

# PLAPC

PARISI LAW ASSOCIATES, P.C.

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

**SUPPLEMENT NO. 1**

**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 Elizabeth Seton Parish  
**Date:** October 10, 2024

1. (revised) Application for Development of Regional Impact
2. Drainage Calculations
3. Supplemental RF Report
4. Powerpoint Presentation from 10/10/24 CCC Subcommittee Meeting
5. (updated) Photos from Visibility Demonstration and Photo Simulations
6. (updated) Site Plans

Respectfully submitted,



Francis D. Parisi, Esq.  
Parisi Law Associates, P.C.  
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CAPE COD COMMISSION

# Application Cover Sheet

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

### For Commission Use Only

Date Received:  
Fee (\$):  
Check No:  
File No:

**A Type of Application** (check all that apply)

<input checked="" type="checkbox"/> Development of Regional Impact (DRI)	<input type="checkbox"/> DRI Exemption	<input type="checkbox"/> Request for Joint MEPA/DRI Review
<input type="checkbox"/> DRI Scoping	<input type="checkbox"/> Hardship Exemption	<input type="checkbox"/> Decision Extension
	<input type="checkbox"/> Jurisdictional Determination	<input type="checkbox"/> Decision Modification

### B Project Information

Project Name: Vertex North Falmouth almouth WCT Total Site Acreage: 10.49 ac  
Project/Property Location: 481 Quaker Road, Falmouth, MA Zoning: Single Residence B (RB)

**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 consisting of a 120' tall monopole-style tower on which Verizon Wireless and other wireless communications carriers will place antennas and necessary electronics, inside a 48' x 58' fenced-in compound which will contain ground based electronic equipment, on a large, 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 3 sides

### 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 #
12-05-001-010	Roman Catholic Bishop of Fall River c/o St Elizabeth Seton Parish			Book 187 Page 54

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	<b>Applicant(s) Name:</b> <u>Vertex Towers, LLC</u> Tel: <u>401-447-8500</u> Fax: <u>781-735-6192</u>
	Address: <u>c/o Parisi Law Associates, P.C. 225 Dyer Street, Providence, RI 02903</u>
	Signature: <u>Francis D Parisi, Esq</u> Date: <u>8/2/24</u> <i>Attorney in Fact</i>
CO-APPLICANT	<b>Co-Applicant(s) Name:</b> _____ Tel: _____ Fax: _____
	Address: _____
	Signature: _____ Date: _____
CONTACT	<b>Contact:</b> <u>Francis D, Parisi, Esq.</u> Tel: <u>401-447-8500</u> Fax: <u>781-735-6192</u>
	Address: <u>Parisi Law Associates, P.C. 225 Dyer Street, Providence, RI 02903</u>
	Signature: <u>Francis D. Parisi, Esq</u> Date: <u>8/2/24</u>
PROPERTY OWNER	<b>Property Owner:</b> <u>Roman Catholic Bishop of Fall River c/o St Elizabeth Seton Parish</u> Tel: <u>401-447-8500</u> Fax: <u>781-735-6192</u>
	Address: <u>c/o Parisi Law Associates, P.C. 225 Dyer Street, Providence, RI 02903</u>
	Signature: <u>Francis D Parisi, Esq</u> Date: <u>8/2/24</u> <i>Authorized Agent</i>
BILLABLE ENTITY	<b>Name:</b> <u>Vertex Towers, LLC</u> Tel: <u>401-447-8500</u> Fax: <u>781-735-6192</u>
	Address: <u>c/o Parisi Law Associates, P.C. 225 Dyer Street, Providence, RI 02903</u>

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October 10, 2024

Town of Falmouth  
Zoning Board of Appeals  
59 Town Hall Square  
Falmouth, MA 02540

Site No: VT-MA-0231E  
Vertex Towers, LLC  
481 Quaker Road  
Falmouth, MA 02556  
Barnstable County

RE: Drainage Analysis and Design for Proposed Cell Tower and Communications Facility

### **Project Overview and Methodology**

Advanced Engineering Group, PC (AEG) has prepared a drainage analysis and report for a proposed communication compound. The stormwater analysis is based on the Rational Method for peak discharge. The analysis will determine the stormwater volume and associated peak runoff comparing existing and proposed flows for the design storm periods. Watershed areas are based on topographic survey, MAGIS and USGS Quad Maps.

The project proposes to install a wireless telecommunications facility at the assigned location, as depicted on the plans. The 50' x 60' compound is to be placed adjacent to the eastern limit of the existing parking area of the Bishop of Fall River property. Access to the proposed compound will be set as a 10-foot-wide utility easement through the travel aisles of the existing parking area to the gate of the fenced compound area. There is to be no alteration to the parking area. The wooded area to the rear of the parking lot will be cleared to allow for off grading to match smoothly to the surrounding grades. This area will extend slightly beyond the compound. New landscaping will be added to screen the compound area from the parking area.

The facility will consist of level graded crushed stone inside the fenced area and extend one foot beyond the fence line. The compound area will match existing grades emulating existing stormwater drainage patterns. Equipment will consist of a 120-foot A.G.L. monopole with antennas connecting to radio and power cabinets with coax cables extending to the ground mounted units stationed on a concrete pad.

As mentioned previously, access to the compound will be through the parking area with no additional roadway or access road planned. The easement will extend through the parking area with direct access to Quaker Road. The site will not lie in the vicinity of any BVW resource area. The existing site is moderately wooded with watershed tributary to a BVW located approximately 100 feet to the east of the compound.

Stormwater Computations: Rational Method (See Enclosed Sheet)

Rational Method Equation:  $Q = CIA$ , whereas,

$Q$  = flow (ft<sup>3</sup>/s)

$C$  = Runoff Coefficient

$I$  = Rainfall Intensity (in/hr., based on USDA TP40)

$A$  = Drainage Area (acres)

It should be noted that the intensity and area will remain constant for both pre- and post-development conditions since the hydraulic length and size will be below the 5-minute minimum threshold. The only changing variable will be the stormwater coefficient.

### Existing Conditions

The existing watershed originates at the edge of the existing parking lot and drains to the north as concentrated sheet flow. Stormwater runoff then enters the wooded area draining to a BVW approximately 300 feet to the north. Land is moderately sloped with a small knoll where the proposed facility will be placed.

Soils for the site are predominantly sandy loam, Hydrologic Soils Group B.

The overall ground cover and corresponding runoff coefficient value ( $C$ ) for the existing watershed is broken down as follows:

The Existing Watershed has a total area of approximately 65,529 SF (1.504 acres) of which,

- Wooded Area = 39,434 SF
  - $C = 0.35$
- Existing Parking Area = 25,595 SF
  - $C = 0.95$
- Open Space (unpaved) = 500 SF
  - $C = 0.50$

#### Weighted C Value

$$C_w = 0.59(0.35) + 0.39(0.95) + 0.02(0.50)$$

$$C_w = 0.587$$

#### Intensity /Time of Concentration

Time of concentration is based on the hydraulic length and average slope related to the MassDOT time of concentration charts.

$$H_L = 668 \text{ ft}$$

$$H_s = 0.030 \text{ ft/ft}$$

Based on Chart  $T_c = <5$  min. (use standard 5 min minimum time)

Based on stormwater Intensity graphs for 25-year storm  $I = 6.2$  in/hr

Design Flow (Q)

For  $Q = CIA$ ,

$$Q = (0.587) (6.2 \text{ in/hr.}) (1.5 \text{ acres}) = 5.42 \text{ CFS}$$

### Proposed Conditions

Under proposed conditions, all elements of the existing conditions are to remain in place to accommodate the placement of the compound with allowable off grading to blend to the surrounding topography. This area is approximately 5,700 square feet. This will allow the placement of the 3,000 square foot compound area. This area is currently wooded. Any off grading will be loamed and seeded.

Therefore. The new weighted C value is as follows.

- Wooded Area = 33,734 SF (0.77 Acres)
  - $C = 0.35$
- Existing Parking Area = 25,595 SF (0.59 Acres)
  - $C = 0.95$
- Open Space (unpaved) = 3,200 SF (0.06 Acres)
  - $C = 0.50$
- Communications Compound = 3,000 SF (0.06 Acres)
  - $0.10(0.95) + (0.9) (0.15) * = 0.23$

\* 1-foot crushed stone will act as a storage area for excess stormwater within the compound with minimal runoff. This extends 1 foot beyond the fence limits. A C value of 0.15 was used as a conservative value which assumes minimal runoff over time.

### Weighted C Value

$$C_w = 0.51(.35) + 0.39(0.95) + 0.04(0.50) + 0.06(0.5)$$

$$C_w = 0.583$$

$$\text{Design Flow} = (0.583) (6.2 \text{ in/hr.}) (1.50) = 5.42 \text{ CFS}$$

### Summary

Factoring in the available storage within the crushed stone floor of the compound and the additional 2-foot envelope around the compound reduces the overall coefficient. Stormwater runoff up to the 2-year storm is contained with minimal residual at the 10- and 25-year events. It has been demonstrated that there is no discernable difference between pre- and post-stormwater runoff with the placement of the compound.

All topography within the watershed area will be maintained with no alteration to flow patterns or discharge areas to existing wetland areas. All construction materials will be contained within the site and erosion control will be in place to prevent debris erosion and sediment buildup. All sediment will be removed by the contractor and transported off-site.

## Nitrogen Loading

As part of the analysis, the location of the project has been identified as being within a MWRA and thus Objective WR3 is applicable. Wild Harbor is a nitrogen impaired embayment with zero nitrogen loading allowed. Calculating the nitrogen from the stormwater from the compound yields:

Compound Area – 3,000 SF

Impervious Surface within compound (equipment and pads) =500 ft<sup>2</sup>

$$500 \text{ ft}^2 \times [40\text{in}/\text{yr}] \times [\text{ft}/12\text{in}] \times [28.32\text{L}/\text{ft}^2] \times [1 \text{ yr}/365\text{d}] = 141.54 \text{ L}/\text{day} \times [0.75\text{mg}/\text{L}] = 106\text{mg}/\text{d}$$

Recharge: impervious surface: 21 in/yr (Falmouth) 1.5 ppm NO<sub>3</sub> – N off paved surfaces and 0.75 ppm NO<sub>3</sub>-N off roofs and other non-roadway paved impervious surfaces.

$$106\text{mg}/141\text{L} = 0.75\text{ppm} \text{ therefore does not exceed threshold}$$

However, for a Coastal Embayment where zero loading is allowed in the Wild Harbor zone, all runoff is captured within the trench up to the 2-yr storm with small residuals for the less frequent benchmark storms. The level of NO is absorbed in the recharge and below the critical thresholds based on CCC WRO Technical Bulletin 91-001 April 1992. Additional landscaping can be placed to limit any runoff produced. This will meet the requirement of zero Nitrogen loading.

## **Stormwater Management**

The design of the proposed compound has considered the treatment and conveyance of stormwater to emulate existing conditions and make slight improvements where possible. The trench will contain the more frequent storm events mitigated the effects of the impervious surfaces within the compound. Additional landscaping will be placed to add to the absorption of stormwater runoff. The compound is flat graded with minimal slope to promote the use of the crushed stone area of the compound as stormwater capture and infiltration.

To mitigate debris transported by runoff during construction erosion control, measures will be placed at the limits of work. The limit of tree clearing will only extend to the limit needed for grading which is confined to approximately 1 foot around the compound. Access will be via the parking lot and no temporary construction roadways will be needed. These measures will consist of filter socks and other measures deemed necessary. Staging will be such to have the trench in place prior to placement of equipment and utility connections and feed placement.



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



October 8, 2024

Cape Cod Commission  
3225 Main Street  
Barnstable, MA 02630

**SUBJECT: VERTEX TOWERS / 481 QUAKER ROAD TELECOMMUNICATIONS FACILITY  
RESPONSE TO ISOTROPE'S REVIEW OF APPLICATION**

To Whom It May Concern:

C Squared Systems, LLC ("C Squared") has recently received Isotrope's "Review of Application for DRI" dated June 26, 2024<sup>1</sup> for the above referenced application. This letter and the RF coverage map attached hereto are submitted on behalf of Verizon in response to questions and requests within the "Application questions" section of the Isotrope review that are related to the Verizon RF Report, which was prepared by C Squared.

The RF Report dated January 10, 2024, includes maps labeled as Attachments A – G. For continuity, the map included here is sequentially labeled as an extension to the initial set of attachments in that RF Report.

**Status of Verizon small cells shown on the RF Report maps:**

The "prediction" plots mentioned by Isotrope (Attachments A and B of the RF Report) show the locations of three area small cells operated by Verizon. The coverage shown in Attachments A and B does not include modeled coverage from these small cells. Small cell antennas are often obstructed by localized clutter due to their low mounting heights, and modeling the coverage is subject to nuanced obstructions too granular than typically accounted for in a modeling tool intended for analysis across large geographic regions. Referring to the Google Street View image included by Isotrope on page 2 of its review is useful to visualize a typical small cell installation and these localized obstructions. Furthermore, deployment of small cells is intended to complement the macro-site network, not replace or substitute the coverage provided by macro-sites. We have attached a map to show the surrounding coverage with modeled coverage of these small cells as Attachment H should the Commission or Isotrope find it useful. This map also indicates the band at which each small cell operates.

The measured data presented in Attachments F and G of the RF Report does include coverage from any small cells, if active at the time of data collection. Inspection of the data indicates that the southernmost of the three small cells (labeled as "Falmouth N SC02" in Attachment H) was not active at the time of data collection. All three are currently active.

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<sup>1</sup> Isotrope's review was received by C Squared on 10/3/2024.

**Verizon's need and objectives of the proposed site**

The gap in service for Verizon is as generally described in the RF Report and restated in Isotrope's review. In its review of the 700 MHz measured drive data (Attachment F), Isotrope notes that there are two areas of weak coverage along Route 28A. We agree the measured data reflects that finding, and would also point out that there are other, larger areas within the general objective area worth mentioning such as Wild Harbor Road, Quaker Road, and areas closer to the coast.

Isotrope notes that the 2100 MHz measured data (Attachment G in RF Report) is "weak over quite a lot of the area." We agree with this assessment in that the measured data demonstrates that almost all roads driven west of Rt. 28 are below the -95 dBm threshold, much more so than at 700 MHz. The extent of any coverage gaps will vary depending on the frequency band and it is not surprising or uncommon for 2100 MHz to have deeper and broader gaps than at 700 MHz as explained in the RF Report. The modeled coverage map (Attachment A) and the maps of measured data at each frequency band (Attachment F and G) demonstrate this. With respect to the measured data in Attachments F and G, it is noted in the RF Report that the measured signal strength data shown was collected in November 2023 and will be optimistic or stronger than it would be during the late spring, summer, and early fall months due to differences in seasonal foliage. The degree of seasonal signal loss will vary depending on frequency, tree type, and tree density. In reviewing the data, a modest adjustment of 5 dB to account for this additional foliage loss defines a substantially larger coverage gap, which would occur during the months with the heaviest influx of visitors to the area and potentially heavier load on the network.

Verizon's need for the proposed facility is driven by both coverage and capacity needs. In fact, the two are related in the sense that weak coverage areas can breed capacity issues since users with marginal coverage in fringe areas impose a greater strain on the network and use up more network resources than users located in more robustly covered areas. At present and as shown in Attachments C and D of the RF Report, the more densely populated areas closer to the coast that would be served by the proposed site are currently served with marginal or sub-standard coverage from facilities that are 1.5 – 2.0 miles away. The RF Report presents calculations in terms of additional coverage and offload from the surrounding sites based on U.S. Census data and other publicly available resources as noted to provide additional context regarding the benefits of the proposed facility. Specific usage or performance data of Verizon's network is considered proprietary.

To the extent there are any questions related to the RF Report or this letter, we will attempt to address them during the next meeting presently scheduled for October 10, 2024.

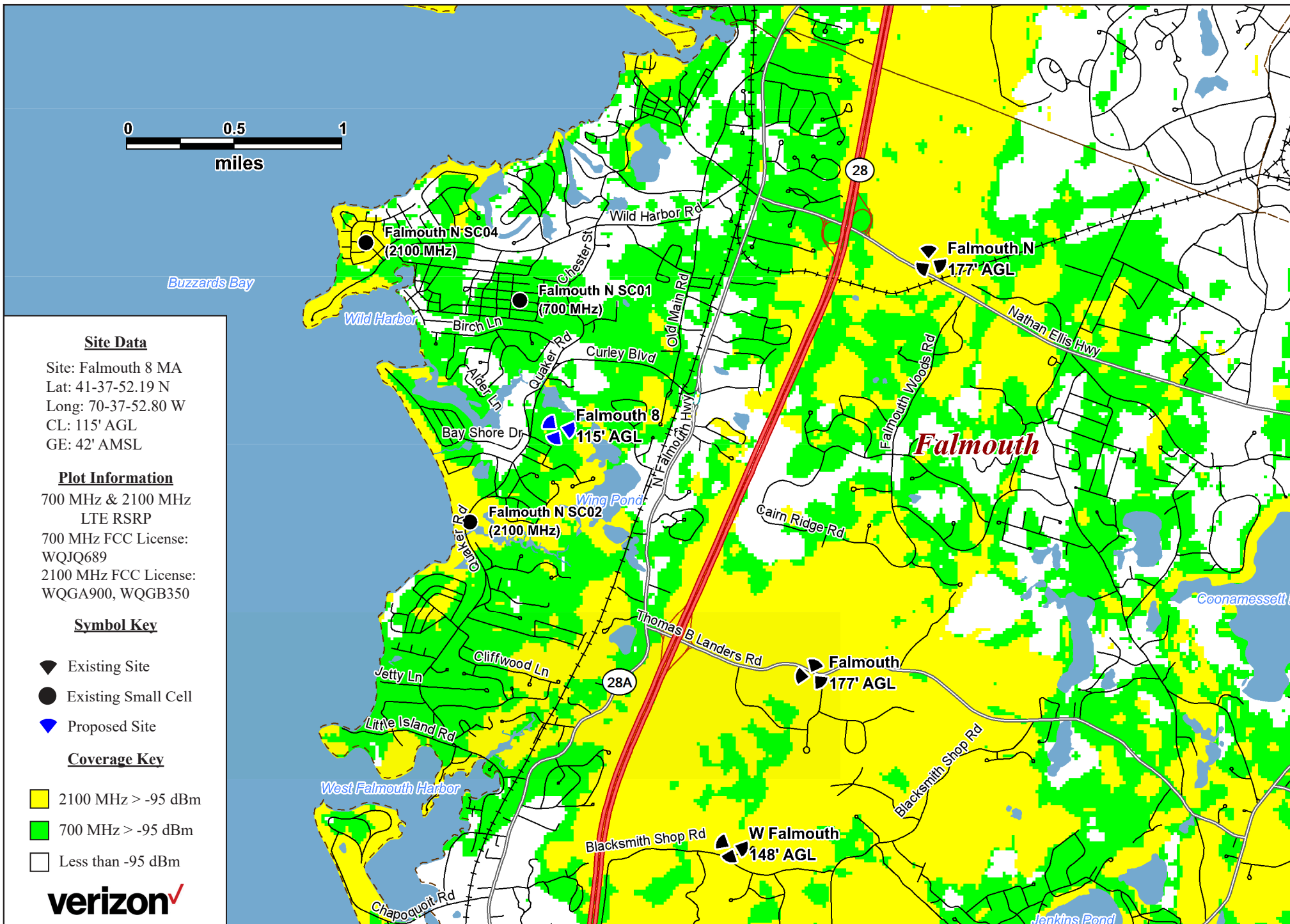
Sincerely,



Keith Vellante  
RF Engineer  
C Squared Systems, LLC  
Contractor to Verizon Wireless

Enclosures (1)

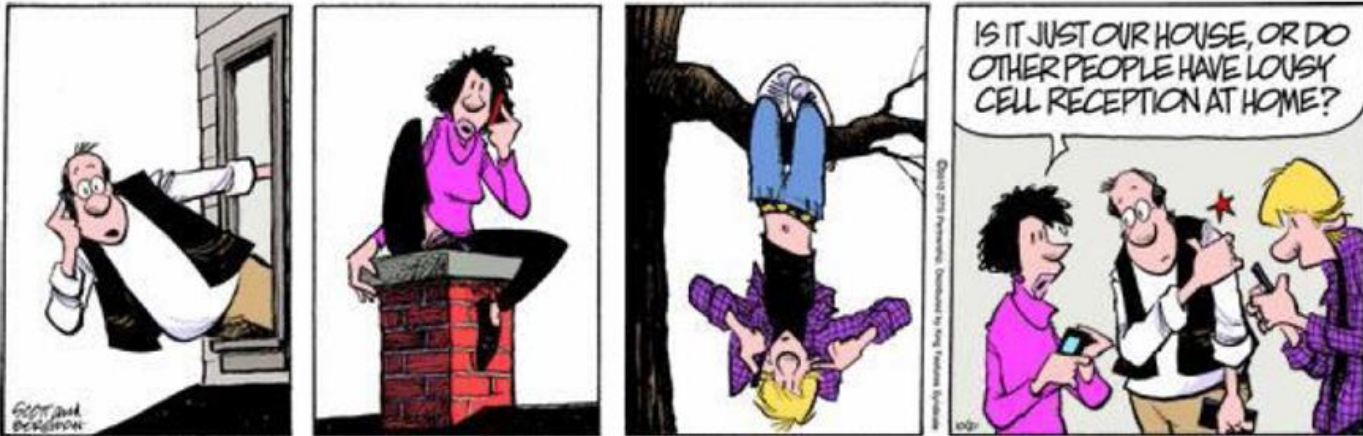
**Attachment H:  
Falmouth 8 MA - Existing 700 & 2100 MHz LTE Coverage (Macro-sites & small cells)**



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PLAPC  
PARISI LAW ASSOCIATES, P.C.



CAPE COD COMMISSION  
OCTOBER 10, 2024

FRANCIS D. PARISI, ESQ.  
FPARISI@PLAPC.COM

# MEETING PURPOSE

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**APPLICATION FOR VARIANCE and/or SPECIAL PERMIT**  
(Falmouth Zoning Board of Appeals)  
**APPLICATION FOR DEVELOPMENT OF REGIONAL IMPACT**  
(Cape Cod Commission)

**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 Pari

**Town of Falmouth Zoning Board**

05/30/24 Application filed  
06/06/24 Vote to refer Application to CCC as a Development of Regional Impact  
07/03/24 Visibility Demonstration  
10/03/24 Supplemental Visibility Demonstration

**Cape Cod Commission**

08/09/24 Application Filed  
08/13/24 (procedural) Hearing Period opened  
10/10/24 Subcommittee Public Hearing

**Vertex Towers is a telecommunications infrastructure developer. We develop, manage and own telecommunications facilities in strategic locations across the country. The Vertex team has been working in the industry for over 20 years and has the experience and expertise to navigate the challenges of the most complex markets.**

**Vertex's on the ground experience and expertise allows us to identify the opportunities and locations where there is a need for new telecommunications facilities. Identifying where a new facility is needed is only half of the equation. Strict zoning ordinances and environmental regulations require that new telecommunication facilities take into consideration not only the needs of the wireless provider but also potential permitting obstacles and construction costs. The Vertex team has the experience necessary to identify, permit and construct the best site for the property owner, the wireless provider and the municipality.**





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**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 in the midst of 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.**

# APPLICATION PACKAGE

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- 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**

# SUPPLEMENTAL APPLICATION PACKAGES

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# WHY DO WE NEED ANOTHER CELL SITE?

