ARBORICULTURAL IMPACT ASSESSMENT - DEVELOPMENT OF NEW PRIMARY SCHOOL MURRUMBATEMAN NSW - 2021.

1. INTRODUCTION.

This Arboricultural Impact Assessment accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD-11233241).
The development is for a new primary school located at 2 Fairley Street, Murrumbateman.
This report addresses the relevant Secretary's Environmental Assessment Requirements (SEARs), namely:

- *Point 3 – Trees and Landscaping.*
    - *Provide;*
        - *Where relevant an arboricultural impact assessment prepared by a Level 5 (Australian Qualifications Framework) Arborist; which details the number, location and condition of tree to be removed and retained, includes detailed justification for each tree to be removed and details the existing canopy coverage on site.*

2. THE PROPOSAL.

The proposed development is for construction and operation of a new primary school with Core 21 facilities in Murrumbateman that will accommodate up to 368 students.
The proposed development includes:

- A collection of 1-2 storey buildings containing 14 home base units, 2 special education learning units, hall, administration facilities and library.
- On-site parking lot with 40 spaces and kiss-and-ride area.
- Outdoor sports court and play area.
- Integrated landscaping, fencing and signage.

3. SCOPE AND PURPOSE.

Mr Paul Todhunter Project Manager with Hansen Yuncken Pty Ltd has commissioned this report – he can be contacted on 02 9770 7600. The site was formally inspected on Saturday 24 April 2021.
The report is designed to provide;

- accurate identification of tree vegetation,
- tree condition, including any hazards present
- evaluation of the trees relative to their contribution to the environment, amenity and any other identified values
- evaluation of potential development impacts
- recommendations for management of the issues identified.

Interpretation of impacts and recommendations are based on the author's interpretation of *Australian Standard 4970-2009 Protection of trees on development sites*.

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Diagram one, two & three below provides identification of the site and tree locations on site.

The following site plan were provided to aid in the impact assessment.

Planning Secretary's Environmental Assessment Requirements – New Primary School at Murrumbateman (Lot 302 DP 1228766). SSD-11233241 dated 8 December 2020.
Relevant Planning Documents and instruments are referenced.

Detail and contour survey Lot 302 DP 1228766 NO 2 Fairley Street Murrumbateman NSW. Job No 13107 Drawing Reference 13107_DC01. 30/7/2020. Clarke and Di Pauli Surveyors Queanbeyan NSW.

*Overall Site Plan – New Primary School in Murrumbateman – Fairly Stree*t. Pedavoli Architects (Murr-SK-CDR_001 Rev B dated 30 March 2021.)

Table one provides a list, details and recommendations on the trees identified.
General evaluation criteria is contained at the conclusion of the report.

4. Site Description.

The site is located at 2 Fairley Street, Murrumbateman, in the local government area of Yass Valley Council. The site is formally described as Lot 302 DP1228766 (refer to Figure 1). The site is irregular in shape and has an area of 15,434.92m².

The site is located at the northern end of the Murrumbateman village, which is characterised by a mix of uses including low density residential and some commercial.

Immediately surrounding development includes a tourist hotel to the north across Fairley Street, Murrumbateman Library (located in the former Murrumbateman schoolhouse, a local heritage item) to the south, a medical centre and childcare centre to the west, and rural land and equestrian facilities to the east across Barton Highway. There is also a cycling and equestrian pathway to the south between the site and library.

The site contains an existing parking lot in its northern end and a driveway along its western boundary. There is also a mound of soil at the southern end of the site. The site is otherwise cleared and vacant.

