



## Todd Prager & Associates<sub>LLC</sub>

### MEMORANDUM

**DATE:** October 12, 2022

**TO:** Miles Rusth

**FROM:** Todd Prager, RCA #597, ISA Board Certified Master Arborist,  
ISA Qualified Tree Risk Assessor

**RE:** Tree Impact Assessment at The Pad Townhome Apartments

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#### Summary

Trees 2823 and 2898 are recommended for removal based on extensive anticipated impacts to their fine and structural root systems as a result of proposed construction.

#### Background

Miles Rusth is constructing the The Pad Townhome Apartments project at 17650 Meining Avenue in Sandy, Oregon. The proposed site plan with existing trees is provided in Attachment 1.

The assignment requested of my firm for this project was to provide my assessment of the viability of retaining trees 2823 and 2898 in light of the proposed construction impacts.

#### Observations

On October 12, 2022, I visually assessed trees 2823 and 2898. The tree locations are shown on the proposed site plan in Attachment 1.

The tree assessment data is summarized in Table 1.

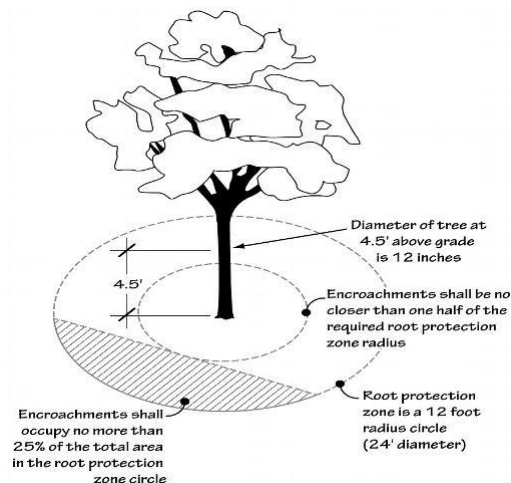
**Table 1:** Tree Assessment Data for Trees 2823 and 2898

Tree #	Common Name	Scientific Name	Trunk Diam. (DBH)	Crown Radius	Health	Structure	Comments
2823	western redcedar	<i>Thuja plicata</i>	61-inch	25-feet	good	fair	Multiple leaders at 2- to 10-feet with included bark
2898	lodgepole pine	<i>Pinus contorta</i>	14-inch	14-feet	good	fair	moderately one-sided crown, codominant at top of crown

## Discussion

The standard tree protection requirements in the City of Sandy Code range from at least 10 feet from the trunks of retained trees (SDC 17.102.50.B.1) to five feet beyond the driplines (SDC 17.92.10.D) unless otherwise approved by the Planning Director.

A typical alternative minimum protection zone allows encroachments no closer than a radius from a tree of 0.5 feet per inch of DBH if no more than 25 percent of the critical root protection zone area (estimated at one foot radius per inch of DBH) is impacted. Figure 1 illustrates this concept.



**Figure 1: Alternative minimum protection zone**

While there is no standard tree protection setback distance in the arboriculture industry, published research indicates an extreme minimum setback of three times (3x) the DBH may be possible when impacts are limited to one side of a tree.<sup>1</sup> However, a setback of 0.5-feet per inch of DBH is more typical<sup>2</sup> and is utilized by my firm to factor in a margin of safety. I have not found published research that recommends allowing root disturbances closer than 3x.

The 3x setbacks are illustrated for trees 2823 and 2898 in Attachment 1. The 3x setback is 15.25 feet for tree 2823 and 3.5 feet for tree 2898. The proposed 18- to 24-inch depth of excavation for a retaining wall is 8.8 feet and 11.17 feet from tree 2823 and 2.33 feet from tree 2898. The proposed excavation for both trees is less than the 3x minimum setback distance recommended in published research.

Also, the percent impacts to the critical root zone are 43.4 percent for tree 2823 and 39.5 percent for tree 2898. This exceeds the City of Sandy typical critical root zone impact limit of 25 percent for both trees.

## Recommendations

Based on the extensive anticipated impacts to their fine and structural root systems as a result of the proposed retaining wall construction, trees 2823 and 2898 are recommended for removal.

If removed, these trees should be directionally felled away from on and offsite trees to be retained so they do not contact or damage adjacent trees' crowns or trunks. Also, their stumps shall be ground out rather than pulled with a machine so that root disturbance of adjacent retained trees is minimized.

<sup>1</sup> Smiley, E. 2008. Root Pruning and Stability of Young Willow Oak. *Arboriculture and Urban Forestry*. 34. 10.48044/jauf.2008.016.

<sup>2</sup> Costello, L.R., and K.S. Jones. 2003. *Reducing Infrastructure Damage by Tree Roots: A Compendium of Strategies*. Cohasset, CA: Western Chapter of the International Society of Arboriculture.

### **Conclusion**

Trees 2823 and 2898 are recommended for removal based on the anticipated construction impacts.

Directional felling and stump grinding trees 2823 and 2898 are recommended to minimize impacts to adjacent retained trees.

Please contact me if you have questions, concerns, or need any additional information.

Sincerely,



**Todd Prager**

*ASCA Registered Consulting Arborist*

*ISA Board Certified Master Arborist, WE-6723B*

*ISA Qualified Tree Risk Assessor*

*AICP, American Planning Association*

Attachment 1 – Site Plan with Tree Locations

Attachment 2 – Assumptions and Limiting Conditions



## **Attachment 2**

### **Assumptions and Limiting Conditions**

1. Any legal description provided to the consultant is assumed to be correct. The site plans and construction information provided by Miles Rusth and his consultants was the basis of the information provided in this report.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
7. The assignment requested of my firm for this project was to provide my assessment of the viability of retaining trees 2823 and 2898 in light of the proposed construction impacts.