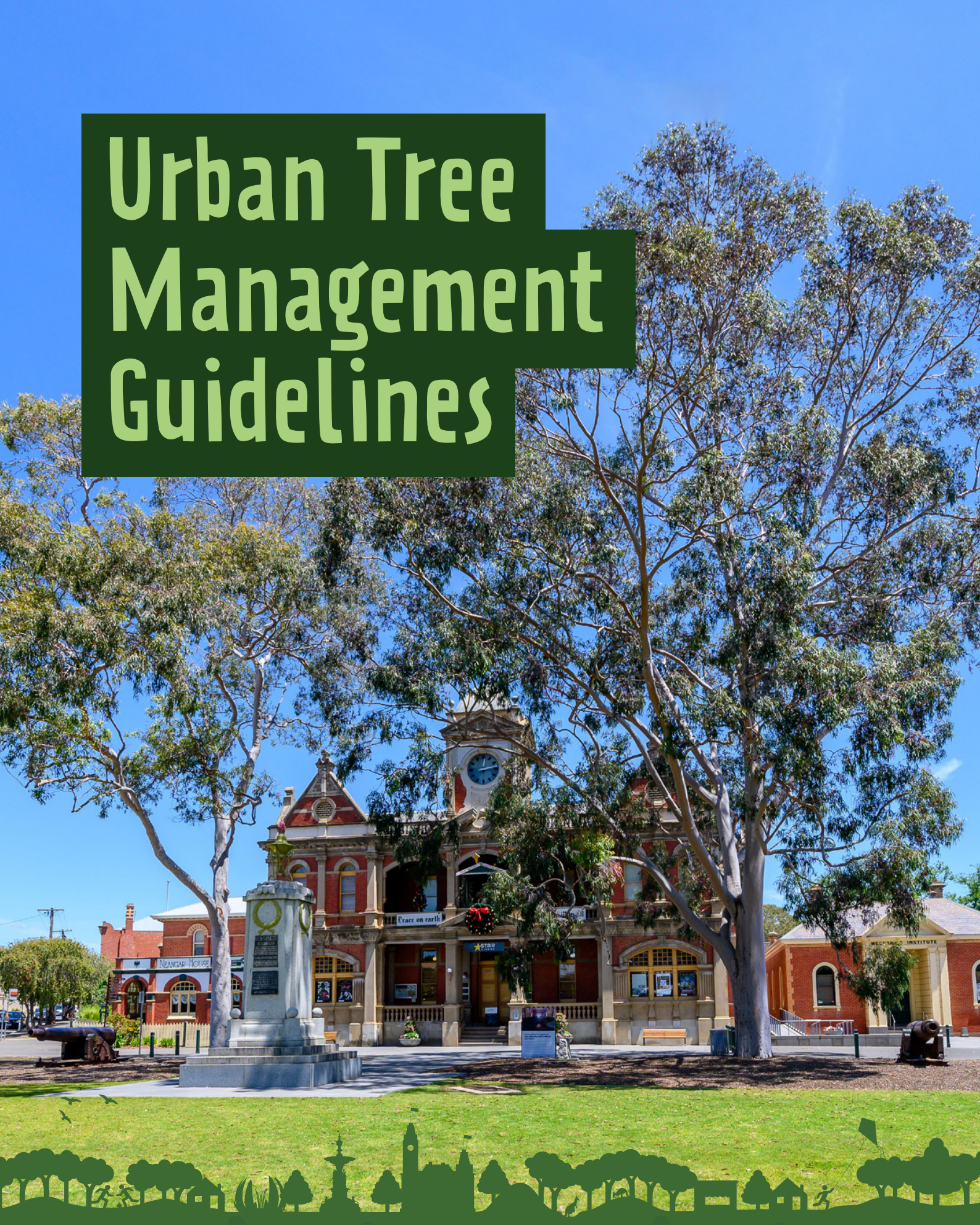
Urban Tree Management Guidelines



CITY OF GREATER BENDIGO

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1 Background

Trees make significant contributions to Greater Bendigo's environment, landscape and public open space. Mature trees play a pivotal role in providing and enhancing social, economic, aesthetic and environmental benefits to the community.

The natural cooling and shade trees provide through canopy cover helps to mitigate the effects of urban heat and climate change. Trees are also important in trapping pollutants, reducing stormwater runoff and preventing erosion.

Trees are vital assets for enhancing biodiversity outcomes by providing habitat, connectivity and pollinator food sources.

As urban development increases and vegetation on private land diminishes, the provision and protection of trees in the public realm will become increasingly important.

The City of Greater Bendigo (the City) is responsible for the maintenance and management of approximately 130,000 tree assets in urban areas and townships across Greater Bendigo. This figure is expected to continually rise as Greater Bendigo's urban forest is developed.

2 Scope

The Urban Tree Management policy and these accompanying guidelines apply to all City staff, external stakeholders, developers, builders, service providers, contractors, event organisers, property owners and residents undertaking works near City-owned tree assets.

The guidelines will outline and detail the standards and practices to be adhered to in relation to the management of trees within Greater Bendigo.

The guidelines apply to all City managed trees located within urban areas, townships, and open space parks within Greater Bendigo.

Trees excluded from these guidelines but may be covered by other policies and legislation include:

- Trees on private property
- Trees on rural roadsides
- Trees in bushland reserves or natural reserves
- Trees in roadsides managed by VicRoads or other non-council road authorities.
- Trees in National, State or Regional parks or on land managed by the Department of Energy, Environment and Climate Action (DEECA) or Parks Victoria



3 Tree management

The City will ensure a high standard maintenance regime is delivered and strengthened as required, and it provides adequate resources for ongoing urban tree management. The City will regularly update tree maintenance standards and procedures to ensure they reflect legislative requirements and industry best practice. Priority will be given to maintain all trees in a healthy and sound condition where feasible, minimizing the risk to the community.

3.1 Inventory and asset management

The City utilises GIS and a computer-based asset management system for the management of all its tree assets. The asset management information system allows for all tree works and inspections to be recorded, in turn providing auditable evidence the City maintains its urban tree population according to industry best practices.

To maintain the integrity and content of the asset inventory and works program:

- The City's tree inventory is to be kept up to date to ensure the content is current and relevant
- All trees considered to be City assets are to be recorded as such, including species identification, location, age, useful life expectancy, size and condition
- City staff and contractors are to record works for every tree asset as they occur

3.2 Tree inspections

Tree inspections are required as part of managing the City's urban trees.

The type of inspection required and the qualifications and experience of the personnel undertaking the inspection can vary. Inspections lead to the programming of the appropriate action (or non-action) to be conducted.

Listed are the different origins of inspection.

3.2.1 Pro-active inspections

- The City's trees located in the Bendigo city centre, major parks, nominated childcare centres, recreation facilities and City managed properties must be inspected and works programmed accordingly on an annual basis
- City trees located under High Voltage powerlines within the Urban Declared Area must be inspected and works programmed annually
- Trees under powerlines located in High Bushfire Risk Areas (HBRA) within the Urban Declared Area must be inspected and works programmed annually
- The City's trees located within Greater Bendigo's Urban Declared Areas must be inspected and works programmed:
  - biennially as part of the Electrical Line Clearance Management Plan
  - at least once every four years as part of the pro-active tree management program
  - at least every five years as part of the rural zones pro-active tree management program

3.2.2 Reactive inspections

Reactive inspections include community requests, works within road reserve permits and developments and works.

Tree inspections can be related to:

- Pruning requests
- Tree removal requests
- Tree protection on development sites
- Health, pest and disease assessment
- Roots and infrastructure conflicts
- Risk and safety (see 3.3 Tree risk assessments, page 6)
- Internal projects
- Complaints

Requests for tree inspection can be made through the City's website or by contacting customer support.

All site visits to any of the City's trees, regardless of whether the tree requires any works or not, must be electronically recorded in the City's asset management system.

3.2.3 Zoning

Greater Bendigo has been divided into zones to simplify the management of over 130,000 tree assets that the City is responsible for.

3.2.4 Annual Inspections

The City conducts annual inspections on trees in nominated places, where the volume of pedestrian traffic is high, children are present, or the consequences of tree failure are potentially higher.

A list of annual inspection sites is kept and maintained by the City's Arboriculture and Environment unit.

	Consequence				
Likelihood	**Insignificant**	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost certain	**Medium**	**Significant**	**High**	**Extreme**	**Extreme**
Likely	**Medium**	**Medium**	**Significant**	**High**	**Extreme**
Possible	**Low**	**Medium**	**Significant**	**High**	**High**
Unlikely	**Low**	**Low**	**Medium**	**Significant**	**High**
Rare	**Low**	**Low**	**Medium**	**Significant**	**Significant**

3.3 Tree risk assessments

It is not possible to entirely eradicate risk regarding trees, even in a proactively managed tree population, but the City manages risks posed by trees to people, public safety, property, infrastructure, and assets in accordance with industry best practice methodologies and the City's *Risk Management Policy* and *Risk Management Framework*.