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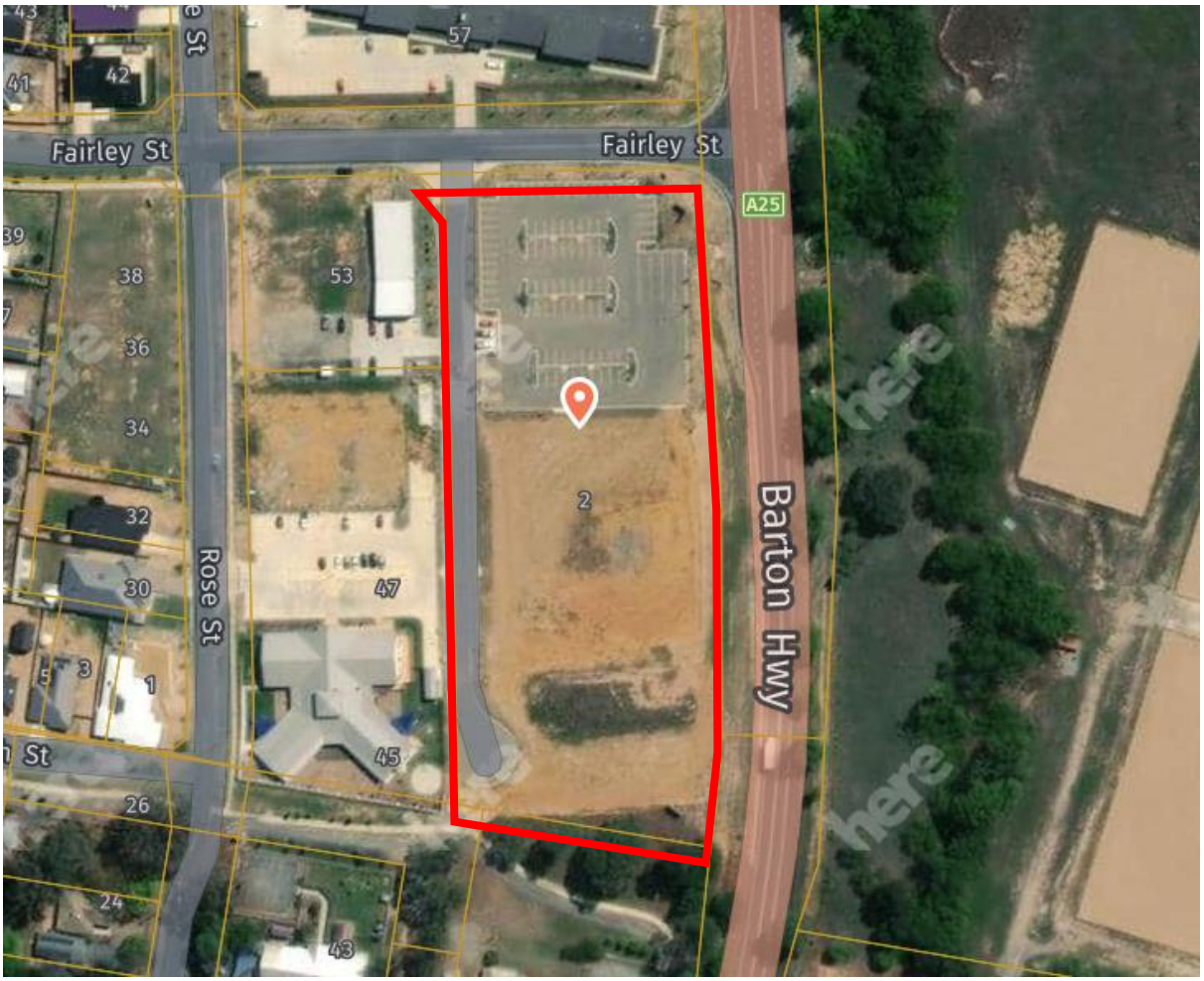

Diagram 1: Site aerial photograph *- Source: Nearmap*

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Diagram 2 – *Location of site with approximate boundary indicated by red lines. Two trees are identified on the Old Murrumbateman School Site that may be impacted by the development. Note – Image date is April 2019 and only two trees remain current. Source – Google Earth 2021.*

