

DOCKET NO. 478 - Eco-Site, Inc. and T-Mobile Northeast, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 63 Woodland Street, Glastonbury, Connecticut.	} } }	Connecticut Siting Council March 29, 2018
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Findings of Fact

Introduction

1. Eco-Site, Inc. and T-Mobile Northeast, LLC (collectively the Applicant), in accordance with provisions of Connecticut General Statutes (C.G.S.) § 16-50g, et seq, applied to the Connecticut Siting Council (Council) on September 18, 2017 for a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of a 150-foot monopole wireless telecommunications facility at 63 Woodland in Glastonbury, Connecticut (refer to Figure 1). (Applicant 1, p. 1)
2. Eco-Site, Inc. is headquartered at 240 Leigh Farm Road, Durham, North Carolina. Eco-Site, Inc. develops/builds, owns and leases telecommunications towers in the U.S. Eco-Site, Inc. would construct, maintain and own the proposed facility and would be the Certificate Holder. (Applicant 1, p. 3)
3. T-Mobile Northeast, LLC (T-Mobile) is a Delaware limited liability company with an office located at 35 Griffin Road, Bloomfield, Connecticut. T-Mobile is licensed by the Federal Communications Commission (FCC) to provide personal wireless communication service to Hartford County, Connecticut, where the site is located. (Applicant 1, pp. 3-4)
4. The parties in this proceeding are the Applicant and the Town of Glastonbury (Town). (Transcript 1, January 11, 2018, 3:00 p.m. [Tr. 1], p. 5)
5. The purpose of the proposed facility is to provide wireless service to the south-central section of Glastonbury. (Applicant 1, Tab 1)
6. Pursuant to C.G.S. § 16-50/ (b), the Applicant provided public notice of the filing of the application that was published in the Hartford Courant on September 5, 2017 and September 6, 2017. (Applicant 1, p. 4; Applicant 2, response 2)
7. Pursuant to C.G.S. § 16-50/ (b), notice of the application was provided to all abutting property owners by certified mail. Notice was unclaimed by six abutters. The Applicant sent a copy of the notice letter to these six abutters a second time by first class mail on September 22, 2017. (Applicant 1, p. 4, Tab 8; Applicant 2, response 1)
8. On September 15, 2017, the Applicant provided notice to all federal, state and local officials and agencies listed in C.G.S. § 16-50/ (b). (Applicant 1, p. 4 and Certification of Service list)

Procedural Matters

9. Upon receipt of the application, the Council sent a letter to the Town on September 20, 2017 as notification that the application was received and is being processed, in accordance with C.G.S. § 16-50gg. (Record)

10. On September 27, 2017, the Town requested party status. The Council granted party status on October 26, 2017. (Record)
11. On September 29, 2017, the Council requested an extension of time to deem the application complete due to the cancellation of a Council energy/telecommunications meeting that was scheduled for October 12, 2017. On October 17, 2017, the Applicant granted an extension of time until October 31, 2017 for the Council to deem the application complete. (Record)
12. During an energy/telecommunications Council meeting held on October 26, 2017, the application was deemed complete pursuant to Regulations of Connecticut State Agencies (R.C.S.A.) § 16-50-1a and the public hearing schedule was approved by the Council. (Record)
13. Pursuant to C.G.S. § 16-50m, on October 27, 2017, the Council sent a letter to the Town to provide notification of the scheduled public hearing. (Record)
14. Pursuant to C.G.S. § 16-50m, on November 1, 2017, the Council published legal notice of the date and time of the public hearing in the Hartford Courant. (Record)
15. On November 15, 2017, the Council held a pre-hearing conference on procedural matters for parties and intervenors to discuss the requirements for pre-filed testimony, exhibit lists, administrative notice lists, expected witness lists, filing of pre-hearing interrogatories and the logistics of the public inspection of the site scheduled for January 11, 2018, at the Office of the Council, 10 Franklin Square, New Britain, Connecticut. (Council Pre-Hearing Conference Memoranda, dated November 8, 2017 and November 17, 2017)
16. In compliance with R.C.S.A. § 16-50j-21, on December 29, 2017, the Applicant installed a four-foot by six-foot sign at the entrance to the subject property. The sign presented information regarding the project and the Council's public hearing. (Applicant 3, Sign Posting Affidavit)
17. The Council and its staff conducted an inspection of the proposed site on January 11, 2018, beginning at 2:00 p.m. During the field inspection, the Applicant flew a three-foot diameter balloon at the proposed site to simulate the height of the proposed tower. The balloon was aloft from approximately 7:00 a.m. to 4:00 p.m. for the convenience of the public. (Applicant 1, p. 14; Council's Hearing Procedure Memorandum dated November 17, 2017)
18. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public hearing on January 11, 2018, beginning with the evidentiary session at 3:00 p.m. and continuing with the public comment session at 6:30 p.m. at the Glastonbury Town Hall, 2155 Main Street, Glastonbury. (Council's Hearing Notice dated October 27, 2017; Tr. 1, p. 1; Transcript 2, January 11, 2018 – 6:30 p.m. [Tr. 2], p. 108)
19. Pursuant to C.G.S. § 16-50p(a), on January 16, 2018, due to the need for a continued evidentiary hearing, the Council requested the Applicant's consent to extend the deadline to render a decision on the application until May 11, 2018. The Applicant granted the Council's request on February 2, 2018. (Record)
20. The Council continued the public evidentiary hearing on February 8, 2018, beginning at 1:00 p.m. at the Council's office at 10 Franklin Square, New Britain, Connecticut. (Council's Continued Hearing Memorandum dated January 16, 2018; Tr. 2, p. 120; Transcript 3, February 8, 2018 – 1:00 p.m. [Tr. 3], p. 122)

State Agency Comment

21. Pursuant to C.G.S. § 16-50j (g), on October 27, 2017, the following State agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Energy and Environmental Protection (DEEP); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Agriculture (DOAg); Department of Transportation (DOT); Connecticut Airport Authority (CAA); Department of Emergency Services and Public Protection (DESPP); and State Historic Preservation Office (SHPO). (Record)
22. The Council received a response from the CAA on November 3, 2017 requesting that the Applicant submit an official Notice of Proposed Construction or Alteration (Form 7460-1) to the Federal Aviation Administration (FAA) due to the proximity of the proposed site to Brainard Airport. (CAA Comments received November 2, 2017)
23. The following agencies did not respond with comment on the application: DEEP, CEQ, PURA, OPM, DECD, DOAg, DPH, DOT, DESPP, and SHPO. (Record)

Municipal Consultation

24. On November 15, 2016, the Applicant commenced the 90-day pre-application municipal consultation process by submitting a technical report describing the project to the Town and subsequently meeting with the Glastonbury Town Manager, Richard Johnson. (Applicant 1, p. 18)
25. The Applicant temporarily suspended the municipal consultation process in late 2016 to address lease issues with the site landowner. (Applicant 1, p. 18)
26. The Applicant resumed the municipal consultation process in June 2017. At the request of the Town, a balloon float was held on July 18, 2017, and a public information meeting held was on August 1, 2017. All residents within 500 feet of the site received notice of the balloon float and public meeting. Notice of the public meeting was provided in the Hartford Courant and posted on the Town website. (Applicant 1, p. 18, Tab 7)
27. Approximately 50 to 60 people attended the August 1, 2017 public meeting. (Tr. 1, pp. 91-92)
28. The Town submitted correspondence to the Applicant on January 29, 2018 requesting the following:
 - a. Space on the tower for emergency communication equipment at no cost to the Town; and
 - b. The tower be designed as a monopine.

