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**13.1 Update on Yarra Riverbank, Alphington**

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Reference: D19/130965  
Authoriser: Director City Works and Assets

[Help](#)

**Purpose**

1. To provide Council with an update on the Yarra Riverbank at the Former AMCOR site in Alphington, specifically to address the potential for imminent tree collapse at the subject site.

**Background**

2. The former AMCOR site in Alphington is currently being re-developed. The site abuts Heidelberg Road and the Chandler Highway and extends to the Yarra River. There is a 30 metre strip of land along the river bank that is owned by the lead developer (Glenvill), and is highly valued by the community for the amenity it provides, and the access it provides to the river. The intent is that this strip of land will vest in a public authority in future to enable ongoing public access to the land.
3. The 16 hectare site has been systematically and progressively demolished by Glenvill in line with the staging of the development works. An environmental management plan has been put in place to manage stormwater run-off and infiltration that includes the construction of swale drains and open earth drains to intercept and direct stormwater runoff into sedimentation ponds.
4. In January of 2019 it was reported that a section of the river bank had slumped, causing a tree to fall into the river. This tree was subsequently removed.
5. In May 2019 a second section of river bank slumped with a second tree falling into the river, and two other trees being at risk due to being within the affected slump zone. Refer to photos in Attachment 1.
6. There has been considerable community interest in the AMCOR development, and most recently in relation to the slumping of the river bank, the loss of one mature tree and the potential loss of more mature trees in the slump area.

**Arborist reports**

7. Council's internal arborist report – 3 June 2019:
  - (a) Trees are in fair health;
  - (b) Did not consider impact of embankment stability on trees (bank stability outside scope of assessment and expertise); and
  - (c) Conclusion; tree removal will require permit.
8. Glenvill arborist reports:
  - (a) First report – 5 June 2019 by Tree Radar Australia:
    - (i) trees are not stable due to continued predicted slumping and should be removed; and
    - (ii) No permit for tree removal required;
  - (b) Second report - 11 July 2019 by Tree Department:
    - (i) the potential for either of the two trees to fail is due to loss of soil cohesion;
    - (ii) Glenvill Geotech report by Douglas Partners predicts continued slumping. Based on this the Arborist finds the risk unacceptable and recommends removal of the trees; and
    - (iii) No permit for tree removal required.

9. Independent Arborist appointed by Council – 15 July by Ryder Consulting:
  - (a) Both trees are of fair to good health and structure, and will require permits for removal;
  - (b) Both trees considered low risk, though with further land slip both are at risk of failing;
  - (c) Tree 1 is likely to fail (within weeks to months) and dependent on slump worsening; and
  - (d) Scope did not cover the cause or risk of further land slip – this will be the subject of further investigation.
10. Council officers have also engaged independent consultant Alluvium to investigate the tree collapse and bank slump associated with the Glenvill development site. Alluvium is to convene a panel of specialist experts with the objective of:
  - (a) Assessing the immediate risk of failure of the remaining trees;
  - (b) Identifying any immediate to short-term management required to address risks at the subject site;
  - (c) Examining the range of potential processes which may be leading to (or may have led to) tree collapse and bank slumping;
  - (d) The likely impact of the removal of the contamination within the embankment;
  - (e) The impact that stabilisation of the embankment and river front may have on existing trees; and
  - (f) Provide recommendations to Council on longer term on-going remediation works that should be considered to address the likely cause of the riverbank slumping.
11. Alluvium submitted their report on 29 July 2019. The purpose of the report is to address the potential for imminent tree collapse at the subject site. Their recommendations are as follows:
  - (a) Tree 1 is at imminent probability to collapse and should be removed, following application for a permit;
  - (b) Tree 2 appears to be outside the zone of existing tension cracks of the slump area. The report suggests that the tree not be removed but to be regularly monitored;
  - (c) Monitoring of the slump area to be undertaken weekly;
  - (d) Continue to restrict access to the subject site to maintain public safety;
  - (e) If tree removal is undertaken, the stump and root plate must be retained to reduce damage to the bank and to provide ongoing soil stability; and
  - (f) With pedestrian controls in place, the tree collapse does not constitute an emergency. Therefore, the trees do not meet the Permit exemption conditions of immediate risk as required under the terms of the Victorian Planning Provisions – Significant Landscape Overlay (SLO 42.03-3) and Native Vegetation (VPP 52.17-7).
12. The expert advice for removal of Tree 1 takes into consideration the benefit of retaining the root system of the tree which would assist with bank and ongoing soil stability. Should Tree 1 fall it could further undermine bank stability.
13. The findings from this report have been shared with both Glenvill as the land owner, and Melbourne Water, as the custodians of the Yarra River.

