

<p><b>DOCKET NO. 423</b> – North Atlantic Towers, LLC, and New Cingular Wireless PCS, LLC Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located off Route 198, Woodstock, Connecticut.</p>	<p>} Connecticut } Siting } Council } June 21, 2012</p>
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**Findings of Fact**

**Introduction**

1. North Atlantic Towers, LLC (NAT) and New Cingular Wireless PCS, LLC (AT&T), in accordance with provisions of Connecticut General Statutes (C.G.S.) § 16-50g, et. seq., applied to the Connecticut Siting Council (Council) on October 20, 2011 for the construction, maintenance and operation of a 150-foot wireless telecommunications facility off Route 198 in Woodstock, Connecticut. (NAT/AT&T 1, p. 2)
2. Florida Tower Partners d/b/a North Atlantic Towers, LLC is a Delaware limited liability company with an office in Florida. NAT would construct and maintain the facility and be the Certificate Holder. (NAT/AT&T 1, p. 3; Tr. 1, p. 23)
3. AT&T is a Delaware limited liability company with an office in Connecticut. AT&T is licensed by the Federal Communications Commission (FCC) to construct and operate in a cellular system in Connecticut. (NAT/AT&T 1, p. 3)
4. The parties in this proceeding are the NAT and AT&T. (Transcript 1 – 3:00 p.m. [Tr. 1], p. 4)
5. Pursuant to C.G.S. § 16-50l (b), public notice of the application was published in the Woodstock Villager on September 30, 2011 and October 7, 2011. (NAT/AT&T 5, Affidavit of Publication)
6. Pursuant to C.G.S. § 16-50l(b), notice of the application was provided to all abutting property owners by certified mail. Notice was unclaimed by Kevin Reagan and Thomas Harvey, the owners of 350 Route 198. An additional notice was sent to those property owners via first class mail. (NAT/AT&T 1, p. 5; Tab 10; NAT/AT&T 2, Response 1)
7. Pursuant to C.G.S. § 16-50l (b), NAT provided notice to all federal, state and local officials and agencies listed therein. (NAT/AT&T 1, p. 4)
8. The purpose of the proposed facility is to provide coverage in the western and southwestern portions of the Town of Woodstock along Route 198, Route 171 and the surrounding area. (NAT/AT&T 1, p. 1)
9. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public hearing on January 10, 2012, beginning at 3:00 p.m. and continuing at 7:00 p.m. at the Woodstock Town Hall, Room # 1, Lower Level, 415 Route 169, Woodstock, Connecticut. (Council's Hearing Notice dated December 2, 2011; Tr. 1, p. 2; Transcript 2 – 7:00 p.m. [Tr. 2], p. 2)

10. The Council and its staff conducted an inspection of the proposed site on January 10, beginning at 2:00 p.m. During the field inspection, the applicant flew a red balloon at the proposed site to simulate the height of the proposed tower. The tether was anchored at a location 21.5 feet east of the proposed tower location due to the tree canopy surrounding the proposed site. Due to windy conditions on the day of the field review, the balloon was aloft intermittently from 7:45 a.m. until 4:02 p.m. (NAT/AT&T 10, Response 15)
11. On March 8, 2012, the Council held a continued evidentiary hearing at the offices of the Connecticut Siting Council, Ten Franklin Square, New Britain, Connecticut. (Transcript 3 – 1:05 p.m. [Tr. 3], p. 2)

#### **State Agency Comment**

12. Pursuant to C.G.S. § 16-50j (h), on December 2, 2011 and March 8, 2012, 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 Utility Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Agriculture (DOAg); Department of Transportation (DOT); and Department of Emergency Management and Homeland Security (DEMHS). (Record)
13. On December 8, 2011, the Council received comments from the Drinking Water Section of DPH. DPH identified that the proposed project is within Willimantic Reservoir Watershed, the public water supply watershed of the Mansfield Hollow Reservoir. DPH recommends protection of the drinking water resource by:
  - a. Installing and maintaining erosion and sedimentation controls;
  - b. Identifying a party for maintenance, inspection, repair, replacement and installation of new controls as necessary;
  - c. Servicing machinery outside of the public water supply watershed;
  - d. Refueling machinery and vehicles on an impervious pad with a secondary containment system;
  - e. Not storing fuel or other hazardous materials in the water supply watershed. If any fuel or hazardous materials must be kept within the watershed during working hours, it should be stored on an impervious surface with secondary containment;
  - f. Keeping a fuel spill remediation kit on-site to quickly contain and clean spills;
  - g. Consulting with Windham Water Works System prior to commencement of the project; and
  - h. Allowing Windham Water Works System personnel to periodically inspect the project to ensure that drinking water quality is not adversely impacted.(DPH Comments, received December 8, 2011)

14. The applicants responded to DPH's letter on December 20, 2011, making the following suggestions for inclusion in a Development and Management Plan, if the proposed project is approved:
  - a. Erosion and sedimentation controls would be designed in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. These controls would be inspected once every seven days and after significant rainfall events. The inspections would be documented and copies provided to the Windham Water Works System.
  - b. A spill containment kit would be kept onsite during construction of the proposed project. In addition, a waste drum would be onsite to allow for the proper disposal of any spill kit materials. Procedures in the event of the occurrence of a spill have been established, which includes notice to the Windham Water Works System.
  - c. Servicing of machinery should be completed outside of the public water supply watershed. Refueling of vehicles or machinery should be done on an impervious pad with secondary containment designed to contain fuels.  
(NAT/AT&T 4; Tr. 1, p. 20)
15. On January 4, 2012, the Council received a letter from the Department of Transportation stating that it has no comment on the proposed project. (DOT comments, received January 4, 2012)
16. No other state agencies responded with comments on the proposed project. (Record)

#### **Municipal Consultation**

17. The applicants had communications with the Town of Woodstock Telecommunications Taskforce in September 2010. A meeting with the Telecommunications Taskforce was held in October 2010, which did not yield any recommendations or suggestions. (NAT/AT&T 1, p. 23)
18. On March 7, 2011, a technical report was provided to the Woodstock First Selectman, Allen D. Walker. On May 9, 2011, the Telecommunications Taskforce coordinated another meeting and provided comments to the Applicants. The Telecommunications Taskforce recommended collocation on an existing tower at Sherman Road and a proposed tower on Swedetown Road, approximately 2.78 miles and 3.5 miles distant from the proposed site, respectively. The Taskforce also asked about visibility of the proposed site from Chamberlain Mill (a town-designated historic site) and Barber Road (a town-designated scenic road). (NAT/AT&T 1, pp. 23, 24)
19. In response to the town's request, AT&T determined that locating at the Sherman Road and Swedetown Road sites would not provide adequate coverage to the coverage gap in this area of Woodstock. (NAT/AT&T 1, p. 24)
20. The proposed tower would not be visible from the Chamberlain Mill historical property, which is approximately 1.9 miles from the proposed site. The top of the tower would be visible from the westernmost portion of Barber Road. (NAT/AT&T 1, p. 24)
21. NAT would provide space on the proposed tower to accommodate Town emergency services antennas and equipment at the site at no cost. (NAT/AT&T 1, p. 13)

### **Public Need for Service**

22. 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)
23. 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. AT&T is licensed by the Federal Communications Commission (FCC) to provide personal wireless communication service to Connecticut. (Council Administrative Notice Item No. 4; NAT/AT&T 1, p. 3)
24. The Telecommunications Act of 1996 prohibits local and state entities from discriminating among providers of functionally equivalent services. (Council Administrative Notice Item No. 4)
25. The Telecommunications Act of 1996 prohibits any state or local entity from regulating telecommunications towers on the basis of the environmental effects, which include human health effects, of radio frequency emissions to the extent that such towers and equipment comply with FCC's regulations concerning such emissions. This Act also blocks the Council from prohibiting or acting with the effect of prohibiting the provision of personal wireless service. (Council Administrative Notice Item No.4)
26. 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. 5)
27. In compliance with the 911 Act, AT&T would provide "Enhanced 911" services from the proposed facility. (Council Administrative Notice Item No. 6; NAT/AT&T 1, p. 10)
28. Pursuant to the Warning, Alert and Response Network Act of 2006, the FCC has established a Personal Localized Alerting Network (PLAN) that is to begin in April 2012. PLAN will require wireless communication providers to issue text message alerts from federal bodies including the President of the United States. The system would allow the public to receive e-mails and text messages on mobile devices based on geographic location. (NAT/AT&T 1, p. 11)
29. The proposed facility would enable the public to receive such "reverse 911" emergency notifications. (NAT/AT&T 1, p. 11)
30. 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 resources and maintaining their resilience from all hazards during an event or emergency. (Council Administrative Notice Item No. 9 -Barack Obama Presidential Proclamation 8460, Critical Infrastructure Protection)