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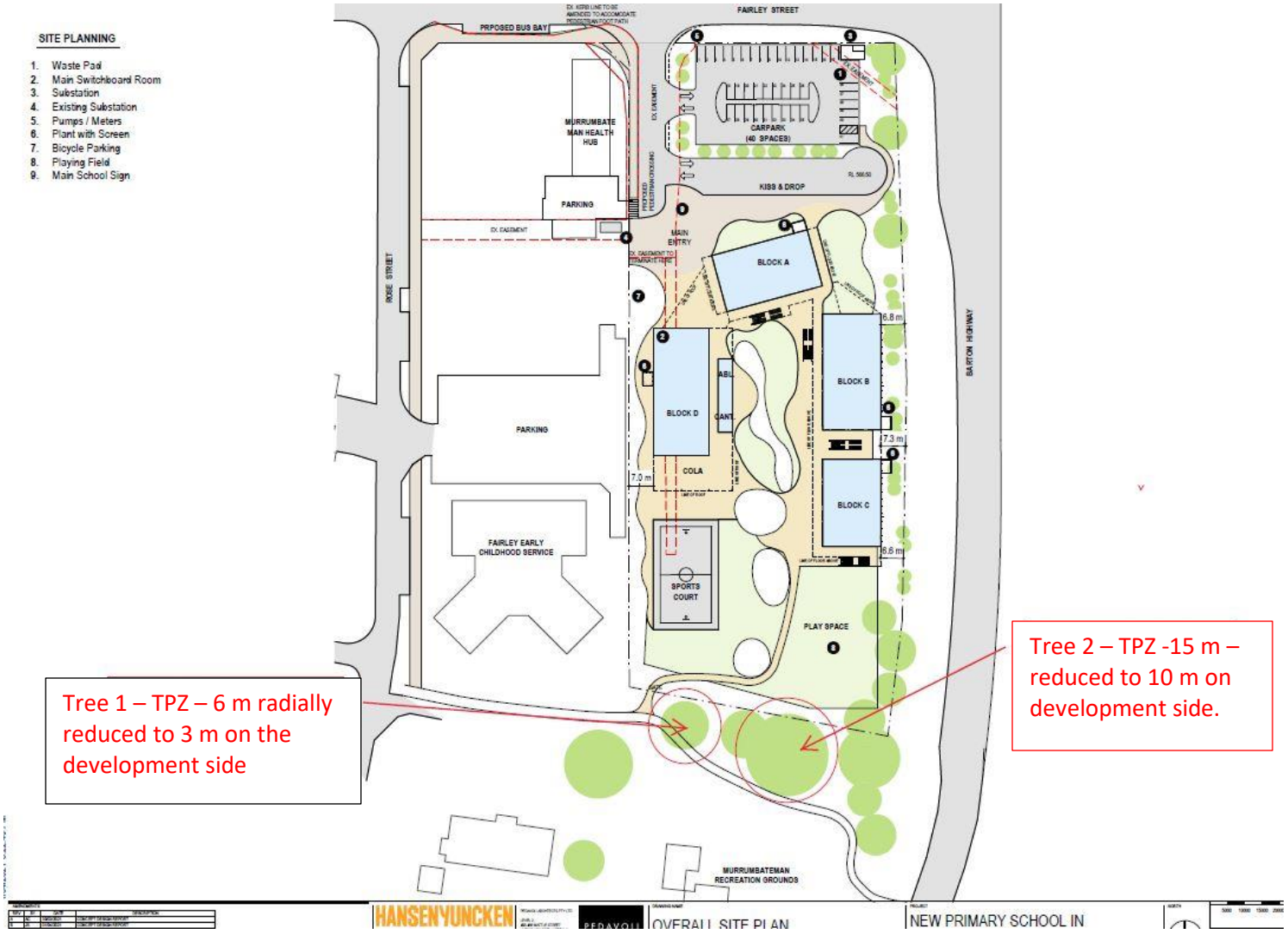

Diagram 3 – Planned Layout of new school with two Trees located in the Old School Grounds indicated. *Adapted from Site Plan – Hansen Yuncken 2021.*

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5. Tree Inspection, Impacts and Recommendations.

I can confirm that the development site contains no vegetation that qualifies as a tree; Yass Valley Council (2021) and NSW Legislation (2021b) and there is no existing canopy coverage from trees son site.

Two trees are identified on the Old Murrumbateman School site that joins the south boundary of the development; that may be impacted by the development as per Diagram 1 above. The tree stems are located 3 meters from the existing boundary fence that presents as the lot boundary and their calculated tree protection zones extend well into the development site. Tree details follow in Table 1.

Table 1 – Identified Trees – Details and Impacts.