#### **External Consultation**

14. External consultants have been engaged by Council to provide independent advice on the trees and river bank slump.
15. Melbourne Water have been consulted and have advised that they support the management recommendations made by Alluvium in Section 5 of their report of 29 July 2019.

**Internal Consultation (One Yarra)**

16. Relevant internal units have been engaged as part of these matters.

**Financial Implications**

17. There has been a cost to Council to commission independent expert advice. There may be some ability to recover costs once the cause of the river bank slumping is determined.

**Economic Implications**

18. Not applicable

**Sustainability Implications**

19. There are potentially local sustainability implications.

**Social Implications**

20. There are potentially local social implications.

**Human Rights Implications**

21. Not applicable

**Communications with CALD Communities Implications**

22. Not applicable

**Council Plan, Strategy and Policy Implications**

23. Sustainability and bio-diversity outcomes are important to Council and the Community, and officers' efforts are to achieve the best outcomes possible.

**Legal Implications**

24. There may be legal implications should there be further river bank movement or if more trees fall.
25. There may also be legal implications once the cause of the river bank slumping is known.

**Other Issues**

26. A further report on the cause and potential mitigation options to address the river bank slumping is planned for the next Council meeting cycle.

**Options**

27. This report presents the expert advice. Additional options have not been canvassed.

**Conclusion**

28. Officers engaged Alluvium to provide expert advice on the river bank slumping, the impact on trees and associated risks. The attached report presents their advice on the best ways to manage the immediate risk.
29. This advice recommends that Glenwill seek a planning permit from Council for the removal of Tree 1 and enhanced monitoring of the river bank and trees.
30. A further report on the cause and potential mitigation options to address the river bank slumping is to be presented to Council separately at a later date.

## **RECOMMENDATION**

1. That Council:
  - (a) notes the contents of this report;
  - (b) notes that the Alluvium report has been provided to Glenvill and Melbourne Water;
  - (c) adopts Alluvium's recommendations as outlined in Section 5 of their report of 29 July 2019;
  - (d) instructs Officers to advise Glenvill that a planning permit will be required in order to remove Tree 1;
  - (e) instructs Officers to ensure that weekly monitoring of the slump area and trees occurs to determine if conditions change and increase the likelihood of trees falling; and
  - (f) notes that Officers will provide a further report to Council, based on expert advice, on the cause of the slumping of the river bank, and any remediation works that could be considered to prevent further deterioration of the river bank and/or further loss of trees in this area.

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### **Attachments**

- 1 Alluvium Tree Collapse Report 29 07 2019

## Attachment 1 - Alluvium Tree Collapse Report 29 07 2019



## Memo

<b>Subject</b>	Site visit briefing report
<b>Distribution</b>	John Ghasperidis – City of Yarra
<b>Date</b>	29 July 2019
<b>Project</b>	Tree collapse and bank slump investigation at historical paper mill site, Fairfield

### 1 Introduction

City of Yarra has engaged Alluvium to investigate recent tree collapse and bank slumping events occurring on the Yarra River adjacent to the historical paper mill site in Fairfield. An expert panel convened by Alluvium Pty Ltd (Alluvium) conducted a site visit on 25 July along with John Ghasperidis (City of Yarra) and Travers Nutall (Glennville).

The purpose of this memo is to identify any immediate issues arising from the site inspection including potential for imminent tree collapse and additional information requirements.

### 2 Background

The expert panel convened by Alluvium comprises specialists in the fields of hydrology and fluvial geomorphology (Ross Hardie), geotechnical bank stability (Tim Holt), groundwater dynamics (Jon Fawcett), surface water management (Jonathon McLean) and riparian canopy tree ecology (David Carew). Together the expert panel will undertake a preliminary review of the issues and report back to Council on interim findings of the likely mechanistic pathways causing tree slumping and any immediate actions that should be undertaken.

### 3 Site visit

The expert panel conducted a 2-hour site visit including locations of sediment pond, inceptor swale drains, retention dam connections, existing outfall drains, groundwater bores, and riverbank on the morning of 25 July 2019. The site inspection was undertaken to familiarise the expert panel with the site and review the bank morphology, existing slump areas, and condition of trees along the riverbank.