The foundation of tree risk assessments are built by incorporating both the likelihood of an event occurring and the probable consequences if the event occurs.

All tree risk assessments of City tree assets undertaken by internal City staff and contractors must:

- Be recorded within the City's asset management system
- Be carried out by a suitably qualified person with a minimum qualification of Diploma in Arboriculture (AQF Level 5), or under supervision of a person with a Diploma in Arboriculture
- Have any tree defects logged using the City's asset management system and assigned a schedule for completion of works
- Be given a risk rating (where required) based upon a recognised Tree Risk Assessment method (VALID, Tree Risk Assessment Qualification (TRAQ), Quantified Tree Risk Assessment (QTRA) or similar)

Risk rating	Action
Extreme	Immediate action required, including urgent interim actions e.g. cessation of activity.
High	Prompt action required, including interim actions.
Significant	Risk will be reduced as low as reasonably practicable.
Medium	Risk is likely to be acceptable, if not risk will be reduced as low as reasonably practicable.
Low	Risk is almost acceptable. Implement treatment plan.

Descriptor	Likelihood
Almost Certain	• 99% probability; or • Risk is occurring now; or • Could occur within days to weeks
Likely	• >50% probability; or • Balance of probability will occur; or • Could occur within weeks to months
Possible	• >20% probability; or • May occur but against short term probabilities; or • Could occur within months to years
Unlikely	• >1% probability; or • May occur but not anticipated; or • Could occur in years to decades
Rare	• <1% probability; or • Occurrence requires exceptional circumstances



The City conducts tree risk inspections at three different levels:

	Inspection detail	Inspection procedure	Minimum qualification
Level 1	A limited and quick visual inspection used to assess if a more detailed assessment is required. The tree is assessed from one perspective to identify imminent and/or probable likelihood of failure.	**Visual** 1. Tree is identified and location recorded for inspection. 2. Undertake risk assessment from a drive by or walk by and assessing; structural condition, likelihood of failure, and categorising the potential damage or harm. 3. Documentation of findings of the level of risks and recommendations of any management requirements into the City's asset management system, including whether further inspections are required.	Certificate III in Arboriculture (under the direct or indirect supervision of an Arborist with a Diploma or Cert. V).
Level 2	A standard assessment typically conducted from the ground using a method such as VALID, QTRA or TRAQ.	**Risk assessment** 1. Tree is identified and location recorded for inspection. 2. Determine the parts/zone of the tree to be examined. 3. Undertake desktop study to understand site conditions and site history. 4. Undertake onsite risk assessment by examining the structural condition, likelihood of failure, and categorising the potential damage or harm. This must be completed using a recognised methodology such as VALID, TRAQ, QTRA or similar. 5. Documentation of findings of the level of risks and recommendations of any management requirements into the City's asset management system, including whether further inspections are required. 6. Determine if a Level 3 Inspection is required.	Certificate III in Arboriculture (under the direct or indirect supervision of an Arborist with a Diploma or Cert. V).
Level 3	Normally occurs on trees requiring a further assessment or investigation beyond Level 2 and may require specialised equipment (e.g. tower, climbing gear or a drone etc.).	**Advanced risk assessment** If the requirement for a Level 3 inspection has been identified (through the outcome of a Level 2 inspection), a fully qualified representative or independent consultant arborist will be required to conduct an advanced risk assessment that may include the use of: • A climbing arborist • Drone • Elevated work platform or scissor lift • Testing and lab services • Hydrovac • Ground-penetrating radar (GPR)	Certificate IV in Arboriculture (under the direct or indirect supervision of an Arborist with a Diploma or Cert. V).



3.4 Pruning

The City undertakes pruning of its managed tree assets as part of its proactive works, reactive works, and electrical line clearance programs.

All tree pruning on City trees will be done in accordance with *AS 4373-2007 Pruning of Amenity Trees*.

The City will not allow, or conduct pruning of City trees under the following circumstances:

- To reduce litter of leaves, fruit, or other debris
- Obstructing or interfering with solar panels
- For causing minor allergenic and irritant responses
- To minimise obstruction of advertising signage and desired views
- To reduce the impact from any animals or birdlife waste and/or noise
- For superficial or unsubstantiated bush fire risk concerns
- For awnings, verandas, and other projections over public open space
- For personal aesthetic preference

3.5 Electrical line clearance

To achieve compliance with the *Electricity Safety Act 1998*, all trees under and around powerlines within the urban declared area must be managed in accordance with the *Electricity Safety (General and Electrical Line Clearance) Regulations 2019*.

The distribution company is responsible for electrical line clearance outside of the Urban Declared Area.

A map of the powerline clearance urban declared area can be accessed via the City's website.

An *Electrical Line Clearance Management Plan* is prepared and submitted to Energy Safe Victoria annually prior to March 31.

The City is obligated to ensure clearance (as specified in the *Electricity Safety Regulations*) is maintained and free of vegetation to mitigate the risk of fire danger and to avoid disruptions to electricity supplies.

Clearance distances vary and are calculated based on a range of criteria, including whether the location of the powerline is in a hazard or low bushfire risk area, if the powerline is high or low voltage, and is based on the length of the powerline section between power poles.

The City maintains a rigid powerline pruning program and wherever possible, aims to adhere to *AS 4373-2007 Pruning of Amenity Trees* when conducting line clearance works.

The City actively pursues other various management options to minimise risks relating to electrical line clearance.

These options include:

- Installation of aerial bundle cables
- Undergrounding powerlines
- Appropriate species selection for planting
- Tree removal



3.6 Root management

Tree roots are vital for the uptake of water and nutrients, and for anchoring and stabilising the tree in the ground.

Roots are advantageous and often seek and follow environments favourable to root growth. This can lead to damage occurring to infrastructure and buildings where root obstructions are present. Understanding of tree root behaviour in urban areas is essential for minimising conflicts between trees and other assets.

Structures and infrastructure deteriorate with age, and often tree roots are subject to a disproportionate amount of the blame for damage, as they frequently exploit existing cracks and faults which have not been caused by tree root activity.

The City will not remove City trees for unjustified claims of damage from tree root activity.

Claims for indirect property damage should be accompanied by a report from a geotechnical or structural engineer that implicates tree root damage and also considers soil type and the age and type of footings of the structure.

If infrastructure damage is attributed to the roots of a City-owned tree, an appropriate remedial solution must be sought. These remedial solutions may include:

- Realignment of paths
- Selective root pruning
- Casting concrete kerbs in situ and investigating potential for installing pre-cast kerb
- Ramping and bridging over existing tree roots
- Increasing the tree pit/plot area
- Correct installation of root barriers
- Tree removal (only considered where no practical, cost effective arboricultural or civil solution to retain the tree can be implemented)

The City will take preventative measures to minimise future conflicts between tree roots and infrastructure. Such preventative measures may include:

- Appropriate tree species selection and placement
- Conducted surveys on tree asset impacts
  - aligning the City's streetscape and street tree renewal cycles
- The adoption of Water Sensitive Urban Design (WSUD) treatments, structural soils, and contiguous tree root trenches
- Correct installation of root barriers
- Tree removal (only considered where no practical, cost effective arboricultural or civil solution to prevent future conflict can be implemented)
- Consultation with road managers around future usage of the road reserve before planting



Once alerted to existing conflicts between infrastructure and City trees, the City will investigate in accordance with the Municipal Association of Victoria's (MAV) Tree Root Risk Assessment Tool.

Removal of City trees must only be considered where no practical, cost effective arboricultural or civil solution to retain the tree can be found. Should tree removal be deemed necessary by a City arborist, a replacement tree will be planted as close as practically possible to the tree being removed. Every effort will be taken to ensure the replacement tree will not result in similar damage in the future.

If significant roots are unexpectedly uncovered on-site during works, a City arborist must be notified as soon as practicable for assessment.

3.6.1 Root pruning

Root pruning may be required to mitigate the effects of root damage; however, it is generally discouraged as the long-term impacts are not always predictable, particularly from a health and safety perspective.

Root pruning must be authorised only by a City arborist.

If root pruning is unavoidable, the following must be implemented:

- Cuts shall be clean cut by hand using sharp tools such as secateurs, loppers, pruners, handsaws or specialised equipment
- Roots will not be ripped or pulled by machinery under any circumstances

3.6.2 Root barrier

Installing both physical and chemical root barrier aims to prevent or delay potential conflicts to infrastructure assets by deflecting lateral growing roots downwards below the depth of barriers or constricting the roots to a confined space.