The Applicant is willing to make space available on the tower for the Town's needs and is not adverse to deploying a monopine to lessen the visual impact of the tower to identified sensitive areas. (Town of Glastonbury letter to Daniel Laub, Esq., dated January 29, 2018; Tr. 1, pp. 18-19, 30-31)

Public Need for Service

29. In 1996, the United States Congress recognized a nationwide need for high quality wireless telecommunications services, including cellular telephone service. Through the Federal Telecommunications Act of 1996, Congress seeks to promote competition, encourage technical innovations, and foster lower prices for telecommunications services. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)

30. In issuing cellular licenses, the Federal government has preempted the determination of public need for cellular service by the states, and has established design standards to ensure technical integrity and nationwide compatibility among all systems. T-Mobile is licensed by the Federal Communications Commission (FCC) to provide personal wireless communication service to Connecticut. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996; Applicant 1, pp. 1-2)
31. Section 253 of the Telecommunications Act of 1996 prohibits any state or local statute or regulation, or other state or local legal requirement from prohibiting or having the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)
32. Section 704 of the Telecommunications Act of 1996 prohibits local and state entities from discriminating among providers of functionally equivalent services and from prohibiting or having the effect of prohibiting the provision of personal wireless services. This section also requires state or local governments to act on applications within a reasonable period of time and to make any denial of an application in writing supported by substantial evidence in a written record. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)
33. Section 704 of the Telecommunications Act of 1996 also prohibits any state or local entity from regulating telecommunications towers on the basis of the environmental effects of radio frequency emissions, which include effects on human health and wildlife, to the extent that such towers and equipment comply with FCC’s regulations concerning such emissions. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)
34. In February 2009, as part of the American Recovery and Reinvestment Act, Congress directed the FCC to develop a National Broadband Plan to ensure every American has “access to broadband capability.” Congress also required that this plan include a detailed strategy for achieving affordability and maximizing use of broadband to advance “consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, employee training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.” (Council Administrative Notice Item No. 18 – The National Broadband Plan)
35. Section 706 of the Telecommunications Act of 1996 requires each state commission with regulatory jurisdiction over telecommunications services to encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans, including elementary and secondary schools, by utilizing regulating methods that promote competition in the local telecommunications market and remove barriers to infrastructure investment. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)
36. In December 2009, President Barack Obama recognized cell phone towers as critical infrastructure vital to the United States. The Department of Homeland Security, in collaboration with other federal stakeholders, state, local, and tribal governments, and private sector partners, has developed the National Infrastructure Protection Plan (NIPP) to establish a framework for securing our resources and maintaining their resilience from all hazards during an event or emergency. (Council Administrative Notice Item No. 11 – Presidential Proclamation 8460, Critical Infrastructure Protection)

37. In February 2012, Congress adopted the Middle Class Tax Relief and Job Creation Act to advance wireless broadband service for both public safety and commercial users. The Act established the First Responder Network Authority to oversee the construction and operation of a nationwide public safety wireless broadband network. Section 6409 of the Act contributes to the twin goals of commercial and public safety wireless broadband deployment through several measures that promote rapid deployment of the network facilities needed for the provision of broadband wireless services. (Council Administrative Notice Item No. 8 – Middle Class Tax Relief and Job Creation Act of 2012)
38. In June 2012, President Barack Obama issued an Executive Order to accelerate broadband infrastructure deployment declaring that broadband access is a crucial resource essential to the nation's global competitiveness, driving job creation, promoting innovation, expanding markets for American businesses and affording public safety agencies the opportunity for greater levels of effectiveness and interoperability. (Council Admin Notice Item No. 21 – FCC Wireless Infrastructure Report and Order; Council Admin Notice Item No. 12 – Presidential Executive Order 13616, Accelerating Broadband Infrastructure Development)
39. Pursuant to Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, also referred to as the Spectrum Act, a state or local government may not deny and shall approve any request for collocation, removal or replacement of equipment on an existing wireless tower provided that this does not constitute a substantial change in the physical dimensions of the tower. The Federal Communications Commission defines a substantial change in the physical dimensions of a tower as follows:
 - a) An increase in the existing height of the tower by more than 10 percent or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater. Changes in height should be measured from the dimensions of the tower, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.
 - b) Adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater.
 - c) Installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four, or more than one new equipment shelter.
 - d) A change that entails any excavation or deployment outside the current site.
 - e) A change that would defeat the concealment elements of the tower.
 - f) A change that does not comply with conditions associated with the siting approval of the construction or modification of the tower, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would exceed the thresholds identified in (a) – (d).(Council Administrative Notice Item No. 8 – Middle Class Tax Relief and Job Creation Act of 2012; Council Administrative Notice Item No. 21 – FCC Wireless Infrastructure Report and Order)
40. According to state policy, if the Council finds that a request for shared use of a facility by a municipality or other person, firm, corporation or public agency is technically, legally, environmentally and economically feasible, and the Council finds that the request for shared use of a facility meets public safety concerns, the Council shall issue an order approving such shared use to avoid the unnecessary proliferation of towers in the state. (C.G.S. §16-50aa)

Existing and Proposed Wireless Services

41. T-Mobile’s proposed facility would provide coverage to a largely residential area of south-central Glastonbury including the area of Hopewell Road, Coldbrook Road, Woodland Street, Sunset Drive, Matson Hill Road, Bittersweet Lane, and Murray Drive. Currently, T-Mobile has no reliable service in the area (refer to Figure 2). (Applicant 1, p. 1, Tab 1)
42. The main objective of the site is to provide residential in-building service and in-vehicle service to the surrounding area. Approximately 600 residents are within the proposed service area. A secondary benefit is offloading wireless traffic served by the outer fringe coverage of adjacent sites as this type of coverage tends to reduce performance of a site attempting to serve distant areas. (Applicant 1, p. 1; Tr. 1, pp. 67-68)
43. T-Mobile would designate the proposed site as the “CTHA026” facility in their network. (Applicant 1, Tab 1)

44. T-Mobile’s proposed facility would interact with their adjacent existing facilities identified in the following table:

T-Mobile Site Designation	Site Address	Distance from Proposed Site	Antenna Height (agl)	Structure Type
CTHA091A	2825 Main Street Rocky Hill	3.70 miles	78 feet	watertank
CT11172B	100 Executive Square Wethersfield	4.41 miles	123 feet	rooftop
CT11058C	699 Old Main Street Rocky Hill	3.44 miles	150 feet	monopole
CT11786D	2557 Main Street Glastonbury	4.06 miles	93 feet	self-support lattice
CT11190A	628 Hebron Avenue Glastonbury	3.53 miles	65 feet	rooftop
CTHA083C	58 Montano Road Glastonbury	2.46 miles	117 feet	monopole
CT11248A	366 South Three Mile Road Glastonbury	2.37 miles	116 feet	monopole
CT11336A	175 Dickinson Road Glastonbury	2.58 miles	180 feet	self-support lattice

(Applicant 1, Tab 1 – Surrounding Site List)

45. T-Mobile would deploy 700 MHz, 1900 MHz, 2100 MHz service at the proposed facility, capable of providing Long Term Evolution (LTE) quality service. (Applicant 2, response 22, response 24)
46. Most of T-Mobile’s voice and data traffic would be handled by the 1900 MHz and 2100 MHz frequencies since T-Mobile is limited to 5 MHz of spectrum in the 700 MHz frequency band. (Applicant 2, response 24)
47. T-Mobile’s design signal strengths thresholds for all frequencies are -114 dBm for in-vehicle coverage, -97 dBm for residential in-building coverage, and -91 dBm for commercial in-building coverage. (Applicant 2, response 23)
48. Propagation modeling indicates the proposed site would provide approximately 1.8 square miles of residential in-building coverage at 2100 MHz (refer to Figure 3). The 1900 MHz service footprint would be of similar size. (Applicant 2, response 20, response 25; Tr. 1, pp. 68-69)

49. Lowering the height of T-Mobile's antennas would compromise network performance since there would be more terrain and tree canopy interference. (Tr. 1, p. 58)

Site Selection

50. The Applicant established a search ring with a radius of 0.5 mile that focused on a largely residential area centered on Hopewell Road. This initial search ring was based on T-Mobile's desire to locate a site within the dense residential area of South Glastonbury. Generally, T-Mobile characterizes a search ring as a starting point in determining where a site should be located, not as definitive limited area. (Applicant 1, Tab 2; Tr. 1, pp. 63, 65-68)
51. Due to local topography, lack of existing suitable structures, and small lot sizes within the initial search area, the Applicant expanded the site search outside of the initial ring to include larger parcels and higher terrain that could serve a majority of the target service area. (Tr. 1, pp. 65-70)
52. There are no sufficiently tall structures in the area that can satisfy T-Mobile's coverage needs. In this area, tall structures were mostly church steeples that are not tall enough to provide adequate service. Other existing telecommunication sites are miles from the proposed location. (Applicant 1, Tab 2; Tr. 1, p. 64)
53. After determining there were no suitable structures within the search area, the Applicant searched for properties suitable for tower development. The Applicant investigated four parcels and selected the proposed site for a tower location. The four rejected parcels and reasons for their rejection are as follows:
- a) **580 Hopewell Road** – This parcel was deemed not viable after the property owner withdrew interest.
 - b) **South Mill Drive** – This parcel was deemed not viable due to wetland constraints and future development plans of the property owner.
 - c) **Main Street** – Applicant did not receive a response from landowner.
 - d) **Elks Club Property, Woodland Street** – Property suggested by the Town. Potential locations on the parcel would not meet coverage needs even if a taller tower was installed.
- (Applicant 1, Tab 2; Applicant 2, response 10; Tr. 1, pp. 92-93)
54. Providing coverage to the proposed service area using a distributed antenna system, repeater, microcell or other similar types of technology is not practical or feasible given the large area of coverage needed in this area. These technologies are typically used for specific, defined coverage or capacity needs. (Applicant 1, p. 11)

