ARBORICULTURAL IMPACT ASSESSMENT REPORT

PROJECT NAME

26 Rosebery Street, Heathcote

Prepared for: Pacific Planning

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1.0 INTRODUCTION

1.1 Purpose of this Report

Sturt Noble Arboriculture was engaged by Pacific Planning to prepare an Arboricultural Impact Assessment Report and Tree Protection Recommendations in relation to the proposed construction of an Affordable Rental Housing Development at 26 Rosebery Street, Heathcote.

The purpose of this report is to:

- To assess and review the condition of existing trees by undertaking a Visual Tree Assessment
- Assess each individual tree's suitability to be retained as a sustainable part of the proposed development in the long term, considering the likely impacts of works proposed.
- Provide recommendations for tree removal, retention and protection.
- Provide recommendations where appropriate to enable trees to be retained or have better long term health outcomes and minimize potentials for hazard.
- To provide information on appropriate tree protection measures, appropriate setbacks, constraints and tree management procedures during site works.

This report has been carried out as per the Methodology outlined in **Appendix 1**

1.2 Background

The preparation of this report has been prepared in awareness and consideration of the following standards, controls and guidelines:

- Sutherland Shire Council DCP 2015 CHAPTER 39 Natural Resource Management
- Australian Standard AS4970-2009 *Protection of Trees on Development Sites*
- Australian Standard AS4373-2007 *Pruning of Amenity Trees*
- Australian Standard AS2303-2015 *Tree Stock for Landscape Use*

1.3 The Proposal

This impact assessment has been prepared based on the following plans prepared by Stanisic Architects.

SCC 004 SITE PLAN A
SCC 101 BASEMENT 1 PLAN
SCC 102 LEVEL 1 (GROUND) PLAN A
SCC 103 LEVEL 2 PLAN A
SCC 104 LEVEL 3 PLAN A
SCC 105 LEVEL 4 PLAN
SCC 106 ROOF PLAN

Refer to plans **Appendix 2.2**

The proposed works to the site include:

- Demolition of the existing residence
- Construction of a new 18 units (1 /2 Bedroom and Studio) Affordable Rental Housing Development
- Basement carparking for 10 cars and bicycles.
- Landscaping including new hard finishes and retaining walls
- Associated works

The plans provided by Stanisic Architects with details of the proposed new Affordable Housing Development are minimal with regard to Construction Detailing.

1.4 Foreseeable Construction Impacts

Foreseeable impacts noted from the proposed development, construction type and anticipated methodology include:

- Excavations for basement parking.
- Excavations for landscape paved areas and retaining walls
- Excavations and trenching for underground services.
- Ripping or cultivation of soil for landscaped areas.
- Excavations and footings for boundary fences.
- Soil level changes including the placement of fill material for the footings and to make up grades to landscape areas.
- Laying impermeable paving to paths and slabs.
- Movement and storage of plant, equipment & vehicles;
- Erection of site sheds;
- Storage of building materials, waste and waste receptacles.

2.0 PLANNING CONTROLS

2.1 Planning Definitions

Sutherland Shire Council's DCP defines a protected tree as:-

- A single or multi trunked tree with a diameter of 100mm or more measured at 500mm above ground level.
- Any bushland vegetation, including mangroves. Bushland vegetation for the purpose of this clause means vegetation which is either remnant of the natural vegetation of the land or, if altered, is representative of the structure and the floristics of the natural vegetation. For the purposes of this sub-clause, bushland vegetation includes trees of any size, shrubs and all herbaceous species; and
- Any tree and/or riparian vegetation growing within 4 metres of a creek or watercourse.
- If a tree is approved to be removed, Council requires replacement planting so that the canopy of Sutherland Shire can be maintained for future generations. Details of these requirements will be provided within the letter that provides a response to the tree inspection

2.2 Council Consent

Sutherland Shire Council's DCP notes the following planning and approval requirements:

- Any protected tree or bushland vegetation shall not be ringbarked, cut down, topped, lopped, removed, poisoned, injured, or wilfully destroyed without a Tree and Bushland Vegetation Removal Permit unless authorised by a current Development Consent.
- Some tree species as outlined in the DCP are exempt. These species can be removed without consent from Council.
- Trees may be pruned by up to 10% once in every 12 calendar months in accordance with AS4373-2007 Pruning of Amenity Tree without council consent.

When assessing your application, Council will consider whether the tree:

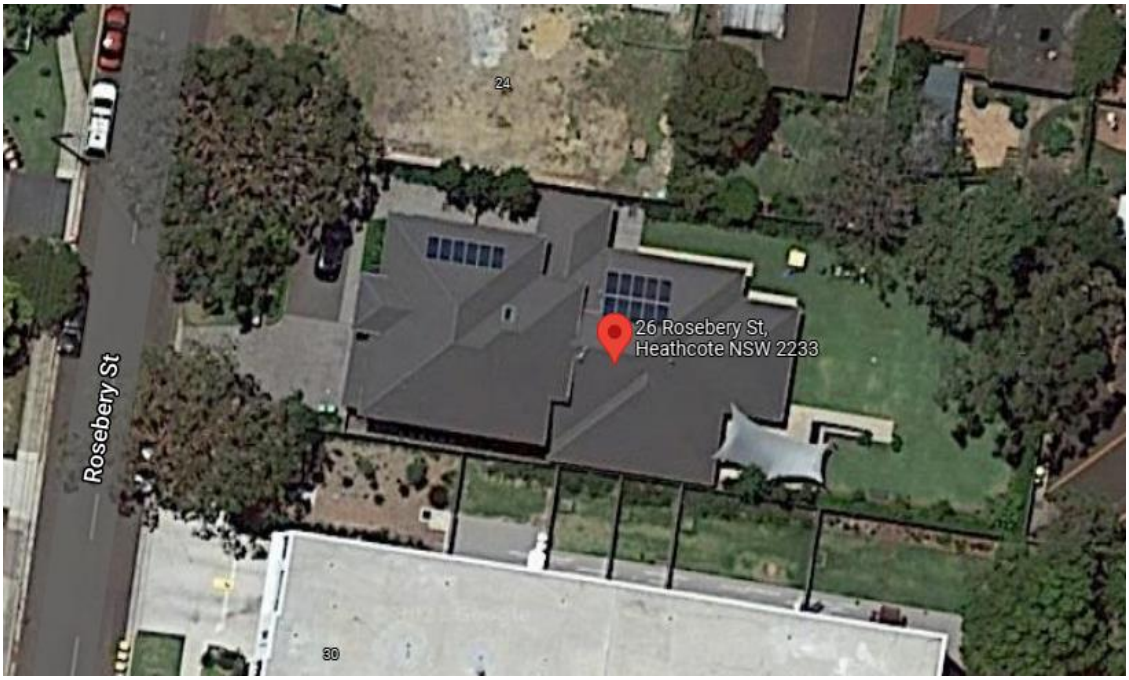
- has aesthetic, cultural, historic or ecological value Development Control Plan criteria
- is in good condition (for example, the health and structure)
- is in a suitable location in relation to existing buildings and conditions on the property
- is causing property damage
- is causing a nuisance to public land or private property owners
- falls within Greenweb or protected plant communities
- is affected by legislative requirements or conditions of development consent.

3.0 THE EXISTING SITE

3.1 The Site

The site is located at 26 Rosebery Street, Heathcote on LOT 16 SEC A DP 2499. It is a rectangular shape and has a total area of 1212 m2. The site is surrounded by a 4 storey apartment block to the residential buildings to the south, two storey townhouses to the north and backs onto a single story house along its eastern boundary. The site has a slight fall towards the street back towards the western boundary.

The site currently contains an existing two story modern private residence, paved driveway and a double garage. It has a large garden with trees being a combination of remnant endemic specimens and planted specimens of exotic species.



Location Plan

3.2 Soils

The Sydney Soil Map (Chapman, G. A & Murphy, C. L, 1989) indicates the site is situated on a Hawkesbury Sandstone ridgeline with Ridge and plateau surfaces on the Hawkesbury Sandstone. Soils are slightly more fertile and have a higher clay content than normal Hawkesbury Sandstone soils. Rock outcrops are present on site as are areas of deeper soil. Soil landscapes are likely to be Faulconbridge.

3.3 Vegetation Communities

The site is highly disturbed and modified. The entire site has been largely cleared for its development. Isolated endemic specimens remain on site and on the Council nature strip. In addition; individual planted specimens of both exotic species are planted in the vicinity of the residence.

Of the communities recorded within the project area, given the remnant species on site; *Syncarpia glomulifera* and *Eucalyptus fibrosa* the locality most likely corresponds to EEC Syncarpia glomulifera and Eucalyptus fibrosa Forest.

Common species occurring within the tree stratum of EEC Syncarpia glomulifera and Eucalyptus fibrosa Forest include *Syncarpia glomulifera* (Turpentine), *Eucalyptus fibrosa* (Red Ironbark) and *Angophora costata* (Smooth- barked Apple).

The tree stratum ranges in height from 10-15m with a PFC of 30%. The small tree stratum includes *Allocasuarina torulosa* (Forest Oak). The small tree stratum is approximately 6m in height with a PFC of <5%. Common species within the shrub stratum include *Dodonaea triquetra* (Large-leaf Hop-bush), *Phyllanthus hirtellus* (Thyme Spurge), *Leptospermum polygalifolium* (Tantoon), *Hibbertia serpyllifolia* (Hairy Guinea Flower) and *Correa reflexa* (Native Fuschia).