However, if root barriers are not installed correctly, their effectiveness is greatly reduced, and they can even contribute towards creating the very problem they are employed to prevent.

The success of root barrier installation is dependent on various factors including soil profiles, species of tree, size of the tree, position, surrounding infrastructure and the type of barrier to be installed.

3.7 Construction and works projects

It is recommended all construction and works projects engage a project arborist to provide input relating to arboricultural and horticultural matters from initial design phase through to project delivery. A project arborist is required to develop Tree Protection Management Plans, Tree Inspections, Amenity Valuations, Tree Protection Zone and Structural Root Zone calculations and on-site advice and compliance regulation.

3.8 Pests and diseases

Strong pest and disease management is an important component to maintaining a healthy and aesthetically pleasing urban forest. The City will monitor and treat pest and disease incursions that threaten the health and longevity of urban trees where resources permit. Decisions on pest and disease treatment actions will be balanced with the cost of the tree's amenity value.

3.8.1 Elm Leaf Beetle

Greater Bendigo has one of the healthiest, mature populations of elm trees in the world. The City is responsible for managing approximately 3,600 historic elms in parks, gardens, and road reserves.

Elm Leaf Beetle (Pyrrhalta luteola) can be prevalent among the aging elm tree population in some seasons. The effects of Elm Leaf Beetle can lead to heavy defoliation, increasing susceptibility to further pest and diseases, and in some extreme instances lead to death of the tree.

The City facilitates biennial soil injections around the base of its elm trees as a control measure.

The City does not treat elm trees on private property.



3.8.2 Psyllids and lerps

Psyllids are small insects that attack Eucalypts and related trees. Human intervention is generally not required where trees have been affected by psyllids. Birds and some insects often eat psyllids and help to naturally control them.

The City will likely not provide chemical treatment control for psyllid damage.

3.8.3 Termites

Termites are a native species and part of the natural environment where they play important ecosystem functions. Out of the hundreds of species of termites in Australia, only a dozen or so are known to cause damage to property.

Greater Bendigo is in a declared termite area, and it is the responsibility of property owners to ensure their property is suitably protected.

Any request to have a City tree inspected or removed for termites will be undertaken in accordance with the inspection and tree removal criteria outlined in the City's Urban Tree Management Policy and these guidelines.

Treatment for termites on City trees is not permitted without approval from the City's Arboriculture team.

This includes:

- Chemical application
- Biological control
- Boring into the tree
- Soil excavation
- Pruning works
- Removal works

3.9 Environment and biodiversity

The urban forest is important for creating important habitat for a diverse range of native and exotic fauna including mammals, birds, reptiles, and invertebrates, and therefore can be either positively or negatively impacted by routine tree management activities.

3.9.1 Habitat trees

Hollows provided by large old trees provide critical habitat for many species that are typically not present in younger trees. It can be over a century until Eucalypts begin to form hollows.

Hollow bearing trees meeting the criteria for removal as outlined in these guidelines will be made safe and retained as habitat trees wherever it is safe, practical and appropriate to do so.

The City will endeavour to seek practical design and management alternatives to maximise the health and longevity of existing large, hollow bearing trees.



The City may also conduct, or commission works, to create artificial hollows in line with the Arboriculture Australia minimum industry standard *MIS312 – Environmental Arboriculture*.

3.9.2 Bees

Bees are one of environments most important pollinators. But in many areas, parasites, a lack of forage, and other factors threaten bee health and survival. Flowers are a critical source of forage for bees, and as a result, bees will often nest in existing hollows within trees.

Bees do not actively undertake the 'hollowing out' of trees and are not considered to be detrimental to a tree's structural integrity. Bees will only be removed from City trees if they present an unacceptable risk to the community or where a tree is deemed to be hazardous by a qualified City arborist. The nest must be either relocated or pacified to allow for hazard reduction works to be undertaken as approved by the City.



4 Tree valuation

The City's tree assets are financially valued proportionate to the many social, economic, aesthetic and environmental benefits they provide to the community.

When the removal of any City tree is deemed necessary for construction, development, or works, all costs associated with its removal and replacement shall be paid by the property owner, utility or developer prior to removal.

4.1 Associated costs

The costs associated with the removal of a public tree are broken down into 3 areas as follows:

- **Amenity value** - Calculated in accordance with the City's adopted Amenity Value Formula
- **Removal costs** - The sum of the fees incurred by the City for physically removing the tree
- **Replacement costs** - The cost of all works required to replace the loss of vegetation from the landscape

4.1.1 Amenity value

By evaluating the various characteristics and contributions of a tree, we can determine an amenity value.

The following formula has been prepared to assist with calculating the monetary amenity value of a public tree within the City. This formula is based on the City of Melbourne's Tree Amenity Value Formula (derived from the USA Council of Tree and Landscape Appraisers developed in 1990 by Dr. Peter Yau) and has been modified for application specific to Greater Bendigo. The method has been peer-reviewed and benchmarked against other approaches to tree valuation:

Amenity Value = Base Value ($) x Species (S) x Aesthetics (A) x Locality (L) x Condition (C)

The following definitions provide reference to the above formula.

Base Value ($)

The Base Value is derived by first calculating an estimate of the trunk area by using the diameter at breast height (DBH) as an initial measurement.

The formula for calculating the base value is:

Base Value ($) = π x $(DBH/2)^2$ x $13.62 (AUD) per cm^2

- π x r^2 is the formula of the area of a circle – trunk area is being estimated. DBH must be in cm
- AUD $13.62 is the 2021 price of a juvenile tree per cm^2 of trunk

Juvenile trees with a trunk diameter of less than 6cm do not attract an amenity value charge.

When juvenile trees are being valued for removal, the cost is calculated based on replacement expenses only, and is purely a cost recovery exercise.

A quick reference table for base value is provided opposite.

DBH (cm)	Base value	DBH (cm)	Base value	DBH (cm)	Base value	DBH (cm)	Base value
<6	$ -	42	$18,869.72	79	$66,760.74	116	$143,940.49
6	$385.10	43	$19,778.98	80	$68,461.59	117	$146,432.92
7	$524.16	44	$20,709.63	81	$70,183.82	118	$148,946.74
8	$684.62	45	$21,661.67	82	$71,927.45	119	$151,481.96
9	$866.47	46	$22,635.11	83	$73,692.48	120	$154,038.57
10	$1,069.71	47	$23,629.94	84	$75,478.90	121	$156,616.58
11	$1,294.35	48	$24,646.17	85	$77,286.71	122	$159,215.98
12	$1,540.39	49	$25,683.79	86	$79,115.92	123	$161,836.77
13	$1,807.81	50	$26,742.81	87	$80,966.52	124	$164,478.96
14	$2,096.64	51	$27,823.22	88	$82,838.52	125	$167,142.55
15	$2,406.85	52	$28,925.02	89	$84,731.91	126	$169,827.52
16	$2,738.46	53	$30,048.22	90	$86,646.70	127	$172,533.90
17	$3,091.47	54	$31,192.81	91	$88,582.88	128	$175,261.66
18	$3,465.87	55	$32,358.80	92	$90,540.45	129	$178,010.82
19	$3,861.66	56	$33,546.18	93	$92,519.42	130	$180,781.38
20	$4,278.85	57	$34,754.95	94	$94,519.78	131	$183,573.33
21	$4,717.43	58	$35,985.12	95	$96,541.53	132	$186,386.67
22	$5,177.41	59	$37,236.69	96	$98,584.69	133	$189,221.41
23	$5,658.78	60	$38,509.64	97	$100,649.23	134	$192,077.54
24	$6,161.54	61	$39,803.99	98	$102,735.17	135	$194,955.07
25	$6,685.70	62	$41,119.74	99	$104,842.50	136	$197,853.99
26	$7,231.26	63	$42,456.88	100	$106,971.23	137	$200,774.30
27	$7,798.20	64	$43,815.42	101	$109,121.35	138	$203,716.01
28	$8,386.54	65	$45,195.34	102	$111,292.87	139	$206,679.11
29	$8,996.28	66	$46,596.67	103	$113,485.78	140	$209,663.61
30	$9,627.41	67	$48,019.39	104	$115,700.08	141	$212,669.50
31	$10,279.94	68	$49,463.50	105	$117,935.78	142	$215,696.79
32	$10,953.85	69	$50,929.00	106	$120,192.87	143	$218,745.47
33	$11,649.17	70	$52,415.90	107	$122,471.36	144	$221,815.54
34	$12,365.87	71	$53,924.20	108	$124,771.24	145	$224,907.01
35	$13,103.98	72	$55,453.89	109	$127,092.52	146	$228,019.87
36	$13,863.47	73	$57,004.97	110	$129,435.19	147	$231,154.13
37	$14,644.36	74	$58,577.45	111	$131,799.25	148	$234,309.78
38	$15,446.65	75	$60,171.32	112	$134,184.71	149	$237,486.83
39	$16,270.32	76	$61,786.58	113	$136,591.56	150	$240,685.27
40	$17,115.40	77	$63,423.24	114	$139,019.81		
41	$17,981.86	78	$65,081.30	115	$141,469.45		