31. Pursuant to the tower sharing policy of the State of Connecticut under C.G.S. §16-50aa, 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. (Conn. Gen. Stat. §16-50aa)

**Existing and Proposed Wireless Coverage – AT&T**

32. AT&T operates in the 850 MHz (cellular) and 1900 MHz (PCS) frequency bands and at a signal level service design in this area of -74 dBm for in-building coverage and -82 dBm for in-vehicle. AT&T also owns the 700 MHz (LTE) frequency but is currently not using the frequency. (NAT/AT&T 2, Response 7, Response 8)
33. The proposed site is needed to provide coverage to an area that currently has no service. The existing signal level threshold in the area of the proposed site is -110 dBm and below. Refer to Figure 2. (NAT/AT&T 2, Response 5; Tr. 1, p. 22)
34. At 147 feet above ground level (agl), AT&T’s coverage footprint could provide service to approximately 779 area residents at -74 dBm and 806 area residents at -82 dBm. At 97 feet agl, AT&T’s coverage footprint could provide service to approximately 629 area residents at -74 dBm and 545 area residents at -82 dBm. The lower height would result in an approximately 19 percent reduction in population covered at -74 dBm and an approximately 32 percent reduction in population covered at -82 dBm. Population estimates are based on data from 2000 United States Census and are not necessarily the number of AT&T customers living within the coverage footprint of the site. (NAT/AT&T 1, Tab 1; NAT/AT&T 2, Response 14)
35. The length of the existing coverage gaps on main roads within the project area, assuming that AT&T antennas are located on all facilities for which it has approval, are:

<b>Street</b>	<b>Gap</b>
Route 198	1.96 miles
Route 171	1.94 miles
Eastford Road	1.09 miles
Boston Turnpike	1.03 miles
Route 197	0.24 miles

(NAT/AT&T 10, Response 40)

36. The coverage footprint (in square miles) from the proposed site with antennas at 147 feet agl (refer to Figure 3) and 107 feet agl (Refer to Figure 4) are:

<b>Signal Level</b>	<b>147 feet agl</b>	<b>107 feet agl</b>
-74 dBm (PCS)	7.52 mi <sup>2</sup>	6.37 mi <sup>2</sup>
-82 dBm (PCS)	9.7 mi <sup>2</sup>	8.58 mi <sup>2</sup>
-74 dBm (cellular)	5.9 mi <sup>2</sup>	2.95 mi <sup>2</sup>
-82 dBm (cellular)	6.04 mi <sup>2</sup>	3.82 mi <sup>2</sup>
-74 dBm (LTE)	7.11 mi <sup>2</sup>	3.36 mi <sup>2</sup>
-82 dBm (LTE)	5.58 mi <sup>2</sup>	3.34 mi <sup>2</sup>

(NAT/AT&T 10, Response 41)

37. At 147 feet agl on the proposed tower, AT&T would provide the following coverage along main roads:

<b>Street</b>	<b>Coverage (<math>\geq</math>-82 dBm)</b>
Route 198	1.96 miles
Route 171	1.85 miles
Eastford Road	0.78 miles
Boston Turnpike	0.13 miles
Route 197	0.12 miles

(NAT/AT&T 1, Tab 1)

38. AT&T's minimum coverage needs could be met by installing antennas at the 110-foot level of the proposed site. At the 110-foot level, AT&T would be able to provide coverage to the major roads in the area but would have a smaller coverage footprint versus locating at the 150-foot level. (Tr. 1, p. 48)

39. The proposed site would hand off signals to nearby sites, including:

<b>Location</b>	<b>Antenna Height agl</b>	<b>Approximate Distance from Sites</b>
107 Stickney Hill Road, Union	113 feet	6.5 miles northwest
82 Tyrone Road, Pomfret	154 feet	7.3 miles northeast
36 Janowski Road/Ference Road, Ashford	140 feet	5.9 miles northwest
353 Pumpkin Hill Road, Ashford	225 feet	6.6 miles southwest
215 Coatney Hill Road, Woodstock	150 feet	3.6 miles northeast
62 Babbitt Hill Road, Pomfret	130 feet	6.8 miles southeast
38 Old Route 44, Eastford	150 feet	4.8 miles south
1050 Buckley Highway, Stafford Springs	120 feet	5.5 miles northwest
229-231 Ashford Center Road, Ashford	167 feet	4.9 miles southwest
Sherman Road, Woodstock	127 feet	2.78 miles northwest

(NAT/AT&T 1, Tab 1; NAT/AT&T 2, Response 4; Tr. 1, p. 18; Tr. 3, p. 22)

40. The overall dropped call rate in the area of the proposed site is 0.83 percent. The dropped call rate does not reflect the fact that some users become familiar with areas of little or no coverage and do not attempt making a call in that area; call attempts that do not reach a cell site; low quality calls when the person on the other end of the line cannot hear the caller. (NAT/AT&T 10, Response 39)

### Site Selection

41. NAT established a site search in the target service area in southwestern Woodstock in December 2009. AT&T established its site search in February 2010. (NAT/AT&T 1, Tab 2; NAT/AT&T 2, Response 2)

42. The applicants investigated potential locations that are between 1.5 and 2 miles away from the proposed site. (Tr. 1, pp. 44, 45)
43. The applicants did not find any existing structures suitable for providing coverage to the area. (NAT/AT&T 1, p. 12)
44. There is one tower located two miles from the proposed site, which is a 75-foot guyed lattice tower located at Perrin Road in Woodstock. AT&T is not located on this structure and, due to the height and distance of the tower, installation of AT&T equipment at the site would not provide adequate coverage to the target service area. There are no other towers within a two-mile radius of the proposed site. (NAT/AT&T 1, Tab 2; NAT/AT&T 10, Response 37; Tr. 2, p. 26)
45. After determining that no suitable facilities or structures exist within the search area, the applicants searched for potential new tower locations. The applicants investigated 11 parcels for potential tower development, one of which was selected as the proposed site. The investigated parcels and reason for rejection are:
  - a. 26 Kenyonville Road – rejected by radio frequency engineers.
  - b. (parcel 5789/37/16A) Route 171 – property owner was not interested in development of a tower site on property
  - c. 384 Route 198 – property owners did not respond to inquiries from the Applicants
  - d. 88 Kenyonville Road – rejected by radio frequency engineers
  - e. 254 Crystal Pond Road – rejected by radio frequency engineers
  - f. 279 Route 198 – property owned by the Connecticut DOT, would not meet coverage objectives (see Finding of Fact #46 below)
  - g. 1745 Route 171 – rejected by radio frequency engineers
  - h. A Yale University owned parcel on Route 171 – rejected by radio frequency engineers
  - i. Route 171; 150 Center Pike, Eastford – rejected by radio frequency engineers
  - j. 606 Route 198 – rejected by radio frequency engineers(NAT/AT&T 1, Tab 2)
46. AT&T investigated the use of a Connecticut DOT property for the installation of a facility. Antennas mounted at a centerline height of 197 feet agl on the DOT property would leave coverage gaps to the north of the proposed site and along Route 198. (NAT/AT&T 10, Response 1)
47. AT&T investigated the use of Town of Woodstock-owned property on Hawkins Road. Antennas mounted at a centerline height of 197 feet agl on the town property would leave coverage gaps to the north of the proposed site and along Route 198. (NAT/AT&T 10, Response 2)
48. AT&T may locate antennas on an approved Verizon tower to be located at 87 West Quassett Road in Woodstock at some point in the future, but coverage from that site would not overlap with coverage from the site proposed. (NAT/AT&T 10, Response 12)
49. Repeaters, microcells and distributed antenna systems are not viable technological alternatives for providing service to the identified coverage gap. These technologies are designed to cover small areas, such as commercial buildings, shopping malls, and tunnels or highways. (NAT/AT&T 1, pp. 11, 12)

#### **Facility Description**

50. The proposed site is located on an approximately 128-acre undeveloped and wooded parcel owned by Woodstock Tower Partners, LLC adjoining Route 198 (Map 5789, Block 37, Lot 24). The proposed site is depicted in Figure 1. (NAT/AT&T 1, p. 13, Tab 3; NAT/AT&T 2, Response 18)