The shrub stratum ranges in height from 0.5-1m with a PFC of <5%. Common species within the ground stratum include *Themeda australis* (Kangaroo Grass), *Austrostipa pubescens*, *Lepidosperma laterale, Entolasia stricta* (Wiry Panic) and *Xanthosia tridentata* (Rock Xanthosia). The ground stratum ranges in height from 0-0.5m with a PFC of 30%. *Glycine clandestina* and *Billardiera scandens* (Hairy Apple Berry) are the climbers recorded within this community.

3.4 The Trees

Nineteen (19) trees located in close vicinity to the proposed development footprint have been surveyed as part of this assessment. The trees consist of a mix of 10 exotic specimens, and 9 endemic trees. 7 of these are likely bushland remnants. Refer to **Appendix 1** for tree locations and numbers.

Each of the trees assessed has been allocated a Sustainable Retention Index Value (SRIV) that is based on their health, vigour, structure and age class. The SRIV does not take into account the impact of the proposed development.

A complete and detailed tree assessment schedule was prepared and is included in **Appendix 3**.

Six (6) trees are located outside the sites property boundary. One (1) of these trees is located in an adjacent properties and Five (5) in the road reserve.

Endemic trees on the site are mostly mature specimens adapted to the existing conditions. The exotic specimens are younger specimens more recently planted.

3.5 Special Tree Conditions

None of the trees are listed with the Councils Significant Tree Register or are endangered species.

Nine trees are part of an indigenous EEC plant community.

4.0 ABORICULTURE IMPACT ASSESSMENT

4.1 Construction Assumptions

It is assumed for this report that excavation for the basement will not extend greater than 500mm from the basement wall; and this limit can be considered to be the extent of disturbance to the root zones with the exception of service lines.

Further detail of site works are required particularly details of excavation extent, of services (water, telecoms and electrical) and level changes particularly within the TPZ of any trees proposed for retention. This should be provided prior to construction so any additional impacts can be assessed.

4.2 Trees to be removed

The plans show that eleven (11) trees will need to be removed to accommodate the proposed development.

Table 1: Trees to be removed

Development footprint critical to the following trees	Other (poor condition, other studies, etc)	Dead / Weed species to be removed (exempt and can be removed without consent)
Tree numbers 2,6,7,8,13,14,15,16,17,18,19	NA	NA

Application required for the removal of trees should be sought as part of the Development Application.

4.3 Trees to be retained

With implementation of the tree protection measures it should be possible to retain all other trees on the developed site and adjacent sites. The plans show that eight (8) of trees are proposed to be retained.

Table 2: Trees to be retained

Clear of all works	Minor Encroachment	Moderate Encroachment
Tree numbers 3,10,11	Tree numbers 1,4,5	Tree numbers 9,12

Proposed site design and Construction of the development and associated infrastructure/ facilities should consider the Tree Protection Zones as discussed in the following sections to minimise any adverse impact.

4.4 Works within Tree Protection Zones

The plan in **Appendix 2.3** indicates the impacts of the proposed development construction on the existing trees proposed to be retained.

Minor Encroachment

- The supplied plans show the development is proposed within the TPZ of Trees 1,4,5,6,7,8. As the encroachment into the TPZ is less than 10% the extent of the work represents minor encroachment as defined in AS-4970. A minor encroachment is considered acceptable by AS-4970 when it is compensated for elsewhere in an area contiguous to the trees TPZ not subject to encroachment.

Moderate Encroachment

- 2 trees (No. 9,12) have encroachments of greater than 10% on their TPZ. Both are encroached by approximately 11 and 15% respectively which in our opinion is acceptable subject to the tree protection measures in this report being followed.

Other works

- Any disturbance to soils within TPZ's could destabilise the trees or impact on long term health. Should any changes to soil within the TPZ/ SRZ be proposed further discussion and assessment must be undertaken.
- The site soils are prone to erosion and slumping is common place in such soil landscapes. Over excavation may be an issue where shoring is not correctly installed and impacted on tree root zones especially in areas of basement excavation.
- It is noted little major demolition is required on this site near existing trees. Removal of the pavements and footings/slabs shall avoid damage to potential root growth within the TPZs of Trees..
- The existing pavements and footings/slabs shall be stripped-off in thick layers using a small rubber tracked excavator or alternative approved method to avoid damage to underlying roots and minimise soil disturbance. The final layer of sub-base material shall be removed using hand tools where required to avoid compaction of the underlying soil profile and damage to woody roots.

The plan in **Appendix 2.3** indicates trees TPZ's and SRZ's and should be used to inform later design decisions and temporary tree protection fences.

4.5 Pruning works

In addition to Tree Protection Zones, the extent of the canopy (canopy dripline) should also be considered, particularly in relation to construction activities and along access points.

Significant pruning of trees to accommodate digging machinery, cranes or scaffolding is generally not acceptable. Trees may not be pruned by more than 10% without consent.

Branches should be temporarily pushed or tied where possible to minimise the amount of pruning works.

5.0 TREE PROTECTION RECOMMENDATIONS

5.1 Tree Protection Measures

It is recommended that a site specific Tree Protection Plan (TPP) is prepared to guide the construction process to ensure all trees designated for retention remain as a sustainable part of the landscape in the long term.

The plan shall be prepared by a consulting arborist (AQF Level 5) and should at a minimum include a detailed plan of the locations of, and specifications for, tree protection measures.

The TPP shall include a monitoring schedule relating to critical points during the works (hold points) where the Project Arborist is required to visit the site and confirm that works are being undertaken as conditioned by Council/as required.

The following tree protection measures shall be implemented prior to the commencement of any site works, and shall remain in place for the duration of the development.

5.2 Tree Protection Zones

The Tree Protection Zones recommended for all trees within the site are to be retained and shall be equivalent to the Tree Protection Zone as specified in this report. This is a radial distance measured from the centre of the trunk of the subject trees.

The following activities are prohibited within the specified Tree Protection Zones:-

- Excavations and trenching (with exception of the approved foundations and underground services);
- 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 (excluding any suspended floor or slab);
- 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.

Place a 50-75mm layer of coarse organic mulch over the entire surface of the TPZ. Where the TPZ is adjacent to construction activities first lay down geotextile fabric

beneath the mulch to facilitate easy removal of the mulch at completion and any accidental spillage of construction materials.

Install drip irrigation around the root zone if required by the Project Arborist.

5.3 Tree Protection Fencing

All trees within the site to be retained shall be protected prior to and during construction from all activities that may result in detrimental impact by erecting a suitable protective fence beneath the canopy to the full extent of the Tree Protection Zone (excluding the footprint of the proposed works and areas within adjoining properties).

As a minimum the fence should consist of temporary chain wire panels 1.8 metres in height, supported by steel stakes as required and fastened together and supported to prevent sideways movement. The fence shall be erected prior to the commencement of any work on-site and shall be maintained in good condition for the duration of construction. Where tree protection zones merge a single fence encompassing the area is deemed to be adequate.

Appropriate signage shall be installed on the fencing to prevent unauthorised movement of plant and equipment or entry to the Tree Protection Zone.

Refer to **Appendix 4** for examples of protective fencing and signage.

5.4 Trunk, Branch & Ground Protection

Where provision of tree protection fencing is in impractical due to its proximity to the proposed building envelope, trunk protection shall be erected around the tree to avoid accidental damage. As a minimum, the trunk protection shall consist of two metre (2m) lengths of hardwood timbers (100 x 50mm) spaced at 100-150mm centres secured together with 2mm galvanised wire. These shall be strapped around the trunk (not fixed in any way) to avoid mechanical injury or damage. Trunk protection should be installed prior to any site works and maintained in good condition for the duration of the construction period.

Pavements should be avoided within the Tree Protection Zone of trees to be retained where possible. Proposed paved areas within the Tree Protection Zone of trees to be retained should be placed above grade to minimise excavations within the root zone and avoid root severance and damage.

Placement of fill material within the Tree Protection Zone of trees to be retained should be avoided where possible. Where placement of fill cannot be avoided, the material should be a coarse, gap-graded material such as 20 – 50mm crushed basalt (Blue Metal) or equivalent to provide some aeration to the root zone. Note that Roadbase 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. No fill material should be placed in direct contact with the trunk.

Refer to **Appendix 4** for examples of trunk, branch and ground protection.

5.5 Demolition Works within Tree Protection Zones

Where demolition of structures and pavements is required within the Tree Protection Zones of trees to be retained it is to be carried out to avoid disturbance to existing soils, damage to existing roots or potential root growth.

Machinery shall work within the footprint of existing pavements where possible to avoid compaction of the adjacent soil and Tree Protection Zones.

When removing hard surfaces it shall be stripped-off in thick layers using a small rubber tracked excavator or alternative approved method to avoid damage to underlying roots and minimise soil disturbance. The final layer of sub-base material shall be removed using hand tools where required to avoid compaction of the underlying soil profile and damage to woody roots.

If any concentrations of roots or roots with diameters equal to or greater than 50mm are encountered they must be retained in an undamaged condition for assessment by the Project Arborist. If the Project Arborist deems surrounding underground elements such as footing and pipes are providing support, these elements shall be left in-situ.

5.6 Excavations within Tree Protection Zones

The excavator shall work within the footprint of existing pavements where possible to avoid compaction of the adjacent soil and Tree Protection Zones.

5.7 Underground Services

All proposed underground services should be located as far away as practicable from existing trees to be retained to avoid excavation within the Tree Protection Zone.

