




Technical Manual
Landscape
(updated April 2015)

Technical Manual - Landscape
prepared by the City of Newcastle.

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Part 1 Standard drawings

Landscape structures are to be constructed in accordance with Council's Standard Drawings. Standard drawings provide engineering detail to support the Newcastle DCP and this Technical Manual. Standard drawings are available for landscape furniture, trees, turf, edging, hardstand areas, softfalls, fences, handrails and balustrades. A full list of standard drawings are available on Council's website.

www.newcastle.nsw.gov.au/building_and_planning/planning_controls/standard_drawings

Part 2 Undesirable trees

From an urban forestry perspective, all woody species have inherent value, even those species that have some negative characteristics. For example, although Camphor Laurel is listed as 'undesirable', mature trees still provide essential shade, stormwater capture, and filter air pollution.

The urban forestry approach seeks to strategically manage 'undesirable' trees by discouraging the planting of these species.

Undesirable Species are listed in Appendix 1 - Undesirable tree pests and diseases – Newcastle LGA. Trees are described as 'undesirable' due to one or more of the following:

- excessive or unmanageable seed dispersal
- poisonous leaves, fruit or flowers
- excessive or unmanageable root suckering
- garden escape
- readily self-propagating from pruning and other materials from gardens
- non-local native species becoming an environmental weed.

Note: Refer to Appendix B - Undesirable tree pests and diseases - Newcastle LGA.

Part 3 Tree protection measures

Tree protection to be in accordance with AS4970 2009 – Protection of trees on development sites.

3.1 Guidelines for preparing a tree protection plan

Tree protection plans (TPP) are to be prepared by a suitably qualified arborist.

Tree protection measures should be applied to trees on both private and public land. Prior to preparing a TPP refer to DCP Section 5.03 Tree Management.

The DCP requires that any tree that is to be retained including any street tree that has a trunk within 5 metres of the property boundary is required to be protected during the demolition and construction phase of development.

The DCP requires submission of a tree protection plan detailing protection zones and protection measures to be submitted with the Construction Certificate application.

Tree protection plans are required for all works and activities affecting trees.

3.1.1 Preparing a tree protection plan for trees

Preparation of tree protection plans for private land should be in accordance with AS4970 2009 – Protection of trees on development sites.

3.1.2 Preparing a tree protection plan for trees on public land

Preparation of tree protection plans for public land should be in accordance with AS4970 2009 – Protection of trees on development sites; however, some circumstances require modification of the tree protection zone, for example trees on road verges.

Required modifications should be determined onsite by a suitably qualified arborist.

3.2 Tree protection fencing

Tree protection fencing to be in accordance with AS4970 2009 – Protection of trees on development sites.

All trees retained will require adequate protective fencing to be established prior to any tree removal works, demolition, earthworks, or construction works. The site supervisor is responsible for ensuring TPZ fencing is maintained at the required distance from the tree and kept secure to ensure no access until completion of works and rehabilitation of the site has occurred.

3.2.1 Fencing types

Tree protection fencing types to be in accordance with AS4970 2009 – Protection of trees on development sites.

3.2.2 Tree protection fencing for road verges

For trees situated within a road verge, only the verge shall be enclosed with the required tree protection fencing. Maintain pedestrian and roadway clearances for safe public use. **Figure 2a** and **2b** indicate typical treatment, however, modifications may be required.

All works adjacent to the roadway require a Traffic Control Plan as per AS 1742.3 - Traffic control devices for works on roads.

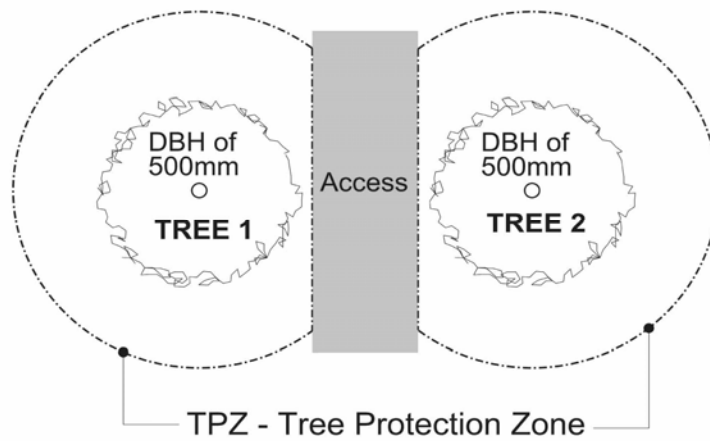
3.2.3 Tree protection fencing in parks, reserves and bushland settings

Tree protection fencing is required for works within six metres of a park, reserve or bushland tree.

