SUBMITTALS

REV#	DATE	DESCRIPTION
0	03/16/23	ISSUED FOR REVIEW
1	03/27/23	REVISED
2	04/06/23	REVISED
3	07/24/24	ISSUED FOR REVIEW

NORTH FALMOUTH RT28
481 QUAKER ROAD
FALMOUTH, MA 02556
BARNSTABLE COUNTY

SHEET TITLE
DETAILS

SHEET NUMBER
Z-3

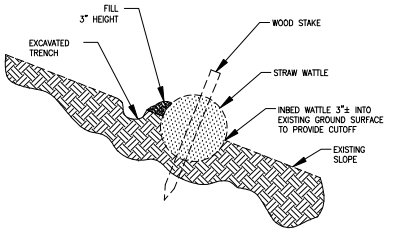


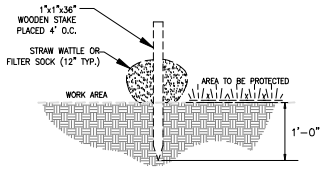
NORTH

1 EC-1 EROSION CONTROL PLAN

SCALE: 1"=10'

0 10' 20'





1 EC-1 EROSION CONTROL BARRIER DETAIL

SCALE: NTS

EROSION AND SEDIMENT CONTROL NOTES:

1. PRIOR TO STARTING ANY WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONRTOL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHEWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE SYSTEM.

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EC-1