For underground services, where the incursion to the Root Zone is less than 10% of the total TPZ (i.e. beyond the Minimum Setback Distance), a chain trenching device may be used. A backhoe or skid steer loader (bobcat) is unacceptable due to the potential for excessive compaction and root damage. Where large woody roots (greater than 50mm in diameter) are encountered during excavation or trenching, these shall be retained intact wherever possible (eg by sub-surface boring beneath roots or re-routing the service etc).

Excavations required for underground services within the Structural Root Zone of any tree to be retained should only be undertaken by sub-surface boring. The Invert Level of the pipe, plus the pipe diameter, must be lower than the estimated root zone depth as specified at a minimum depth of 600mm. This will depend on the soil conditions at the site. Where this is not practical and root pruning is the only alternative, proposed root pruning should be assessed by the Project Arborist to determine continued health and stability of the subject tree.

5.8 Canopy pruning

Care shall be taken when operating backhoes, excavators 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.

All pruning works shall be directed by the Project Arborist and shall be carried out by an AQF Level 3 Arborist. All pruning works shall be in accordance with the Australian Standard *(AS) 4373:2007 Pruning of amenity trees.* This standard outlines appropriate pruning practices and procedures that reduce the risk of damage and injury to trees. Correct pruning practices respect the natural form and branching habit of a tree and work with the trees natural defence mechanisms against disease to avoid damage and injury to trees.

Pruning should always be limited to the minimum amount necessary to achieve the desired aim. Significant loss of foliage created by excessive pruning may weaken the tree, leading to premature decline or predisposition to branch failure or disease, creating potential hazards.

Pruning must be performed in accordance with *Australian Standard (AS) 4373:2007 Pruning of amenity trees* (Standards Australia 2007).

5.9 Root Investigation

Exploratory excavation may be required where the proposed excavation created by the development works exceeds 10% of the Tree Protection Zone of any Prescribed Tree; or service trenches are required within the TPZ; to determine the impact of the development on the tree. The purpose of the investigation is to verify the quantity, size, type, depth and orientation of tree roots along the perimeter of the proposed encroachment in order to make an informed judgement in relation to the potential impact on the tree.

Exploratory excavation shall only be carried out using non-destructive or non-injurious techniques, such as careful digging using hand held implements, using compressed air (Airspade®), water pressure, or suction (vacuum device) or a combination of these techniques, to carefully remove soil without damaging roots. The work shall be undertaken by an arborist with a minimum qualification of AQF Level 3. Once roots are exposed, a visual examination can be carried out with the Project Arborist to evaluate the potential impact of the proposed root loss on the health and stability of the tree.

The results of the root investigation together with the Development Impact Assessment must be documented in the report and submitted together with the DA. The report shall contain information that demonstrates that the trees will remain viable in conjunction with the works.

5.10 Root Pruning

Where root pruning is required, roots shall be severed with sterile, clean, sharp pruning implements resulting in a clean cut. Any excavated root zones shall be retained in a moist condition during the construction phase using Hessian material or mulch where practical. Trees that have roots removed shall have drip irrigation installed around the root zone to ensure they receive an adequate supply of water.

5.11 Tree Damage/ Decline

If trees show signs of stress or deterioration, remedial action shall be taken to improve the health and vigour of the subject tree(s) in accordance with best practice arboricultural principles. Advice must be sought from the Project Arborist.

In the event of any tree becoming damaged for any reason during the construction period the Project Arborist must be engaged 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.

6.0 CONCLUSION

Nineteen (19) trees located in close vicinity to the proposed development footprint have been surveyed as part of this assessment. The trees consist of a mix of 10 exotic specimens, and 9 endemic trees. 7 of these are likely bushland remnants.

The proposed development is an Affordable Rental Housing Development. Demolition of the existing buildings and structures forms part of the construction process.

The plans show that eleven (11) trees will need to be removed to accommodate the proposed development.

Table 1: Trees to be removed

Development footprint critical to the following trees	Other (poor condition, other studies, etc)	Dead / Weed species to be removed (exempt and can be removed without consent)
Tree numbers 2,6,7,8,13,14,15,16,17,18,19	NA	NA

Application required for the removal of trees should be sought as part of the Development Application.

With implementation of the tree protection measures it should be possible to retain all other trees on the developed site and adjacent sites. The plans show that eight (8) of trees are proposed to be retained.

Table 2: Trees to be retained

Clear of all works	Minor Encroachment	Moderate Encroachment
Tree numbers 3,10,11	Tree numbers 1,4,5	Tree numbers 9,12

Trees on site that are to be retained as part of the approved development must be protected from potential damage caused by construction activities. Refer to section 5.0 for tree protection recommendations and to the tree retention plan in **Appendix 2.4.**

Further detail of site works is required particularly details of basement and Foundation/footing systems, site services, drainage works and level changes particularly within the TPZ of trees proposed for retention. This should be provided prior to construction so any additional impacts can be assessed.

Where recommended work processes and tree protection measures cannot be adhered to further advice should be sought from the Project Arborist.

7.0 DISCLAIMER

The author and Sturt Noble Arboricultural Consulting take no responsibility for actions taken and their consequences, contrary to those expert and professional instructions given as recommendations.

This is not a hazard assessment report and it should be noted that trees are always inherently dangerous. This assessment was carried out from the ground, and covers what was reasonably able to be assessed and available to the assessor at the time of inspection. No aerial or subterranean inspections were carried out and structural weakness may exist within roots, trunk or branches.

Any protection or preservation methods recommended are not a guarantee of tree survival or safety but are designed to improve vigour and reduce risk. Timely inspections and reports are necessary to monitor the trees' condition. No responsibility is accepted for damage or injury caused by the trees and no responsibility is accepted if the recommendations in this report are not followed.

Limitations on the use of this report: Trees are dynamic living structures, growing and adapting to conditions around them. Tree condition will change and vary over time depending on weather, environmental factors and mechanical or human interaction.

This report is to be utilised in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, and directly attached to that submission, report or presentation.

Assumptions: Care has been taken to obtain information from reliable resources. All data have been verified insofar as possible; however, Sturt Noble Arboricultural Consulting can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise: Information contained in this report covers only the trees that were examined and reflects the condition of the trees at the time of inspection.

Assessment is limited to the conditions at the time of the inspection and only trees discussed in the report have been assessed.

Where access to the base of the tree is limited, such as difficult site access due to site conditions, only general comments can be made. Assessment of tree health and structure is limited to that visible from the site of proposed works and may not reflect the true condition of the tree. Assessment of tree health and structure is limited to that visible from the site of proposed works and may not reflect the true condition of the tree.

Plans used to assess likely impact are those appended/ referenced.

Ongoing monitoring of all trees is advised and where significant changes are observed, further advice should be requested. Unusual developments or sudden changes in a tree's condition should be addressed immediately.

8.0 REFERENCES

Chapman, G. A & Murphy, C. L, 1989 Soil landscapes of the Sydney 1:100,000 sheet (9130) Pub. NSW Govt.

Draper, D.B and Richards, P.A (2009) Dictionary for managing Trees in Urban Environments, (IACA) Institute of Australian Consulting Arboriculturists ©. Pub. CSIRO Publishing, Melbourne.

IACA, 2010, Sustainable Retention Index Value Matrix (SRIV) Version 4, A visual method of objectively rating the viability of urban trees for development sites and management, based on general tree and landscape assessment criteria, Institute of Australian Consulting Arborculturists, Australia, www.iaca.org.au.

IACA 2010, IACA Significance of a Tree, Assessment Rating System (STARS) Institute of Australian Consulting Arborists

Googlemaps ©. Viewed 15th December 2021

NSW Work Cover Code of Practice for the Amenity Tree Industry (1998) Pub. © WorkCover NSW

Standards Australia (2007) Australian Standard AS4373-2007 *Pruning of Amenity Trees,* Pub. Standards Australia, Sydney.

Standards Australia (2009) Australian Standard AS4970-2009 *Protection of Trees on Development Sites*, Pub. Standards Australia, Sydney.

APPENDIX 1: METHODOLOGY

A1.1 Site Inspection

This report, its comments and recommendations have been prepared based on the information gathered during a detailed site inspection carried out on the on the 22nd November 2016. This assessment is summarised in **Appendix 1**.

A1.2 Tree Locations

The location of the subject trees are based on the site survey by Veris, project number 203129, drawing No. 1A dated 06/12/21.

A1.3 Visual Tree Assessment

The trees were assessed from the ground by the Visual Tree Assessment (VTA) method as described in Mattheck & Breloer (1994), using non-invasive tools such as binoculars and acoustic mallet. No digging or exposing of the root zones occurred in this inspection and no aerial inspection by climbing was performed. No aerial inspection or diagnostic testing was undertaken as part of this assessment.

The following data was collected for each tree:

- Botanical and common name.
- Tree dimensions (approximate only).
- Canopy density (approximate only).
- Overall health and vitality, including epicormic growth, deadwood and predation by pests and diseases.
- Structural condition including evident faults such as Bark Inclusions or poor branch attachments, decay, cavities and mechanical or biological damage.
- Stability of the tree including excessive trunk lean, stability of the soil, soil cracking, soil heaving, exposed roots and root damage.

A1.4 Retention Value

Each tree has been given a Sustainable Retention Index Value (SRIV) according to the rating system set out in the Sustainable Retention Index Value Matrix (refer to the table in section A1.8). The SRIV for each tree is based on its health, vigour, structure and age class as established in the Visual Tree Assessment. The SRIV does not take into account the impact of the proposed development.

A1.5 Landscape Significance Assessment

Landscape Significance is an essential criterion to establish the importance that a particular tree may have on a site. Each tree has been given a Tree Significance in landscape rating based on the 'IACA Significance of a Tree, Assessment Rating

System'. A tree is to have a minimum of three criteria in a category to be applicable for that rating.