For trees in parks, reserves or bushland the TPZ is 12 x diameter at breast height (DBH). DBH is measured at 1.4 metres above ground level.

If access is required within the TPZ, ground protection is to be provided in accordance with AS4970-2009 Protection of trees on development sites.

Figure 1: Indicative tree protection in parks, reserves and bushland settings.



Note: A Tree Protection Plan (TPP) is required for any works within the area outlined by dashed line (eg. DBH of 500mm requires a TPP for works within 6m or less).

3.2.4 Tree protection fencing in parks, reserves and bushland settings

Tree protection signs are to comply with AS4970-2009 Protection of trees on development sites.

3.3 Inspections

Inspections are to be undertaken by the Private Certifying Authority to ensure the tree protection measures are in accordance with the approved Tree Protection Plan (TPP). Tree protection measures are to be implemented prior to the commencement of construction and remain in place until construction is complete.

Figure 2a: Indicative tree protection on the road verge.

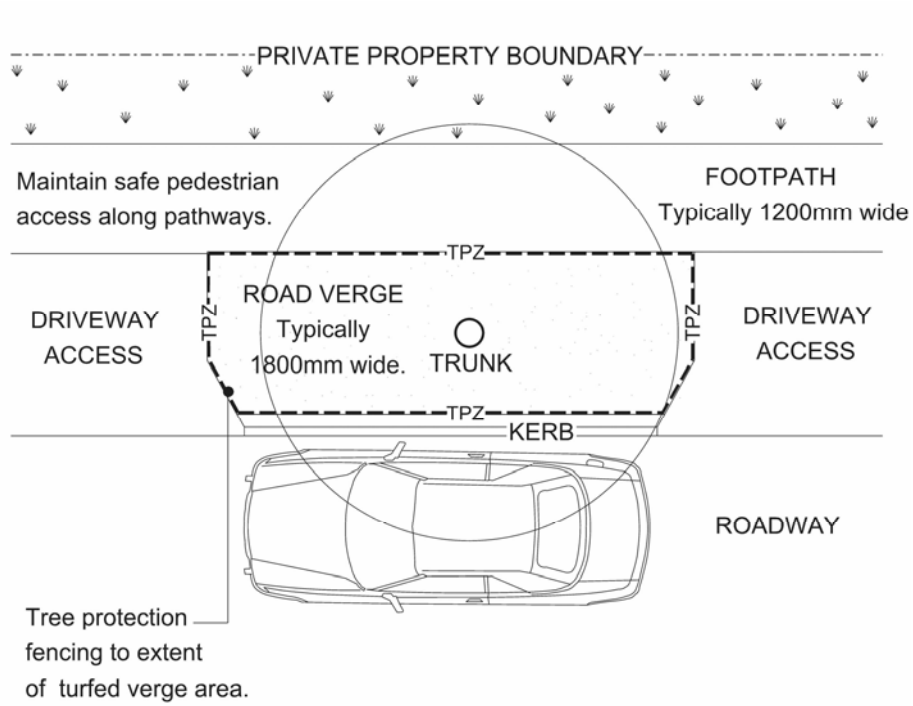
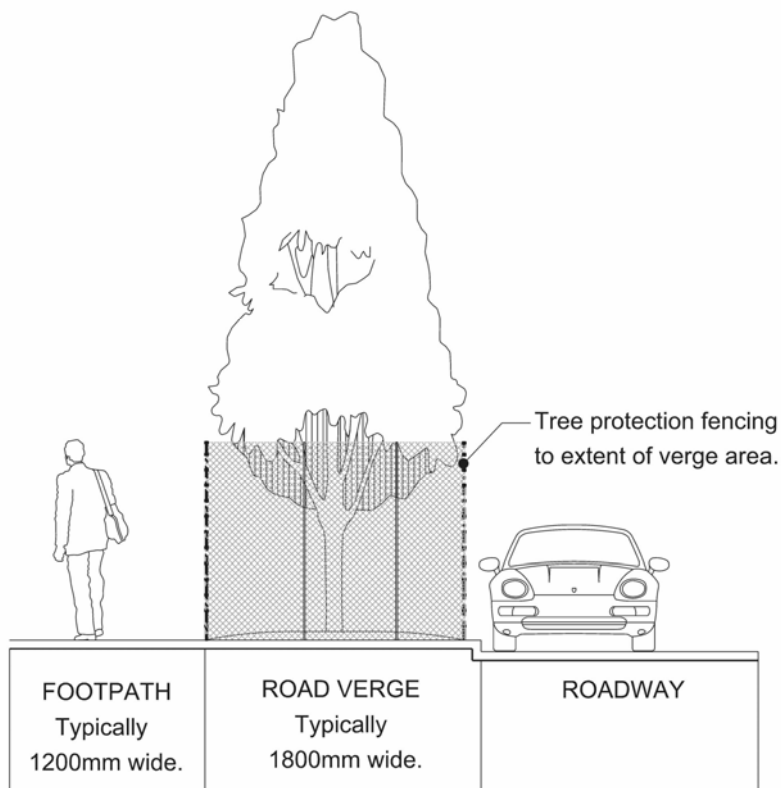