**Figure 1.** Location of trees assessed at bank slump zone

## Attachment 1 - Alluvium Tree Collapse Report 29 07 2019

### 4 Comments

The expert panel has commenced its review of the information, this review will form the basis of an interim report. However, Council has sought immediate advice on the risk of further tree collapse at the site.

The issue of the tree collapse and management implications is confounded by the potential presence of asbestos on the lower bank in the vicinity of the subject trees. The expert panel were advised by Glenvill that the trees at risk of collapse may need to be removed as a component of the site remediation works. However, the panel was also advised that investigations into the presence of the asbestos or otherwise was nearing completion and the final program of asbestos remediation had not been finalised.

Three trees occur within and adjacent to a recent bank slump. One of these has fallen into the river and is not covered in this memo. Two other trees (shown in **Figure 2** and **Figure 3**) have been identified as at risk of failure during previous visits by others.



**Figure 2.** Tree (T1) and bank slump site visit by Alluvium



**Figure 3.** Tree collapse (T2) at the edge of bank slump

## Attachment 1 - Alluvium Tree Collapse Report 29 07 2019

The expert panel were of the opinion that:

1. The bank collapse is most likely associated with an increase in groundwater levels and lubrication at the site
2. There are limited practical management interventions that can be applied in the immediate and short term to address the groundwater and prevent further bank collapse
3. Ongoing bank collapse (instability) will continue to occur at the site until groundwater issues are addressed
4. The bank instability threatens a number of large trees on the riverbank. Two of these trees have been the subject of four recent arborist reports and are the main focus of this memo.
5. Two trees, referred to as T1 and T2 have been identified at imminent risk of collapse. The outcome of the arborists reports on these two trees is set out in Table 1 below.

**Table 1.** Summary of Arborist report recommendations

Arborist report	Company	T1	T2
#1	Tree Department Pty Ltd (11 <sup>th</sup> July)	Removal recommended Unacceptable risk to cause harm and costs	Removal recommended Tolerable risk to cause harm – unacceptable risk due to costs post failure
#2	Ryder Arboriculture and Environment (12 <sup>th</sup> July)	Tree is likely to fail in short term (Weeks to months) Permit required for removal Assessed as Low risk to cause harm  <i>Note: shown as T2 in report</i>	Tree is stable unless ground moves. Permit required for removal Assessed as Low risk to cause harm  <i>Note: shown as T1 in report</i>
#3	Tree Radar Australia (2 <sup>nd</sup> June)	Removal recommended Safety risk and reduce further damage	Removal recommended Safety risk and reduce further damage
#4	City of Yarra (3 <sup>rd</sup> June)	Retain if possible. Monitor for movement.	Retain if possible. Monitor for movement.
	Alluvium summary	Remove tree – permit will be required  Tree is on unstable ground within an active slump zone. This tree is likely to fall and cause further damage to the bank.	Retain tree and monitor ground stability.  Tree is outside the active slump zone and is not imminently likely to fall unless further slumping occurs.

*Note: Ryder Arboriculture have nominated T1 and T2 oppositely to the other reports.*

## Attachment 1 - Alluvium Tree Collapse Report 29 07 2019

### 5 Management recommendations

Based on the site inspection, advice from Glenvill and preliminary review of information we are of the opinion that

- The existing trees at the site be photographed as a record of the current riparian vegetation for the site. This record can inform the future vision for the site and ultimate landscape plan.
- Tree T1: We consider T1 is at imminent probability to collapse (this could be at any time within a few months) and should be removed to reduce the future risk to public safety and bank damage.

This tree is within a bank slump which has damaged the informal earthen pedestrian path along the riverbank. This is now an unsafe pathway and has been fenced off preventing pedestrian access. If the tree were to fall it is most likely to fall towards the river and would cause further damage to the path. This would increase the hazard to path users due to damaged ground. The risk to people being struck by the falling tree is unlikely and is mostly to those who are in a boat on the river – more than people on the bank.

Using the Risk Assessment method applied by Ryder Arboriculture we consider the *Likely failure* to be **Imminent** with the *Likely Impact* to be **Very Low**. With a *Consequence* of **Severe** the *Risk Rating* outcome is **Low**.

Note: Changing the *Likely Failure* in the risk matrix has not changed the *Risk Rating* assessment. This risk is not immediate and with the fencing in place would not be considered an emergency.