51. The host property is in the “Community” zoning district. Woodstock Zoning Regulations have designated all lands within the town that are not in the Woodstock Industrial Park District or in the Village Green District as the Community District. (Woodstock Zoning Regulations; NAT/AT&T 1, p. 14)
52. The proposed tower would be located within a 100-foot by 100-foot leased area in the southeastern corner of the property at an elevation of 795 feet above mean sea level. (NAT/AT&T 1, p. 13, Tab 3)
53. The proposed facility would consist of a 150-foot monopole within a 75-foot by 75-foot fenced compound. The proposed tower would be 4 feet wide at the base tapering to 2 feet at the top. It would be constructed in accordance with the American National Standards Institute TIA/EIA-222-F “Structural Standards for Steel Antenna Towers and Antenna Support Structures.” (NAT/AT&T 1, p. 14, Tab 3)
54. The proposed tower would accommodate six carriers including AT&T. AT&T would install up to 12 panel antennas at a centerline height of 147 feet above ground level (agl). (NAT/AT&T 1, pp. 2, 14; Tr. 1, pp. 41, 42)
55. A six-foot chain link fence would surround the proposed equipment compound. (NAT/AT&T 1, p. 14)
56. A 210-gallon diesel generator would be installed at the site for emergency backup power. It would provide power for AT&T’s equipment for two days. (NAT/AT&T 10, Response 7; Tr. 3, p. 17)
57. The proposed design of the facility and access road is to balance cut and fill by using soils that are removed from one area to fill another area where necessary. Construction of the proposed site and access road would require approximately 400 cubic yards of cut and fill. (NAT/AT&T 2, Response 26; Tr. 3, p. 7)
58. The proposed host property is landlocked and does not have any direct access to a public roadway; therefore, access was originally proposed to have extended from Route 198 south over an adjacent parcel. It would begin on a property owned by Kevin Reagan and Thomas Harvey north of the proposed site at 530 Route 198. The road would have extended over an existing paved driveway for approximately 425 feet then continue approximately 4,265 feet along a new gravel drive. (NAT/AT&T 1, Tab 3, Tab 10; NAT/AT&T 2, Response 21)
59. The originally proposed access road would have required the installation of culverts located at three locations along the roadway. (NAT/AT&T 1, p. 14, Tab 6)
60. The applicants proposed a revised access road that would extend 2,550 feet from Route 171 to the south southeast over property owned by Michael Farley. The revised access road is shown in Figure 1. (NAT/AT&T 10, Response 4)
61. The revised access road would require the installation of culverts at two locations along the roadway. (NAT/AT&T 10, Tab 2, Wetland Delineation Report)
62. The turn radii and slope of the proposed access road were designed to accommodate access by emergency vehicles. (NAT/AT&T 10, Response 33)
63. The applicants originally proposed utilities to be installed overhead along the access road but are willing to install utilities underground. They would run along the edge of the proposed access road. (Tr. 1, p. 19)



64. Construction of the proposed access drive would likely require a hammer drill for rock removal. (NAT/AT&T 2, Response 28)
65. The tower setback radius would remain on the host property. The southern and eastern property boundaries are approximately 150 feet from the proposed tower location. (NAT/AT&T 1, Tab 3; Tr. 1, p. 15)
66. There are no residences within 1,000 feet of the proposed tower. The nearest residence to the proposed tower is approximately 2,000 feet to the east on property at 382 Route 198, owned by Robert & John Wrobel. (NAT/AT&T 2, Response 16)
67. Land use in the area surrounding the proposed site consists of low-density single-family residential homes and open space. (NAT/AT&T 1, p. 22)
68. The estimated cost of construction of the proposed facility, including antennas, and the originally proposed access road is:
- |                               |                    |
|-------------------------------|--------------------|
| Tower & Foundation            | \$ 95,000.         |
| Site Development              | 65,000.            |
| Utility Installation          | 50,000.            |
| Facility Installation         | 195,000.           |
| <u>Antennas and Equipment</u> | <u>250,000.</u>    |
| <br>                          |                    |
| Total                         | <u>\$ 655,000.</u> |
- (NAT/AT&T 1, p. 25)
69. The cost of a monopine structure is approximately \$80,000. The cost of a comparable monopole structure is approximately \$30,000. (Tr. 1, p. 72)
70. The revised access road would cost approximately \$60,000 less than the cost provided in Finding of Fact #68. (Tr. 3, p. 9)
71. Installation of underground utilities would cost \$30,000 more than the overhead utilities proposed in the application. (NAT/AT&T 10, Response 6; Tr. 3, p. 19)

### **Environmental Considerations**

72. The proposed facility would have no effect upon historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places. (NAT/AT&T 1, Tab 7)
73. No Federal or State-listed endangered or threatened species or State Species of Special Concern are known to occur in the area of the proposed site and access road. (NAT/AT&T 1, p. 17)
74. The average height of the tree canopy in the area of the proposed site is approximately 75 feet. (Tr. 1, p. 23)
75. The proposed facility including the originally proposed access road would have required the removal of approximately 466 trees six inches or greater in diameter at breast height (dbh). Approximately 166 trees six inches or greater dbh would be removed for the construction of the proposed facility using the revised access road. (NAT/AT&T 2, Response 10; NAT/AT&T 10, Response 13; Tr. 3, p. 5)

76. The revised access road would cross two wetland areas. Wetland 1 is a groundwater-fed linear wetland approximately 0.24 miles west of Route 171. Wetland 2 is located approximately 0.07 miles west of Route 171 at the bottom of a topographic valley and collects both surface water and groundwater. The Wetland 1 and Wetland 2 crossings would consist of the installation of a road base and elliptical culverts with a total of approximately 3,100 square feet of wetland disturbance. An 18-inch elliptical culvert would be installed across Wetland 1. A 36-inch elliptical culvert would be installed across Wetland 2. (NAT/AT&T 10, Tab 2, Wetland Delineation Report)
77. The stormwater design plan for the revised access road would include roadside swales that would direct water to stone berm level spreaders. The swales would be stone-lined in areas where the slope exceeds 12 percent and grass-lined in more shallow sloped areas. (NAT/AT&T 10, Response 31)
78. The proposed water crossings would require NAT to obtain an Army Corps of Engineers (ACOE) Category 1 Programmatic General Permit for Minimal Impacts Projects. (NAT/AT&T 1, pp. 17, 18)
79. The ACOE permit includes conditions that the proposed culverts:
  - a. be backfilled with natural substrate material to match upstream and downstream streambed substrate.
  - b. not impede the passage of fish and other aquatic organisms.
  - c. allow for continuous flow of 50-year storm events.
  - d. not be within a Federal Emergency Management Agency designated floodplain.
  - e. not impact threatened or endangered species.
  - f. not impact vernal pools.(NAT/AT&T 1, p. 18)
80. The revised access drive would disturb between 2,500 and 3,100 square feet of wetland and watercourse area. Wetland disturbance along the originally proposed access road would be approximately double the amount for the revised access road. (NAT/AT&T 10, Response 25; Tr. 3, pp. 8, 9)
81. The construction of the revised access drive would result in a total of approximately two acres of temporary and permanent land disturbance. The construction of the originally proposed access drive would result in approximately five acres of temporary and permanent land disturbance. (NAT/AT&T 10, Response 13; Response 29)
82. The proposed site and access road are not within a Federal Emergency Management Agency designated 100-year or 500-year floodplain. (NAT/AT&T 1, p. 19)
83. The proposed tower would not require aviation marking and/or lighting. (NAT/AT&T 1, Tab 3)
84. Calculated noise levels at the nearest properties boundaries (both to the south and east) from the proposed equipment compound, which are approximately 150 feet away, is 54.71 dB. From the nearest residential structure the calculated noise levels from the proposed equipment would be 33.13 dB. (NAT/AT&T 10, Response 10)

85. The cumulative worst-case maximum power density from the radio frequency emissions from the operation of AT&T's proposed antennas is 5.96% of the standard for 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 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. (NAT/AT&T 1, Tab 4)

