

DEAN A. CHARTER, CONSULTING ARBORIST

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November 21, 2021

Conservation Commission

Town of Bolton

RE: 21 Century Mill Road

To Whom It May Concern,

I am an Arborist certified by the International Society of Arboriculture (ISA # NE-0333A), with over forty years of experience in both the commercial and municipal fields. Included in my experience is my service for 38 years as Tree Warden for the Town of Acton. I am a Past President of both the Massachusetts Tree Wardens' and Foresters' Association, and the New England Chapter of the International Society of Arboriculture.

My client, 21 Century Mill Road LLC, has hired me to inspect the mature trees along the existing gravel driveway leading into 21 Century Mill Road, Bolton, and provide an opinion regarding what the impact will be upon those trees if the gravel driveway is upgraded as proposed. My understanding is that the existing 10 foot wide gravel driveway will be widened to 12 feet wide, and that the new cross section will be for a permeable pavement driveway over a subsurface stone reservoir for infiltration. Significantly, the driveway reconstruction will require approximately 24 inches of excavation and the excavated materials will be replaced with a stone substrate.

With the exception of one Oak, all the trees that are in close proximity to the driveway are White Pines and Red Maples, with the White Pines being the most prominent and the largest trees.

White Pines are the predominant species, and generally have a shallow root system, prone to wind throw, and specimens growing near wet areas are particularly more to wind throw. Especially in a wet area, virtually all the roots on a White Pine will exist in a "Root Plate" 24 to 30 inches deep. Before I address the impact from construction, I must note that whether the driveway is upgraded or left as it exists, in my opinion there are numerous White Pine trees that present a safety hazard right now, and it makes sense to remove them while the site is being worked on.

Many of the trees along the present driveway are very mature White Pines, most exceeding 75 feet in estimated height. Most of these pines exhibit the same characteristic in that they have co-dominant stems. Virtually all of them branch out candelabra style in a very tight V crotch

situation. A tight, V-crotch union is very weak, and as each new top leans outward towards sunlight, and the trees grow taller and heavier a great deal of stress is placed on that union. Trees that have grown like the 9 that I have identified almost invariably fail due to strong winds, snow, ice, or even heavy rain. It appears to me that in most of these 9 trees the terminal leader of the original tree was killed off by White Pine Weevil. The fact that the weak V crotches occur at various heights shows that there were repeated infestations. This is a very common situation in stands of White Pine, due to the fact that with the terminal leader killed each of the subordinate buds in the lower whorl of branches attempts to become dominant. At this point there is no practical means of correcting the problem, other than removing the tree or tolerating the imminent safety hazard. I would recommend removal of these 9 trees even if I was called to the site to just evaluate the trees, absent any proposed construction. Having trees that are obviously hazardous in close proximity to the only access driveway is an unacceptable risk.

The proposed excavation will destroy any roots that colonized the area under the existing driveway and the adjacent area to be excavated. Potentially, this work will remove up to half the root zone of the 9 White Pines. Even if the trees survive such root removal, they will become even more prone to wind throw, and will be an unacceptable hazard to the access driveway.

On October 18, 2021, I returned to the site at 21 Century Mill Road, and marked all the trees that I feel should be removed to install the expanded driveway as designed. I base this marking on the original plans, on our subsequent discussion, and the discussion during the site walk on October 13, 2021, with the Bolton Tree Warden and the Bolton Conservation Agent. I marked all trees to be removed, including those that might already have been shown on the original plan. I did not mark any trees that should be removed for the proposed house and septic. I did include two trees along Century Mill Road, west of the driveway, that should be removed for proper sight distance. These trees are Public Shade Trees as defined under MGL Chapter 87, and a hearing should be held with the Tree Warden in order to remove them. Compromises need to be made to balance the requirements of the Conservation Commission and the impact of excavation on the mature trees. I think what is proposed is reasonable, but more could be taken down. I did not evaluate any trees for hazard outside of the immediate right of way work.

Marking was done by pinning a small square of orange flagging on each tree to be removed, using a push pin. The marks are about eye height, and face into the driveway. Hopefully the flagging is clear but unobtrusive.

In my professional opinion, the safest course of action would be the careful removal of the trees noted above, all of which are in close proximity to the proposed expanded driveway, preserving the native vegetation in the immediate areas of the removals. This existing stock of smaller trees, and the mature Red Maples will quickly fill in the area.

Recognizing the fact that the proposed driveway work and White Pine removal will take place within the 100 foot Wetland Buffer, I recommend that some replacement plantings be installed to fill in any obvious gaps. I suggest that the proposed Mitigation Planting of 4 White Pines shown on the original plan between the driveway and the proposed septic system be increased to a total of 14 White Pines, some near the proposed house, and some at the north end of the driveway. These will do well in the sunny area created by the septic field. I further propose that on the opposite side of the driveway a fairly extensive planting area be installed, using shade tolerant native trees and shrubs that are tolerant of wetland conditions. These plants will actually be of more value to wildlife and will blend in with the

retained Red Maple overstory. The plants chosen are native to Massachusetts and are well adapted to this environment. They all have value to pollinators and will provide forage for birds and small mammals. They will provide nesting habitat, and they will grow thickly enough to shade the ground, keeping it cool, and mimicking the present shade environment. The area will be around 150 linear feet, running from the retained 18" Oak to the retained 12" Red Maple. Plants should be installed at least 6 feet from the new edge of the driveway to allow for growth. I suggest the following mix of trees and shrubs in this area:

Trees:

14 Pinus strobus	(White Pine)	6'- 8' hgt.
3 Amelanchier canadensis	(Shadbush)	Clump
3 Cornus alternifolia	(Alternate Leaf Dogwood)	2.5" cal.
1 Nyssa sylvatica	(Tupelo)	2.5" cal.
1 Betula nigra	(River Birch)	Clump

Shrubs:

4 Rhododendron maximum	(Rosebay Rhododendron)	30"
6 Ilex verticillata	(Winterberry Holly)	30"
6 Sambucus canadensis	(Elderberry)	30"
6 Vaccinium corymbosum	(Highbush Blueberry)	30"

Several visits to the site, meeting with the Tree Warden and Conservation Agent, and consulting with the project engineer, has resulted in the "Tree Removal and Mitigation Plan for Proposed Common Driveway" dated November 1, 2021. If any inconsistencies exist between this Narrative and the Plan, the Plan shall be considered authoritative.

Please feel free to contact me if you would like me to elaborate further.

Regards,

Dean A. Charter

Dean A. Charter, Certified Arborist