

**Engineering Guidelines for
Subdivisions and Development Standards**

**PART 6
LANDSCAPING**

NOVEMBER 2018

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1. INTRODUCTION

This section of the Engineering Guidelines for Subdivisions and Developments outlines Council's recommended practice for the **Landscaping and Measures for Erosion, Sedimentation and Pollution Control**. It is in no way a comprehensive 'Design Manual' and it is to be read in conjunction with and as a supplement to referenced standards.

The Subdivision and Development Guidelines comprise the following:

- Part 1 General Requirement
- Part 2 Design of Roads
- Part 3 Stormwater Drainage Design
- Part 4 Water Reticulation Design
- Part 5 Sewerage Reticulation Design
- Part 6 Landscaping, and Measures for Erosion, Sedimentation and Pollution Control**
- Part 7 Testing

2. REFERENCE DOCUMENTS

The format of the guidelines has been simplified by making reference to both National and State Standards where applicable. Where these standards vary from the referenced standards the variations are highlighted and cross-referenced. The current version of the referenced standard will apply. The references below were current at time of publication of this standard. If any of the references are updated refer to the equivalent clause in the updated versions. These guidelines shall take preference over the referenced standards. In addition to the criteria outlined in this manual, any relevant acts, regulations and Australian Standards will apply.

In New South Wales, RMS referenced standards will apply:

- Water Management Act 2000 No 92 (Part 3 management plans)
- Protection of the environment and operations Act 1997 No 156 (covers water, air, noise, pollution and waste)
- Local Land Services Act 2013 No 51
- Biodiversity Conservation Act 2016 No 63
- Fisheries Management Act 1994 No 38 (protects fisheries and habitat)
- Biosecurity Act 2015 No 24 (control of noxious weeds)
- The Local Government Act 1993 No 30
- Water Management Act 2000 No 92
- Environmental Planning and Assessment Act 1979 No 203
- Soil conservation Act 1938 No 10
- State Environmental Planning Policy (Coastal Management) 2018
- AS 4970 Protection of trees on development sites

Abbreviations

NSW New South Wales

3. GENERAL

The object of these Guidelines is to:

- Encourage the implementation of environmental buffers and provide opportunities for repair and enhancement of natural systems especially for lands that were previously degraded
- Encourage developers to appreciate landscape design as a fundamental and critical element of a development proposal and to include landscape design considerations at an early stage in the planning process
- Protect the environment against soil erosion and soil loss from subdivision sites
- Improve Water Quality
- Prevent the degradation of drainage systems, waterways, creeks and rivers, from the deposition of soil, polluting substances and other foreign material from subdivision sites
- To minimise disturbances and provide necessary control measures to prevent loss of soil

Relevant Acts and Guidelines include but are not limited to:

- Water Management Act 2000 No 92 (Part 3 management plans)
- Protection of the environment and operations Act 1997 No 156 (covers water, air, noise, pollution and waste)
- Local Land Services Act 2013 No 51
- Biodiversity Conservation Act 2016 No 63
- Fisheries Management Act 1994 No 38 (protects fisheries and habitat)
- Biosecurity Act 2015 No 24 (control of noxious weeds)
- The Local Government Act 1993 No 30
- Water Management Act 2000 No 92
- Environmental Planning and Assessment Act 1979 No 203
- Soil conservation Act 1938 No 10
- State Environmental Planning Policy (Coastal Management) 2018

4. LANDSCAPING FOR SUBDIVISIONS

Prior to development of a landscape concept it is recommended that the developer carry out preliminary discussions with Council regarding the existing landscape features and concepts that will reinforce the character of the area and preserve the local native habitat.

4.1 LANDSCAPE GUIDELINES

A landscape plan will be required. The level of detail will depend on the size, scale and location of the development site. At a minimum, detail to include:

- Existing trees and landscape elements accurately plotted to scale
- Species selection – including approximate height reached at maturity
- Purchasing criteria
- Planting schedule
- Planting methodology
- Maintenance schedule

At the initial stage of planning it is important that the trees to be retained on the development site are identified by a qualified arborist.