Figure 2b: Indicative tree protection on the road verge.



Appendix A – Checklist for Landscape Plan Preparation

Checklist for Subdivision Applications

To assist in the preparation of a Landscape Plan at subdivision application stage the following checklist should be used to ensure all items are shown on the plan.

1. Existing Site	
	Site location
	Boundaries
	Boundary dimensions
	Site area
	Existing vegetation and soils (including description of groundcover)
	Water elements (eg creeks, rivers, swamps)
	Heritage elements
	Adjacent existing landuses
	Other landscape features (eg cliffs, quarries, sand dunes, riverbanks etc)
	Contours or spot levels across the whole site
	Location and uses of existing buildings
	Location and types of services to and across the site
	Photographs and photo panoramas should be included for major projects
2. Proposed Development	
	Existing vegetation to be retained
	Proposed lot layout and new boundaries
	Proposed roads, driveways and parking areas
	Proposed open space network, links to other facilities and services
	Proposed drainage systems: detention basins, channels etc
	Proposed contours or spot levels
	Indicative cross sections through the site showing existing and final landform
	Proposed planting principles: street tree themes, wildlife corridors, buffer planting, aboreal screens, noise reductions, fire hazard reductions
	Proposed maintenance requirements eg high, medium, low areas
	Proposed pedestrian access eg footpaths, walking tracks, cycleways
	Proposed services and easements describing type of utility
	Hazard reduction requirements, if applicable
	Attach a copy of the erosion and sedimentation control plan, if applicable
	For major projects, additional information could include models, persepctives and aerial photographs

3. Information to be included on the Site Plan

	Site address
	Applicants name, address and contact number
	Consultants name, address and contact number
	Project title
	Scale of drawing (use only standard metric scale eg 1:500, 1:200 etc)
	North point
	Date of drawing
	Plan reference number
	3 copies submitted to Council

Checklist for Development Applications

To assist in the preparation of a Preliminary Landscape Plan at development application stage the following checklist should be used to ensure all items are shown on the plan.

1. Existing Site	
	Site location
	Boundaries and boundary dimensions
	Site area
	Existing vegetation and soils (including description of groundcover)
	Water elements (eg creeks, rivers, swamps)
	Heritage elements
	Adjacent existing landuses
	Other landscape features (eg cliffs, quarries, sand dunes, riverbanks etc)
	Contours or spot levels across the whole site
	Location and uses of existing buildings
	Location and types of services to and across the site
	Photographs and photo panoramas should be included for major projects
2. Proposed Development	
	Proposed new buildings and boundaries
	Proposed open space & uses eg passive or recreation, informal areas
	Proposed drainage systems: detention basins, channels etc
	Proposed finished levels and extent of cut/fill eg contours or spot levels
	Indicative cross sections through the site showing existing and final landform
	Existing trees to be retained
	Proposed planting principles: street tree themes, wildlife corridors, buffer planting, aboreal screens, indicative species, locations etc
	Proposed retaining walls, fences with indicative height, material, including privacy screens, courtyard walls
	Proposed maintenance requirements eg high, medium, low areas
	Proposed pedestrian access eg footpaths, walking tracks, cycleways
	Proposed surface treatments (turf, paving, planted areas, water elements)
	Proposed bank stabilisation, including batters
	Proposed services and easements describing type of utility
	Hazard reduction requirements, if applicable
	Proposed roads, driveways and parking areas

	Attach a copy of the erosion and sedimentation control plan, if applicable
	For major projects, additional information could include models, perspectives and aerial photographs
3. Information to be included on Site Plan	
	Site address
	Applicants name, address and contact number
	Consultants name, address and contact number
	Project title
	Scale of drawing (use only standard metric scale eg 1:500, 1:200 etc)
	North point
	Date of drawing
	Plan reference number
	3 copies submitted to Council

Checklist for Construction Certificate Applications

To assist in the preparation of a Comprehensive Landscape Plan at construction certificate application stage the following checklist should be used to ensure all items are shown on the plan.