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**Wireless communications is not just a public convenience; it is a public safety necessity.**

- **There are now more wireless subscriptions than landline telephone subscriptions in the United States.**
- **More than 50% of American homes are “wireless only”**
- **More than 80% of 911 calls are made from mobile phones**
- **More and more workers are “telecommuting”**

**“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.”** Report of RF Engineer

# SPOTTY CELL SERVICE “A PUBLIC HAZARD”

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## The Laconia Daily Sun

January 8, 2019

“Poor quality or non-existent telecommunications services are **jeopardizing the health and safety of our residents and are constraining economic development** in New Hampshire’s Lakes Region,” stated the letter signed by Executive Director Jeffrey Hayes of the Lakes Region Planning Commission and numerous municipal officials.

“Just as telecommunications providers were required to supply landline service decades ago, wireless service has become the ‘life line’ replacement for wired services. The requirements of outdated technologies must be carried forward to the more modern replacement technologies. Failing to do so has **serious and well-established safety and economic concerns.**”

“It’s a **big-time problem** for our community.”

# CAPE COD CELL COVERAGE NEEDS IMPROVEMENT

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Local NPR for the Cape, Coast and Islands

## First responders concerned with cell phone outages on Cape Cod during bomb cyclone

Published November 4, 2021 at 10:17 AM EDT

The lack of cell coverage is concerning to public safety officials. Christopher Besse, a spokesperson for the Massachusetts Emergency Management Agency, or MEMA, said...“MEMA is aware of concerns from both public safety partners and the public about cell phone service on Cape Cod. We have shared those concerns with cell service providers on the Cape and will continue to monitor networks.”



## Cape Cod community frustrated with poor cellphone service

**MASHPEE, Mass.** —People who live in Mashpee are sharing their frustrations and concerns over cellphone service that is so spotty in certain areas of the Cape Cod community that callers are not guaranteed to connect to 911.

Nation & World

*The Seattle Times*

## Cape Cod shark attacks show need for better cell service

Originally published September 18, 2018 at 1:46 pm / Updated September 18, 2018 at 3:38 pm

Local Officials say better communications... should be among the priorities....  
Everything from building more cell towers... should be explored....

# A SIGNIFICANT GAP IN COVERAGE

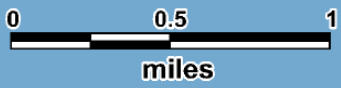
10

**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 Falmouth is without reliable service in the following areas and town roads<sup>2</sup>, 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.**Report of RF Engineer

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

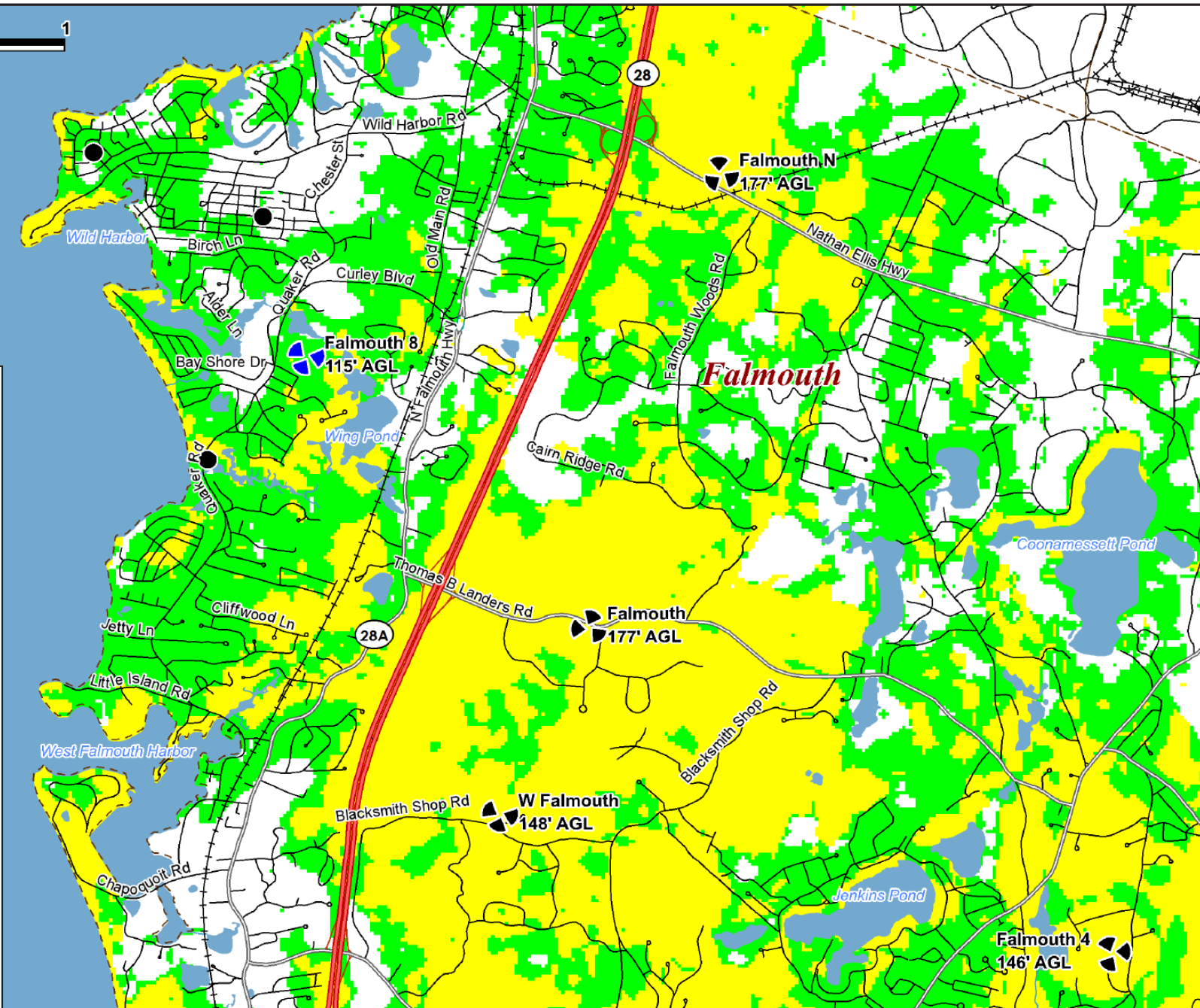


**Site Data**  
Site: Falmouth 8 MA  
Lat: 41-37-52.19 N  
Long: 70-37-52.80 W  
CL: 115' AGL  
GE: 42' AMSL

**Plot Information**  
700 MHz & 2100 MHz  
LTE RSRP  
700 MHz FCC License:  
WQJQ689  
2100 MHz FCC License:  
WQGA900, WQGB350

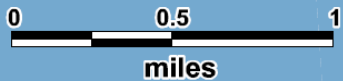
**Symbol Key**  
▼ Existing Site  
● Existing Small Cell  
◆ Proposed Site

**Coverage Key**  
2100 MHz > -95 dBm  
700 MHz > -95 dBm  
Less than -95 dBm





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

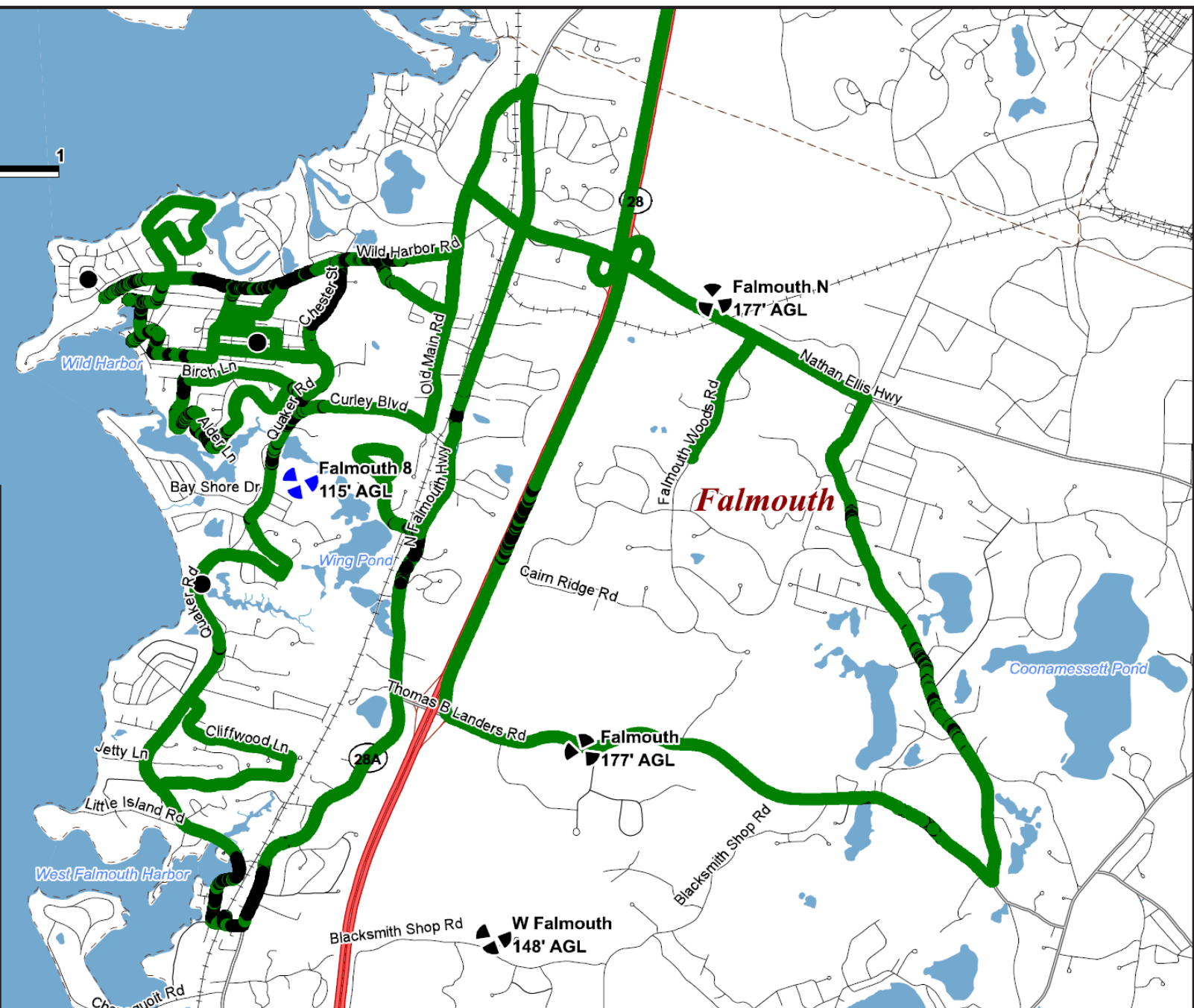


**Site Data**  
 Site: Falmouth 8 MA  
 Lat: 41-37-52.19 N  
 Long: 70-37-52.80 W  
 CL: 115' AGL  
 GE: 42' AMSL

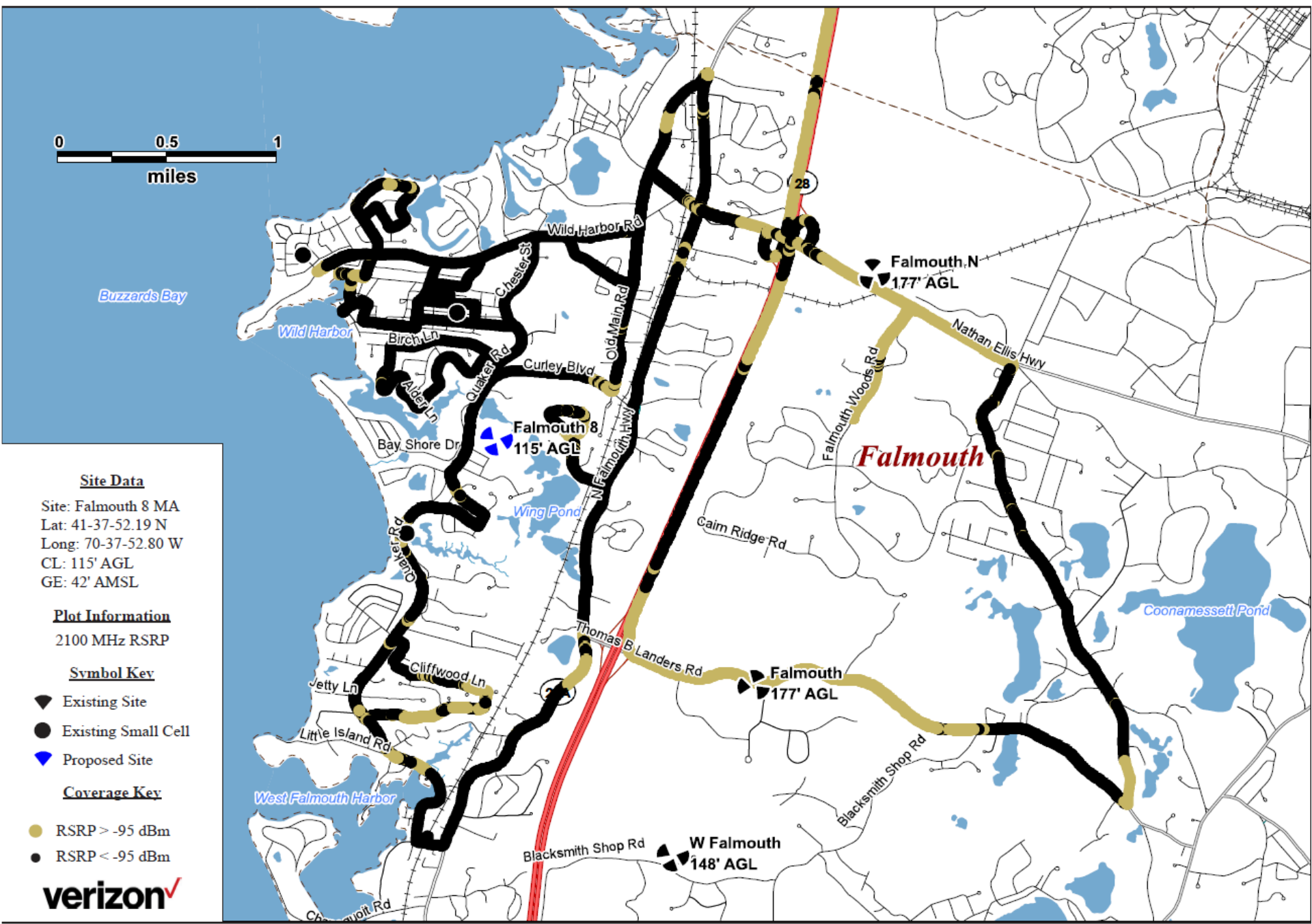
**Plot Information**  
 700 MHz RSRP

**Symbol Key**  
 ▲ Existing Site  
 ● Existing Small Cell  
 ▼ Proposed Site

**Coverage Key**  
 ● RSRP > -95 dBm  
 ● RSRP < -95 dBm



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



# WHY HERE?

14

## WHY 481 Gifford Road

Given the location (and lack) of existing wireless infrastructure, the topography and terrain, the lack of existing and suitable tall structures in and around the area, zoning and other land use restrictions (i.e. wetlands and conservation land), **“the proposed [facility] to be located at 481 Quaker Road is the least intrusive and only available and viable alternative to adequately meet the coverage objective to fill this significant gap in coverage.**

Report of Site Acquisition Specialist

# VT-MA-0231 Existing Sites Overview Map

1 Mile



**LACK OF EXISTING  
INFRASTRUCTURE**

Google Earth

1 mi

# VT-MA-0231 ASA Overview Map

1 Mile



**NO VIABLE  
ALTERNATIVES**

**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 existing 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 exsiting 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.

# NO VIABLE ALTERNATIVES

18

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.

# COMPLIES WITH ZONING ORDINANCE AS MUCH AS POSSIBLE

19

- **The Town of Falmouth does not have a specific zoning ordinance pertaining to wireless telecommunications facilities.**
- **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. 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 FALMOUTH ZONING BOARD OF APPEALS grant a SPECIAL PERMIT to permit use of the Property as proposed.**



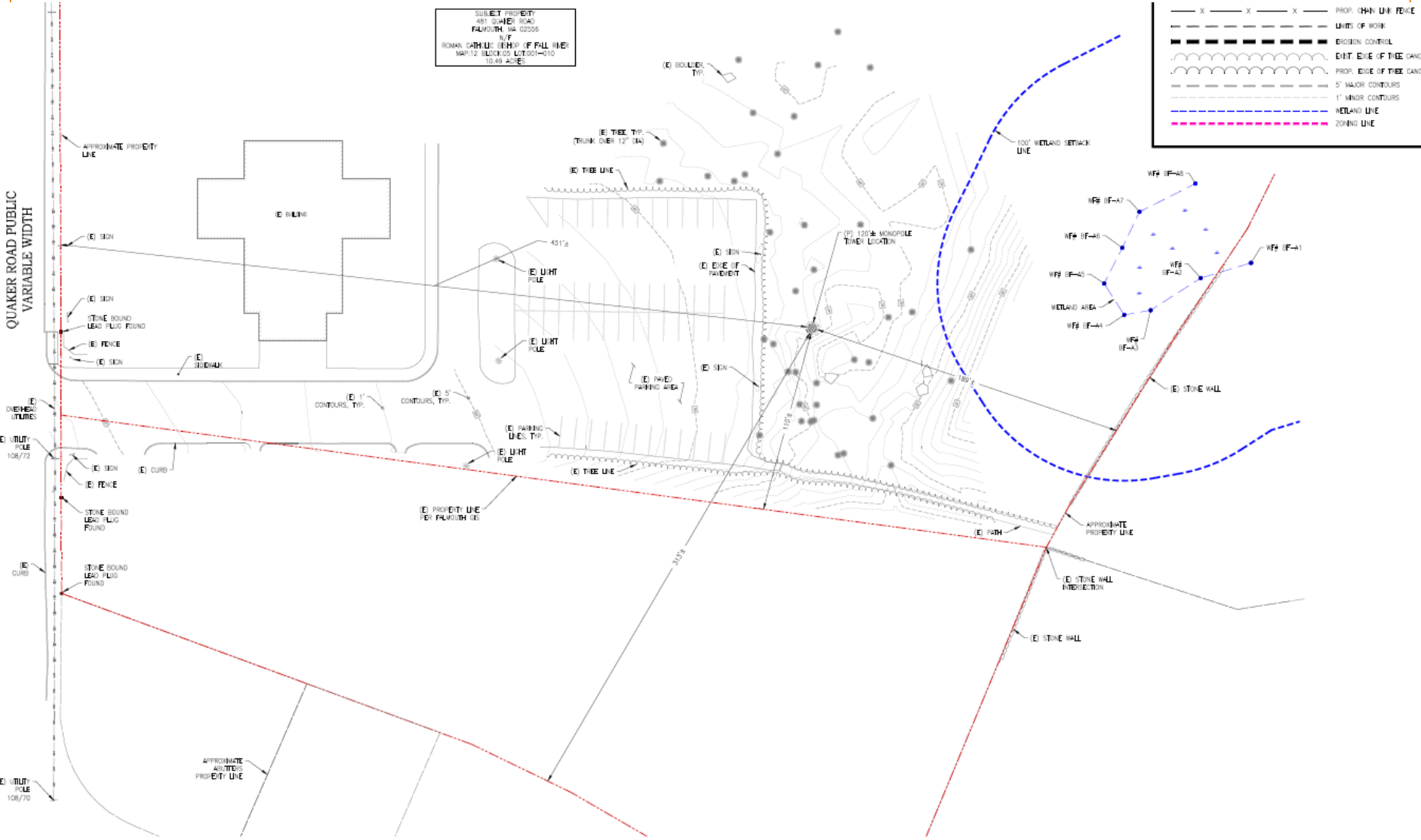
# 481 QUAKER ROAD

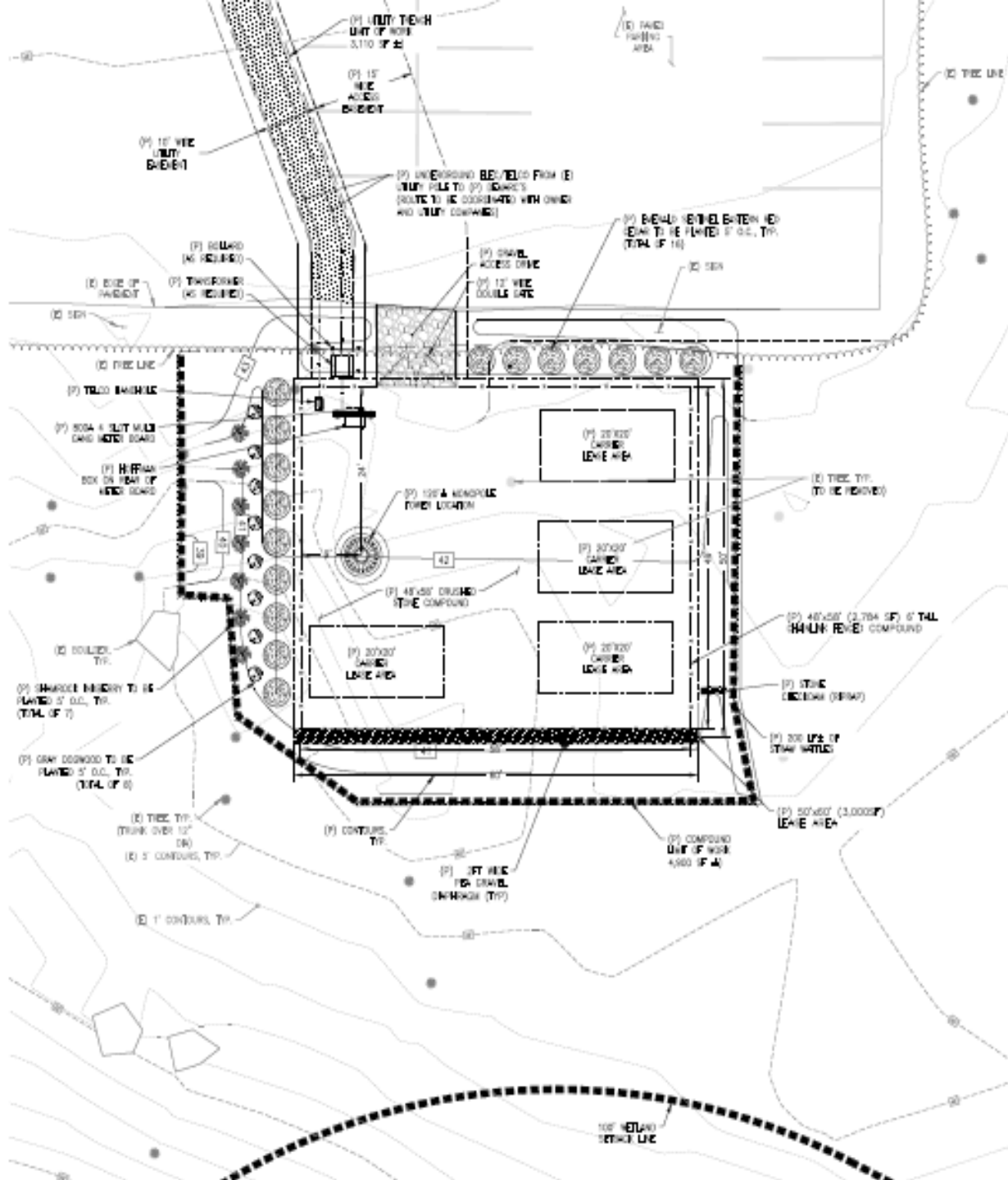


# AMPLE SETBACKS

SUBJECT PROPERTY  
 481 QUAKER ROAD  
 FALMOUTH MA 02206  
 N/F  
 ROMAUL CATHOLIC SEMINARY OF FALL RIVER  
 MAP 12 BLDG 03 LOT 001-010  
 10.49 ACRES

