Ref: sandfly.talbots218.aia

ARBORICULTURAL IMPACT ASSESSMENT

UPGRADE & EXTENTION OF EXISTING VEHICLE ACCESS FOR A PROPOSED RESIDENTIAL DWELLING

218 TALBOTS ROAD
SANDFLY 7150

MARCH 2026

Prepared for: LYDIA MOORE & MICHAEL WELLING

Prepared by: PHILIP JACKSON

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EXECUTIVE SUMMARY

This Arboricultural Impact Assessment (AIA) has been prepared for Lydia Moore & Michael Welling to support Kingborough Council assessment of a Development Application for the proposed upgrading & extension of an existing gravel vehicular access track as part of the construction of a residential dwelling at 218 Talbots Rd, Sandfly (the site). The purpose of this report is to determine the potential impact of the proposed works on identified very high/high conservation trees growing in the vicinity of the proposed works and where appropriate, make recommendations for amendments to the design or construction methods to minimise adverse impacts on them

Thirty six (36) individual very high/high conservation value trees (see *3.1.1* below) at the site were assessed & are subject to this report. The subject trees are comprised of the Tasmanian/Australian eucalypt species Blue Gum *(Eucalyptus globulus),* Stringybark (*E. obliqua*) & White Peppermint (*E. pulchella*).

The subject trees have a sufficiently large trunk diameter (DBH) to be ascribed a "High/Very High Conservation Value" (HCV) as described in Kingborough Council Policy 6.10 "Biodiversity Offset Policy" and should be retained and protected wherever practicable as prescribed in "E10.0 - Biodiversity Code" of The Scheme.

RECOMMENDATIONS

1. **Remove trees Trees 5, 21, 23, 28, 347, 45, 62, 101 & 113 in accordance with item 6.3 of the Tree Protection Specification (TPS) in Section 6.**

2. **Retain all remaining subject trees and protect them accordance with item 6.3 of the (TPS) & the Tree Protection Plan in Appendix 1.**

3. **Conduct non-destructive exploratory excavation in accordance with sub-item 6.4.1 of the TPS within the SRZ of trees 34, 60 & 136 to determine the presence of significant woody structural roots (>40mm diameter). Where significant roots are encountered and excavation/root damage cannot be avoided the trees should be removed.**

4. **Construct the vehicle access works above the present surface grade where practicable within the TPZ of trees 48, 85, 94, 95, 105, 142,147, 149 &150 employing non-destructive 'no dig' methodology in accordance with item 6.6 of the TPS.**

SUMMARY OF SITE ACTIVITIES REQUIRING ARBORICULTURAL INPUT

In accordance with the *Australian Standard, AS 4970-2025, Protection of Trees on Development Sites*, inspections should be conducted by the project arborist at the following key project stages:

- Prior to any work commencing on-site (including demolition, earthworks, or site clearing) and following the installation of tree protection.
- During any excavations, building works, and any other activities carried out within the TPZ of any tree to be retained & protected.
- A minimum of once every month during the construction phase.
- After all major construction has ceased, following the removal of tree protection.

It shall be the responsibility of the project manager to notify the Project Arborist prior to any works within the TPZ of any protected tree at a minimum of 48 hours' notice. To ensure the tree protection plan is implemented, hold points have been specified in the schedule of work below.

Construction Stage	Hold Point	Activity Summary
Pre-Construction	1	**Pre-commencement meeting:** Meeting on site with all parties to agree protective measures. ***Will be carried out before any significant site works begin.***
	2	**Installing/Altering Tree Protection:** Agreed tree protection measures will be installed after approved tree removals and checked. Project Arborist advice will be sought before altering the position of tree protection.
Construction	3	Scheduled inspection of trees by the project arborist should be undertaken every month during the construction period.
	4	**Excavation and works with SRZ/TPZs:** Project Arborist advice before any works, excavation, or significant roots are cut within TPZs
Post Construction	5	**Removing Tree Protection:** Tree Protection and fencing can only be removed when there is no risk of damage to retained tree

1.0 INTRODUCTION

1.1 Background

1.1.1 This Arboricultural Impact Assessment (AIA) has been prepared for Lydia Moore & Michael Welling to support Kingborough Council assessment of a Development Application for the proposed upgrading & extension of an existing gravel vehicular access track as part of the construction of a residential dwelling at 218 Talbots Rd, Sandfly (the site). Sections of the existing track, where they don't follow the existing road title, are located within the adjoining property of 215 Talbots Rd (Figure 1) and accordingly a right-of-way will be created for these sections. In addition the existing track will be extended north along the existing road title to meet Talbots Rd and extended south to provide access to the new dwelling site. A short 'shared' section of Talbots Rd that is not maintained by Council and which connects the proposed site access to the terminus of the council maintained section of Talbots Rd (indicated in pink in figure 1) is also subject to the Development Application assessment.

1.1.2 The purpose of this report is to determine the potential impact of the proposed works on identified very high/high conservation trees growing in the vicinity of the proposed works and where appropriate, make recommendations for amendments to the design or construction methods to minimise adverse impacts on them.

1.1.3 This report has been prepared in accordance and with reference to the objectives of the *Kingborough Interim Planning Scheme 2015* (The Scheme) and the *Australian Standard for Protection of Trees on Development Sites AS4970- 2025* (The Standard). This report complies with '*2.2.5 Arboricultural Impact Assessment*' of The Standard.

1.1.4 I conducted a site inspection on 24th October 2025. Relevant inspection methods and background administrative information are presented in **Appendix 4**.

1.2 Documents & Plans Referenced

1.2.1 The conclusions and recommendations in this report are based on the findings from the site inspection, discussions with the client, and analysis of the following plans and documents:

- Civil Engineering drawings set ***"Proposed Dwelling 218 Talbots Road, Sandfly"*** Revision:1; Prepared by: Saltmarsh & Escobar Consulting Engineers; Dated: 07/03/26
- ***"Natural Values Assessment of 218 Talbots Saddle Road (PID 9033694; C.T. 240577/1;LPI GTR43), Sandfly, Tasmania."*** **(**Prepared by: Environmental Consulting Options Tasmania (ECO*tas*); Dated: 27 June 2025

1.3 Report Limitations

1.3.1 All plans are based on provided information, are illustrative and intended for design purposes only. They should only be used relating to tree issues and are not suitable for any other purpose. Although all data have been verified as far as possible there is no guarantee, nor responsibility for the accuracy of information provided by others.

1.3.2 Although a basic visual tree health and structural condition assessment was conducted as part of the site tree inspections, many factors may contribute to tree failure and cannot always be predicted and accordingly a tree's internal structural condition may not always correlate to visible external indicators. Where relevant, further detailed structural assessment of specific trees is recommended in the Tree Schedule (Appendix 2).

1.3.3 There is no warranty or guarantee, expressed or implied that problems or deficiencies regarding the subject tree(s) or the site may not arise in the future. Information contained in this report covers only the subject tree(s) assessed and reflects their health and structural condition at the time of inspection.

2.0 THE SITE

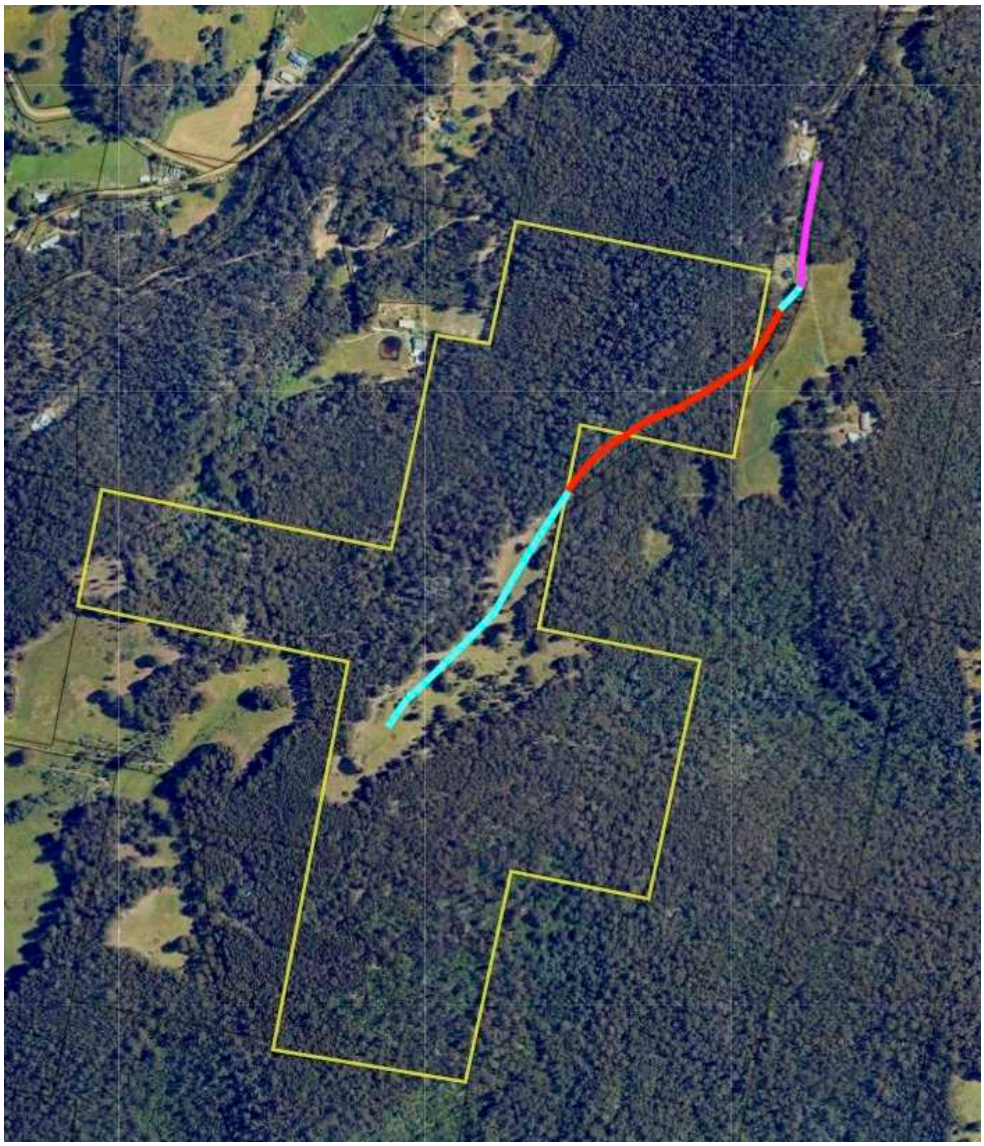


Figure 1*: The site at 218 Talbots Rd, Sandfly with the existing (red) & proposed (blue) sections of vehicular access indicated. Note sections of the existing track are situated within the adjoining property of 215 Talbots Rd. The pink line represents the section of Talbots Road that is not maintained by Council (Source –www.maps.thelist.tas.gov.au)*

Address	218 (& 215) Talbots Rd, Sandfly
Planning Scheme (The Scheme)	*Kingborough Interim Planning Scheme 2015*
Status	Modified
PID : Title Ref	9033694: 240577/1
Zoning	14: Environmental Living
Scheme Code Overlays	- Biodiversity Protection Area - Bushfire Prone Areas - Scenic Landscape Area

2.0.1 The area(s) subject to this report comprise:

- The 'shared' section of Talbots Road north to the terminus of the Council maintained section of Talbots Road
- The proposed extension of the northern extent of existing track to meet the 'shared' section of Talbots Road not maintained by Council
- The existing track route from its northern extent south to where it terminates at the area of old open paddocks
- The proposed track extension from its southern extent to the proposed dwelling site.

Figure 2: The 'shared' section of Talbots Rd looking north to the terminus of the Council maintained section *of Talbots Rd.*

***Figure 3**:* The proposed existing track extension route to meet with the 'shared' section of Talbots Rd

***Figure 4**: The northern terminus of the existing track looking north*

***Figure 5**: Representative mid-section of the existing track looking north*

***Figure 6**: Representative upper-section of the existing track looking north*

***Figure 7**: Southern terminus of the existing track looking north*

***Figure 8**: Proposed extension route of the existing track looking north*

***Figure 8**: The dwelling site looking north along the proposed track extension route*

3.0 THE SUBJECT TREES

3.0.1 Thirty six (36) individual very high/high conservation value trees (see *3.1.1* below) at the site were assessed & are subject to this report. The subject trees are comprised of the Tasmanian/Australian eucalypt species Blue Gum *(Eucalyptus globulus),* Stringybark (*E. obliqua*) & White Peppermint (*E. pulchella*). Relevant observations regarding the age class, dimensions, health, structural condition, remaining life expectancy of the subject trees are presented in the Tree Schedule in **Appendix 2.**

3.1 Trees Subject to the Protection

3.1.1 **All subject trees** are all relevant species with a sufficiently large trunk diameter (DBH) to be ascribed a "Very High Conservation Value" as described in Kingborough Council Policy 6.10 "Biodiversity Offset Policy" (Section A1.5 in **Appendix 4)**. Accordingly these trees are also considered to have 'Moderate Priority Biodiversity Values" as set out in Table "E10.1- Priority Biodiversity Values" of The Scheme and should be retained and protected wherever practicable as prescribed in "E10.0 - Biodiversity Code" of The Scheme.