Facility Description

55. The proposed site is located on an approximately 177.1 acre parcel at 63-80 Woodland Street in Glastonbury (Map G11, Block 7800, Lot W0002). The parcel is owned by Paul Cavanna. (Applicant 1, p. 1, Tab 5, p. 1; Applicant 2, response 9)
56. The subject property is zoned Rural Residence and contains two residences, several farm buildings, and interior roads. (Applicant 1, Tab 3)
57. The property is used for agriculture and has crop fields, a Christmas tree farm, wooded areas and a gravel pit. Thirty-nine acres of the parcel are in active agricultural use. (Applicant 1, Tab 3, Tab 5, p. 1)

58. Land use immediately surrounding the subject parcel consists of agricultural and residential use, and open space. (Applicant 1, Tab 3; Tr. 1, p. 24)
59. The proposed tower site is located in the southwest portion of the property, at an elevation of 319 feet above mean sea level (refer to Figure 4). (Applicant 1, Tab 3)
60. The proposed facility would consist of a 150-foot monopole within a 50-foot by 50-foot leased area. The tower would be designed to support four levels of platform-mounted antennas. (Applicant 1, Tab 3)
61. The tower would be approximately 6 feet in diameter at the base, tapering to 2 feet in diameter at the top. (Applicant 2, response 12)
62. The tower could be designed to be expandable in height by up to 20 feet. (Tr. 1, pp. 52-53)
63. T-Mobile would install 9 panel antennas, 9 remote radio units, and one 2-foot diameter dish antenna on a low-profile rigid T-arm mount at a centerline height of 146 feet above ground level (agl). The total height of the facility with T-Mobile's antennas would be 150 feet agl (refer to Figure 7). (Applicant 1, Tab 3)
64. A 50-foot by 50-foot fenced equipment compound would be established at the base of the tower (refer to Figure 6). The size of the lease area would be able to accommodate the equipment of four wireless carriers. (Applicant 1, Tab 3, Sheet Z-3)
65. T-Mobile would install telecommunication radio cabinets on a 10-foot by 20-foot concrete pad within the compound. (Applicant 1, Tab 3, Sheet Z-3)
66. No other commercial wireless carriers have expressed an interest in co-locating on the proposed tower at this time. (Applicant 5, p. 2 – Carrier Responses)
67. The Town intends to locate emergency communications equipment at the site. The preliminary list of equipment includes three transmit/receive radios, microwave link, equipment shelter and a generator. Exact tower heights have not yet been determined. (Town of Glastonbury letter to Daniel Laub, Esq., dated January 29, 2018; Tr. 1, p. 30, Tr. 3, pp. 181-182)
68. Access to the proposed site would extend west from Woodland Street utilizing an existing dirt farm road for a total distance of 3,750 feet, then follow a new driveway for 650 feet to the compound. No improvements to the existing dirt farm road are anticipated. (Applicant 1, Tab 3- Site Plans; Applicant 2, responses 9e, 9f)
69. The new section of access drive would extend southward and uphill from the existing farm drive and would have a grade of approximately 10 percent (refer to Figure 5). (Applicant 1, Tab 3 – Site Plans; Tr. 3, pp. 174-175)
70. Approximately 4,500 cubic yards of cut would be required to construct the new access drive. (Applicant 1, Tab 3 – Site Plans)
71. The northern end of the new portion of the access drive would utilize retaining walls on both sides of the driveway to stabilize hillside slopes. The precast modular block retaining walls would extend up to six feet high (refer to Figure 5). (Tr. 3, pp. 164-165)

72. Underground utilities would be installed to the compound from an existing utility pole on Woodland Street. The utilities would be installed along the edge of the existing farm drive except in locations where a culvert watercourse crossing exists, requiring the utility line to be routed within the farm drive travel surface to avoid impacts to adjacent wetlands and watercourses. (Tr. 1, pp. 86-87; Tr. 3, pp. 167-168)
73. The preliminary route for the underground utility line along the new section of access drive would be within a drainage swale along the east edge of the access drive, covered with an appropriate layer of gravel. The Applicant would consider re-designing/re-locating the utility line in this area to avoid the potential of undermining the adjacent driveway retaining wall if excavation of the utility line was required. (Applicant 5d; Tr. 3, pp. 148-149, 176-177)
74. Preliminary stormwater controls for the new section of access drive would consist of swales. Swale discharge is expected to sheet flow across the existing farm drive. Rip-rap lined swales would be installed on the upper and lower sides the east retaining wall. The Applicant would examine if additional areas of riprap are necessary to control stormwater flow during the final design phase of the project. (Applicant 5d; Tr. 3, pp. 149, 166-167)
75. The nearest property boundary from the proposed tower is approximately 290 feet to the southwest (295 Matson Hill Road). (Applicant 1, Tab 3, Site Plans Z2, Z2E)
76. There are no residential structures within 1,000 feet of the proposed tower site. The nearest residence is approximately 1,140 feet southwest of the tower site, located on Blueberry Lane. (Applicant 1, Tab 3, Site Plan Z2, Tab 5, p. 1)
77. Site preparation would commence following Council approval of a Development and Management Plan (D&M Plan) and is expected to be completed within four to six weeks. Installation of the tower, antennas and associated equipment is expected to take another two to four weeks. After equipment installation, facility integration and system testing is expected to require an additional two weeks. (Applicant 1, p. 19)
78. The estimated cost of the proposed facility is:
- | | |
|---------------------------------|------------------|
| Tower and Foundation | \$100,000 |
| Site Development | 65,000 |
| Utility Installation | 20,000 |
| Subtotal: Eco-Site Cost | \$185,000 |
|
 | |
| Antennas and Equipment | \$250,000 |
| Subtotal: T-Mobile Costs | \$250,000 |
|
 | |
| Total Estimated Costs | \$435,000 |
- (Applicant 1, p. 19)
79. Eco-Site would recover tower construction costs through tower lease agreements. T-Mobile would recover costs of their equipment through statewide and regional customer service contracts. (Tr. 3, pp. 138-140)

Public Safety

80. The Wireless Communications and Public Safety Act of 1999 (911 Act) was enacted by Congress to promote and enhance public safety by making 9-1-1 the universal emergency assistance number, by furthering deployment of wireless 9-1-1 capabilities, and by encouraging construction and operation of seamless ubiquitous and reliable networks for wireless services. (Council Administrative Notice Item No. 6 - Wireless Communications and Public Safety Act of 1999)
81. The proposed facility would be in compliance with the requirements of the 911 Act and would provide Enhanced 911 services. (Applicant 1, p. 9)
82. Wireless carriers have voluntarily begun supporting text-to-911 services nationwide in areas where municipal Public Safety Answering Points (PSAP) support text-to-911 technology. Text-to-911 will extend emergency services to those who are deaf, hard of hearing, have a speech disability, or are in situations where a voice call to 911 may be dangerous or impossible. However, even after a carrier upgrades its network, a user's ability to text to 911 is limited by the ability of the local 911 call center to accept a text message. The FCC does not have the authority to regulate 911 call centers; therefore, it cannot require them to accept text messages. (Council Administrative Notice Item No. 21 – FCC Text-to-911: Quick Facts & FAQs)
83. T-Mobile's facility would be capable of supporting text-to-911 service as soon as the PSAP is capable of receiving text-to-911. However, no PSAPs in the vicinity of the proposed tower site are able to accept text-to-911 service at this time. (Applicant 2, response 27, response 28)
84. Pursuant to the Warning, Alert and Response Network Act of 2006, "Wireless Emergency Alerts" (WEA) is a public safety system that allows customers who own certain wireless phone models and other enabled mobile devices to receive geographically-targeted, text-like messages alerting them of imminent threats to safety in their area. WEA complements the existing Emergency Alert System that is implemented by the FCC and FEMA at the federal level through broadcasters and other media service providers, including wireless carriers. (Council Administrative Notice Item No. 5 – FCC WARN Act)
85. Pursuant to C.G.S. §16-50p(a)(3)(G), the tower and associated tower antenna mounts would be constructed in accordance with the American National Standards Institute "Structural Standards for Steel Antenna Towers and Antenna Support Structures" Revision G. (Applicant 1, Tab 3, Site Plans; Applicant 2, response 11)
86. The proposed tower would not constitute an obstruction or hazard to air navigation and would not require any obstruction marking or lighting. The Applicant has registered the site with the FAA and per the CAAs request of November 3, 2017, would submit a Form 7460-1 and a Form 7460-2 (post construction notification) to the FAA. (Applicant 1, Tab 3; Tr. 3, pp. 141-145)
87. The site would be monitored remotely on a 24 hours a day, seven days a week basis. (Applicant 1, p. 15; Tr. 3, p. 187)
88. The proposed equipment compound would be secured by a six-foot high chain-link fence of two inch mesh, with a barbed wire mounted on top of the fence. The Applicant is amenable to installing a fence with an anti-climb mesh. A locked vehicle access gate would control access to the compound area. (Applicant 1, Tab 3, Tab 6; Tr. 1, p. 77)
89. The tower radius would remain within the boundaries of the subject property. (Applicant 1, Tab 3)