### Visibility

86. The proposed 150-foot tower would be visible year-round from approximately 134 acres within a two-mile radius of the site. Approximately half of the year round visibility of the proposed tower is over the open water of Lake Bungee and Witches Woods Lake. Refer to Figure 5 and Figure 8. (NAT/AT&T 1, Tab 5; NAT/AT&T 10, Response 34)
87. The proposed 150-foot tower would be seasonally visible from an additional approximately five acres within a two-mile radius of the site. Areas of additional seasonal visibility include portions of Indian Spring Road; Shaw Road; Route 171; Route 198; and Barber Road. (NAT/AT&T 1, Tab 5; NAT/AT&T 10, Response 34)
88. A 110-foot tower located at the proposed site would be visible year-round from approximately 92 acres within a two-mile radius of the proposed site, approximately half of which is over the open water of Lake Bungee and Witches Woods Lake. Refer to Figure 6 and Figure 7. (NAT/AT&T 10, Response 34)
89. A 110-foot tower located at the proposed site would be seasonally visible from an additional three acres within a two-mile radius of the site. (NAT/AT&T 10, Response 34)
90. Seasonal visibility of the proposed tower would not be significantly greater than year-round visibility due to the density of intervening vegetation. (Tr. 1, p. 24)
91. The proposed 150-foot tower would not be visible from the historic Chamberlain Mill site, which is approximately 1.9 miles from the proposed site. (NAT/AT&T 1, Tab 5)
92. The proposed 150-foot tower would not be visible from the Stoggy Hollow Restaurant and General Store approximately 0.54 miles northeast of the site. (NAT/AT&T 1, Tab 5)
93. The proposed 150-foot tower would be visible year-round from the westernmost 550-foot section of Barber Road. The residences at 4 Barber Road and 15 Barber Road, approximately 0.6 miles northeast of the site, are expected to have year-round views of the proposed tower. (NAT/AT&T 1, Tab 5; NAT/AT&T 3, updated Visual Report)
94. The proposed 150-foot tower would be visible year-round from a portion of the Shaw Road Triangle along an approximately 400-foot section of Shaw Road from Route 171 westward and along an approximately 320-foot section of Route 171 from Shaw Road southwestward. This area is approximately 0.5 miles away from the proposed site. (NAT/AT&T 1, Tab 5; NAT/AT&T 3, updated Visual Report)

95. The proposed 150-foot tower is not expected to result in significant visual impacts to important cultural or environmental resources within the Quinebaug and Shetucket Rivers Valley National Heritage Corridor, which encompasses the Town of Woodstock. (NAT/AT&T 10, Response 35)
96. Construction of a 110-foot tower at the proposed site would reduce potential visibility of the structure to the surrounding area. (NAT/AT&T 3, p. 5)
97. NAT could construct the proposed facility as a monopine. A 150-foot monopine at the proposed site would significantly extend above the surrounding tree canopy. A 110-foot monopine would extend only slightly above the tree canopy and blend into the surrounding area. (NAT/AT&T 3; Tr. 1, p. 27)
98. A monopine design would require a six to ten foot extension on the top of the tower to give the structure the appearance of a tree. Refer to Figure 9 and Figure 10. (Tr. 1, p. 28)
99. The visibility of a monopole at the proposed site at 150 feet and 110 feet from specific locations within a two-mile radius of the site is presented in the table below.

Location	Approximate visibility at 150 feet	Approximate visibility at 110 feet	Distance & direction from site
1. 3 Barber Road	45 feet above trees	Not visible (monopine would be visible)	0.51 miles ENE
2. Driveway at 15 Shaw Road	45 feet above trees	Not visible (monopine would be visible)	0.49 miles NE
3. 3 Shaw Road	45 feet above trees	Not visible (monopine would be visible)	0.53 miles ENE
4. Intersection of Shaw Road and Route 171	50 feet above trees	10 feet above trees	0.55 miles ENE
5. Shaw Road	50 feet above trees	5 feet above trees - seasonally	0.51 miles ENE
6. 15 Shaw Road	30 feet through trees	Not visible	0.48 miles ENE
7. 1651 Route 171	50 feet above trees	10 feet above trees	0.54 miles ENE
8. 4 Barber Road	50 feet above trees	10 feet above trees	0.52 miles ENE
9. 15 Barber Road	60 feet above trees	20 feet above trees	0.56 miles ENE
10. Driveway at 22 & 24 Barber Road	Not visible	Not visible	0.58 miles east
11. East of driveway for 22 & 24 Barber Road	45 feet above trees	Not visible (monopine would be visible)	0.58 miles east
12. Driveway at 30 Barber Road	50 feet through trees	Not visible	0.59 miles east
13. East of driveway at 30 Barber Road	Not visible	Not visible	0.6 miles ENE
14. Intersection of Barber Road and Route 171	50 feet above trees	10 feet - seasonally	0.52 miles ENE
15. Route 198 between Route 171 and Shaw Road	15 feet – among trees	Not visible	0.44 miles ENE
16. Intersection of Shaw Road and Route 198	Not visible	Not visible	0.45 miles NE

17. Route 198 south of intersection with Shaw Road	Not visible	Not visible	0.44 miles NE
18. Stoggy Hollow Restaurant on Route 198	Not visible	Not visible	0.54 miles NNE
19. Crooked Trail Extension north of Witches Woods Lake	55 feet above trees	15 feet above trees	1.1 miles NNE
20. Boat launch at north end of Witches Woods Lake	40 feet above trees	Not visible	1 mile NNE
21. Chamberlain Mill	Not visible	Not visible	1.9 miles NNW
22. Intersection of Dewing School Road & Old Turnpike Road	Not visible	Not visible	NW
23. Upper Bungee Lake	50 feet above trees	10 feet above trees	1.26 miles NNE
24. Upper Bungee Lake	Not visible	Not visible	1.78 miles NNE
25. Crooked Trail Extension	40 feet above trees	Not visible	0.77 miles NE
26. 91 Indian Spring Road	35 feet above trees	Not visible	0.91 miles NE
27. 62 Indian Spring Road	35 feet – seasonally	Not visible	0.86 miles NE
28. Route 171 south of intersection with Route 198	45 feet – seasonally	Not visible (monopine would be visible)	0.38 miles ESE

(NAT/AT&T 1, Tab 5; NAT/AT&T 3, updated visual report; NAT/AT&T 10, Response 36)

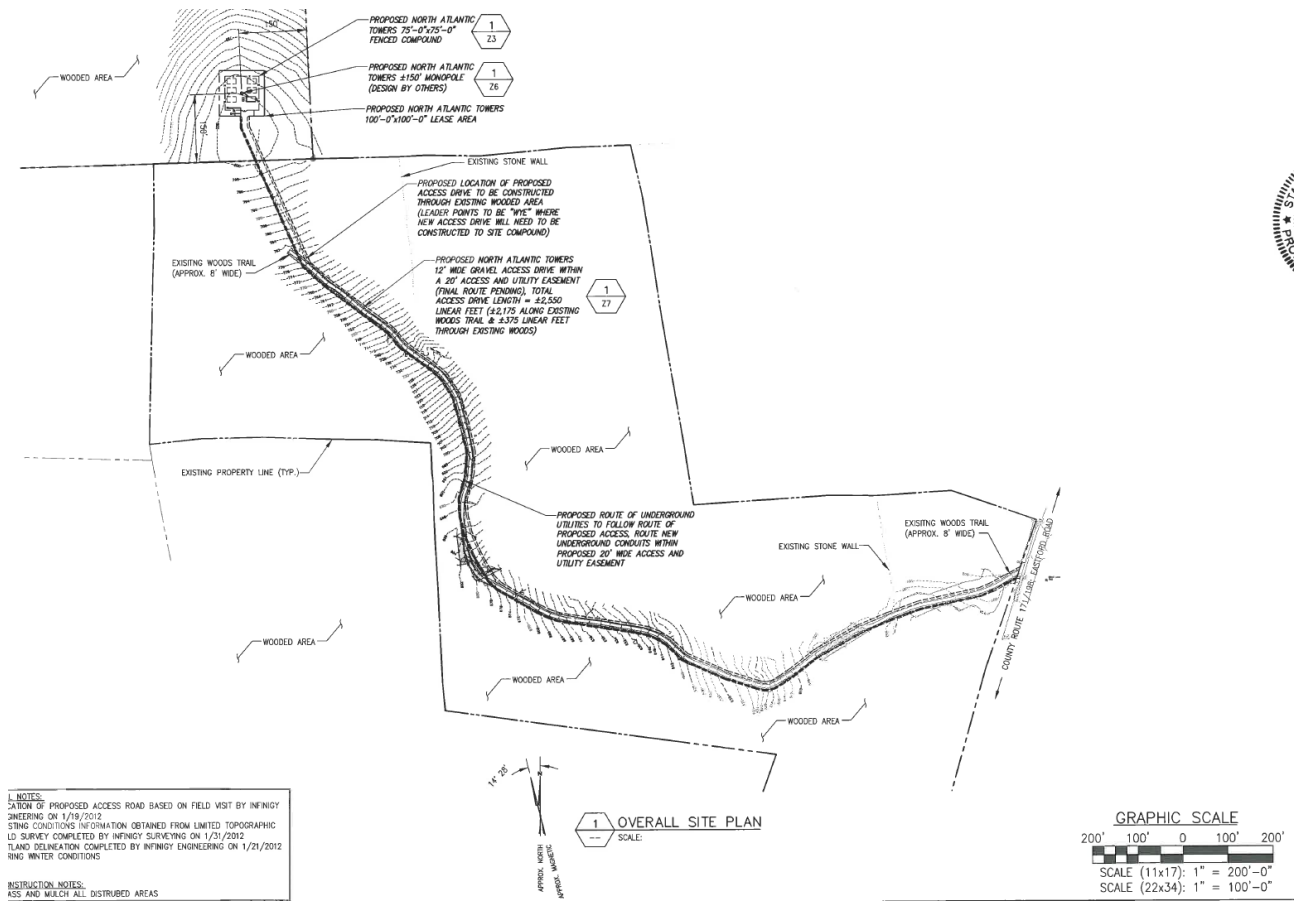


Figure 1. Site plan for proposed site and access road. (NAT/AT&T 10, Tab 6)