3.2 Tree Numbering

3.2.1 The subject trees were ascribed identifiers in accordance with the numbering sequence employed in the Natural Values Assessment (ECOtas, 2025). Identifiers for trees not subject to the ECotas report were ascribed sequentially from 142 onwards.

4.0 TREES AND DEVELOPMENT (AS4970- 2025)

4.1 Tree Protection Zones, Notional Root Zones & Structural Root Zones

4.1.1 *Australian Standard 4970 Protection of Trees on Development Sites (2025)* (AS-4970-2025) specifies the establishment of a **Tree Protection Zone** (TPZ) to protect a tree and its growing environment throughout the development process. The starting point to determining the TPZ is calculation of a tree's **Notional Root Zone** (NRZ). The NRZ is

calculated as a radial measurement based on twelve (12) times the tree's diameter at standard height (DSH) (see figure 2 below). Once the NRZ is calculated the TPZ is then determined by consideration of relevant factors specific to each tree such as tree species, age, size, health & structural condition, site soil & topography, the location & distribution of roots, existing structures/obstacles affecting root growth within the NRZ & the amount of potential root loss from proposed NRZ encroachment. Various examples of amendment to the NRZ to establish the TPZ are shown in **Appendix 3.**

4.1.2 The intention of the TPZ is to ensure protection of the root system and canopy from potential damage from construction works and ensure the long-term health and stability of each tree to be retained. Encroachments on the root zone often occur due to excavations, changes in ground levels, (either lowering or raising the grade), trenching or other forms of soil disturbance such as ripping, grading or inverting the soil profile. Such works can cause damage to or loss of part of the root system, leading to an adverse impact on the tree.

4.1.3 Ideally all works should be avoided within the TPZ. Where works within the TPZ are unavoidable, exploratory excavation and/or root mapping can be undertaken to provide information on the size and number of roots located along a specified line of excavation. This information helps to identify the level of root damage that would result from an excavation and therefore the potential impact the works may have on the tree. Root sensitive design and construction techniques can then be specified based on the results of exploratory root trenching/mapping.

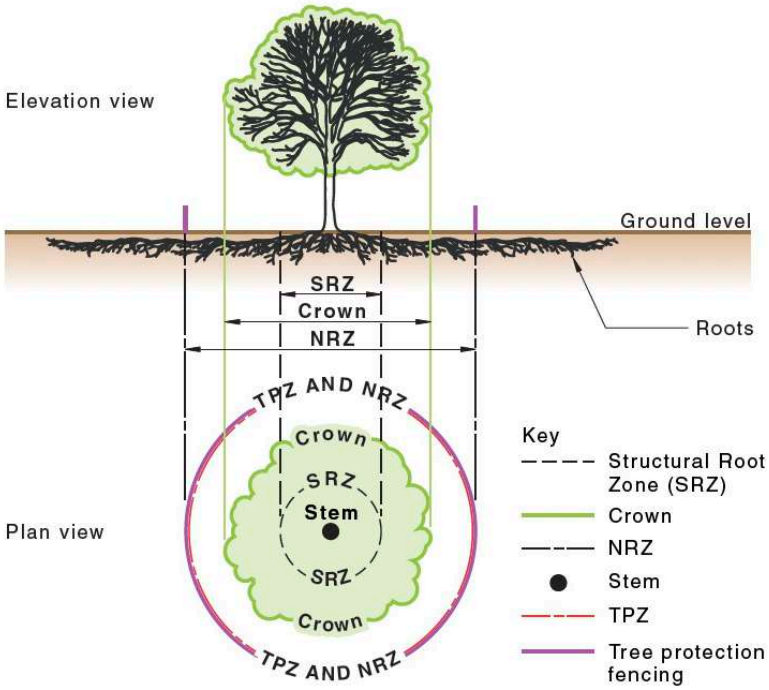


***Figure 9**: Indicative Notional Root Zone, Structural Root Zone & Tree Protection Zone of a tree with no development within its NRZ (AS-4970-2025)*

4.1.4 In addition to the TPZ, AS-4970-2025 provides calculations to determine a tree's **Structural Root Zone** (SRZ). The SRZ is described in AS-4970-2025 as *"the theoretical area around the base of a tree required for the tree's stability in the ground. This zone considers a tree's structural stability only, not the root zone required to maintain the trees vigour and long-term viability, which will usually be a much larger area".* Severance of structural roots (>25mm Ø) within the SRZ is not recommended as it may lead to the destabilisation and/or decline of the tree.

4.1.5 The NRZ & SRZ of the subject trees have been calculated in accordance with the AS-4970-2025 and are included in the Tree Assessment Schedule **(Appendix 2)**.

4.2 Encroachments on the Notional Root Zone.

4.2.1 Where works within the NRZ are unavoidable, an encroachment not exceeding 10% of the NRZ area, and remaining outside the SRZ, can be acceptable. Greater NRZ encroachments may result in an adverse impact on the tree. Encroachments between 10% & 20% NRZ area but remaining outside the SRZ are classified as **Moderate**, while encroachments >20% NRZ area and/or within the SRZ are classified as **Major.** Where moderate or major encroachments are unavoidable, exploratory excavation using non-destructive methods may be required to evaluate the extent of the root system affected and determine whether or not the tree can remain viable. Various examples of minor & moderate NRZ encroachments are shown in **Appendix 3**.

4.2.3 Trees wholly within proposed construction footprints are generally recommended for removal. Similarly, trees with their SRZ and/or with greater than 25% of their TPZ impacted by construction are also generally recommended for removal unless they are subject to regulatory protection . ***However, different types of construction encroachments (e.g. fill, cut, services, pavement type, retaining walls) produce varying likely tree impacts and each situation must be assessed in its own context and with consideration of the possible application of alternative construction method.*** Existing constraints to root development also vary the TPZ. Compacted fill can be equally as damaging to tree longevity as root development is restricted within heavily compacted soils.

4.3 Acceptable Encroachments To The Canopy

4.3.1 The removal of a small portion of the crown (foliage and branches) is generally tolerable provided that the extent of pruning required is less than 10% of the total foliage volume of the tree and the removal of branches does not create large wounds or disfigure the natural form and habit of the tree. All pruning cuts must be undertaken in accordance with AS 4373-*Pruning of Amenity Trees*. This generally involves reduction of the affected branches back to the nearest branch collar at the junction with the parent branch, rather than at an intermediate point. The latter is referred to as “lopping” and is not an acceptable arboricultural practice. Generally speaking, the minimum pruning required as possible to accommodate any proposed works is desirable. Extensive pruning can result in a detrimental impact on tree health and may lead to exposure of remaining branches to wind forces that they were previously sheltered from, leading to a greater risk of branch failure.

5.0 THE PROPOSED DEVELOPMENT

5.1 The Proposal

5.1.1 The components of the proposed development relevant to this report include:

- Upgrading the existing vehicular access to comply with relevant Council Standards
- Construction of designated new sections of vehicular access to create contiguous access from the terminus of the Council maintained section of Talbots Rd to the proposed new dwelling site.

5.2 Impact Assessment

5.2.1 The intention of this assessment is to evaluate the likely impact of the proposed works on the subject tree(s). A summary of the likely impact of the proposed works on the subject trees is shown in the Tree schedule **Appendix 2**. The following details have been considered as part of this assessment where relevant & available:

- Existing Relative Levels (R.L);
- Tree Protection Zone (TPZ);
- Structural Root Zone (SRZ);
- Footprint and envelope of the proposed works;
- Incursions to the TPZ & SRZ,
- Incursions to the tree canopy;
- Assessment of the likely impact of the works on existing tree(s).

5.2.1 Trees To Be Removed

5.2.1.1 **Trees 5, 23, 45, 62, 101 & 113** are located entirely within the footprint of the proposed track carriageway/drain upgrade works and, as such, will be required to be removed.

5.2.1.2 Excavations for the upgraded access track drain(s) will occur within the SRZ of **trees 21, 28 & 37.** These works will likely sever/damage significant woody structural roots of these trees leading to their compromised stability, These trees are located on the bank above the existing access and there are no practicable implementations to mitigate the adverse impact on these trees. As such these trees will be required to be removed.

5.2.2 Trees To Be Retained

5.2.2.1 Excavation for the road carriageway &/or drain will result in **unacceptable** major encroachment on the SRZ of **trees 34, 60 & 136**, potentially severing/damaging significant structural roots leading to the compromised stability of these trees. In order to determine the presence of significant structural roots trees non-destructive exploratory excavation should be conducted within the SRZ of these trees in accordance with **sub-item 6.4.1 & item 6.5 of the Tree Protection Specification (TPS) in Section 6.**

> *Non-destructive exploratory excavation techniques may include the use of hand-held implements, air or water pressure (using an Air-spade® or water spray at **<40psi/280kpa to ensure the bark of any roots is not stripped.**) The exploratory excavation shall be undertaken along the perimeter of the vehicle access within the TPZ to a maximum of 800mm from surface levels, to locate and expose any woody roots prior to any mechanical excavation. All care shall be undertaken to preserve woody roots intact and undamaged during exploratory excavation. **Where large woody roots (greater than 40mm diameter) are encountered and excavation/root damage cannot be avoided the trees should be removed.***

5.2.2.2 The access works will result in major encroachment on the TPZ area of **trees 15, 16, 19 & 67** and moderate encroachment on the TPZ area of **tree 96** leading to a likely adverse impact that cannot practicably be mitigated by implementation of alternative construction methods. However these trees will continue to provide valuable biodiversity benefits despite the adverse impact of the proposed works and accordingly they should be retained.

5.2.2.3 The access works will result in major encroachment on the TPZ area of **trees 48, 85, 94, 105 & 142** and moderate encroachment on the TPZ area of trees **147, 149 & 150** leading to a likely/potential adverse impact . However it is likely that the proposed works can be successfully achieved with tolerable long term impact to the subject trees if appropriate protective measures are properly implemented and controlled in accordance with the tree protection measures outlined in **Item 6.6** of the TPS. In addition **tree 95,** which is dead, will able to retained if no excavation is conducted within its SRZ.

*Specifically, the driveway upgrade works should be **constructed above the present surface grade employing non-destructive 'no dig' methodology** within the TPZ/SRZ of trees 48, 85, 94, 95, 105, 142,147, 149 &150 where practicable.*

5.2.2.4 The access works will result in major encroachment on the TPZ area of **trees 43, 129, & 135** leading to a likely tolerable impact with no alternative construction methods required.

5.2.2.5 The access works will result in **acceptable** minor encroachment on the TPZ area for trees **17, 124, 143, 144, 145 & 146** with minimal/tolerable expected impact and no alternative construction methods required.

5.2.2.6 The proposed works are outside the TPZ area of tree **148** and the entire 'shared' section of Talbots Rd. Accordingly there will be no expected impacts on tree 148 or the trees along the subject section of Talbots Rd..

5.3 Recommendations

5.3.1 **Remove trees Trees 5, 21, 23, 28, 347, 45, 62, 101 & 113 in accordance with item 6.3 of the Tree Protection Specification (TPS) in Section 6.**

5.3.2 **Retain all remaining subject trees and protect them accordance with item 6.3 of the Tree Protection Specification (TPS) in Section 6 & the Tree Protection Plan in Appendix 1.**

5.3.3 **Conduct non-destructive exploratory excavation in accordance with sub-item 6.4.1 of the TPS within the SRZ of trees 34, 60 & 136 to determine the presence of significant woody structural roots (>40mm diameter). Where significant roots are encountered and excavation/root damage cannot be avoided the trees should be removed.**

5.3.4 **Construct the vehicle access works above the present surface grade where practicable within the TPZ of trees 48, 85, 94, 95, 105, 142,147, 149 &150 employing non-destructive 'no dig' methodology in accordance with item 6.6 of the TPS.**

6.0 TREE PROTECTION SPECIFICATION

6.0.1 The tree protection measures set out in this specification are supplemented by detailed general explanations and descriptions outlined in the compilation of "*Site Guidance Notes"* produced by Barrell Tree Consultancy and located on their website at https://www.barrelltreecare.co.uk/resources/technical-guidance/. These Site Guidance Notes (SGN) address a range of tree protection and management issues that regularly arise in the construction phase of development. Although the content of the SGNs is generally applicable to tree protection on construction sites worldwide, it should be noted that they are British documents and some terminology and/or references may differ or not be relevant to local conventions, standards and/or legislation. Where relevant, hyperlinks to the relevant SGNs are provided at the end of particular sections.

6.1 Arboricultural Supervision

6.1.1 An Arborist (the Project Arborist) experienced in tree protection on construction sites *and* having gained a minimum arboricultural qualification of Australian Qualifications Framework (AQF) Certificate Level 5 (i.e diploma) should be engaged and the site specific requirements for tree protection fencing, temporary TPZ access, and other specific tree protection measures confirmed through consultation between the Site Manager and the Project Arborist prior to the commencement of site establishment and construction work on the site. In addition the Project Arborist should oversee any excavation, machine trenching, compacted fill placement and other designated site specific activities within the TPZ of all retained trees.

