1248 Sussex Turnpike B-4
Randolph, NJ 07869
Phone: (914) 299-5600
mweibel@savatree.com
savatree.com

October 23, 2026

Chris Muskopf
151 Forest Ave
Verona, NJ 07044

Re: Assessment of trees near planned excavation

Dear Mr. Muskopf:

You are planning to install an in-ground pool in your backyard. When you presented your initial plan to the Town, neighbors expressed concern about the potential impacts of excavation on the health and stability of their trees. I was retained to perform an assessment of three trees in the area. I performed an ANSI A300 level 2 visual assessment of two trees. This is a 360-degree, ground-based visual assessment of exposed roots, trunk, limbs, and foliage. It included sounding the lower trunk with a rubber mallet to check for internal decay and probing any open, reachable defects. You were not able to obtain permission to enter one of your other neighbor's property, so an ANSI A300 level 1 limited visual assessment was performed for one tree. This means that all observations were made from your property and the tree was not directly measured, sounded, or probed. I met you at your property on October 21, 2026, to perform the assessment. I had never visited your property prior to this assessment. My observations are below.

BACKGROUND AND OBSERVATIONS

You provided me with a copy of the current site plan prior to my visit (see Site Plan at the end of the report). You informed me that the current plan includes excavation at 10-feet from your south and east property line. You also said that the existing fence is installed about 1 foot from the south side and directly on the east side. I began my assessment with the trees behind the south fence line.

Tree 1 is an 18-inch diameter at breast height (dbh; diameter measured 4.5 feet above grade) red maple (*Acer rubrum*) growing on your neighbor's property at 155 Forest Ave (see Photo 1 after the Site Plan at the end of the report). The tree is in fair health and sap rot growing on a wound near its base (see Photo 2). The tree is located 9.5 feet from the fence. Therefore, excavation is planned to occur 18.5 feet from its base.

Tree 2 is an 18-inch dbh sweetgum (*Liquidambar styraciflua*) that you stated is growing on your property. The tree is in good health but has two calloused wounds at its base (see Photos 3-5).

Sounding and probing the area around the wounds found no indication of internal decay. Given the location of the wounds, it is possible that the root zone is impacted in this area. The base of the tree is ~6-inches from the fence which means excavation is planned to occur at 9.5 feet from its base.

Tree 3 is located behind your eastern fence at 48 Gerdes Avenue. You did not obtain permission to enter this property so all observations were made from your property and 55 Forest Ave. The tree is a pin oak (*Quercus palustris*) in good health (see Photo 6). No indicators of internal or basal decay were observed. I was not able to directly measure its dbh but estimate it is 24-28 inches. The center of the tree is 3 feet from fence corner and its root flare is just behind the fence. The corner of planned excavation is located 11 feet from the front of this tree.

DISCUSSION

Managing Trees During Construction

Critical root zone (CRZ) and structural critical root zone (SCRZ) are two concepts that are important to understand when deciding which trees can be preserved during construction. CRZ is the area of soil surrounding the trunk where the majority of the tree's essential roots are located, providing stability and nutrient uptake. It may be possible to perform construction activities within the CRZ of a tree, but it will require certain actions to reduce the impact to the tree. This may include root pruning, by hand, prior to excavation, application of plant growth regulators, irrigation, application of biostimulants, etc.

The SCRZ is the area of soil surrounding the trunk where the roots that are essential for tree stability and health are located. This is a smaller area than the CRZ. If straight-line excavation needs to occur within the SCRZ, the tree should be removed.

Over 90% of a tree’s root system is located within the top two feet of soil. The closer to a tree that you need to excavate, the closer to the soil line roots will be found.

There are multiple methods to calculate the size of the critical root zone (listed as a radius, in feet, from the tree). The most common is to estimate that the CRZ extends 1 foot per 1 inch of dbh. Using this method, the CRZ for each tree extends:

- Tree 1: 18 feet in all directions
- Tree 2: 18-feet in all directions
- Tree 3: 24-28 feet in all directions

The extent of a tree’s SCRZ is calculated based on a formula developed by the University of Georgia: (0.9 x DSH = the SCRZ diameter; divide this by two to get the radius).

Using this calculation, the SCRZ of each tree extends:

- Trees 1 and 2: (18 * 0.9)/2 = 8.1 feet
- Tree 3: (24-28 * 0.9)/2 = 10.8 – 12.6 feet depending on the actual dbh of the tree

Based on these findings, neither the SCRZ or CRZ of Tree 1 will be impacted under the current plan. No action is needed to protect this tree during construction.