Group	Species life span	Example species*	Score
1	Short life span (typically less than 50 years)	Prunus, Acacia, Callistemon, Pyrus, Hakea, Malus, Lagerstroemia, Alnus, Betula	0.5
2	Medium life span (typically 50-100 years)	Eucalyptus*, Angophora*, Corymbia*, Populus, Liquidambar, Fraxinus, Grevillea, Melaleuca, Allocasuarina, Casuarina, Syzygium, Lophostemon, Agonis, Brachychiton, Schinus, Phoenix, Melia, Jacaranda, Zelkova, Acer	0.7
3	Long-life span (typically 100-150 years)	Platanus, Cupressus, Ficus, Pinus, Celtis, Eucalyptus*, Angophora*, Corymbia*	0.9
4	Ultra long-life span (typically more than 150 years)	Sequoia, Eucalyptus*, Ulmus, Quercus, Ginkgo, Agathis, Araucaria	1
Negative Modifiers	Noxious or environmental weeds	Acacia baileyana, Salix spp., Crataegus monogyna, Pinus radiata, Cotoneaster glaucophyllus	-0.1
	Inappropriate species (infrastructure conflict, excessive litter, poor positioning)		-0.1
Positive Modifiers	Listed on either the City or National Trust Register of Significant Trees		+0.1
	Listed under a schedule of the City planning scheme		
	A rare species in the locality		
	A special cultivated variety		
	Holds special historical, cultural or other significance		
Climate Suitability Modifier	Species is not well suited to current or future Greater Bendigo climate		-0.1
	Species suitable to current Greater Bendigo climate		0
	Species moderately suited to Greater Bendigo future climate		+0.1
	Species well suited to future Greater Bendigo climate		+0.2
Biodiversity and Ecological Modifiers	Species is indigenous to Greater Bendigo	Eucalyptus tricarpa, Acacia implexa, Acacia melanoxylon, Eucalyptus microcarpa, Allocasuarina verticillata, Callitris columellaris	+0.1
	Species is endangered or endemic to Greater Bendigo and surrounding areas, or has isolated natural distribution	Eucalyptus froggattii, Banksia marginata (Bendigo provenance), Eucalyptus behriana, Eucalyptus polybractea, Eucalyptus viridis, Acacia williamsonii, Acacia ausfeldii	+0.2
	A large hollow bearing or habitat tree		+0.2

* Indicates a genus has species that may fall into various categories of life span or growth rate.

Species Factor (S)

A tree is assessed according to its known natural life span and its rate of growth in a particular environment. For example, a long-lived tree will be scored higher than a short-lived tree.

Significant features of the tree may also modify how the tree is scored. This is achieved through the unique modifiers and may be utilised where exceptional specimens are being removed.

Judgment regarding species factor shall consider how a species performs within the City and must be made by a suitably qualified arborist.





Aesthetic Factor (A)	Score
Contributes little to the landscape	0.5
One of a group of close plantings	0.6
Multiple trees from a group of close plantings (majority of group remains intact)	0.7
Wide plantings	0.7
Street or pathway plantings; irregular spacing between trees; regular spacing one side	0.8
Street or pathway plantings; regular spacing both sides	0.9
Solitary or feature specimen tree/s (e.g. large specimen tree in reserve, avenue of trees, hedgerow etc.) Contributes greatly to the surrounding landscape	1.0

Aesthetic Factor (A)

The aesthetic value of a tree is determined by the impact on the landscape that would be observed if the tree were to be removed. This category is closely tied to the Locality Factor (L).

Locality Factor (L)	Score
In undeveloped bushland or open forest with no nearby infrastructure (e.g. roads, utilities etc.)	0.5
In bushland reserve, residential street or public open space within urban centre or township	0.75
Prominent residential or commercial street in urban centre, suburb or township	1
In neighbourhood park or garden	1.25
Part of an avenue planting in urban area, suburb or township	1.5
Part of a key boulevard or town entrance planting; park or garden within a suburb or town centre	1.75
Primary location within town centre, main street, mall, or civic space or street within township	2

Locality Factor (L)

The locality factor is determined by the tree's geographical situation. Trees within a highly urbanised environment score highest because of the stressful growing environment in which the tree is surviving. As the location becomes more rural, the significance of the tree diminishes.



Assessment criteria	Criteria condition	Score
Crown health and vitality	High density of foliage and live buds	3
	Moderate density of foliage and live buds	2
	Low density of foliage and live buds	1
Canopy development	**Well balanced canopy** - Good shape and form with no percentage of the canopy missing	5
	Slightly unbalanced, lop-sided canopy - May have a small percentage of the crown missing	3
	Unbalanced canopy, poor form and shape - Large percentage of crown is missing	1
Growth	> 15cm twig elongation this season	3
	5 – 15cm twig elongation	2
	< 5cm twig elongation	1
Structure	**Excellent** - Very healthy, stable and sound. No obvious damage, decay or structural defect present. Stable in the ground, obvious basal flare and no history of branch failure	5
	Good - Displays generally good health, vigour, and structure. Evidence of very minor damage or decay may be present but has either compartmentalised or does not appear to impact tree health at all	4
	Fair - May display evidence of previous branch failure but has generally well-attached, spaced and tapered branches. Tree displays at least one of the following: minor damage, decay or structural deficiencies, minor end-weight or over-extension	3
	Poor - Displays one or more of the following: Major damage or decay, numerous fungal fruiting bodies present, tree is leaning with pressure on the root plate, stump re-sprout, acute branch attachments with included bark, excessive compression flaring, foreseeable limb failure, major branch end-weight over-extension, evidence of major branch failure with no compartmentalisation present	2
	Very poor - Displays one or more of the following: Extensive damage or decay, unstable or loose in the ground, excessive lean, altered exposure, branch or trunk failure probable/imminent, branch attachments with active split, excessive branch end-weight or over-extension, history of major limb/stem failure with loss of holding wood, hollow trunk	1
Pests and Diseases	No pest/disease infestation	3
	Minor symptoms of infestation	2
	Advanced symptoms of infestation	1
Useful Life Expectancy	> 60 years	7
	31 – 60 years	6
	21 – 30 years	5
	11 – 20 years	4
	6 – 10 years	3
	1 – 5 years	2
	< 1 year	1

Condtion Factor (C)

The tree condition value is determined by the corresponding total score of the assessment criteria. Trees should be evaluated on condition with respect to what is typical of the species in the location. Where trees have been damaged this assessment should be retrospective of the undamaged state.

Total score	Tree condition	Factor
5 – 8	Very Poor	0.2
9 – 13	Poor	0.4
14 – 18	Fair	0.6
19 – 22	Good	0.8
23 – 26	Excellent	1.0

When the loss of any City tree is incurred as a result of development, the City applies the tree amenity value. When a stakeholder makes a request to modify City land resulting in the removal of a City tree asset, the tree amenity value will be applied and charged by the City to ensure the community is compensated for the loss of the tree.