6.2 Tree Removal

6.2.1 Trees approved for removal as part of the Development Consent Conditions shall be removed **prior to the establishment of the tree protection measures.** Tree removal shall not damage the trees to be retained. Stumps located within the TPZs of trees to be retained shall be grubbed-out where required using a mechanical stump grinder (or by hand where less than 150mm in diameter) without damage to the root system of other trees. Where trees to be removed are within the SRZ of any trees to be retained, consideration should be given to cutting the stump close to ground level and retaining the root crown intact. **Stumps within the Tree Protection Zone of other trees to be retained shall not be pulled out using excavation equipment or similar.**

6.2.2 Tree removal works shall be undertaken in accordance with the Safe Work Australia "Guide To Managing Risks of Tree Trimming and Removal Work" (2016).

6.3 Tree Protection

6.3.1 The TPZ is the area surrounding retained trees that must be protected from any disturbance by the construction activity. In practice, TPZ establishment can be done by any combination of fencing, trunk protection &/or ground protection to be finalised and agreed to by the Project Arborist. Whether the TPZ is protected by fencing or trunk/ground protection, all the protective measures should be installed before the start of any site works that could affect trees. ***No protective measures should be removed or temporarily dismantled without consulting the Project Arborist.*** Furthermore, the condition of all the protective measures should be regularly monitored to ensure they remain fit for purpose. The main means of preventing damage to trees and their root zones in the TPZ are fencing, barriers and ground protection.

Where possible following activities should be avoided within specified Tree Protection Zones:-

- Excavations and trenching (with exception of approved works);
- Ripping or cultivation of soil;
- Mechanical removal of vegetation;
- Soil disturbance or movement of natural rock;
- Soil level changes including the placement of fill material
- Movement and storage of plant, equipment & vehicles;
- Erection of site sheds;
- Affixing of signage or hoardings to trees;
- Storage of building materials, waste and waste receptacles;
- Disposal of waste materials and chemicals including paint, solvents, cement slurry, fuel, oil and other toxic liquids;
- Other physical damage to the trunk or root system; and
- Any other activity likely to cause damage to the tree.

6.3.2 **Tree Protection Fencing**: Protective fencing shall be installed at the locations shown on the Tree Protection Plan in **Appendix 1** by a **blue line**. Where Tree Protection Zones merge a single fence encompassing the area is deemed to be adequate. The actual form of the fencing can vary, provided it is fit for purpose in that it *effectively physically restricts access and damaging activities within the TPZ/SRZ that it encloses for the duration of the proposed works* and it is approved by the Project Arborist. **In the context of the proposed works it is appropriate to construct the fencing from medium duty (160 gsm minimum) barrier mesh attached to star pickets (droppers) at 5m minimum spacing**. In order to maintain tension 2mm fencing wire should be run through the top of the barrier mesh & droppers (see figure 10 below).

Figure 10*- Tree Protection Fencing constructed with barrier mesh.*

6.3.3 **Tree Signage**: Appropriate signage shall be installed on the fencing to prevent unauthorised movement & or storage of plant and equipment or entry to the TPZ/SRZ (see figure 11 below). A sample Tree Protection Zone sign is attached to the back of this document.

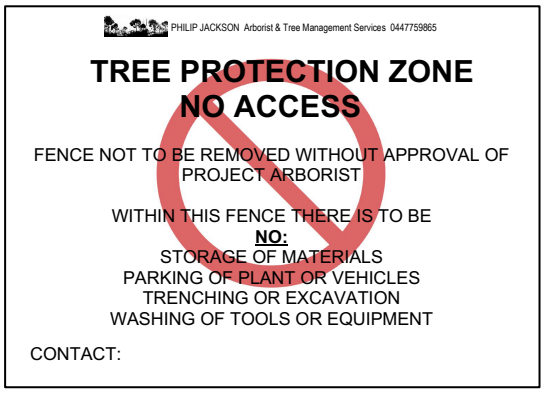


***Figure 11**- Appropriate Tree Protection Zone Signage*

6.3.4 **Trunk Protection:** Where provision of tree protection fencing is in impractical due to its proximity to the proposed construction footprint, trunk protection shall be erected around nominated trees to avoid accidental damage, as indicated by a **pink circle** on the Tree Protection Plan (**Appendix 1**). The trunk protection shall consist of a layer of carpet underfelt (or similar) wrapped around the trunk, followed by 1.8 metre lengths of softwood timbers (90 x 45mm in section) aligned vertically and spaced evenly around the trunk at 150mm centres (i.e. with a 50mm gap) and secured together with 2mm galvanised wire or galvanised hoop strap as shown in Figure 12 below. Recycled timber (such as demolition waste) may be suitable for this purpose, subject to the approval of the Project Arborist. The timbers shall be wrapped around the trunk (over the carpet underfelt), but not fixed to the tree to avoid mechanical injury or damage to the trunk. Trunk protection should be installed prior to any site works and maintained in good condition for the duration of the construction period. Carpet underfelt (alone) is sufficient for trees with a trunk diameter of less than 200mm. Trunk protection should be installed prior to any site works and maintained in good condition for the duration of the construction period.

***Figure 12**- Example of tree trunk protection*

6.3.5 **Ground Protection:** If temporary access for machinery is required within the TPZ ground protection measures will be required (see figure 13 below). The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. A range of methods can be used, including retaining existing hard surfacing or structures that already protect the soil, installing new materials, or a combination of both. Commonly employed methods include a permeable membrane such as geotextile fabric beneath a 100mm layer of hardwood mulch or crushed rock below rumble boards. **Whatever the choice of method, the end result must be that the underlying soil (rooting environment) remains undisturbed and retains the capacity to support existing and new roots.**

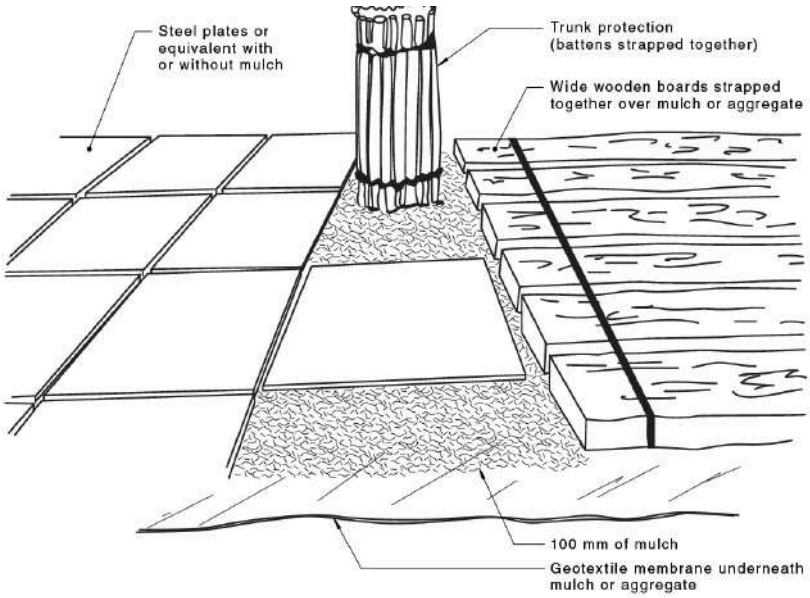


***Figure 13**- Example of tree ground protection*

More detailed illustrative guidance on ground protection in TPZs can be accessed via the following hyperlink:

https://www.barrelltreecare.co.uk/resources/technical-guidance/sgn03?stage=Stage

6.3.6 **Tree damage:** In the event of a protected tree becoming damaged for any reason during the works period the Project Arborist shall be required to inspect and provide advice on any remedial action to minimise any adverse impact. Such remedial action shall be implemented as soon as practicable and certified by the arborist.

6.4 Working Within Tree Protection Zones

6.4.0 In some cases works within the TPZ may be authorized. **These works shall be supervised by, or at a minimum notified to, the Project Arborist**. When undertaking works within the TPZ, care should be taken to avoid damage to the tree's root system, trunks and lower branches.

6.4.1 General Excavation & Dealing With Roots

6.4.1.1 **Prior to any mechanical excavations for building/wall or post footings or foundations, batter cuts, pavement sub-grade or vehicle access** within the TPZ/SRZ of all trees

nominated for retention, exploratory excavation using non-destructive techniques shall be undertaken at the proposed footing site or along the perimeter of the structure, pavement or vehicle access within the TPZ/SRZ. Non-destructive excavation techniques may include the use of hand-held implements, air or water pressure (using an Air-spade® or water spray **at <40psi/280kpa to ensure the bark of any roots is not stripped)**. For walls, slabs or vehicle access the exploratory excavation shall be undertaken along the perimeter of the foundation, pavement or vehicle access (within the TPZ) to the depth of the foundation or to a maximum of 800mm from surface levels, to locate and expose any woody roots prior to any mechanical excavation. All care shall be undertaken to preserve woody roots intact and undamaged during exploratory excavation.

6.4.1.2 Any located roots less than 40mm in diameter can be cleanly severed with clean sharp pruning implements 10–20cm behind the final face of the excavation. The root zone in the vicinity of the excavation shall be kept moist following excavation for the duration of construction to minimise stress on the tree. ***Where large woody roots (greater than 40mm diameter) are encountered during excavations, further advice from the Project Arborist shall be sought prior to severance.***

6.4.1.3 Where necessary, (to avoid severing large amounts of woody and or fibrous roots) consideration should be given to the installation of an elevated structure (e.g. pier and beam footing, suspended slab or floor supported on piers, cantilevered slab, up-turned edge beam etc) in preference to structures requiring a deep edge beam or continuous perimeter strip footing. The beam section of any pier and beam footing should be placed ***above*** grade to avoid excavation within the SRZ. Pier footings intersecting large woody roots should be slightly offset where necessary to avoid root severance.

More detailed illustrative guidance on excavating and installing structures in TPZs can be accessed via the following hyperlinks codes:

https://www.barrelltreecare.co.uk/resources/technical-guidance/sgn07?stage=Stage

https://www.barrelltreecare.co.uk/resources/technical-guidance/sgn10?stage=Stage

6.4.2 Fill Material

6.4.2.1 Placement of fill material within the Tree Protection Zone of trees to be retained should be avoided wherever possible. Where placement of fill is unavoidable, the material should be a well-drained friable material, equivalent in texture to the existing site topsoil material (heavy clay or shale sub- soil material is unacceptable). The fill should be free from rocks, vegetation and other extraneous material complying with AS 4419:2003 (*Soils for Landscaping and Garden Use*). The fill may be consolidated but should not be compacted to engineering standards. No fill material should be placed in direct contact with the trunk. Plant and equipment used to place and spread fill material should be stationed outside the TPZ where possible. Where not possible, suitable ground protection should be installed in accordance to avoid compaction of the underlying soil.

6.5 Canopy And Root Pruning

6.5.1 All pruning work required shall be carried out in accordance with Australian Standard 4373-– *Pruning of Amenity Trees*. The arborist undertaking the pruning works shall possess a

minimum arboricultural qualification of Australian Qualifications Framework (AQF) Level 3 or its recognised equivalent. The arborist should have a minimum of 3 years' experience in practical Arboriculture. Pruning work should be undertaken in accordance with *Australian Standard 4373: Pruning of Amenity Trees (2007), Workcover Code of Practice for the Amenity Tree Industry* (1998) and other applicable legislation and codes.

6.5.2 Care shall be taken when operating cranes, excavators, drilling rigs and similar equipment near trees to avoid damage to tree canopies (foliage and branches). ***Under no circumstances shall branches be torn-off by construction equipment. Where there is potential conflict between tree canopy and construction activities, the advice of the Project Arborist must be sought.***

6.5.3 Where root pruning is required, roots shall be severed with clean, sharp pruning implements and retained in a moist condition during the construction phase using Hessian material or mulch where practical.

6.6 Construction of Surfacing & Vehicular Access Within TPZs

6.6.1 ***Basic principles:*** New vehicle accesses & surfacing are potentially damaging to trees because it may require changes to existing ground levels, result in localised soil structure degradation and/or disrupt the efficient exchange of water and gases in and out of the soil. Mature and over-mature trees are much more prone to suffer because of these changes than young and maturing trees. Adverse impact on trees can be reduced by minimising the extent of these changes in TPZs. *Generally, the most suitable surfacing will be relatively permeable to allow water and gas movement, load spreading to avoid localised compaction and require little or no excavation to limit direct damage.*

The actual specification of the surfacing/access material is an engineering issue that needs to be considered in the context of the bearing capacity of the soil, the intended loading, the frequency of loading and relevant regulatory construction standards.. The detail of product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist. Notwithstanding, the following general principals should apply when considering protection of tree root zones.

6.6.2 **Establishing the depth of excavation and surfacing gradient:** The precise location and depth of roots within the soil is unpredictable and will only be known when careful digging starts on site. Ideally, all new surfacing in TPZs should be no-dig, i.e. requiring no excavation whatsoever, but this is rarely possible on undulating surfaces. New surfacing normally requires an evenly (gap) graded sub-base layer (see 6.6.4 below), which can be made up to any high points with granular, permeable fills such as crushed stone or sharp sand. This sub-base must not be compacted as would happen in conventional surface installation. Some limited excavation is usually necessary to achieve this and need not be damaging to trees if carried out carefully and large roots are not cut. On undulating surfaces, finished gradients/levels must be planned with sufficient flexibility to allow on-site adjustment if excavation of any high points reveals large unexpected roots near the surface.