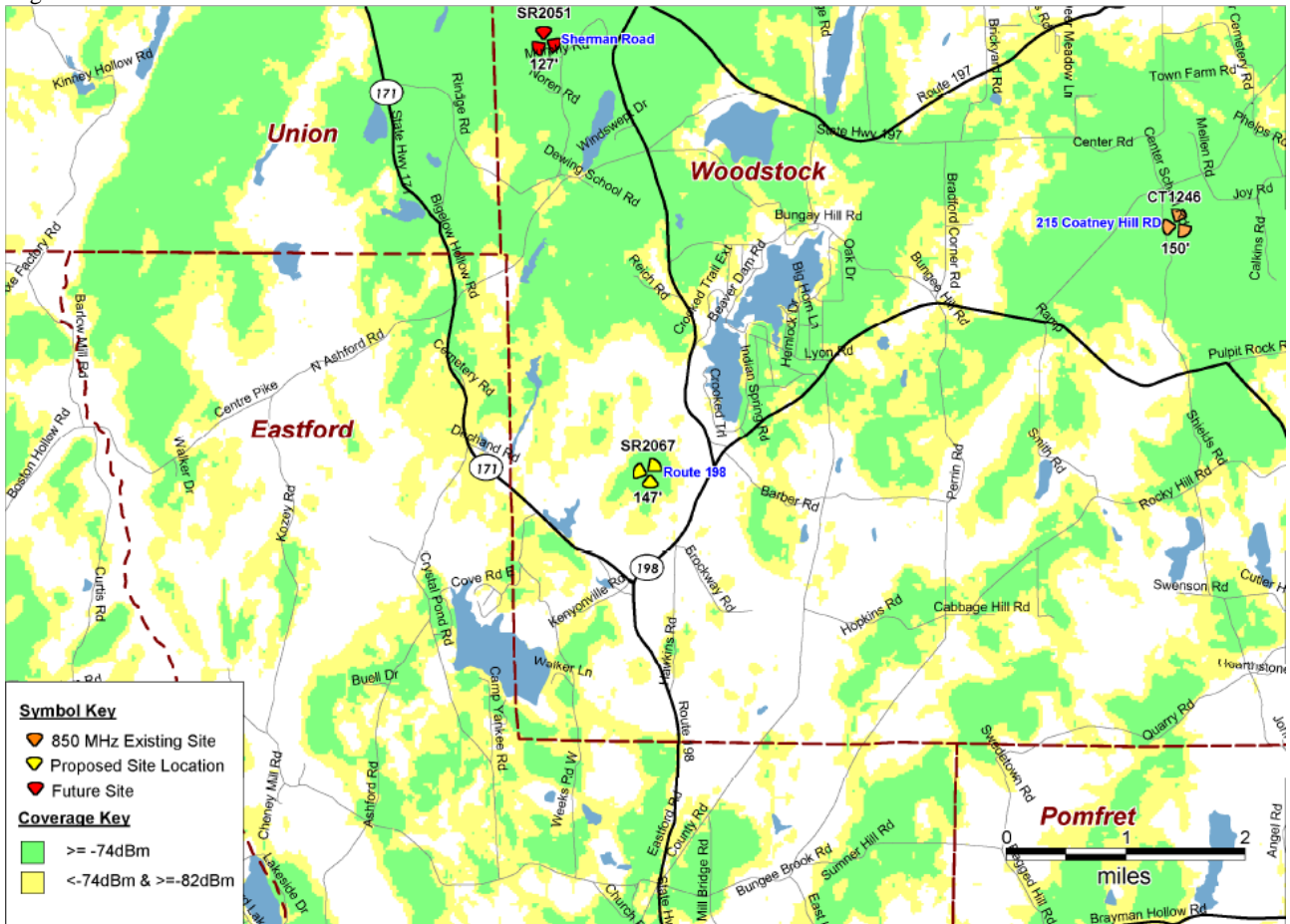
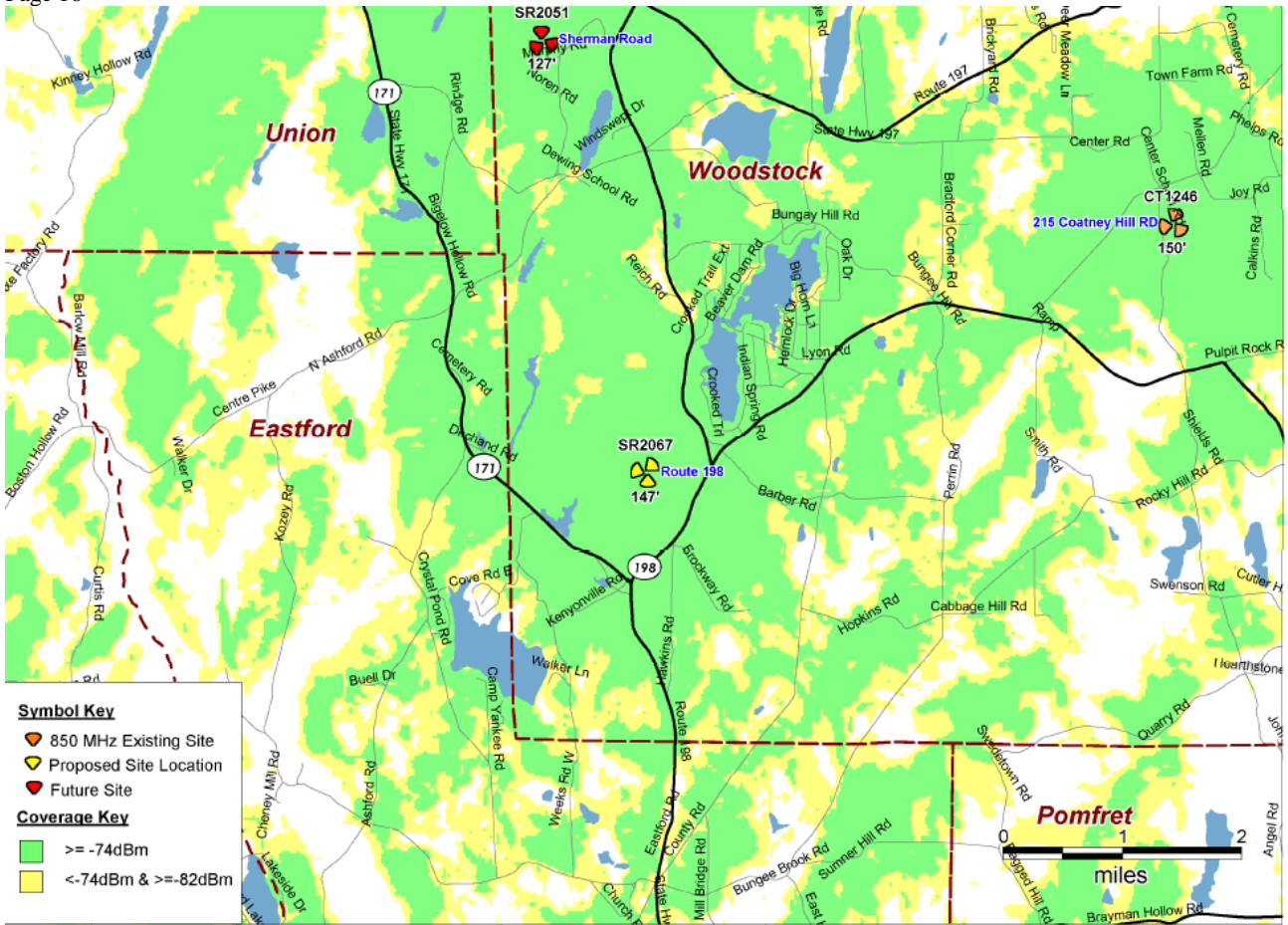