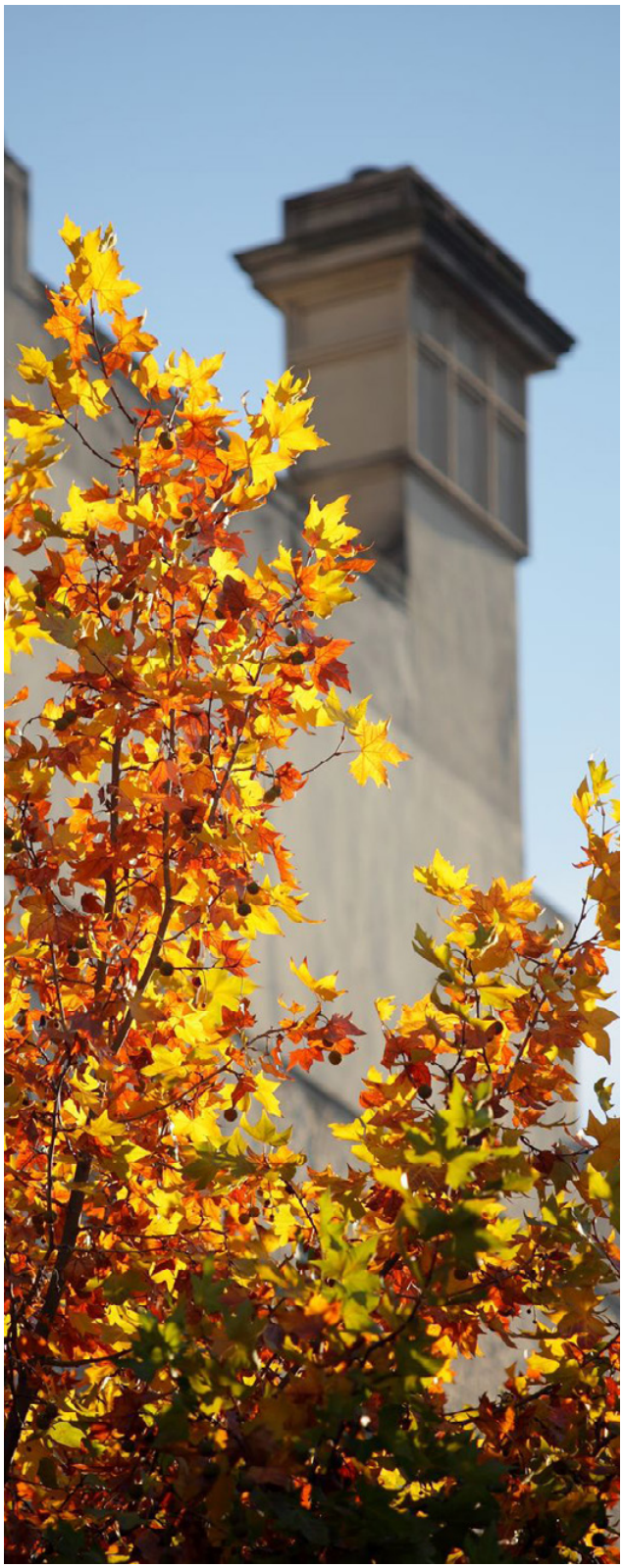
The amenity tree value does not include the cost of removal operations or for tree replacements.

A tree amenity value will not be charged in the following instances:

- Trees that have died naturally (poisoned or vandalised trees will incur charges)
- Where the tree is a declared weed species and is not providing amenity
- Trees that have been assessed by a qualified arborist that pose a high or very high level of residual risk in accordance with the City's risk management process (Based on VALID, QTRA, TRAQ or similar tree risk assessment methods)

The amenity tree value may be waived where it has been demonstrated that a high community value will be delivered in relation to the City's commitment to the *Reconciliation Plan (Barpangu) 2021-2025* and the *Council Plan (Mir wimbul) 2021-2025*.

The amenity value may also be waived where trees are exhibiting very poor condition, low amenity and a useful life expectancy of less than five years.



Amenity value calculator										
Base Value ($)	x	Species Factor (S)	x	Aesthetics Factor (A)	x	Locality Factor (L)	x	Condition Factor (C)	=	Amenity value

4.1.2 Removal costs

Further to the tree amenity value, costs associated with the removal shall also be paid by the property owner, utility or developer. These costs may include the disposal of debris, stump grinding, and any community engagement required.

4.1.3 Replacement and reinstatement costs

The replacement and reinstatement of canopy and other benefits provided by mature trees can take several years/decades after removal.

The level of reinstatement required will be determined by the City and will take into consideration the location, significance, biodiversity provision and the amenity of the tree removed.

The City is making every effort to replace all City-owned trees that are removed. The cost for tree replacement is generally $500 including GST. This figure includes the unit costs, materials, and maintenance requirements to establish the tree across a two-year period and is solely a cost recovery exercise.

A calculation and breakdown of the replacement costs is provided (pictured right).

4.2 Bonds

The City will impose bonds on developers, builders, and event organisers where necessary to ensure the adequate protection of all trees to be retained. The bond or bank guarantee amount will be the combined amenity, removal and replacement value determined in accordance with this policy. The bond or bank guarantee will be held for the duration of the works, subject to an approved Tree Protection Management Plan.

Tree planting and establishment		Cost
Materials	Advanced tree stock (40cm/45L size)	$150
	2 x hardwood stakes (38mm x 38mm x 1800mm)	
	Jute webbing hessian tie (50mm and cut to 2 x length of 2m per tree)	
	Mulch (75mm)	
	Greenwell Tree Collar Water Saver (Black PP5)	
	Planting gel	
	Water crystals	
Programming and administration	Onsite inspection	$25
	Data entry into GIS tree inventory	
	Sourcing stock	
	Development and posting notification letters	
	Updating website and POZI	
	Inspection and data capture for final acceptance of tree asset	
Planting work	Labour and machinery costs	$75
	Hole preparation	
	Root pruning	
	Planting	
	Mulching	
	Initial watering in	
	Data entry into GIS tree inventory	
Maintenance and establishment (first year)	Labour costs	$150
	Regular watering	
	Topping up additional mulch levels	
	Fertilising and spread of planting gel	
	Weeding	
	Form pruning	
	Maintain and replace stakes and hessian ties (if required)	
	Recording maintenance in GIS tree inventory	
Maintenance and establishment (second year)	Semi-regular watering	$100
	Topping up additional mulch levels	
	Fertilising and spread of planting gel	
	Weeding	
	Form pruning	
	Maintain and replace hardwood stakes and hessian ties (if required)	
	Recording maintenance in GIS tree inventory	
	Removal of hardwood stakes, hessian ties and water wells on conclusion of the 2-year maintenance period	
Total planting and establishment cost		**$500**



5 Tree removal

In recognition of the contribution trees make towards a liveable Greater Bendigo, the retention of existing trees in the landscape should be given as much priority as practicable.

The City actively manages, monitors, and inspects all public trees throughout their lifecycle and will remove and replace them as appropriate when they reach the end of their Useful Life Expectancy (ULE).

While tree removal is a last resort management option, public safety will always take priority.

Trees considered hazardous will be removed as soon as reasonably practicable.

The City will aim to replace all City-owned trees that are removed, to ensure no net loss of canopy cover from the immediate area.

In some scenarios, multiple trees may be planted to offset the loss of a single tree, and to promote canopy development and greenspace where appropriate.

Replacement trees may not be installed in the immediate area where trees are removed due to planting constraints. In this case, replacement trees will be planted elsewhere in the municipality where tree planting has been identified as a priority.

More information can be found in 6 Tree Planting, page 21.

Removal of the City's tree assets will not be considered under the following circumstances

- To reduce litter of leaves, fruit, or other debris
- If there is a safe, practical and cost-effective means for tree retention
- Obstructing or interfering with solar panels
- Unjustified or unsubstantiated property or infrastructure damage claims
- For causing minor allergenic and irritant responses
- To minimise obstruction of advertising signage and desired views
- To reduce the impact from any animals or birdlife waste and/or noise
- Trees that have been intentionally poisoned or vandalised
- For superficial or unsubstantiated bush fire risk concerns
- For personal aesthetic preference



Removal of the City's trees assets may be considered under the following circumstances

- In the case of works and development, only once all practical design solutions to retain the tree have been exhausted and there is no feasible alternative. Amenity value of the tree should be applied
- As part of a street upgrade project or capital works program that will result in a net increase in or improvement to green space and canopy cover over time, that could not be achieved with the existing trees
- The tree has a significant defect requiring action that cannot be rectified without removal of the tree
- Trees proven to be causing damage to private infrastructure or services where all interventions and solutions to retain the tree have been exhausted, and where the estimated cost of ongoing repairs outweighs the amenity value of the tree
- For pest, disease and biosecurity reasons that cannot be efficiently managed
- The tree is a known weed species of the Greater Bendigo region

Removal of the City's trees assets is warranted under the following circumstances

- A suitably qualified City arborist has undertaken inspection and the tree is:
  - hazardous and poses an immediate safety risk
  - considered structurally unsound, including root plate instability
  - dead, dying, diseased or in severe decline and poses an immediate risk to public health and safety
  - has an unacceptable probability of failure
- Approval has been given by a relevant authority within the City's Parks and Open Space unit

5.1 Notification of removal works

The City will endeavour to notify the relevant committees or residents of any proposed removal works taking place. In emergency situations, notification may not be undertaken prior to removal, but the City will ensure follow-up advisory details are distributed to the applicable parties.

If considerable concern is expressed by the community in relation to tree removal, the City's arborists may:

- Obtain an independent arborist report from a suitably qualified arborist to confirm or refute the City's position
- Prepare a report and submit it to the Manager of Parks and Open Space for review, and to make a final decision in line with the City's Urban Tree Management Policy and accompanying guidelines
- Refer the matter to the Manager of Parks and Open Space to inform and discuss with the applicable ward councillors

If required, a public meeting may result where the community response to the proposed removals are presented.

Proposed tree removals may be part of a broader landscape concept plan in which case other representatives of the project may be present to convey the required information and reasons for tree removal.

5.1.1 Residential streets and road reserves

Residents immediately adjacent the site where tree removal is proposed may be given written or verbal notice of the action, including arrangements for tree replacement.