90. The cumulative worst-case maximum power density from the radio frequency emissions from T-Mobile's proposed panel antennas is 1.2 percent of the standard for the General Public/Uncontrolled Maximum Permissible Exposure, as adopted by the FCC, at the base of the proposed tower. This calculation was based on methodology prescribed by the FCC Office of Engineering and Technology Bulletin No. 65E, Edition 97-01 (August 1997) that assumes all antennas in a sector would be pointed at the base of the tower and all channels would be operating simultaneously, which creates the highest possible power density levels. Under normal operation, the antennas would be oriented outward, directing radio frequency emissions away from the tower, thus resulting in significantly lower power density levels in areas around the tower. (Applicant 1, Tab 6, Applicant 2, response 29; Council Administrative Notice Item No. 2 – FCC OET Bulletin No. 65)

Emergency Backup Power

91. In response to two significant storm events in 2011, Governor Malloy formed a Two Storm Panel (Panel) that was charged with an objective review and evaluation of Connecticut's approach to the prevention, planning and mitigation of impacts associated with emergencies and natural disasters that can reasonably be anticipated to impact the state. (Final Report of the Two Storm Panel, Council Administrative Notice Item No. 45)
92. In response to the findings and recommendations of the Panel, and in accordance with C.G.S. §16-50//, the Council, in consultation and coordination with the DEEP, DESPP and PURA, studied the feasibility of requiring backup power for telecommunications towers and antennas as the reliability of such telecommunications service is considered to be in the public interest and necessary for the public health and safety. The study was completed on January 24, 2013. (Council Administrative Notice Item No. 25 – Council Docket No. 432)
93. The Council reached the following conclusions in the study:
- a) "Sharing a backup source is feasible for Commercial Mobile Radio Service providers, within certain limits. Going forward, the Council will explore this option in applications for new tower facilities;" and
 - b) "The Council will continue to urge reassessment and implementation of new technologies to improve network operations overall, including improvements in backup power."
- (Council Administrative Notice Item No. 25 – Council Docket No. 432)
94. To reduce the likelihood of power outages to the site from storm-related tree fall along the existing farm road and new access road, utilities to the site would be installed underground. (Tr. 3, pp. 166-167)
95. T-Mobile would install a backup power battery unit and an Auxiliary Power Unit (APU) at the site to provide emergency power. The APU is a propane fueled DC generator that would start once the battery unit is near exhaustion. The APU measures 27 inches wide by 40 inches long by 42 inches tall and would be mounted on a small concrete pad within the compound. An associated 120 gallon liquid propane tank measuring 54 inches in height and 30 inches in diameter would be installed near the APU and would contain enough fuel to run for 80 hours under average loading. (Applicant 2, response 30)
96. T-Mobile is not concerned about shortages of propane that could occur during severe cold weather events as the amount of propane necessary for emergency operations is small and T-Mobile contracts with a vendor to ensure supply. (Tr. 3, pp. 179-180)

97. Eco-Site does not intend to install a shared generator at this site because there are no other commercial carriers locating on the tower at this time. If the Town deploys equipment at the site in the future, the Town would have to provide its own dedicated emergency power source. (Tr. 3, pp. 190-191)
98. According to R.C.S.A. §22a-69-1.8, noise created as a result of, or relating to, an emergency, such as an emergency backup generator, is exempt from the State Noise Control Regulations. (R.C.S.A. §22a-69-1.8)

Environmental Considerations

99. The proposed facility would have no adverse effect on any properties listed on or eligible for the National Register of Historic Places. SHPO requests that the facility be constructed to be as non-visible as possible. (Applicant 2, response 19)
100. The site is not located within a 100 year or 500 year flood zone. (Applicant 1, p. 13; Tr. 1, pp. 74-75)
101. The proposed site is not within a DEEP designated Aquifer Protection Area. (Applicant 2, response 16)
102. The Inland Wetlands and Watercourses Act (IWWA), CGS §22a-36, *et seq.*, contains a specific legislative finding that the inland wetlands and watercourses of the state are an indispensable and irreplaceable but fragile natural resource with which the citizens of the state have been endowed, and the preservation and protection of the wetlands and watercourses from random, unnecessary, undesirable and unregulated uses, disturbance or destruction is in the public interest and is essential to the health, welfare and safety of the citizens of the state. (CGS §22a-36, *et seq.*)
103. The IWWA grants regulatory agencies with the authority to regulate upland review areas in its discretion if it finds such regulations necessary to protect wetlands or watercourses from activity that will likely affect those areas. (CGS §22a-42a)
104. The IWWA forbids regulatory agencies from issuing a permit for a regulated activity unless it finds on the basis of the record that a feasible and prudent alternative does not exist. (CGS §22a-41)
105. The existing farm road passes over three watercourse areas with associated riparian wetlands. All crossings feature a culvert within the base of the dirt farm road. No widening or resurfacing of the farm road is proposed. (Applicant 5e)
106. There are no wetlands or watercourses within the construction limits of the new access drive and compound. An intermittent watercourse is located across the existing dirt farm road at the new access drive entrance. (Applicant 5e)
107. Installation of the utility line along the edge and within the farm drive, depending on location, would require excavation. Adjacent wetland and watercourse resource areas would be protected by proper implementation of erosion and sedimentation control measures in compliance with the 2002 *Connecticut Guidelines for Soil Erosion and Sedimentation Control*. (Applicant 5e; Tr. 3, pp. 167-168)
108. Development of the new access drive and compound area would require the clearing of approximately 1.26 acres of a mixed evergreen and deciduous forest dominated by oaks, beech, hickory, eastern hemlock and black birch with an understory of witch-hazel and maple leaved viburnum. (Applicant 1, Tab 3-Sheet EC-2; Applicant 5, p. 1)

109. The site development area is not within an area delineated on the DEEP Natural Diversity Database as containing known records of State endangered, threatened or special concern species. (Applicant 1, p. 14; Applicant 6, Section- *State Protected Species Exemption Review Support Documentation*)
110. Connecticut is within the range of the northern long-eared bat (NLEB), a federally-listed Threatened species and State-listed Endangered species and the site area contains suitable habitat for NLEB. The Applicant submitted a United States Fish and Wildlife Service (USFWS) NLEB consultation form describing the project and impacted habitat. The USFWS did not respond to the filing, and thus, in accordance with USFWS rules, the project is not likely to adversely impact the NLEB and no further action is necessary. (Applicant 1, p. 14; Applicant 6, p. 7; Tr. 1, pp. 76-77)
111. According to DEEP, there are no known NLEB hibernacula or known maternity roost trees in the Town of Glastonbury. (Council Administrative Notice Item No. 61)
112. There are no National Audubon Society designated Important Bird Areas within two miles of the proposed site. (Council Administrative Notice Item No. 65)
113. The design of the proposed facility would comply with USFWS guidelines for minimizing the potential impact of telecommunications towers to bird species. The guidelines recommend that towers be less than 199 feet tall, avoid the use of aviation lighting, and avoid guy-wires as tower supports. (Council Administrative Notice Item No. 13; Applicant 6, p. 7)
114. The USFWS guidelines recommend the scheduling of vegetation removal outside of the peak bird breeding season (April 15 through July 15). (Council Administrative Notice Item No. 13)
115. The project area is not located on any prime farmland soils. (Applicant 1, p. 14; Applicant 2, response 15)
116. The State does not retain the development rights to the new access drive/compound area; however, this area is enrolled within the Public Act 490 Program as “Woods”. An adjustment to the land use designation would be made once the project is constructed. (Applicant 2, response 14)
117. Although shallow bedrock may exist within the compound area, blasting is not anticipated. Rock removal would be accomplished through mechanical chipping. (Tr. 1, pp. 54-55)
118. T-Mobile’s equipment cabinets would have low-noise emitting fans to provide cooling and operation of the fans would comply with DEEP noise control regulations. (Tr. 1, p. 54)