Figure 2. Existing AT&T coverage in the area of the proposed site. (NAT/AT&T 1, Tab 1)



**Figure 3.** AT&T's existing coverage and coverage from the proposed site at 150 feet agl. (NAT/AT&T 1, Tab 1)



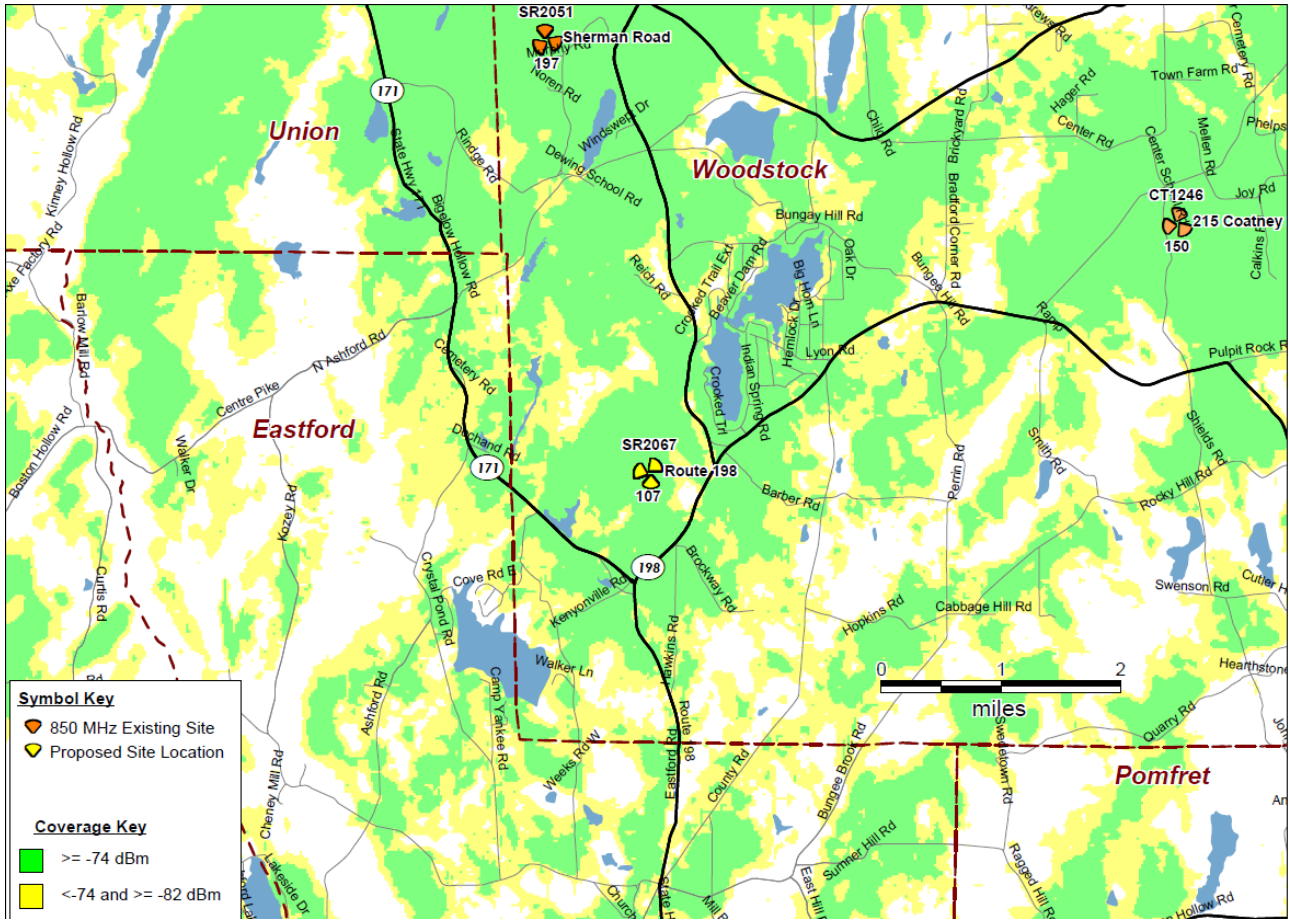
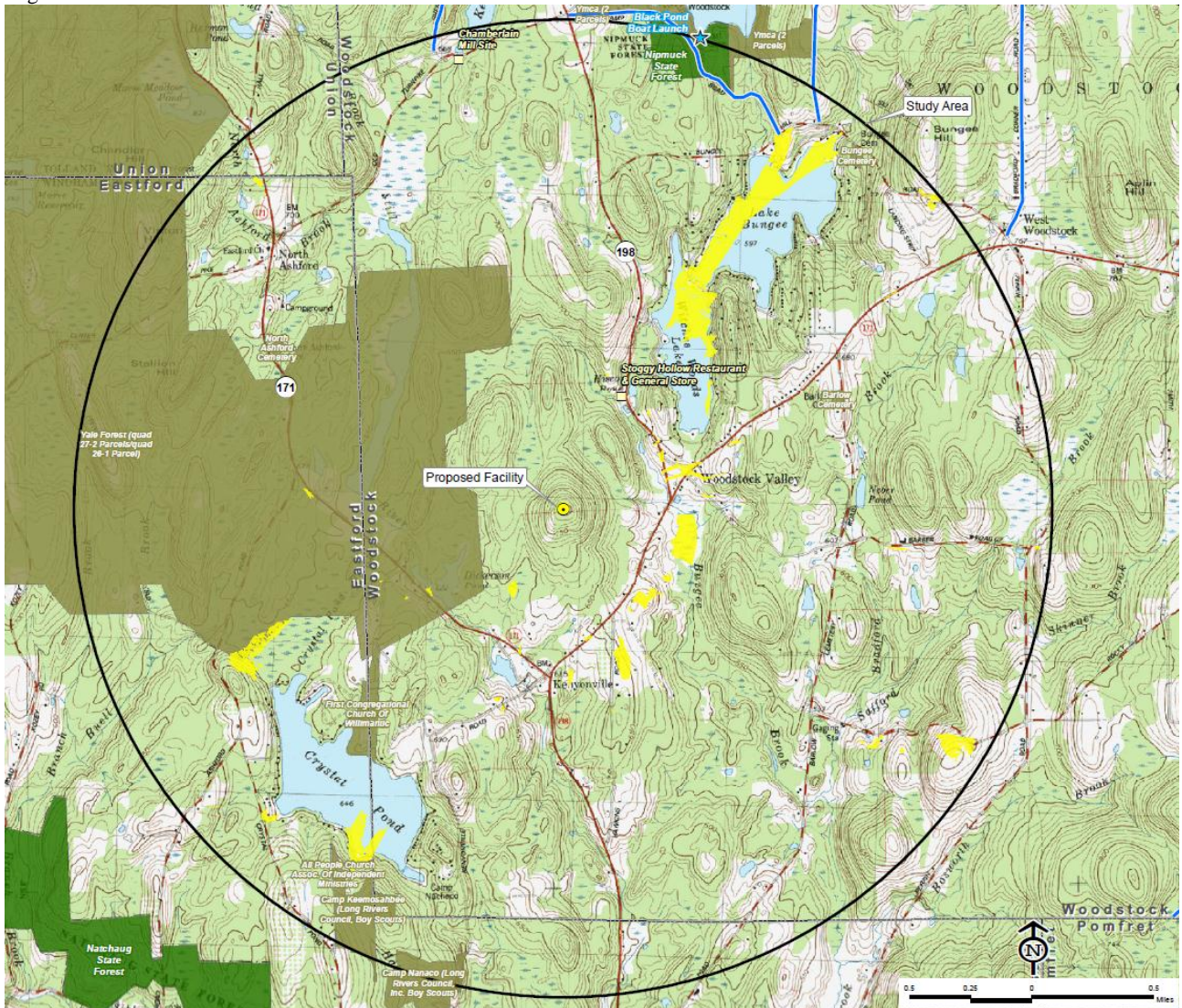


