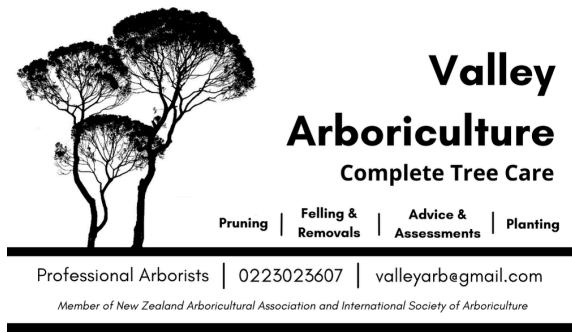


APPENDIX 4:

Arborist Report from Valley Arboriculture Ltd

Full Report

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Arborist Report

Prepared by

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Prepared for

Phillipa Bain

Tree owner

pip@a1electrical.co.nz

Location

27 King street, Mosgiel, Dunedin

Introduction

Valley Arboriculture LTD was asked by Phillipa from 27 King street, Mosgiel to conduct a visual ground and aerial inspection so we can provide an arborist report for the scheduled pin oak tree (*Quercus palustris*). The tree is located in the section of 27 King street at the north west corner. The reason for this report is that Phillipa is concerned about the overall condition of the tree. A certified arborist provided by Valley Arboriculture was tasked to provide an assessment of the trees in question and procedures if any on preservation or risk mitigation.

Inspection

Upon initial inspection by the arborist, there is one tree in total identified on site therefore this report will be segmented for the singular tree only. The inspection for the tree was carried out on the 28th of November 2025 on a calm, sunny, cool day. The tree is in close proximity and overhangs the dwellings of 27 King street (figure 1) and 27A King street (Figure 2). Also directly underneath the tree is a fence that runs along the North side (figure1), a sidewalk along the north-western side, the road just inside the dripline of the tree, and finally powerlines (figure 3). There are no visible roots present above the surface of the ground with the sidewalk, road, and driveway of 27A King street possibly impeding the growth of the roots due to severe compaction. The root flare of the tree is present and in good health (figure 4).

The trunk of the tree is a singular straight trunk roughly 4M up from the root flare (figure 5). On the north west facing side of the trunk there appears to be the presence of a torsional crack (figure 6) that reaches from the top of the root flare (figure 7) and stops just above a pruning cut near the top of the trunk (figure 8). The tree has sealed over the crack but is showing signs of a ram's horn developing at the top of the wound. There is also an indent mirroring the torsional crack on the south side of the trunk (figure 9). The tree has developed multiple stems above the main trunk (figure 10). The area in which the stems generate from is roughly 2M long from the top of the trunk to the last cluster of stems, because of this growth there is no main central leader present. There are multiple stems in this area that have developed with included bark (figure 11.1-11.6).

The inner canopy of the tree has been professionally pruned in the past for thinning, clearance of the powerlines, and removing select limbs growing towards the dwelling of 27 King street. Foliage in the canopy is of normal density and vitality with no defects, disease or insect damage visible at the time. There has been no signs of topping of the tree and previous pruning cuts show normal signs of reaction wood sealing over previous pruning cuts. There are very minor pieces of deadwood sporadically throughout the canopy which are too hard to see in photos but pose no risk to persons or property. The height of the tree is approximately 15M tall and the width of the canopy is approximately 12M across. Due to the powerlines being in close proximity of the tree it has been pruned more heavily on the western side to prevent the tree's growth from interfering with the lines. Due to this pruning the tree's canopy is slightly more dense on the eastern side but still maintaining a fairly asymmetrical vase form (figure 1).

Overall, the tree is in excellent health with a normal rootflare, no signs of disease or insect damage and a full large canopy. Although the tree's health is in excellent condition, my concerns are with the torsional crack present in the trunk and the multiple included bark stems that form in a crowded space without the presence of a main central leader.

Discussion

The goal of this report is to inform the tree owner about the state of the tree and any possible management or mitigation to risk that can be carried out. The pin oak tree is evenly foliated throughout its canopy and appears to exhibit normal vitality for its age. A small amount of pruning has been carried out in the past in accordance with industry standards. The root plate of the tree appeared stable, has good root flare and trunk taper.

Whole tree failure does not appear imminent but the torsional crack on the north side of the trunk and mirrored seam on the south side does raise the concern of how structurally sound the trunk is. A torsional wound in the tree is normally caused by extreme weather events which twist the wood causing the fibres to shear apart. Because of the size of the tree's canopy there is a significant amount of weight and force being applied through the wound area which has the potential to create a whole tree failure stemming from the trunk of the tree.