A tree protection plan is developed for the retained trees during the complete development phase. Refer to Table No 1 for design concepts that assist in the preservation of mature trees on a development site. An Australian Standard for Protection of trees on development sites is AS 4970.

Council's nominal rate of street tree planting is one medium size tree every 15m or as directed. Tree purchase and planting is to be carried out as per Council's standards. These standards are available on request.

At the completion of the planting and development of all reserves and street trees a handover inspection is to occur with Council. Reserves to be dedicated to Council will only become Council's responsibility following the handover inspection and satisfactory completion. A letter stating the satisfactory completion of landscape works will be sent to the developer.

A maintenance period of a minimum of 12 months will apply unless otherwise nominated by Council. Following this period the release of the landscape bond will occur upon receipt of a written request.

Undesirable species for Council's are listed in Table No 2. These species are able to be removed without consent as exempt development.

4.2 CAR PARK LANDSCAPING

Ensure that car parking areas are landscaped to provide shade, defined parking areas and overall improvement of aesthetics.

The development is to enhance the overall appearance of the streetscapes or streetscape elements including the street tree planting and other significant landscape elements.

5. NOXIOUS WEEDS

Under the Biosecurity Act 2015 No 24 Council is authorised to enforce the control of these plants. The NSW Department of Primary Industries regularly updates the noxious weeds list for Council's Region. The vegetation management plan includes the listing of noxious weeds on the development site and the control methods in dealing with these weeds.

The Biosecurity Act 2015 No 24 requires that the growth and spread of all class 4 noxious weeds to be controlled according to the measures specified in Council's Class 4 Noxious Weed Management Plan.

6. GUIDELINES FOR CLEARING AND ESTABLISHMENT OF VEGETATION

6.1 CLEARING OF VEGETATION

The recommended flow of information is as follows:

- Identify the type of activity
- List the applicable legislation and comply
- Prepare a planning document for each activity
- Type of activity whether exempt or complying
- Refer to the consent authority

Clearing of vegetation is to comply with the following:

- The removal of trees, shrubs and ground cover shall be minimised to protect the ground surface from erosion
- Removal of trees exceeding 300mm in diameter and or 4.5m in height shall be undertaken only with Council consent under the Tree Preservation Order, or in accordance with Development or Building approvals. Any trees to be removed should be clearly identified on a plan
- A plan should accompany each Development Application showing clearly the genus location and health of all existing trees that exceed 300mm in diameter and/or 4.5m in height either on-site or on adjoining lands and within 2m of boundaries of the subject site. Removal of any trees will not be allowed before development approval unless written Council consent is obtained. In addition to Council requirements, approval may be required under the Local Land Services Act 2013 No 51 and Biodiversity Conservation Act 2016
- Minimal clearing of vegetation, including trees less than 4.5m in height, may be undertaken without consent or in accordance with approved plans for the following purposes:
 - i. Survey or geotechnical investigations where clearing is limited to obtaining site lines or essential vehicle access
 - ii. Reduction of the fire hazard in accordance with a notice under:
 - According to Rural Fires Act No 65
 - According to the needs of a fire radiation zone at the direction of Council, providing the material is removed in a way that does not disturb the ground surface
- In compliance with a notice for the destruction of noxious weeds or vegetation harbouring vermin
- Activities not requiring development consent, providing the material is removed in a way that does not disturb the ground surface as in (ii) above, the land is not within 20m of an

urban stream and/or the gradient is not steeper than 1(V):4(H) or not covered by the Local Land Services Act 2013 No 51 and Biodiversity Conservation Act 2016.

For subdivisional work clearing must be limited to 2m from the edge of any essential construction activity as shown on the Engineering Plans.

All reasonable care must be taken to protect other vegetation from damage during construction. This will include the following:

- Clearly marking trees to remain
- Avoiding compaction of ground within the drip line of trees to remain
- Clearly delineating the area of disturbance and keeping all vehicles, building materials and refuse within that area. These areas are to be clearly marked exclusion zone
- Limiting the number of access points to the site
- Clearly restrict access to no go areas and provide exclusion fencing prior to the commencement of works on site.

