



Thinking outside the sphere

Consideration of Alternative Locations at 22 Griffin Road that Might Reduce Impact of Proposed T-Mobile Tower and Facility

In reviewing alternatives to the proposed tower at 22 Griffin Road, we found the testimony and evidence regarding the applicant's ability to utilize the rear portion of the 22 Griffin Road parcel to be general in nature. General concerns included wetland and wetland buffer issues, agricultural restriction, risk of increasing visual impact to others, and relief necessary to be within 600 feet of Old Lowell Road (a scenic road restriction in the wireless bylaw).

Combining GIS information and aerial orthophotography, we created several maps for examination. The first map, below, is a photograph overview of the area around the proposed site. It has the proposed tower site marked by a yellow icon. There are several red hash marks that estimate the 100 foot buffer zone from wetlands.



Map 1 – Wide Area Orthophoto of Locus

The wireless services of Broadcast Signal Lab, LLP are now offered through

Isotrope, LLC
505 Main Street
Medfield, MA 02052
508 359 8833



Alternate Sites on 22 Griffin

The next map shows the photo in Map 1 with a geocoded overlay we obtained from the Westford Geographic Information System (“GIS”). This overlay has contours, property lines, parcel numbers, building outlines, and wetlands markings (not visible at this scale). For the purposes of a first approximation, we utilized the DEP wetlands map contours in estimating the location of the wetland buffer zone.

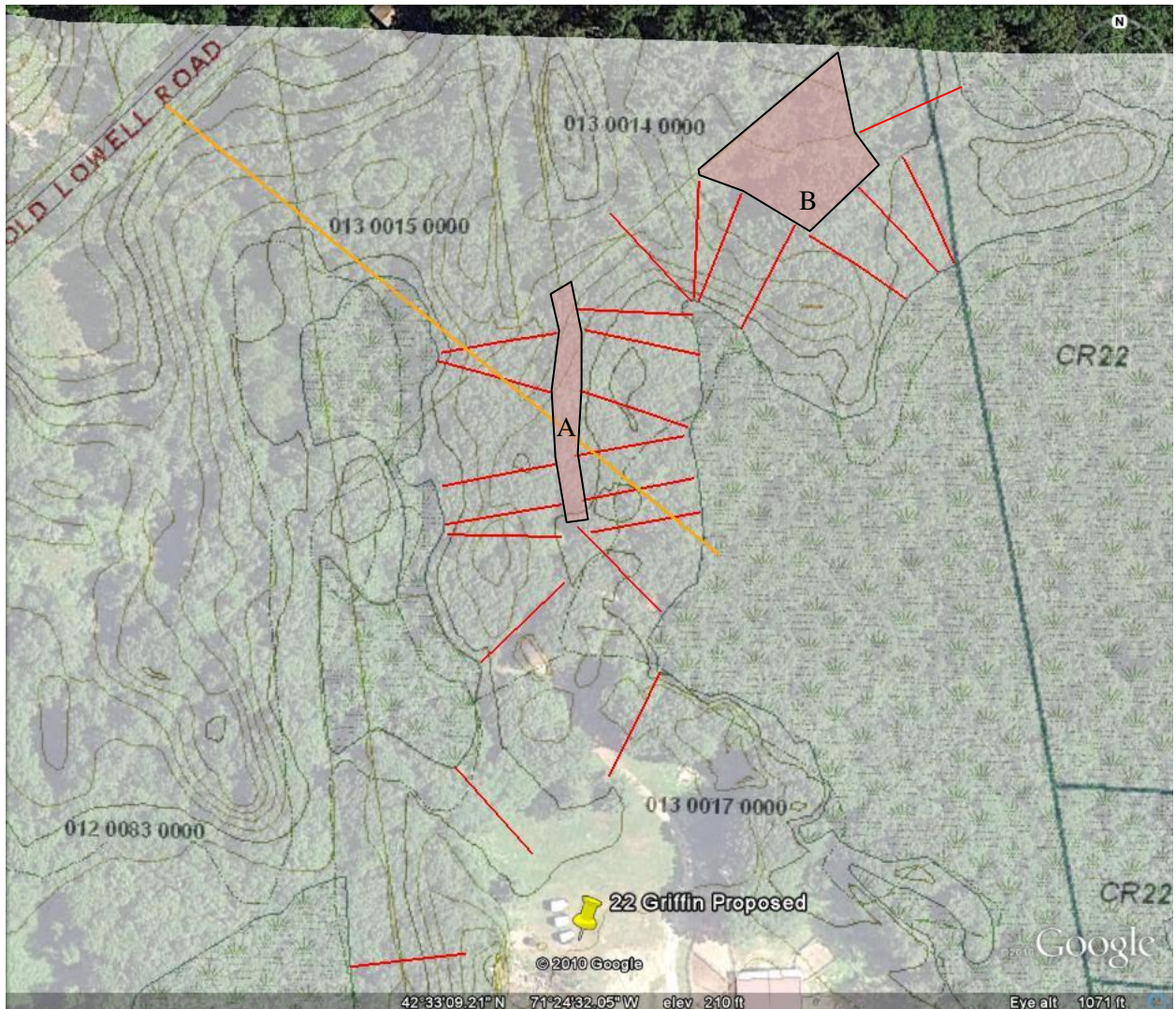


Map 2 – Locus Photo with GIS Overlay

Map 3 presents a close-in view of the 22 Griffin Road parcel and surrounding parcels and streets.