6.6.3 If the roots exposed are less than 50mm in diameter, it would normally be acceptable to cut them and the gradient formed with the preferred minimal excavation of up to 50mm. However, if roots over 50mm in diameter are exposed, cutting them may be too damaging and further excavation may not be possible. If that is the case, the surrounding levels must be adjusted to take account of these high points by filling with suitable granular, permeable fills such as

crushed stone or sharp sand. In order to maintain water infiltration & gaseous exchange this fill should not be compacted as would happen in conventional surface installation.. If this is not practical and large roots have to be cut, the situation should be discussed with the Project Arborist before a final decision is made.

6.6.4 **Base and finishing layers (Fill Material):** Sub-base should be formed from coarse, gap-graded material such as 20–50mm crushed basalt (Blue Metal) or equivalent to provide some aeration to the root zone. Note that road-base or crushed sandstone or other material containing a high percentage of fines is unacceptable for this purpose. The fill material should be consolidated with a non-vibrating roller to minimise compaction of the underlying soil. A permeable geotextile may be used beneath the sub-base to prevent migration of the stone into the sub-grade. Suitable surface finishes usually include washed gravel, permeable tarmac such as asphalt, no fines concrete or permeable block paving set on a sand base. In certain circumstances the load spreading sub-base will be cellular and filled with suitable materials***,*** however this application may need specialist engineering input to assess its suitability***. (follow the hyperlink in the box below for illustrative guidance for installing cellular confinement surfacing within TPZs).***

6.6.5 **Edge retention:** Conventional kerb edge retention set in concrete filled excavated trenches is likely to result in damage to roots and should be avoided. Effective edge retention in TPZs must be custom designed to avoid any significant excavation into existing soil levels. For most surfaces, the use of pre-formed edging secured by metal pins or wooden pegs is normally an effective way of minimising any adverse impact on trees from the retention structure. Railway sleepers pinned in place or wooden boards offer alternative options, depending on the expected loading of the surfacing. If the edge retention needs to be battered down to lower surrounding ground levels, a permeable soil fill will be used, as agreed with the Project Arborist.

6.6.6 **New Surfacing Near Trunks:** All new surfacing should be set back from trunks and buttress roots by at least 50cm to allow space for future growth and minimise the risk of distortion.

More detailed illustrative guidance on installing/upgrading surfacing in TPZs can be accessed via the following hyperlink :
https://www.barrelltreecare.co.uk/resources/technical-guidance/sgn09?stage=Stage

6.7 Installing Services Within TPZs

6.7.1 All proposed stormwater lines and other underground services should be located outside TPZs of trees proposed to be retained wherever possible or installed by alternative measures. Alternative measures include suspending pipelines beneath the floor of a building or structure (to avoid excavation with the TPZ), non-destructive excavation methods or Horizontal Directional Drilling (HDD). Where the installation of service lines within TPZs is unavoidable, the pipelines or conduits should be installed as follows:

6.7.2 Where the extent of the incursion to the root zone is less than 10% of the TPZ including any excavations for benching and shoring the trench, the pipeline or conduit may be installed by open trenching using standard construction methods (excavator or trenching machine).

6.7.3 Where the extent of the incursion to the root zone exceeds 10% of the TPZ, but is outside the SRZ, non-destructive excavation methods must be adopted in accordance with **sub-item**

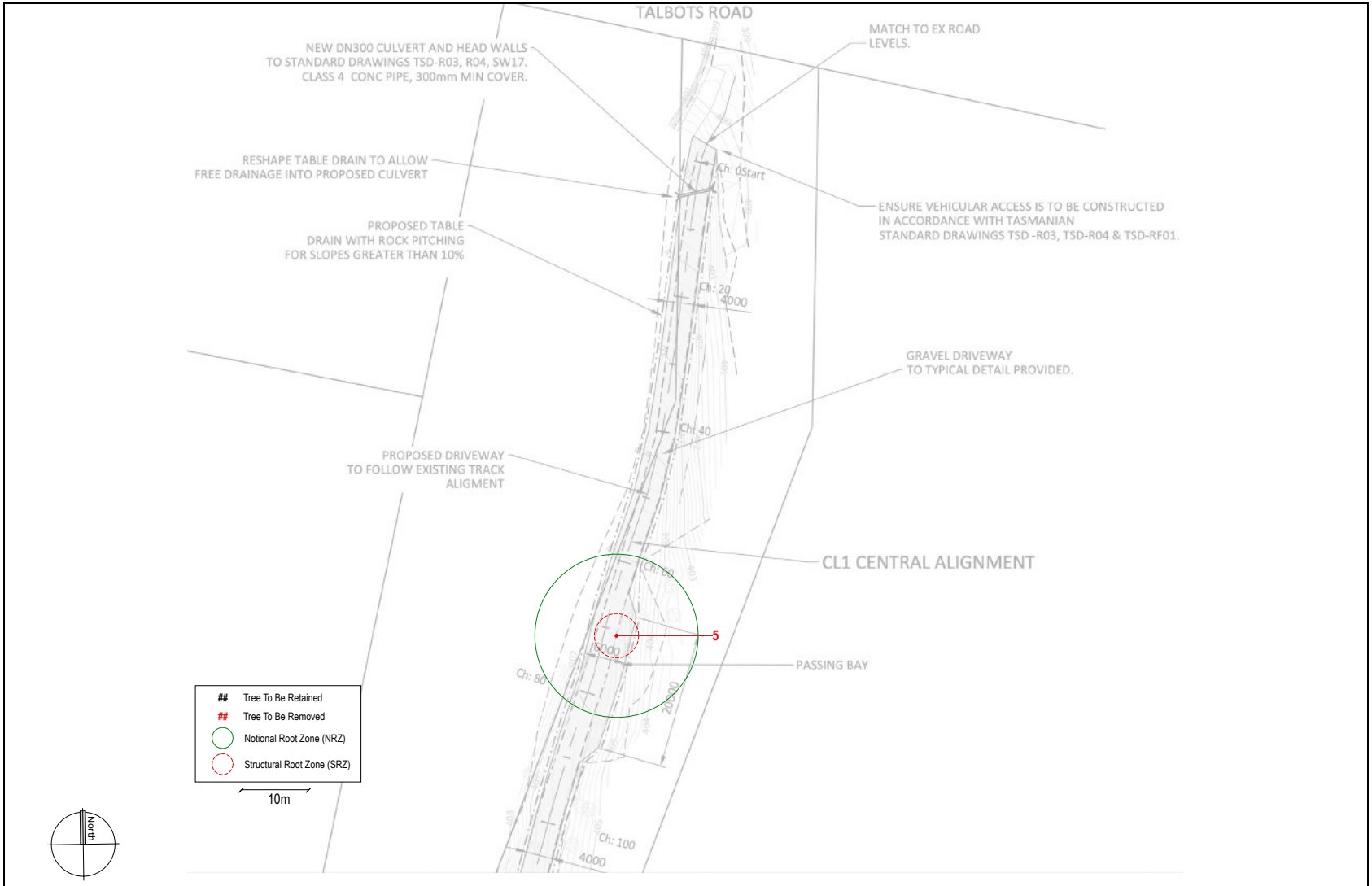
6.4.1. Where large woody roots are encountered during excavation or trenching (root diameter greater than 50mm), these shall be retained intact wherever possible (e.g. by tunnelling beneath roots and inserting the pipeline or conduit beneath or re-routing the service etc). Where this is not practical and root pruning is the only alternative, proposed root pruning should be assessed by a qualified arborist [AQF 5] to evaluate the potential impact on the health and stability of the subject tree.

More detailed illustrative guidance on installing services in TPZs can be accessed via the following hyperlink:
https://www.barrelltreecare.co.uk/resources/technical-guidance/sgn11?stage=Stage

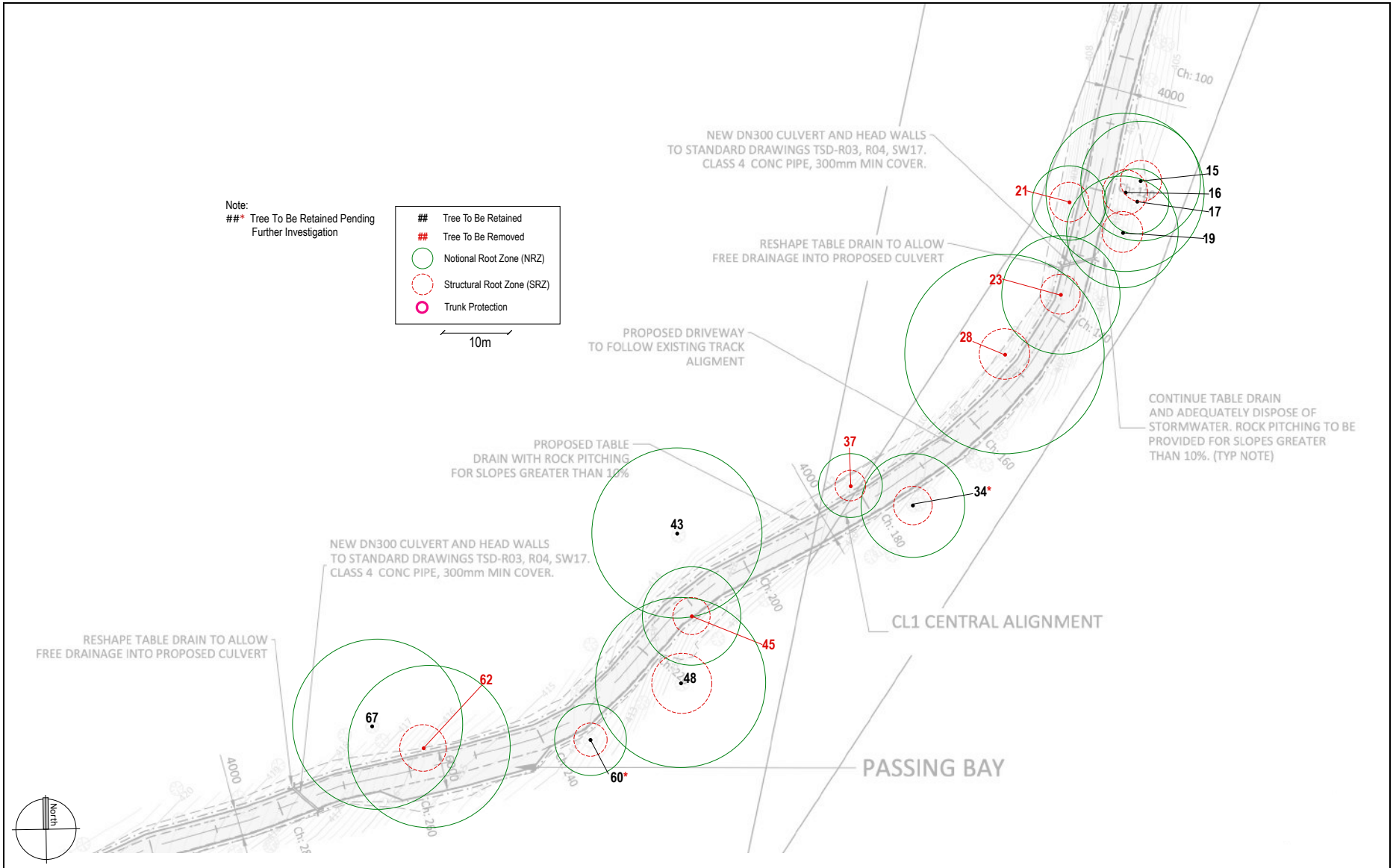
6.8 Pollution Control Within TPZs

Detailed illustrative guidance on pollution control in TPZs can be accessed via the following hyperlink:
https://www.barrelltreecare.co.uk/resources/technical-guidance/sgn4-v3/

APPENDIX 1: TREE PROTECTION PLANS



TREE PROTECTION PLAN : 218 TALBOTS ROAD SANDFLY SHEET 1 OF 7	PHILIP JACKSON *Arborist & Tree Management Services* 0447759865 tastreereports@gmail.com	Drawing based on: *"Siteworks Plan 1";* Project: 2507 Drawing No: C101 Rev: 1 Prepared by: Saltmarsh & Escobar Dated: 07/03/26	DWG No: TAL218-2603-1 DATE: 14/03/26 Not to scale



