

Tree Survey Table Notes

Genus, Species and Common Name

The botanical and common name of each tree is identified and recorded. Occasionally the exact species name is unknown, *sp.* is recorded to indicate this.

Height, Spread, Trunk Dia, DBH and DRB

- The trees height and spread is recorded in metres.
- The tree **DBH** is recorded in millimetres. DBH is an abbreviation of Diameter (of the trunk) measured at Breast Height (or 1.2m from the base of the trunk). If more than one trunk is present the DBH is calculated in accordance with AS4970-2009 Protection of Trees on Development Sites.
- If the tree has multiple trunks multiple trunks each trunk DBH (**Trunk Dia**) will be recorded individually.
- The tree **DRB** is recorded in millimetres. DRB is an abbreviation of Diameter (of the trunk) measured above the Root Buttress. It is required to calculate the SRZ in accordance with AS4970-2009 Protection of Trees on Development Sites when there is major encroachment within the TPZ, ie. greater than 10% is encroached upon or if there is an encroachment within the SRZ.

SRZ (Structural Root Zone)

The SRZ is a radial area extending outwards from the centre of the trunk. This area contains the majority of the structural woody roots. This area is responsible primarily for stability. Root damage or root loss within this zone greatly increases the opportunity for decay fungi to ingress into the heartwood, causing internal decay in addition to destabilising the tree's structural integrity. The SRZ is calculated as follows (This calculation is derived from the Australian Standard 4970 – 2009 Protection of Trees on Development Sites):

$$\text{SRZ (Radius)} = (D \times 50)^{0.42} \times 0.64$$

TPZ (Tree Protection Zone)

The TPZ is a circular area with a radius measured by multiplying the DBH by twelve (12), or a circular area the size of the tree's drip line whichever is greater. This area contains the majority of the essential structural and feeder roots responsible for stability, gaseous exchange and water and nutrient uptake. Excavation, back filling, compaction or other disturbance should not occur in this area.

The TPZ is used to identify the minimum area required for the safe retention of a given tree. This calculation is derived from the Australian Standard 4970 – 2009 Protection of Trees on Development Sites. An incursion to 10% within the TPZ is potentially acceptable if no other option is available. A major encroachment (in excess of 10%) is required to be clearly justified by the project Arborist and compensated for elsewhere. Justification methodology may vary depending on site or the individual trees health, vigour and ability to withstand disturbance and may require root investigation.

Age

The age class of each tree is estimated as either:

- **J** – Juvenile, a young sapling, easily replaced from nursery stock.
- **SM** - Semi Mature, a tree that has not grown to mature size.
- **M** - Mature, a tree that has reached mature size and will slowly increase in size over time.
- **OM** - Over Mature, a tree that has been mature for a long period and is beginning to display signs of decline, e.g. large dead branches.
- **S** - Senescent, an over mature tree that is now in decline.

Health

The trees health is recorded as a measurement of:

- **G** - Good the tree does not appear stressed with no excessive dieback, insect infestation, decay, dead wood or epicormic shoots.
- **Avg** - Average Health the tree appears stressed and have some crown dieback, and/or a few epicormic shoots, and/or some dead wood in the crown and some new growth at branch tips. These trees may benefit from remediation of the growing environment to reduce stress and return it to good health.
- **F** - Fair the tree may have areas of crown dieback, and/or epicormic shoots, and/or areas of decay, and/or reduced new growth at branch tips. These trees have been stressed for a short period of time, remediation of the growing environment may improve the trees health.
- **P** - Poor the tree may have large areas of crown dieback, and/or many epicormic shoots, and/or reduced new growth at branch tips. These trees have been stressed for a long time, remediation of the growing environment would not return the tree to good health.

Crown Condition

The crown condition of each tree is assessed and recorded as either:

- **G** - Good Condition: the tree appears to have no visible indication of inherent structural defects.
- **Avg** - Average Condition: the tree has minor structural defects which may be corrected with remedial works or pruning, allowing the tree to return to Good Condition.
- **F** - Fair Condition: the tree has visible structural defects such as (but not limited to) dead branches, and/or an unbalanced crown, and/or leaning trunk and/or areas of decay. These trees do not demonstrate the typical form of their species, or have been damaged or have begun to deteriorate. Remedial works or pruning may return the tree to Average Condition.
- **P** - Poor Condition: the tree has significant structural defects such as (but not limited to) very large dead branches, and/or extremely unbalanced crown, and/or subsiding trunk and/or large areas of decay. These trees do not demonstrate the typical form of their species, or have been severely damaged or have deteriorated significantly. Remedial pruning would not return the tree to Fair Condition.

Significance

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. When determining a tree's significance within the landscape context, the following questions are asked of each tree. Significance may be expressed in increments of High, Medium or Low. For a High rating the majority (≥ 4) of the answers will be yes; for a Medium rating half ($=3$) of the answers will be yes; and for the Low rating the minority of answers will be yes (≤ 2).