Tree Significance in the landscape ratings:

High	**Medium**	**Low**
▪ The tree is in good condition and good vigour; ▪ The tree has a form typical for the species; ▪ The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age; ▪ The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register; ▪ The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity; ▪ The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values; ▪ The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ - tree is appropriate to the site conditions.	▪ The tree is in fair-good condition and good or low vigour; ▪ The tree has form typical or atypical of the species; ▪ The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area ▪ The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street, ▪ The tree provides a fair contribution to the visual character and amenity of the local area, ▪ The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.	▪ The tree is in fair-poor condition and good or low vigour; ▪ The tree has form atypical of the species; ▪ The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings, ▪ The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area, ▪ The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen, ▪ The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa in situ - tree is inappropriate to the site conditions, ▪ The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms, ▪ The tree has a wound or defect that has potential to become structurally unsound. ▪ Environmental Pest / Noxious Weed Species ▪ The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties, ▪ The tree is a declared noxious weed by legislation. ▪ Hazardous/Irreversible Decline ▪ The tree is structurally unsound and/or unstable and is considered potentially dangerous, - The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

A1.6 Tree Protection Zones (TPZ) and Structural Root Zones (SRZ)

The intention of the TPZ is to ensure protection of the root system and canopy from the potential damage from construction works and ensure the long-term health and stability of each tree to be retained.

The Structural Root Zone (SRZ) is located within the TPZ around the base of a tree and provides the bulk of mechanical support and anchorage for a tree.

The Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) have been arrived at using methods as detailed in Australian Standard AS 4970– 2009. Specific site factors are also considered that may influence the location of the TPZ and/or structural tree roots.

A1.7 Encroachment and Development Impacts

Encroachments and development impacts to tree TPZ's and SRZ's include;

- Excavation
- Filling
- Changes to existing soil levels
- Placing items and elements within the zones even if only temporarily
- Soil disturbance
- Any other physical damage to the trunk or root system or any other activity likely to cause damage to the tree.

Under *AS 4970:2009 Protection of trees on development sites*, a minor encroachment of up to 10% of the area of the TPZ is considered acceptable, provided that there is no encroachment to the SRZ. The area lost to this encroachment should be compensated for elsewhere in a contiguous area to the TPZ.

Major encroachments is greater than 10% of the area of the TPZ and the Project Arborist must determine and demonstrate that the tree would remain viable. More detailed investigations, such as exploratory excavations and root investigation to enable an informed evaluation of the potential impact of the proposed works may be required.

Encroachments into the SRZ are not likely to be supported unless the Project Arborist has undertaken exploratory investigation and can demonstrate that there will be minimal impact to the tree.

A1.8 SRIV Table

	Vigour Class and Condition Class					
Age Class	Good Vigour & Good Condition (GVG)	Good Vigour & Fair Condition (GVF)	Good Vigour & Poor Condition (GVP)	Low Vigour & Good Condition (LVG)	Low Vigour & Fair Condition (LVF)	Low Vigour & Poor Condition (LVP)
	Able to be retained if sufficient space available above and below ground for future growth. No remedial work or improvement to growing environment required. May be subject to high vigour. Retention potential - Medium - Long Term.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work may be required or improvement to growing environment may assist. Retention potential - Medium Term. Potential for longer with remediation or favourable environmental conditions	Able to be retained if sufficient space available above and below ground for future growth. Remedial work unlikely to assist condition, improvement to growing environment may assist. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. No remedial work required, but improvement to growing environment may assist vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment may assist condition and vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	Unlikely to be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment unlikely to assist condition or vigour. Retention potential - Likely to be removed immediately or retained for Short Term. Potential for longer with remediation or favourable environmental conditions
Young (Y)	**YGVG - 9** Index Value 9 Retention potential - Long Term. Likely to provide minimal contribution to local amenity if height Retain, move or replace	**YGVF - 8** Index Value 8 Retention potential - Short - Medium Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height Medium-high potential for future growth and adaptability. Retain, move or replace.	**YGVP - 5** Index Value 5 Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height Low-medium potential for future growth and adaptability. Retain, move or replace	**YLVG - 4** Index Value 4 Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height Medium potential for future growth and adaptability. Retain, move or replace	**YLVF - 3** Index Value 3 Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Low-medium potential for future growth and adaptability. Retain, move or replace	**YLVP - 1** Index Value 1 Retention potential - Likely to be removed immediately or retained for Short Term. Likely to provide minimal contribution to local amenity if height
Mature (M)	**MGVG - 10** Index Value 10 Retention potential - Medium - Long Term	**MGVF - 9** Index Value 9 Retention potential - Medium Term. Potential for longer with improved growing conditions.	**MGVP - 6** Index Value 6 Retention potential - Short Term. Potential for longer with improved growing conditions	**MLVG - 5** Index Value 5 Retention potential - Short Term. Potential for longer with improved growing conditions	**MLVF - 4** Index Value 4 Retention potential - Short Term. Potential for longer with improved growing conditions	**MLVP - 2** Index Value 2 Retention potential - Likely to be removed immediately or retained for Short Term.
Over-mature (O)	**OGVG - 6** Index Value 6 Retention potential - Medium - Long Term.	**OGVF - 5** Index Value 5 Retention potential - Medium Term.	**OGVP - 4** Index Value 4 Retention potential - Short Term.	**OLVG - 3** Index Value 3 Retention potential - Short Term. Potential for longer with improved growing conditions.	**OLVF - 2** Index Value 2 Retention potential - Short Term.	**OLVP - 0** Index Value 0 Retention potential - Likely to be removed immediately or retained for Short Term

APPENDIX 2: PLANS

issue	amendment	date	legend
A	SITE COMPATIBILITY CERTIFICATE ISSUE	28.01.22	

7/02/2022 5:08:26 PM

do not scale from drawings.

the layout shown and the areas noted on this drawing are indicative only. layouts are to be read in conjunction with floor plans, elevations + sections.