--- X --- X --- X ---	PROP. CHAIN LINK FENCE
-----	UNITS OF WORK
-----	EROSION CONTROL
~~~~~	EXIST. EDGE OF TREE CANOPY
~~~~~	PROP. EDGE OF TREE CANOPY
-----	5' MAJOR CONTOURS
-----	1' MINOR CONTOURS
-----	WETLAND LINE
-----	ZONING LINE



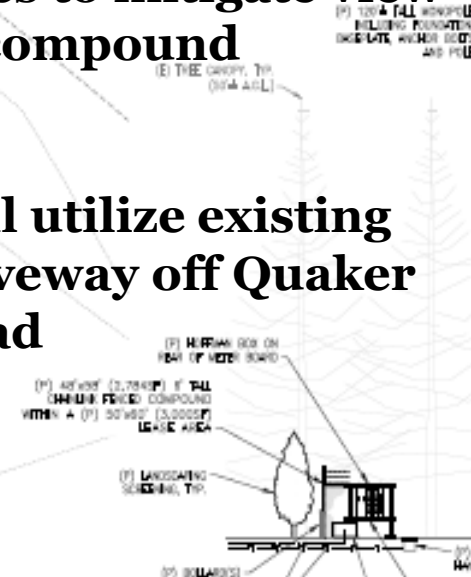


**48' x 58' fenced in compound containing ground-based telecommunications equipment in weather-proof cabinets**

**6' fence with barbed wire to prevent Unauthorized access**

**Landscaping on two sides to mitigate view of compound**

**Will utilize existing driveway off Quaker Road**



# ELEVATION PLAN

**Type:** Monopole

**Height:** 120'

**Designed to support:**

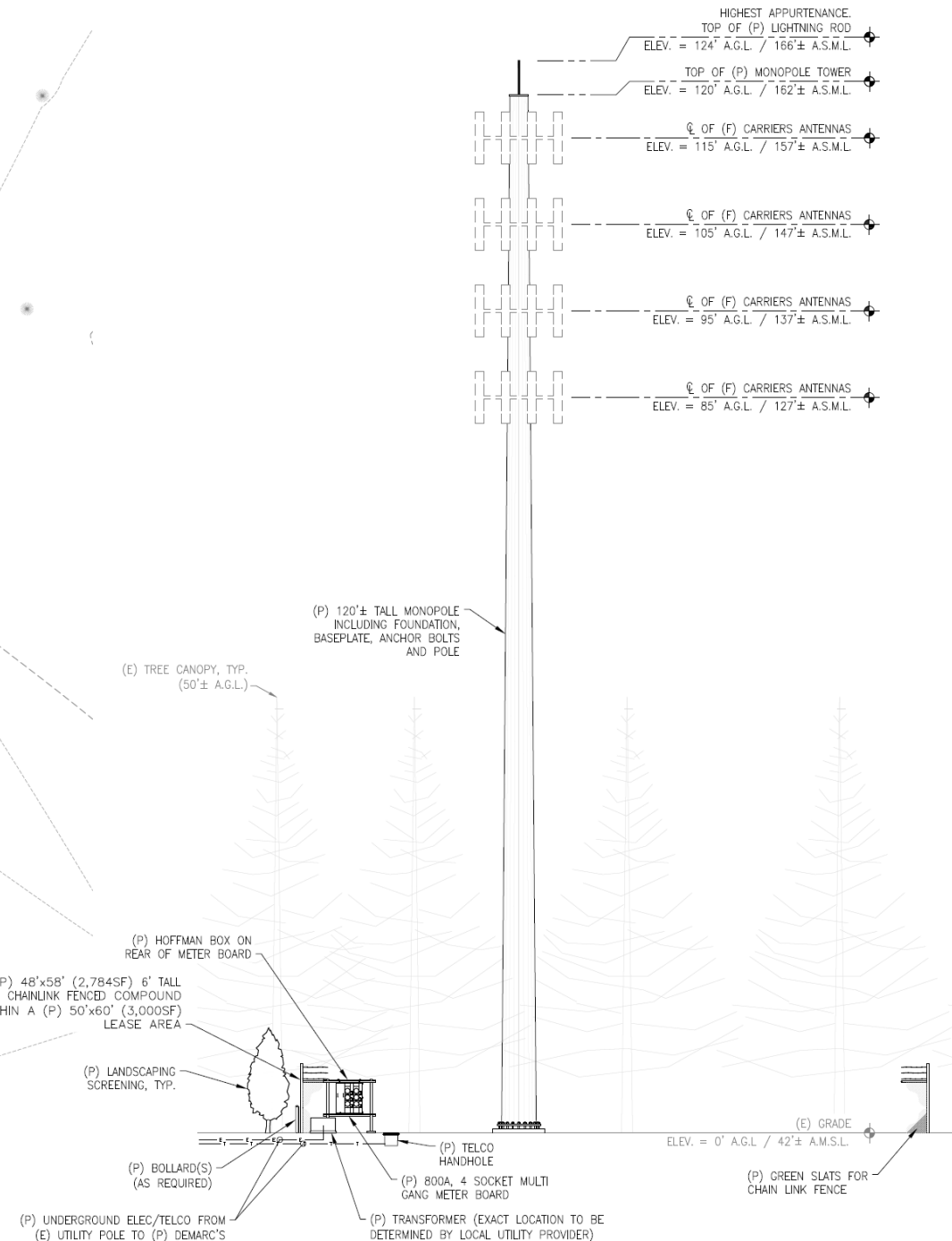
- Verizon Wireless
- Other telecommunications companies including AT&T Wireless, T-Mobile, Dish Networks and future carriers

**Construction & Design Standards:**

Telecommunications Industry Assn. (TIA)  
American Society of Safety Eng's (ASSE)  
American National Standards Ins. (ANSI)

**Design Criteria:**

Will satisfy county specific wind and ice loading standards

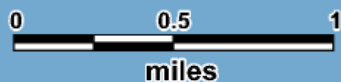


# Exceeds all safety requirements under FCC regulations

24

**The maximum permissible RF exposure 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. RF exposure levels from the proposed site will be well under under applicable FCC limits.**

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

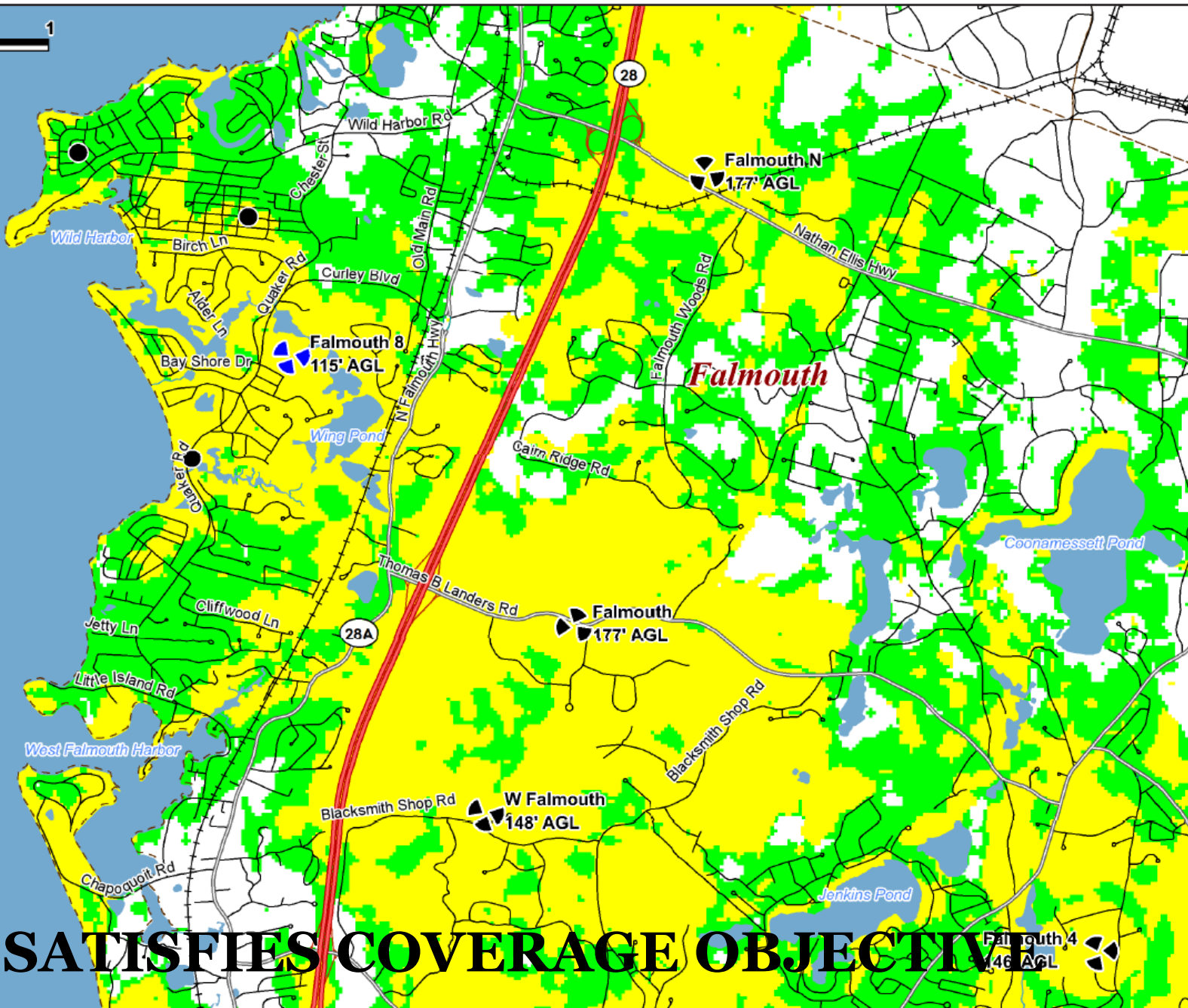


**Site Data**  
Site: Falmouth 8 MA  
Lat: 41-37-52.19 N  
Long: 70-37-52.80 W  
CL: 115' AGL  
GE: 42' AMSL

**Plot Information**  
700 MHz & 2100 MHz  
LTE RSRP  
700 MHz FCC License:  
WQJQ689  
2100 MHz FCC License:  
WQGA900, WQGB350

**Symbol Key**  
▲ Existing Site  
● Existing Small Cell  
▲ Proposed Site

**Coverage Key**  
2100 MHz > -95 dBm  
700 MHz > -95 dBm  
Less than -95 dBm



**SATISFIES COVERAGE OBJECTIVE**

# PHOTOS AND PHOTO SIMS

26

On June 28, 2024, Vertex conducted a Visibility Demonstration, by means of a balloon raised at the proposed location to a height of 120 feet.

On October 3, 2024, Vertex conducted a supplemental Visibility Demonstration, to confirm the accuracy of the June 28, 2024 Visibility Demonstration

# WAIVERS REQUESTED

27

• **As set forth in the Project Narrative and Supplemental Project Narrative, the Application and the proposed Facility complies with the Enabling Regulations and the Regional Policy Plan in all respects, as well as Technical Bulletin 97-001 as much as possible; however, the Applicant respectfully requests waivers from the CCC with respect to**

- **- height / camouflage**
- **- setback from institutional use**
- **- ambient and post construction noise measurements**
- **- open space / payment in lieu**



# STAFF REPORT

## Applicable and Material RPP Goals and Objectives

28

The proposed 120-foot-tall monopole is sited to the rear of an existing developed property, behind a church and its associated parking lots. The site is surrounded by mature vegetation to the north, east, and south, and is partially blocked from views to the west by the church and existing trees on the site. Based on the location and on photo simulations provided by the applicant, the proposed monopole would have limited visibility from surrounding roadways and public spaces. Staff suggest the Project is consistent with Community Design Objectives CD1 and CD3.

The proposed monopole is located immediately adjacent to the existing parking lot and will use the existing site access, thus limiting the amount of newly disturbed land and impervious surface area consistent with Objective CD2.

There are no historic resources located in close proximity to the proposed monopole. Based on the state's cultural resource database, the North Falmouth National Register District and West Falmouth National Register District are each located over half a mile away. These and other inventoried historic properties are unlikely to be impacted by the monopole due to distance from the tower, along with heavy vegetation and changes in topography. As such, the Project is consistent with Cultural Heritage Objectives CH1 and CH2.

Based on the information provided in the DRI Application, the proposed tower is infrastructure that would improve cellular service in the area of the proposed site in response to the needs of the region, and thus staff suggests the Project is consistent with Objective CAP2.

# DRAINAGE CALCS/NITROGEN LOADING

29

- **Factoring in the available storage within the crushed stone floor of the compound and the additional 2-foot envelope around the compound reduces the overall coefficient. Stormwater runoff up to the 2-year storm is contained with minimal residual at the 10- and 25-year events. It has been demonstrated that there is no discernable difference between pre- and post-stormwater runoff with the placement of the compound.**
- **All topography within the watershed area will be maintained with no alteration to flow patterns or discharge areas to existing wetland areas. All construction materials will be contained within the site and erosion control will be in place to prevent debris erosion and sediment buildup. All sediment will be removed by the contractor and transported off-site.**
- **However, for a Coastal Embayment where zero loading is allowed in the Wild Harbor zone, all runoff is captured within the trench up to the 2-yr storm with small residuals for the less frequent benchmark storms. The level of NO is absorbed in the recharge and below the critical thresholds based on CCC WRO Technical Bulletin 91-001 April 1992. Additional landscaping can be placed to limit any runoff produced. This will meet the requirement of zero Nitrogen loading.**

# WIRELESS CONSULTANT REPORT

30

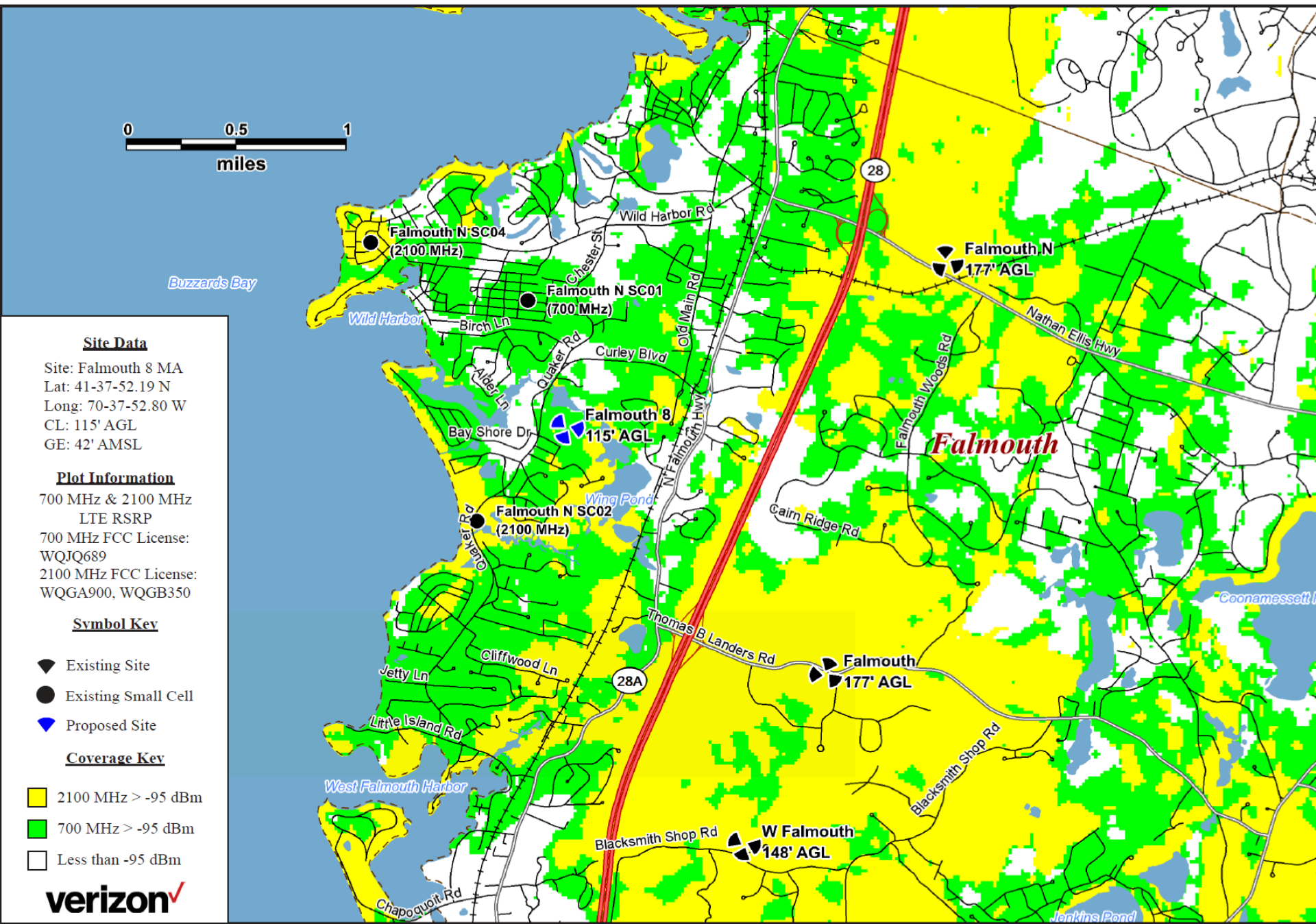
- **The location does appear to be well chosen for minimum visual impact as the photosimulations and balloon photos show minimal visibility other than on or near church property. This area of Falmouth has dense tree cover near the road which is beneficial from a visibility perspective.**
- **This site does appear to be screened from public view to the extent possible (by site selection) by the surrounding vegetation.**
- **The site appears to be designed for a total of 4 carriers to collocate in the future. (Verizon + 3 additional carriers).**
- **The radio frequency energy safety analysis confirms the facility would be compliant with the FCC requirements, which is the extent to which the placement of the facility on this basis can be controlled.**

# SMALL CELLS CANNOT REPLACE MACRO SITES

31

The “prediction” plots mentioned by Isotrope (Attachments A and B of the RF Report) show the locations of three area small cells operated by Verizon. The coverage shown in Attachments A and B does not include modeled coverage from these small cells. Small cell antennas are often obstructed by localized clutter due to their low mounting heights, and modeling the coverage is subject to nuanced obstructions too granular than typically accounted for in a modeling tool intended for analysis across large geographic regions. Referring to the Google Street View image included by Isotrope on page 2 of its review is useful to visualize a typical small cell installation and these localized obstructions. Furthermore, deployment of small cells is intended to complement the macro-site network, not replace or substitute the coverage provided by macro-sites. We have attached a map to show the surrounding coverage with modeled coverage of these small cells as Attachment H should the Commission or Isotrope find it useful. This map also indicates the band at which each small cell operates. The measured data presented in Attachments F and G of the RF Report does include coverage from any small cells, if active at the time of data collection. Inspection of the data indicates that the southernmost of the three small cells (labeled as “Falmouth N SC02” in Attachment H) was not active at the time of data collection. All three are currently active.