Visibility

119. The tower would be visible year-round from approximately 317 acres within a two-mile radius of the site (8,042 acres). Most of this year-round visibility is from agricultural fields and orchards 0.5 miles south and southwest of the site where the tower would extend above the surrounding tree canopy and ridgeline backdrop. Some residential development is located within this area, mostly along Matson Hill Road. (Applicant 1, Tab 5)
120. Based on computer modeling that accounts for large tracts of intervening vegetation, approximately 45 to 55 residential structures may have some line of sight visibility of the proposed tower. The model is conservative in that it assumes all modeled forested areas as having a tree canopy height of 50 feet agl and it does not account for smaller trees, individual trees or trees along roads that could provide screening of the facility. (Applicant 1, Tab 5, Applicant 2, response 18; Tr. 1, pp. 50-51)

121. Approximately 7 residences within 0.5 miles of the site would have year-round visibility of the tower. (Applicant 2, response 18)
122. Approximately 2.3 road miles within the visibility study area would have year-round views of the tower (refer to Figure 8). (Applicant 1, Tab 5)
123. The upper portion of the tower would be visible from a Town park located along the east side of Matson Hill Road. The park, approximately 0.3-mile northwest of the tower, contains a parking lot and the ruins of the Slocomb Mill. As one moves further east through the open area and closer to the treeline within the park, tower visibility is reduced. (Applicant 1, Tab 5; Tr. 1, pp. 13-14, 32-33)
124. To mitigate views of the tower from the park, the Town requests a monopine tower design. (Tr. 1, pp. 13-14; Town 2)
125. A monopine would have a greater profile than a monopole when viewed from the park since it would be silhouetted against the sky. The faux branches would have to be slightly longer than 12 feet in order to conceal T-Mobile's antennas and associated mounting frame and a five-foot cone would be installed at the top to create a tapered tree appearance. The monopine would not have simulated bark along the exposed lower portion of the tower. The tower itself would be painted brown. (Tr. 1, pp. 19-24; Tr. 3, pp. 186-187)
126. For this site, if Town antennas were installed on the monopine, the antennas would most likely be located below the faux branches. A whip antenna installed on top of the tower would extend above the faux tree cone. A microwave dish installed within the faux branches may require an opening to provide line-of-sight connectivity. (Tr. 1, pp. 180-183)
127. Installing additional equipment or maintaining existing equipment on a monopine is more difficult than a standard monopole due to the branches that would prevent unencumbered access to the structure. (Tr. 3, pp. 170-171)
128. Extending the height of a monopine to accommodate other carriers can be problematic in that a much stronger structure and foundation would be required to accommodate additional antennas as well as additional faux branches. (Tr. 3, p. 184)
129. The additional cost of a monopine is approximately \$70,000. The additional cost includes faux branches extending from the 90-foot tower level to the conical top at 155 feet agl, and additional foundation costs. (Tr. 3, pp. 136-137)
130. A flagpole style tower where the antennas are enclosed within the tower would be the least preferable tower design for T-Mobile. This type of design limits the number of antennas to one antenna per sector, for a total of three at a given tower height and also reduces the performance of the network by not having the ability of mounting radio units adjacent to the antennas. (Tr. 1, pp. 16-17, 28)
131. Utilizing a flagpole type tower, T-Mobile would require a tower height of 170 feet to accommodate all of their antennas. An estimated cost of a flagpole was not provided. (Tr. 1, pp. 17-18)
132. The upper portion of a flagpole-type tower would be larger in diameter than a standard monopole. (Tr. 1, pp. 22-23)

133. A fire tower stealth design would be constructed using a four pole steel structure and supporting lattice with each lattice face approximately 15-18 feet wide. A faux lookout cab would be at the top to support T-Mobile's antennas. Additional carriers would be located on the steel frame below the cab. The cost of a fire tower design was not provided but would be considerably more than a monopine design. (Tr. 3, pp. 132-133, 137, 159-161)
134. Visual simulations of a monopine, flagpole, and fire tower designs were submitted to the Town on February 2, 2018. (Tr. 3, p. 192)
135. The proposed monopole can have a colored finish rather than standard galvanized finish. A very pale white or pale gray may be the best color option given that the tower would be silhouetted against the sky when viewed from the park. Based on past tower painting schemes, a sky blue color tends to stand out more than either a lighter color or a galvanized finish. (Tr. 1, pp. 24-25)
136. Tyron Street (Route 160), a State Scenic Road, is located approximately 1.6 miles west of the site. The tower would not be visible from this road. (Council Administrative Notice Item No. 64; Applicant 1, Tab 5)
137. A portion of the Shenipsit Trail, a "blue-blazed" trail maintained by the Connecticut Forest and Park Association, is located approximately 1.8 miles east of the site. This section of the trail follows paved roads through a residential area. No tower visibility is expected from this area. (Council Administrative Notice Item No. 63; Applicant 1, Tab 5)
138. The tower is within a wooded area of the property and no landscaping is proposed. (Applicant 1, Tab 3)

Figure 1 – Site Parcel and Tower Location (Applicant Tab 3)

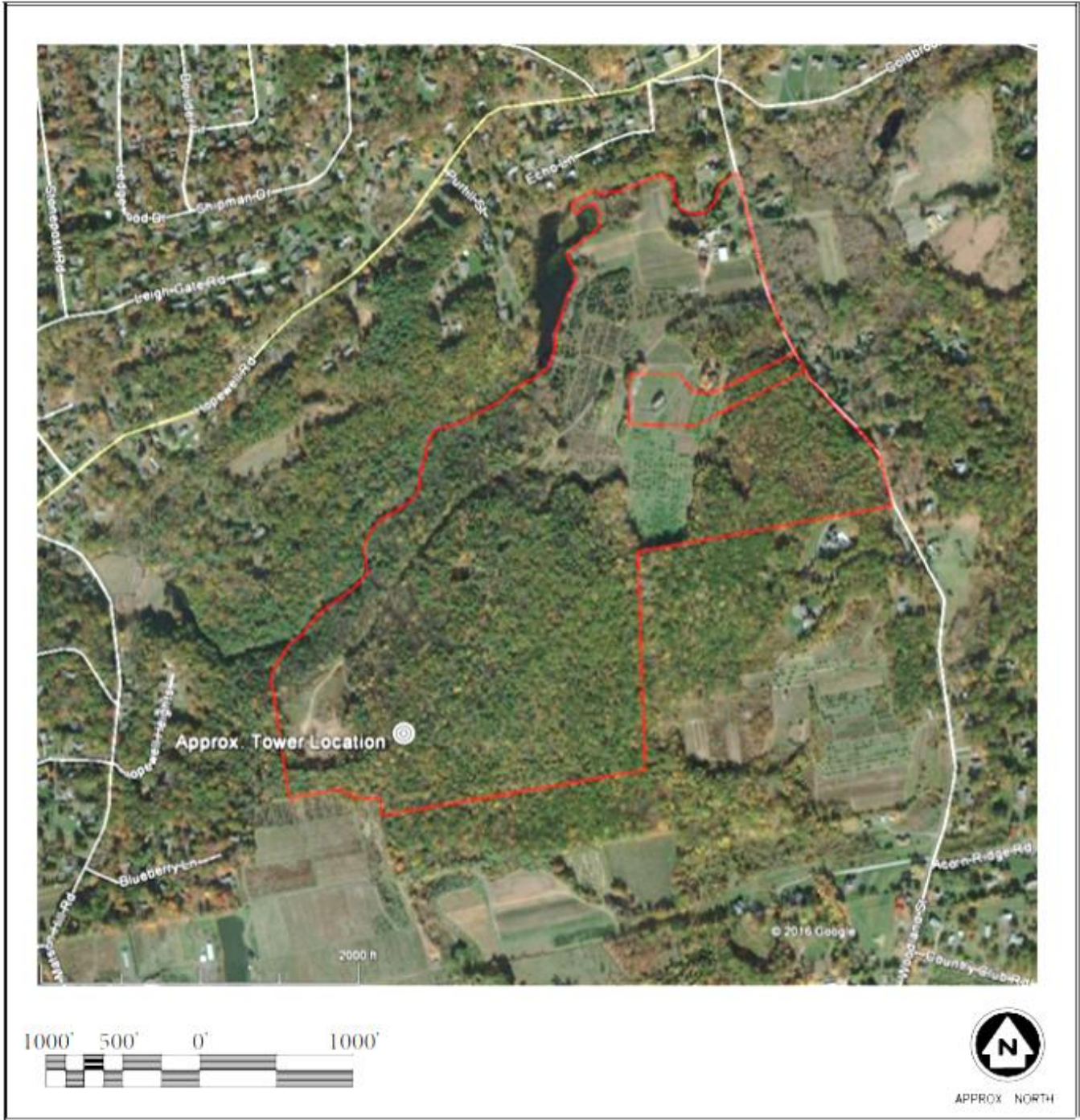


Figure 2 – Existing T-Mobile 2100 MHz Service (Applicant 1, Tab 1)