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client

Pacific Community Housing

north: tn

scale: 1:200@A1, 1:400@A3

scale bar: 0 2 4 6 8 10 m

project: AFFORDABLE RENTAL HOUSING
26 ROSEBERY STREET HEATHCOTE

drawing: SITE PLAN

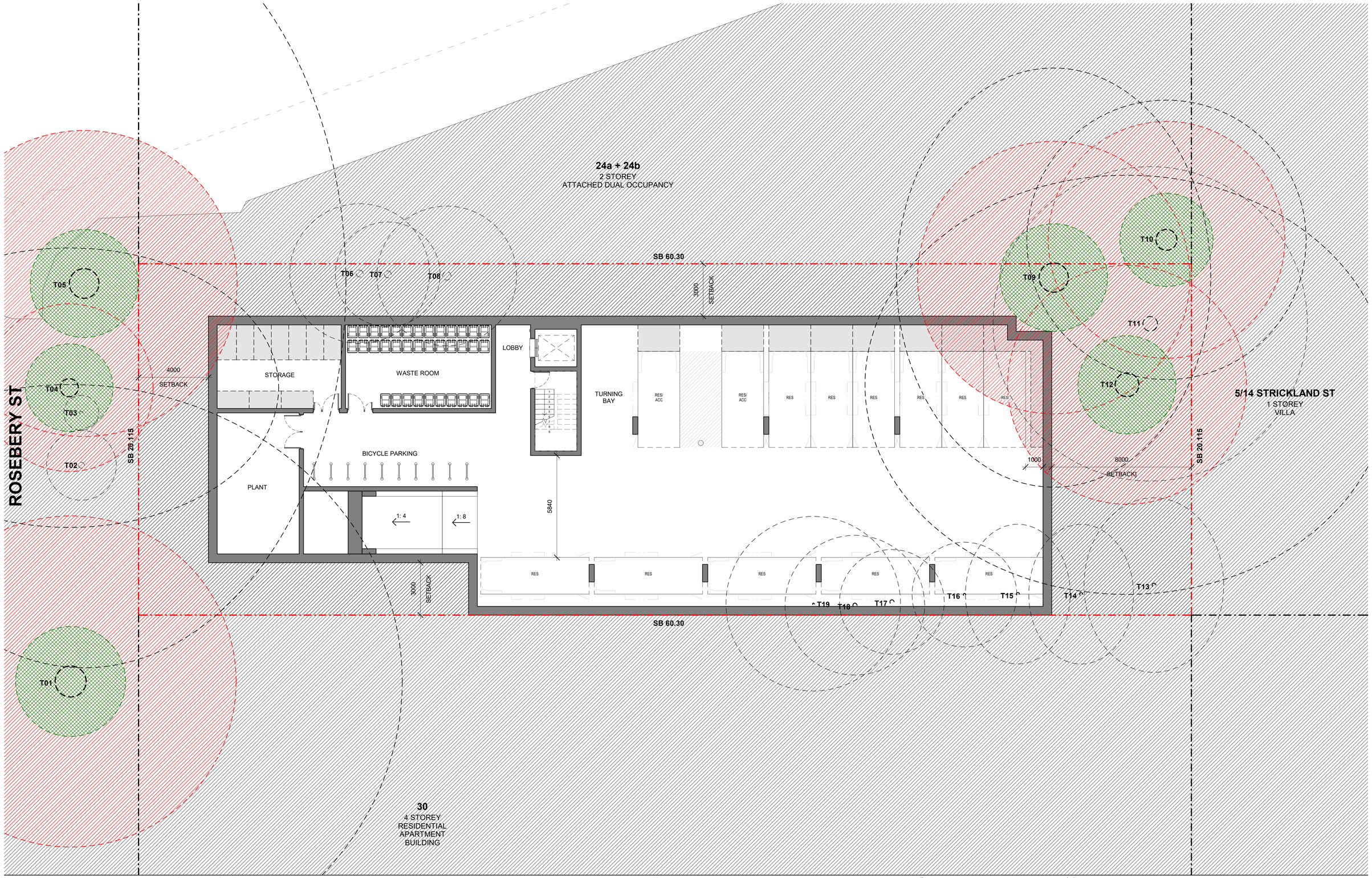
checked: FS

drawn: JN

project no: 19 010

issue: A

drawing no: **SCC 004**



issue	amendment	date
A	SITE COMPATIBILITY CERTIFICATE ISSUE	28.01.22

legend

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client

Pacific Community Housing

north: tn

scale: 1:100@A1, 1:200@A3

scale bar: 0 1 2 3 4 5 m

project: AFFORDABLE RENTAL HOUSING
26 ROSEBERY STREET HEATHCOTE

checked: FS

drawing: BASEMENT 1 PLAN

drawn: JN

issue: A

project no: 19 010

drawing no: SCC 101

7/02/2022 5:08:42 PM

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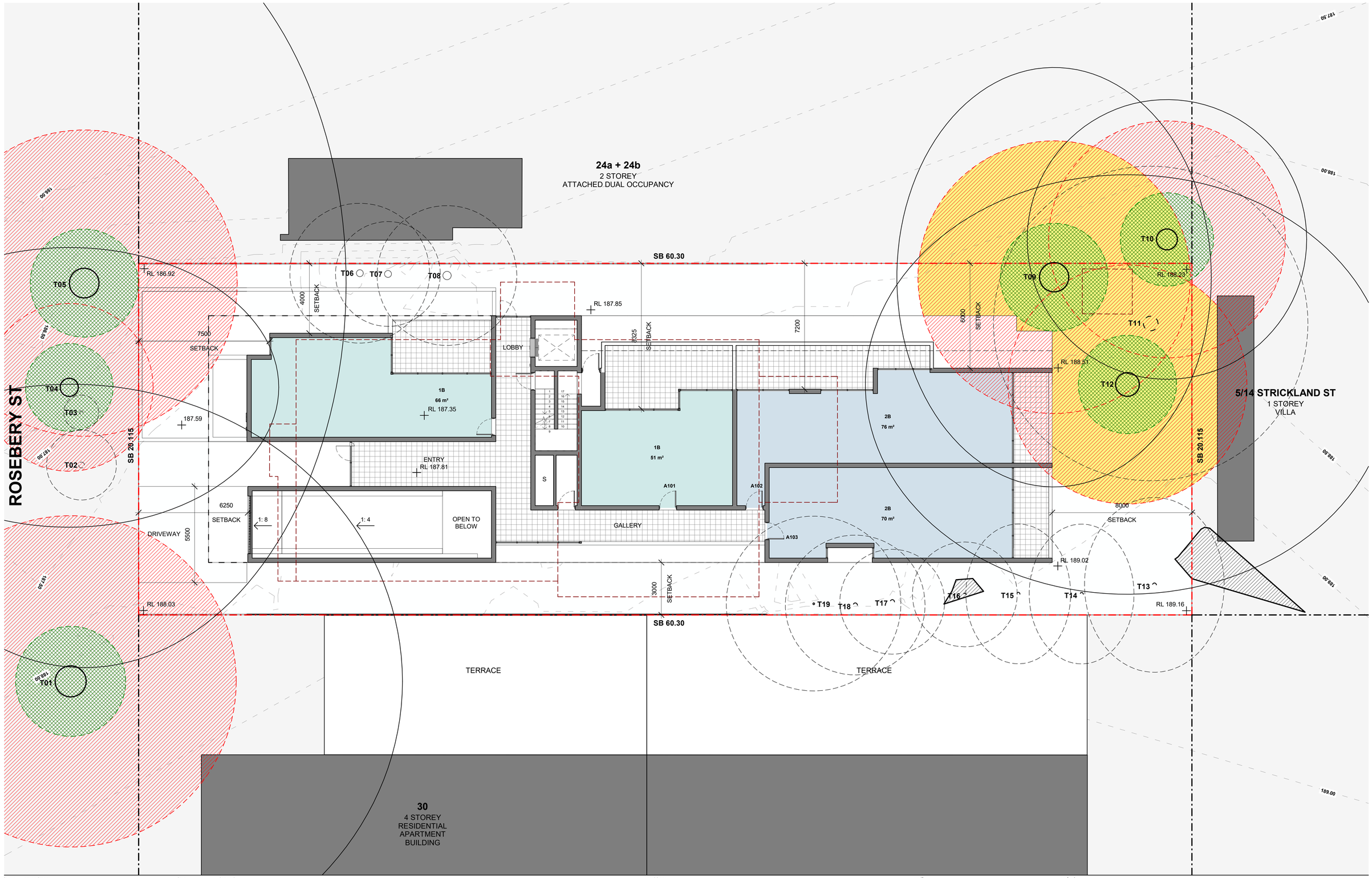

issue	amendment	date
A	SITE COMPATIBILITY CERTIFICATE ISSUE	28.01.22

legend

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Pacific Community Housing

north

tn

scale 1:100@A1
1:200@A3

scale bar 0 1 2 3 4 5 m

project

AFFORDABLE RENTAL HOUSING
26 ROSEBERY STREET HEATHCOTE

checked FS

drawing LEVEL 1 (GROUND) PLAN

drawn JN

issue A

project no 19 010

drawing no SCC 102

7/02/2022 5:20:47 PM

do not scale from drawings.

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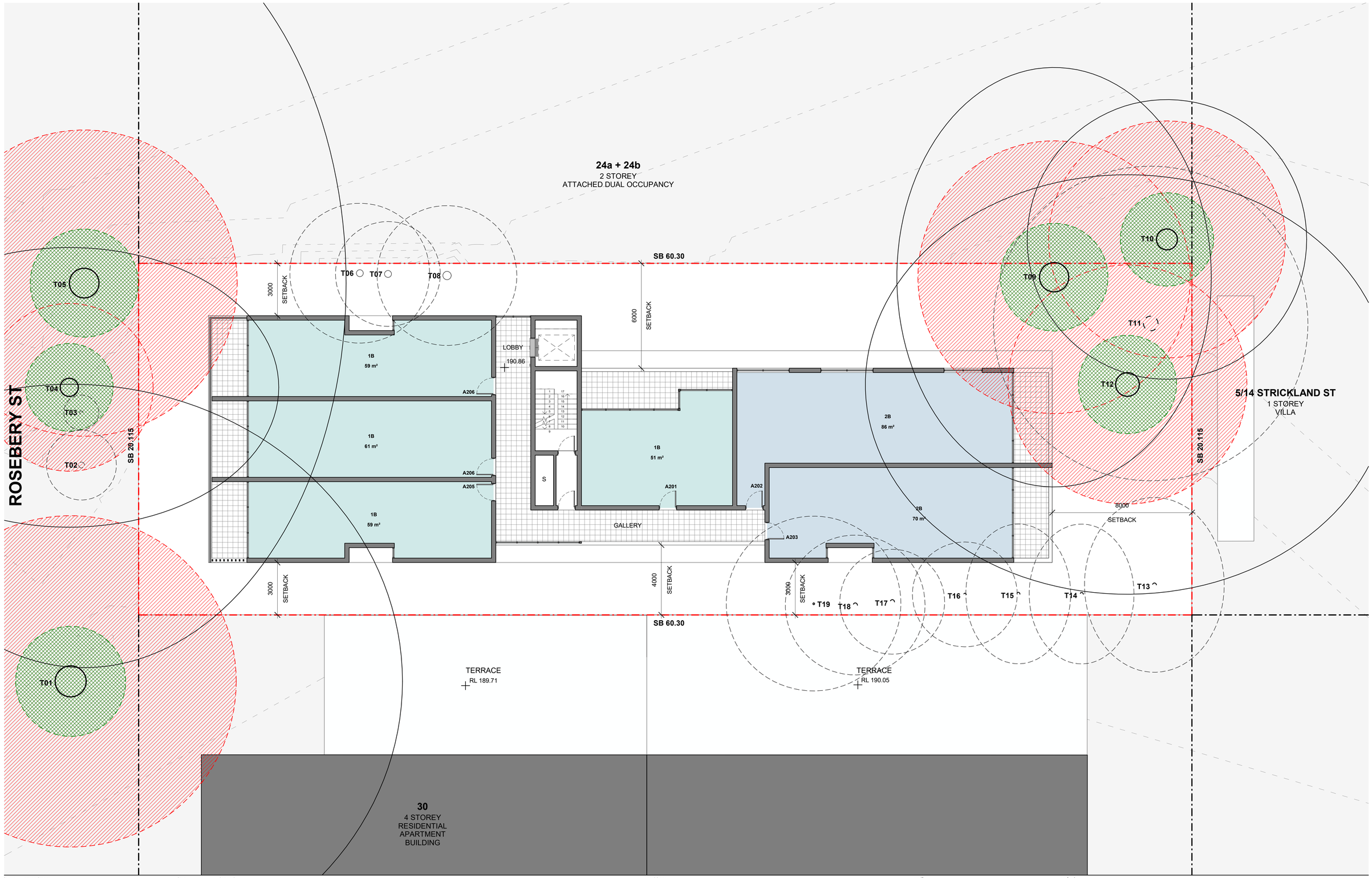