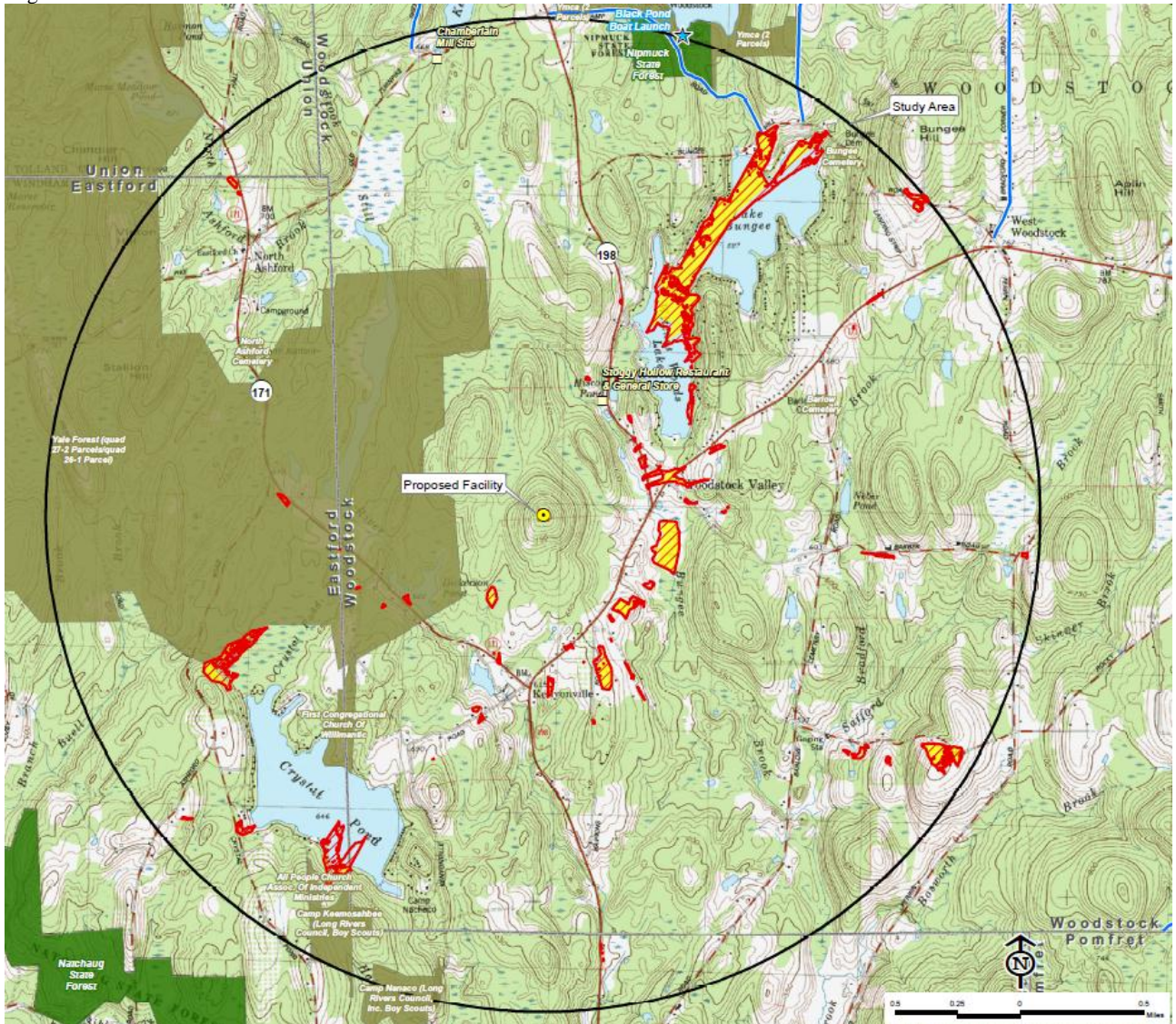
Figure 4. AT&T's existing coverage and coverage from the proposed site at 110 feet agl. (NAT/AT&T 10, Tab 1)



**Legend**

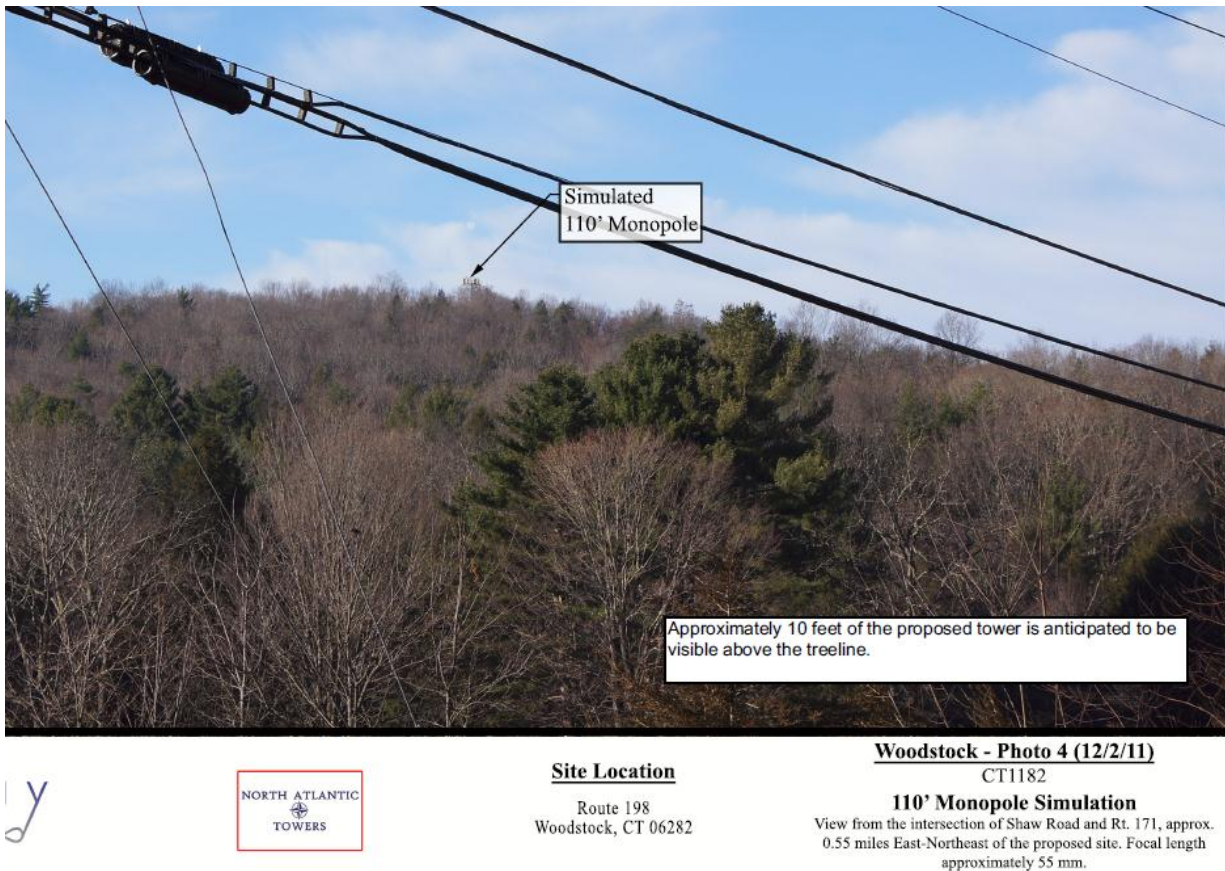
- |   |   |
|---|---|
|  Proposed Tower Location                                   |  CT DEP Property (CT DEP, December 2010) |
|  Approximate Year-Round Visibility Area (+/- 134 acres)    | State Forest  |
|  Protected Municipal and Private Open Space (CT DEP, 1997) | State Park  |
| Cemetery  | DEP Owned Waterbody   |
| Preservation  | State Park Scenic Reserve   |
| Conservation  | Historic Preserve   |
| Existing Preserved Open Space   | Natural Area Preserve   |
| Recreation  | Fish Hatchery   |
| General Recreation  | Flood Control   |
| School  | Other   |
| Uncategorized   | State Park Trail  |
|   | Water Access  |
|   | Wildlife Area   |
|   | Wildlife Sanctuary  |
|   |  Federal Open Space (CT DEP, 2004)       |
|   |  Boat Launches (CT DEP, Dec 2009)        |
|   |  Scenic Road (State and Local)           |
|   |  Town Line                               |

