



ISA PN6978A  
TRAQ

Sound Arbor LLC  
25920 132<sup>nd</sup> St. SE  
Monroe, WA 98272  
360-217-7535

*October 14, 2018*  
April 29, 2018

**EXHIBIT # 68.1**

Planning Dept.  
City of Lake Forest Park  
17425 Ballinger Way NE  
Lake Forest Park, WA 98155

**Re:** Air spade excavation to explore root depth and location

On October 14, 2018, I performed an air spade excavation to determine root depth and location of main structural roots on the west side of tree #10, located on the proposed building site just to the west of 4625 NE 178<sup>th</sup> St, in Lake Forest Park, WA. The idea had been proposed, that the soil quality at the site may support a deep root system, a root system that could coexist with a proposed foundation just 6 feet away. Given that the interior critical root zone of Tree #10 is 21 feet, I found the idea highly improbable. The proposed foundation would be 15 feet inside the interior critical root zone. Exhibit 8.11, submitted by Urban forestry states that disturbance into the interior critical root zone could destabilize or cause the tree to decline.

The air spade excavation revealed the first 12-14 inches of the soil around the trunk to be fill dirt from a much earlier time, evidenced by the high quantity of rocks, bricks, metal pipes, and garbage. The trunk flare originated approximately 13 inches below grade. Once the initial fill dirt was excavated from around the west side of the trunk, the next 10 inches of soil I encountered was a clay hardpan layer. The air spade was completely ineffective in removing this hard clay. It was not at all the sandy soil I was expecting to find. Hand tools were required and used carefully to chip at the clay to expose the 14" buttress root growing toward the proposed foundation corner. I followed the buttress root for approximately 3 feet, where a 6-inch caliper root branched off and grew directly toward the proposed foundation footprint. This 6-inch root was measured at 26 inches below grade. This 6-inch root was traced for another foot, and no noticeable elevation change was found. Due to the extreme ineffectiveness of the air spade in the hard clay layer, my exploratory efforts were limited to tracing this one buttress root for a short distance. More exploration and clay chiseling would have provided a better map of the root system of this Douglas fir, however the question on structural root depth was answered. The topography of the site indicates a fill layer that extends 5 feet west of tree # 10 and drops in elevation approximately 2 feet. It is likely that the roots beyond this fill area are closer to the surface, as they are not covered with fill.

Jorgen Olson  
ISA Certified Arborist # PN-6978A  
ISA Tree Risk Assessor



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## EXHIBIT # 68.2



(TOP)  
Measurement of depth of large buttress root to grade. Notice the depth at which the trunk was buried with fill dirt.

(BOTTOM)  
Caliper measurement of large buttress root near the base of the trunk

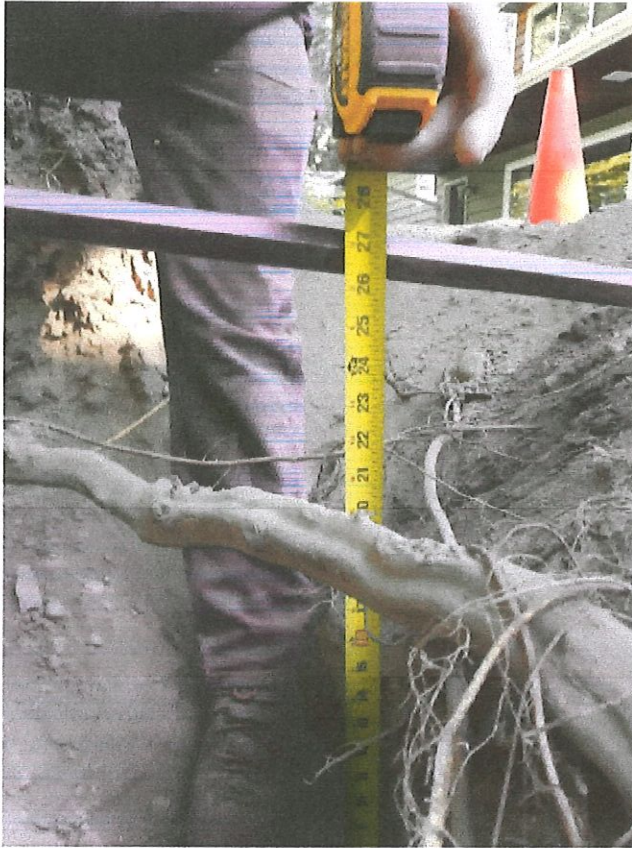




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**EXHIBIT #** 68.3



(TOP)  
Measurement of depth of 6-inch  
lateral root to grade.

(BOTTOM)  
Caliper measurement of lateral  
root.