issue	amendment	date
A	SITE COMPATIBILITY CERTIFICATE ISSUE	28.01.22

legend

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client

Pacific Community Housing

north

tn

scale 1:100@A1 1:200@A3

scale bar 0 1 2 3 4 5 m

project

AFFORDABLE RENTAL HOUSING
26 ROSEBERY STREET HEATHCOTE

checked FS

drawing LEVEL 2 PLAN

drawn JN

issue A

project no 19 010

drawing no SCC 103

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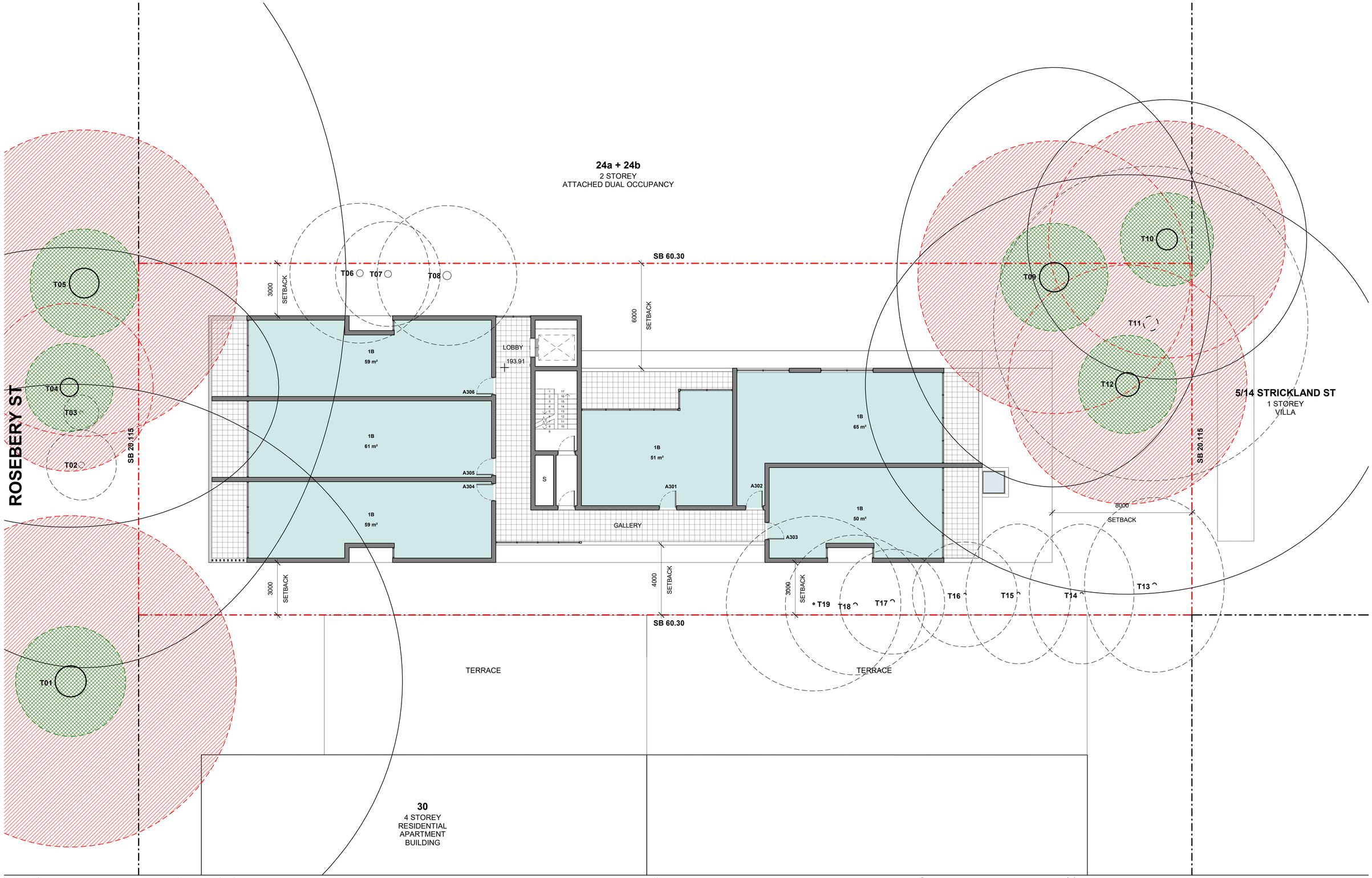

issue	amendment	date
A	SITE COMPATIBILITY CERTIFICATE ISSUE	28.01.22

legend

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client

Pacific Community Housing

north: tn

scale: 1:100@A1, 1:200@A3

scale bar: 0 1 2 3 4 5 m

project: AFFORDABLE RENTAL HOUSING
26 ROSEBERY STREET HEATHCOTE

checked: FS

drawing: LEVEL 3 PLAN

drawn: JN

issue: A

project no: 19 010

drawing no: SCC 104

7/02/2022 5:09:07 PM

do not scale from drawings.

the layout shown and the areas noted on this drawing are indicative only. layouts are to be read in conjunction with floor plans, elevations + sections.

24a + 24b
2 STOREY
ATTACHED DUAL OCCUPANCY

5/14 STRICKLAND ST
1 STOREY
VILLA

30
4 STOREY
RESIDENTIAL
APARTMENT
BUILDING

ROSEBERY ST

SB 60.30

SB 20.115

T01 T02 T03 T04 T05 T06 T07 T08 T09 T10 T11 T12 T13 T14 T15 T16 T17 T18 T19

6000 SETBACK

4000 SETBACK

3000 SETBACK

12000 SETBACK

LOBBY
196.96

2B
86 m²

1B
59 m²

A402

A401

S

TERRACE

TERRACE

issue	amendment	date

legend

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client

Pacific Community Housing

north

tn

scale 1:100@A1
1:200@A3

scale bar 0 1 2 3 4 5 m

project
AFFORDABLE RENTAL HOUSING
26 ROSEBERY STREET HEATHCOTE

checked FS

drawing
LEVEL 4 PLAN

drawn JN

issue

project no 19 010

drawing no
SCC 105

7/02/2022 5:09:08 PM

do not scale from drawings.

the layout shown and the areas noted on this drawing are indicative only. layouts are to be read in conjunction with floor plans, elevations + sections.

ROSEBERY ST

24a + 24b
2 STOREY
ATTACHED DUAL OCCUPANCY

SB 60.30

3000 SETBACK

6000 SETBACK

T05 T06 T07 T08 T09 T10 T11 T12

T04 T03 T02

SB 20.115

4000 SETBACK

12000 SETBACK

5/14 STRICKLAND ST
3 STOREY
VILLA

T01

TERRACE

3000 SETBACK

4000 SETBACK

3000 SETBACK

T19 T18 T17 T16 T15 T14 T13

SB 60.30

TERRACE

30
4 STOREY
RESIDENTIAL
APARTMENT
BUILDING

issue	amendment	date
A	SITE COMPATIBILITY CERTIFICATE ISSUE	28.01.22

legend

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client

Pacific Community Housing

north: tn

scale: 1:100@A1
1:200@A3

scale bar: 0 1 2 3 4 5 m

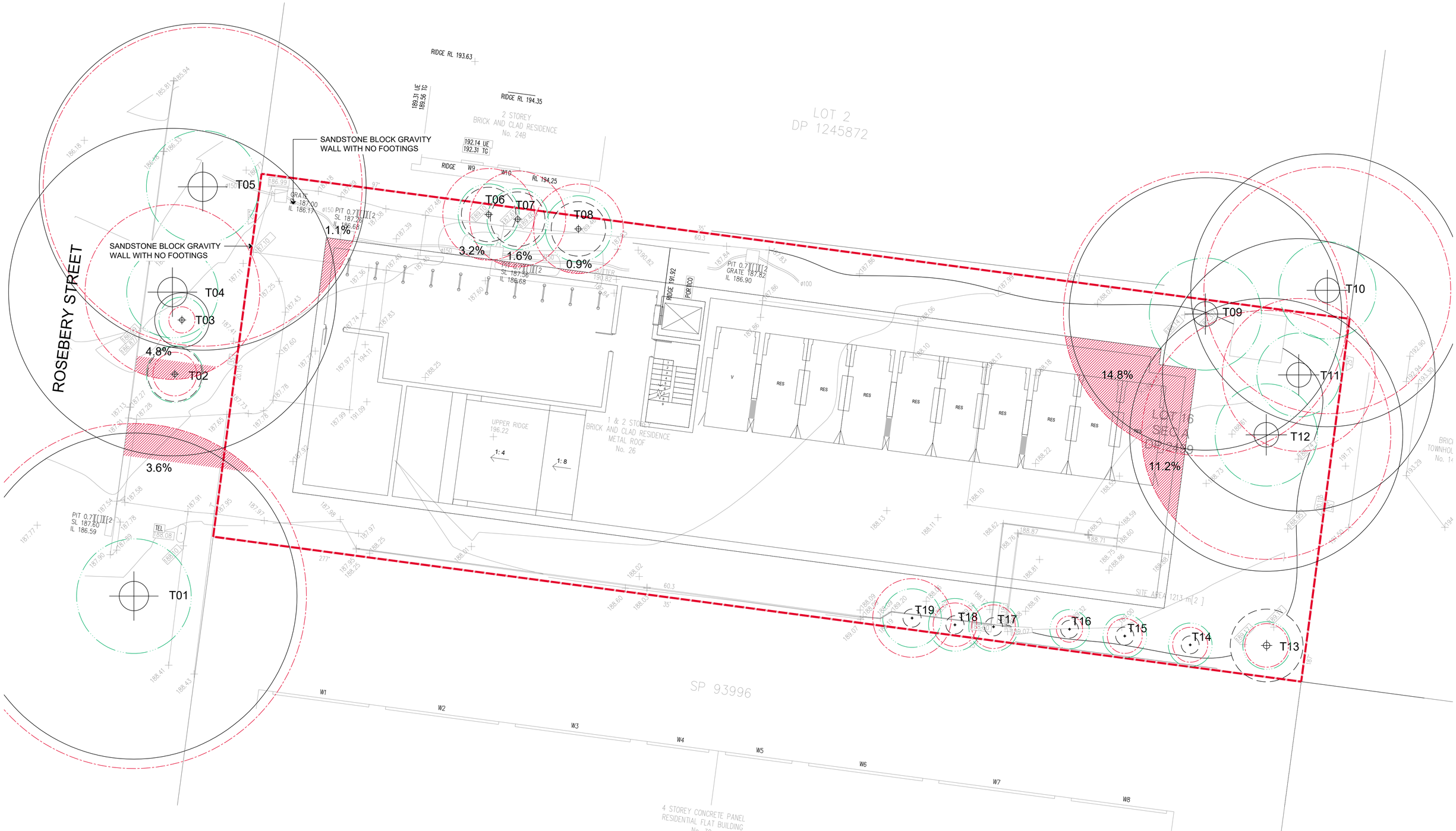
project
AFFORDABLE RENTAL HOUSING
26 ROSEBERY STREET HEATHCOTE