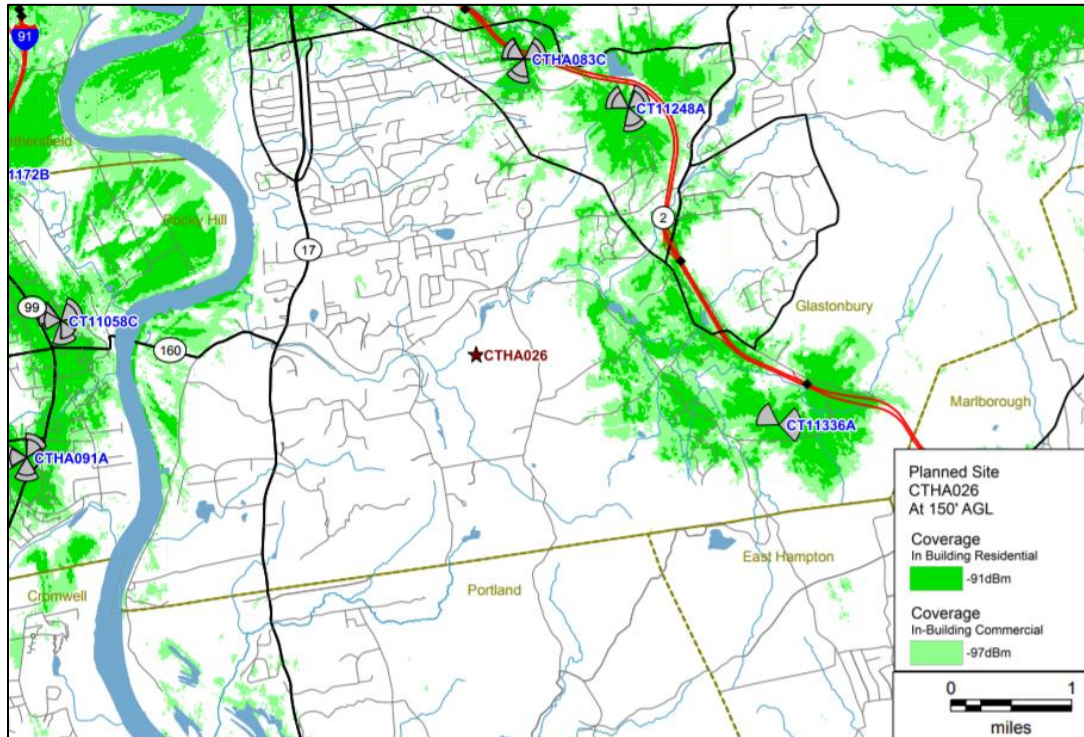


Figure 3 – Proposed and Existing T-Mobile 2100 MHz Service (Applicant 1, Tab 1)

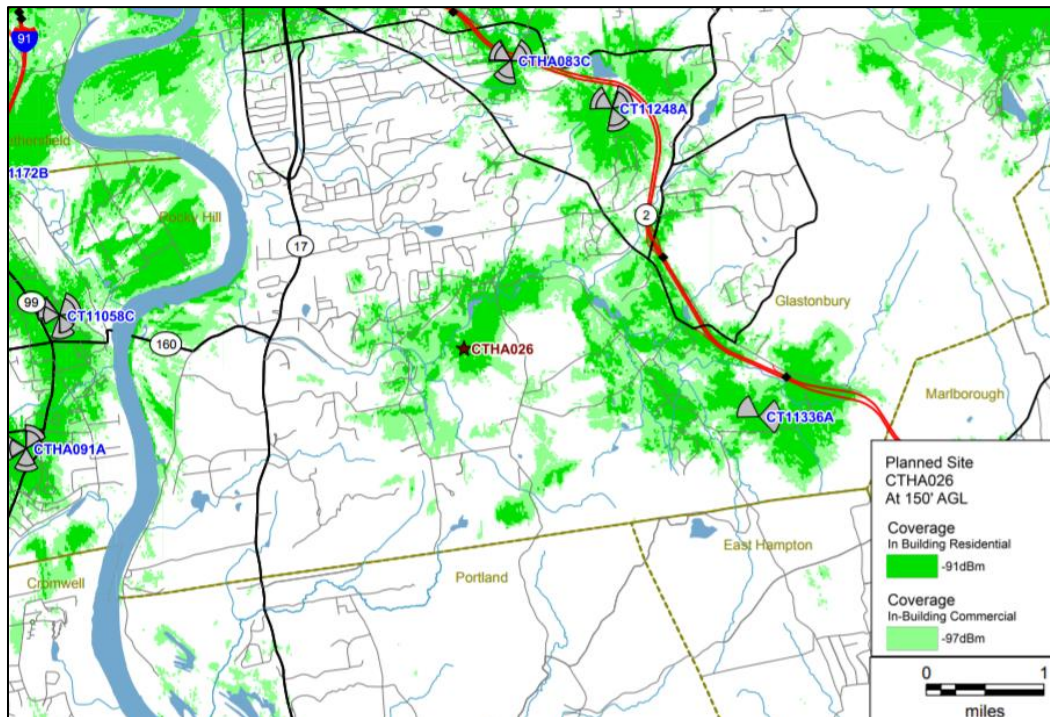


Figure 4 – Site Plan (Applicant 1, Tab 3– Sheet - Z2)

