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Arborist Comments

April 25, 2019

These Arborist Comments were prepared for the Town of San Anselmo and represent an independent, impartial description of the conditions from observation at the time of the site visit April 5, 2019. These comments are prepared from notes taken following the site visit.

Location:

127-131 Butterfield Avenue, San Anselmo, California

Site visit:

A site visit occurred on April 5, 2019, to assess the Redwood tree. An arborist report prepared by Urban Forestry Associates Inc. Ben Anderson for Bill and Katie Reuter 127 Butterfield Road was provided by the Town of San Anselmo and available at the time of the site visit. On April 5, 2019, the Redwood tree was observed from two properties, 131 Butterfield Road, the property of Anne Boucher and from 127 Butterfield Road, the property of Bill and Katie Reuter. People present were Katie Reuter and Richard Torresan, Elite Tree Service. Information noted was that a soil cut was observed on the 131 Butterfield Road property that had passed directly next to the Redwood tree base. On the 127 Butterfield Road property, a soil cut next to the tree base had also taken place. The cut was more gradual in steps and less steep than on the 131 Butterfield Road property.

The soil cut is a concern because it likely included the removal of a portion of the Redwood tree's root system. Soil cuts were made close to the tree's trunk base where buttress roots are located and known as the critical root zone.

The Redwood tree consists of codominant stems that are attached and originate at the same location (the trunk base) and are considered as competing with each other. At and just below the attachments included bark is present. This is where tension between the two stems occurs and the tension increases as the tree through growth increases in circumference. It is at this point, where separation occurs that can lead to a failure when the competing stems separate. There is no visual indication that this exists and can only be detected through resistance drill testing or tomography that reveals integrity of the internal wood. This testing and interpretation of the test reading would provide a more accurate potential of a stem failure.

The reason for the site visit was requested due to branch failure that occurred during a recent wind event. The limbs had separated from high in the canopy, landed on the residence at 131 Butterfield Road, and damaged the roof of the home. One of several branches had pierced the roof of the home and the owner felt threatened by the limb failures. The observation at the site visit are described as that at some time in the past or recently limbs had been removed along the two stems and resulted in all foliage and branches now being in the upper 1/3 of the canopy. It is unfortunate because the poor pruning resulted in a pruning alteration that likely contributed to the roof damage of 131 Butterfield Road residence. The two stems are 142 feet in height and when the branch separation occurred branches fell from a height that increased their rate of acceleration as they fell. In addition, there were no lower limbs present to absorb the falling limbs during separation and their acceleration.

Recommendation:

It is unknown when a complete failure of one of the two codominant stems can occur. It is more likely due to the structure at the base of the tree and attachment points of the two stems at the tree base. In high wind conditions, the two stems will sway due to wind loading and respond in the opposite direction in reaction. This creates a greater stress at the

attachment point of the two stems. The movement during wind loading can be described as the stems creating a lever at the attachments by the enormous weight and its movement. This description explains the forces that contribute to failure.

A more likely failure in wind loading is branch failure that can result in personal injury or property damage when the branches detach and fall from the upper height of the canopy. The tree is measured with laser device and recorded at 142 feet for each of the two stems. Branch failure is documented in a recent occurrence and illustrated in the James McNair report that includes a risk failure assessment.

It is unknown if the lower branches will sprout from latent growing points along the stem where branches were removed from previous pruning operations. The results of lower branch removal has contributed to the stems exposure to wind and sun light that acts as a desiccant to the vascular cells that transport nutrients and water conduction for the trees growth. This results in a decline in vitality and flexibility in the trees two stem and remaining branches.

The discussions and recommendations to provide support for the two stems by cabling the two together are a possibility to stabilize and reduce movement in high winds and the potential for a stem failure; however, it will not provide any relief from branch failure occurrence in same conditions. This has already occurred and is documented in an arborist report illustrating the damages.

In conclusion, the safest solution would be to remove the Redwood tree's two stems. This would eliminate the potential of a complete failure or more branch failure that could result in personal injury or property damage at 131 Butterfield Road, the most likely target. This failure potential is most likely during high wind events. An alternative to removal would be to determine any separation of the stems at their attachments points. Cable the two stems using the ANSI A300 standards for cabling reducing the remaining branches by 15 % and frequent monitoring for failure potential. If any of the alternatives is not agreed, accepting a tolerance for risks associated then the only solution is to remove the tree.

These notes were created from observations on April 5, 2019, and the Dan McKenna report, July 16, 2017, and James McNair report February 15, 2019. These reports were not known or available until a later date after the site visit and notes were drafted for this report.

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