5.1.2 Parks, reserves, and other City managed land

The City generally won't undertake notification of removal works of trees in parks, reserves and other parcels of City managed land. Signage will be displayed on trees scheduled for removal if they are significant trees (see 7 Significant trees, page 24) or are in a particularly prominent location.

5.2 Signage for removal works

Signage explaining the reason/s for removal of trees may be utilised and should be displayed for no less than for seven days prior to the works beginning. The signage will be clearly displayed and printed at a size easily legible comparable to the size of the tree.



6 Tree protection

Trees must be protected from construction works and other activities that may threaten their health and stability. When works are scheduled in proximity to City trees, proper tree protection practices must be employed to ensure the risk associated with trees is managed as well as possible.

During all construction, repair or development works within Greater Bendigo, existing City trees to be retained shall be protected in accordance with the relevant *AS 4970-2009 Protection of Trees on Development Sites* as a minimum, and the guidance outlined in the City's Protection and retention of trees on development sites document must be followed.

6.1 Tree Protection Zone

A Tree Protection Zone (TPZ) is the principal means of protecting trees on development sites and must be implemented within Greater Bendigo in accordance with *AS 4970-2009 Protection of Trees on Development Sites*.

To calculate the radius of a Tree Protection Zone, the following formula is applied:

Tree Protection Zone = DBH x 12

- DBH = trunk diameter measured at 1.4 metres above ground
- The maximum TPZ radius is 15 metres (except where crown protection is required) and should have a radius of no less than 2 metres

Minor Encroachment

If encroachment is proposed into the TPZ and is less than 10% of the TPZ area, detailed root investigation is not required. Appendix D of the Australian Standard provides further information on encroachment into the tree protection zone.

Major Encroachment

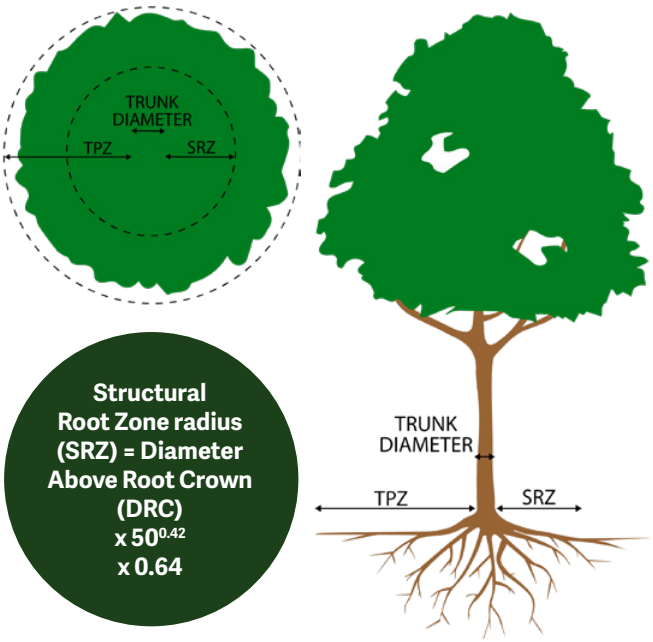
If encroachment is proposed into the TPZ and is greater than 10% of the TPZ area, a Structural Root Zone (SRZ) must be calculated, and the project arborist must demonstrate the tree will remain viable.

Before conducting any of the following works within a TPZ, a City arborist must be notified and consulted:

- Machine excavation including trenching
- Stockpiling of building materials, debris, or soil
- Storage of equipment and plant
- Vehicular traffic and parking except on existing paved or gravelled surfaces
- Installation of service pits or hatches
- Permanent or temporary vehicular crossings
- Severing of tree roots with a diameter greater than 30mm
- Alteration of soil levels and structure found not to be in accordance with the City's *Nature Strip Policy* and *Nature Strip Guidelines*
- Preparation of chemicals, including preparation of cement products
- Refuelling
- Wash down and cleaning of equipment
- Physical damage to the tree
- Excavation within a TPZ
  - Boring is the preferred method for installations of underground services within a TPZ
  - Boring should occur at a depth of at least 1 meter below the surface where possible
  - When boring is not possible, excavation shall be by hand or by a non-destructive method such as hydro excavation at low pressure with consent from the City's Arboriculture team
  - Entry and exit pits for boring activities must be positioned outside the designated TPZ of each tree

The extent or length of boring in the vicinity of trees will be determined by the TPZ. If proposed encroachment is greater than 10% of the TPZ, an SRZ must be calculated.





6.2 Structural Root Zone

The Structural Root Zone (SRZ) is the area required for tree stability. There are many factors that affect the size of the SRZ, making it a more difficult formula to calculate than the TPZ.

It is recommended that an online calculator is utilised to calculate both the SRZ and TPZ.

No works are permitted within the SRZ without the knowledge and consent of a City arborist. A City arborist must be contacted prior to works to discuss and will likely attend on-site to inspect as works are conducted.

6.3 Protective fencing

Before a development site is established, protective fencing must be installed around City trees and remain intact until works have concluded.

The TPZ should be utilised to delineate the area where protective fencing should be installed and access restricted. Information on calculating the TPZ can be found in the City's Protection and retention of trees on development sites document.

Existing perimeter fencing can be incorporated in the protective fencing.

In line with *AS 4970-2009 Protection of Trees on Development Sites*, if tree protection fencing cannot be installed, or if temporary removal is required, branch and trunk protection measures must be implemented.

AS 4687-2007 Temporary Fencing and Hoardings provides guidance for installation of temporary fencing.



Erecting fences to protect tree assets also allows for free and clear passage of pedestrians and provides clear visibility of driveway access, crosswalks, fire hydrants and other assets.

Signs identifying the TPZ are to be placed on the fencing, and no advertising material is to be displayed at any time. Signs should comply with *AS 1319-1994 Safety Signs for the Occupational Environment*.

6.4 Tree protection management plans

In instances where works and/or activities cannot be undertaken within the parameters stipulated in the City's *Protection and retention of trees on development sites* document, a Tree Protection Management Plan must be developed.

The Tree Protection Management Plan must:

- Be prepared by a qualified arborist (AQF Level 5 or above)
- Be approved and endorsed by a City arborist prior to commencement of any works or activities
- Be prepared in accordance with *AS 4970-2009 Protection of Trees on Development Sites*
- Include an arborist assessment of each tree, including photos indicating the tree's current condition
- Cover all phases of work including demolition, construction and post-construction activity

The principal contractor will be responsible for the implementation of the Tree Protection Management Plan by all contractors and personnel onsite.

6.5 Prohibited activities

In addition to information provided in the City's Protection and retention of trees on development sites, the below points outline other prohibited activities:

- Equipment, decorations and signage must not be tied to, tethered to, nailed to, suspended from or placed within the crowns, branches or stems. This includes fairy lights, swings, tree houses and bird houses
- There must be no vehicular movement or parking under the dripline of a City tree except where proper ground-protection, such as road, track mats or similar, has been implemented. Parking on nature strips is illegal and should not be done in any circumstance
- Refuelling, cleaning of equipment and emptying of any liquid waste must not occur under the dripline of any City tree





7 Significant trees

Greater Bendigo contains a large range of significant trees and vegetation that contribute to the aesthetics, history, and culture of the municipality. The City is currently developing an internal Significant Tree Register to recognise these contributions by identifying and protecting significant trees.

The Significant Tree Register aims to:

- Develop a consistent approach to identifying and assessing significant trees within Greater Bendigo
- Provide a clear and transparent process for the management and protection of Greater Bendigo's significant trees
- Raise awareness and educate the community about the importance of significant trees and the many benefits they bring

7.1 Eligibility for significance

In defining a significant tree, the City will likely adopt a modified version of the National Trust's Significant Tree Register criteria.

A City tree can be defined as significant if it meets any of the following criteria:

- Horticultural value - Any tree which is of horticultural or genetic value and could be an important source of propagating stock
- Location or context - Any tree which occurs in a unique location or context, including remnant native vegetation, important landmarks and trees which form part of a historic garden or park
- Rare or localised - Any tree of a species or variety that is rare or of a very localised distribution
- Particularly old - Any tree that is particularly old or venerable
- Outstanding size - Any tree outstanding for its large height, trunk circumference or canopy spread
- Aesthetic value - Any tree of outstanding aesthetic significance
- Curious growth form - Any tree which exhibits a curious growth form or physical feature such as abnormal outgrowths, natural fusion or branches or severe lightning damage
- Historical value - Any tree commemorating a particular occasion or having an association with an important historical even or figure
- Aboriginal culture - Any tree associated with aboriginal activities, culture, or heritage
- Outstanding example of species - Any tree that is an outstanding example of the species
- Environmental value - Any tree providing outstanding environmental benefits including greenhouse savings in nearby buildings, reduced stormwater flows, habitat benefits for local biodiversity, shading of public and private open space or a reduction in air pollution
- Remnant vegetation - Any tree likely to predate European development of the area

A tree may not be eligible where:

- The tree did not meet any of the Significant Tree Register criteria
- The tree has poor structure/health and/or a useful life expectancy of less than 5 years
- The tree is causing visible damage to a building or structure (house, office building, garage etc.)
- An objection has been submitted and granted

8 Tree planting

As part of the City's endorsed urban forest strategy, *Greening Greater Bendigo 2020-2070*, around 3,000 advanced trees are planted each year internally by the City. The City also plants around 5,000 native tubestock plants and trees through revegetation works and community planting days.

