

Aesthetic Analysis and Orderly Development Review

Industrial Tower and Wireless, LCC Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Case Number 22-2120-PET

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December 2022

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1.0 INTRODUCTION

1.1 Purpose of the Investigation

At the request of the Vermont Department of Public Service, Environmental Design & Research, D.P.C. (EDR) conducted an independent aesthetics analysis and orderly development review for the proposed Industrial Tower and Wireless, LLC (ITW; the Applicant) Telecommunication Facility (the Facility) located in the Town of Enosburgh, Franklin County, Vermont. In accordance with the requirements of 30 V.S.A § 248a, the purpose of this report is to evaluate the aesthetic effects of the Facility utilizing the two-part Quechee Analysis and evaluate the whether the Facility's will interfere with the orderly development of the region as dictated in town and regional planning documents. This visual assessment and orderly development report was prepared by environmental professionals with educational and career experience in the evaluation of visual impact and public planning.

Recognizing the requirements of 30 V.S.A § 248a, this report will:

- Define a visual study area (VSA).
- Describe the existing landscape character within the VSA.
- Inventory and evaluate open space resources within the VSA.
- Evaluate the accuracy of the simulations produced by the Applicant.
- Evaluate the potential Facility visibility within the VSA.
- Evaluate whether the Facility's will interfere with the orderly development of the region as dictated in town and regional planning documents.

1.2 Facility Description

The Facility is proposed on an approximately 209.6-acre parcel in the Town of Enosburgh, Franklin County, Vermont (referred to throughout the report as Facility Site). The actual "footprint" of the Facility, as defined by the Facility's anticipated limit of disturbance, will be approximately 0.6 acres. The Facility Site is roughly bounded by Bordoville Road to the north and Vermont Route 108 to the east. Land use in the Facility Site consists primarily of forested land except for a cleared field surrounding the farm complex, located on the eastern portion of the parcel off Vermont Route 108, and a small field located in the northern portion of the parcel where the Facility is proposed.

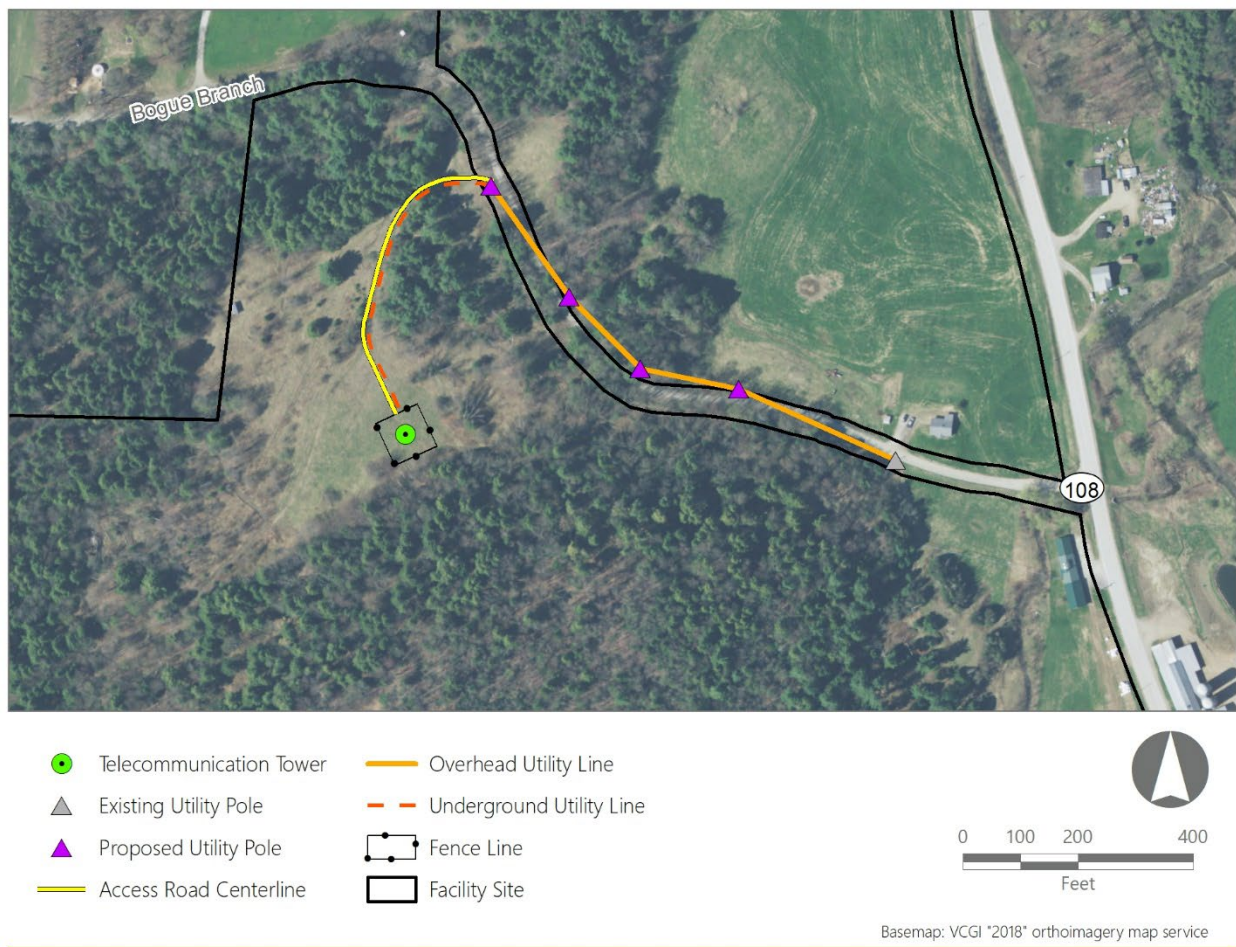
The proposed Facility consists of a 140-foot-tall, free standing telecommunication tower (henceforth referred to as the "tower") consisting of steel members that are assembled to form a triangular lattice structure. Five 13-foot-tall fiberglass antennas will be situated atop the lattice structure, resulting in a total structure height of 153-feet above ground level. It is anticipated, based upon the photosimulations produced by the Applicant, that the tower finish will be unpainted galvanized steel. The tower will be located within an 80-foot by 80-foot gravel surfaced area that is surrounded by an 8-foot-tall chain link security

fence. Ancillary structures include a transformer, which will be located just outside the fence, and an equipment cabinet which will be located inside the fence at the base of the tower.

Other Facility components include an approximately 12' wide gravel access road to Bordoville Road that roughly follows the alignment of an existing trail, an underground utility line that follows the proposed access road alignment, and an overhead utility line along Bordoville Road that would be supported by utility pole structures. Tree clearing and site grading is also proposed to accommodate the Facility and create a uniform slope along the access road. Due to its height and size, the tower will be the most visible component of the Facility and will have the greatest potential visual impact and will therefore be the focus of the analyses presented in this report.

The arrangement of the Facility components is shown in Figure 1.2-1.

Figure 1.2-1 Facility Layout



2.0 METHODOLOGY

2.1 Quechee Analysis

In accordance with the requirements of 30 V.S.A § 248a and 10 V.S.A § 6086 subsection (a)(8), the aesthetic effects of the Facility are assessed utilizing the two-part Quechee Analysis that is defined in numerous Vermont Environmental Board decisions and summarized in Chapter 16 of *District Environmental Commission Training Manual* published by the State of Vermont Natural Resources Board (VT NRB, 2013). Pursuant to this procedure, the following factors will be evaluated in the first part of the analysis to reach a determination as to whether the Facility will have an adverse impact on the aesthetics of the area:

The nature of the project's surroundings, the compatibility of the project's design with those surroundings, the suitability for the project's context of colors and materials selected for the project, the locations from which the project can be viewed, and the potential impact of the project on open space.

If it is concluded that the project will result in an adverse impact on aesthetics of the area, the second part of the analysis is initiated in order to determine whether any adverse effect of the action is "undue". An adverse effect is considered to be undue when a positive finding is reached regarding any of the following factors:

Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?

Does the project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic quality of the area?

Has the applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the project with its surroundings?

2.2 Orderly Development Review

Section 248a(c)(2) of Title 30 of the Vermont Statutes states that "*unless there is good cause to find otherwise, substantial deference has been given to the plans of the affected municipalities; to the recommendations of the municipal legislative bodies and the municipal planning commissions regarding the municipal plans; and to the recommendations of the regional planning commission concerning the regional plan. Nothing in this section or other provision of law shall prevent a municipal body from basing its recommendations to which substantial deference is required under this subdivision (2) on an ordinance adopted under 24 V.S.A. §2291(19) or bylaw adopted under 24 V.S.A. chapter 117 by the municipality in which the facility is located. A rebuttable presumption respecting compliance with the applicable plan shall be created by a letter from an affected municipal legislative body or municipal planning commission concerning compliance with the municipal plan and by a letter from a regional planning commission concerning compliance with the regional plan.*"

A review of regional and municipal plans was conducted to inform a decision as to whether the Facility is consistent with the established land use regulations for development included within the municipal and regional planning provisions (see Section 6.0). The State of Vermont issued its Determination of Energy Compliance for the Northwest Regional Plan and Regional Energy Plan in 2017.

2.3 Visual Study Area

Based on EDR's experience assessing visual effects of projects with comparable size, visual characteristics, and landscape settings, a two-mile radius around the proposed tower was defined as the VSA. To further validate that the selected VSA was appropriate and conservative, a lidar-based viewshed analysis was conducted (see Section 4.0) to predict the extent of Facility visibility. The results of this analysis suggest that Facility visibility beyond 1.5-miles is very limited and, therefore, it was concluded that the 2-mile radius conservatively defines the Facility's area of potential effect. The VSA covers approximately 12.6 square miles and is shown in Figure 2.3-1. The towns and cities that fall within the VSA are identified in Table 2.3-1.

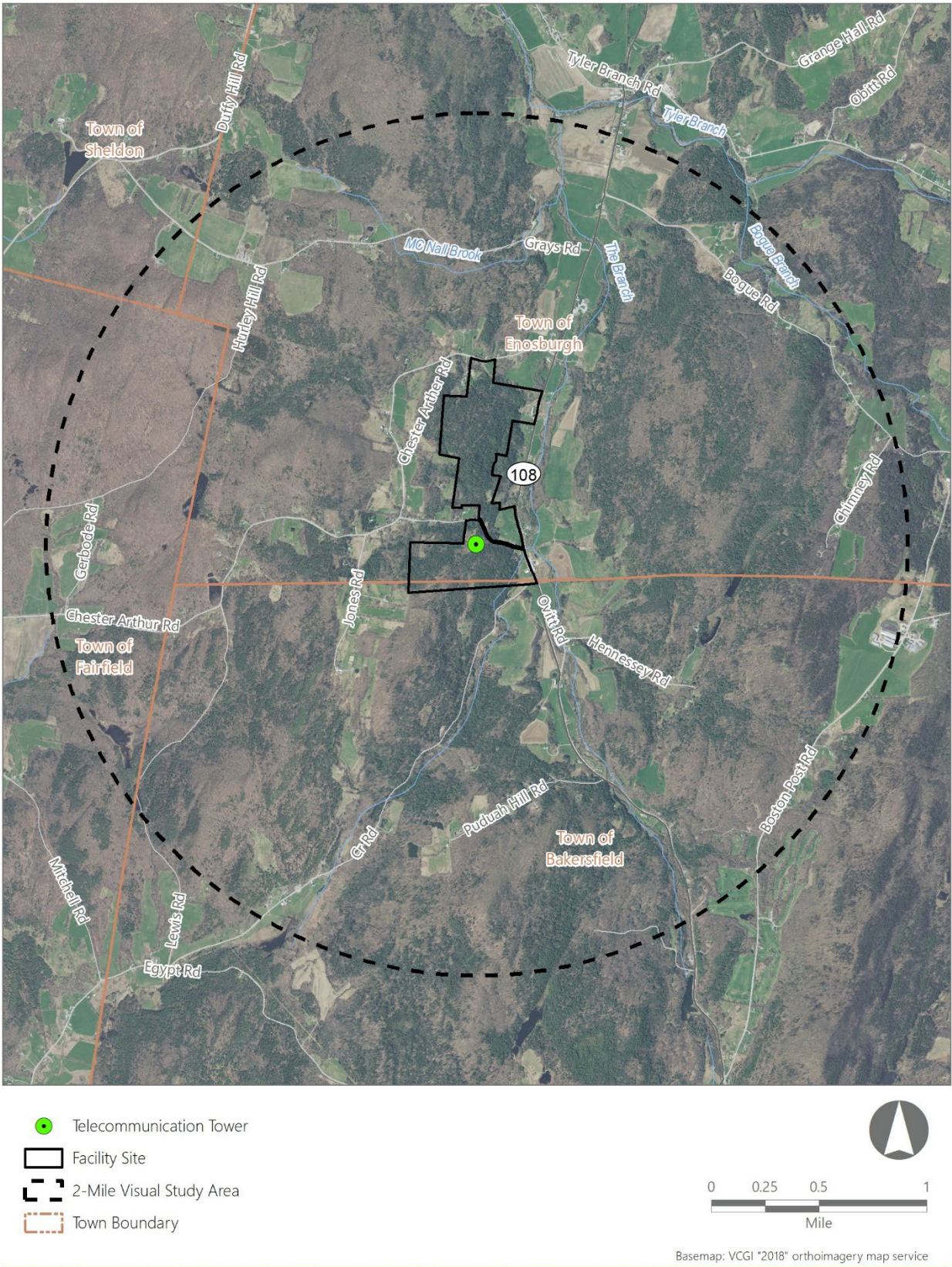
Table 2.3-1 Towns that Fall within the Visual Study Area

Town or City	Total Area of Municipality within Visual Study Area ¹ (square miles)	Percent of Total Area of Town within Visual Study Area ²
Town of Enosburgh	6.1	12.6%
Town of Bakersfield	5.3	12.5%
Town of Fairfield	1.2	1.7%
Town of Sheldon	0.1	0.2%

¹ The calculations used to generate this table were based on unrounded numbers and therefore the rounded results may not add up precisely.