Attachment H:  
Falmouth 8 MA - Existing 700 & 2100 MHz LTE Coverage (Macro-sites & small cells)



**Site Data**

Site: Falmouth 8 MA  
Lat: 41-37-52.19 N  
Long: 70-37-52.80 W  
CL: 115' AGL  
GE: 42' AMSL

**Plot Information**

700 MHz & 2100 MHz  
LTE RSRP  
700 MHz FCC License:  
WQJQ689  
2100 MHz FCC License:  
WQGA900, WQGB350

**Symbol Key**

- Existing Site
- Existing Small Cell
- Proposed Site

**Coverage Key**

- 2100 MHz > -95 dBm
- 700 MHz > -95 dBm
- Less than -95 dBm



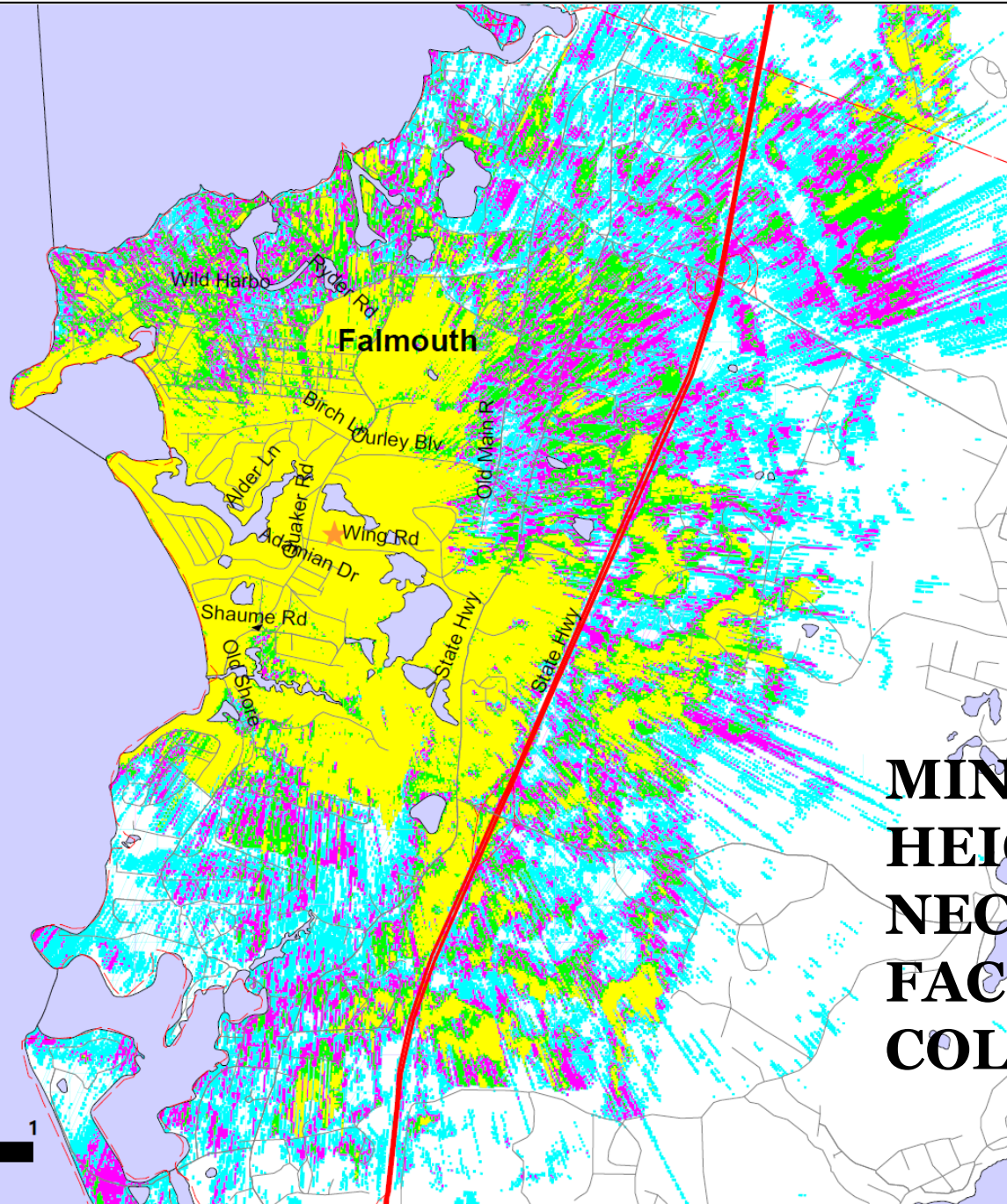
# Verizon's need and objectives of the proposed site

33

The gap in service for Verizon is as generally described in the RF Report and restated in Isotrope's review. In its review of the 700 MHz measured drive data (Attachment F), Isotrope notes that there are two areas of weak coverage along Route 28A. We agree the measured data reflects that finding, and would also point out that there are other, larger areas within the general objective area worth mentioning such as Wild Harbor Road, Quaker Road, and areas closer to the coast.

Isotrope notes that the 2100 MHz measured data (Attachment G in RF Report) is "weak over quite a lot of the area." We agree with this assessment in that the measured data demonstrates that almost all roads driven west of Rt. 28 are below the -95 dBm threshold, much more so than at 700 MHz. The extent of any coverage gaps will vary depending on the frequency band and it is not surprising or uncommon for 2100 MHz to have deeper and broader gaps than at 700 MHz as explained in the RF Report. The modeled coverage map (Attachment A) and the maps of measured data at each frequency band (Attachment F and G) demonstrate this. With respect to the measured data in Attachments F and G, it is noted in the RF Report that the measured signal strength data shown was collected in November 2023 and will be optimistic or stronger than it would be during the late spring, summer, and early fall months due to differences in seasonal foliage. The degree of seasonal signal loss will vary depending on frequency, tree type, and tree density. In reviewing the data, a modest adjustment of 5 dB to account for this additional foliage loss defines a substantially larger coverage gap, which would occur during the months with the heaviest influx of visitors to the area and potentially heavier load on the network.

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



## LEGEND

### Site Info



Site: VT-MA-0231E

Lat: 41.631306 Lon: -70.631311


Elev: 42 ft

### Plot Information

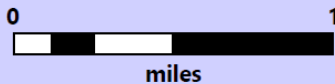
700 MHz LTE RSRP

-  Proposed Coverage 85ft
-  Proposed Coverage 95ft
-  Proposed Coverage 105ft
-  Proposed Coverage 115ft

### Symbol Key

-  Proposed Vertex Site

**MINIMUM  
HEIGHT  
NECESSARY TO  
FACILITATE  
COLOCATION**



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

## LEGEND

### Site Info





Site: VT-MA-0231E

Lat: 41.631306 Lon: -70.631311


Elev: 42 ft

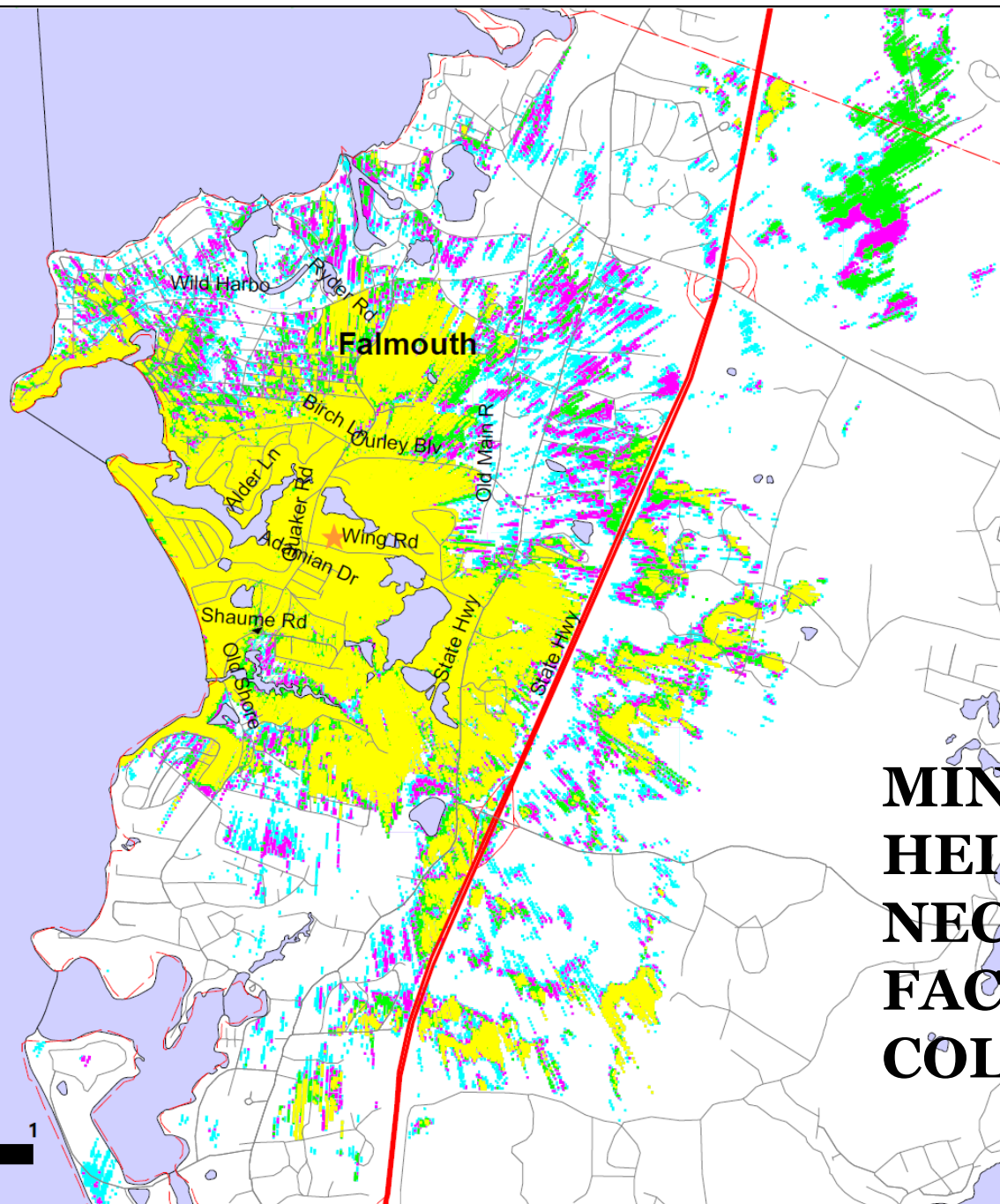
### Plot Information

1900 MHz LTE RSRP

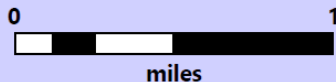
-  Proposed Coverage 85ft
-  Proposed Coverage 95ft
-  Proposed Coverage 105ft
-  Proposed Coverage 115ft

### Symbol Key

-  Proposed Vertex Site



**MINIMUM  
HEIGHT  
NECESSARY TO  
FACILITATE  
COLOCATION**





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

## LEGEND

### Site Info

Site: VT-MA-0231E

Lat: 41.631306 Lon: -70.631311


Elev: 42 ft

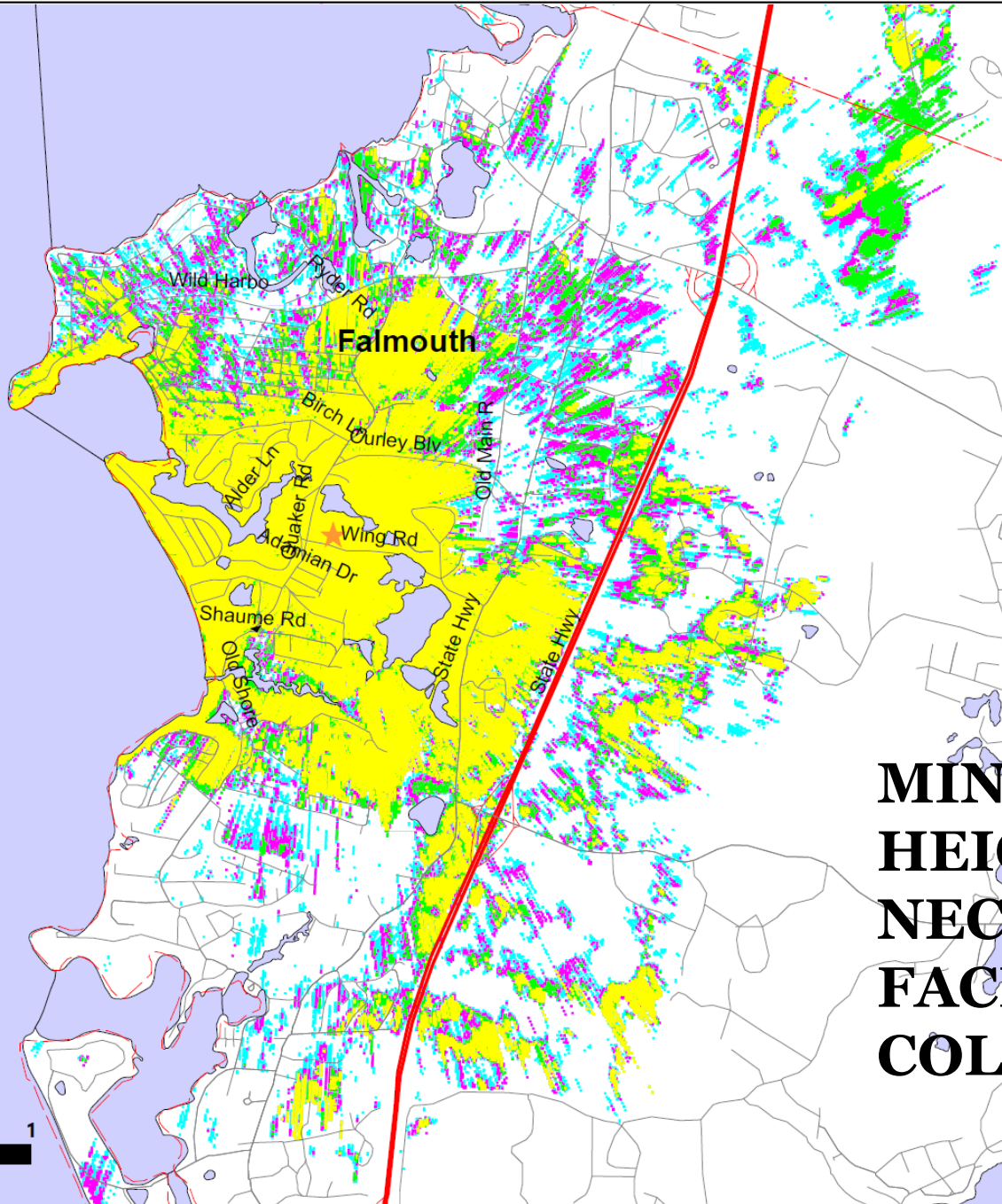
### Plot Information

2100 MHz LTE RSRP

-  Proposed Coverage 85ft
-  Proposed Coverage 95ft
-  Proposed Coverage 105ft
-  Proposed Coverage 115ft

### Symbol Key

-  Proposed Vertex Site



**MINIMUM  
HEIGHT  
NECESSARY TO  
FACILITATE  
COLOCATION**



# OPEN SPACE WAIVER

## SITE AREA CALCULATIONS

TOTAL LIMIT OF WORK – COMPOUND AREA (L.O.W.)	4,900 S.F.
PERMANENT DISTURBED AREA W/IN L.O.W.	3,100 S.F.
TEMPORARY DISTURBED AREA W/IN L.O.W.	1,800 S.F.
IMPERVIOUS AREA – ALLOWANCE	500 S.F.

**UTILIZES PREVIOUSLY DISTURBED ACCESS DRIVEWAY (PARKING LOT)**

**COMPOUND ON PREVIOUSLY DISTURBED LAND**

**SITE DESIGNED TO MINIMIZE TOTAL DISTURBANCE**

**SOME DISTURBANCE TEMPORARY – WILL BE REVEGETATED**

**TOTAL DISTURBANCE ONLY A TINY PORTION OF 10 ACRE LOT**

**CALCULATIONS BASED ON A PERCENTAGE OF A DEVELOPABLE ACRE**

# The Telecommunications Act of 1996

38

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.

Law specifically preserves local zoning authority with respect to the siting of wireless service facilities, but it clarifies when the exercise of local zoning authority may be preempted by federal law.

- **SECTION 704 (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.

# The Telecommunications Act of 1996

39

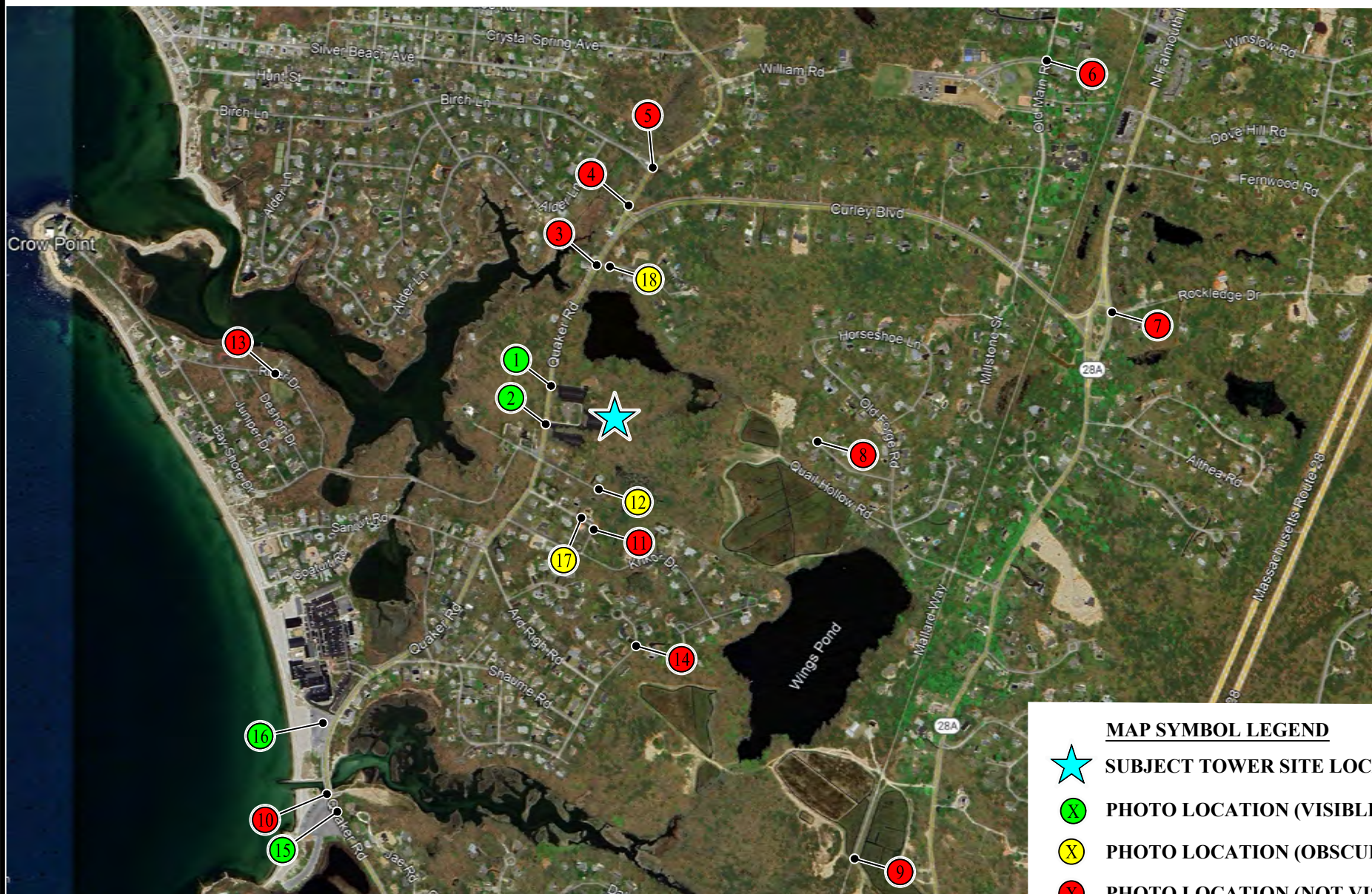
- **The Applicant's application is governed by the TCA which "imposes specific limitations on the traditional authority of state and local governments to regulate the location, construction, and modification of such facilities...47 U.S.C. § 332(c)(7)." City of Rancho Palos Verdes v. Abrams, 544 U.S. 113, 115-116 (U.S. 2005). Under this provision, local governments shall not take actions that "prohibit or have the effect of prohibiting the provision of personal wireless services."**
- **§ 332(c)(7)(B)(i)(II).**
- **The TCA overrides boards that do not decide matters based upon the merits of local ordinances and, instead, yield inappropriately to ill-founded opposition. Moreover, the TCA specifically states that "[n]o State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions" 47 U.S.C. § 332(c)(7)(B)(iv).**

# Summary

40

- **The proposed Facility is necessary to close a significant gap in wireless coverage and provide capacity relief for Verizon Wireless, with the ability to accommodate and close existing gaps for at least 3 additional wireless service providers on this Facility in the future, thus reducing the number of additional new towers needed in the Town. After a thorough review of all existing structures and raw land sites within the targeted coverage area, the Applicant has determined that the proposed location is the only feasible location to close the gap and solve the capacity issue.**
- **For the foregoing reasons, as well as to satisfy Federal mandates to facilitate competition in the telecommunications industry as set forth in the Telecommunications Act of 1996, the Applicant hereby requests that the Cape Cod Commission find that the Facility satisfies the criteria for approval as a Development of Regional Impact, and to grant such waivers as have been requested or may be required to permit construction of the Facility as proposed.**

**5**



<u>MAP SYMBOL LEGEND</u>	
	<b>SUBJECT TOWER SITE LOCATION</b>
	<b>PHOTO LOCATION (VISIBLE)</b>
	<b>PHOTO LOCATION (OBSCURED)</b>
	<b>PHOTO LOCATION (NOT VISIBLE)</b>

PREPARED FOR:



VERTEX TOWERS LLC  
2 COMMERCIAL STREET  
SHARON, MA 02067

PREPARED BY:



**ADVANCED**  
ENGINEERING GROUP, P.C.  
Civil Engineering - Site Development  
Surveying - Telecommunications  
500 NORTH BROADWAY  
EAST PROVIDENCE, 02914  
PH: (401) 354-2403  
FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
 SITE NAME: NORTH FALMOUTH RT28  
 ADDRESS: 481 QUAKER ROAD  
 FALMOUTH, MA 02556

KEY MAP OF PHOTOS

PAGE: MAP1  
 DATE: 10/10/2024  
 DRAWN BY: MR  
 REVISION: 1



TEST BALLOON  
ON 120± TETHER  
- 06/28/2024

PREPARED FOR:

**Vertex Towers LLC**  
VERTEX TOWERS LLC  
2 COMMERCIAL STREET  
SHARON, MA 02067

PREPARED BY:

**ADVANCED ENGINEERING GROUP, P.C.**  
Civil Engineering - Site Development  
Surveying - Telecommunications  
500 NORTH BROADWAY  
EAST PROVIDENCE, 02914  
PH: (401) 354-2403  
FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
SITE NAME: NORTH FALMOUTH RT28  
ADDRESS: 481 QUAKER ROAD  
FALMOUTH, MA 02556

**VIEW #1**  
EXISTING VIEW FROM THE WEST ON  
QUAKER ROAD @ CHURCH'S NORTH  
PARKING LOT ENTRANCE

PAGE: V-1E

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1





TEST BALLOON ON 120'± TETHER -  
PHOTO TAKEN: 10/04/2024

PREPARED FOR:

**Vertex  
Towers LLC**  
VERTEX TOWERS LLC  
2 COMMERCIAL STREET  
SHARON, MA 02067

PREPARED BY:

**ADVANCED  
ENGINEERING GROUP, P.C.**  
Civil Engineering - Site Development  
Surveying - Telecommunications  
500 NORTH BROADWAY  
EAST PROVIDENCE, 02914  
PH: (401) 354-2403  
FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
SITE NAME: NORTH FALMOUTH RT28  
ADDRESS: 481 QUAKER ROAD  
FALMOUTH, MA 02556

**VIEW #1**  
EXISTING VIEW FROM THE WEST ON  
QUAKER ROAD @ CHURCH'S NORTH  
PARKING LOT ENTRANCE

PAGE: V-1E2

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1

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.