TREE PROTECTION PLAN :
218 TALBOTS ROAD
SANDFLY

SHEET 2 OF 7

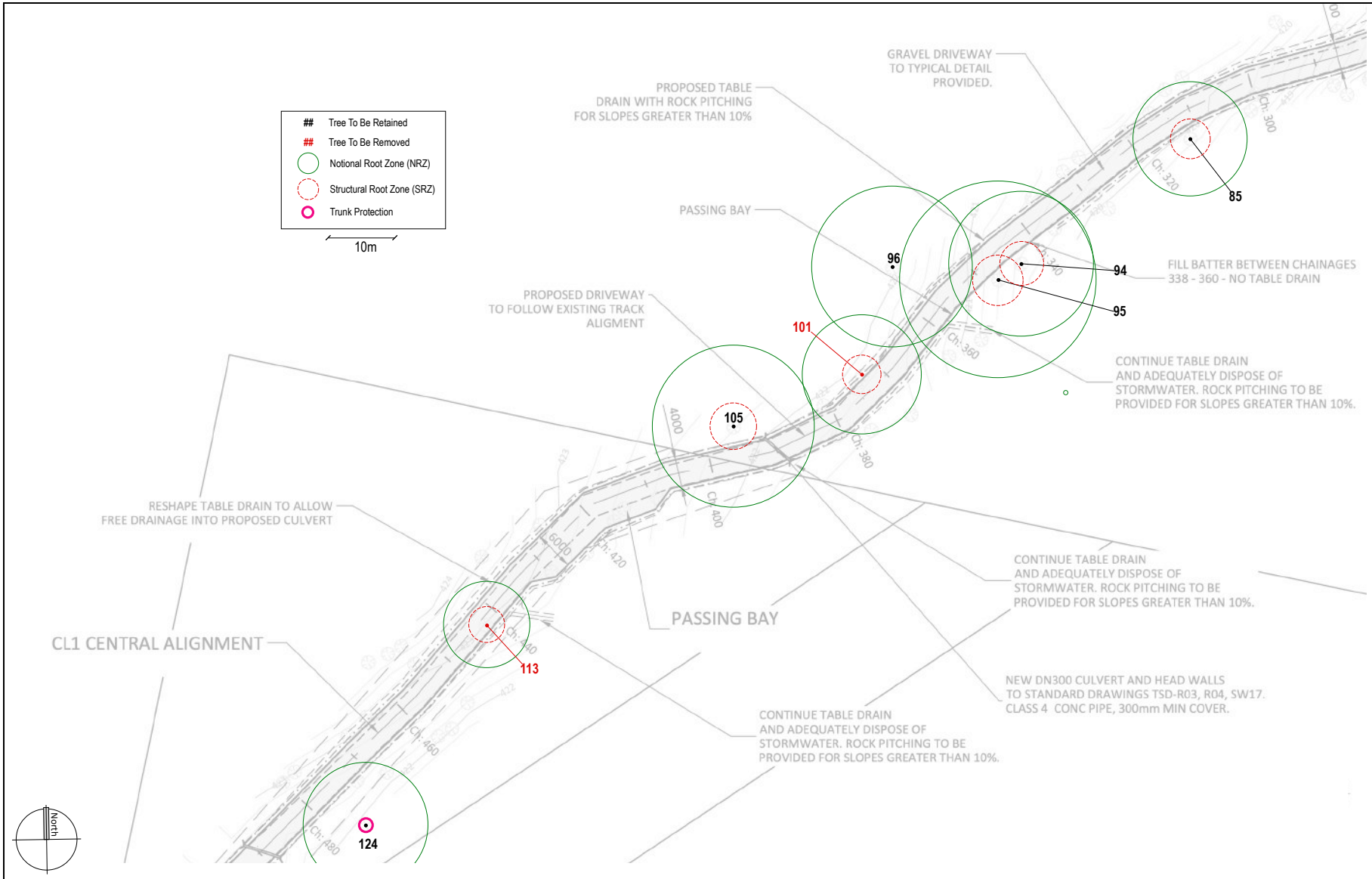
PHILIP JACKSON
Arborist & Tree Management Services
0447759865
tastreereports@gmail.com

Drawing based on:
"Siteworks Plan 2";
Project: 25067
Drawing No: C102 Rev: 1
Prepared by: Saltmarsh & Escobar
Dated: 07/03/26

DWG No: TAL218-2603-2

DATE: 14/03/26

Not to scale



TREE PROTECTION PLAN :
218 TALBOTS ROAD
SANDFLY

SHEET 3 OF 7

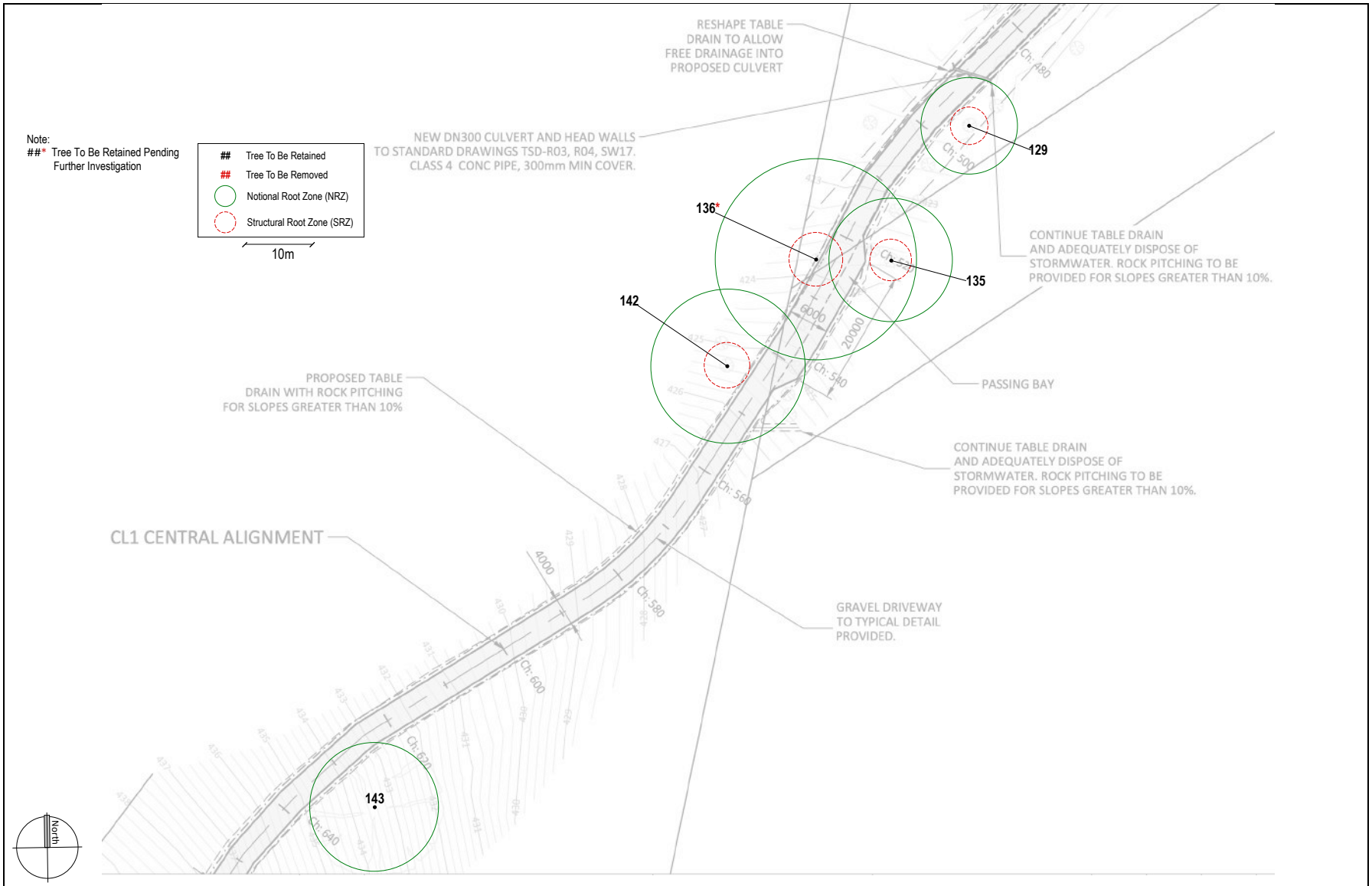
PHILIP JACKSON
Arborist & Tree Management Services
0447759865
tastreereports@gmail.com

Drawing based on:
"Siteworks Plan 3";
Project: 25067
Drawing No: C103 Rev: 1
Prepared by: Saltmarsh & Escobar
Dated: 07/03/26

DWG No: TAL218-2603-3

DATE: 14/03/26

Not to scale



TREE PROTECTION PLAN :
218 TALBOTS ROAD
SANDFLY

SHEET 4 OF 7

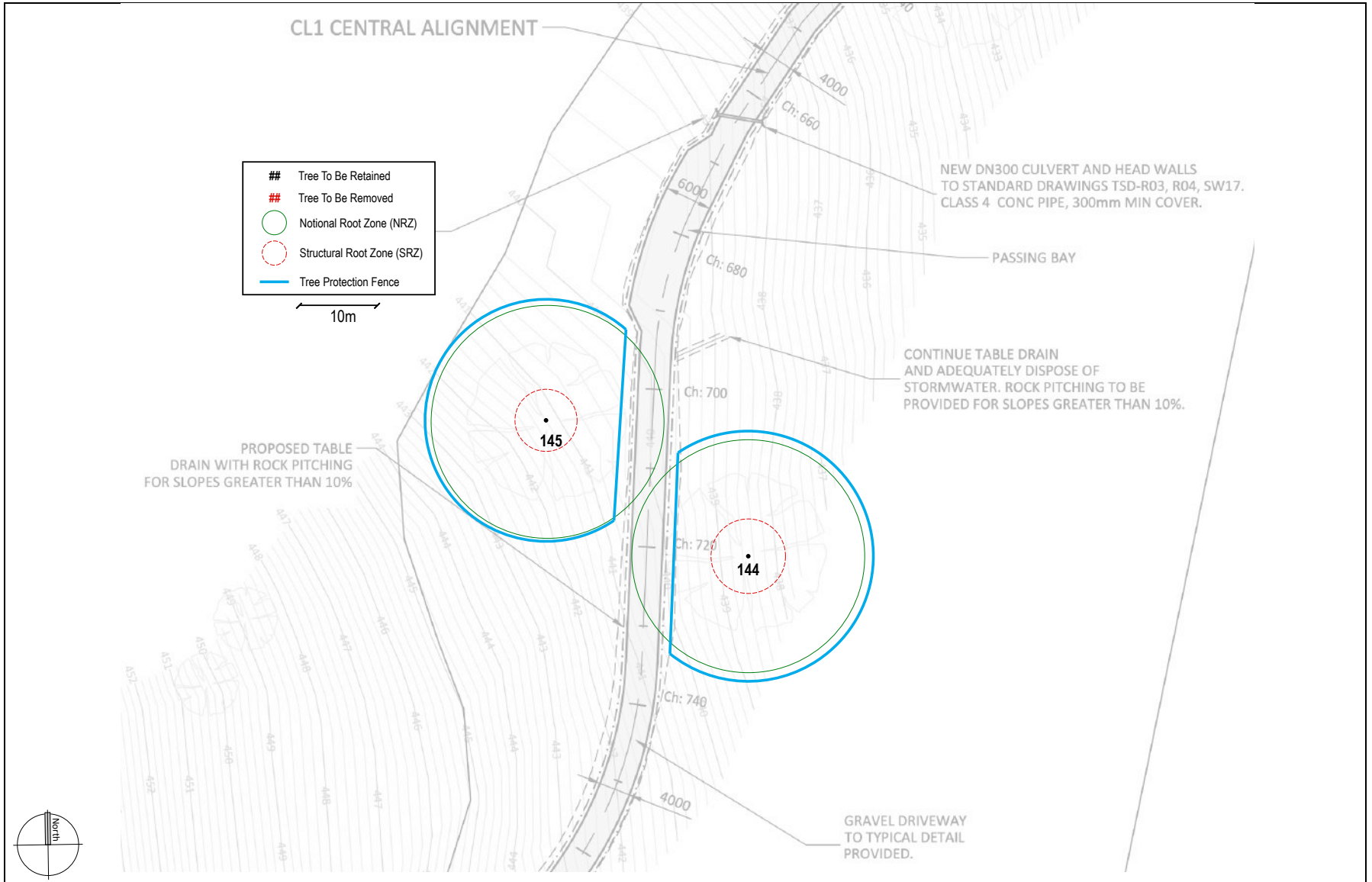
PHILIP JACKSON
Arborist & Tree Management Services
0447759865
tastreereports@gmail.com

Drawing based on:
"Siteworks Plan 4";
Project: 25067
Drawing No: C104 Rev: 1
Prepared by: Saltmarsh & Escobar
Dated: 07/03/26