Alternate Sites on 22 Griffin



Map 3 – View of Rear of 22 Griffin Road Parcel

Key-

- Red lines- 100 ft markers from estimated wetland boundary.
- Orange line – 600 feet from Old Lowell Rd
- Pink polygons – areas estimated to be out of 100 ft wetlands buffer.
- A – 15 to 20 ft wide buffer-free strip.
- B – 10,000 ± sq ft buffer-free area



Alternate Sites on 22 Griffin

Site Distances from each Tower Location	A	B	Proposed
Distance to Old Lowell Rd	430 ft	450 ft	751 ft
Distance to House across Griffin Rd	985	1174	560
Distance to House on Parcel 013 0014. (Has cleared back yard)	495	387	940
Distance to rear of long yard facing tower from Wagon Trail Rd (long yard gives the eye a low angle of view over edge of woods)	1130	1390	1070
Max Tower Height to Remain below Treeline; Number of Feet of a 140 ft Tower Visible above Treeline	A	B	Proposed
Griffin Rd – Max. height of a tower that would not be visible	76	109	0
Griffin Rd – Number of feet of a 140 foot tower exposed to view	64	31	140
013 0014 – Max. height of a tower that would not be visible (2 nd flr)	140±	100	240
013 0014 – Number of feet of a 140 foot tower exposed to view	0±	40	0
Wagon Trail – Max. height of a tower that would not be visible	262	214	165
Wagon Trail – Number of feet of a 140 foot tower exposed to view	0	0	0
<i>Heights given in this section are estimated based on relevant ground elevations, aerial photos of edges of woods, estimated tree heights. Field verification is recommended for any alternative under consideration.</i>			

Woods Depth between Sites and nearby Locations	A	B	Proposed
Depth of woods between site and Griffin Rd	280	618	0
Depth of woods between site and 013 0014 yard	350	216	795
Depth of woods between site and Old Lowell Rd	430	450	632
<i>It is assumed that beyond 200 feet of woods depth in this locus, a wireless facility would not be visible to an individual looking through the woods, or at most it would be very difficult to discern. Further evaluation of this premise is recommended.</i>			
Elevation Angle from Viewpoint to Top of 140 foot Tower [Takes into account elevations and distances]	A	B	Proposed
Viewpoint: Griffin Road	7°	6°	12°
Viewpoint: Old Lowell Road	Not Visible	Not Visible	Not Visible
Viewpoint: 2 nd Floor Residence at Parcel 013 0014	Not Visible	15°	Not Visible
Viewpoint: Long Clear View from Yard at Wagon Trail	Not Visible	Not Visible	Not Visible



Alternate Sites on 22 Griffin

The tables above provide a comparison among the proposed site and two potential locations on the rear of the same parcel (marked A and B). The potential visual impact on nearest residential sites and roads is tabulated. The locations are at the opposite side of Griffin Rd from the facility; at the residence on Old Lowell Rd (parcel no. 013 0014) that is north of the 22 Griffin parcel and is most at risk for tower visibility if the tower were moved north on the 22 Griffin parcel; from Old Lowell Road; and from the Wagon Trail neighborhood.

- Green highlight marks each condition where the outcome suggests a 140 foot tower would not be visible.
- Red highlight marks each condition where an outcome is most extremely negative in its class.
- Yellow highlight marks each condition that is a significant improvement to visibility from Griffin Road, but remains visible to Griffin Road.
- Areas left in white background are not given a rating.

Location “A” provides a substantial reduction in visual impact to Griffin Road and creates no new impacts in other areas. The photo on the next page is the applicant’s photosimulation of the proposed tower from Griffin Road, viewing down the driveway. Based on the distances, elevations and heights, we inserted a second simulated tower – a 140 foot tower at location A on the same parcel. We calculated the approximate position (left-right) of the alternative tower; the actual position may be up to four tower widths left or right of where we have it positioned. Nevertheless, our simulation of the alternate tower size and height is more precise.

The photosimulation shows that alternative tower location “A” could be a significantly less impactful location for a T-Mobile tower.



Proposed
Conditions



Figure 1 – Isotrope Wireless’ Rendering of T-Mobile Photosimulation.

View: From Westford Riding Academy driveway at Griffin Road

Middleground: T-Mobile Photosimulation of proposed tower, based on crane test

Background: Isotrope Photosimulation of same height tower at location A.

Prepared by David Maxson

November 3, 2010