PROPOSED MONOPOLE  
120± ABOVE GROUND LEVEL W/  
FUTURE CARRIER'S ANTENNAS

PREPARED FOR:

**Vertex  
Towers LLC**  
VERTEX TOWERS LLC  
2 COMMERCIAL STREET  
SHARON, MA 02067

PREPARED BY:

**ADVANCED  
ENGINEERING GROUP, P.C.**  
Civil Engineering - Site Development  
Surveying - Telecommunications  
500 NORTH BROADWAY  
EAST PROVIDENCE, 02914  
PH: (401) 354-2403  
FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
SITE NAME: NORTH FALMOUTH RT28  
ADDRESS: 481 QUAKER ROAD  
FALMOUTH, MA 02556

**VIEW #1**  
PROPOSED VIEW FROM THE WEST ON  
QUAKER ROAD @ CHURCH'S NORTH  
PARKING LOT ENTRANCE

PAGE: V-1P

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1



PROPOSED MONOPOLE  
 120± ABOVE GROUND LEVEL W/  
 FUTURE CARRIER'S ANTENNAS  
 PHOTO TAKEN: 10/04/2024

PREPARED FOR:

**Vertex  
Towers LLC**  
 VERTEX TOWERS LLC  
 2 COMMERCIAL STREET  
 SHARON, MA 02067

PREPARED BY:

**ADVANCED  
ENGINEERING GROUP, P.C.**  
 Civil Engineering - Site Development  
 Surveying - Telecommunications  
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SITE NAME: VT-MA-0231E  
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**VIEW #1**  
 EXISTING VIEW FROM THE WEST ON  
 QUAKER ROAD @ CHURCH'S NORTH  
 PARKING LOT ENTRANCE

PAGE: V-1P2

DATE: 10/10/2024

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TEST BALLOON ON 120'±  
TETHER - 06/28/2024

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2 COMMERCIAL STREET  
SHARON, MA 02067

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SITE NAME: VT-MA-0231E  
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ADDRESS: 481 QUAKER ROAD  
FALMOUTH, MA 02556

**VIEW #2**  
EXISTING VIEW FROM THE WEST ON  
QUAKER ROAD @ CHURCH'S SOUTH  
PARKING LOT ENTRANCE

PAGE: V-2E

DATE: 10/10/2024

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TEST BALLOON ON 120± TETHER  
 - PHOTO TAKEN: 10/04/2024

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 VERTEX TOWERS LLC  
 2 COMMERCIAL STREET  
 SHARON, MA 02067

PREPARED BY:

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 Civil Engineering - Site Development  
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 500 NORTH BROADWAY  
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SITE NAME: VT-MA-0231E  
 SITE NAME: NORTH FALMOUTH RT28  
 ADDRESS: 481 QUAKER ROAD  
 FALMOUTH, MA 02556

**VIEW #2**  
 EXISTING VIEW FROM THE WEST ON  
 QUAKER ROAD @ CHURCH'S SOUTH  
 PARKING LOT ENTRANCE

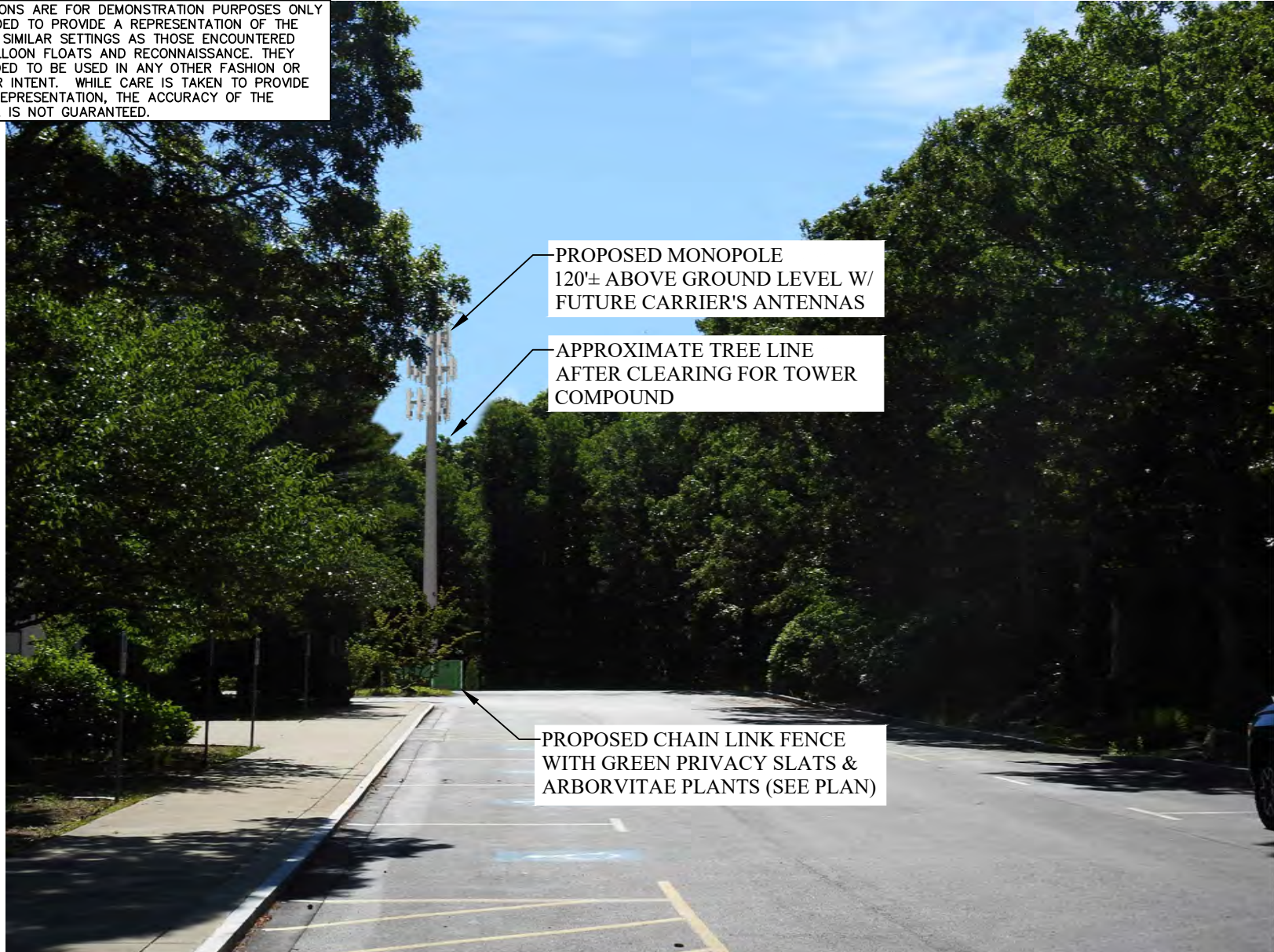
PAGE: V-2E2

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PROPOSED MONOPOLE  
120'± ABOVE GROUND LEVEL W/  
FUTURE CARRIER'S ANTENNAS

APPROXIMATE TREE LINE  
AFTER CLEARING FOR TOWER  
COMPOUND

PROPOSED CHAIN LINK FENCE  
WITH GREEN PRIVACY SLATS &  
ARBORVITAE PLANTS (SEE PLAN)

PREPARED FOR:

**Vertex  
Towers LLC**  
VERTEX TOWERS LLC  
2 COMMERCIAL STREET  
SHARON, MA 02067

PREPARED BY:

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**VIEW #2**  
PROPOSED VIEW FROM THE WEST ON  
QUAKER ROAD @ CHURCH'S SOUTH  
PARKING LOT ENTRANCE

PAGE: V-2P

DATE: 10/10/2024

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PROPOSED MONOPOLE  
 120'± ABOVE GROUND LEVEL W/  
 FUTURE CARRIER'S ANTENNAS  
 PHOTO TAKEN: 10/04/2024

PREPARED FOR:

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**VIEW #2**  
 EXISTING VIEW FROM THE WEST ON  
 QUAKER ROAD @ CHURCH'S SOUTH  
 PARKING LOT ENTRANCE

PAGE: V-2P2  
 DATE: 10/10/2024  
 DRAWN BY: MR  
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TEST BALLOON WAS NOT OBSERVED FROM THIS LOCATION

<p>PREPARED FOR:</p>  <p>VERTEX TOWERS LLC 2 COMMERCIAL STREET SHARON, MA 02067</p>	<p>PREPARED BY:</p>  <p>ADVANCED ENGINEERING GROUP, P.C. Civil Engineering - Site Development Surveying - Telecommunications 500 NORTH BROADWAY EAST PROVIDENCE, 02914 PH: (401) 354-2403 FAX: (401) 633-6354</p>	<p>SITE NAME: VT-MA-0231E SITE NAME: NORTH FALMOUTH RT28 ADDRESS: 481 QUAKER ROAD FALMOUTH, MA 02556</p>	<p style="text-align: center;"><b>VIEW #3</b> EXISTING VIEW FROM THE NORTH ON QUAKER ROAD @ ARTHUR STREET</p>	<p>PAGE: V-3E DATE: 10/10/2024 DRAWN BY: MR REVISION: 1</p>
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 FALMOUTH, MA 02556

**VIEW #3**  
 EXISTING VIEW FROM THE NORTH ON  
 QUAKER ROAD @ ARTHUR STREET

PAGE: V-3E2

DATE: 10/10/2024

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REVISION: 1



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 SHARON, MA 02067

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 ADDRESS: 481 QUAKER ROAD  
 FALMOUTH, MA 02556

**VIEW #5**  
 EXISTING VIEW FROM THE NORTH ON  
 QUAKER ROAD @ BIRCH LANE

PAGE: V-5E2

DATE: 10/10/2024

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VERTEX TOWERS LLC  
2 COMMERCIAL STREET  
SHARON, MA 02067

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SITE NAME: VT-MA-0231E  
SITE NAME: NORTH FALMOUTH RT28  
ADDRESS: 481 QUAKER ROAD  
FALMOUTH, MA 02556

**VIEW #6**  
EXISTING VIEW FROM THE NORTHEAST,  
ON OLD MAIN ROAD @ NORTH  
FALMOUTH ELEMENTARY SCHOOL

PAGE: V-6E2

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1



TEST BALLOON WAS NOT OBSERVED FROM THIS LOCATION

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TEST BALLOON WAS NOT OBSERVED FROM THIS LOCATION

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**Vertex  
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 VERTEX TOWERS LLC  
 2 COMMERCIAL STREET  
 SHARON, MA 02067

PREPARED BY:

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SITE NAME: VT-MA-0231E  
 SITE NAME: NORTH FALMOUTH RT28  
 ADDRESS: 481 QUAKER ROAD  
 FALMOUTH, MA 02556

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

PAGE: V-9E2

DATE: 10/10/2024

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REVISION: 1



TEST BALLOON WAS NOT OBSERVED FROM THIS LOCATION

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PREPARED FOR:

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 2 COMMERCIAL STREET  
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**VIEW #10**  
 EXISTING VIEW FROM THE SOUTHWEST,  
 ON QUAKER ROAD @ OLD SILVER BEACH

PAGE: V-10E2

DATE: 10/10/2024

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FALMOUTH, MA 02556

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

PAGE: V-11E

DATE: 10/10/2024

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REVISION: 1





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

PAGE: V-11E2



DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1





TEST BALLOON WAS OBSERVED FROM THIS LOCATION, OBSCURED BY TREES

<p>PREPARED FOR:</p>  <p>VERTEX TOWERS LLC 2 COMMERCIAL STREET SHARON, MA 02067</p>	<p>PREPARED BY:</p>  <p>ADVANCED ENGINEERING GROUP, P.C. Civil Engineering - Site Development Surveying - Telecommunications 500 NORTH BROADWAY EAST PROVIDENCE, 02914 PH: (401) 354-2403 FAX: (401) 633-6354</p>	<p>SITE NAME: VT-MA-0231E SITE NAME: NORTH FALMOUTH RT28 ADDRESS: 481 QUAKER ROAD FALMOUTH, MA 02556</p>	<p style="text-align: center;"><u>VIEW #12</u> EXISTING VIEW FROM THE SOUTH, ON SCOTT DRIVE</p>	<p>PAGE: V-12E DATE: 10/10/2024 DRAWN BY: MR REVISION: 1</p>
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TEST BALLOON  
ON 120± TETHER

TEST BALLOON WAS OBSERVED FROM THIS LOCATION, OBSCURED BY TREES - PHOTO TAKEN: 10/04/2024

<p>PREPARED FOR:</p>  <p>VERTEX TOWERS LLC 2 COMMERCIAL STREET SHARON, MA 02067</p>	<p>PREPARED BY:</p>  <p><b>ADVANCED</b> ENGINEERING GROUP, P.C. Civil Engineering - Site Development Surveying - Telecommunications 500 NORTH BROADWAY EAST PROVIDENCE, 02914 PH: (401) 354-2403 FAX: (401) 633-6354</p>	<p>SITE NAME: VT-MA-0231E SITE NAME: NORTH FALMOUTH RT28 ADDRESS: 481 QUAKER ROAD FALMOUTH, MA 02556</p>	<p style="text-align: center;"><u><b>VIEW #12</b></u> EXISTING VIEW FROM THE SOUTH, ON SCOTT DRIVE</p>	<p>PAGE: V-12E2 DATE: 10/10/2024 DRAWN BY: MR REVISION: 1</p>
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TEST BALLOON WAS NOT OBSERVED FROM THIS LOCATION

<p>PREPARED FOR:</p>  <p>VERTEX TOWERS LLC 2 COMMERCIAL STREET SHARON, MA 02067</p>	<p>PREPARED BY:</p>  <p>ADVANCED ENGINEERING GROUP, P.C. Civil Engineering - Site Development Surveying - Telecommunications 500 NORTH BROADWAY EAST PROVIDENCE, 02914 PH: (401) 354-2403 FAX: (401) 633-6354</p>	<p>SITE NAME: VT-MA-0231E SITE NAME: NORTH FALMOUTH RT28 ADDRESS: 481 QUAKER ROAD FALMOUTH, MA 02556</p>	<p style="text-align: center;"><u>VIEW #13</u> EXISTING VIEW FROM THE WEST, ON RIVER DRIVE</p>	<p>PAGE: V-13E2 DATE: 10/10/2024 DRAWN BY: MR REVISION: 1</p>
--	--	--	--	---



TEST BALLOON WAS NOT OBSERVED FROM THIS LOCATION

<p>PREPARED FOR:</p>  <p>VERTEX TOWERS LLC 2 COMMERCIAL STREET SHARON, MA 02067</p>	<p>PREPARED BY:</p>  <p>ADVANCED ENGINEERING GROUP, P.C. Civil Engineering - Site Development Surveying - Telecommunications 500 NORTH BROADWAY EAST PROVIDENCE, 02914 PH: (401) 354-2403 FAX: (401) 633-6354</p>	<p>SITE NAME: VT-MA-0231E SITE NAME: NORTH FALMOUTH RT28 ADDRESS: 481 QUAKER ROAD FALMOUTH, MA 02556</p>	<p style="text-align: center;"><b>VIEW #14</b> EXISTING VIEW FROM THE SOUTH, ON WEBSTER STREET</p>	<p>PAGE: V-14E DATE: 10/10/2024 DRAWN BY: MR REVISION: 1</p>
--	--	--	--	--



TEST BALLOON WAS NOT OBSERVED FROM THIS LOCATION - PHOTO TAKEN: 10/04/2024

PREPARED FOR:

**Vertex  
Towers LLC**  
VERTEX TOWERS LLC  
2 COMMERCIAL STREET  
SHARON, MA 02067

PREPARED BY:

**ADVANCED**  
ENGINEERING GROUP, P.C.  
Civil Engineering - Site Development  
Surveying - Telecommunications  
500 NORTH BROADWAY  
EAST PROVIDENCE, 02914  
PH: (401) 354-2403  
FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
SITE NAME: NORTH FALMOUTH RT28  
ADDRESS: 481 QUAKER ROAD  
FALMOUTH, MA 02556

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

PAGE: V-14E2

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1



TEST BALLOON ON 120'± TETHER  
 - PHOTO TAKEN: 10/04/2024

PREPARED FOR:

**Vertex Towers LLC**  
 VERTEX TOWERS LLC  
 2 COMMERCIAL STREET  
 SHARON, MA 02067

PREPARED BY:

**ADVANCED ENGINEERING GROUP, P.C.**  
 Civil Engineering - Site Development  
 Surveying - Telecommunications  
 500 NORTH BROADWAY  
 EAST PROVIDENCE, 02914  
 PH: (401) 354-2403  
 FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
 SITE NAME: NORTH FALMOUTH RT28  
 ADDRESS: 481 QUAKER ROAD  
 FALMOUTH, MA 02556

**VIEW #15**  
 EXISTING VIEW FROM THE SOUTHWEST,  
 ON QUAKER ROAD

PAGE: V-15E

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1





TEST BALLOON ON 120'± TETHER  
 - PHOTO TAKEN: 10/04/2024

PREPARED FOR:

**Vertex  
Towers LLC**  
 VERTEX TOWERS LLC  
 2 COMMERCIAL STREET  
 SHARON, MA 02067

PREPARED BY:

**ADVANCED  
ENGINEERING GROUP, P.C.**  
 Civil Engineering - Site Development  
 Surveying - Telecommunications  
 500 NORTH BROADWAY  
 EAST PROVIDENCE, 02914  
 PH: (401) 354-2403  
 FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
 SITE NAME: NORTH FALMOUTH RT28  
 ADDRESS: 481 QUAKER ROAD  
 FALMOUTH, MA 02556

**VIEW #16**  
 EXISTING VIEW FROM THE SOUTHWEST,  
 PARKING LOT @ OLD SILVER BEACH

PAGE: V-16E

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1



TEST BALLOON WAS OBSERVED FROM THIS LOCATION, OBSCURED BY TREES

PREPARED FOR:

**Vertex Towers LLC**  
 VERTEX TOWERS LLC  
 2 COMMERCIAL STREET  
 SHARON, MA 02067

PREPARED BY:

**ADVANCED ENGINEERING GROUP, P.C.**  
 Civil Engineering - Site Development  
 Surveying - Telecommunications  
 500 NORTH BROADWAY  
 EAST PROVIDENCE, 02914  
 PH: (401) 354-2403  
 FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
 SITE NAME: NORTH FALMOUTH RT28  
 ADDRESS: 481 QUAKER ROAD  
 FALMOUTH, MA 02556

VIEW #17  
 EXISTING VIEW FROM THE SOUTH,  
 ON ADAMIAN DRIVE

PAGE: V-17E

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1



TEST BALLOON WAS OBSERVED FROM THIS LOCATION, OBSCURED BY TREES

PREPARED FOR:

**Vertex  
Towers LLC**  
 VERTEX TOWERS LLC  
 2 COMMERCIAL STREET  
 SHARON, MA 02067

PREPARED BY:

**ADVANCED**  
 ENGINEERING GROUP, P.C.  
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 Surveying - Telecommunications  
 500 NORTH BROADWAY  
 EAST PROVIDENCE, 02914  
 PH: (401) 354-2403  
 FAX: (401) 633-6354

SITE NAME: VT-MA-0231E  
 SITE NAME: NORTH FALMOUTH RT28  
 ADDRESS: 481 QUAKER ROAD  
 FALMOUTH, MA 02556

**VIEW #18**  
 EXISTING VIEW FROM THE NORTH  
 ON ARTHUR STREET

PAGE: V-18E

DATE: 10/10/2024

DRAWN BY: MR

REVISION: 1

6

# VT-MA-0231E

## NORTH FALMOUTH RT28

481 QUAKER ROAD  
FALMOUTH, MA 02556  
BARNSTABLE COUNTY

SITE NO: VT-MA-0231E

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

**AEG ADVANCED**  
ENGINEERING GROUP, P.C.  
Civil Engineering - Site Development  
Surveying - Telecommunications  
500 North Broadway  
East Providence, RI 02914  
Tel: (401) 354-2403  
Fax: (401) 635-6354