The CRZ, but not the SCRZ, of Tree 2 is impacted under the current plan. Shifting excavation an additional 8.5 feet from the fence will remove any impacts to this tree.

The CRZ of Tree 3 will be impacted. Depending on its actual size, a portion of its SCRZ may be impacted as well. It is not possible to shift excavation outside of its CRZ unless the size of the pool is reduced.

RECOMMENDATIONS AND CONCLUSIONS

Based on my assessment, I believe that Tree 1 will not be impacted by the installation of your pool. The current plan will impact both Trees 2 and 3. It may be possible to shift excavation outside of the CRZ of Tree 2, but not Tree 3.

Based on my assessment I recommend the following:

- Shift excavation as far from the south side fence as practical.

- Prior to mechanical excavation, the proposed limits of excavation should be marked in the field. All locations where planned excavation is to occur within the CRZ of any tree should be excavated, by hand, to determine the size and number of roots that would be impacted and need to be removed.

    - Use of an AirSpade to expose roots is preferred as it is less invasive, however, shovels can be used.
    - A Qualified Arborist should be present to assess all of the roots before any of them are cut. The Arborist will determine if cutting the roots will result in either tree instability or tree health decline.
    - If the Arborist believes the roots cannot be safely cut, either the tree should be removed or excavation needs to be shifted farther from the tree.
    - If the Arborist believes the roots can be safely pruned, they will.
        - They make recommendations for post-construction care such as application of biostimulant, irrigation, plant growth regulators, etc.

- Tree protection fencing should be installed along the limits of disturbance for the site prior to excavation and shall remain in place throughout the project.
    - Six-foot tall chain-link fence is preferred as silt and/or plastic fences are easily ignored by construction crews.
    - This is done to prevent accidental machine access, soil compaction, storage within the CRZ of the protected trees.

Please let me know if you have any questions regarding my findings.

Thank you,



Matt Weibel
NJ Licensed Tree Expert #581
ISA Certified Arborist #NJ-1065A
ISA Tree Risk Assessment Qualified
SavATree Consulting Group
mweibel@savatree.com
914-299-5600

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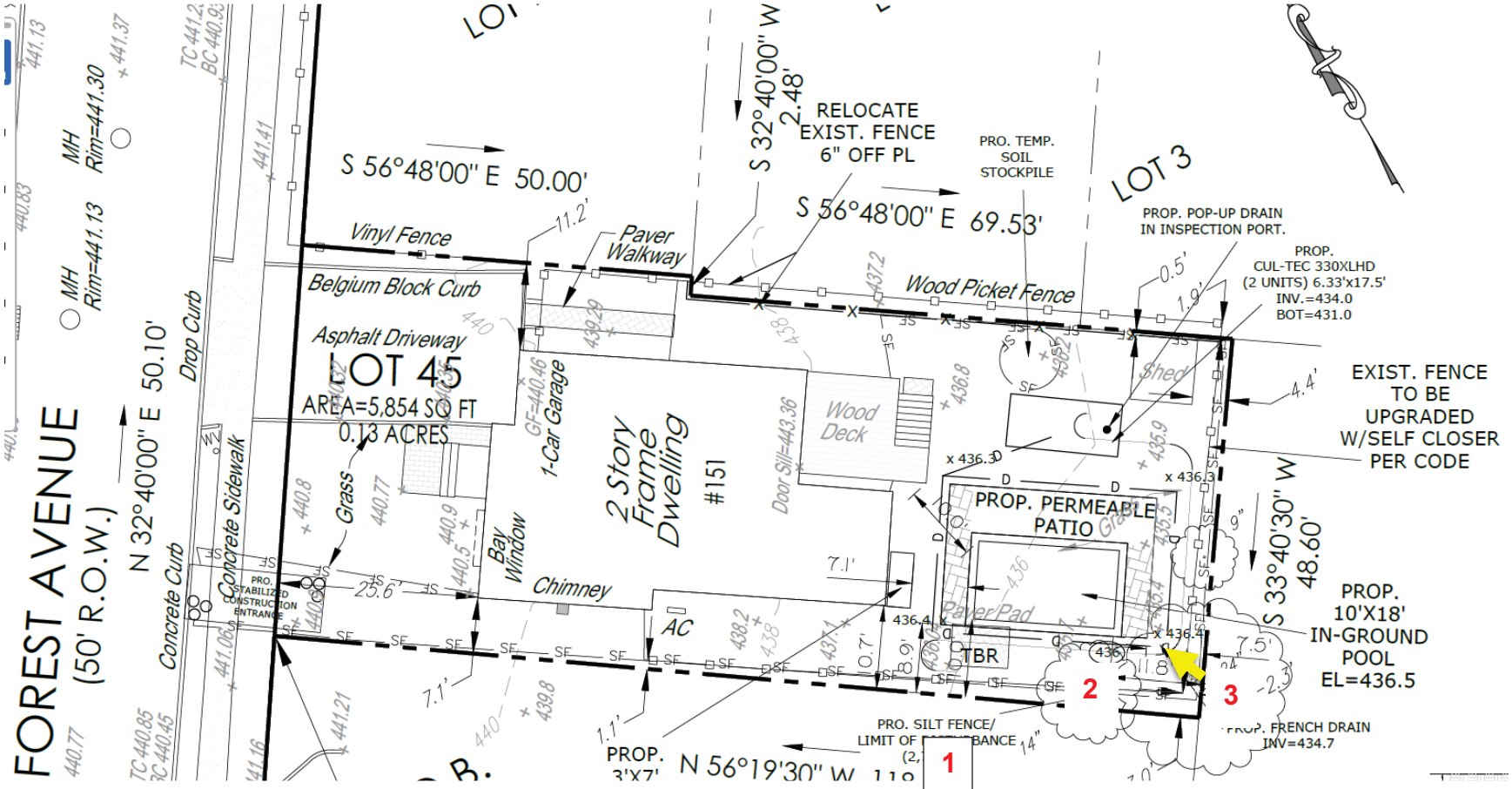
Site Plan