² The visual study area includes approximately 12.6 square miles, or approximately 8,042 acres.

Figure 2.3-1 Visual Study Area



2.4 Viewshed Analysis

To identify areas where the proposed tower would potentially be visible, two viewshed analyses were prepared: a digital elevation model (DEM) based topographic viewshed analysis and a digital surface model (DSM) based viewshed analysis. The DEM viewshed analysis, which is based on topography only and does not consider the screening effects of existing vegetation or structures, is accurate in predicting where visibility will not occur due to topographic interference. However, it is considerably less accurate in identifying areas where the tower may be visible because it does not account for vegetation and structures. Therefore, a DSM based viewshed analysis which considers the screening effects of topography, structures, and vegetation was conducted. The viewshed analyses for the proposed tower were prepared using the following data and parameters:

- DEM and DSM derived from the 2017 Vermont Center for Geographic Information (VCGI) lidar dataset for with 0.7-meter resolution;
- A sample point representing the tower;
- A maximum tower height of 140 feet and a mid-tower height of 70 feet applied to the sample point;
- An assumed viewer height of 6 feet;
- ESRI ArcGIS Pro® software with the Spatial Analyst extension.

A few modifications were made to the lidar-derived DSM prior to conducting the DSM viewshed analysis. Existing transmission lines and road-side utility lines that are reflected in the lidar data are generally misrepresented in the DSM as opaque screening features. In order to correct this inaccuracy, DSM elevation values within transmission line corridors and within 50 feet of road centerlines were conservatively replaced with bare earth (DEM) elevation values. It is important to note that this clearing of the DSM may also eliminate legitimate screening features such as roadside vegetation and structures, which may result in an overstatement of potential tower visibility along road corridors within the VSA. Additionally, all areas within the Facility's limit of disturbance were cleared of any vegetation to reflect bare-earth elevation values in these locations.

Once the DSM-based viewshed analysis was complete, tower visibility was set to zero in locations where the DSM elevation exceeded the bare earth elevation by 6 feet or more, indicating the presence of vegetation or structures that exceed viewer height. This was done for two reasons: 1) in locations where trees or structures are present in the DSM, the viewshed would reflect visibility from tree-tops or building roofs, which is not the intent of this analysis, and 2) to reflect the fact that ground-level vantage points within buildings or areas of vegetation exceeding 6 feet in height will generally be screened from views of the Facility.

Because it accounts for the screening provided by topography, vegetation and structures, the DSM viewshed analysis is a reasonably accurate representation of potential visibility of the tower. However, because certain characteristics of the Facility and the VSA that may serve to restrict visibility (e.g., color, atmospheric/weather conditions, and distance from viewer) are not taken into consideration in the analysis, being located within the DSM viewshed does not necessarily equate to actual visibility of the tower, nor

does it indicate that adverse visual impacts will occur within these geographic locations. There is also the possibility of the DSM overstating screening/underestimating visibility in locations where views are available through trees during the dormant season. However, given the size and construction method associated with the tower, visibility through leaf-off vegetation is not likely. Potential changes to the landscape that have occurred since the date of lidar collection in 2017 could also lead to minor inaccuracies in the analysis.

2.5 Field Review

EDR personnel conducted field review within the VSA on November 9, 2022. During field review, EDR staff members traveled public roads and visited public vantage points throughout the VSA to observe the character of the existing landscape, evaluate potential Facility visibility, and confirm the results of the viewshed analysis. Additionally, field crews attempted to visit locations included in the Applicant's visual simulation study. The determination of potential viewpoints was based on the known location and dimensions of the Facility components, the viewshed analysis results, and existing vegetation and structures on and around the Facility Site which served as location and scale references. To assist with viewer orientation and determination of potential Facility visibility in the field, global positioning system (GPS) units were combined with live mapping in ESRI Collector®. The data contained in the Collector unit included the Facility components, viewshed analysis results, a topographic and aerial base map, and the current viewer location. At each of the viewpoints, the GPS unit was used to document the location, time, and notes regarding visibility or visual effect.

The field review resulted in documentation of potential Facility visibility from 11 representative viewpoints within the VSA. At each viewpoint, multiple photographs were taken to capture the full extent of the Facility and context. Viewpoints documented during fieldwork, including representative photographs, are included in Attachment A, Viewpoint Photolog. The photographs for each viewpoint include a panorama photograph to provide contextual information and a single-frame photograph to illustrate the most open, unobstructed view toward the proposed Facility Site. These photographs were taken using digital SLR cameras with a minimum resolution of 24 megapixels. All single-frame photographs included in the photolog were obtained using a lens setting (focal length) between 32 and 35 mm (equivalent to between 48- and 52-mm focal length on a digital SLR camera with a 35 mm camera sensor). A 50 mm focal length (35 mm camera sensor equivalent) is typically used in visual studies because it is generally agreed that it provides an accurate scale perspective.

The locations of viewpoints documented during fieldwork, overlaid over the viewshed analysis results, are shown in Figures 4.1-1 and 4.1-2.

2.6 Photosimulation Evaluation

The Applicant prepared photosimulations from five viewpoint locations, the locations of which are depicted in the Applicant's viewshed analysis map (Dubois and King, 2022; see Attachment B of this report). To evaluate the accuracy of the photosimulations produced by the Applicant, EDR prepared wireframe alignments for viewpoints one and four. This evaluation was conducted using three-dimensional (3D) modelling software to create a simulated perspective (camera view) based on location of the viewpoints depicted on viewshed analysis map. A model of the existing landscape was then built using lidar data to

represent roads, buildings, vegetation, and topography. The camera's orientation, location, and focal length were then adjusted to match the existing landscape model with the corresponding landscape elements that are visible in the photograph. This assures that any elements introduced to the model space (i.e., the tower) will be shown in proper proportion and perspective in relation to the existing landscape elements in the view. A cylindrical 3D model representing the proposed tower was then created based on the height and elevation of the tower indicated in the Applicant's site plans. This model was then imported to the aligned model space described above and set at the proper coordinates indicated in the Applicant's Site Plan. Consequently, EDR is able to verify the accuracy of the dimensions, elevation, and location of the Facility in the Applicant's photosimulation. The photosimulation evaluation process, including the existing landscape model and cylinder representing the tower overlaid on the photosimulations prepared by the Applicant, is demonstrated in Figure 2.6-1 and 2.6-2. This evaluation determined that the Applicants visual simulations provide accurate and reasonable illustrations of the Facility, sufficient for the purpose of evaluating the visual effects resulting from the proposed tower.

Figure 2.6-1 Photosimulation Evaluation for the Applicant's Viewpoint One from Vermont State Route 108

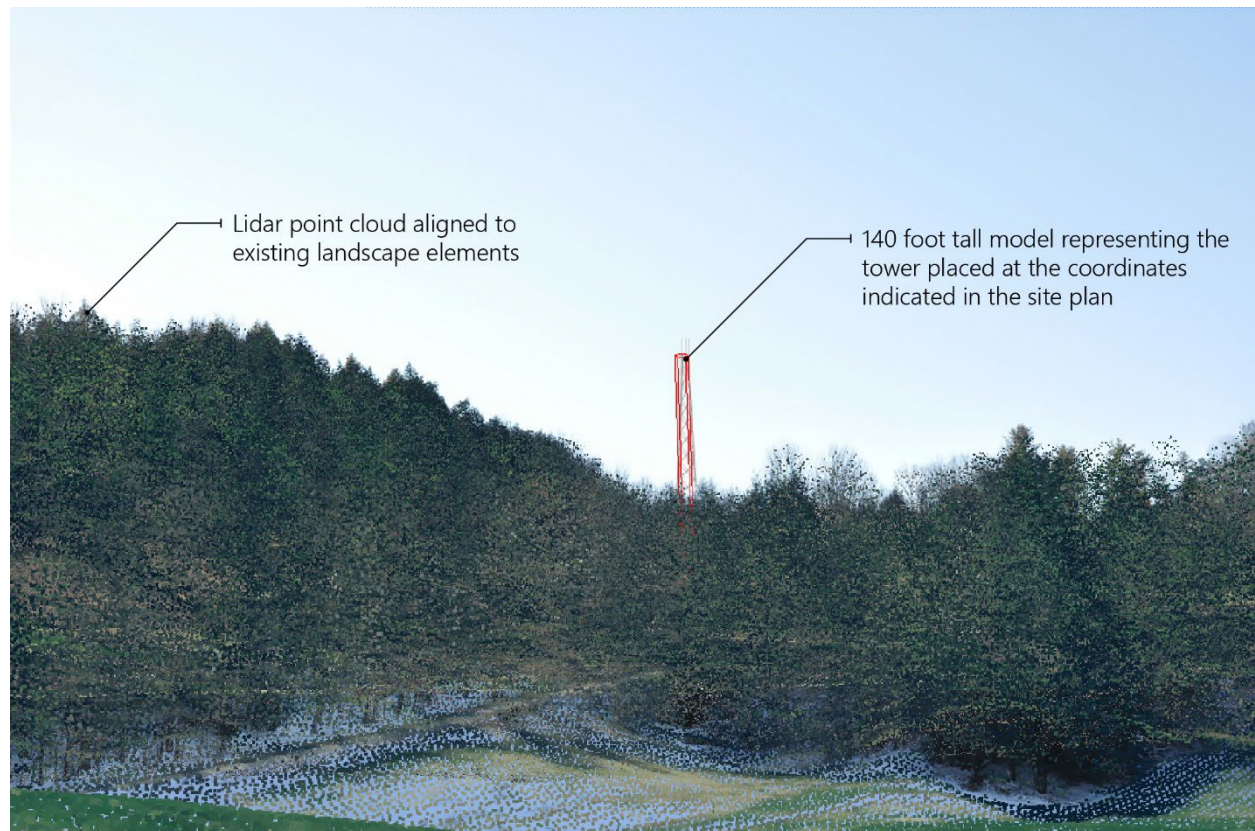


Figure 2.6-2 Photosimulation Evaluation for the Applicant's Viewpoint Four from Vermont State Route 108



3.0 LANDSCAPE SETTING

3.1 Landscape Types

Defining distinct landscape types within a given study area provides a useful framework for the analysis of a project's potential visual effects. Landscape types within the VSA were identified based on the similarity of various landscape characteristics including landform, vegetation, water, and land use patterns. Within the VSA, two distinctive landscape types were identified: Forest Upland and Rural Valley.

3.1.1 Forest Upland

Forest is the dominant landscape type within the VSA and occurs throughout the VSA, particularly on wooded hillsides and ridgetops. The Forest landscape type is characterized by the dominance of mixed deciduous and coniferous species. Typical views within this LSZ are short range and include substantial foreground screening. Where open views are available, they are often tightly enclosed, such as views along roadway corridors. Elevated vantage points near cleared fields may offer more long-range outward views across valleys to adjacent hillsides and mountain ranges, particularly during leaf-off conditions. However, from many locations adjacent forested areas frame or limit these long-range views. Due to the limited number of publicly accessible recreational and cultural resources within the forest landscape type in the

VSA, user/viewer groups are anticipated to primarily be local residents. Views from this landscape type that are available in the VSA are represented in the photographs from Viewpoints 10 and 11 in Attachment A, Viewpoint Photolog.

3.1.2 Rural Valley

The Rural Valley landscape type occurs in valley locations surrounding Vermont Route 108 and Boston Post Road. This landscape type consists of broad areas of agricultural land mixed with small woodlots, hedgerows, successional/fallow fields, wetlands, farm complexes, and low-density residential development. Long-distance outward views from this landscape type are often available when adjacent to large open fields or wetlands, and typically include a relatively open foreground of agricultural fields that are backed by wooded hills and/or mountains. However, the abundance of hedgerows, woodlots, and/or adjacent forested hillsides often frame or limit views from many vantage points. Users of this landscape type are primarily local residents who live or work on the land and, due to the presence of the Vermont Route 108, through-travelers also are present. Views from this landscape type that are available in the VSA are represented in the photographs from Viewpoints 1 through 9 in Attachment A, Viewpoint Photolog.