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
4	10/10/24	REVISED

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**NORTH FALMOUTH RT28**

481 QUAKER ROAD  
FALMOUTH, MA 02556  
BARNSTABLE COUNTY

SHEET TITLE

TITLE SHEET

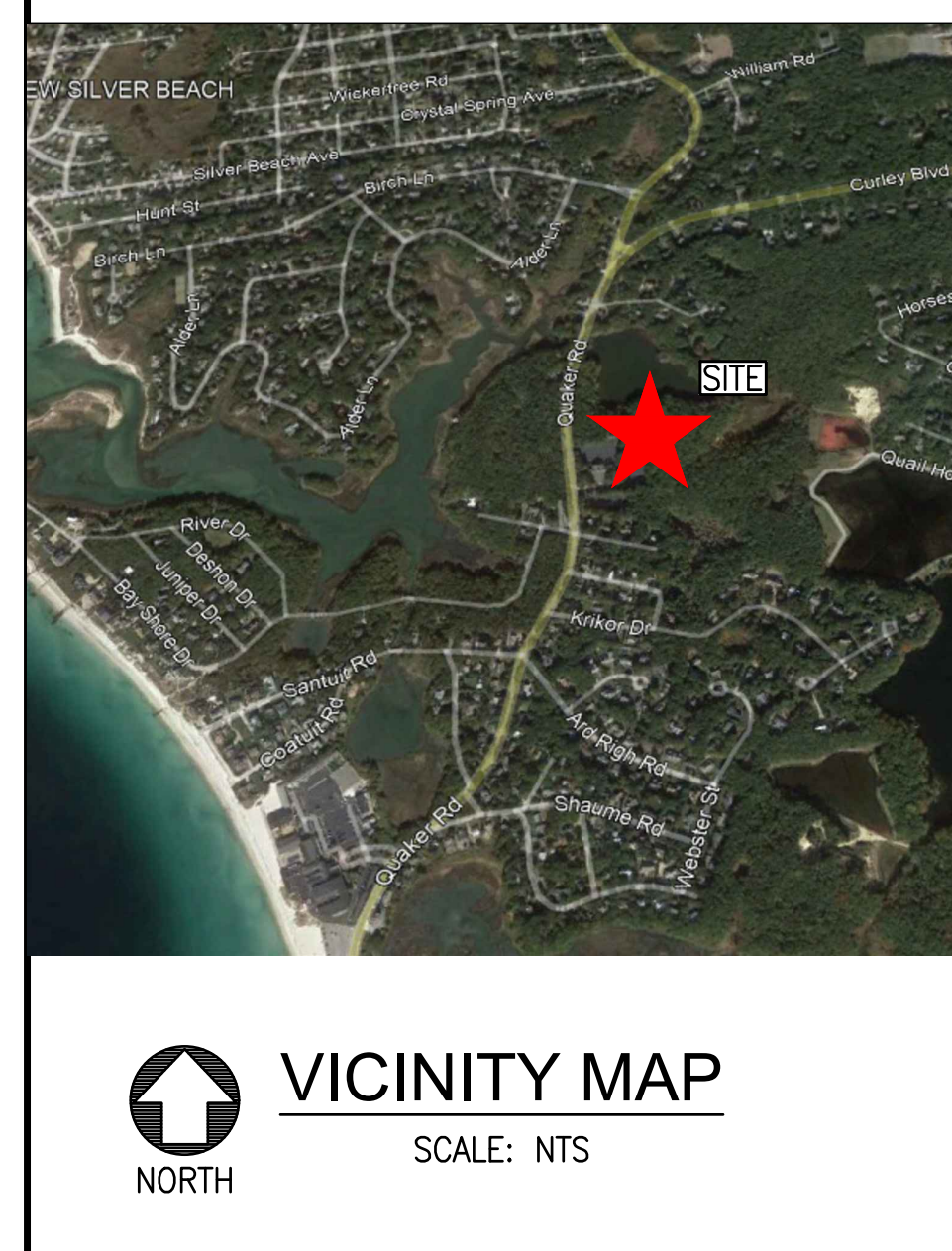
SHEET NUMBER

**T-1**

### GENERAL NOTES

- 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 REGARDING 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.
- THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BEING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE LESSEE/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.
- 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.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BID 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.
- 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.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / OWNER'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- 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.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- 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.
- 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.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBS, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- 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. PROGRESS SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMOUGES OF ANY NATURE.
- THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
- THE CONTRACTOR SHALL NOTIFY THE LESSEE/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 LESSEE/LICENSEE REPRESENTATIVE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
- 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
- ALL DIMENSIONS SHOWN THEREON ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTOR'S WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH PROJECT OWNER PRIOR TO CONSTRUCTION.
- NORTH ARROW SHOWN ON PLANS REFERS TO APPROXIMATE TRUE NORTH. PRIOR TO THE START OF CONSTRUCTION, GROUND OR FABRICATING OF ANTENNA MOUNTS, CONTRACTOR SHALL CONSULT WITH PROJECT OWNER'S RF ENGINEER AND FIELD VERIFY ALL ANTENNA SECTOR LOCATIONS AND ANTENNA AZIMUTHS.
- 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.
- ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
- 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. CONSTRUCTION HARDWARE SHALL BE STAINLESS STEEL.
- WHEN "PANT TO MATCH" IS SPECIFIED FOR ANTENNA CONCEALMENT, PAINT PRODUCT FOR ANTENNA RADOME SHALL BE SHERWIN WILLIAMS CORINTHIAN II. SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND PROJECT OWNER'S GUIDELINES.
- 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.
- ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
- 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.
- 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.
- 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.
- DURING CONSTRUCTION PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS.
- 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.  
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 (A/L) FOR THE LOCATION. THE EDITION OF THE A/L ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

### VICINITY MAP



### SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	4
C-1	ORTHO PLOT PLAN	4
C-2	EXISTING CONDITON PLAN	4
C-3	ORTHO SITE PLAN	4
Z-1	PROPOSED SITE PLAN	4
Z-2	PROPOSED COMPOUND PLAN AND ELEVATION	4
Z-3	DETAILS	4
EC-1	EROSION CONTROL	4

### ZONING NOTE:

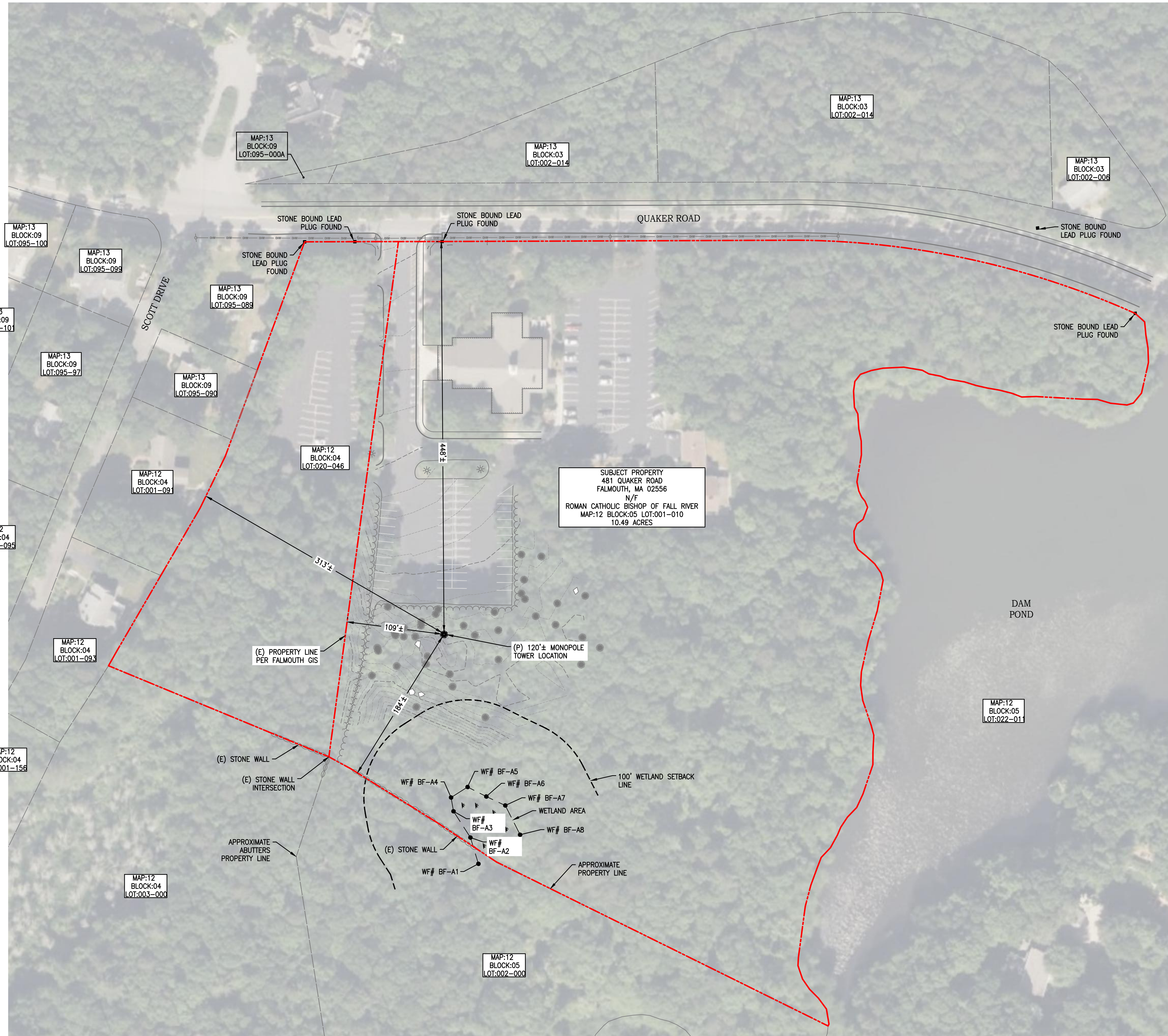
PER SECTION 5.1.10 AND 5.1.11 OF THE KENSINGTON ZONING THE PLANNING BOARD SHALL SET THE FORM AND AMOUNT OF SECURITY THAT REPRESENTS THE COST FOR REMOVAL AND DISPOSAL OF ABANDONED TOWERS IN THE EVENT THE TOWER IS ABANDONED AND THE TOWER OWNER IS INCAPABLE AND UNWILLING TO REMOVE THE TOWER IN ACCORDANCE WITH 5.1.11. ALL SECURITY SHALL BE MAINTAINED FOR THE LIFE OF THE TOWER. ORDINANCE 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.



**ORTHOPLOT PLAN**  
 SCALE: 1"=60'  
 NORTH

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:**
- FIELD SURVEY DATE: JANUARY 27, 2023
  - VERTICAL DATUM: NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
  - HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83)
  - CENTER OF PROPOSED TOWER: LATITUDE: 41° 37' 52.70" N  
LONGITUDE: 70° 37' 52.72" W  
ELEVATION: 42'± AMSL
  - PROPERTY OWNER: ROMAN CATHOLIC BISHOP OF FALL RIVER  
C/O ST ELIZABETH SETON PARISH  
P.O. BOX 681  
NORTH FALMOUTH, MA 02556
  - SITE NUMBER: VT-NH-0231
  - SITE ADDRESS: 481 QUAKER ROAD  
FALMOUTH, MA 02556
  - APPLICANT, LESSEE/LICENSEE & PROJECT OWNER: VERTEX TOWERS, LLC  
2 COMMERCIAL STREET  
SHARON, MA 02067
  - JURISDICTION: TOWN OF FALMOUTH
  - TAX ID: MAP:12 BLOCK:05 LOT:001-010
  - DEED REFERENCE: BOOK: 00187 PAGE: 0054
  - ZONING JURISDICTION: RB - SINGLE RESIDENCE B
  - 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
  - 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.
  - WETLANDS WERE NOT OBSERVED WITHIN 100' OF THE LIMIT OF WORK. WETLAND LOCATION PER ECOSYSTEM SOLUTIONS INC. WETLAND REPORT DATED 1/23/2023.
  - 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.
  - BEARING SYSTEM OF THIS PLAN IS BASED ON TRUE NORTH. TRUE NORTH WAS ESTABLISHED FROM GPS READINGS ON JANUARY 27, 2023.
  - 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
  - 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.
  - 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.
  - 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

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

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

**SCOTT M. ADAMS CIVIL ENGINEER**  
 No. 46008  
 REGISTERED PROFESSIONAL ENGINEER

AEG PROJECT #: 2023-0008

DRAWN BY: MFR

CHECKED BY: SNA

SUBMITTALS

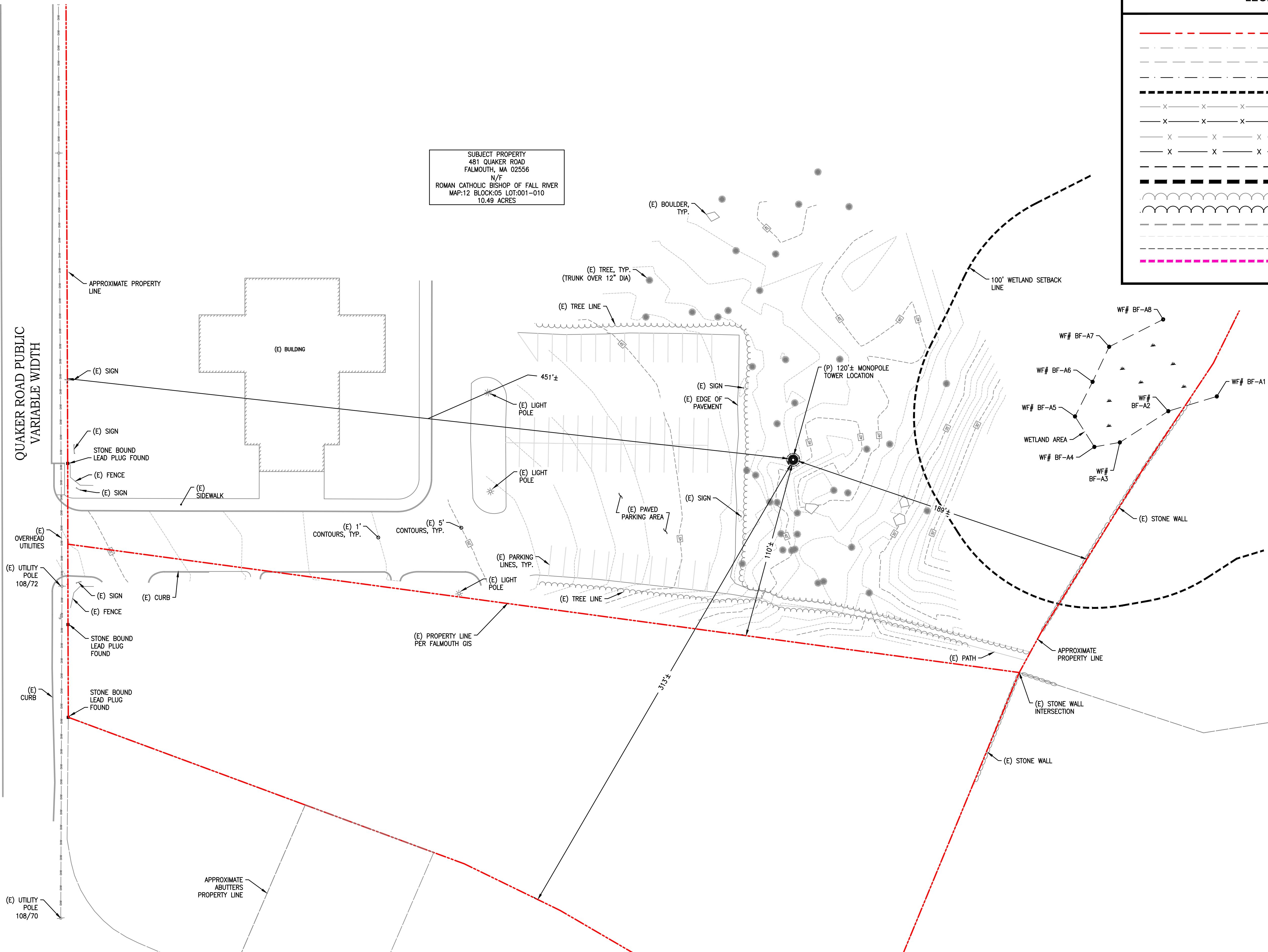
REV#	DATE	DESCRIPTION
0	03/16/23	ISSUED FOR REVIEW
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4	10/10/24	REVISED

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

SHEET TITLE  
 ORTHO PLOT PLAN

SHEET NUMBER  
**C-1**



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

QUAKER ROAD PUBLIC VARIABLE WIDTH

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

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

**ADVANCED ENGINEERING GROUP, P.C.**  
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 500 North Broadway  
 East Providence, RI 02914  
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AEG PROJECT #: 2023-0008

DRAWN BY: MFR

CHECKED BY: SNA

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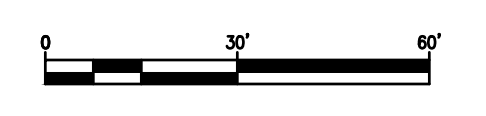
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**NORTH FALMOUTH RT28**  
 481 QUAKER ROAD  
 FALMOUTH, MA 02556  
 BARNSTABLE COUNTY

SHEET TITLE  
 EXISTING CONDITIONS PLAN

SHEET NUMBER  
**C-2**

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





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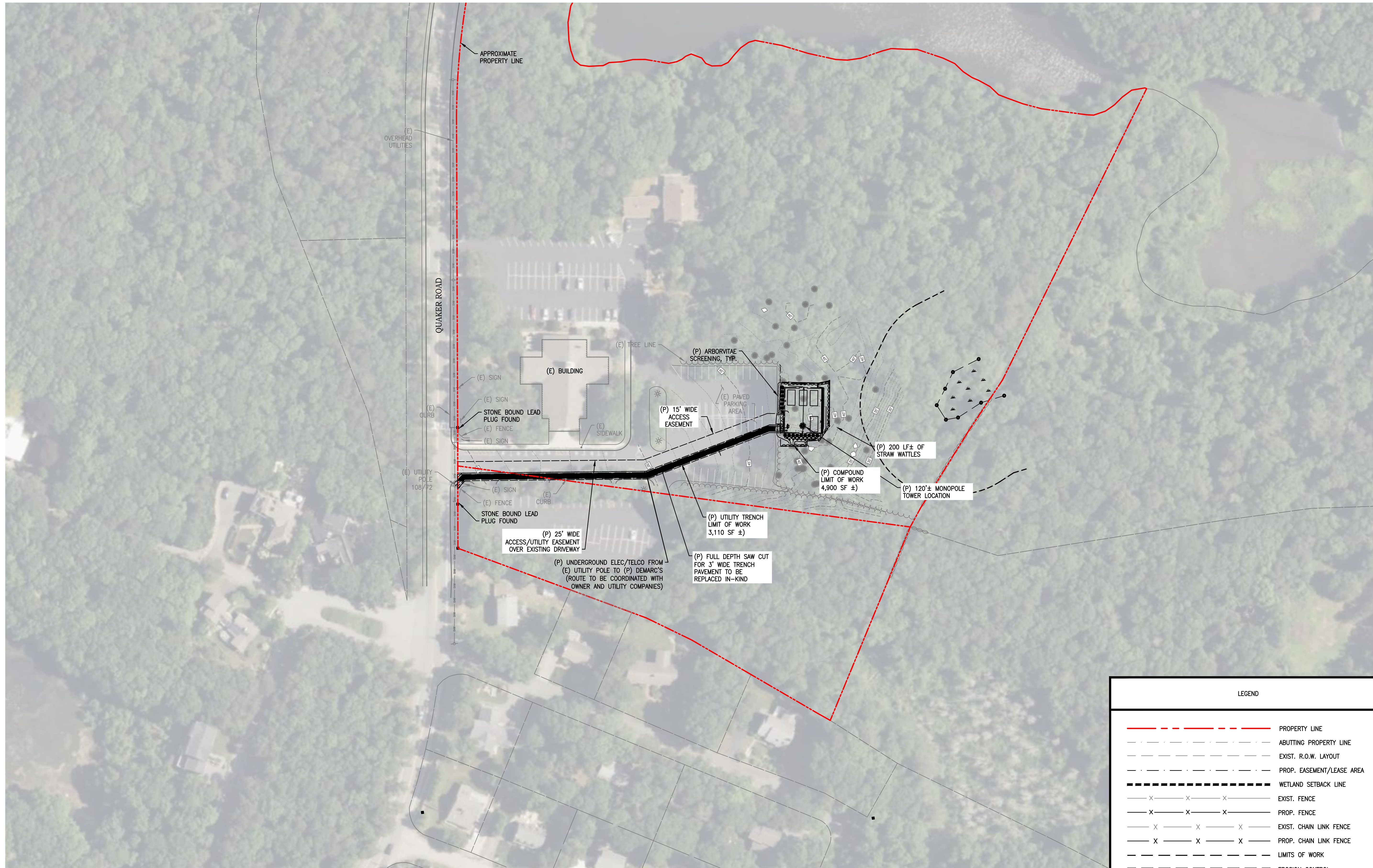
481 QUAKER ROAD  
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BARNSTABLE COUNTY

SHEET TITLE

ORTHO SITE PLAN

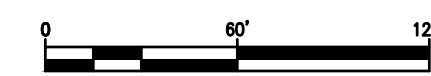
SHEET NUMBER

**C-3**



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

**ORTHO SITE PLAN**  
SCALE: 1"=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
	EROSION CONTROL
	EXIST. EDGE OF TREE CANOPY
	PROP. EDGE OF TREE CANOPY
	5' MAJOR CONTOURS
	1' MINOR CONTOURS
	WETLAND LINE
	ZONING 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

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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Professional Engineer Seal for Scott M. Adams, No. 48608, State of Massachusetts.

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SUBMITTALS

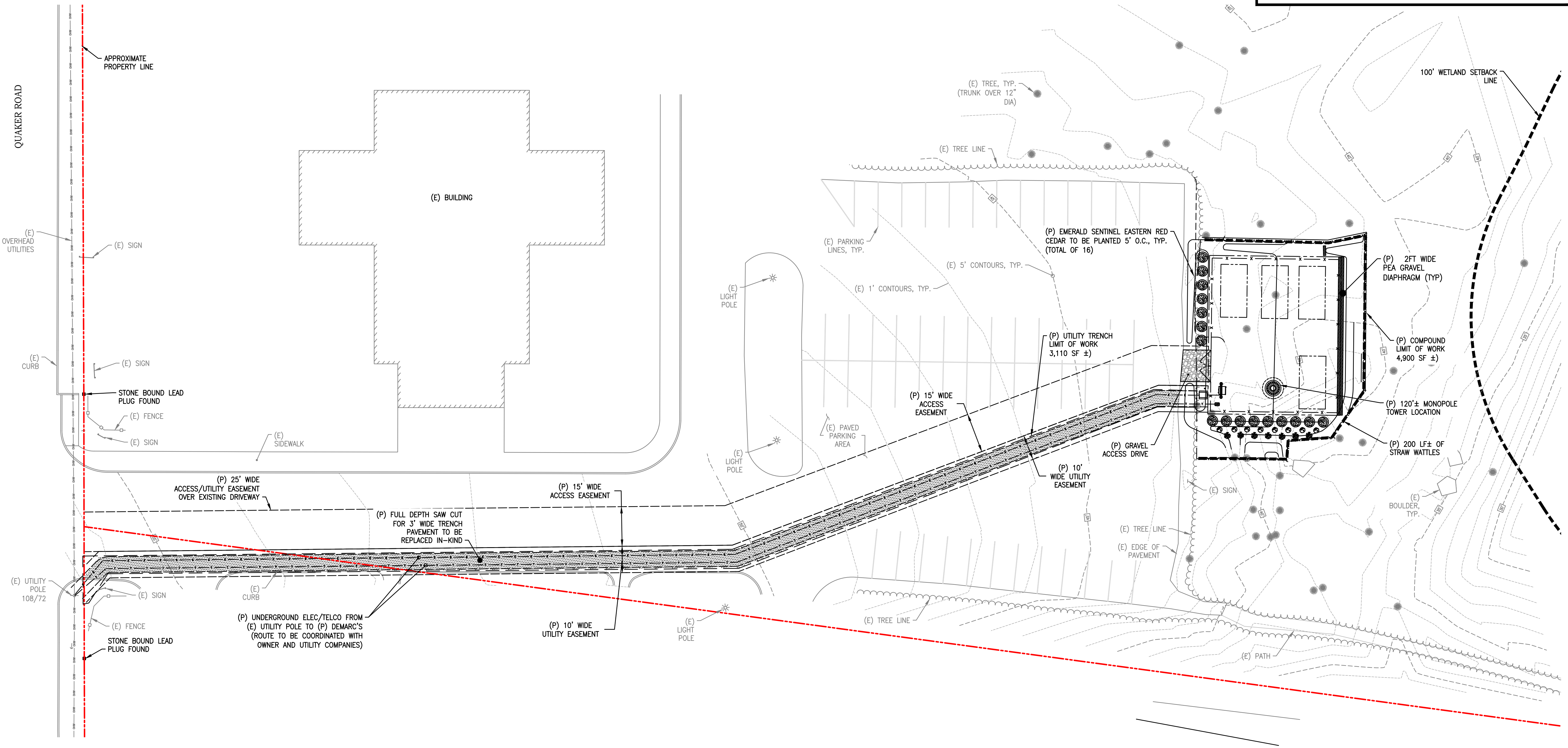
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**NORTH FALMOUTH RT28**  
 481 QUAKER ROAD  
 FALMOUTH, MA 02556  
 BARNSTABLE COUNTY

SHEET TITLE  
 PROPOSED SITE PLAN

SHEET NUMBER  
**Z-1**



**PROPOSED SITE PLAN**  
 SCALE: 1"=50'  
 NORTH

### SITE AREA CALCULATIONS

TOTAL LIMIT OF WORK - COMPOUND AREA (L.O.W.)	4,900 S.F.
PERMANENT DISTURBED AREA W/IN L.O.W.	3,100 S.F.
TEMPORARY DISTURBED AREA W/IN L.O.W.	1,800 S.F.
IMPERVIOUS AREA - ALLOWANCE	500 S.F.