Tree Details	Evaluation Potential Impacts & Recommendations.
Tree 1 - Small *Pinus pinea* (Stone Pine). Species Exotic. 2 Stems 460 mm and 200 mm. Height 9 m canopy diameter 16 m. Tree has somewhat stunted form, but a mature tree of some age in fair condition and vigour. The stem is located 3 m from the development boundary and the canopy extends some 5 m over the development site. The canopy hangs low to almost ground level. The tree presents with low potential for limb/stem/tree failure. Environmental Rating – Low. Expected useful life 20 years +. Potentially part of the heritage precinct as the tree establishment likely dates back to the early school establishment. ***Tree Protection Zone (TPZ) 6 m radially*** based on calculated stem diameter of 0.5 m.	Possibly a significant tree based on heritage values or part of a heritage precinct. Retain as a priority and protect. • General impacts to the canopy or stem from development – movement/storage of plant and materials. • Landscaping impacts on root zone – including bulk earth works - cut into embankment and storage of soil • Boundary Fence Construction. • There are no installation of services planned to impact the TPZ of the tree. Recommendations. 1. The tree canopy will require pruning and lifting to allow for erection of TPZ fencing and boundary fence construction and erection. 2. Once pruned the TPZ can be encroached to a point of 3 m to the north - on the development site for the purposes of storage of soil including bulk earthworks and post hole boring for the boundary fence. No 'cut' is proposed within the bulk earth works relative to the TPZ. 3. This represents an encroachment of 18% - however the remaining potential root zone of the tree is unimpeded and it will likely retain vitality despite the encroachment.

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	4. Landscape design could consider amelioration of the TPZ impacts if feasible.
<u>Tree 2 – Large *Pinus pinea* (Stone Pine).</u> Species Exotic. Stem 1400 mm Height 15 m. Canopy spread diameter 23 m total and 9 meters over the development site. Tree is described as mature and of some age and potential part of the heritage precinct as above. Tree described as in fair condition and vigour with useful remaining life of 30+ years. The tree presents as low potential for limb/stem/tree failure. Environmental Rating – Low. ***Tree Protection zone is 15 meters radially*** from the stem.	Significant tree. A tree that dominates the local landscape, it is in fair to good condition with heritage values and long life expectancy. <u>Retain as a priority and protect</u> • General impacts to the canopy or stem from development – movement/storage of plant and materials. • Landscaping impacts on root zone – including bulk earthworks around the TPZ and a cut into embankment near the TPZ. • Boundary Fence Construction. • No installation of Services is noted within the TPZ of the tree. Recommendations. 5. The tree canopy may require pruning and lifting to allow for erection of TPZ fencing, boundary fence construction and erection; earth works. a. The canopy extends further than the reduced TPZ of 10 m. 6. The TPZ on the development site can be reduced to 10 m on the following basis. a. There will be no cut into the soil profile for bulk earth works within the TPZ of 15 meters. b. Depositing of soil and construction of a swale/mounting/bunding (Diagram 4 below) over the current soil level within the 10 m TPZ is considered acceptable encroachment of the TPZ on the following basis. c. The encroachment is 10-11% of the TPZ – however the tree has unimpeded root development area in all other directions and less competition from other trees that have been removed or died in recent times.

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	7. Post hole boring within the TPZ for the boundary fence is an acceptable impact as per general recommendation F below. 8. Landscape design could consider amelioration of the TPZ impacts if feasible.

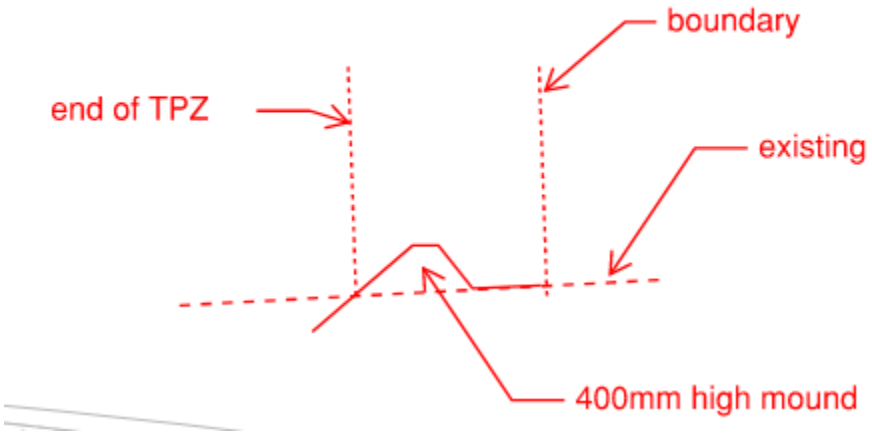

Diagram 4 – Depiction of the swale construction within the TPZ of Tree 2.