All tree planting should be guided by *Greening Greater Bendigo 2020-2070*, as well as master plans, structure plans, neighbourhood character plans and other Council endorsed strategic plans.

A combination of planning, site preparation, quality stock selection and on-going maintenance is essential for successful tree establishment and for avoiding costly interventions later.

In line with the City's *Nature Strip Policy* and *Nature Strip Guidelines*, it is not permitted for residents to plant trees on nature strips.

Tree planting throughout Greater Bendigo must be done in accordance with the relevant current City tree planting details.

8.1 Planting timing

The City's internal tree planting season typically runs annually from May 1 to November 30. This is the recommended time frame for tree planting to increase survival probability.

All trees should be planted within this window unless otherwise agreed to by the City's Urban Forest Planner or Tree Establishment Officer. Trees planted outside of this window will not be inspected for preliminary acceptance until March 1 onwards.

If climate allows, the planting season may begin earlier and extend beyond October to allow for additional desired tree planting outcomes.

8.2 Planting locations

The City will continue to seek new tree planting opportunities in appropriate locations to increase and maintain tree canopy cover and deliver associated environmental, social, and economic benefits. To maximise these benefits, the City will plant trees on City managed land and public land wherever conditions allow.

All City trees that are removed will be replaced as close as practically possible to the site of the removed tree.

Planting of singular replacement and infill trees may not necessitate customer engagement.

8.2.1 Distance offsets

Street, park and reserve trees should abide by the following distance offsets.

Infrastructure/service	Minimum offset distance
Domestic service tapping points	1m
Service lead in	2m
Stormwater outlets, service assets, tapping points, NBN pits and above-ground infrastructure	2m
Electrical joints, paralleling pillars	2.5m
Vehicle crossovers and driveways (dependent on species size)	1.5m – 3.m
Pedestrian pathways, fencing, bollards, or fixed edges	3m (where possible)
Sewer pits, gas/water valves, fire hydrants and plugs	3m
Sway wires	3m
Power pole	4m
Streetlight	4m
Intersections (intersection road, line of kerb)	10m
Spacing between small tree plantings	7m
Spacing between medium tree plantings	10m – 12m
Spacing between large tree plantings	15m

Recommended minimum offsets may be reduced if deemed appropriate by a City arborist.

Where the minimum offset distance cannot be attained, a City arborist can be contacted for advice and potential measures.

It is the responsibility of the tree planting contractor to identify and locate services infrastructure on site and position the trees accordingly.



8.3 Species selection

The City will plant the most appropriate tree species for a given location based on site suitability, aesthetic, functional and environmental attributes, and the potential to contribute to the predominant or preferred landscape character.

A preferred street tree list for the City has been developed and can be found in Appendix 1 of the City's *Landscape Design Guidelines for Subdivisions*. This list is reviewed and updated regularly.

Species selection should be driven by taking the following components into consideration:

Individual tree species components

- Above ground components:
  - mature size
  - ability to provide shade through canopy cover
  - form and structure
  - leaf, fruit and seed litter
  - potential for water sprouts and suckering
- Below ground components:
  - size of root systems
  - probability of invasive roots occurring
  - irrigation requirements
  - potential for suckering
- Useful life expectancy:
  - benefits of longer-lived trees
  - overlaps in age expectancy
- Species aesthetic and functional components:
  - autumn colour
  - leaf texture and colour
  - flowers
- Pest and disease resistance:
- Environmental factors:
  - frost susceptibility
  - leaf scorch and dieback
  - pollution
- Diversity:
  - opportunities to trial new species
  - increased species diversification across various precincts
  - opportunities to add or enhance biodiversity values

Location, character and heritage

- Characteristics of surrounds:
  - existing street tree species
  - resident gardens
  - precinct species

Complexity of area

- Major works/design implementation:
  - scheduled works and projects
  - street re-design and future road usage
  - tree pits, de-paving, water sensitive urban design, tree cells, permeable paving
- Infrastructure conflicts:
  - powerlines
  - electrical/gas
  - drains
  - footpaths and roads
  - potential for root heave
  - solar panels
  - design complications
- Bushfire zones:
  - in conjunction with powerlines
- Soil profiles

Climate and area attributes

- Future urban forest:
  - projected temperatures

Performance of species

- Tree audit results:
  - consistent poor performers
  - consistent good performing species

Stock availability

- Nursery advice:
  - juvenile performance
  - new cultivar trials

Community

- Consultation for large plantings in residential areas
- Feedback and perception around certain species



8.4 Biodiversity values

Biodiversity describes the enormous variety of genes, species, and ecosystems on Earth, including all the plants (trees, shrubs, forbs and mosses), animals (birds, mammals, invertebrates, frogs, and reptiles), fungi, and micro-organisms like bacteria. These form an intricate web, working together to maintain balance and support life.[1]

The City will actively seek out opportunities to create and enhance biodiversity values in the annual tree planting program, including through attempts create biolinks between key landforms, waterbodies, and surrounding bushland, reinforcing habitat connectivity, and creating pollinator links.

Where applicable, tree planting should be programmed considering any future mapping, modelling, or planning outcomes produced through the *Greater Bendigo Biodiversity Strategy and Action Plan 2023-2033*.

8.5 Supply of stock

All tree stock planted within the City must be supplied in accordance with *AS 2303 Tree Stock for Landscape Use*.

The City reserves the right to reject any supplied or planted stock that does not meet the Australian standard.

Trees should be healthy, structurally sound, free of pests and diseases, uniform in habit, have acceptable rootball occupancy, appropriate taper, and appropriate balance between the canopy and the rootball.

If tree stock has been sourced and it is suspected the tree(s) is non-compliant with the standard, the City's Urban Forest Planner should be notified to assess prior to planting.

The City may still accept stock that does not meet the Australian Standard based on the severity and the particular reason why the stock does not meet the standard.

Preferred stock sizing for tree planting at the City is 45L or 40cm container sizing.

8.6 Site preparation

Before tree planting works are undertaken, the following elements must be considered prior:

- Services and utility locations
- Access and movement
- Traffic management
- Future road usage and redevelopment

It is the responsibility of the tree planting contractor to identify and locate services infrastructure on site and position the trees accordingly. Refer to *8.2.1 Distance offsets* for more information. The planting contractor is responsible for any damage incurred to services. This includes organising repair and the cost of repair.

Before You Dig Australia (BYDA) should be contacted if there is uncertainty regarding infrastructure ahead of planting to ensure safety.

1. *Greater Bendigo Biodiversity Strategy and Action Plan 2023-2033*



8.7 Tree planting in developments

Tree planting in developments must be done in accordance with the endorsed landscape plan unless an agreement is made between the City and the developer. It is generally expected that tree planting in new developments will include a one street tree per lot ratio minimum.

The City's *Landscape Design Guidelines for Subdivisions* document details the requirements involved in planting street trees in new developments.

8.7.1 Preliminary acceptance

All planted trees must be inspected and recorded by the City's Tree Establishment Officer in line with the criteria outlined in "Form A" (the Preliminary acceptance checklist section of the *Landscape Design Guidelines for Subdivisions* document).

When trees have passed the preliminary acceptance audit, the allotted 24-month maintenance period will begin.

8.7.2 Maintenance period

Following planting, all new trees must be maintained for a nominated period to ensure proper tree establishment. The standard maintenance period is 24-months with the potential for an additional 12-months for nominated trees requiring maintenance for a longer period.

Tree maintenance includes installation of stakes and ties, mulch topping, weed control, regular watering, formative pruning and keeping building or garden rubble away from tree surrounds.

8.7.3 Final acceptance (hand over)

After the 24-month maintenance period has concluded, the responsible contractor must contact the City and organise for the Tree Establishment Officer to conduct a handover assessment, known as Final Acceptance.

The trees will be inspected and recorded by the City's Tree Establishment Officer in line with the criteria outlined in "Form B" (the Final acceptance checklist section of the *Landscape Design Guidelines for Subdivisions* document).

All trees are expected to meet the criteria of the final acceptance checklist prior to a final acceptance meeting being organised.

Trees meeting the requirements of the final acceptance checklist will be accepted and handed over to the City.