1. Existing Site	
	Site location
	Boundaries and boundary dimensions
	Site area
	Existing vegetation and soils (including description of groundcover)
	Water elements (eg creeks, rivers, swamps)
	Heritage elements
	Other landscape features (eg cliffs, rock outcrops, sand dunes, river banks)
	Contours or spot levels across the whole site
	Location and uses of existing buildings
	Location and uses of existing buildings on adjoining sites
	Location and types of services to and across the site
	Photographs and photo panoramas should be included for major projects
2. Proposed Development	
	Location of new buildings
	Form, scale, finishes of new buildings
	Extent of site disturbance including to adjacent sites
	Proposed finished levels eg contours or spot levels
	Proposed extent of cut/fill and methods of bank stabilisation
	Existing trees to be retained and methods of protection
	Proposed planting indicating: location, species, numbers and container sizes
	Planting details as sections indicating method of planting, depth of topsoil, mulch type, staking
	Proposed external surface treatments (turf, paving, massed planted areas, water elements) – nominate surfaces of all paved areas
	Proposed roads, driveways and parking areas
	Fences, retaining walls and privacy screens – nominate type and material
	Proposed services and easements describing type of utility
	Watering system and hosecock location
	Construction details
	Technical specification including nominated maintenance period
3. Information to be included on Site Plan	
	Site address
	Applicants name, address and contact number

	Consultants name, address and contact number
	Project title
	Scale of drawing (use only standard metric scale eg 1:500, 1:200 etc)
	North point
	Date of drawing
	Plan reference number
	3 copies submitted to Council

Appendix B – Undesirable Tree Pests and Diseases – Newcastle LGA

Table 1.1: Undesirable trees

Scientific Name	Common Name	Notes/Exceptions	Principal Reason
<i>Acacia baileyana</i>	Cootamundra Wattle		Native species but may become an environmental weed outside its natural habitat range.
<i>Acacia salignus</i>	Golden Wattle		Native species but may become an environmental weed outside its natural habitat range.
<i>Ailanthus altissima</i>	Tree of Heaven		Invasive (seed)
<i>Albizia lophantha</i>	Cape Wattle		Invasive (seed)
<i>Chamaecytisus</i>	Tree Lucerne		Invasive (seed)
<i>Chrysanthemoides</i>	Bitou Bush		Invasive (seed)
<i>Cinnamomum camphora</i>	Camphor Laurel	Except where the tree height exceeds 10m or the trunk diameter at 1.4m above ground level exceeds 450mm.	Invasive (seed)
<i>Cotoneaster spp</i>	Cotoneaster	All species	Invasive (seed)
<i>Erythrina x-sykesii</i>	Coral Tree		Brittle structure and Invasive due to vegetative reproduction.
<i>Ficus elastica</i>	Rubber Tree		Invasive roots
<i>Gleditsia triacanthos</i>	Honey Locust	Not grafted horticultural cultivars	Root suckering
<i>Ligustrum spp</i>	Privet	All species	Invasive (seed)
<i>Nerium oleander</i>	Oleander		Toxicity
<i>Pyracantha spp</i>	Firethorn	All species	Invasive (seed)
<i>Robinia pseudoacacia</i>	Black Locust	Not grafted horticultural cultivars	Root suckering
<i>Salix spp</i>	Willow	All species	Invasive due to vegetative reproduction and root suckering.
<i>Schefflera</i>	Umbrella Tree		Invasive (seed)
<i>Schinus</i>	Brazilian Mastic		Invasive (seed)
<i>Syagrus</i>	Cocos Palm		Invasive (seed)