3.2 Local and Regional Document Review

A review of local and regional planning documents was undertaken to obtain information on open space resources and aesthetic or scenic quality standards within the VSA. Due to the lack of visibility indicated by the viewshed analysis in the Towns of Sheldon and Fairfield (see Figure 4.1-2), only planning documents from the Towns Enosburgh and Bakersfield were reviewed. All documents that were evaluated are included in the References section of the report (see Section 7.0).

3.2.1 Open Space

Open space is referenced in numerous narratives, goals, policies, and objectives within various local and regional planning documents.

The Natural Resources chapter of the Bakersfield Town Plan describes the town as having *"an abundance of open space and forestland available for recreational activities such as hunting, fishing, riding and snowmobiling."* The town identified a policy to *"encourage siting of new housing development to preserve the greatest amount of open space and blend harmoniously with the surrounding landscape"*. Within the Land Use chapter, *"clustered development that protects large, contiguous tracts of farmland or open space"* is indicated as an appropriate land use in Rural District. Within Article 9 of the Town's zoning bylaws, open space is explicitly defined as *"land intended for outdoor recreation or lands with important natural, cultural, scenic, or agricultural resource value"*.

The Natural Features chapter within the Town and Village of Enosburgh Comprehensive Plan identifies a policy to *"limit use in floodplains to agriculture, open space, and recreation, unless otherwise approved through regulatory measures."* In the Public Utilities, Facilities and Services chapter, Lincoln Park and Maple Park are described as providing *"quiet, open spaces."* The Town identifies a policy that states *"when considering future development within the community, identify vacant lots or unutilized spaces where parks, trails, or safe open spaces could be built and used for community gardens, community centers, Farmer's*

markets, or other shared community spaces." Article 6 of the Town's development bylaw, mentions open space in relation to land set aside for Planned Unit Developments, describing open space in this context as *"land that shall provide for the protection of resources on the site including agricultural land, productive woodland, wildlife habitat, natural areas, aquifer protection areas, wetlands, views and vistas, streams, stream banks, bodies of water, and historic sites."*

The Natural and Cultural Resources chapter of the Northwest Regional Plan identifies a goal to *"protect significant natural resources, including air, wetlands, wildlife, lakes, ponds, woodlands, earth resources, open spaces, groundwater resources and wildlife habitat"* and identifies potential strategies for planned unit development provisions to protect open space, such as *"provide incentives for or require planned connections of open space between multiple parcels of land."*

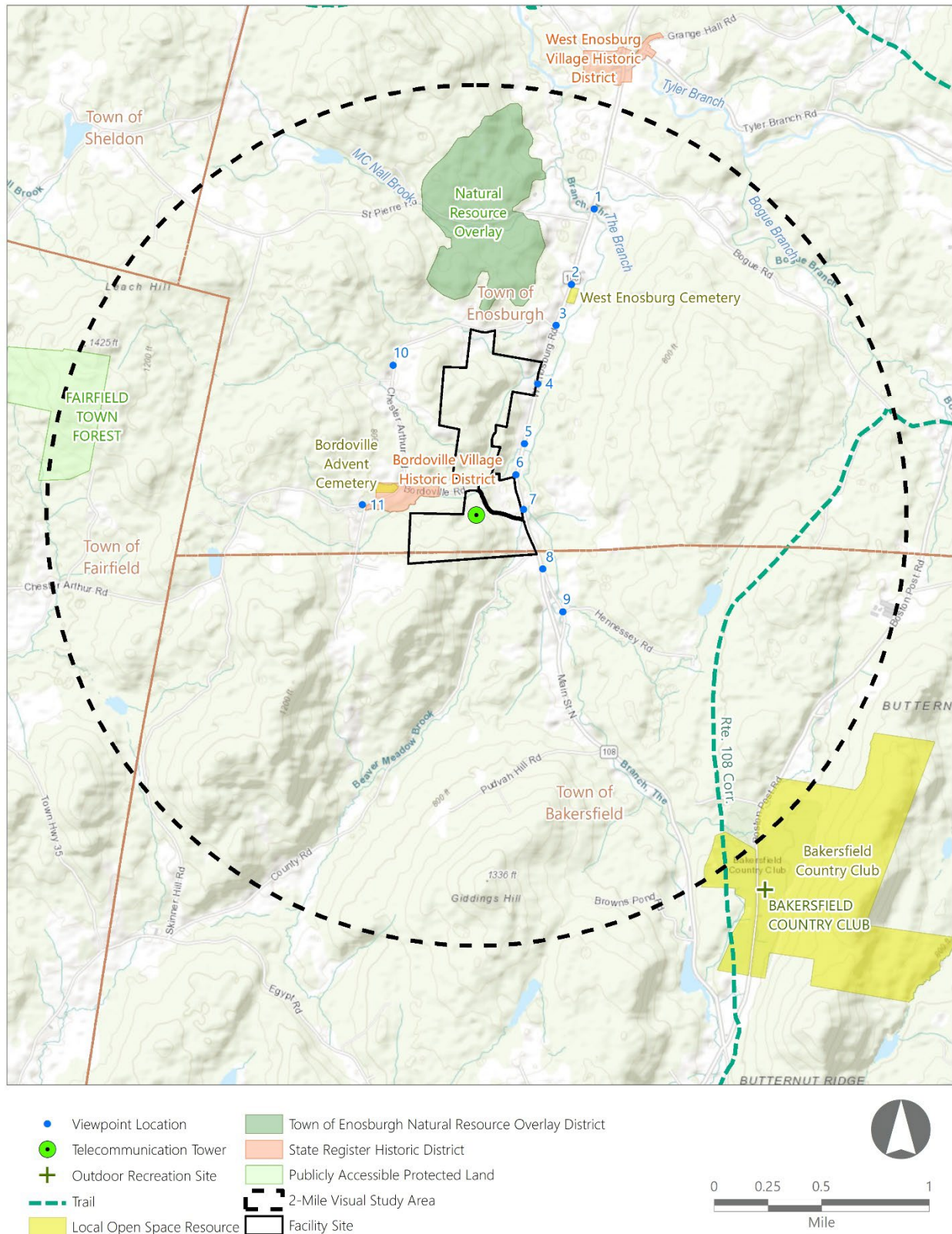
Although open space is frequently mentioned as an important aspect of landscape character or as a consideration in land use policies, the local planning documents do not identify specific open space areas or clearly written criteria that can be applied to determine whether a location has agricultural, natural, scenic, or other values such that it can be considered an open space resource. For the purposes of this report, EDR has defined open space resources as land that is intended for recreation, conservation, or is explicitly recognized for its scenic value. Several resources or zoning districts in local planning documents that were reviewed meet these criteria. However, most of these resources fall outside of the VSA. These resources include the Conservation I zoning district, Rail Trail, Maple Park, Lincoln Park, Missisquoi River, Missisquoi Valley Rail Trail, Brownway River Trail, and Bridge of Flower and Lights in the Town of Enosburgh, and the Village Center and Conservation zoning districts in the Town of Bakersfield. The only open space resource that was identified within the VSA in planning documents is a portion of the Natural Resources Overlay zoning district in the Town of Enosburgh. This zoning district is designated to *"protect the **scenic** and natural resource values of lands which are important for wildlife and wildlife habitat, and which are poorly suited for development"*. Based on this description, this zoning district has scenic value and was therefore included in the open space resource inventory.

To identify other locations that could be considered open resources but were not explicitly identified in local or regional planning documents, EDR consulted a variety of publicly available geospatial data. A complete listing of geospatial data sources used in the identification of open space resources is included in the References section of this report (see Section 7.0). Open space resources in the VSA that were identified through a review of geospatial data and planning documents include the following:

- Bakersfield Country Club in the Town of Bakersfield;
- Bordoville Advent Cemetery;
- Bordoville Village Historic District in the Town of Enosburgh;
- Fairfield Town Forest in the Town of Fairfield;
- Natural Resource Overlay Zoning District in the Town of Enosburgh;
- Unnamed Trail in the Towns of Bakersfield and Enosburgh;
- West Enosburgh Cemetery in the Town of Enosburgh.

The location of open space resources identified in the VSA are indicated in Figure 3.2-1.

Figure 3.2-1 Open Space Resources



3.2.2 Scenic or Aesthetic Community Standards

The adopted planning and land use documents maintained by municipalities within the VSA hold numerous goals and policies that relate to scenic or aesthetic quality.

For example, the Historic, Archaeological, and Scenic Resources chapter of the Town and Village of Enosburgh Comprehensive Plan identifies a goal to *"protect and preserve the archaeological, historic and scenic features in Enosburgh for future generations"*. A policy in support of this goal is to *"encourage innovation in design and layout of development so that the impact of development on scenic vistas can be minimized."* Within the Public Utilities, Facilities and Services section, telecommunications are specifically addressed, recognizing certain limitations on the municipality as established by the Federal Telecommunications Act of 1996. The Town establishes that *"...within these confines, Enosburgh must act to protect the community's historic character, rural nature, and aesthetic beauty."* This is supported by the goal to *"provide public utilities and services in a manner that supports existing development and facilitates future growth at the appropriate time, scale, and location"* and a policy *"where co-location of telecommunications facilities with other towers or structures is not feasible, new structures must be sited in appropriate areas, respecting the integrity of residential areas, aesthetic concerns, and natural resource issues"*.

Within the Town of Bakersfield Town Plan, the Land Use chapter identifies a goal *"to maintain Bakersfield's rural character and scenic resources through informed land use decisions"* with related policies to *"protect prime recreational resources from incompatible land uses and protect scenic qualities of agricultural, forest, and riparian land from unnecessary despoliation"* and *"protect scenic ridgelines by regulating their development, including the siting of cellular and wind towers"*. The Municipal Utilities and Services chapter establishes a need for access to telecommunication services to support economic development, but also states *"The Town must determine if there are planning and zoning ramifications for antenna towers and other telecommunications infrastructure. Guidance to site towers where community interests for historic and aesthetic preservation should be considered."* Within this chapter, a goal relating to telecommunications states *"to promote communication of Bakersfield residents with each other and with a wider community"* with a related policy identified to *"support the enhancement of the telecommunications network when such facilities do not have significant adverse health, environmental or scenic impacts."* The Natural Resources chapter has a subsequent section on scenic resources that calls out a need for the Town to identify such resources, encourage design and layout development to minimize visual impact to resources, and suggests encouraging the use of vegetative buffers or screening methods to minimize potential visual impact. Within this chapter a goal identified is *"to enhance environmental quality, preserve the character of Bakersfield, and protect its natural assets"*.

These plans establish several goals and objectives identifying a need to preserve or protect the scenic quality of the towns from land uses that may result in significant adverse impacts. However, these provisions in and of themselves cannot be applied to understand locations that are particularly sensitive to visual change or specific criteria or thresholds that can inform a determination as to whether an action's visual effect would result in significant impacts to the visual environment of these communities or, conversely, if it would be deemed to adequately minimize impacts.

Additionally, several statements throughout the town plans identify broad landscape types as having scenic value. These include statements such as *"Bakersfield's forests provide habitat for many different kinds of wildlife, stabilize soils, absorb runoff, add to the scenic value of the landscape..."* In the Natural Resources Chapter of the Bakersfield Town Plan, and *"Enosburgh forests provide quality forest products while supporting tourism, recreation, wildlife habitat, a clean and reliable water supply, and the scenic and rural natural of our town"* and *"protect quality of surface water to maintain scenic beauty"* in the Natural Features Chapter of the Town and Village of Enosburgh Comprehensive Plan. These statements describe broad, and sometimes vast, areas in terms too vague to clearly identify locations with scenic value.

The town plans do not provide a specific inventory of scenic resources. However, locations that that were identified for their scenic qualities include the Bridge of Flowers and Light, falls near the Bridge, and the Natural Resources Overlay zoning district in the Town of Enosburgh, and the Village Center and Conservation District in the Town of Bakersfield. Of these resources, only a portion of the Natural Resources Overlay zoning district falls within the VSA. This resource was previously identified as an open space resource, and its location is shown in Figure 3.2-1.

Also of note, locations where *"views are of the Cold Hollow Mountains, Jay Peak, Mount Mansfield, and other small mountains"* were identified as scenic vistas in the Historic, Archaeological, and Scenic Resources Chapter of the Town and Village of Enosburgh Comprehensive Plan. Although it is not feasible to determine every location where these mountains or mountain ranges would be visible through geospatial mapping for the purposes of this Report, locations where views of these mountains coincide with the Facility's viewshed, as observed during field review, were considered during field review and discussed in Section 4.4.

In addition, zoning bylaws are often used to enact and enforce these goals when considering land development at the site-specific level¹. Therefore, zoning bylaws were also reviewed to determine whether any clearly written standards intended to preserve or protect aesthetic or scenic quality² that may apply to the proposed Facility:

¹ Title 24: Municipal and County Government, Chapter 117: Municipal and Regional Planning and Development (known generally as the Vermont Planning and Development Act [24 V.S.A. § 4301]) delegates certain land use and planning powers to municipalities and regional commissions. Subchapters within Title 24, Chapter 117, provide for Municipal Plan Development (sometimes referred to as a comprehensive plan), the Implementation of the Plan, and Bylaws (which establishes a general practice for municipal zoning).