Where a tree fails and can under no circumstance ever be accepted as a City-owned tree asset, the developer will be given the option to forfeit the bond money ($500 per tree, see 4.1.3 Replacement and reinstatement costs, page 18), or replace the tree and begin the 24-month maintenance period again.

This process is to be discussed with the City's Urban Forest Planner and Landscape Development Officer.

8.8 Community requests for tree planting

The City will actively respond and commit to planting trees wherever possible when requested by the community. Requests for tree planting can be lodged through the City's website.

Resident tree planting on nature strips is not permitted. All planting and landscape work on nature strips must be in line with the City's *Nature Strip Policy* and *Nature Strip Guidelines*.

Community requests for street tree planting cannot be guaranteed to take place in the same planting season cycle when the request is made. Planting numbers are limited to available annual operational budget allocation and tree stock may already be secured for the season. In this instance, community requests will still be actioned with planting to occur in the following season.

8.9 Site clean up

All waste from tree planting activities is to be removed from the site. This includes:

- Rocks and material dug out of the ground
- Pots, trays and plastics
- Nursery labels, ties, bamboo
- Pruned material and leaf matter
- Other rubbish and litter

Surfaces surrounding the new tree should be reinstated back to as close to original condition as reasonably possible with mulch applied neatly around the tree.



9 Emergency management

In the event of a declared emergency, such as bushfire, floods or storms, the City may be required to allocate additional time and resources toward additional tree inspections and maintenance.

The City may also investigate the possibility of making claims to the Victorian State Government for assistance if an emergency is deemed significant enough.

9.1 Bushfire response

The effects of bushfire on the community and its urban forest can be catastrophic. If a bushfire event impacts upon the City's urban area, the following processes have been outlined to ensure no adverse risk is placed upon the community during times of distress:

- All areas directly affected by bushfire are to be inspected by a suitably qualified arborist as specified in the City's Urban Tree Management Policy and accompanying Guidelines
- All fire impacted trees must have a Level 2 arboricultural inspection undertaken by a suitably qualified arborist

9.2 Flood response

The increased impacts of flood events can leave the community and its urban forest, wildlife, property and livelihood severely damaged. In the event of a flood, where the City's urban area has been impacted, the following processes have been outlined to ensure no adverse risk is placed upon the community during times of distress:

- All flood affected roads will have a Level 1 arboricultural inspection undertaken to identify any obvious hazardous trees or defects
- All flood affected City parks, reserves, and throughfares shall remain closed to the public until such time that the appropriate arboricultural assessments have been conducted on flood affected trees

9.3 Severe wind and storm events

High winds, excessive rainfall, lightning, and other storm events can ravage trees, rendering them potentially higher in risk.

Storms and winds can cause branches and stems to break and debris to scatter. Through this, access to roads and property may be blocked.

- All storm damaged trees will have a Level 2 arboricultural inspection undertaken to identify any hazardous trees or defects
- All storm impacted City parks, reserves, and throughfares shall remain closed to the public until such time that the appropriate arboricultural assessments have been conducted on storm affected trees

10 Glossary

AQF Levels	Australian Qualifications Framework Levels.
Amenity value	A financial figure calculated and determined by the social, economic, aesthetic, and environmental benefits provided by a tree specimen with the City.
Biodiversity	Biodiversity is short for biological diversity and is used to describe the variety of present life forms such as plants, animals, their genes and the ecosystems they exist within.
BMO	Bushfire Management Overlay.
Bushland/natural reserves	Areas of indigenous vegetation managed for their conservation, environmental, habitat, recreational and heritage values.
(the) City	City of Greater Bendigo.
City tree	Refers to all public trees that this policy applies to, including those that are on land owned or managed by the City within Greater Bendigo's urban boundary townships and along roadsides in zones up to 80km/hr.
Cultivated variety (Cultivar)	A cultivar is a plant or tree that has been propagated by people for a desired trait or feature. Cultivars may be utilised for uniformity, pest and disease resistance, aesthetic features and more.
Deciduous	Trees and shrubs that shed leaves annually.
Diameter at Breast Height (DBH)	Tree trunk diameter measured at breast height. Measured vertically at 1.4m from ground level.
Dieback	The gradual deterioration of a tree's health.
Dripline	The outermost circumference of a tree's canopy.
EMT	Executive Management Team.
Endemic species	A species indigenous and restricted to a specific region.
ESO	Environmental Significance Overlay, as adopted through the City planning scheme.
Evergreen	Trees and shrubs that retain active foliage throughout the year.
Exotic species	Any species of tree or shrub that isn't native to Australia.
Geographic Information System (GIS)	A digital system for capturing, storing, and maintaining data relating to geographical position and mapping.
Green infrastructure	Describes the network of natural landscape assets which underpin the social-cultural, economic and environmental functionality of urban areas and townships.
Grey infrastructure	Refers to man-made constructed assets such as roads, paths, drainage infrastructure, utilities, factories and carparks.
Hazard	A situation or thing that has the potential to harm a person – Safe Work Australia.
HBRA	High Bushfire Risk Area.
HO	Heritage Overlay.

Hydrovac	A piece of equipment that allows for a non-destructive method of excavation of soil through the use of high-pressure water.
Indigenous species	A species that is naturally occurring within a region.
Integrated pest and disease management	An effective, risk reduced and ecosystem focused approach to managing pests and diseases.
LBRA	Low Bushfire Risk Area.
Risk	The combination of the likelihood of an event and the severity of the potential consequences. In the context of trees, risk cannot be eliminated. Best arboriculture practices aim to minimise and manage trees to an acceptable level of risk.
Road sides	Road side means any land that is within the boundaries of a road (other than the shoulders of the road) which is not a roadway or a pathway. For example, any nature strip, forest, bushland, grassland or landscaped area within the road reserve would be a road side.
Root barrier	A physical or chemical treatment that redirects or inhibits tree roots from growing into an area requiring protection from possible damage.
SLO	Significant Landscape Overlay.
Tree risk assessment method	Tree risk assessment methods are systems used to calculate and inspect a level of risk and likelihood associated with trees. There are both quantitative and qualitative methods of evaluating risk in trees. The City prefers the following tree risk assessment methods or similar; VALID, TRAQ and QTRA.
Urban area	An area within a defined urban settlement, township or public open space boundary.
Urban forest	The sum of all trees and other vegetation within urban areas, as well as the soil and water that supports it. An urban forest is made up of all vegetation in streets, parks, gardens, campuses, creek and river verges, wetlands, transport corridors, community gardens, balconies, and rooftops.
Urban heat island	An urban area or metropolitan area that is significantly warmer that its surrounding rural areas due to human activities. The temperature difference is usually larger at night than during the day and is most apparent when winds are weak.
Useful Life Expectancy (ULE)	An estimate of time for how long a tree is likely to remain in the landscape based on species characteristics, health, stage of life, amenity value, infrastructure conflicts, risk and environmental services contributions. Differs slightly to Safe Useful Life Expectancy (SULE), where age, health, safety and location are prioritised for consideration.
VPO	Vegetation Protection Overlay.
Water Sensitive Urban Design (WSUD)	Water Sensitive Urban Design is a land planning and engineering design approach which integrates the urban water cycle, including stormwater, groundwater and wastewater management and water supply, into urban design to minimise environmental degradation and to make use of this valuable resource.
Weeds	An undesirable species in a specific given area. Particularly species with the potential for overpopulation and negatively contending with the native and indigenous biodiversity. Noxious weed means a; (i) state prohibited weed species; (ii) regionally prohibited weed species; (iii) regionally controlled weed species; or (iv) restricted weed species.
WWRR	Works within the road reserve.



11 References

Acts

- *Electricity Safety Act 1998*

Arboriculture Australia Minimum Industry Standards

- *MIS306 - Tree Inspection for Access and Work*
- *MIS506 - Tree Valuation*
- *MIS312 - Environmental Arboriculture*

Australian Standards

- *AS 4970-2009 Protection of Trees on Development Sites*
- *AS 4373-2007 Pruning of Amenity Trees*
- *AS 4687-2007 Temporary Fencing and Hoardings*
- *AS 2303-2018 Tree Stock for Landscape Use*
- *AS 1319-1994 Safety Signs for the Occupational Environment*

City of Greater Bendigo

- *Greater Bendigo Biodiversity Strategy and Action Plan 2023-2033*
- *Electrical Line Clearance Management Plan*
- *Nature Strip Policy*
- *Nature Strip Guidelines*
- *Protection and retention of trees on development sites*
- *Risk Management Framework*
- *Risk Management Policy*
- *Significant Tree Register*
- *Urban Tree Management Policy*

Regulations

- *Electricity Safety (General) Regulations 2019*
- *Electricity Safety (Line Clearance) Regulations 2020*



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