- Tree T2: We are less certain of the imminent fate of T2. This tree has not received majority support by Arborists for removal. The tree appears to be outside the zone of the existing tension cracks. We suggest that the tree not be removed until:
  - Such time as it is observed to lie within tension cracks, and or
  - Results of contamination land assessment is complete, a remediation plan approved and the necessity for the removal of the tree as part of any such remediation plan is confirmed.
- Monitoring of the slump area and trees is undertaken weekly to determine if the conditions change and increase the likelihood of the trees falling. Installation of photo monitoring posts and tree tilt sensors should be considered.
- Continue to restrict access to the site maintain public safety. Consider signage along the riverbank warning people on the river of the tree hazard.
- If tree removal is undertaken, the stump and root plates must be retained to reduce damage to the bank and to provide ongoing soil stability.
- While we recommend that T1 is removed a tree removal permit will be required to remove either tree (as per Ryder Arboriculture report). Reviewing the risk assessment (likelihood and consequence framework) used by Ryder Arboriculture has not changed the risk assessment finding of Low risk. With pedestrian controls in place this situation (while not ideal) does not constitute an emergency. Therefore, these trees do not meet the Permit exemption conditions of immediate risk as required under the terms of the Victorian Planning Provisions - Significant Landscape Overlay (SLO 42.03-3) and Native Vegetation (VPP 52.17-7). (See excerpts from the Planning Provisions below).

This risk assessment will be reviewed further when the expert panel convenes on Thursday 1<sup>st</sup> of August.



## Attachment 1 - Alluvium Tree Collapse Report 29 07 2019

### 6 Information requirements

The expert panel seeks access the following additional information, discussed at the site inspection, to enable its investigations.

- Design/construction calculations and drawings of sediment pond.
- Stormwater strategy reports for the development.
- Bore data of existing two groundwater bores on the riverbank (GW1 and GW2) including bore hole coordinates and elevation.
- Yarra River cross-section survey data, and the existing hydraulic model for the Yarra River.

Ross Hardie, David Carew and Advait Madav

## Attachment 1 - Alluvium Tree Collapse Report 29 07 2019

## Excerpts from the Victorian Planning Provisions

[https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0023/104792/FTGLS-FT98-3.3.-Significant-Landscape-Overlay-Clause-42\\_03.PDF](https://www.planning.vic.gov.au/_data/assets/pdf_file/0023/104792/FTGLS-FT98-3.3.-Significant-Landscape-Overlay-Clause-42_03.PDF)

## 42.03 SIGNIFICANT LANDSCAPE OVERLAY

## 42.03-3 Table of exemptions

02/04/2015  
VC124

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:

- Emergency works**
- The vegetation presents an immediate risk of personal injury or damage to property and only that part of vegetation which presents the immediate risk is removed, destroyed or lopped.
  - The vegetation is to be removed, destroyed or lopped by a public authority or municipal council to create an emergency access or to enable emergency works.

[http://planningschemes.dpcd.vic.gov.au/schemes/vpps/52\\_17.pdf](http://planningschemes.dpcd.vic.gov.au/schemes/vpps/52_17.pdf)

## 52.17 NATIVE VEGETATION

31/05/2018  
VPT6A

## 52.17-7 Table of exemptions

11/02/2018  
VC118

- Emergency works** Native vegetation that is to be removed, destroyed, or lopped:
- in an emergency by, or on behalf of, a public authority or municipal council to create an emergency access associated with emergency works, or
  - where it presents an immediate risk of personal injury or damage to property. Only that part of the vegetation that presents the immediate risk may be removed, destroyed or lopped under this exemption.

Guidance on the use of the exemptions from requiring a planning permit to remove, destroy or lop native vegetation is provided by DELWP.

[https://www.environment.vic.gov.au/\\_data/assets/pdf\\_file/0018/91251/Exemptions-from-requiring-a-planning-permit-to-remove,-destroy-or-lop-native-vegetation-Guidance.pdf](https://www.environment.vic.gov.au/_data/assets/pdf_file/0018/91251/Exemptions-from-requiring-a-planning-permit-to-remove,-destroy-or-lop-native-vegetation-Guidance.pdf)

This guidance document includes the following statement in Section 2.4 - *Emergency works*.

*The second part of the exemption enables the removal any native vegetation that presents an immediate risk of personal injury or damage to property (e.g. a building) without a permit. For the risk to be considered immediate, the only option to manage the risk is by removing native vegetation within a shorter timeframe than it would take to apply for and be issued with a permit for its removal.*

*This exemption does not apply to native vegetation that has the potential to cause personal injury or property damage in the longer term. If future injury or damage from native vegetation is a concern, a planning permit can be sought to remove it.*