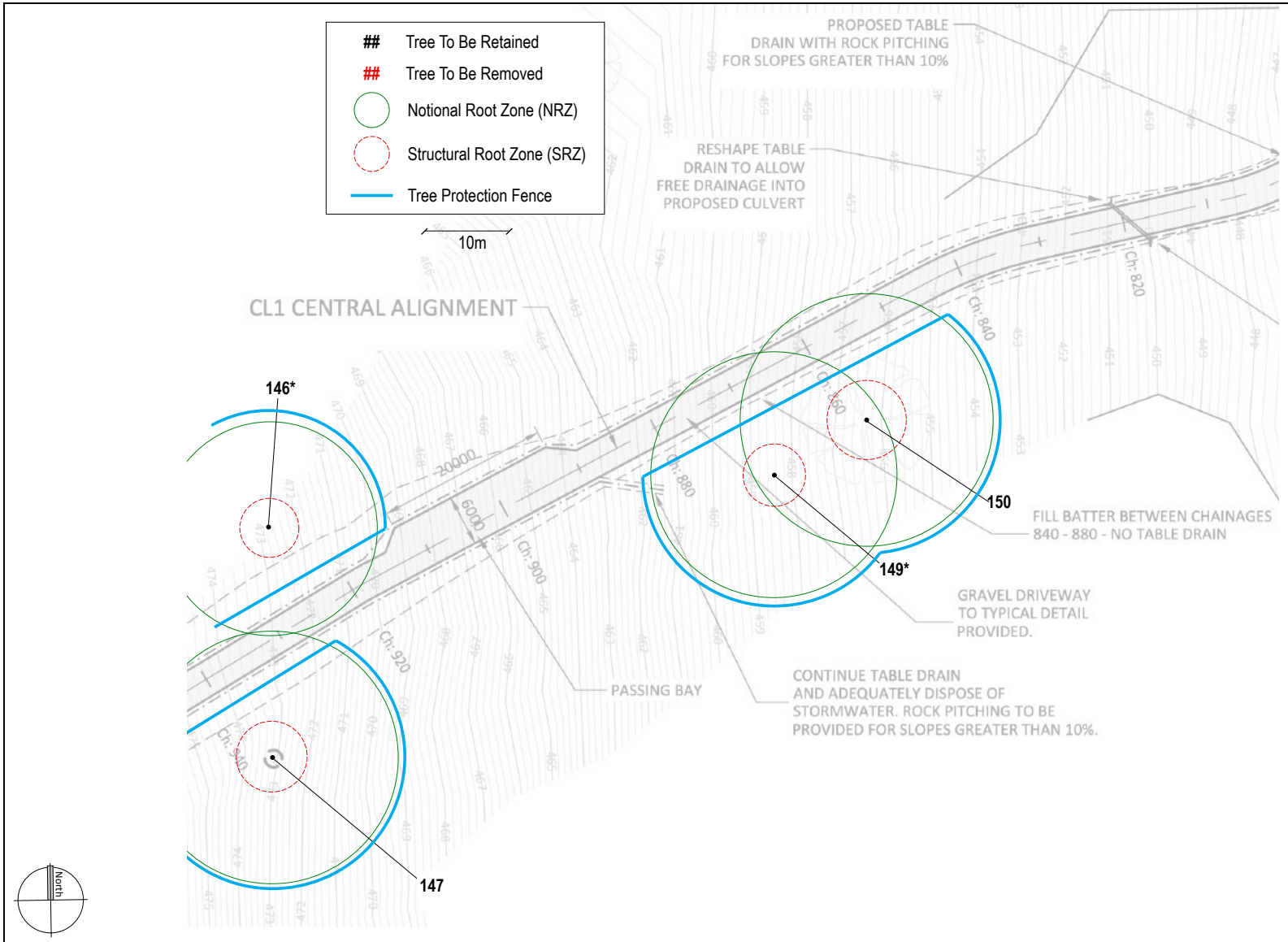
DWG No: TAL218-2603-4

DATE: 14/03/26

Not to scale



TREE PROTECTION PLAN : 218 TALBOTS ROAD SANDFLY SHEET 5 OF 7	PHILIP JACKSON *Arborist & Tree Management Services* 0447759865 tastreereports@gmail.com	Drawing based on: *"Siteworks Plan 5";* Project: 25067 Drawing No: C105 Rev: 1 Prepared by: Saltmarsh & Escobar Dated: 07/03/26	DWG No: TAL218-2603-5 DATE: 14/03/26 Not to scale



TREE PROTECTION PLAN :
218 TALBOTS ROAD
SANDFLY

SHEET 6 OF 7

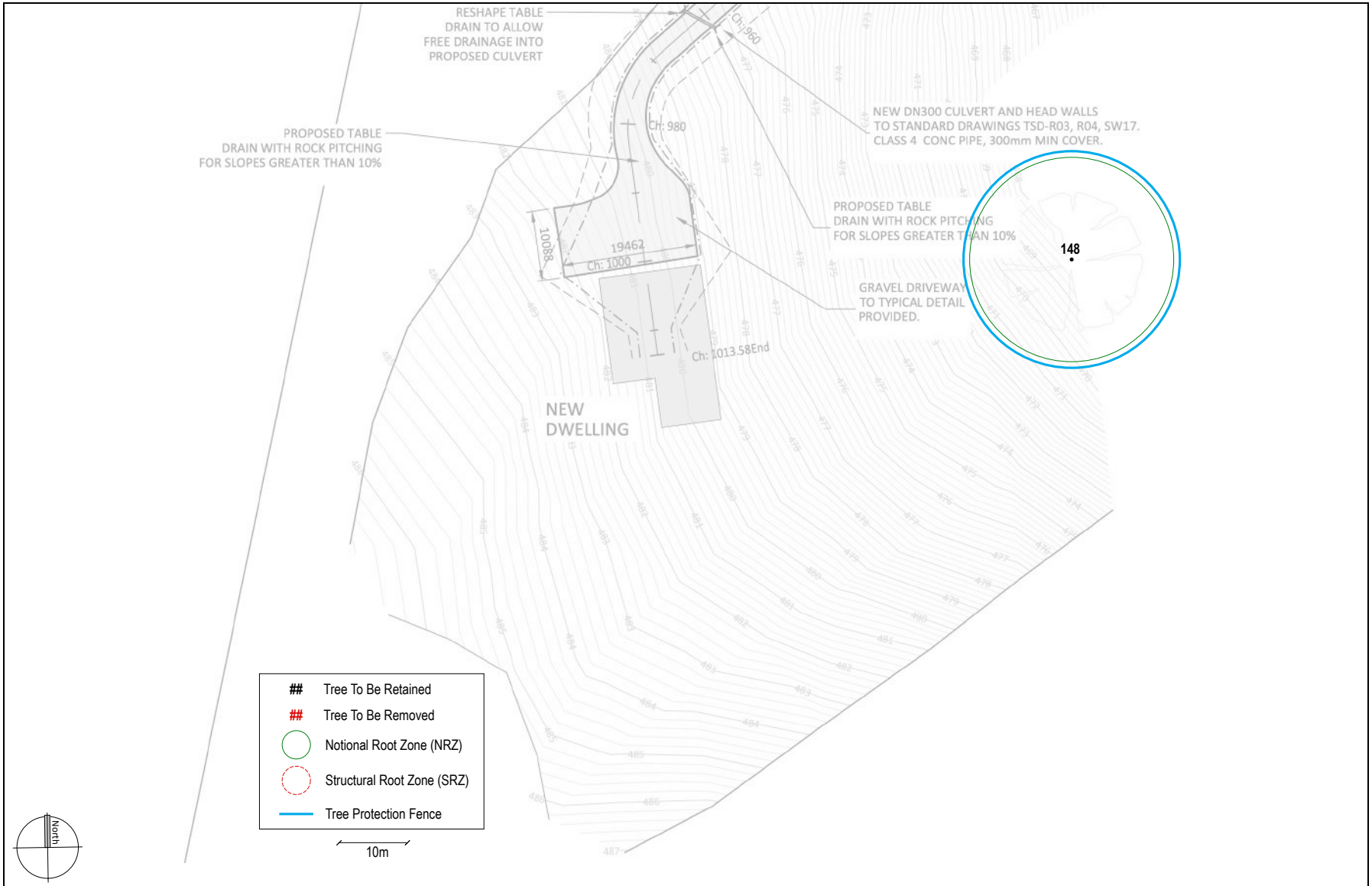
PHILIP JACKSON
Arborist & Tree Management Services
0447759865
tastreereports@gmail.com

Drawing based on:
"Siteworks Plan 6";
Project: 25067
Drawing No: C106 Rev: 1
Prepared by: Saltmarsh & Escobar
Dated: 07/03/26

DWG No: TAL218-2603-6

DATE: 14/03/26

Not to scale



TREE PROTECTION PLAN :
218 TALBOTS ROAD
SANDFLY

SHEET 7 OF 7

PHILIP JACKSON
Arborist & Tree Management Services
0447759865
tastreereports@gmail.com

Drawing based on:
"Siteworks Plan 7";
Project: 25067
Drawing No: C107 Rev: 1
Prepared by: Saltmarsh & Escobar
Dated: 07/03/26

DWG No: TAL218-2603-7

DATE: 14/03/26

Not to scale

APPENDIX 2 – TREE SCHEDULE

NOTES:

Age Class: Y = young, SM = semi-mature, EM = early-mature, M = mature, PM = post-mature (senescent)

Height: **Class**: 0-5m; 6-10m; 11-15m; 16-20m; 21-25m; >25m

DSH: Diameter at Standard Height

DAB: Diameter of base measure at point above basal flare

NRZ = Notional Root Zone

SRZ = Structural Root Zone

Overall Vitality: G= Good; M=Moderate; P=Poor; Mo= Moribund; D= Dead

Overall Structure: G = Good; F = Fair; P = Poor; D= Dead.

Remaining Life Expectancy L =Long (>40 years); M=Medium (15-40 years); S=Short (5-15 years) ; T=Transient (< 5 years)

Conservation Value VH= Very High; H= High (see Section A1.5 in Appendix 4);

Recommendations: **Rm**= Remove, **Rt**= Retain, **Rt+ =** Retain by re-designing and/or employing alternative non-destructive construction methods

Identifier	Species	Age Class	Height (m)	Spread (m)	DSH (m)	DAB(m)	Overall Vitality	Overall Structure	Life expectancy	Conservation Value	NRZ(m)	SRZ(m)	TPZ/SRZ Encroachment	Likley Impact	Recommendation	Comments
5	**Stringybark** *(Eucalyptus obliqua)*	Y	16-20m	7	1.02	1.12	G	F	M	VH	12.2	3.5	100%	**Unacceptable**.Tree entirely within footprint of proposed carriageway/passing bay	**Rm**	Triple stems. Immediately adjacent to track.
15	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	8	0.75	0.83	M	F	M	VH	9.0	3.1	20%	Major encroachment with likely **adverse** impact from fill	**Rt**	Appears stressed. No practicable impact mitigation methods.
16	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	9	0.99	1.09	G	F	L	VH	11.9	3.4	36% + SRZ	Major encroachment with likely **adverse** impact from fill.	**Rt**	Canopy integrated with neighbouring trees. No practicable impact mitigation methods.
17	**Blue Gum** *(Eucalyptus globulus)*	Y	16-20m	4	0.41	0.45	M	F	M	H	4.9	2.4	<10%	**Acceptable** encroachment with minimal impact	**Rt**	Tree suppressed by neighbours
19	**Blue Gum** *(Eucalyptus globulus)*	EM	21-25m	7	0.70	0.77	G	G	L	VH	8.4	3.0	23%	Major encroachment with likely **adverse** impact	**Rt**	No practicable impact mitigation methods.
21	**Blue Gum** *(Eucalyptus globulus)*	SM	21-25m	5	0.47	0.52	G	G	L	H	5.6	2.5	39% + SRZ	**Unacceptable.** Excavation for drain within SRZ will likely compromise tree stability	**Rm**	Tree on bank above track. No practicable impact mitigation methods.
23	**Blue Gum** *(Eucalyptus globulus)*	EM	21-25m	12	0.74	0.81	G	G	L	VH	8.9	3.0	100%	**Unacceptable**.Tree entirely within footprint of proposed track upgrade.	**Rm**	Immediately adjacent track.

Identifier	Species	Age Class	Height (m)	Spread (m)	DSH (m)	DAB(m)	Overall Vitality	Overall Structure	Life expectancy	Conservation Value	NRZ(m)	SRZ(m)	TPZ/SRZ Encroachment	Likley Impact	Recommendation	Comments
28	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	15	1.28	1.41	M	G	M	VH	15.0	3.8	42% + SRZ	**Unacceptable.** Excavation for drain within SRZ will likely compromise tree stability	Rm	Appears stressed with thinning canopy. Tree on bank above track. No practicable impact mitigation methods.
34	**Blue Gum** *(Eucalyptus globulus)*	Y	21-25m	6	0.65	0.72	G	G	M	VH	7.8	2.9	32% + SRZ	**Unacceptable.** Excavation for road level within SRZ will likely compromise tree stability	**Rt+/ Rm**	In copse of 3 trees. **Conduct exploratory excavation in SRZ. If significant structural roots present & excavation can't be avoided, remove all three trees**
37	**Blue Gum** *(Eucalyptus globulus)*	Y	16-20m	3	0.40	0.44	G	G	M	H	4.8	2.3	37% + SRZ	**Unacceptable.** Excavation for drain within SRZ will likely compromise tree stability	Rm	Tree on bank above track. No practicable impact mitigation methods.
43	**Stringybark** *(Eucalyptus obliqua)*	M	21-25m	12	1.07	1.18	G	G	L	VH	12.8	3.5	~18%	Moderate encroachment by drain excavation with **tolerable** adverse impact.	Rt	
45	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	8	0.62	0.68	G	G	M	H	7.4	2.8	100%	**Unacceptable**.Tree entirely within footprint of proposed track upgrade.	Rm	immediately adjacent to track.