Site plan provided by Mr. Muskopf. Tree 1 is not on the plan, but its approximately location is marked. The base of Tree 3 is 11-feet from planned excavation; indicated by the yellow arrow.

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Photo 1



Photo taken 10/21/2026 in the Muskopf backyard showing the canopy of Tree 1.

Photo 2



Photo taken 10/21/2026, showing sap rot growing on an old wound near the base of Tree 1.

Photo 3

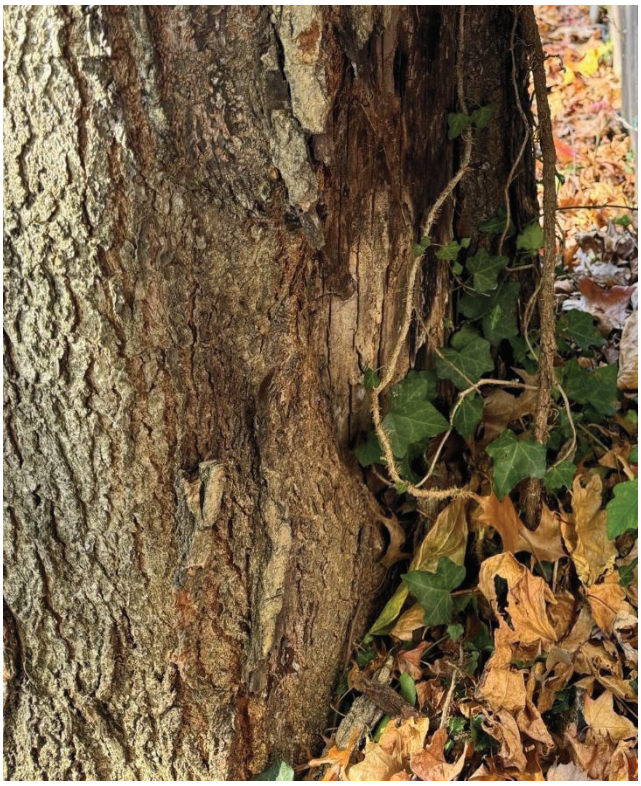


Photo taken 10/21/2026 in the Muskopf backyard showing the canopy of Tree 2.

Photo 4



Photo 5



Photos taken 10/21/2026, showing the basal wounds on Tree 2. Sounding the area with a mallet and probing found no indication of internal decay at these locations.

Photo 6



Photo taken 10/21/2026 in the Muskopf backyard showing the canopy of Tree 3.