² The Natural Resource Overlay and Conservation I districts, which were established in order to protect scenic values of the lands of the districts, do not include any specific provisions or measures that apply to land uses outside of their boundaries. Therefore, these measures are not applicable to the proposed Facility.

Town of Enosburgh Zoning Bylaws

When assessing a telecommunications facility, Article 5. Specific Use Standards, Section 5.7: Telecommunications Facilities applies. Regulations of the special use standards that could be considered applicable to the protection of scenic quality include:

Article 5, Section 5.7, A. Standards and Criteria, 3. Commercial towers shall be evaluated based on their impact to the character of the neighborhood and visual impact.

Article 5, Section 5.7, A. Standards and Criteria, 5. Commercial towers shall be of a nonreflective, unobtrusive color with a nonreflective finish and may be required to be painted or otherwise camouflaged to minimize the adverse visual impact.

In addition, it is identified that a telecommunications facility must also meet the criteria of Section 3.3 Conditional Use Review which includes:

Section 3.3 D. Conditional Use Review Standards, 4. Not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, or cultural, and historic sites; or important environmental resources, wildlife habitat, wetlands, streams, rivers and ponds, or rare or irreplaceable natural areas identified in the Enosburgh Town Plan.

While the Facility's limit of disturbance is fully within the Rural Residential Zone a small portion of proposed overhead utility line, sited to follow a portion of Bordoville Road, will enter the Agricultural zoning district. Therefore, the following provisions apply to portions of the proposed Facility within this zone:

Section 2.3, B., 2., a. Sited on or at the field-woodland edges to minimize the fragmentation of productive farmland, adverse impacts to farmland operation, and adverse visual effects to the scenic qualities of the site.

Town of Bakersfield

The Facility is proposed to be located entirely within the Town of Enosburgh, and therefore laws relevant to siting considerations are not relevant within the Town of Bakersfield. However, the Town of Bakersfield Zoning and Subdivision Bylaws were reviewed to identify aesthetic concerns relating to telecommunications facilities. The following measures particular to Telecommunications Facilities were identified:

Article 6, Section 6.12, E., 1. New towers shall be sited and designed to minimize their visibility. New or modified towers and antennae shall be designed to blend into the surrounding environment to the greatest extent feasible, through the use of existing vegetation, landscaping and screening, the use of compatible materials and colors, or other camouflaging techniques.

Article 6, Section 6.12, E., 2. Access roads, and all accessory utility buildings and structures shall be designed to aesthetically blend in with the surrounding environment and meet all other minimum requirements for the district in which they are located. Ground-mounted equipment shall be screened from view. Setback, landscaping and screening requirements may be increased as appropriate based on site conditions, and to

protect neighboring properties and uses. All utilities proposed to serve a telecommunications site shall be installed underground.

These provisions establish a requirement to evaluate the Facility's design, layout, materials, and use of visual minimization and mitigation techniques to determine whether the Facility will result in significant adverse impacts. However, they do not present specific criteria or thresholds that can inform a determination as to whether an action's visual effect would result in significant impacts to the visual environment of these communities.

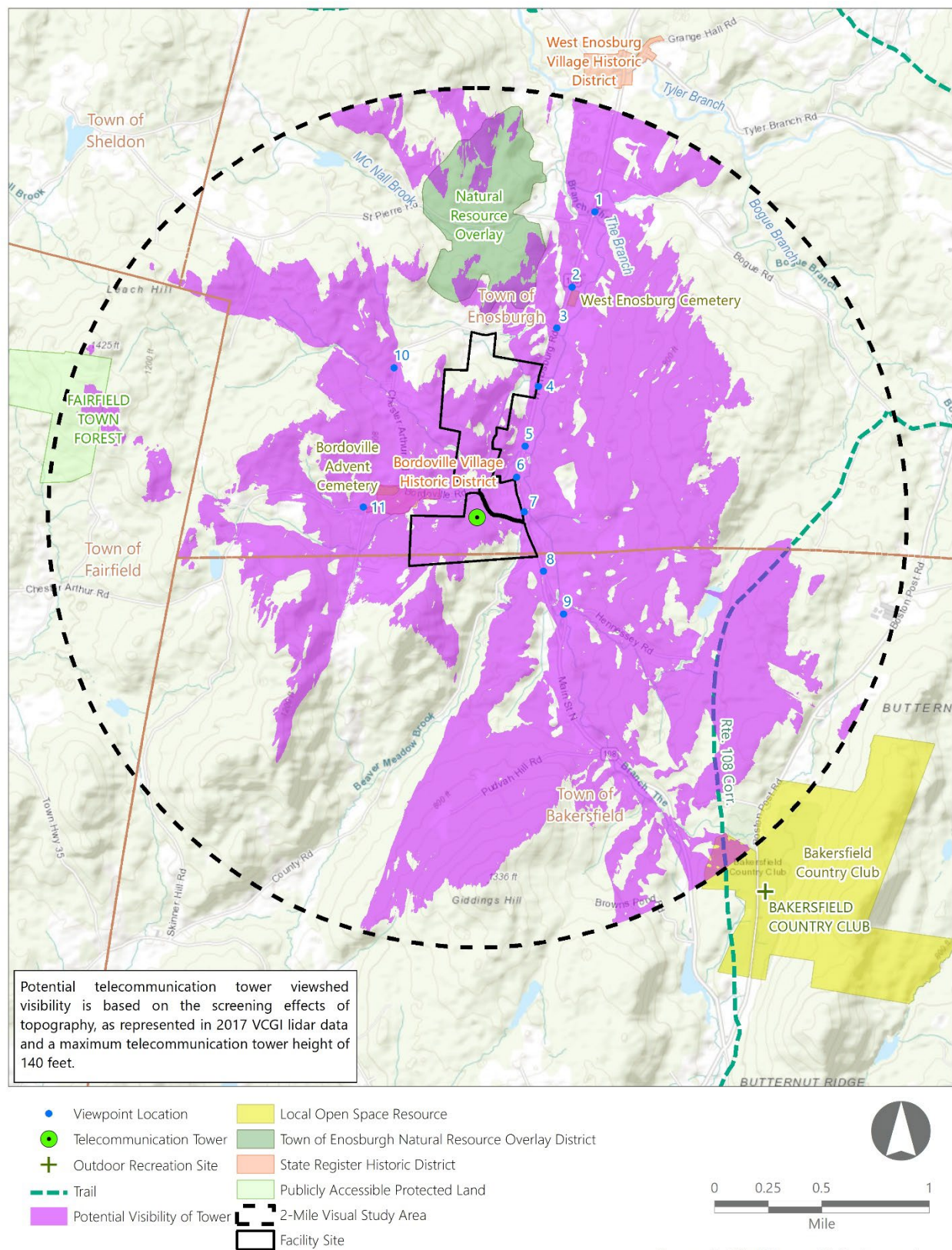
4.0 FACILITY VISIBILITY

4.1 Visibility within the Visual Study Area

As indicated previously, the bare earth DEM-based viewshed results are most accurate in identifying areas where there is no potential for visibility of the tower due to topographic screening. However, topography as the only screening element is a less accurate predictor where visibility will actually occur due to its conservative nature. Based only on DEM viewshed results, the proposed tower will be entirely screened from by intervening topography from approximately 59.5% of the 2-mile radius VSA. Areas where the tower is predicted to be visible by the DEM viewshed analysis are generally concentrated in rural valley locations and hillsides oriented towards the tower.

The results of the DEM viewshed analysis results are shown in Figure 4.1-1.

Figure 4.1-1 DEM (Topography Only) Viewshed Analysis Results

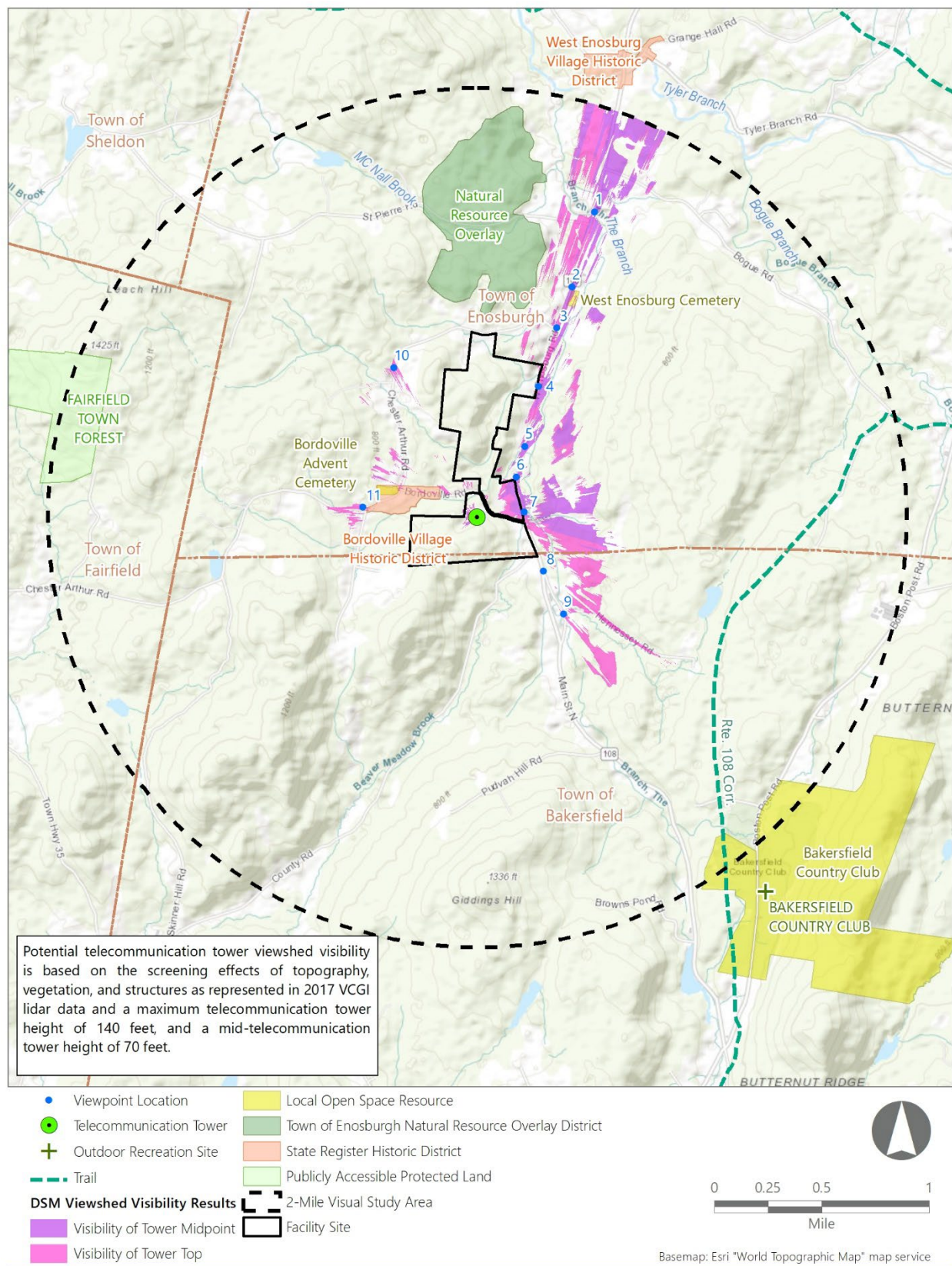


As indicated by the results of the DSM viewshed analysis, when the screening effects of vegetation and structures are considered, potential visibility of the proposed tower is considerably reduced compared to the DEM viewshed analysis results. The results of the DSM viewshed analysis indicate that the tower could be visible from approximately 3.1% of the VSA (i.e., the tower would be entirely screened from 96.9% percent of the VSA). Areas where the tower is predicted to be visible occur almost entirely in Rural Valley locations along State Route 108 to the north and east of the tower, with small, scattered areas of visibility indicated in Forest Upland locations. It is worth noting that these viewshed results indicate where any portion of the tower may be visible, and it is possible that only a small portion of the tower may be visible from many locations within the tower's viewshed due to screening provided by intervening vegetation. In order to provide additional information on the amount of tower visibility that is likely to occur, a second DSM-based viewshed analysis based on the tower's mid-point was conducted. The results of this viewshed analysis indicate that the upper half of the tower would be visible from 1.4% of VSA (i.e., from roughly half of the areas where visibility is predicted to occur, the bottom half of the tower will be screened by topography, vegetation, and/or structures).

The DSM viewshed analysis results are shown in Figure 4.1-2.

The Applicant conducted a 2-mile radius viewshed analysis to determine Facility visibility (Dubois and King, 2021; see Attachment B). EDR has reviewed the Applicant's viewshed results and they appear to be consistent with the results of EDR's viewshed analysis. However, it is likely that the visibility in small, scattered areas from forest locations is overstated in Applicant's viewshed results. These areas of visibility are likely the result of false ground returns in the lidar data, or a subtraction of forested areas was not performed, resulting in visibility from treetops.