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Photo 1 – Tree 1 in location.

Note vine and weed species growing under tree canopy that should be removed if the tree requires pruning. Approximate Boundary fence line indicated by line.

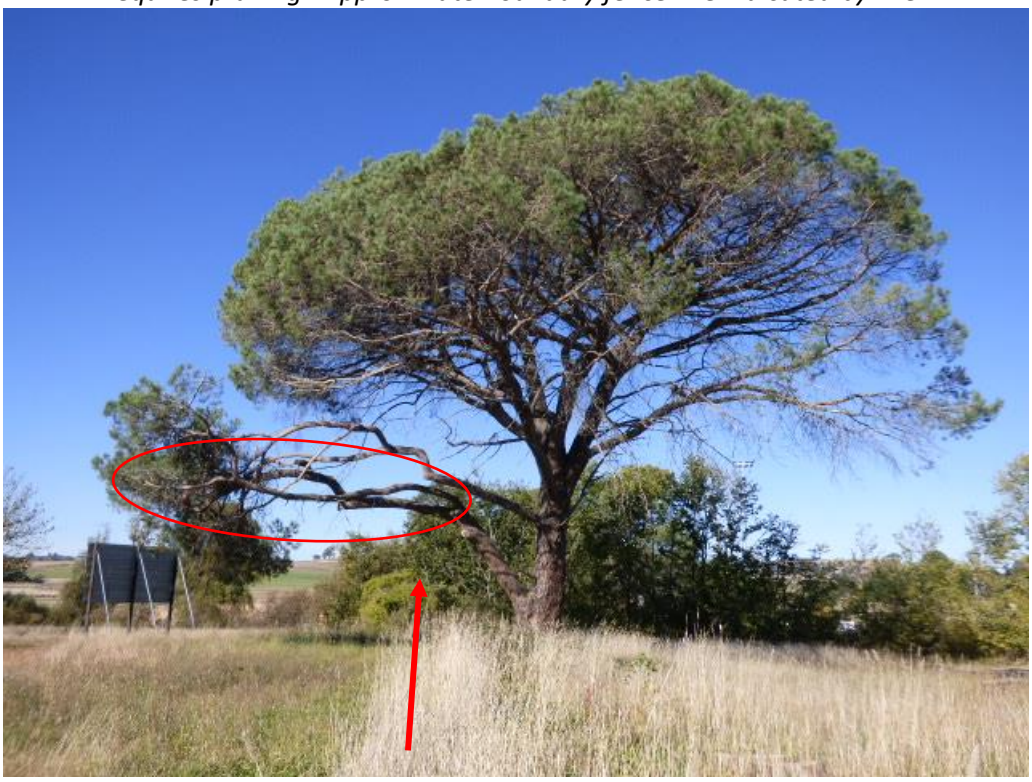

Photo 2 – Tree two in location.

Large Imposing tree with extended canopy over development site. Red line indicates approximate location of boundary. The TPZ reduction to 10 m on the development side may require the large limb of the tree to be removed. If machinery will impact the tree then it must be pruned first.

6. General Recommendations.

A. Yass Valley Council might be consulted on the heritage values of the two trees to determine this issue.
B. Canopy pruning of Tree 1 should occur as part of the site set up.
    a. Pruning shall be conducted by a qualified level 3 arborist so that quality outcome for the tree is achieved.
C. Erection of TPZ fencing should occur prior to any demolition works or bulk earth works.
    a. Appropriate signs need to be erected on the TPZ fencing indicating that the trees are protected and no go zones; and are part of the heritage listing in the joining site.
D. There should be no parking of vehicles, or plant or storage of any materials within the TPZ of the two trees.
E. There should be no trenching or excavation works within the TPZ without prior consultation with Level 5 Arboricultural consultant to evaluate the impacts on the trees.