### 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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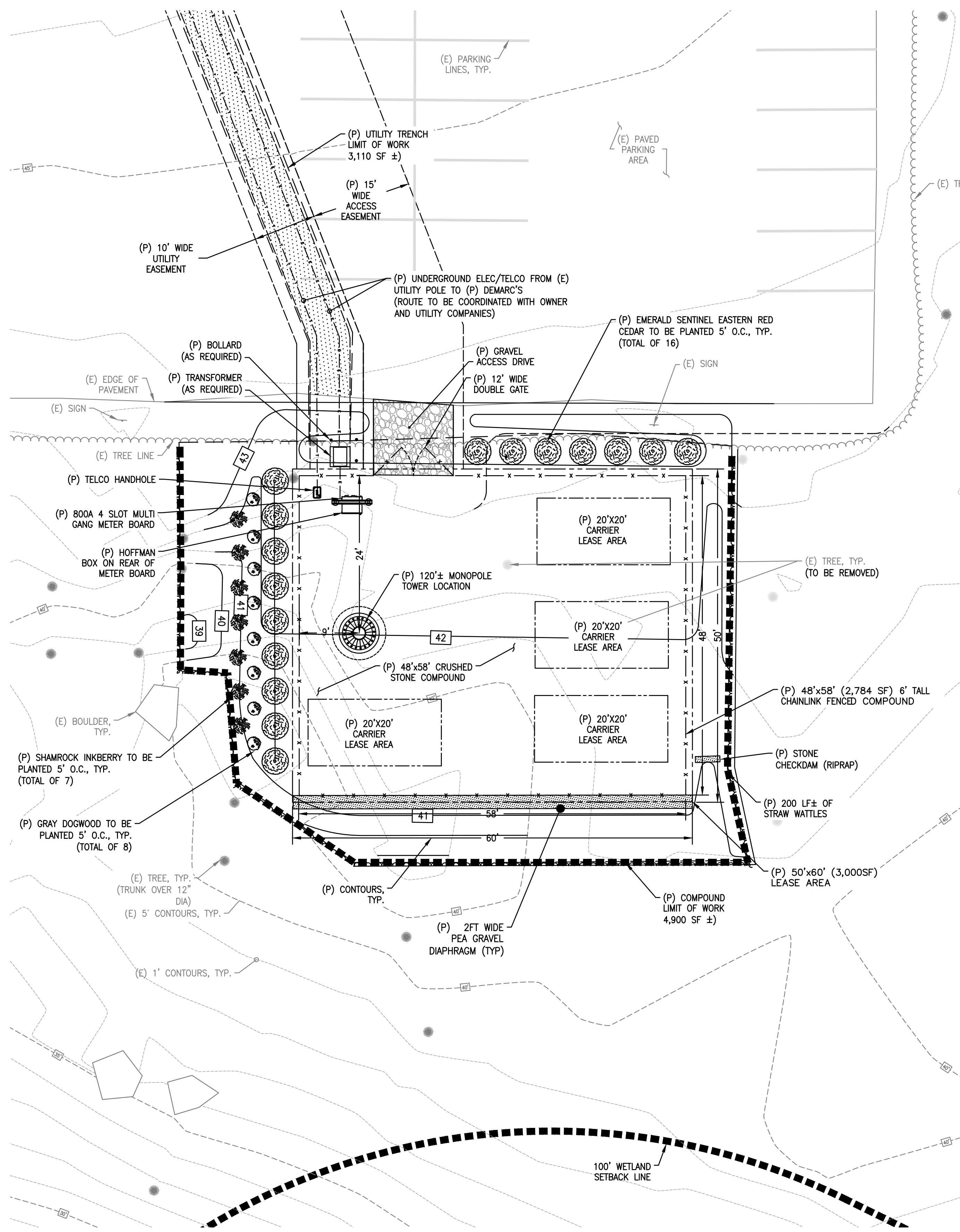
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 BARNSTABLE COUNTY

SHEET TITLE

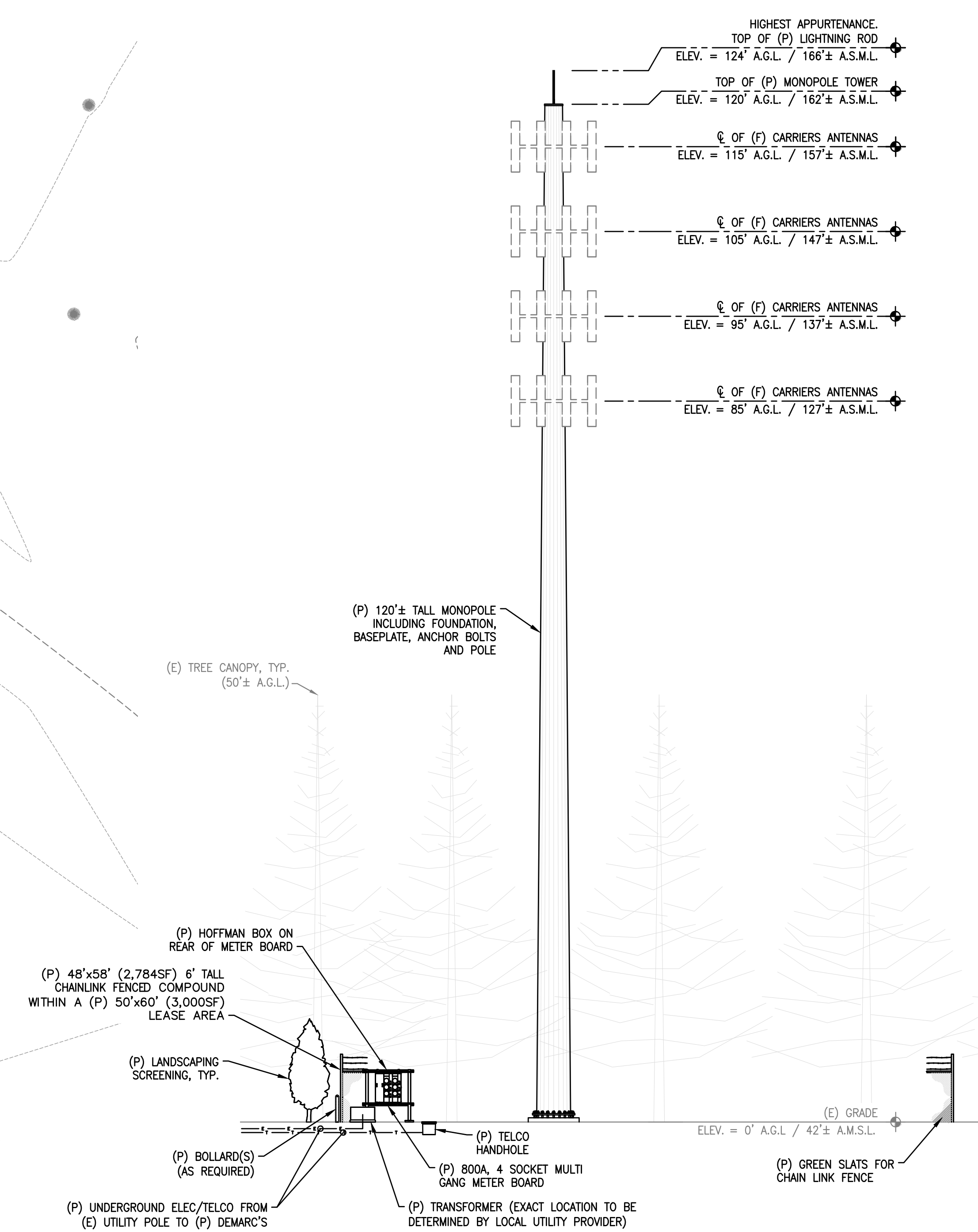
PROPOSED COMPOUND  
 PLAN AND ELEVATION

SHEET NUMBER

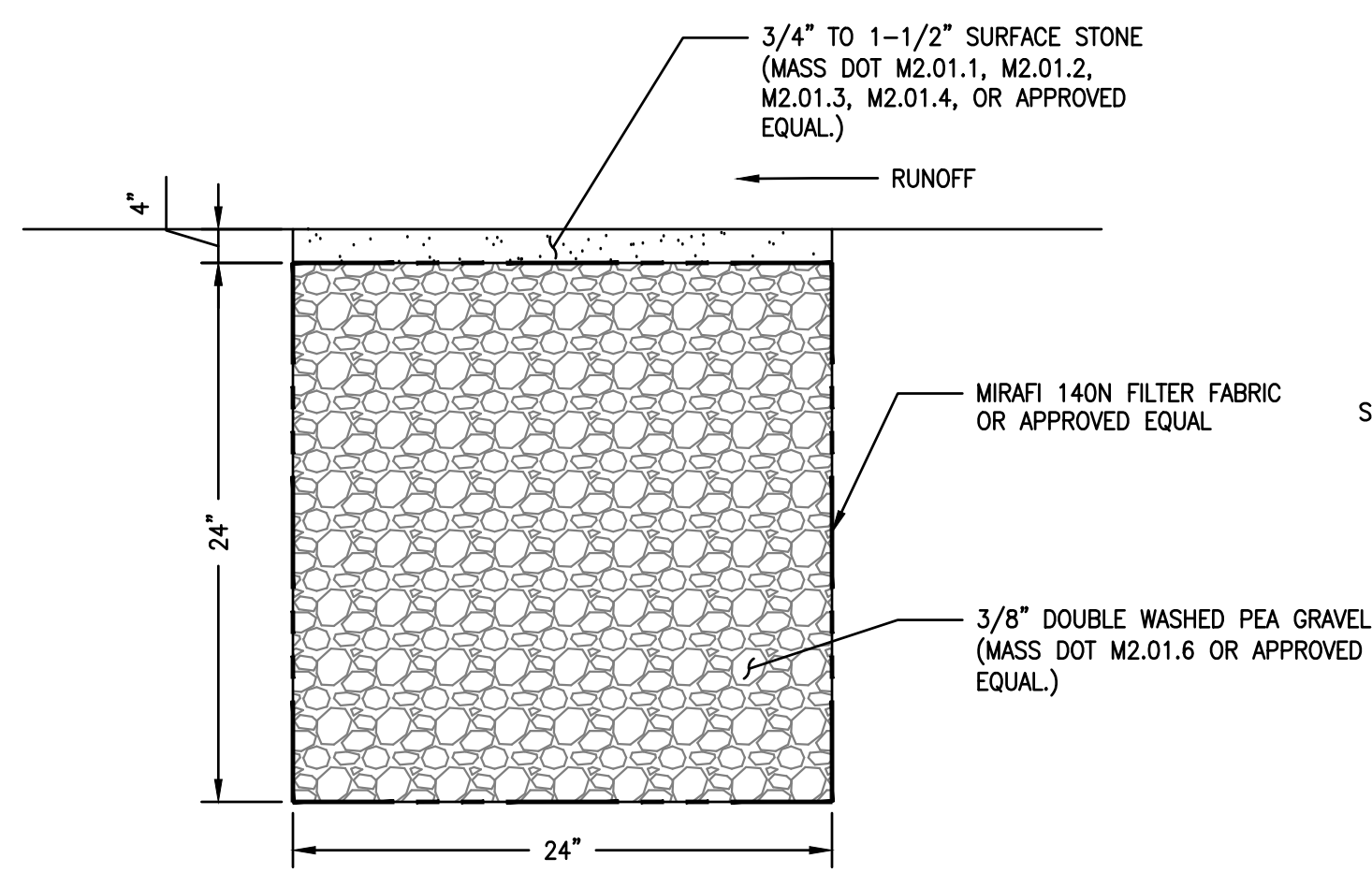
**Z-2**



**1 PROPOSED COMPOUND PLAN**  
 SCALE: 1"=10'  
 NORTH

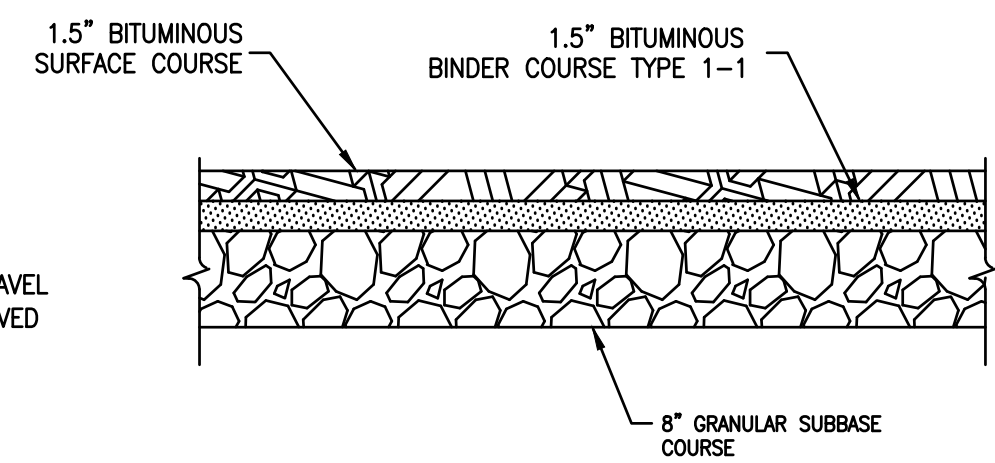


**2 ELEVATION**  
 SCALE: 1"=10'

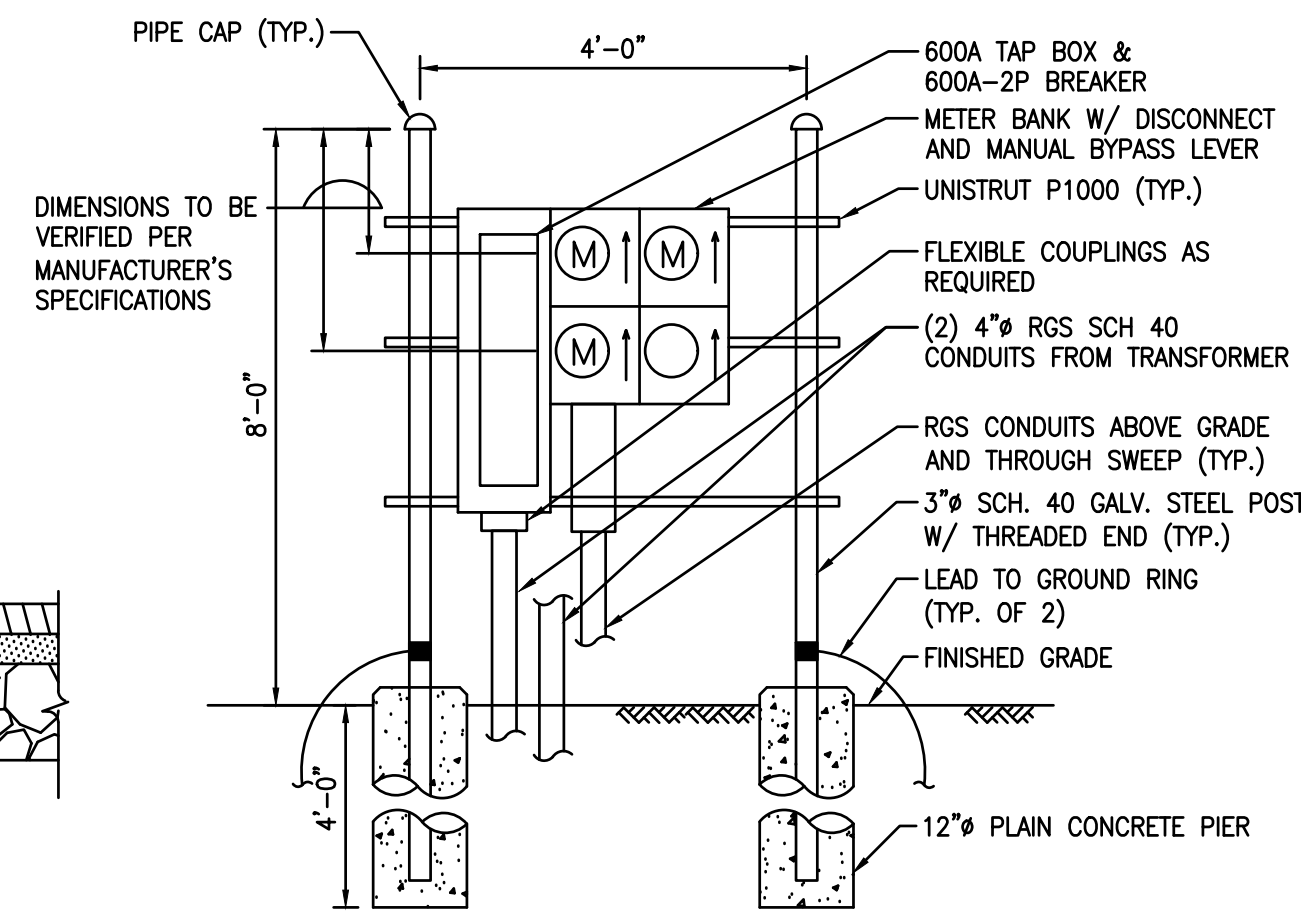


NOTE:  
PEA GRAVEL DIAPHRAGM SHALL BE INSTALLED  
AROUND DOWNHILL SIDE OF FENCED COMPOUND.

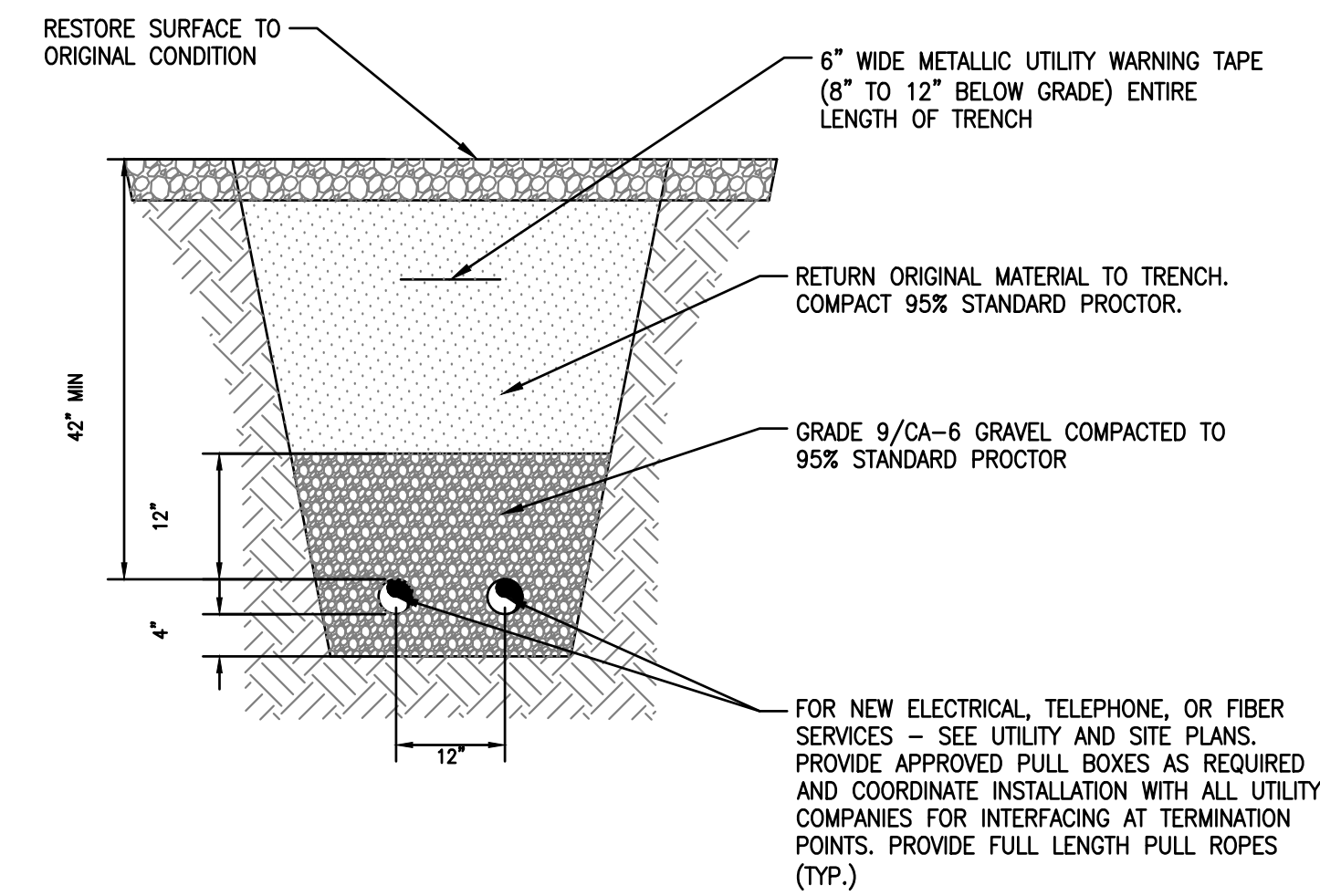
4 PEA GRAVEL DIAPHRAGM DETAIL  
Z-3 SCALE: N.T.S.