checked: FS
drawing: ROOF PLAN
drawn: JN
issue: A
project no: 19 010
drawing no: SCC 106

7/02/2022 5:21:25 PM

do not scale from drawings.

the layout shown and the areas noted on this drawing are indicative only. layouts are to be read in conjunction with floor plans, elevations + sections.



ISSUE	DESCRIPTION	DATE
A	IMPACT ASSESSMENT REPORT	09.12.2021
B	PRELIMINARY ENCROACHMENT PLAN	17.01.2022
C	ENCROACHMENT PLAN	27.01.2022
D	ENCROACHMENT PLAN	08.02.2022

LEGEND

- EXTENT OF WORKS
- PROPERTY BOUNDARY
- EXISTING SURVEY
- TREES TO BE RETAINED AND PROTECTED (Txx)
- TREES TO BE REMOVED.
- STRUCTURAL ROOT ZONE (SRZ)
- TREE PROTECTION ZONE (TPZ)
- TPZ INCURSION

REFER TO THE TREE IMPACT ASSESSMENT SCHEDULE FOR DETAILS ON ASSESSED TREES

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landscape architecture
environmental & urban design
ACN: 164 245 514 ABN: 99 164 245 514

0 1 2 5 m

PROJECT
26 ROSEBERY STREET, HEATHCOTE

CLIENT
PACIFIC PLANNING

DRAWING
TREE ASSESSMENT

DRAWING NUMBER
ARB-2146-001

ISSUE
D

SCALE
1:100 @ A1
1:200 @ A3

DRAWN	CHECKED	DIRECTOR
jc	gs	gs

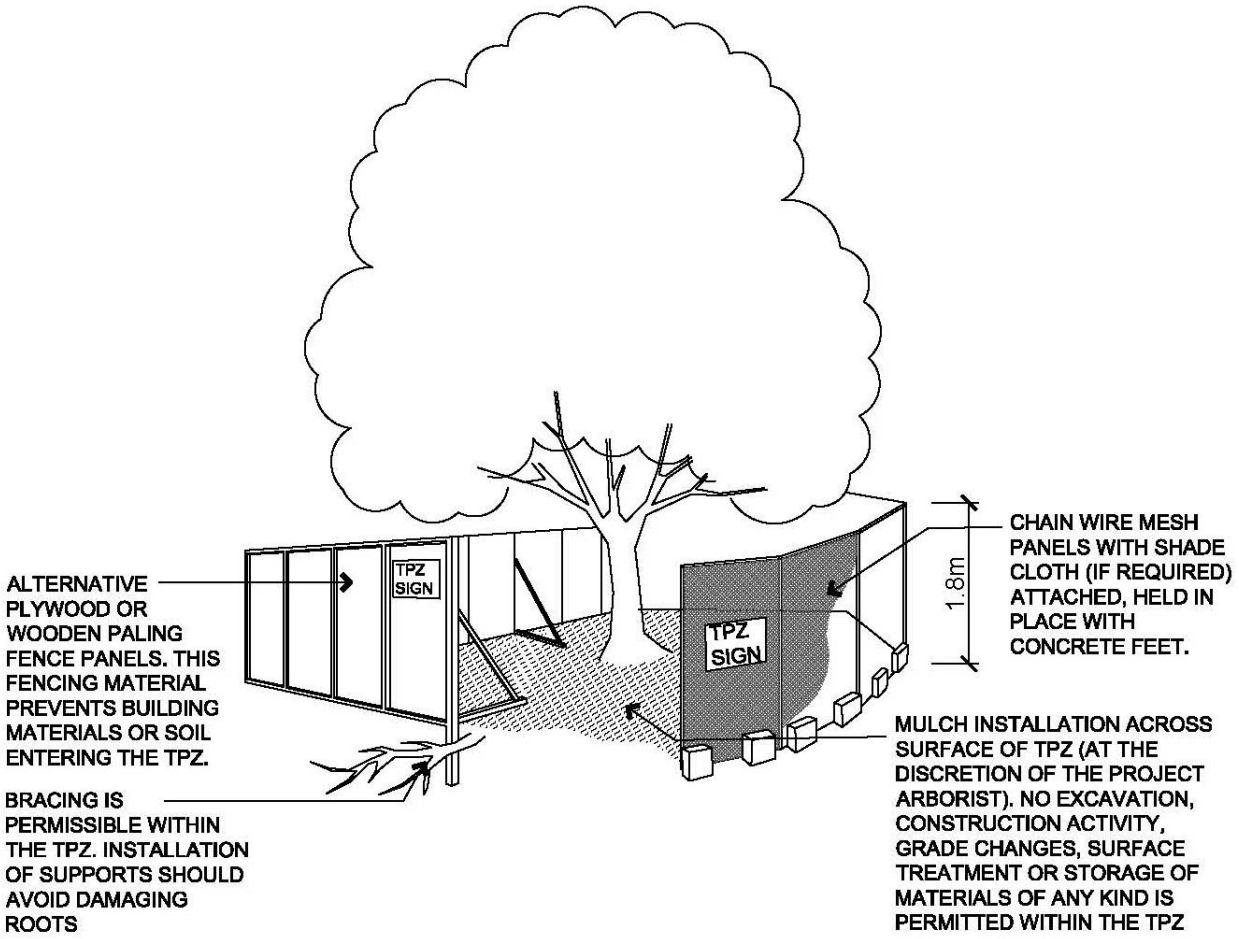
APPENDIX 3: TREE ASSESSMENT SCHEDULE

Tree Assessment Sheet

Location:	26 ROSEBERY STREET, HEATHCOTE
Client:	PACIFIC PLANNING
Date:	27-Jan-22

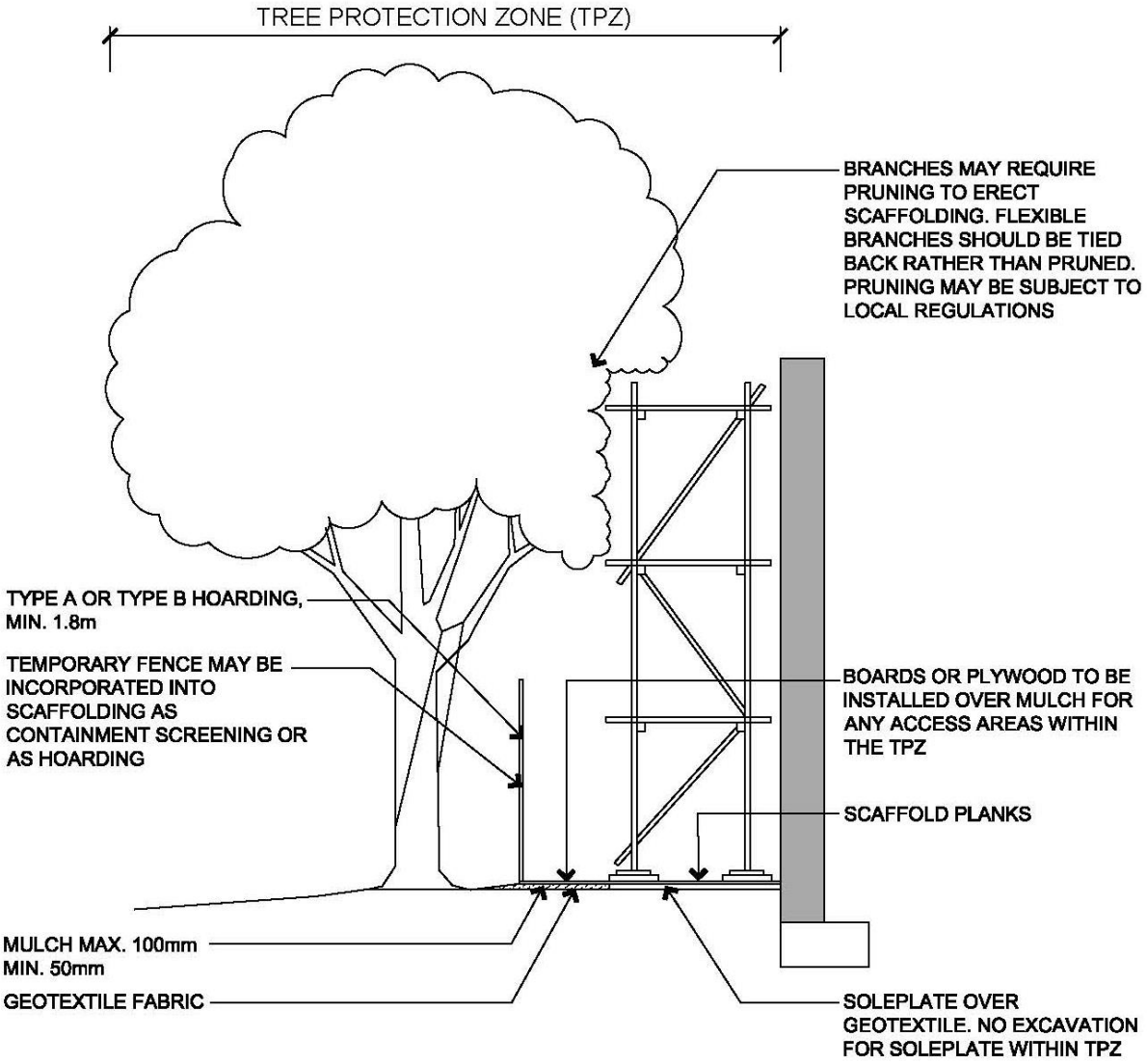
Tree No.	Botanical Name / **Common Name**	Dimensions							Health				Vigour				Structure					Age Class					**Retention Value SRIV**	**Landscape Significance**	Comments
		TPZ radius (m)	**SRZ** radius (m)	DBH (mm)	DAB (mm)	Height (m)	Spread EW (m)	Spread NS (m)	Deadwood	Dieback	Pests	Diseases	Canopy density	Foliage size	Foliage colour	Extension growt	Inclusions	Fractures	Wounds	Cavities	Decay	Senescent	Mature	Semi Mature	Young	New planting			
1	*Angophora costata* **Smooth-barked Apple**	9.48	3.15	790	890	21	19	17	Min				70	G	G	Y			●				M				**MGVF9**	**H**	Very large wound at base with chino. Well occuded to margins.
2	*Banksia serrata* **Old Man Banksia**	1.20	1.56	100	168	6	2	2					90	G	G	Y							Y				**YGVG9**	**M**	Juvenile. o-dominant
3	*Banksia serrata* **Old Man Banksia**	0.72	1.26	60	100	7	1	1					80	G	G	Y							Y				**YGVG9**	**M**	Juvenile
4	*Corymbia gummifera* **Bloodwood**	4.80	2.51	400	520	18	12	8	Min				80	G	G	Y							M				**MGVG9**	**H**	Suppressed to north by Tree 5
5	*Angophora costata* **Smooth-barked Apple**	8.76	3.09	730	850	20	15	22					80	G	G	Y							M				**MGVG10**	**H**	