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This specifically includes, trenching for services, general earth works, including landscaping that disturbs the soil profile.

F. Boring of post holes in the order of 150 to 200 mm diameter for the erection of the boundary fence posts are identified as an acceptable impact within the TPZ, but not excavation of soil for the laying of strip footings.

G. I do not see the requirement of a formal tree protection plan, but I would suggest it is in the interests of the construction organisation to have the trees inspected at site establishment, mid construction and completion to verify the condition of the trees; particularly if Yass Valley Council indicate heritage values attached to the trees.

H. The landscaping plan for the project needs to consider the TPZ of the two trees and look to maximise the opportunity for root retention and future root development – which will be important for the longevity of the trees.

9 June 2021
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References.

NSW Legislation (2021a). State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017. Accessed online 30.4.21 at;
https://www.legislation.nsw.gov.au/view/html/inforce/current/epi-2017-0454#pt.3

NSW Legislation (2021b). *Yass Valley Local Environmental Plan 2013* accessed on line 30.4.21 at;
https://www.legislation.nsw.gov.au/view/html/inforce/current/epi-2013-0391#sch.5

Yass Valley Council (2021). Tree Removal. Accessed online 30.4.21 at;
https://www.yassvalley.nsw.gov.au/our-services/planning-and-building/heritage-and-environment/tree-removal/

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Tree Evaluation Criteria.

Environmental Rating	Environmental Evaluation Considerations/criteria
1 -Very High	Normally Old growth Remnant Tree, multiple hollows important to endangered fauna, replacement would be well in excess of 150 years
2 - High	Mature or semi mature Endemic Tree with or without hollows, plays an important part in local ecology, or Australian Native that has high substitute values as endemic tree replacement would take 50-100 years
3 - Medium	Young or semi mature Endemic tree or Australian native species that has some positive values for local fauna/ecosystems - replacement would take 20 or more years. Large Exotic tree with elevated general values.
4 - Low	Normally exotic species, or small, young endemic or native that could be replaced in the short term 5-10 years
5 - Very Low	Listed Weed or nuisance species; or very small value or insignificant to local ecology - could be replaced within 5 years or readily replaced with species of greater value
Significant Tree value considerations/criteria	
Very Significant	Defined as Significant Tree by regulatory or other authority or Environmental rating 1 or Heritage Listed or Very High Cultural or heritage Values
Significant	Environmental rating 2 or Medium or large tree in good/excellent condition, suited to local environment or Imposing within the local landscape with long life expectancy and or Strong amenity values or some cultural or heritage links

Origin. **Endemic -** *Species is native to this location*. **Aus Native** - *Species native to Australia but not this location*. **Exotic Species -** *introduced to Australia*

Age Class. **New** - *Recent Planting - last year or two*. **Young** - *Sapling, extended growth remaining*. **Semi Mature** - *Some remaining growth to reach maturity for the site and species*. **Mature** - *Considered mature size for site and species - typically no sign of decline*. **Over Mature** - *Tree has commenced to decline - obvious signs*. **Senescent** - *Extended signs of decline - recovery not expected*. **Dead** - *Little or no metabolic function remaining*.

General Condition - *Summation of all considerations. Includes Stem/Canopy Structure Defects, Form, Canopy Vigour, and Extent of any decay, Pest and Disease influences.* 1 – Excellent. 2 – Good. 3 – Fair 4 – Poor 5 - Very Poor

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Tree Height and canopy spread is estimated unless otherwise specified. Tree stem diameter is measured at approximately 1.4m above - or at a point indicative of the tree dimension where abnormal growth occurs at 1.4m above ground. Multi stemmed trees are calculated as per AS 4970

TPZ – Tree Protection Zone - specified area above and below ground and at a given distance from the trunk set aside for the protection of the tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

SRZ - Structural Root Zone – the area around the base of a tree required for the tree's stability in the ground - calculated in meters radially from stem centre. (***From Australian Standard 4970-2009 Protection of Trees on development sites***) TPZ and SRZ are calculated from AS 4970

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