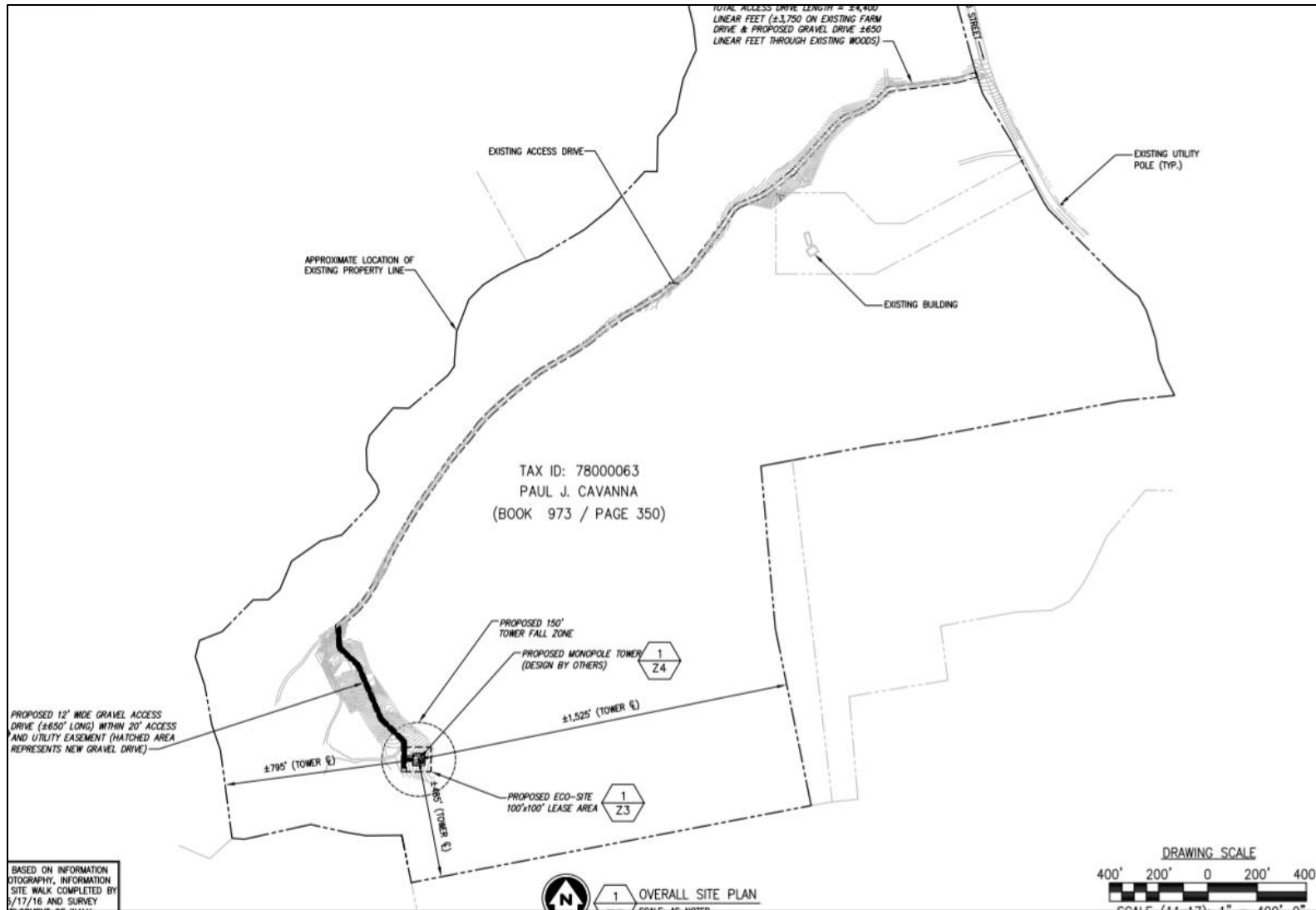
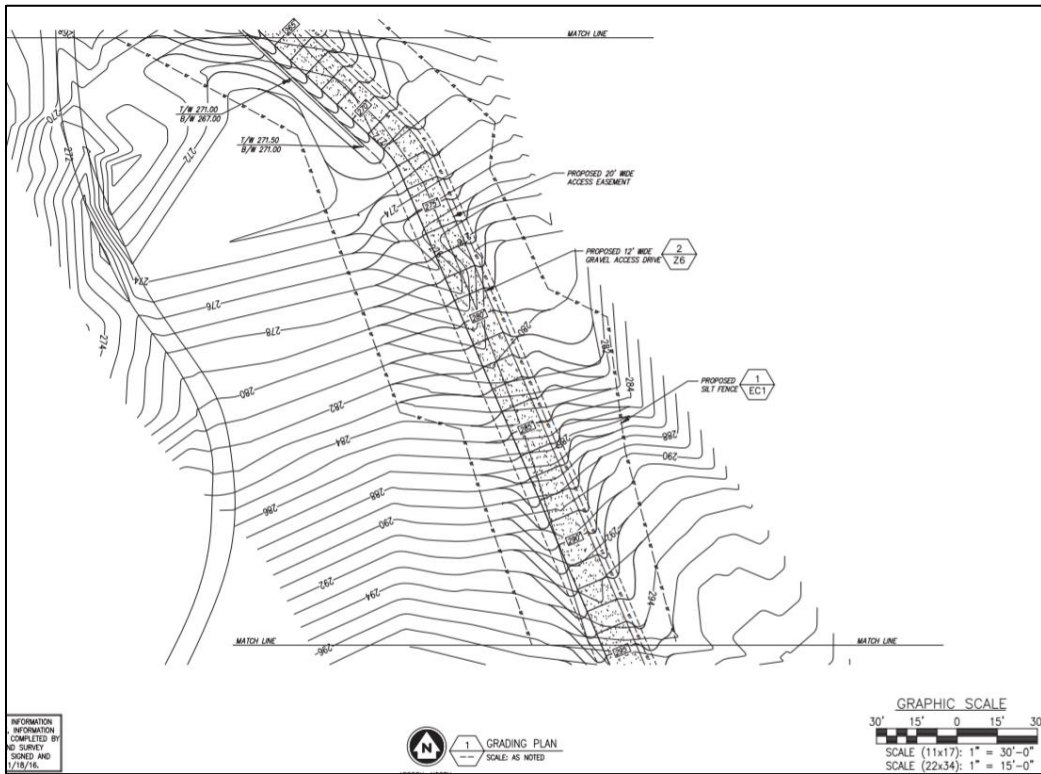
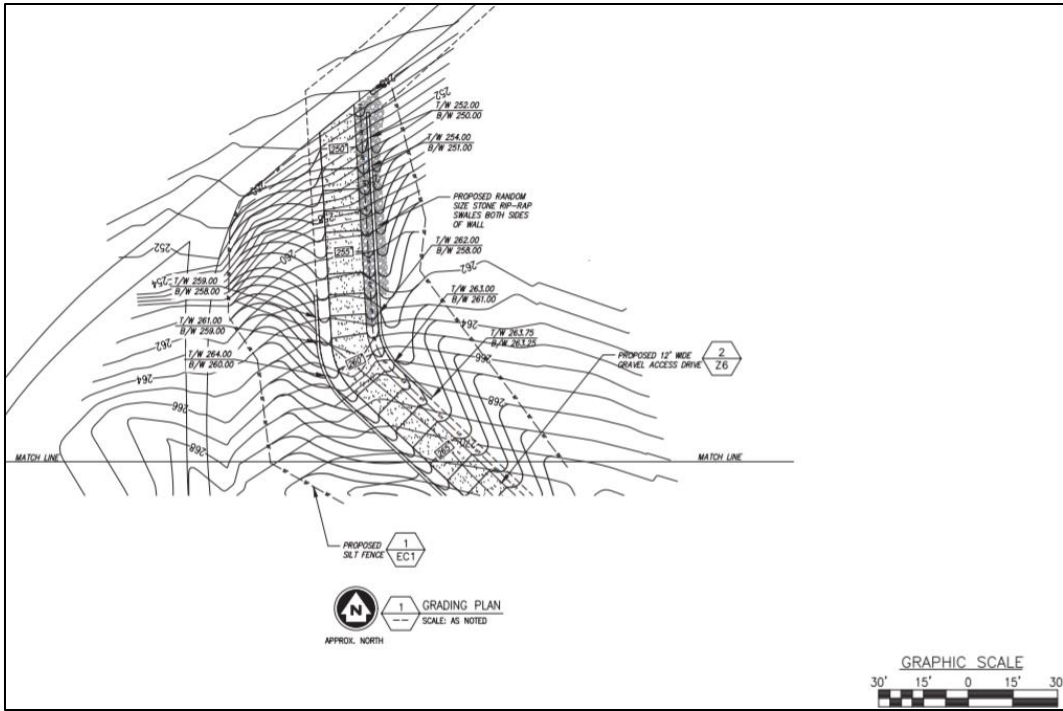


Figure 5 – New Access Road Detail (Applicant 5d)



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 1/18/16.

Figure 6 – Equipment Compound Detail (Applicant 5d)

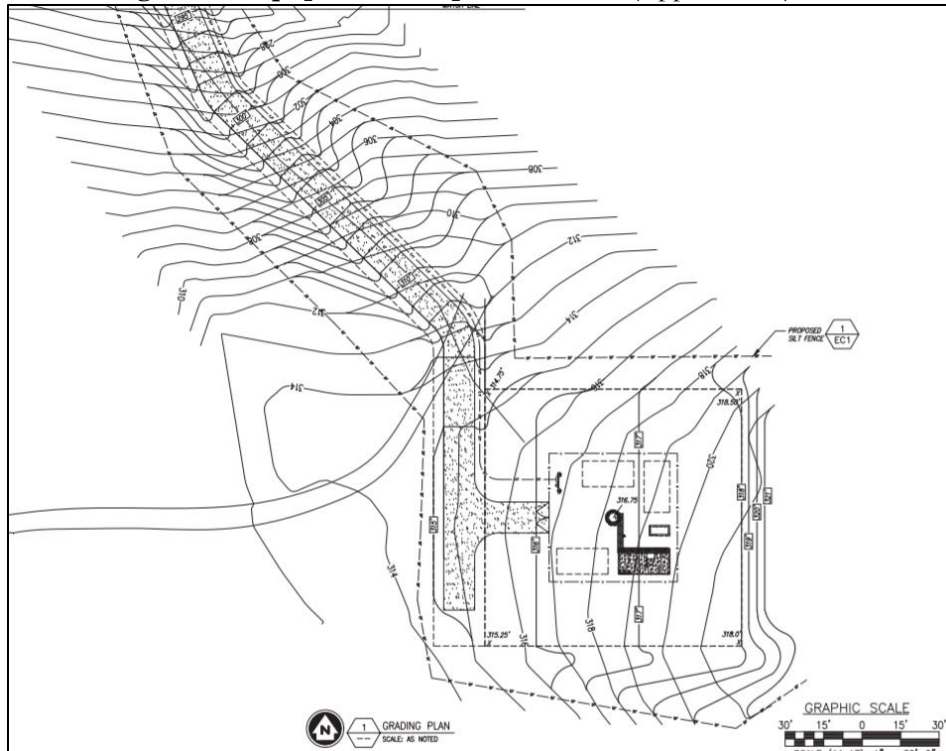


Figure 7 – Tower Profile (Applicant 1, Tab 3)