6	*Populus yunnanensis* **Yunnan Poplar**	2.52	1.68	210	200	12	4	4					100	G	G	Y								SM			**YGVG9**	**M**	Multi trunk
7	*Populus yunnanensis* **Yunnan Poplar**	2.64	1.68	220	200	12	3	3					100	G	G	Y								SM			**YGVG9**	**M**	Multi trunk
8	*Populus yunnanensis* **Yunnan Poplar**	2.64	1.82	220	240	12	4	4					100	G	G	Y								SM			**YGVG9**	**M**	Multi trunk
9	*Syncarpia glomulifera* **Turpentine Tree**	7.80	3.08	650	840	19	9	12					90	G	G	Y							M				**MGVF9**	**M**	Co-dominant
10	*Syncarpia glomulifera* **Turpentine Tree**	6.78	2.67	565	600	17	8	8					80	G	G	Y							M				**MGVP6**	**H**	Co-dominant, multi trunk
11	*Eucalyptus fibrosa* **Red Ironbark**	4.20	2.30	350	420	20	9	0			●		50	small	pale	N							M				**MLVF4**	**H**	Suppressed to north by Tree 12. Leaves eaten by pest
12	*Eucalyptus botryoides* **Bangalay Gum**	6.84	2.81	570	680	24	15	12					70	G	G	Y							M				**MGVG10**	**H**	
13	*Acer beurgerianum* **Trident Maple**	1.20	1.31	100	110	6	4	5					90	G	G	Y								SM			**YGVY9**	**H**	
14	*Elaeocarpus reticulatus* 'Prima-Donna' **Pink Flowering Blueberry Ash**	0.96	1.20	80	90	8	3	4					100	G	G	Y								SM			**YGVY9**	**L**	
15	*Elaeocarpus reticulatus* 'Prima-Donna' **Pink Flowering Blueberry Ash**	0.96	1.20	80	90	7	3	4					100	G	G	Y								SM			**YGVY9**	**L**	
16	*Elaeocarpus reticulatus* 'Prima-Donna' **Pink Flowering Blueberry Ash**	0.72	1.08	60	70	6	3	3					100	G	G	Y								SM			**YGVY9**	**L**	
17	*Populus yunnanensis* **Yunnan Poplar**	1.20	1.36	100	120	8	3	3																SM			**MGVG10**	**M**	Multi trunk
18	*Populus yunnanensis* **Yunnan Poplar**	1.20	1.45	100	140	9	4	4																SM			**MGVG10**	**M**	Multi trunk
19	*Populus yunnanensis* **Yunnan Poplar**	2.16	1.61	180	180	10	5	5																SM			**MGVG10**	**M**	Multi trunk

APPENDIX 4: TYPICAL TREE PROTECTION DETAILS



PROTECTIVE FENCING

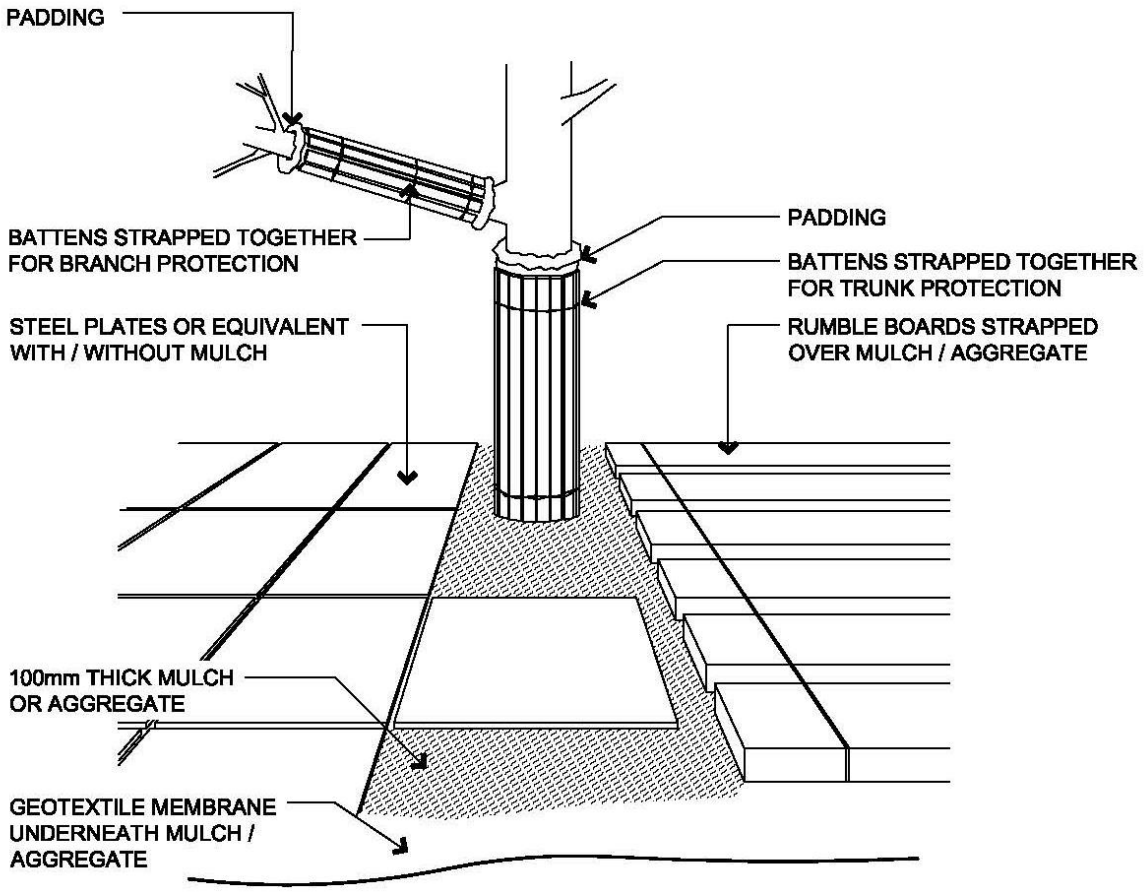
Based on AS4970-2009 NOT TO SCALE



NOTE: Excavation required for the insertion of support posts for tree protection fencing should not involve the severance of any roots greater than 20mm in diameter, without the prior approval of the project arborist.

INDICATIVE SCAFFOLDING WITHIN A TPZ

Based on AS4970-2009 NOT TO SCALE



NOTE:
1. For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
2. Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION

Based on AS4970-2009 NOT TO SCALE

TREE PROTECTION ZONE SIGN

Based on AS4970-2009 NOT TO SCALE