Figure 4.1-2 DSM (Topography, Vegetation, and Structures) Viewshed Analysis Results

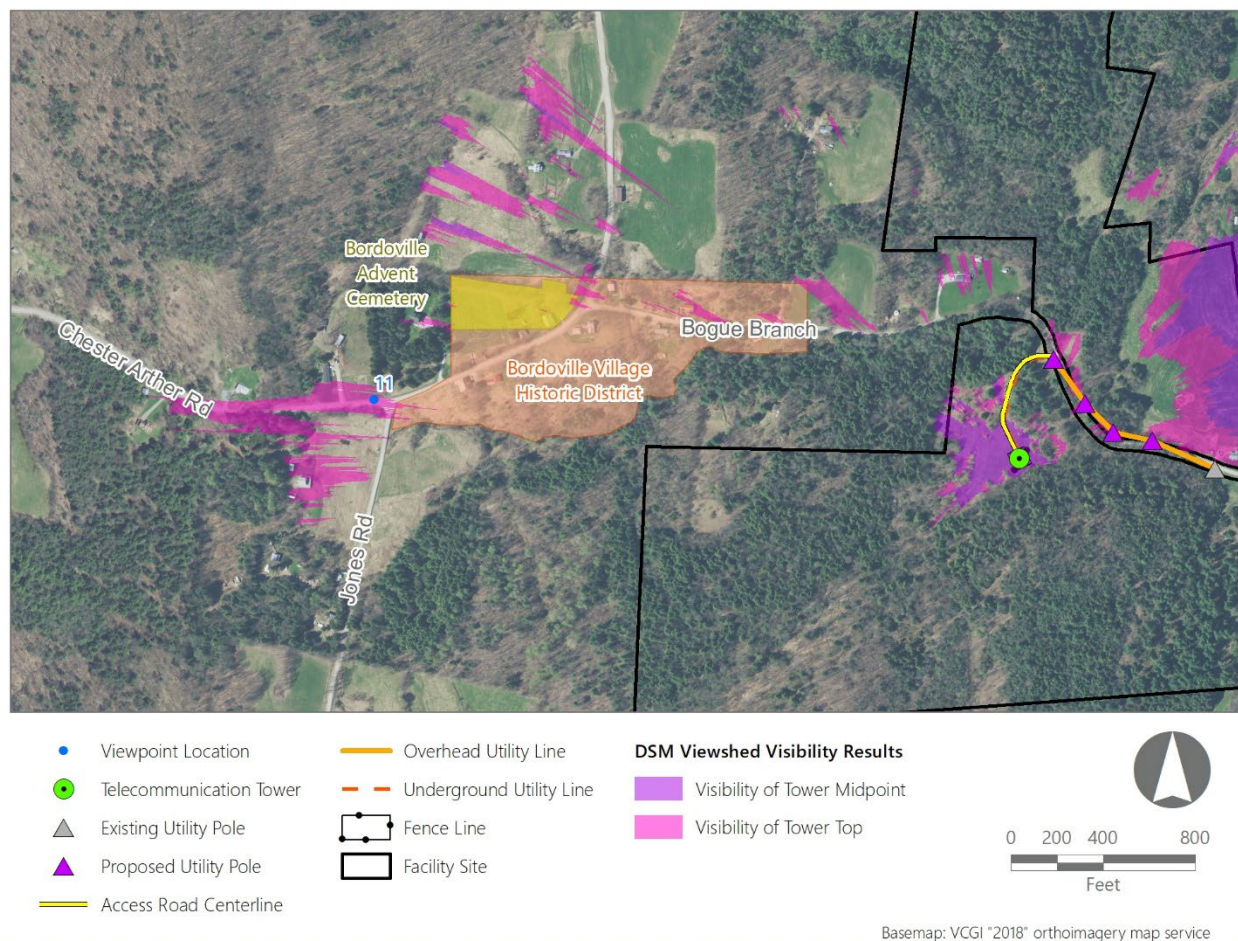


4.2 Visibility from Open Space Resources

The results of the viewshed analysis indicate that the only open space resources with potential visibility of the proposed tower include the Bordoville Advent Cemetery, Bordoville Village Historic District, which includes the Bordoville Seventh-day Adventist Church, and the West Enosburg Cemetery.

Potential visibility within the Bordoville Village Historic District occurs in small, narrow corridors of visibility along portions of Bordoville Road and Chester A Arthur Road. Potential visibility within the Bordoville Advent Cemetery is extremely limited and occurs in a small, discrete area at entrance to the cemetery near the intersection of Bordoville Road and Chester A Arthur Road. From both these resources, the viewshed analysis results indicates that where visibility is predicted to occur, it will be limited to the upper portions of the tower from discrete areas within the properties.

Figure 4.2-1 DSM Viewshed Analysis Results in Bordoville Village Historic District



Potential visibility within the West Enosburg Cemetery mostly occurs in the western portion of the cemetery grounds. From this area, the lack of roadside vegetation and vegetation along the cemetery's southern border results in a concentrated area where visibility of the tower could occur. From this location, the viewshed results indicate that at least the upper half of the tower could be potentially visible. Smaller, more scattered corridors of visible are also indicated in the eastern portion of the cemetery.

Figure 4.2-2 DSM Viewshed Analysis Results in Bordoville Village Historic District



4.3 Photosimulation Evaluation

Based on EDR's review of photosimulations, the Applicant's photosimulations appear to be spatially accurate and provide a variety of viewing distances and geographic locations to adequately illustrate the range of visual change that will occur with the Facility in place. The photosimulations also appear to be a reasonably accurate representation of light reflection and color casting based on the time and date noted on each photosimulation sheet.

However, as noted by the Applicant, the photosimulations represent the appearance of the Facility at a specific date and time, and a range of variables, such as sun angle at a different time of day or atmospheric conditions, may result in increased or decreased visual contrast with the existing landscape at any given vantage point. For example, it is likely that during overcast conditions, portions of the tower that are visible against the sky are likely to result in lower visual contrast compared to clear conditions with a bright, blue sky. For vantage points east of the Facility, the tower will likely appear brighter when they are front-lit or side-lit which would generally occur during the morning and early afternoon. Conversely, for vantage points west of the Facility, the tower will most likely be front or side-lit in the afternoon. Additionally, it is worth noting the limitations of photosimulations in representing actual visual contrast. Field observation studies have observed that photosimulations consistently under-represent the degree of visibility and visual contrast compared to in-person field observations, particularly for long distance views (Sullivan et al, 2014 and Palmer and Sullivan, 2020).

The greatest levels of visual contrast of the Facility with the existing landscape is represented by Viewpoint 1, where the majority of the tower is visible and viewed from a close distance in Rural Valley locations. In these viewing conditions, individual steel members of the tower are discernable to casual viewers and, due to the viewer's inferior position afforded by valley locations, will often be viewed against the sky. From these locations, the tower contrasts with existing elements of the landscape in terms of line, form, and scale. In this photosimulation, the back-lit tower results in a high degree of visual contrast when viewed against the sky. It is likely that in a side or front lit condition, this color contrast could be significantly reduced because galvanized steel is much brighter in color when presented in full sun. However, in rare cases, the side lit or front lit condition can result in reflective glare that has the potential to increase the contrast presented by the Facility. Due to its prominence, the tower could become the focal point in these views and present appreciable contrast with the existing visual environment. However, the photosimulations from Viewpoints 2 and 4, which are also from Rural Valley locations, demonstrate that the contrast associated with the Facility is greatly reduced when the majority of the tower is screened and/or it is viewed at greater distances. While the tower is clearly visible in Viewpoint 4, it no longer appears out of scale with the surrounding landscape, and the individual components of the tower are no longer discernable or compete for viewer attention with other landscape elements, such as the distribution and fence poles, that are visible in the view. At the distance the tower is viewed at in Viewpoint 2, it will be barely discernable to casual viewers.

Viewpoint 3 is representative of a viewing condition in the Forested Upland landscape type. From this location, only the uppermost portion of the tower is visible due to substantial screening provided by intervening vegetation, and it will be barely discernable to casual viewers. As indicated by the viewshed analysis results, the majority of locations in this landscape type will experience significant screening by intervening vegetation that will limit visibility to the top portions of the Facility. However, it is possible that, from certain locations, slightly more of the tower may be visible, which would result in marginally greater visual contrast. It is worth noting that, due to the elevated viewer position from this landscape type, the tower will almost always be viewed against a forested background which will substantially reduce the contrast of the tower during back-lit lighting conditions.

4.4 Field Review Results

As discussed in Section 2.5, field crews were provided with digital mapping indicating their position relative to the Facility and areas of potential tower visibility.

Field observations largely confirmed the accuracy of the viewshed results. It was observed that visibility of the tower in the Forest Upland landscape type would be very limited because areas indicated as visible in the viewshed analysis occur in small, discrete, scattered areas or narrow corridors that would be experienced, by most viewers, as brief glimpses of the tower. Additionally, due to the presence of forested areas, only the upper portions of the tower will be visible from locations in the tower's viewshed. Areas where visibility is predicted generally occur in breaks through vegetation when abutting open yards or fields. Additionally, most of these areas of potential visibility are located 0.5-mile or greater from the Facility. While the elevated positions in this landscape type provide more expansive views and have a higher scenic quality compared to most valley locations, due to the presence of these visibility limiting factors, visual impacts will be minimal from this landscape type. Views from the Forest Upland are represented in the photographs from Viewpoints 10 and 11.

Field review confirmed that visibility of the tower in the Rural Valley landscape type would also be very limited due to the abundance of foreground screening features, such as hedgerows, woodlots, and wooded hillsides that enclose views. The greatest degree of visual contrast would occur from locations within an approximately 0.5-mile radius of the tower, where views would be similar to the conditions represented by the photosimulation from the Applicant's Viewpoint 1. From fields to the east of Vermont Route 108 and the field directly north of the intersection of Vermont Route 108 with Bordoville Road, viewers would most likely experience relatively open and uninterrupted views of the tower. Views from this area are represented in the photographs from Viewpoints 5 to 7. However, hedgerows, roadside vegetation, and buildings throughout this area would break views of the Facility from Vermont Route 108 and visibility would be considerably more intermittent for travelers compared to views from adjacent fields. It was also observed that from these locations in the valley within 0.5-mile of the Facility, the adjacent hillsides would limit the availability of expansive views to more distant mountain ranges. From locations beyond 0.5-mile where visibility is predicted to occur, it was observed that greater distance from the Facility amplified the screening effects of intervening roadside vegetation and hedgerows, and visual effect was likely to be similar to the conditions represented in the photosimulations from the Applicant's Viewpoint 2 and 4.

From certain locations within the tower's viewshed, it was observed that views of distant mountain ranges or large hills were possible, but they rarely coincided with locations where the Facility is anticipated to result in appreciable visual contrast. From Viewpoints 1 through 4 along Vermont State Route 108 north of the Facility, views oriented towards the Facility coincide with Giddings Hill. However, due to distance from the Facility and/or screening by intervening vegetation, the Facility would be difficult to discern or have low visual contrast for casual observers from these locations. From upland locations to the west of Facility near the Bordoville Historic District, it was observed that views of the Facility sometimes coincide with Peaked Mountain and Laraway Mountain (see Viewpoint 10) or the Cold Hollow Mountain range (see Viewpoint 11). However, as described above, visual impacts to locations in the Forest Upland where visibility is

predicted to occur are expected to be minimal from these locations due to screening provided by intervening vegetation.

5.0 QUECHEE ANALYSIS

5.1 Quechee Analysis - Part One

Part one of the Quechee Analysis endeavors to characterize the following:

The nature of the project's surroundings, the compatibility of the project's design with those surroundings, the suitability for the project's context of colors and materials selected for the project, the locations from which the project can be viewed, and the potential impact of the project on open space.

The elements of this requirement have been broken down and described below.

the suitability for the project's context of colors and materials selected for the project

Based on EDR's evaluation, the area surrounding the Facility is comprised of a mix of Rural Valley and Rural Upland landscape types, as described in Section 3.1. Telecommunication towers of similar construction and materials are common landscape features throughout the region and in similar landscape contexts. The lattice members of the tower and the galvanized steel material would not appear unusual in this context or be incompatible with the surrounding landscape.

Locations from which the project can be viewed

Visibility of the proposed telecommunication tower will be very limited due to the screening provided by existing topography or vegetation. The results of the DSM viewshed analysis indicate that the tower could be visible from approximately 3.1% of the VSA (i.e., the tower would be entirely screened from 96.9% percent of the VSA). From roughly half of the areas where visibility is predicted to occur, most of the tower will be screened and only the upper portions of the tower could be visible. Areas where the tower is predicted to be visible are concentrated in Rural Valley landscape type along State Route 108 to the north and east of the tower, with smaller, more scattered areas of visibility in the Upland Forest landscape type.

The nature of the project's surroundings, the compatibility of the project's design with those surroundings.

Photosimulations of the proposed tower produced by the Applicant indicate that the visual impact will be variable based on viewer distance and amount of tower that will be visible. From more distant locations beyond 0.5-mile of the Facility where views are possible, screening provided by intervening vegetation and the mitigating effects of distance and atmospheric perspective minimize visibility and the visual impact associated with the Facility is expected to be negligible to absent. From Forest Upland locations where views are more expansive and distant mountains or hills coincide with the Facility, substantial screening by intervening vegetation substantially limit the geographic extent of visibility and the amount of the tower that would be visible, resulting in minimal to negligible impacts.