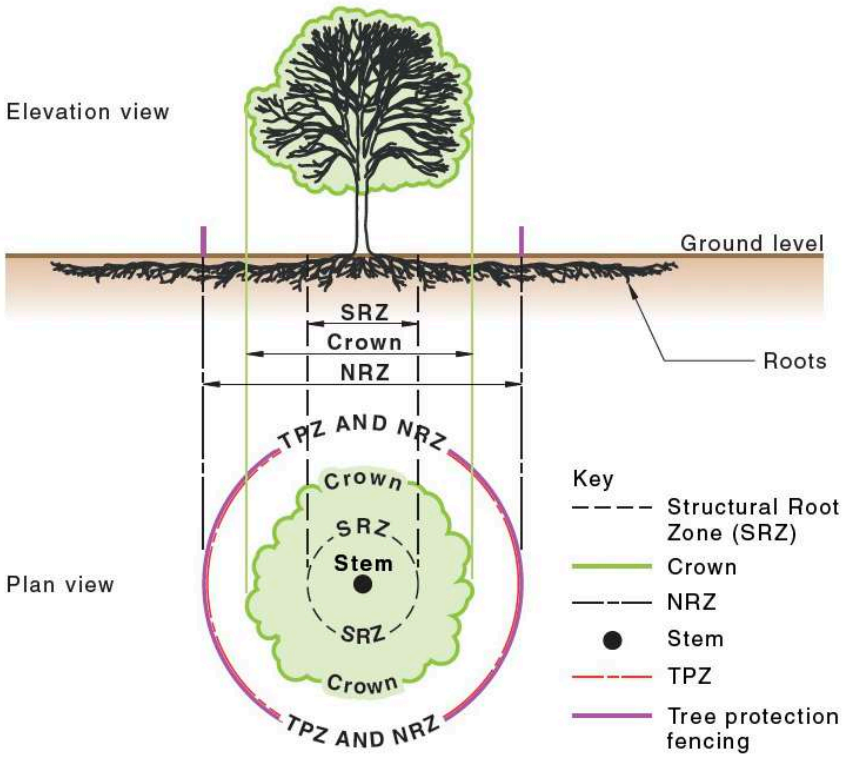
Identifier	Species	Age Class	Height (m)	Spread (m)	DSH (m)	DAB(m)	Overall Vitality	Overall Structure	Life expectancy	Conservation Value	NRZ(m)	SRZ(m)	TPZ/SRZ Encroachment	Likley Impact	Recommendation	Comments
48	**Stringybark** *(Eucalyptus obliqua)*	M	>25m	10	1.07	1.18	G	P	M	VH	12.8	3.5	~26%	Major encroachment with **tolerable** impact if excavation restricted to drain cut & road works conducted above present grade.	**Rt+**	Stem decay from base with numerous scaffold failures. **Construct track carriageway upgrade using 'no dig' methods including no excavation in TPZ.**
60	**Blue Gum** *(Eucalyptus globulus)*	Y	21-25m	5	0.45	0.50	G	G	L	H	5.4	2.5	>25% + SRZ	**Unacceptable.** Excavation for road level within SRZ will likely compromise tree stability	**Rt+/ Rm**	**Conduct exploratory excavation in SRZ. If significant structural roots present & excavation can't be avoided, remove all three trees**
62	**Stringybark** *(Eucalyptus obliqua)*	M	21-25m	10	1.02	1.12	G	F	M	VH	12.2	3.5	100%	**Unacceptable**.Tree entirely within footprint of proposed drain.	**Rm**	Adjacent to road
67	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	10	1.07	1.18	G	G	L	VH	12.8	3.5	>25%	Major encroachment by drain excavation with likley **adverse** impact.	**Rt**	No practicable impact mitigation methods.
72	**Blue Gum** *(Eucalyptus globulus)*															**Tree not found**
85	**Blue Gum** *(Eucalyptus globulus)*	SM	16-20m	8	0.72	0.79	G	G	L	VH	8.6	3.0	~40% + SRZ	Major encroachment with **tolerable** impact if excavation restricted to drain cut & road works conducted above present grade.	**Rt+**	**Construct track carriageway upgrade using 'no dig' methods including no excavation in TPZ.**

Identifier	Species	Age Class	Height (m)	Spread (m)	DSH (m)	DAB(m)	Overall Vitality	Overall Structure	Life expectancy	Conservation Value	NRZ(m)	SRZ(m)	TPZ/SRZ Encroachment	Likley Impact	Recommendation	Comments
94	**White Peppermint** *(Eucalyptus pulchella)*	M	21-25m	8	0.91	1.00	M	P	M	VH	10.9	3.3	~38% + SRZ	Major encroachment with **tolerable** impact if excavation restricted to drain cut & road works conducted above present grade.	**Rt+**	Significant stem decay & observed habitat hollows. **Construct track carriageway upgrade using 'no dig' methods including no excavation in TPZ.**
95	**Eucalypt** *(Eucalyptus sp.)*	D	21-25m	n/a	1.23	1.35	D	P	D	VH	14.8	3.8	SRZ	Road works within SRZ will not destabilise tree if they are conducted above present grade	**Rt+**	Dead tree with observed habitat hollows. **Construct track carriageway upgrade using 'no dig' methods including no excavation in TPZ.**
96	**White Peppermint** *(Eucalyptus pulchella)*	M	21-25m	12	1.01	1.11	M	G	M	VH	12.1	3.5	~16%	Moderate encroachment by drain excavation with **Likely adverse** impact due to reduced vitality	**Rt**	Tree stressed. Observed habitat hollows. Will conitnue to provide high habitat value as it declines.
101	**Blue Gum** *(Eucalyptus globulus)*	EM	21-25m	10	0.68	0.75	G	G	L	H	8.2	2.9	100%	**Unacceptable**.Tree entirely within footprint of proposed drain.	**Rm**	
105	**White Peppermint** *(Eucalyptus pulchella)*	M	16-20m	18	1.02	1.12	G	G	M	VH	12.2	3.5	~40% + SRZ	Major encroachment with likely **adverse** impact	**Rt+**	Observed habitat hollows. **Construct track carriageway upgrade using 'no dig' methods including no excavation in TPZ.**
113	**Blue Gum** *(Eucalyptus globulus)*	SM	16-20m	7	0.54	0.59	G	G	M	H	6.5	2.7	100%	**Unacceptable**.Tree entirely within footprint of proposed track upgrade.	**Rm**	

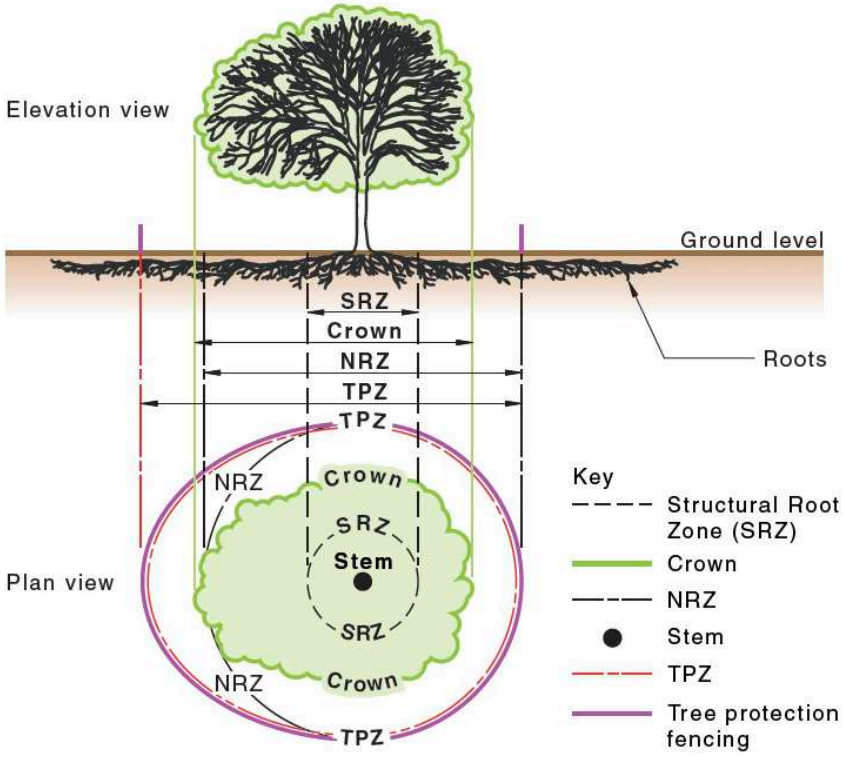
Identifier	Species	Age Class	Height (m)	Spread (m)	DSH (m)	DAB(m)	Overall Vitality	Overall Structure	Life expectancy	Conservation Value	NRZ(m)	SRZ(m)	TPZ/SRZ Encroachment	Likley Impact	Recommendation	Comments
124	**White Peppermint** *(Eucalyptus pulchella)*	M	16-20m	10	0.78	0.86	G	G	L	VH	9.4	3.1	<10%	**Acceptable** minor encroachment with minimal impact	**Rt**	
129	**Blue Gum** *(Eucalyptus globulus)*	M	16-20m	10	0.60	0.66	G	G	L	H	7.2	2.8	21%	Major encroachment with **tolerable** impact	**Rt**	
135	**White Peppermint** *(Eucalyptus pulchella)*	M	16-20m	8	0.77	0.85	G	G	M	VH	9.2	3.1	21%	Major encroachment with **tolerable** impact	**Rt**	
136	**White Peppermint** *(Eucalyptus pulchella)*	M	16-20m	6	1.39	1.53	P	P	S	VH	15.0	4.0	100%	**Unacceptable**. Excavation for drain within SRZ will likely compromise tree stability.	**Rt+/ Rm**	Tree in decline with large basal fire cavity & stem decay. Observed habitat hollows. **Conduct exploratory excavation in SRZ. If significant structural roots present & excavation can't be avoided, remove tree**
142	**White Peppermint** *(Eucalyptus pulchella)*	M	16-20m	15	0.96	1.06	G	F	M	VH	11.5	3.4	~35% + SRZ	Major encroachment with likely **adverse** impact	**Rt+**	Basal fire cavity. **Construct track carriageway upgrade using 'no dig' methods including no excavation in TPZ.**
143	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	13	0.80	0.88	P	P	S	VH	9.6	3.1	<10%	**Acceptable** minor encroachment with minimal impact	**Rt**	Tree in decline with significant decay column up trunk with active nesting cavity @ 10m
144	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	15	2.20	2.42	G	P	M	VH	15.0	4.8	<10%	**Acceptable** minor encroachment with tolerable impact	**Rt**	Basal fire cavity with only buttresses remaining.
145	**Blue Gum** *(Eucalyptus globulus)*	M	16-20m	10	1.39	1.53	G	F	M	VH	15.0	4.0	<10%	**Acceptable** minor encroachment with minimal impact	**Rt**	Large basal fire cavity

Identifier	Species	Age Class	Height (m)	Spread (m)	DSH (m)	DAB(m)	Overall Vitality	Overall Structure	Life expectancy	Conservation Value	NRZ(m)	SRZ(m)	TPZ/SRZ Encroachment	Likley Impact	Recommendation	Comments
146	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	15	1.06	1.17	G	G	L	VH	12.7	3.5	<10%	**Acceptable** minor encroachment with tolerable impact	**Rt**	
147	**Blue Gum** *(Eucalyptus globulus)*	M	>25m	15	1.59	1.75	G	F	L	VH	15.0	4.2	13%	Moderate encroachment with **potential adverse impact**	**Rt+**	Basal fire cavity. **Construct new access using 'no dig' methods including no excavation or compaction in TPZ if practicable.**
148	**Stringybark** *(Eucalyptus obliqua)*	M	21-25m	10	1.19	1.31	P	F	S	VH	15.0	3.7	0%	Tree outside proposed works. No impact	**Rt**	Tree in decline
149	**Blue Gum** *(Eucalyptus globulus)*	EM	21-25m	8	1.22	1.34	G	F	M	VH	14.6	3.7	13%	Moderate encroachment with **potential adverse impact**	**Rt+**	Dying back from top. Stump regrowth tree? **Construct new access using 'no dig' methods including no excavation or compaction in TPZ if practicable.**
150	**Blue Gum** *(Eucalyptus globulus)*	M	21-25m	15	2.10	2.31	G	P	L	VH	15.0	4.7	~15%	Moderate encroachment with **Likely adverse impact**	**Rt+**	Basal fire cavity with only buttresses remaining. **Construct new access using 'no dig' methods including no excavation or compaction in TPZ if practicable**

