

Memorandum

TO: Finn Campbell – Planner, Resource Consents
FROM: Mark Roberts – Arborist, Roberts Consulting Ltd
DATE: January 30, 2025
SUBJECT: LUC-2024-460. 33 Preston Crescent, Dunedin

Dear Finn,

Further to my December 3, 2024 Application to remove scheduled tree T014 (LUC-2024-460) report, I am providing arboricultural comment on additional items of information that were not available or addressed at that time.

Additional documentation

I have been supplied with a copy of a building report, by Robert Aurik; Building Report – 33 Preston Crescent, Scheduled Tree impacting self-contained dwelling on property. And a quote by Adams; [Quote Ref: 76890], written by Michael Brown Sales and Plumbing Manager, Dunedin.

In regards to the building report.

Mr Aurik has listed his qualifications, none of which are arboricultural or horticultural in nature. Mr Aurik names the tree as a Silver Beech. He goes on to say that silver beechs are also known as *Fagus sylvatica* or European Beech, and that they are deciduous tree(s). This highlights the problem with common names, the Silver Beech (scheduled tree T014) at 33 Preston Crescent is not a European beech, but a NZ native beech, *Nothofagus menziesii*.

There are several factual inaccuracies in this report. Some of these include;

- Mr Aurik states that, ‘... Silver Beech has a relatively shallow and widespread root system.’ This is incorrect, no matter which type of beech tree it is. The distribution and spread of a tree’s roots are dependent on the structure, type, and volume of the soil, and the availability of moisture within that soil. The concept that a given species of tree has a shallow or deep root system is not supported by data.
- Mr Aurik states that, ‘...Silver Beech prefers well-drained, rich, and moist soils’. While this may be true for European beech, The NZ native silver beech grows predominantly in wet environments with soil low in nutrients. But like almost all trees, they will thrive in well-drained, rich, and moist soils.
- Mr Aurik also mentions aggressive, and highly invasive roots, this too is also an inaccurate concept. Tree roots are situationally responsive, they are opportunistic. Where there is a poorly designed structure or path, and

moisture is drawn to the underside of it, tree roots are likely to be attracted to that moisture. If there is an area of less compacted soil (i.e. soil directly adjacent to an underground service), tree roots are likely to grow in that soil. If that underground service is a pipe that carries water and there is a leak in that pipe, tree roots are likely to be attracted and may enter that pipe.

- Mr Aurik states that. 'Tree roots typically spread out as far as the tree's canopy, often extending 2-3 times the distance of the trunk's diameter.' This is incorrect. Most standardised root spread formula work in factors of 12 to 15 times the distance of the trunk's diameter. If one wished for a better fit rule-of-thumb, it would be that tree roots typically spread out at least the height of the tree away from the tree.
- Mr Aurik provides as a possible preventive measure (to control the roots), 'heavy pruning to remove the branches over the dwelling and footpath/road'. The idea that removing a branch above a root will somehow stop or reduce root growth [of that root] is not supported by scientific evidence. Pruning to control root growth is not a preventive measure.

I am in agreement with Mr Aurik's summary statement, 'There is considerable cost to the owner of the property to repair the damage to the dwelling and mitigate the ongoing risks to the dwelling'.

In regards to the quote by Michael Brown of Adams

Mr Brown has provided two options

1. New surface water sump.
This option involves installing new 100mm stormwater drainage from the sump to the stormwater outlet at the kerb. This option involves trenching between the tree and the dwelling.
 2. New sump with pump.
This option involves installing a new sump with an electric pump. The collected water will then be discharged (pumped) through the existing pipes to the stormwater outlet at the kerb.
- Both options involve excavation within the 2GP dripline/setback of the tree.

Summary of effects on the tree

In my December 3, 2024 report I noted in the summary [5.4] *I did not see anything to suggest that the tree was damaging the foundations of the dwelling at the front of the property and a building report was not provided to confirm or suggest that this was occurring.*

- Based on the information provided in the building report I accept that the building slopes away from the street, causing water to pool and/or drain back into the property.

In my December 3, 2024 report I noted in the summary [5.6] *There are limited options for drainage works around the base of the tree that do not potentially compromise the tree or potentially compromise the dwelling.*

- Based on the additional information provided in the quote by Michael Brown I can provide some detail on how the tree may be compromised by the drainage works.

There are two main 'zones' considered and used when development occurs near existing trees. Those zones are the Structural Root Zone (SRZ) and the Tree Protection Zone (TPZ). The zones of consideration serve to protect the tree and limit the creation of potential hazards.

The relevant standards accepted and used in New Zealand are the Australian Standard: AS 4970 - 2009 Protection of Trees on Development Sites, and the British Standard: BS 5837:2012 Trees in relation to design, demolition and construction.

These zones are radial distances centred off the trunk. The size of the zone is a ratio calculation based on trunk diameter. For scheduled tree T014 the SRZ is a circle extending 4.13m from the trunk and the TPZ is a circle with a radius of 14.4m.

The SRZ is where the structural roots are said to be. Damage to the structural roots could compromise the tree's stability. According to the standards no work should take place inside the SRZ.

An incursion of more than 10% of the TPZ represents a more than minor incursion.

To allow water to drain away from the dwelling one of the two drainage options must be implemented. Due to the relatively shallow fall to the stormwater outlet at the kerb, the pipes cannot be placed under the existing roots. Therefore, based on the available area between the tree to the dwelling;

- Option one involves an incursion of more than 10% of the TPZ and work within the SRZ.
Option one is likely to compromise the health and stability of the tree.

- Option two involves an incursion of more than 10% of the TPZ and requires the pump to be working at all times.
Option two is likely to compromise the health of the tree.

Summary of findings

In addition to my December 3, 2024 report

1. I acknowledge that there is a drainage issue causing water to pool and/or drain back into the property. It is also probable that the tree T014 is affecting the foundations of the dwelling at the front of the property.
2. My summary point 5.5, that, *'Under certain environmental conditions the tree possibly prevents or reduces drainage from the dwelling'* remains unchanged.
3. My summary point 5.6, that, *'There are limited options for drainage works around the base of the tree that do not potentially compromise the tree or potentially compromise the dwelling'* remains unchanged.

Further to that point, both drainage mitigation options are likely to compromise the health of the tree. Option one is also likely to compromise the stability of the tree.

Recommendations

LUC-2024-460 is an application to remove scheduled tree T014 a silver beech (*Nothofagus menziesii*) growing at 33 Preston Crescent, Dunedin. I recommend supporting this application based on the fact that there are no reasonable mitigation options to address the drainage issues that are unlikely to compromise the health of the tree.

Yours sincerely,



Mark Roberts

Arborist
Roberts Consulting Ltd