From Rural Valley locations along Vermont Route 108 within 0.5-mile of the facility where views are possible, the tower may appear somewhat incongruous with other built and natural elements in the visual environment. However, the viewing opportunities are discrete, short duration. From these locations where visual impacts are expected to be more appreciable, it was observed during field review that these views do not typically include distant mountains or hills that would contribute to the scenic quality of the views.

Potential impact of the project on open space

Visual Impact from the Bordoville Advent Cemetery and Bordoville Village Historic District is anticipated to be minimal due to the very limited geographic extent of visibility and the substantial screening provided by intervening vegetation that will limit views to the tops of the tower as represented. Although views of distant mountain ranges to the east, including the Cold Hollow Mountain Range and Laraway Mountain, were observed during field review to coincide with the Facility, the substantial screening by intervening vegetation and/or the mitigating effects of distances result in minimal visual impact from these locations, as represented in the Applicant's photosimulation from Viewpoint 3 (see Appendix B). Additionally, from these upland locations, it is likely that the Facility will always be viewed against forest and not against the sky. This viewing circumstance is likely to reduce the overall color contrast and visibility of the tower. While the geographic extent of visibility is likely to be greater at the West Enosburgh Cemetery, due to its distance from the Facility, it is anticipated that the narrow portions of the tower will be difficult to distinguish from other landscape elements and not result in substantial scale, form, or color contrast.

Conclusion to Part One of the Quechee Analysis

Based on EDR's evaluation, the Facility will be visible from a very small percentage of the VSA due to screening provided by topography, vegetation, and structures, the colors and materials selected for the Facility will not appear unusual or out of context with its surroundings, and visual impact on open spaces will be minimal. From more distant locations beyond 0.5-mile of the Facility where views are possible, screening provided by intervening vegetation and the mitigating effects of distance and atmospheric perspective minimize visibility and the visual impact associated with the Facility is expected to be negligible to absent. The visual impact to open space resources is similarly anticipated to minimal to negligible due to the limited geographic extent of Facility visibility that occurs from these resources, substantial screening provided by intervening vegetation, and/or the mitigating effects of distance and atmospheric perspective. Therefore, in these locations, the Facility will not result in adverse visual impacts to the surrounding area.

From Rural Valley locations along Vermont Route 108 within 0.5-mile of the facility where views are possible, the tower may appear somewhat incongruous with other built and natural elements in the visual environment. Although these viewing opportunities occur in small, discrete areas and are of relatively short duration, from these locations, the Facility may result in adverse visual impact.

5.2 Quechee Analysis - Part Two

Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?

As discussed in Section 3.2, a review of municipal planning documents and zoning bylaws was undertaken to identify clear, written community standards intended to preserve the aesthetic and scenic beauty of the area. No visibility is indicated from the portion of the Natural Resource Overlay zoning district, which was the only location identified for its scenic value within the VSA. As discussed in Section 4.4 and 5.1, from locations where views are more expansive and distant mountains or hills coincide with the Facility, substantial screening by intervening vegetation substantially limit the geographic extent of visibility and the amount of the tower that would be visible, resulting in minimal to negligible impacts.

Does the project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic quality of the area?

From Rural Valley locations along Vermont Route 108 within 0.5-mile of the facility where views are possible, the tower may appear somewhat incongruous with other built and natural elements in the visual environment. However, given the limited extent of these views, which will be concentrated to a small portion of the valley bottom, the overall impact to the scenic quality of VSA and the surrounding region is extremely limited. Additionally, as described in part one of the Quechee Analysis, the height, design, and material of the proposed Facility are fairly standard for telecommunication towers, which are common landscape features throughout the region; as indicated in the VCGI Telecommunication Facilities geospatial database, there are a total of 20 telecommunications towers within 20 miles of the Facility. Therefore, even in locations where the tower may appear somewhat incongruous with the surrounding landscape, it will not reach a level of impact such that it could reasonably be considered shocking or offensive.

Has the applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the project with its surroundings?

Standard measures to minimize or mitigate visual impacts that may be applicable for proposed Facility, consistent with agency guidelines provided by the New York State Department of Environmental Conservation (NYSDEC, 2019) and the Bureau of Land Management (USDI BLM, 2013) are discussed below:

Low Profile.

For the purposes of this summary and study, EDR assumes that the tower height is designed at the lowest height possible to achieve the level of coverage for the project that would make it feasible and allow for the opportunity for collocation of future telecommunication facilities as identified in supplemental testimony provided on behalf of the Applicant (Delaney, 2022).

In order to provide additional information on whether a height reduction of the tower would result in a substantial reduction in Facility visibility, a DSM-based viewshed analysis was prepared using a tower height of 120 feet. Other data sources and parameters used in this viewshed analysis are as described in Section

2.4. The result of this viewshed analysis indicates that an 120-foot-tall tower could be visible from approximately 2.5% of the VSA (i.e., the tower would be entirely screened from 97.5% of the VSA). This indicates that the area within the VSA with potential visibility of the tower would decrease by 0.6% as a result of the height decrease. As shown in Figure 5.2-1, the 20-foot height decrease results in a small reduction to the geographic extent of project visibility. The area that would experience the greatest reduction in tower visibility occurs in agricultural fields southeast of the Facility near Hennessey Road. However, for most locations, the height reduction results in a small decrease in the size of previously visible areas, rather than entire geographic areas being removed from visibility.

In addition to this viewshed analysis, 3D modeling software was used to determine the top of the tower that would result if incremental height decreases were implemented for the Applicant's photosimulation from Viewpoint 2. The results are shown in Figure 5.2-1. As indicated in this figure, unless the height of the tower was substantially reduced, these changes will not significantly alter the overall visual effect of the proposed tower from views in close proximity to the tower or within the broader landscape.

Figure 5.2-1 Diagram of Above Ground Tower Height from Applicant's Viewpoint One from Vermont State Route 108

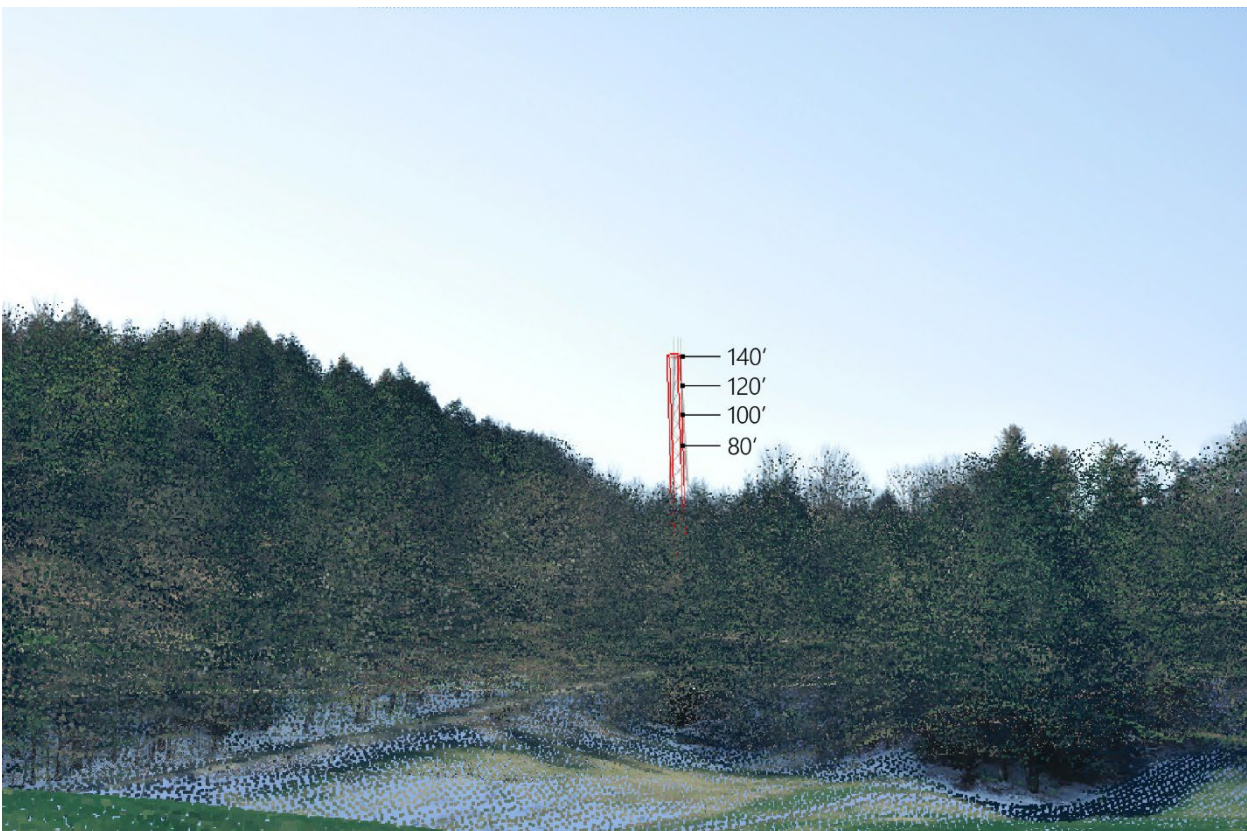
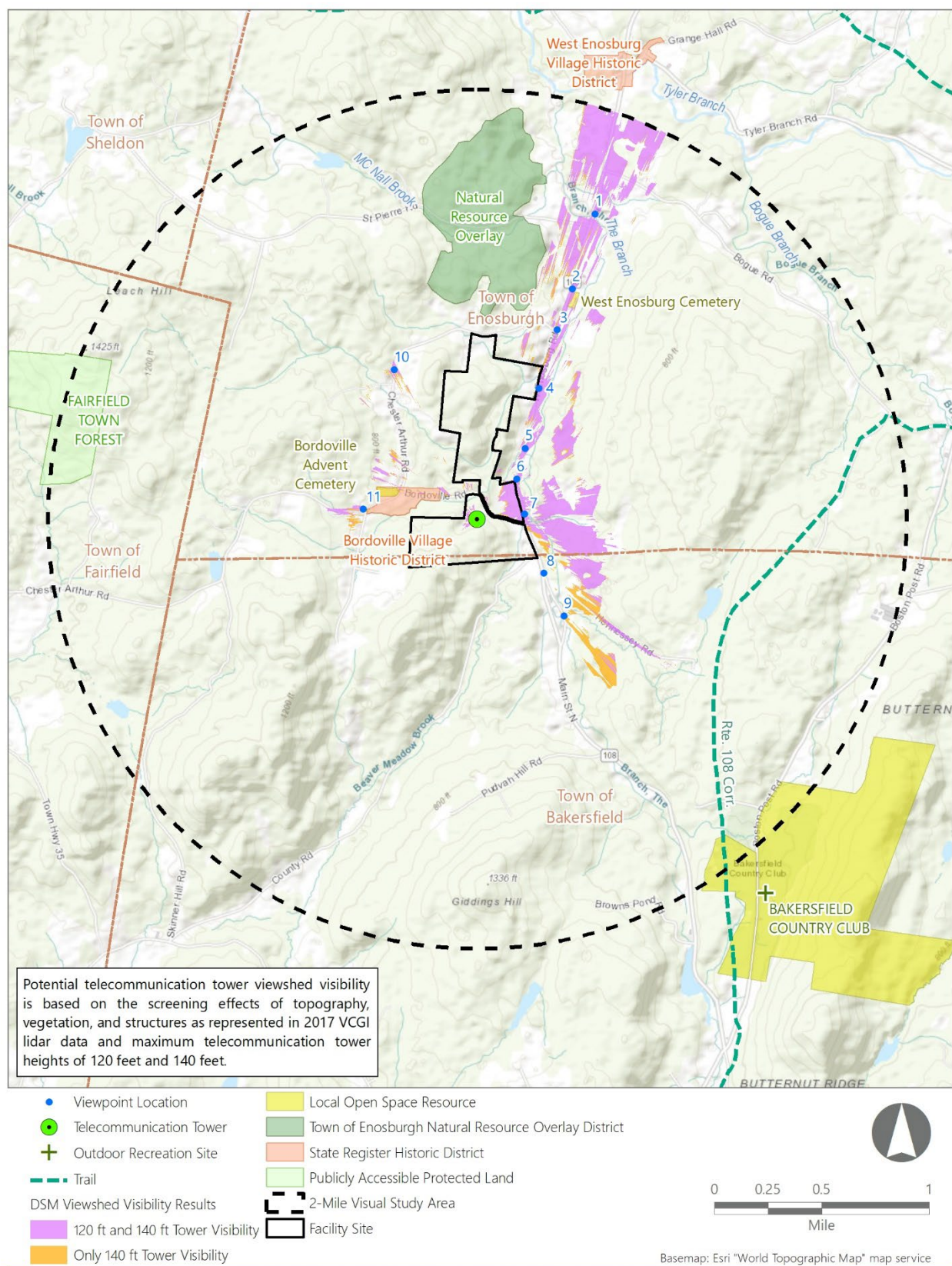


Figure 5.2-1 DSM Viewshed Analysis Results for 120 Foot Tall Tower



Siting and Site Layout.