Although we cannot see the full extent of the torsional crack we can use sonic tomography to determine the presence of significant cracking or decay in the area of the wound. There are alternative methods of determining the amount of damage in the trunk of the tree but they are invasive and not entirely reliable in this situation.

The trunk develops into a multi stemmed canopy which extends over multiple static and non static targets below and near the tree. The main concern for this area is that multiple stems have developed included bark in their attachment points to the main stem. Included bark is a structural defect in which the bark of the tree grows inward and becomes trapped between two limbs or stems instead of growing normally together and upwards to form a healthy union. There are two limbs that are affected with included bark which are above powerlines and in an event of a failure can cause significant damage to power lines, vehicles parked along the road and pedestrians along the sidewalk (Figure 11.1- 11.2). At the north side of the tree there is one stem with included bark and in an event of a failure can cause minimal damage to the lower canopy of the tree, dwellings of 27A King street, and the wooden fence (figure 3). Additionally there has been a small fresh crack along the top of a stem that grows towards 27A King street (figure 11.7) Along the east side of the tree there are two more stems with included bark that grow above the dwelling of 27 King street which in an event of a failure can cause moderate damage to the structures below (Figure 11.4-11.6). As these limbs continue to grow they will continue to push against each other which can cause failure at the unions (Figure 11.2-11.6).

Proposed plan

Tree works will be performed by trained and qualified arborists only. There are two recommendations that I can suggest which can reduce the risk of failure. Firstly I suggest an aggressive but gradual retrenchment of the canopy in three pruning segments over the timespan of 6-8 years with each pruning segment reducing the overall canopy of the tree by 20%. After each reduction is made the tree should be monitored for the response growth and assessed the following year. If the tree responds well the pruning should commence again the following year and so forth. This option will reduce the windsail of the tree, reduce end weight of the limbs with included bark, and ease the pressure on the torsional wound in the trunk. Because this will be a very aggressive prune there will be a significant amount of epicormic growth as a defense mechanism from the tree. This new epicormic growth will have to be maintained frequently in the future to prevent overcrowding and improper canopy restructuring.

My second recommendation would be the complete removal of the tree. The client has voiced their concern and fear of being in their house while high winds are present. I cannot quantify their fear in a reporting format but it should be noted how the individuals are affected. By removing the tree we remove all risk associated with it. If the tree is to be removed I would also recommend a new tree suitable for the area to be planted in its place.

If no work is to be done it is highly recommended that the tree be continuously monitored by an arborist every 3 years or after an extreme weather event to assess overall structure of the tree. In addition to the monitoring an arborist should perform a remedial maintenance prune which includes but is not limited to removing deadwood, crossing branches, and end weight reduction.

Conclusion

Valley Arborists LTD trusts that the information provided will be used to preserve the tree listed above or the information provided used accordingly. Additionally, I hope that this report has all the information you require. If there are any questions or concerns, please contact me.

Best regards,

William Hagendorn, ISA ON 1905-A

William Hagendorn



Figure 1. The overhang of the tree to 27 King street dwelling.



Figure 2. The overhang of the tree to 27A King street dwelling.



Figure 3. The tree's canopy extends above the power lines, footpath, and road. Although not in this picture the footpath is in between the cherry tree and holly hedge with the road running next to the cherry tree on the western side.



Figure 4. A healthy rootflare at the base of the tree.



Figure 5. Trunk of the tree facing south.



Figure 6. The overall length of the torsional crack on the north west facing side of the trunk.



Figure 7. The bottom of the torsional crack.



Figure 8. The top of the torsional crack.



Figure 9. The torsional crack is shown in the left photo with the mirrored indent in the photo on the right.



Figure 10. Multiple stems forming above the main trunk.



Figure 11.1. Included bark on the limb growing above powerlines.



Figure 11.2. Another limb with included bark growing towards the power lines. This photo shows how as the limbs grow in diameter they will continue to press against each other with no space to develop.



Figure 11.3. Included bark on two stems near the middle top portion of the lower canopy.



Figure 11.4. Large limb that grows towards the house with included bark.



Figure 11.5. The highest stems of the tree have formed an included bark.



Figure 11.6. Another large limb growing towards the house with included bark. This photo shows how as the limbs grow in diameter they will continue to press against each other.



Figure 11.7. A small crack has formed above a limb.