1. Is the tree a locally native remnant; an endangered species; a part of an endangered ecological community; or does the tree provide critical habitat for an endangered species?
2. Is the tree of botanical interest; listed as a heritage item under the Federal State or Local Regulations?
3. Is the tree visually prominent in the locality?
4. Is the tree well structured?
5. Is the tree in good health and does it display signs of good vigour?
6. Is the tree typically formed for the species?
7. Is the tree located in a position that will accommodate future growth?

Amenity Value

Amenity value is a subjective measurement based on the tree's contribution to the landscape, it may be based on the tree's visual form, however it also includes non visual attributes such as provision of shade for a seat, screening of poor views or for privacy, or if it has historical significance. The amenity value is recorded as:

- **H** - High, the trees form is an excellent example of its species and it makes a great specimen and/or it has other attributes such screening, or is historical significance. These trees are visually prominent and valuable to the community or public domain.
- **M** - Medium, the tree may have an altered form and/or it has attributes that provides amenity to local residents only.
- **L** - Low, the tree is not a good specimen and it does not provide substantial benefit to local residents or the community.

Ecological Value

Ecological value is a measurement of the trees contribution to the environment. It is determined by the trees area of origin, its potential to provide habitat to native fauna and its potential to become an environmental pest. The ecological value is recorded as:

- **H** - High, the tree is locally native or remnant and/or it has habitat value for native fauna.
- **M** - Medium the tree is native but not locally native.
- **L** - Low, the tree is not native and/or it may be a listed nuisance or weed species.

- **Ha** – Habitat, is the tree valued by fauna for food (ie. foliage fruit or sap) or shelter (ie. nesting, roosting, dray or hollow).

Form

The form, structure or shape of each tree is assessed and recorded as either one or a combination of several of the below terms may be used to describe the trees form; **(U)** Upright, **(B)** Broad, **(C)** Conical, **(Sh)** Shrub, **(CS)** Crown Shy (also referenced is the adjacent dominant tree canopy ie. **T4**), **(V)** Vase, **(D)** Dome, **(P)** Palm, **(S)** Spreading, **(L)** Leaning or **(BM)** Basal Multi Trunked.

Crown form may also be assessed in accordance with the relationship with the neighbouring tree and recorded as either: **S** - Suppressed, the crown is located beneath another larger crown and is leaning away (Crown Shy); **C** - Codominant, the crown is adjacent to another crown of similar size, their crown areas may appear joined; **D** - Dominant, the crown is above other lower crowns; **E** - Emergent, the crown emerges from a lower canopy formed by other dominant or codominant crowns.

Defects

The presence of one or a combination of several defects is recorded **(W)** Wound, **(D)** Decay, **(F)** Fungus, **(B)** Bulge, **(FB)** Fibre Buckling, **(C)** Cracks, **(S)** Split, **(H)** Hollow, **(DB)** Die Back, **(E)** Epicormic shoots, **(DW)** Dead Wood, **(I)** Inclusion, **(CA)** Cavities, **(PF)** Previous Failure, **(R)** Root Damage, **(P)** Pruning wound, **(PD)** Pests and diseases, **(ST)** Storm Damage.

Development Setback / Impact

The successful retention of trees on construction sites is dependent on the adequate allocation and management of the space above, below and around trees to be retained.

The trunk and canopy of tree/s to be retained must be protected to ensure the trunk and branches are not damaged during construction. The removal of bark and / or branches allows the potential ingress of micro organisms which may cause decay. Similarly the removal of bark restricts the tree's ability to distribute water, mineral ions and glucose.

It is essential to prevent the disturbance of the soil beneath the drip line of each tree, because this is the area where oxygen, water and mineral ions are absorbed by tree roots. Oxygen, water and mineral ions are essential for healthy plant growth. If soil becomes compacted, the ability of roots to function correctly is greatly reduced. Similarly the removal or damage of roots will reduce the ability of roots to function correctly. Woody roots provide stability for the tree and they also transport nutrients to the leaves.

The potential implications of removing or damaging roots are threefold:

1. The risk of whole tree failure is increased, as tree roots anchor and stabilise the tree. Woody roots are developed to assist in the support of the tree in prevailing wind, with these roots removed wind throw may occur, which would result in the mass failure of the tree.
2. The ability of the tree to absorb and transfer the essential nutrients, oxygen and water from the soil to the leaves is greatly affected. This will place the

tree under stress and reduce the tree's ability to photosynthesise, and in turn cause the tree to use up stored energy reserves. These energy reserves are used to fight infection and insect attack, for new growth, maintenance of existing tissues and also for healing wounds. Once energy reserves become depleted a tree is much more susceptible to drought, disease and pest attack.

3. Open wounds are sites by which decay-causing pathogens can enter the tree. The severance or damage of woody roots creates sites where pathogens may gain ingress. Whilst the effect of decay may not be immediately apparent, the long term health and structure of the tree will be compromised.

Comments

Comments generally relate to the suitability for retention. The comments allow for a brief notation of other factors relevant to the assessment of the tree.