Based upon the analysis conducted within the report, the Facility is sited in a valley location which results in relatively low visibility from the surrounding area. Additionally, siting the tower at a lower elevation avoids impacts to ridgelines which are valued areas. Generally, the tower's position in landscape minimizes the frequency at which it will be viewed against the sky (with the exception of discrete foreground viewing opportunities), which minimizes color contrast and horizon disruption. Moving the Facility to a different location within the Facility Site or the valley in which it is proposed will most likely not result in any a significant reduction of visual impacts but will most likely just relocate them from one area to another.

Screening.

Due to the height of the proposed tower, screening with typical mitigation practices, such as earthen berms, fences, or planted vegetation, will not be effective in reducing the visibility or visual impact of the tower.

Design and Alternative Technologies.

Telecommunication towers typically are classified into three forms: Self-supporting lattice, monopole, or guyed. Self-supporting lattice consists of narrow metal spars that are joined together to create rigid triangular shapes which become progressively smaller approaching the top of the tower. Monopoles are a sectioned conical steel structure (up to six feet in diameter) that are bolted to a deep concrete foundation and extend into the sky. Finally, guyed structures consist of a narrow monopole or lattice flat with guy wires that run at an angle from the structure to the ground where they are permanently anchored to screws or concrete foundations. Each of these structure types has visual benefits of some type or another. However, in the case of guyed structures, birds and bats often have fatal collisions with the invisible wires and, as such, this form of tower is not preferred. In addition, in forested areas, guyed towers require extensive vegetation clearing along the path of the guy wires. Monopoles can be constructed from a variety of materials, but they have a substantially greater mass and therefore are visible from greater distances. Their form, in some settings, is considered clean due to their simplicity and narrow profile, but they can appear out of place in natural settings. Lattice towers, on the other hand, provide a self-supporting structure that has a significant degree of transparency resulting from the narrow steel members. Of the three options, it is EDRs opinion that lattice towers best suit the context of the VSA.

Camouflaging.

Several precedents exist in Vermont to camouflage telecommunication towers. These include painting, dulling, and the creation of towers that take on the appearance of evergreen trees. The last option often results in an unusually large tree-like structure that can attract viewer interest rather than blending or camouflaging the proposed action. This is particularly true when the tall tower is viewed against the sky in the context of other shorter trees around it. Painting can be a very effective method of mitigating visual impacts. Using neutral colors such as BLM Shadow Grey blends well with the existing vegetation and provides negative space when viewed against the sky. However, painting is often a prohibitively expensive process and requires regular and repeated maintenance. Dulling of galvanized steel can have a similar effect as painting. This process involves the use of a chemical additive during the galvanizing process. The effect

is a very low specular profile, which is less prone to the effects of reflection and glare. While the dulling of galvanized steel can be an effective mitigation measure, it is often considered unnecessary because natural oxidation and weathering of the steel members will eventually achieve the desired effect.

Based on our analysis of the mitigation options listed above, it is EDRs opinion that additional mitigation measures would have a minimal incremental effect on the potential impacts associated with the tower. As such, these measures are unlikely to be practicable or necessary.

5.3 Conclusions

Based on EDR's evaluation, the Facility will not violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area, will not offend the sensibilities of the average person or appear shocking or offensive, and additional mitigation measures would have minimal effect on the potential impacts associated with the tower. Therefore, it is EDRs conclusion that the tower will not result in undue adverse impacts on the surrounding visual environment.

6.0 ORDERLY DEVELOPMENT REVIEW

This section evaluates whether the Facility will interfere with the orderly development of the region as dictated by Town and Regional documents in accordance with 30 V.S.A. § 248a. The Facility Site is located solely in the Town of Enosburgh, therefore only the Northwest Regional Planning Commission and Town of Enosburgh planning documents are included in this review.

Northwest Regional Planning Commission: Plan for the Northwest Region (2015-2023)

This plan includes several goals that are supportive of telecommunication facility development. The Economic Infrastructure chapter identifies a goal to *"Develop and maintain a high-quality, affordable telecommunications infrastructure that provides the most efficient and effective as well as the least obstructive system possible."* Another goal in this chapter is to *"Ensure the availability of broadband access in order to increase economic opportunity and support economic diversity."* In support of this goal, the plan outlines provisions that include, *"Support the development of a telecommunications infrastructure that enhances high-quality education and lifelong learning opportunities," "Consolidation of new telecommunications facilities on existing sites is preferred over the development of new sites. New telecommunications equipment and towers shall be sited in the least obstructive and least ecologically sensitive areas possible," "Promote universal access to high-speed broadband and emerging telecommunications technologies," and "Ensure that the telecommunications system and related infrastructure fit within the character of the area as defined by the local and regional plans."*

The Northwest Regional Planning Commission, in the proposed land use map, has designated the Facility Site area as Conservation & Forest Resource Planning Area and Rural Planning Area land uses. In the Conservation & Forest Resource Planning Area land use, limiting development is prioritized so as to protect natural resources and reduce fragmentation and land conversion. While the area around the proposed Facility Site is primarily forested, there is an existing cleared field surrounding the farm complex, located on the eastern portion of the parcel off Vermont Route 108, and a small field located in the northern portion

of the parcel where the Facility is proposed. The Facility is proposed and sited to minimize disturbance to forested areas, as the proposed tower is proposed to be located in a small field, thus eliminating the need for significant tree removal. Furthermore, the proposed access road follows an unimproved path in the landscape that is already absent any tree cover, thereby minimizing the need for substantial disturbance. Suggested land uses in the Rural Land Planning Area include single-family homes and cluster developments that prioritize the conservation of open space. The proposed Facility is designed in such a manner that it results in minimal disturbance to the landscape and will not encourage further sprawl or commercial development in the area.

The Town and Village of Enosburgh Comprehensive Plan (2020)

The comprehensive plan is generally supportive of telecommunications infrastructure and states that, *"Access to telecommunication services are increasingly important to the security, quality of life and economic needs of residents and businesses."* Chapter 7: Public Utilities, Facilities and Services includes a policy regarding telecommunications facilities. This policy states, *"Where co-location of telecommunications facilities with other towers or structures is not feasible, new structures must be sited in appropriate areas, respecting the integrity of residential areas, aesthetic concerns, and natural resource issues."*

Chapter 4 of the plan includes goals and policies related to natural features and housing, which are the major uses of the proposed facility location. Relevant Natural Features policies include, *"Guide development away from productive agricultural or forest soils," "Allow development based upon the capacity of the land considering factors such as soils, topography, and the presence of water and wetlands," "Limit use in floodplains to agriculture, open space, and recreation, unless otherwise approved through regulatory measures," "Limit the loss of location wildlife habitat and infringement upon wetlands," "Limit or mitigate the loss of wildlife habitat by protecting wildlife connectivity areas,"* and *"Minimize the fragmentation of forests by other land uses as a way to maintain the working forested landscape and core wildlife habitat."* The Facility Site is located so as to minimize disturbance to the natural environment and is not anticipated to have an unduly adverse impact to aesthetic resources of the surrounding area. The relevant housing policies include, *"To conserve and protect the vitality and quality of existing residential neighborhoods or areas."* The land is currently zoned rural residential and is suitable for low density, single-family development, agricultural land, and open space conservation. The proposed Facility as sited and designed results in minimal disturbance and will not negatively impact the vitality and quality of the existing residential neighborhoods. Additionally, the Facility is being designed in such a way to allow for future collocation of communications facilities, thus minimizing the possibility of additional new facilities being constructed nearby.

The Town of Enosburgh Development Bylaws (2019)

The proposed Facility is located entirely within the Rural Residential Zone where Commercial Telecommunications are considered a conditional use. Approval of the proposed Facility is contingent upon Condition Use Review as detailed in Section 3.3. The following relevant Conditional Use Review Standards apply:

Section 3.3, D., 4. Not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, or cultural and historic sites; or important environmental resources, wildlife habitat, wetlands, streams, rivers and ponds, or rare or irreplaceable natural areas identified in the Enosburgh Town Plan;

Section 3.3, D., 5. Be designed to retain the maximum possible area of land for productive agricultural use, and be compatible with the Enosburgh Town Plan's policies regarding agricultural use;

Section 3.3, D., 6. Not have an undue adverse effect on the present and projected housing needs of the Town in terms of amount, type, affordability and location;

Section 3.3, D., 7. Be in conformance with all other policies identified in the Town Plan;

Section 3.3, D., 8. Comply with all specific Conditional Use criteria applicable to the District, and other specific requirements of this bylaw;

The proposed Facility must also meet the requirement of Section 5.7: Telecommunications Facilities. These requirements include specific design criteria, use requirements, and financial requirements.

While the Facility's limit of disturbance is fully within the Rural Residential Zone a small portion of proposed overhead utility line, sited to follow a portion of Bordoville Road, will enter the Agricultural zoning district, within which Commercial Telecommunications are a restricted use. Therefore, the following provisions apply to portions of the proposed Facility within this zone:

Section 2.3, B., 2., a. Sited on or at the field-woodland edges to minimize the fragmentation of productive farmland, adverse impacts to farmland operation, and adverse visual effects to the scenic qualities of the site.

The proposed Facility will be implemented so as to conform to the regulations and requirements that are contained in the Town's Development Bylaws.

Conclusion

The proposed Facility supports the need to improve telecommunications, which is a priority reflected in the regional and town plans reviewed above. The proposed Facility has been located and designed so as to minimize disturbance to existing natural resources, farmland, and housing. The Facility proposal reflects the priorities of the town and region to protect the natural resources of the area, while also introducing telecommunication infrastructure that will enhance the quality of life of the community. For these reasons, it can be concluded that the Facility will not interfere with the orderly development of the region.

7.0 REFERENCES

7.1 Literature

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ATTACHMENTS

Attachment A

Viewpoint Photolog



Viewpoint 1 | Panorama
Panorama panning east to west



Viewpoint 1 | Single Frame

View looking southwest from
Vermont Route 108 in the Town
of Enosburgh, Franklin County,
Vermont

Coordinates:
44.86164°N, 72.79992°W

Direction of View:
Southwest

Elevation:
424 feet

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 2 | Panorama

Panorama panning east to west



View looking southwest from
Vermont Route 108 in the Town
of Enosburgh, Franklin County,
Vermont

Coordinates:
44.85656°N, 72.80204°W

Direction of View:
Southwest

Elevation:
450 feet

Viewpoint 2 | Single Frame

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 3 | Panorama

Panorama panning east to west



View looking southwest from
Vermont Route 108 in the Town
of Enosburgh, Franklin County,
Vermont

Coordinates:
44.85381°N, 72.80349°W

Direction of View:
Southwest

Elevation:
448 feet

Viewpoint 3 | Single Frame

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 4 | Panorama

Panorama panning east to west



Viewpoint 4 | Single Frame

View looking southwest from
Vermont Route 108 in the Town
of Enosburgh, Franklin County,
Vermont

Coordinates:
44.84986°N, 72.80520°W

Direction of View:
Southwest

Elevation:
451 feet

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 5 | Panorama

Panorama panning east to west



Viewpoint 5 | Single Frame

View looking southwest from
Vermont Route 108 in the Town
of Enosburgh, Franklin County,
Vermont

Coordinates:
44.84582°N, 72.80644°W

Direction of View:
Southwest

Elevation:
466 feet

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 6 | Panorama

Panorama panning east to west



View looking southwest from
Vermont Route 108 in the Town
of Enosburgh, Franklin County,
Vermont

Coordinates:
44.84373°N, 72.80722°W

Direction of View:
Southwest

Elevation:
498 feet

Viewpoint 6 | Single Frame

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 7 | Panorama

Panorama panning south to north



View looking west from Vermont
Route 108 in the Town of
Enosburgh, Franklin County,
Vermont

Coordinates:
44.84140°N, 72.80650°W

Direction of View:
West

Elevation:
500 feet

Viewpoint 7 | Single Frame

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 8 | Panorama
Panorama panning west to east



View looking northwest from
Ovitt Road in the Town of
Bakersfield, Franklin County,
Vermont

Coordinates:
44.83740°N, 72.80464°W

Direction of View:
Northwest

Elevation:
513 feet

Viewpoint 8 | Single Frame

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 9 | Panorama

Panorama panning west to east



Viewpoint 9 | Single Frame

View looking northwest from
Ovitt Road in the Town of
Bakersfield, Franklin County,
Vermont

Coordinates:
44.83452°N, 72.80273°W

Direction of View:
Northwest

Elevation:
523 feet

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 10 | Panorama
Panorama panning north to south



Viewpoint 10 | Single Frame

View looking southeast from
Chester A. Arthur Road in the
Town of Enosburgh, Franklin
County, Vermont

Coordinates:
44.85107°N, 72.81891°W

Direction of View:
Southeast

Elevation:
752 feet

O

ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review



Viewpoint 11 | Panorama

Panorama panning north to south



View looking east from Chester
A. Arthur Road in the Town of
Enosburgh, Franklin County,
Vermont