6.2 ESTABLISHMENT OF VEGETATION

- Promote revegetation of disturbed areas
- Conserve native vegetation
- Equal consideration should be given to native grasses, legumes, shrubs and trees
- Consider seasonal conditions to match the time of year to seedling germination and survival
- Replace or re-establish any damaged vegetation
- Perennial vegetation is preferable
- Revegetate 90% of the disturbed areas within eight months of the initial revegetation plantings
- Revegetation must comply with an approved Master Plan, the Master Plan must comply with any other relevant strategy policy plan or the like relevant to vegetation management

Table 1: Tree Management on a Development Site

IMPACT OF TREE	CONSTRUCTION ACTIVITY	METHODS TO MINIMISE TREE DAMAGE
Root Loss	Stripping site or organic surface soil during mass grading.	Restrict stripping of topsoil around trees. Any woody vegetation to be removed adjacent to trees should be cut at ground level and not pulled out by equipment, or root injury to remaining trees may result.
Root Loss	Lowering grade, scarifying, preparing subgrade for fills and structures.	Use retaining walls with discontinuous footings to maintain natural grade as far as possible from trees. Excavate to finish grade by hand and cut exposed roots with a saw to avoid root wrenching and shattering by equipment, or cut with root pruning equipment. Spoil behind cut face can be removed by equipment sitting outside the dripline of the tree.
Root Loss	Subgrade preparation for pavement.	Use paving materials requiring a minimum amount of excavation (e.g. reinforced concrete instead of asphalt). Design traffic patterns to avoid heaving loads adjacent to trees (heavy load bearing pavements require thicker base material and subgrade compaction). Specify minimum subgrade compaction under pavement within dripline (extra reinforcement in concrete or geotextile under asphalt may be needed).
Root Loss	Excavations for footings and wall foundations.	Design walls/structures with discontinuous footings, pier foundations. Excavate by hand. Avoid slab foundations, post and beam footings.
Root Loss	Trenching for utilities, drainage.	Co-ordinate utility trench locations with installation contractors. Consolidate utility trenches. Excavate trenches by hand in areas with roots larger than 25 mm in diameter. Tunnel under woody roots rather than cutting them.
Wounding top of tree	Injury from equipment.	Fence trees to enclose low branches and protect trunk. Report all damage promptly so arborist can treat appropriately.
Wounding top of tree	Pruning for vertical clearance for building, traffic and construction equipment.	Prune to minimum height required prior to construction. Consider minimum height requirements of construction equipment and emergency vehicles over roads. All pruning should be performed by an arborist, not by construction personnel.

IMPACT OF TREE	CONSTRUCTION ACTIVITY	METHODS TO MINIMISE TREE DAMAGE
Unfavourable conditions for root growth, chronic stress from reduced root systems.	Compacted soils.	Fence trees to keep traffic and storage out of root area. In areas of engineered fills, specify minimum compaction (usually 85%) if fill will not support a structure. Provide a storage yard and traffic areas for construction activity well away from trees. Protect soil surface from traffic compaction with thick mulch.
Unfavourable conditions for root growth, chronic stress from reduced root systems.	Spills, waste disposal (e.g. paint, oil, fuel).	Post notices on fences prohibiting dumping and disposal of waste around trees. Require immediate clean-up of accidental spills.
Unfavourable conditions for root growth, chronic stress from reduced root systems.	Soil sterilants (herbicides).	Use herbicides safe for use around existing vegetation.

Table 2: Undesirable Plant Species for Federation Council

COMMON NAME	SCIENTIFIC NAME	QUALIFICATIONS
NOXIOUS WEEDS		
Castor Oil Plant	<i>Ricinus communis</i>	
Willows	<i>Salix ssp.</i>	
Tree of Heaven	<i>Ailanthus altissima</i>	
Rhus Tree	<i>Toxicodendron succedaneum</i>	
UNDESIRABLE SPECIES		
Bamboo		All species and cultivars
Celtis ssp.		Specific species
Cootamundra Wattle	<i>Acacia baileyana</i>	
Golden Wattle	<i>Acacia salignus</i>	
Desert Ash	<i>Fraxinus xycarpus</i>	
Box Elder	<i>Acer negundo</i>	