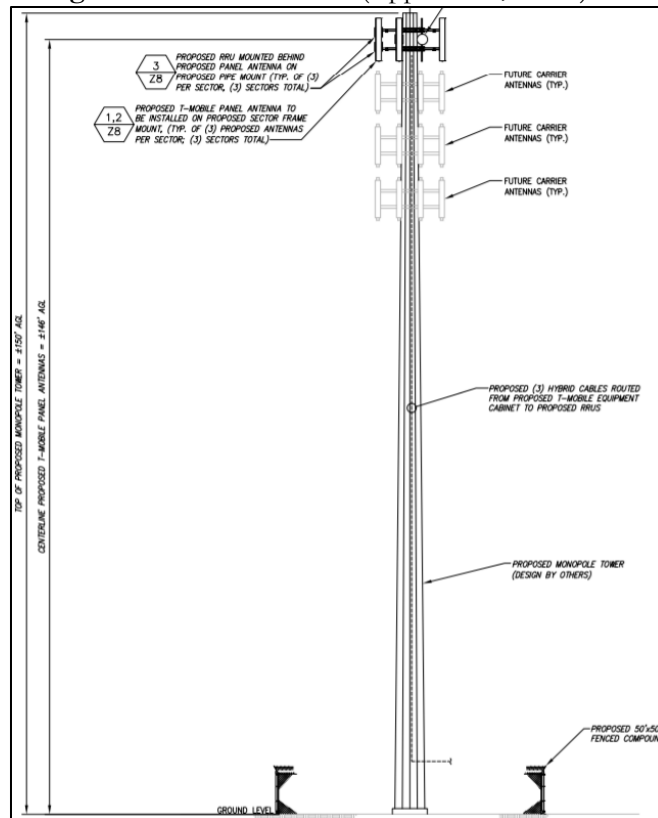
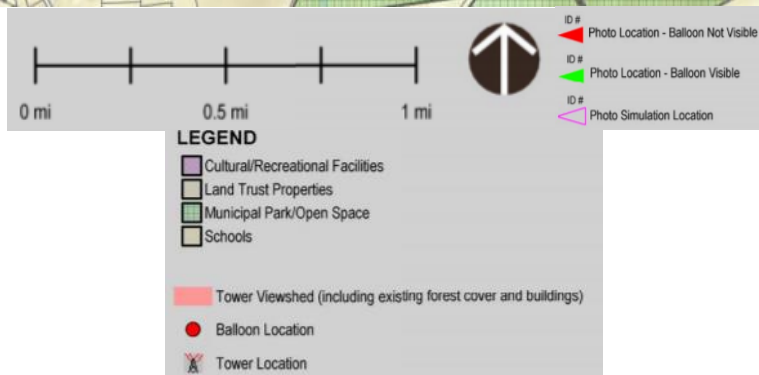
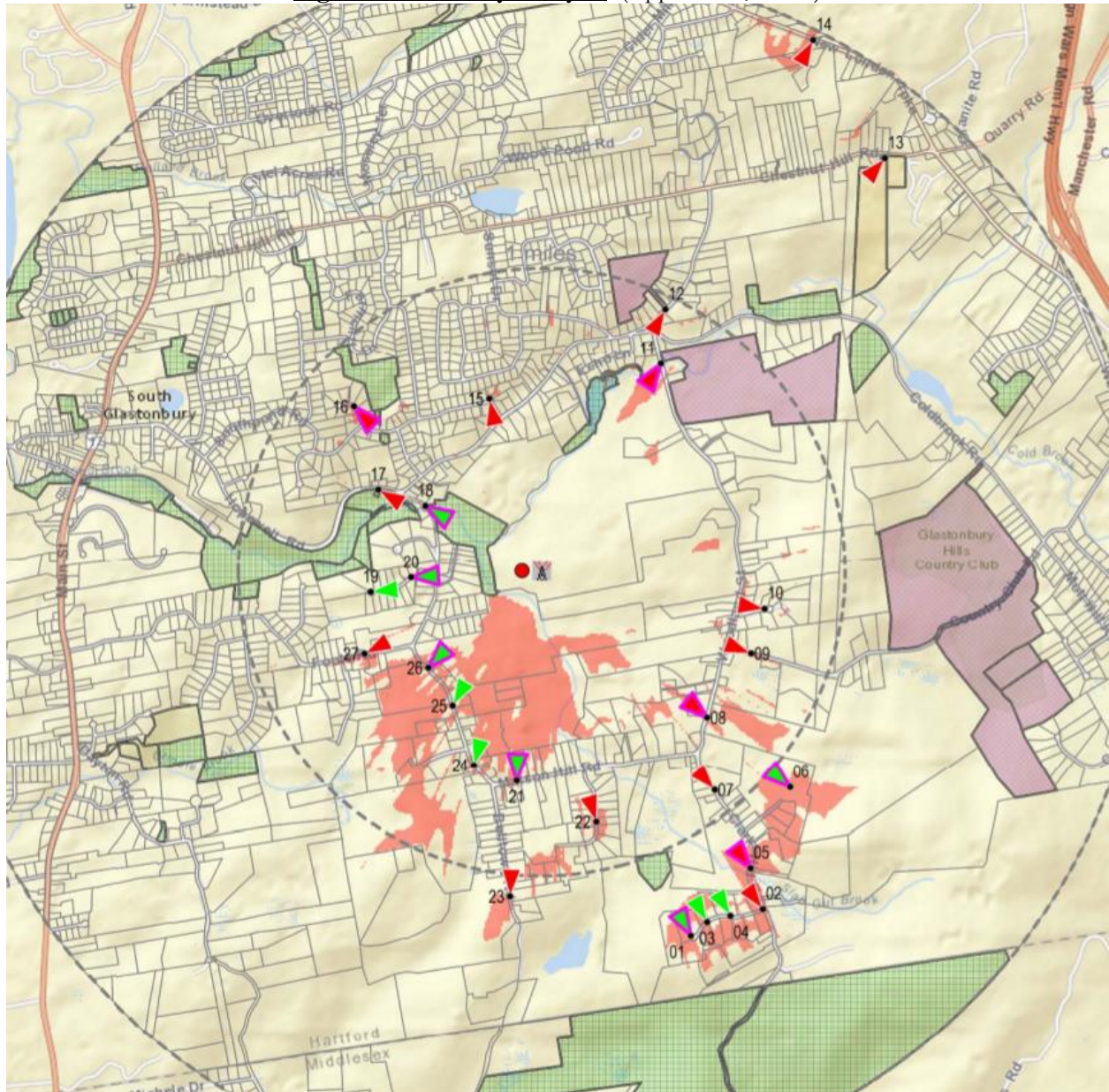


Figure 8 – Visibility Analysis (Applicant 1, Tab 5)



(See next page for field reconnaissance data)

Figure 8 (cont) – Visibility Mapping Field Reconnaissance

Map ID	Location	Orientation	Distance to Tower	Theoretical View Indicated by Land Cover Viewshed - (See Figure 2)	Balloon Visible
1	Crystal Ridge at cul-de-sac	NNW	1.26	Yes	Yes
2	Crystal Ridge at Clark Hill Road	NNW	1.33	Yes	No
3	Crystal Ridge (near #81)	NNW	1.27	Yes	Yes
4	Crystal Ridge (near #51)	NNW	1.28	Yes	Yes
5	Clark Hill Road (near #222)	NNW	1.21	Yes	No
6	Accornero Lane at cul-de-sac	NNW	1.10	Yes	Yes
7	Clark Hill Road (near #51)	NW	0.91		No
8	Woodland Street (near #713)	NW	0.73	Yes	No
9	Country Club Road (near #735)	WNW	0.74	Yes	No*
10	Acorn Ridge Road at cul-de-sac	WNW	0.75	No	No
11	Woodland Street at Slab Cut Brook	SW	0.79	Yes	No
12	Hopewell Road (near #1003)	SW	0.96	Yes	No
13	Hopewell School	SW	1.77		No
14	New London Turnpike (near #1950)	SSW	1.96	Yes	No
15	Leigh Gate (near #266)	S	0.58	No	No
16	Leigh Gate (near #11)	SSE	0.83	Yes	No*
17	Colton Hollow Preserve at parking lot	SE	0.61	No	No
18	Matson Hill Road at Roaring Brook	SE	0.45	Yes	Yes
19	Bittersweet Lane at cul-de-sac	E	0.58	No	Yes**
20	Bittersweet Lane (near #30)	E	0.43	Yes	Yes
21	Matson Hill Road (near #519)	N	0.70	Yes	Yes
22	Chatham Hill Road (near #100)	N	0.83	Yes	No
23	Belltown Hill Road (near #215)	NNE	0.99	Yes	No
24	Matson Hill Road (near #452)	NNE	0.67	Yes	Yes
25	Matson Hill Road (near #370)	NE	0.53	Yes	Yes
26	Matson Hill Road (near #297)	NE	0.49	Yes	Yes
27	Foote Road (near #500)	ENE	0.65	Yes	No

* Although the balloon was not spotted in the field further investigation determined tower visibility.

**Although viewshed analysis indicates no visibility the balloon was spotted through intervening deciduous vegetation