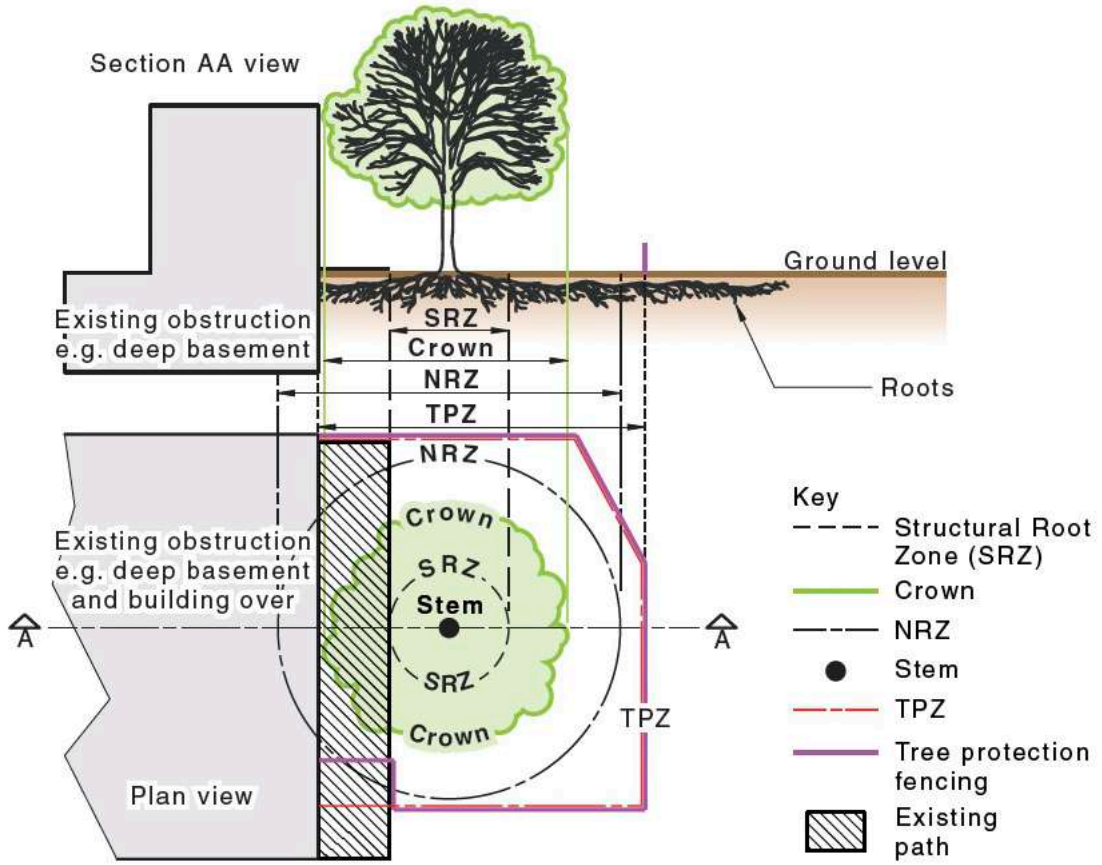
APPENDIX 3 –
THE TREE PROTECTION ZONE (TPZ) & ENCROACHMENT EXAMPLES



(a) No development within NRZ

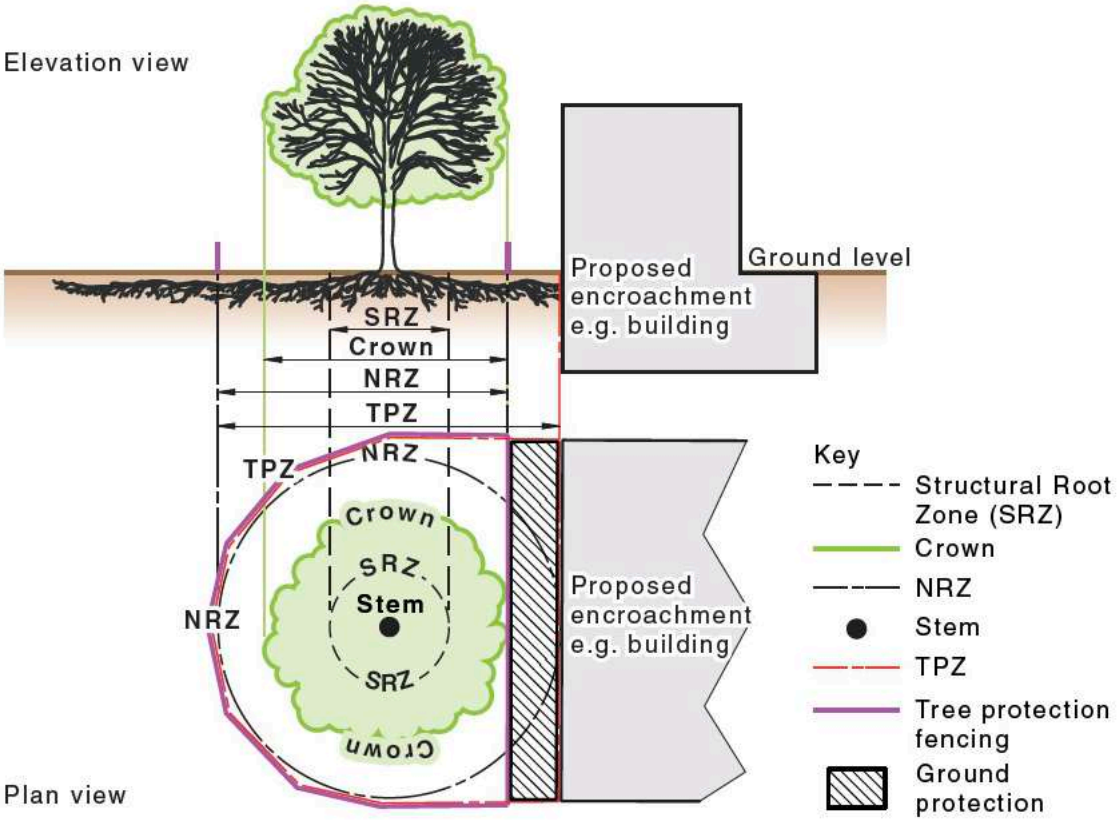


(b) No development within NRZ but with crown protection required

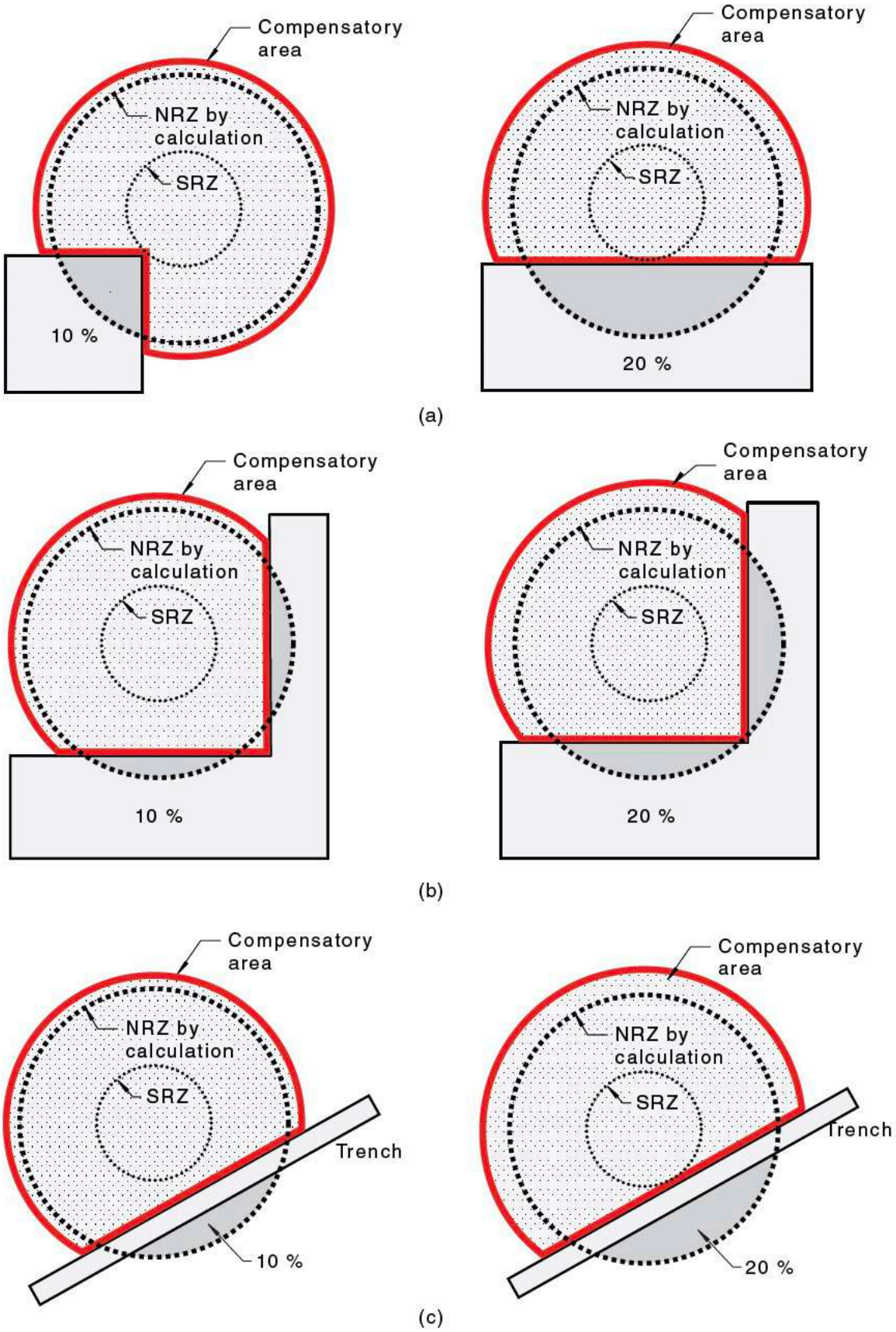


NOTE The project arborist has determined a suitable location for the tree protection fence. They have included a portion of the path as ground protection.

(c) TPZ compensatory area shown for existing structures



(d) TPZ compensatory area shown for proposed development



Source:-**AS 4970 – 2025 – Protection of Trees on Development Sites** (Standards Australia, Sydney.)

APPENDIX 4 – METHODOLOGY

A1.0 Qualifications

1.0.1 I have based this report on my site observations and the information provided to me. I have over fifteen years' experience in the field of tree management and arboricultural practice. A summary of my relevant qualifications includes:

- Bachelor of Science (Hons) – Plant Ecology - University of NSW
- Bachelor of Science – Botany/Environmental. Studies - Tasmania University
- Diploma of Horticulture - Aboriculture - Ryde TAFE
- VALID Tree Risk-Benefit Assessment certified validator
- Quantified Tree Risk Assessment certified advanced practitioner - Lic. No. 4148

A1.1 General

1.1.1 I conducted a survey and basic inspection of the subject trees from the ground. No aerial or climbing inspections, core testing, drilling or ultrasound diagnosis were undertaken. No excavations to determine the location and/or condition of roots were conducted. No plant samples were analysed for formal identification of any pests or disease.

1.1.2 The biological and mechanical features of the trees were assessed for health & vitality, structural condition and defects.

1.1.3 Tree trunk diameter at standard height (DSH) was measured or estimated at 1.4 metres above ground level and rounded to the nearest 0.10 metres. Tree Basal diameter was estimated to be 0.1x greater than the DBH. Tree height was estimated. All distances were taken from the centre of the trunk unless otherwise indicated.

A1.2 Tree Health Assessment

1.2.1 The overall health of the trees was rated as follows:

	Description
Good	**Good** health and vitality - exhibiting minor pest/disease, good extension growth, minor abnormalities in foliage size, colour or density.
Moderate	**Moderate** health and vitality - containing defects and/or damage that may be able to be remediated to provide an acceptable level of risk.
Poor	**Poor** health and vitality - exhibiting extensive or untreatable pest/disease, poor extension growth, significant deadwood and dieback, evidence of rapid decline, sparse foliage cover, abnormal foliage colour or size.
Moribund	Tree is in terminal decline, Lacking vitality or vigour
Dead	Tree is dead

A1.3 Tree Structure Assessment

1.3.1 The overall structure of the tree was rated as follows:

	Description
Good	Good structure - may contain minor defects and/or damage that can be successfully remediated or do not require treatment with an acceptable level of risk.
Fair	Fair structure - containing defects and/or damage that may be able to be remediated to provide an acceptable level of risk.
Poor	Poor structure - Evidence of instability or contains defects and/or damage which render the tree potentially hazardous/ prone to failure or cannot be successfully remediated.
Dead	Tree is dead

A1.4 Remaining Life Expectancy

1.4.1 The remaining life expectancy (RLE) is an estimate of the sustainable longevity of the subject tree(s) in its growing environment. The RLE is modified where necessary to take in consideration tree(s) health, structural condition and site suitability. The tree(s) has been allocated one of the following RLE categories (Modified from Barrell, 2001):

I. Long (>40 years)
II. Medium (15-40 years)
III. Short (5-15 years)
IV. Transient (< 5 years)

The estimated RLE of the subject tree is shown in the Tree Schedule in **Appendix 2**.

A1.5 Conservation Value Assessment

Table 1: *Kingborough Council working definition of native tree conservation value set out in Kingborough Council Policy 6.10 "Biodiversity Offset Policy" (version 2.1, November 2023)*

Description	Characteristics	Rationale	Biodiversity Value
Eucalyptus globulus or *E. ovata*	DBH >70cm	Swift parrot foraging habitat	Very high
E. viminalis	DBH >25cm and within or directly adjacent to significant forty-spotted pardalote habitat	Forty-spotted pardalote habitat	Very high
Native trees with known or potential nesting hollows	Hollows present; and/or, DBH > 70cm in dry forests or cleared settings; or, DBH >100cm in wet forests	Habitat for hollow dependent species	Very high
Eucalyptus globulus or *E. ovata*	DBH >40cm and <70cm	Swift parrot foraging habitat	High
E. viminalis	DBH >25cm and: • on Bruny Island; or • within 5,000m of significant forty-spotted pardalote habitat or within potential forty-spotted pardalote habitat	Forty-spotted pardalote habitat	High
A species that is listed in the *Threatened Species Protection Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999 (C'th)*	N/A	Listed threatened species	High
Priority species (including *Eucalyptus rubida)*	DBH >25cm	Meets IUCN criteria for endangered within Kingborough	High

REFERENCES

Barrell, J 2001, " SULE: Its use and status into the new millennium" in *Management of mature trees.* Proceedings of the 4th NAAA Tree Management Seminar, NAAA, Sydney.

Barrell Tree Consultancy (2020) *"Manual For Managing Trees on Development Sites" (2020) https://www.barrelltreecare.co.uk/resources/technical-guidance*

Council of Standards Australia (2025) **AS 4970–2025 Protection of Trees on Development Sites** Standards Australia, Sydney.

Council of Standards Australia (2007) **AS 4373 – Pruning of Amenity Trees** Standards Australia, Sydney.

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