**Figure 5.** Viewshed analysis of the proposed tower within a two-mile radius at 150 feet. (NAT/AT&T 1, Tab 5)

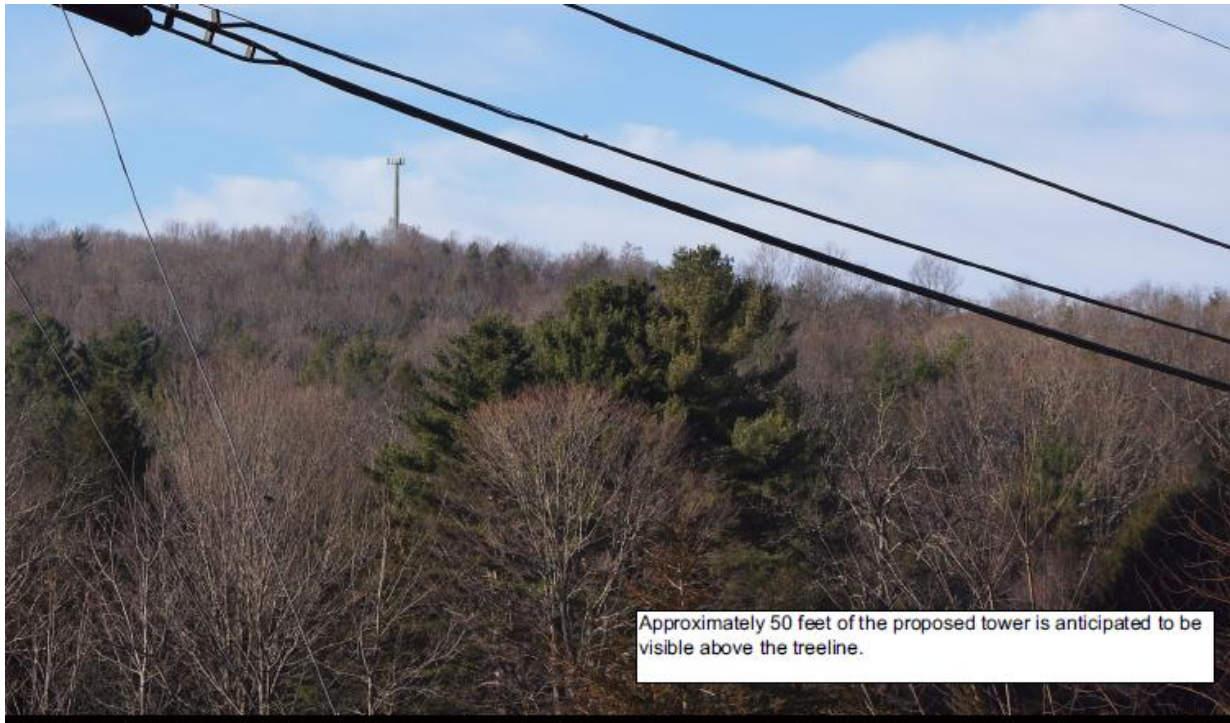


- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; border-radius: 50%; background-color: yellow; margin-right: 5px;"></span> Proposed Tower Location</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Approximate Year-Round Visibility At 110 Feet AGL (+/- 92 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px dashed red; margin-right: 5px;"></span> Approximate Year-Round Visibility At 150 Feet AGL (+/- 134 acres)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #808080; border: 1px solid black; margin-right: 5px;"></span> Protected Municipal and Private Open Space (CT DEP, 1997)           <ul style="list-style-type: none"> <li>Cemetery</li> <li>Preservation</li> <li>Conservation</li> <li>Existing Preserved Open Space</li> <li>Recreation</li> <li>General Recreation</li> <li>School</li> <li>Uncategorized</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #008000; border: 1px solid black; margin-right: 5px;"></span> CT DEP Property (CT DEP, December 2010)           <ul style="list-style-type: none"> <li>State Forest</li> <li>State Park</li> <li>DEP Owned Waterbody</li> <li>State Park Scenic Reserve</li> <li>Historic Preserve</li> <li>Natural Area Preserve</li> <li>Fish Hatchery</li> <li>Flood Control</li> <li>Other</li> <li>State Park Trail</li> <li>Water Access</li> <li>Wildlife Area</li> <li>Wildlife Sanctuary</li> </ul> </li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px solid blue; margin-right: 5px;"></span> Federal Open Space (CT DEP, 2004)</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid blue; margin-right: 5px;"></span> Boat Launches (CT DEP, Dec 2009)</li> <li><span style="display: inline-block; width: 15px; border-bottom: 1px solid blue; margin-right: 5px;"></span> Scenic Road (State and Local)</li> <li><span style="display: inline-block; width: 15px; border-bottom: 1px solid black; margin-right: 5px;"></span> Town Line</li> </ul> |
|---|--|

**Figure 6.** Viewshed analysis of the proposed tower at 110 feet and 150 feet within a two-mile radius. (NAT/AT&T 10, Tab 8)



**Figure 7.** Photosimulation of a 110-foot monopole at the proposed site. (NAT/AT&T 10, Tab 5)



**Site Location**

Route 198  
Woodstock, CT 06282

**Woodstock - Photo 4 (12/2/11)**  
CT1182

**150' Monopole Simulation**

View from the intersection of Shaw Road and Rt. 171, approx.  
0.55 miles East-Northeast of the proposed site. Focal length  
approximately 55 mm.

**Figure 8.** Photosimulation of a 150-foot tower at the proposed site. (NAT/AT&T 10, Tab 5)



**Site Location**  
Route 198  
Woodstock, CT 06282

**Woodstock - Photo 4 (12/2/11)**  
CT1182  
**110' Monopine Simulation**  
View from the intersection of Shaw Road and Rt. 171, approx.  
0.55 miles East-Northeast of the proposed site. Focal length  
approximately 55 mm.

**Figure 9.** Photosimulation of a 110-foot tower designed as a monopine at the proposed site. (NAT/AT&T 10, Tab 5)

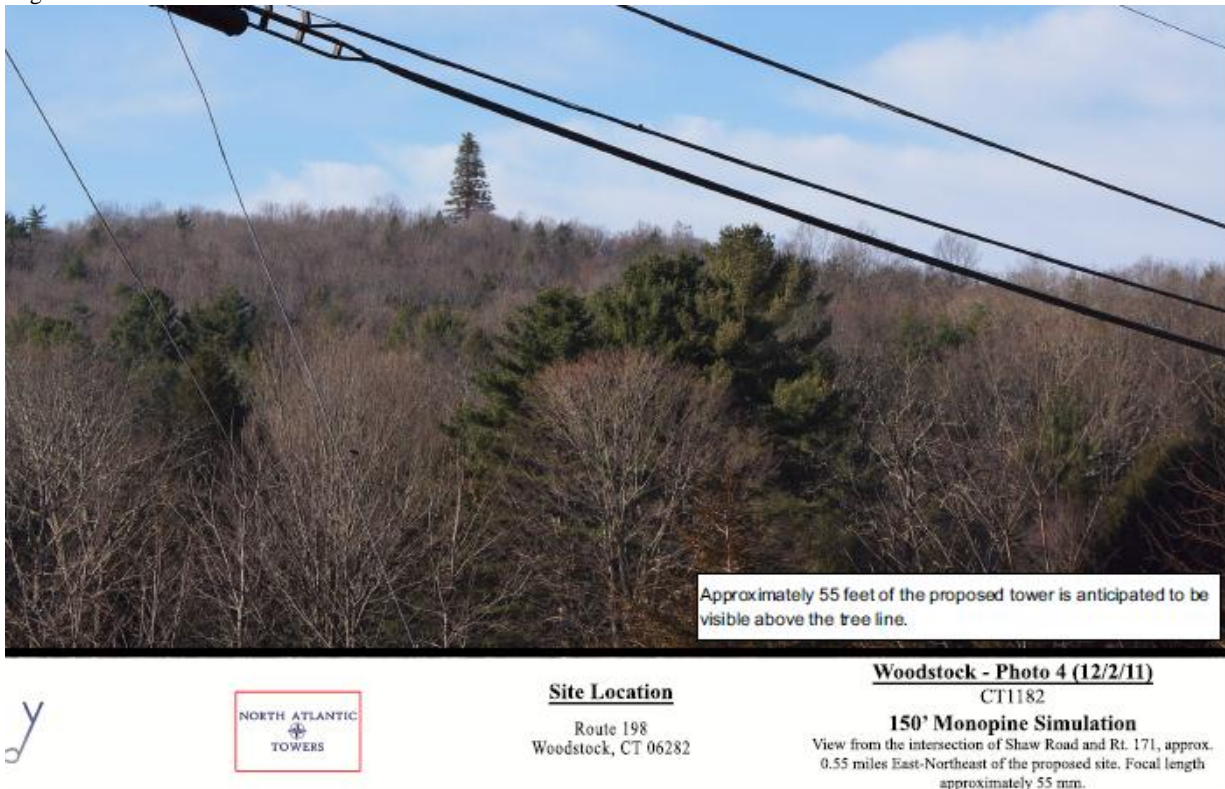


Figure 10. Photosimulation of a 150-foot tower designed as a monopine at the proposed site. (NAT/AT&T 10, Tab 5)