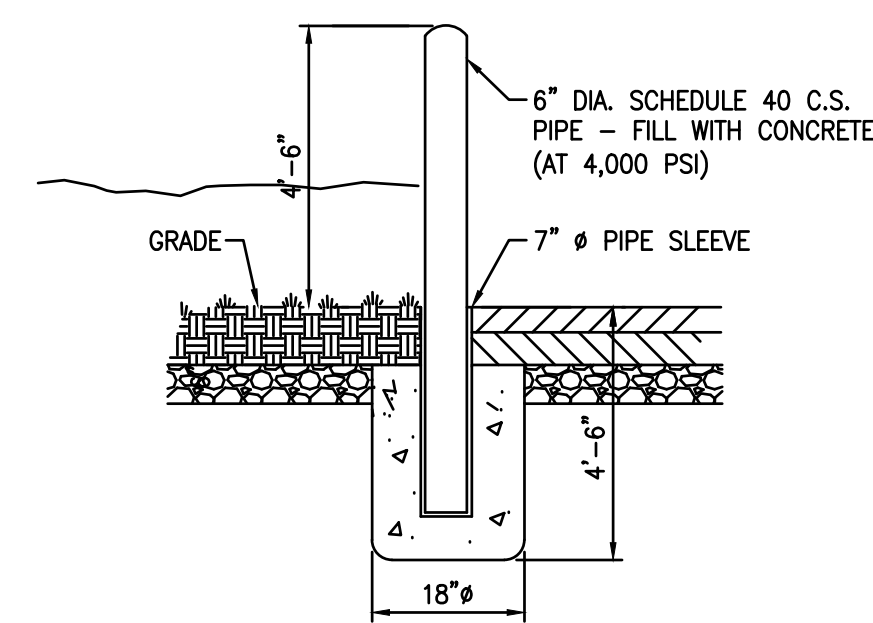
1 BITUMINOUS CONCRETE DETAIL  
Z-3 SCALE: N.T.S.



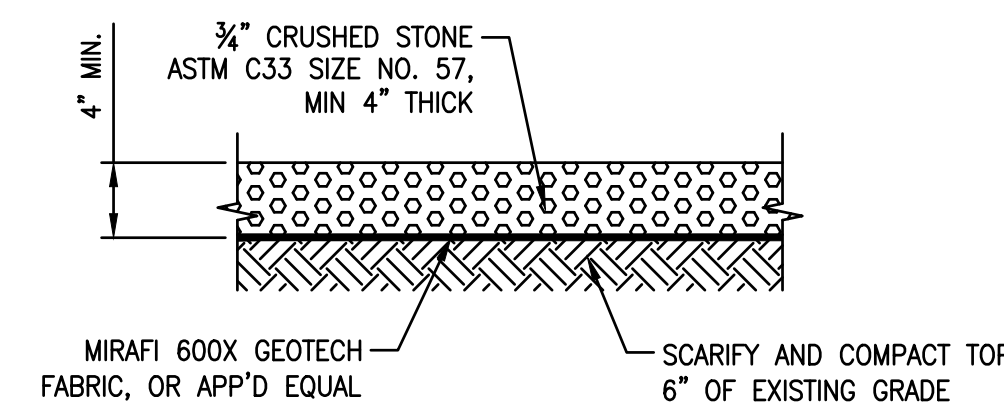
2 METER BOARD DETAIL  
Z-3 SCALE: N.T.S.



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

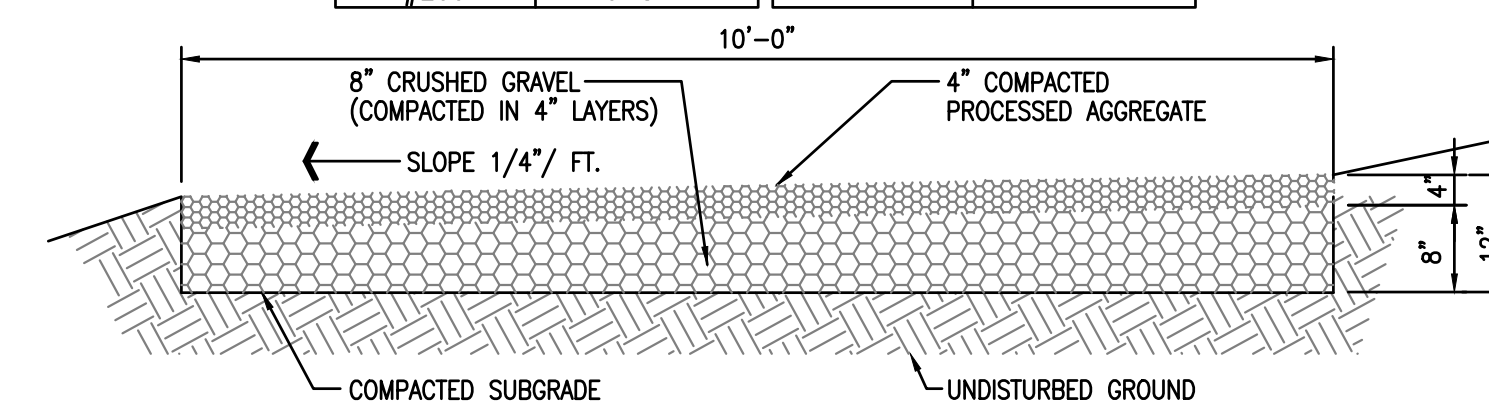


5 BOLLARD DETAIL  
Z-3 SCALE: N.T.S.

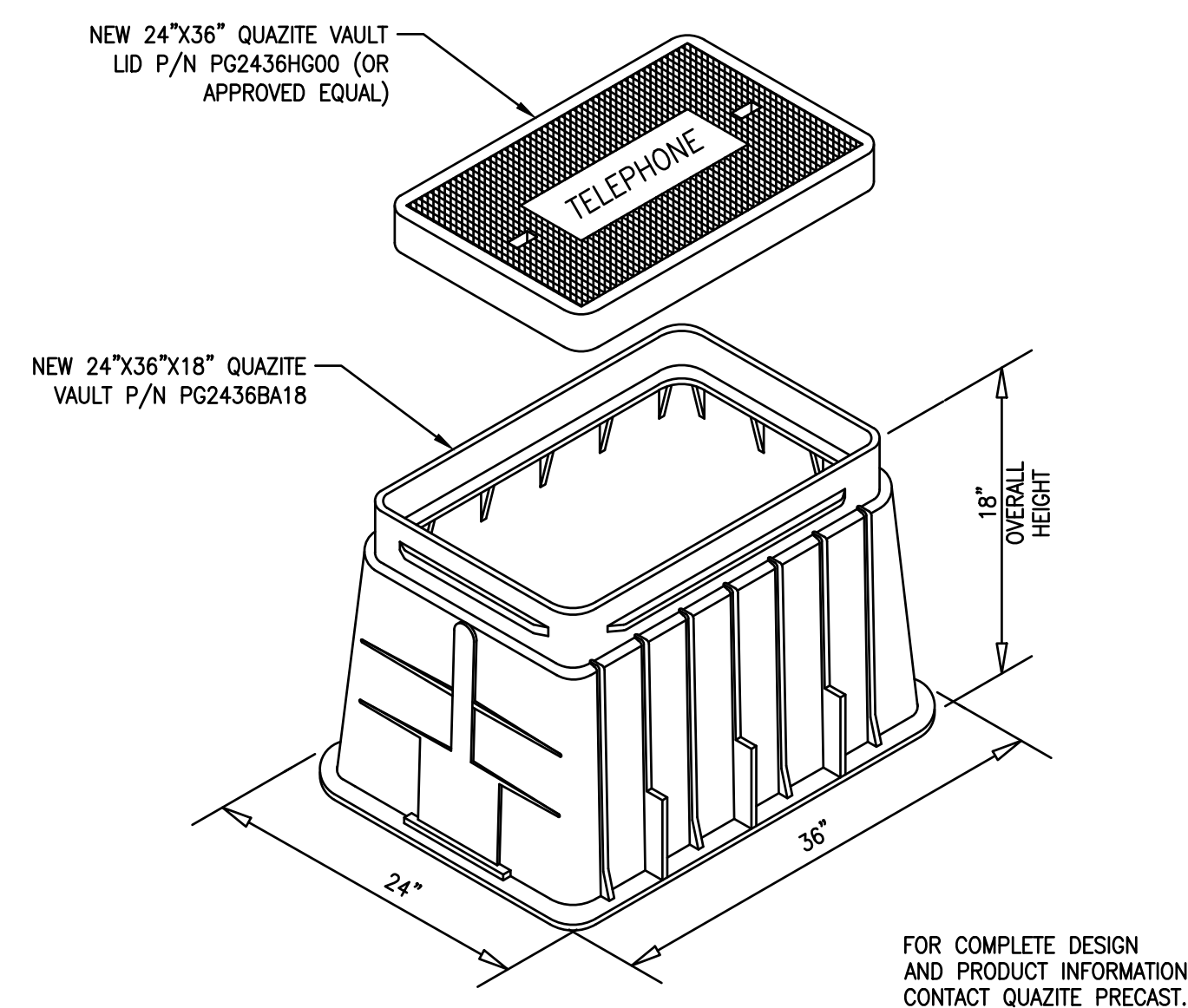


6 GRAVEL COMPOUND DETAIL  
Z-3 SCALE: N.T.S.

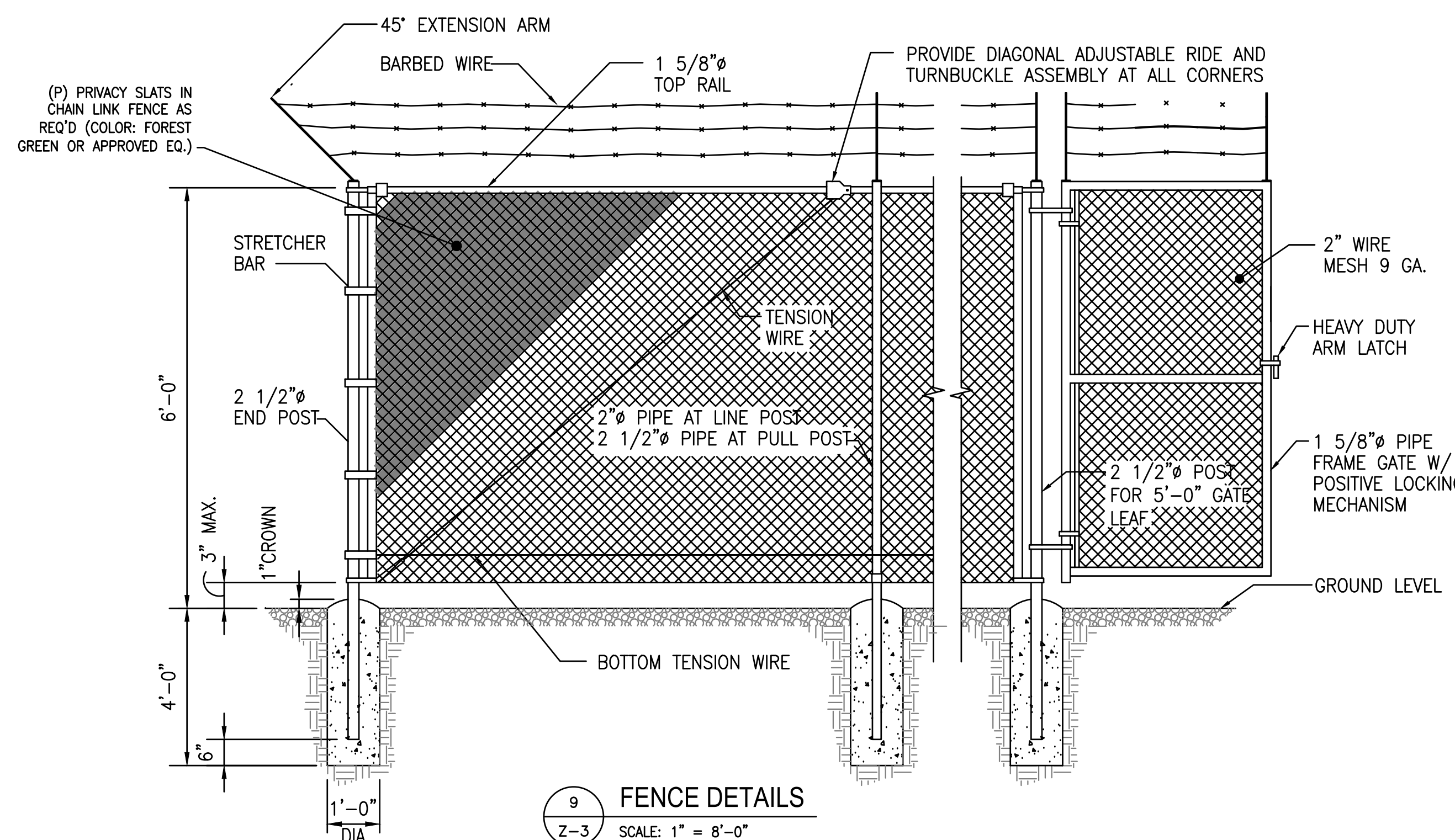
CRUSHED GRAVEL		PROCESSED AGGREGATE	
SIEVE	% PASSING BY WEIGHT	SIEVE	% PASSING BY WEIGHT
5"	100	2 1/4"	100
3 1/2"	95-100	2"	95-100
1 1/2"	55-95	3/4"	50-75
1/4"	25-60	1/4"	25-45
#10	15-45	#40	5-20
#40	5-25	#100	2-12
#100	0-10		
#200	0-5		



7 GRAVEL ACCESS CROSS SECTION  
Z-3 SCALE: N.T.S.



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

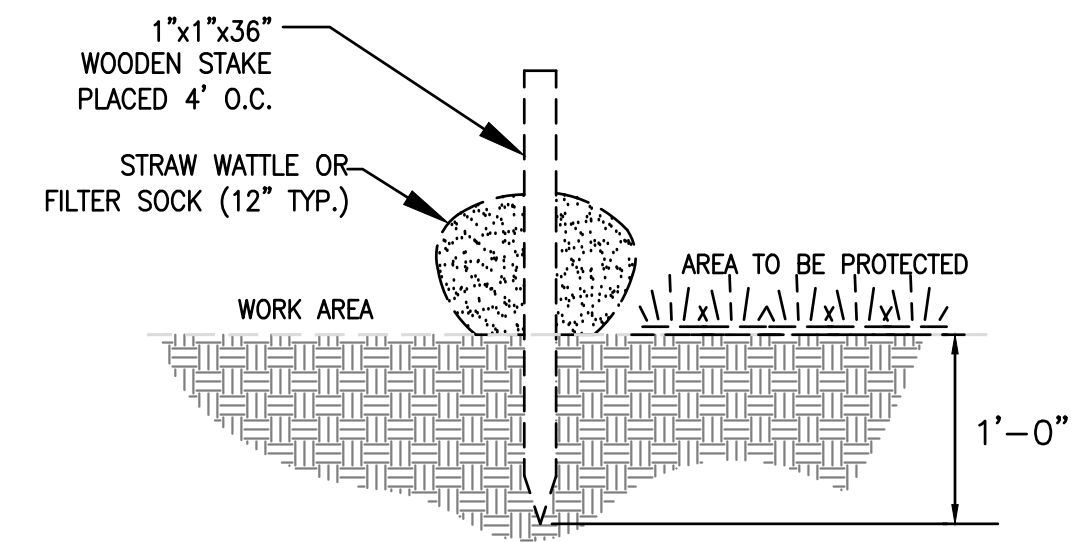
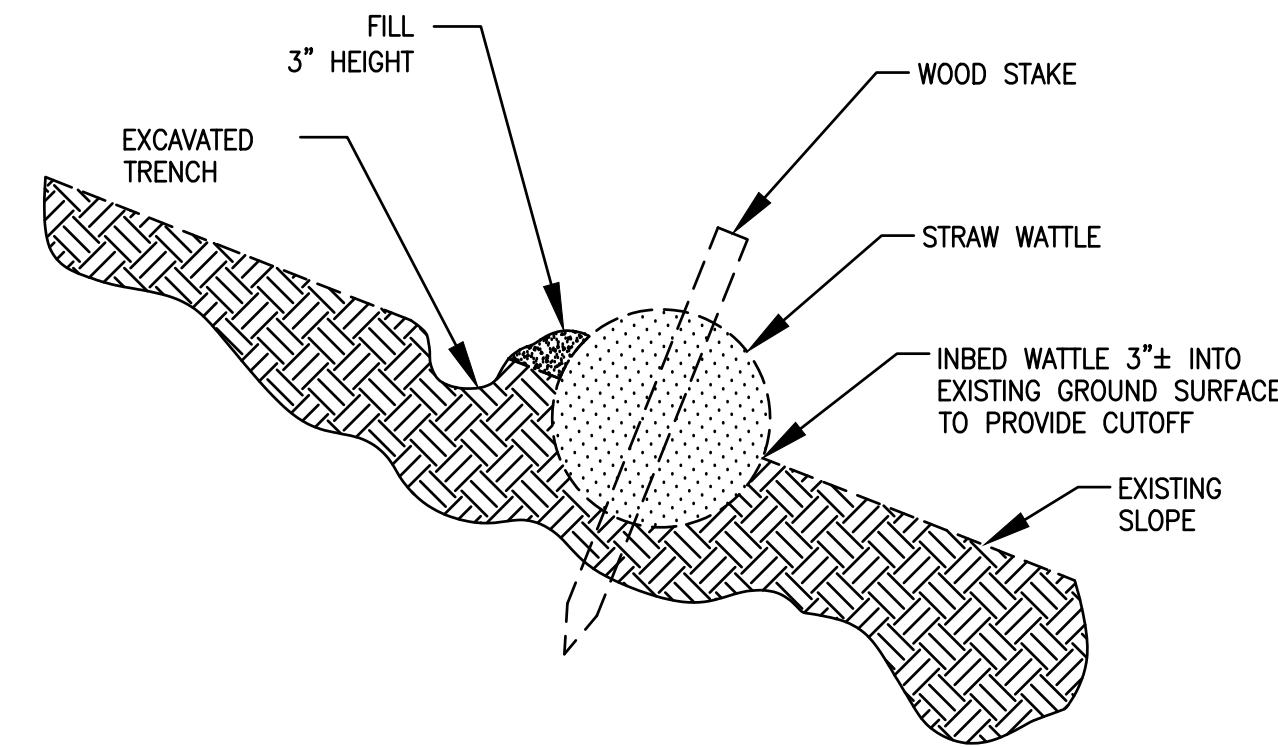
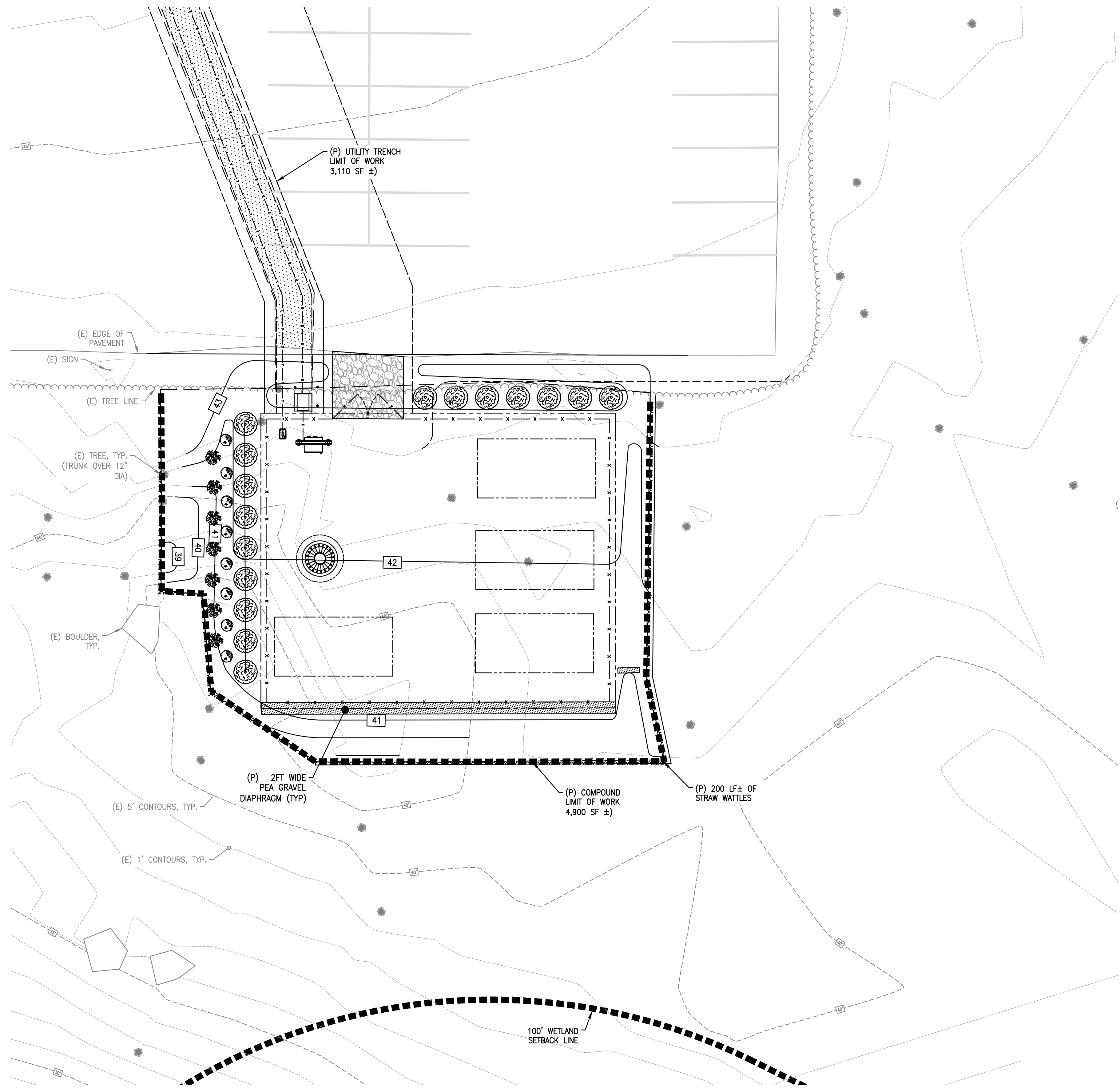


9 FENCE DETAILS  
Z-3 SCALE: 1" = 8'-0"

**FENCE NOTES:**

- INSTALL FENCING PER ASTM F-567, SWING GATE PER ASTM F-900.
- 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.
- FABRIC SHALL BE 12 GA. CORE WIRE SIZE 2" MESH CONFORMING TO ASTM A-392.
- TENSION WIRE SHALL BE 7 GA. GALV. STEEL.
- 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.
- 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.
- 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" LEAF. REFER TO TYPICAL FENCE DETAIL FOR ADDITIONAL INFORMATION. INSTALL FENCE AFTER CONCRETE HAS ATTAINED 75% OF 28 DAY DESIGN STRENGTH.
- SCREENING SLATS SHALL BE INSTALLED ON PROPOSED FENCING (COLOR: GREEN OR AS DET'S BY PROJECT OWNER)
- COMPLY WITH LOCAL ORDINANCES OF BARBED WIRE PERMIT REQUIREMENTS, IF REQUIRED.

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1 EROSION CONTROL BARRIER DETAIL  
 EC-1 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 CONTROL 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, WHETHER 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.

1 EROSION CONTROL PLAN  
 EC-1 SCALE: 1"=10'  
 NORTH

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SHEET TITLE  
 EROSION CONTROL PLAN

SHEET NUMBER  
**EC-1**