Table 1.2: Common tree pests and diseases

Common name	Scientific name	Comment
TREE DISEASES REPORTED IN NEWCASTLE		
Armillaria root rot	<i>Armillaria luteobubalina</i>	Soil born fungus can reduce tree stability.
Butt Rot	<i>Ganoderma applanatum</i>	Airborne spores enter trees via wounds. A basidiomycete that produces platform-like hard brown brackets on Palms and grey surfaced brackets on many other woody species.
White Rot	<i>Phellinus</i> spp	Airborne spores enter tree via wounds.
Plane Anthracnose	<i>Apiognomonina veneta</i> (asexual: <i>Discula</i>)	London Planes especially in humid weather.
Powdery Mildew		Common on Crepe Myrtle.
Dieback of Claret Ash	Unknown organism or	<i>Fraxinus oxycarpa</i> 'Raywood'.
Burnt Crust fungus	<i>Kretzschmaria deusta</i>	An ascomycete that parasitises living trees by rotting cellulose and lignin (mainly lignin) & weakens heartwood with implications for structural integrity. Causes white and brown rot – also called soft rot. No controls exist.
Fusarium wilt of Phoenix canariensis (Canary Island Date Palm)	<i>Fusarium oxysporum</i> f. sp. canariensis	The Botanic Gardens Trust believes palm wilt is responsible for the death of palms in Dangar Park. Soil born fungus that also infects <i>Washingtonia</i> species.
Root Rot	<i>Phytophthora cinnamomi</i>	Soil born fungus especially in wet soil conditions.
Myrtle Rust	<i>Uredo rangellii</i>	A serious fungus closely related to Guava Rust that infect the plant family Myrtaceae.
Botryosphaeria	<i>Botryosphaeria parva</i>	A variant of the <i>Botryosphaeria</i> family of fungus that affects Norfolk and Cook Island Pine.
TREE DISEASES IN AUSTRALIA - NOT REPORTED IN NEWCASTLE		
Cypress Canker	<i>Seiridium cardinale</i> , <i>S. unicorn</i> and <i>S. cupressi</i>	Numerous conifer species affected.
EXOTIC DISEASES – POTENTIAL THREATS TO AUSTRALIA		
Sudden Oak Death	<i>Phytophthora ramorum</i>	Soil born fungus threat to numerous species.
Pitch Canker of Pine	<i>Gibberella circinata</i> / <i>Fusarium circinatum</i>	Threat to <i>Pinus</i> species.
Fire Blight	<i>Erwinia amylovora</i>	Threat to Rosaceae family which includes <i>Pyrus</i> (Pear) and <i>Prunus</i> (Plum and Cherry).

Common name	Scientific name	Comment
Eucalyptus rust	Puccinia psidii	Threat to Myrtle family which includes Eucalyptus, Corymbia, Melaleuca, Lilly Pilly, Callistemon and Turpentine.
INSECT PESTS REPORTED IN NEWCASTLE		
Spotted Gum Borer	Nascio vetusta	Kills <i>Metrosideros</i> spp (NZ Xmas Bush). No effective treatment.
Fig Psyllid	Mycopsylla ficu	Periodically defoliates Morton Bay Fig (<i>Ficus macrophylla</i>) and sometimes Port Jackson Fig (<i>Ficus rubiginosa</i>). Induced defoliation amplified under drought conditions and where soil compaction and/or excavation damages roots. Root damage leads to secondary pressures from pathogenic fungi which may kill trees or weaken structural integrity. A native wasp (<i>Psyllaephagus</i> sp.) parasitises the psyllid. The wasp emerges from leaves most of which will be in the litter layer beneath the tree. It is important to retain fallen leaves in the mulch beneath trees so that the wasp can continue its life cycle.
Bag Moth	Psychidae spp.	Occasionally on Brushbox, Illawarra Flame and Kurrajong but also some other tree species.
Winter Bronzing	Thaumastocoris peregrinus	Numerous Eucalyptus species, especially <i>E. nicholli</i> and <i>E. scoparia</i> .
Scale Insects	Numerous	Sap sucking insects on Lilly Pilly leaves and stems leading to black sooty mould forming on leaves and surrounds. Sooty mould reduces photosynthesis and weakens trees.
Longicorn Beetle	Phoracantha spp.	Numerous woody species including Eucalyptus and Corymbia.
Spitfires	Doratifera spp.	Stinging moth larvae common on Eucalyptus & Corymbia.
Sycamore Lace Bug	Corythucha ciliata	Sap sucking insect feeding on the leaf undersides of London Plane (identified in Sydney City in 2007) causes white stippling of leaves.
INSECT PESTS IN AUSTRALIA - NOT REPORTED IN NEWCASTLE		
Lantana Tree Hopper	Aconophora compressa	Introduced to Queensland to control Lantana – escaped onto Fiddlewood (<i>Citharexylum spinosum</i>) and Jacaranda. Reported as far south as Terrigal but not reported in Newcastle.

Common name	Scientific name	Comment
Cuban Laurel Thrips	Gynaikothrips ficorum	Mainly on Ficus microphylla 'Hillii'.
Ash Whitefly	Siphoninus phillyreae (Haliday) (Aleyrodidae:	Sap sucking insect on Crepe Myrtle, Ash trees, Olive and numerous fruit trees.