Coordinates:
44.84168°N, 72.82177°W

Direction of View:
East

Elevation:
783 feet

Viewpoint 11 | Single Frame

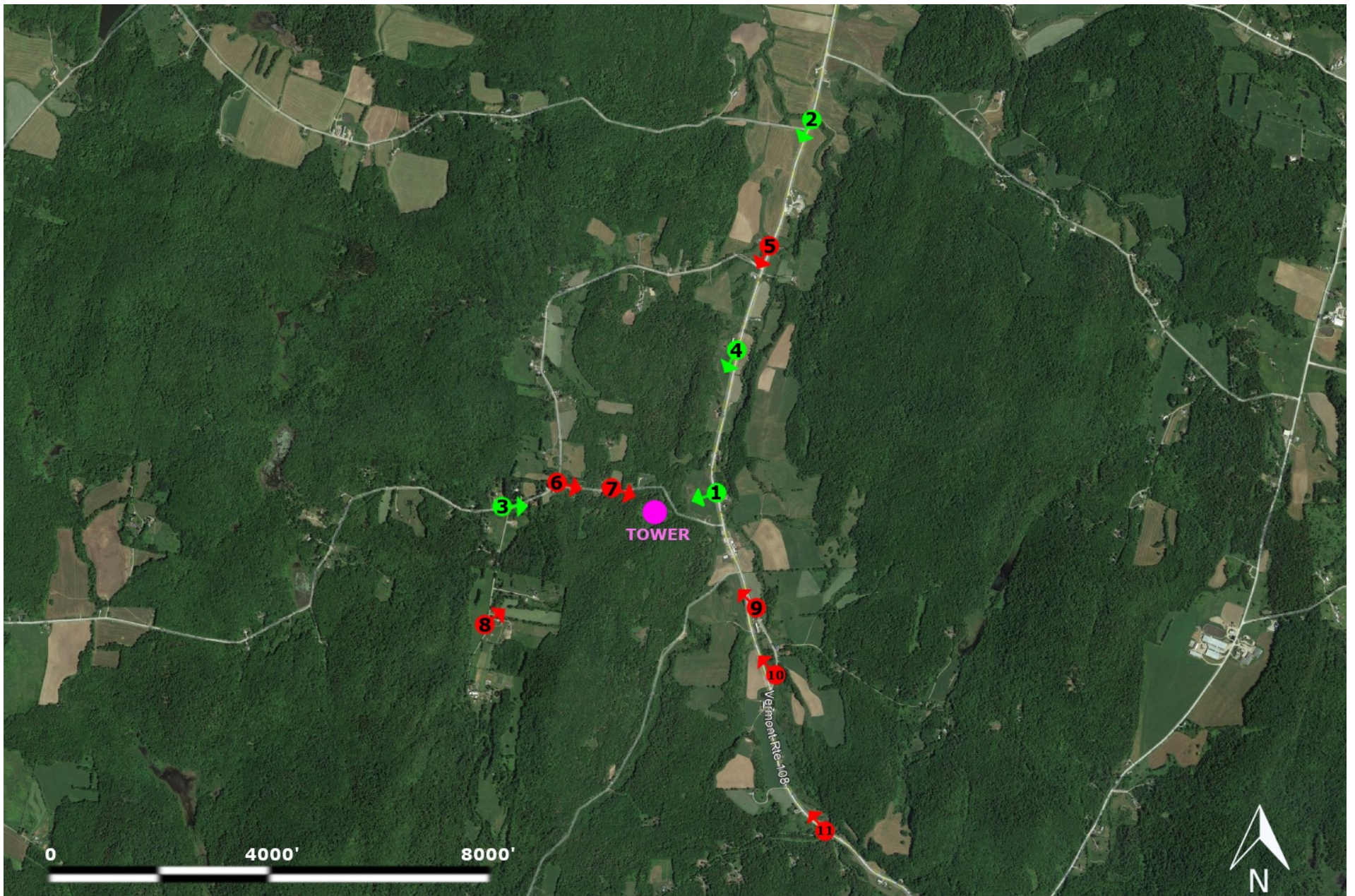
ITW Enosburgh Telecommunication Facility

Town of Enosburgh, Franklin County, Vermont

Aesthetics Analysis and Orderly Development Review

Attachment B

Applicant Viewshed and Photosimulations



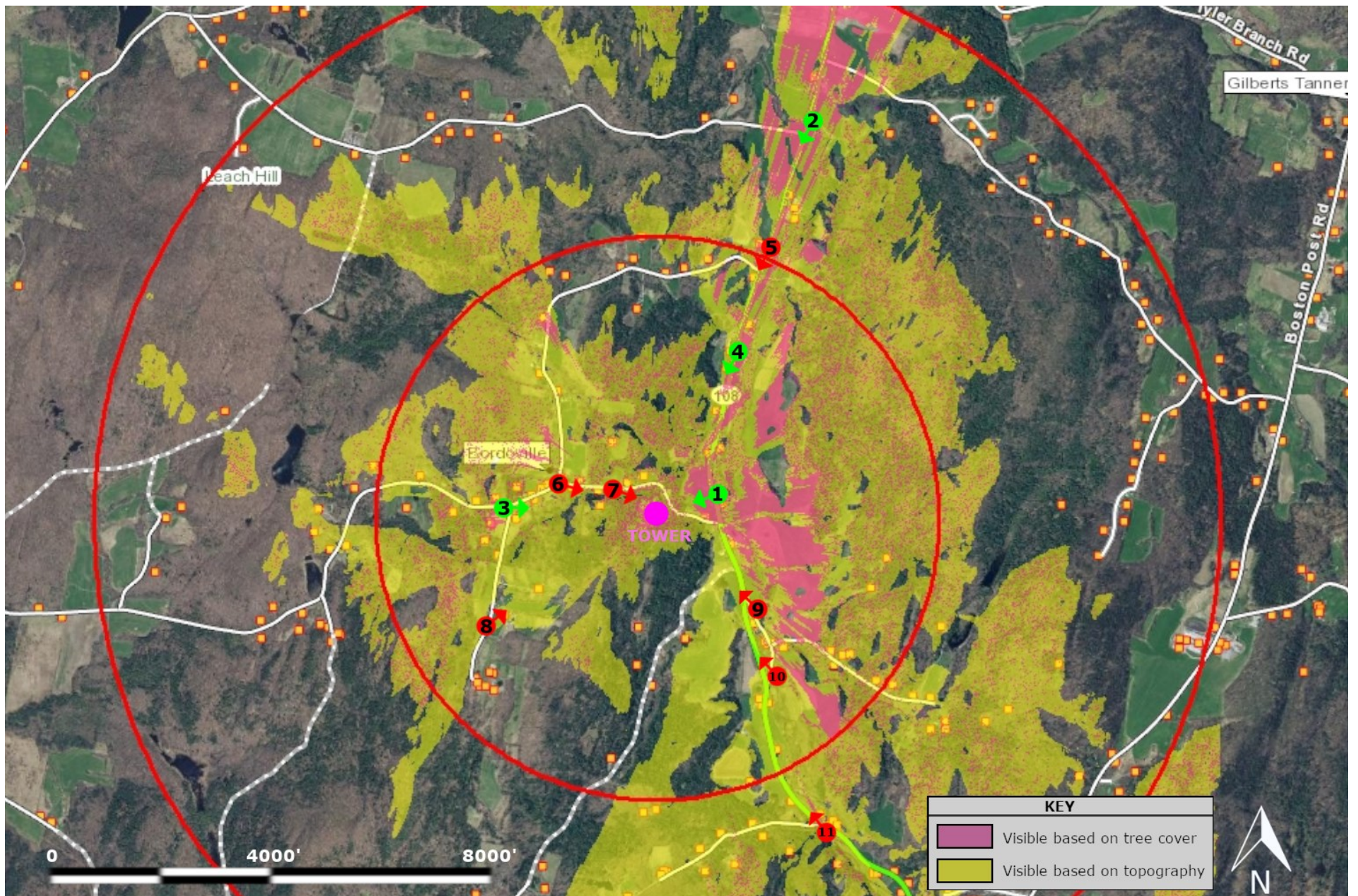
Enosburg VT

Bordoville Road, Enosburg VT

Location Map

 **Industrial
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& King**
Inc.



Enosburg VT

Bordoville Road, Enosburg VT
Visibility Map

 **Industrial
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INC.



Photograph Information

Viewer Location: W Enosburg Rd (VT Rte 108), Enosburg VT

Orientation: facing West-Southwest

Distance to Site: 0.22 miles

Date & Time: 1/21/22, 3:15pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-1

 **Industrial
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**DuBois
& King**
Inc.

This visual simulation is for reference only. Actual visibility will vary with weather conditions, time of day and viewer location.



Photograph Information

Viewer Location: W Enosburg Rd (VT Rte 108), Enosburg VT

Orientation: facing West-Southwest

Distance to Site: 0.22 miles

Date & Time: 1/21/22, 3:15pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

140' Lattice Tower,

13' Whip Antennas

VP-1

 **Industrial
Communications**

**DuBois
& King**
INC.



Photograph Information

Viewer Location: W Enosburg Rd (VT Rte 108), Enosburg VT

Orientation: facing South-Southwest

Distance to Site: 1.00 mile

Date & Time: 1/21/22, 3:30pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-2

 **Industrial
Communications**

**DuBois
& King**
Inc.

This visual simulation is for reference only. Actual visibility will vary with weather conditions, time of day and viewer location.



Photograph Information

Viewer Location: W Enosburg Rd (VT Rte 108), Enosburg VT

Orientation: facing South-Southwest

Distance to Site: 1.00 mile

Date & Time: 1/21/22, 3:30pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

140' Lattice Tower,

13' Whip Antennas

VP-2

 **Industrial
Communications**

**DuBois
& King**
Inc.



Photograph Information

Viewer Location: Jones Rd & Chester A. Arthur Rd, Enosburg VT

Orientation: facing East

Distance to Site: 0.53 miles

Date & Time: 1/21/22, 3:50pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-3

 **Industrial
Communications**

**DuBois
& King**
Inc.

This visual simulation is for reference only. Actual visibility will vary with weather conditions, time of day and viewer location.



Photograph Information

Viewer Location: Jones Rd & Chester A. Arthur Rd, Enosburg VT

Orientation: facing East

Distance to Site: 0.53 miles

Date & Time: 1/21/22, 3:50pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

140' Lattice Tower,

13' Whip Antennas

VP-3

**Industrial
Communications**

**DuBois
& King
Inc.**



Photograph Information

Viewer Location: W Enosburg Rd (VT Rte 108), Enosburg VT

Orientation: facing Southwest

Distance to Site: 0.62 miles

Date & Time: 1/21/22, 4:08pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-4

 **Industrial
Communications**

**DuBois
& King**
Inc.

This visual simulation is for reference only. Actual visibility will vary with weather conditions, time of day and viewer location.



Photograph Information

Viewer Location: W Enosburg Rd (VT Rte 108), Enosburg VT

Orientation: facing Southwest

Distance to Site: 0.62 miles

Date & Time: 1/21/22, 4:08pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

140' Lattice Tower,

13' Whip Antennas

VP-4

 **Industrial
Communications**

**DuBois
& King**
Inc.



Photograph Information

Viewer Location: W Enosburg Rd (VT Rte 108), Enosburg VT

Orientation: facing Southwest

Distance to Site: 1.00 mile

Date & Time: 1/21/22, 3:40pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-5

 **Industrial
Communications**

**DuBois
& King**
Inc.



Photograph Information

Viewer Location: Bordoville Rd & Chester A Arthur Rd, Enosburg VT

Orientation: facing East-Southeast

Distance to Site: 0.38 miles

Date & Time: 1/21/22, 4:01pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-6

 **Industrial
Communications**

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& King**
Inc.



Photograph Information

Viewer Location: Bordoville Rd, Enosburg VT

Orientation: facing Southeast

Distance to Site: 0.20 miles

Date & Time: 1/21/22, 3:59pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-7

 **Industrial
Communications**

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& King**
Inc.



Photograph Information

Viewer Location: Jones Rd, Enosburg VT

Orientation: facing Northeast

Distance to Site: 0.73 miles

Date & Time: 1/21/22, 3:55pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-8

 **Industrial
Communications**

**DuBois
& King**
Inc.



Photograph Information

Viewer Location: Ovitt Rd, Enosburg VT

Orientation: facing Northwest

Distance to Site: 0.43 miles

Date & Time: 1/21/22, 3:20pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-9

**Industrial
Communications**

**DuBois
& King
Inc.**



Photograph Information

Viewer Location: Ovitt Rd & Main St N, Enosburg VT

Orientation: facing Northwest

Distance to Site: 0.70 miles

Date & Time: 1/21/22, 4:15pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-10

 **Industrial
Communications**

**DuBois
& King**
INC.



Photograph Information

Viewer Location: Main St N & Pudvah Hill Rd, Enosburg VT

Orientation: facing Northwest

Distance to Site: 1.20 miles

Date & Time: 1/21/22, 4:20pm

Focal Length (35mm equivalent): 52mm

Enosburg VT

Existing VP-11

 **Industrial
Communications**

**DuBois
& King**
Inc.