

Table of Contents

C6 LANDSCAPE DESIGN	2
6.1. CONTROLS	4
6.1.1. DEVELOPMENT PROCESS	4
6.1.2. PROTECTION OF THE ENVIRONMENT	6
6.1.3. NEIGHBOURHOOD AMENITY AND CHARACTER	10
6.1.4. SITE AMENITY	12
6.1.5. CONSTRUCTION	16

C6 Landscape Design

A. Background

Landscaping can have an impact on the scenic quality of an area. It can complement built forms and enhance the amenity of adjacent spaces and buildings. It can also improve a development's environmental performance in terms of managing water and land impacts.

The process for preparing and submitting landscape designs for development is described in Table C6.1 below. The table also describes the process for the implementation and approval of landscaping works, including the role of landscape design professionals in overseeing and reporting on such works.

Table C6.1

Step No.	Summary	Detail
1	Decision to develop	Determine what landscaping category the proposal falls within.
2	Employment of appropriate landscape professional	Landscape design consultant undertakes design in accordance with the controls outlined in this Section.
3	Lodgement of DA	Development application, including required landscaping information, is lodged with Council.
4	Determination of DA	Council approves or refuses DA.
5	Conditions of consent	If approval is granted, the consent may include conditions relating to one or all of the following issues: <ul style="list-style-type: none"> • Requirement for various post approval landscaping reports. • Requirement for a landscaping bank guarantee to be paid.
6	Employment of appropriate landscape contractor to implement proposal.	Approved landscaping works are constructed and implemented in accordance with the consent.
7	Implementation Report	On completion of the landscaping works, an implementation report is to be provided to and approved by Council. This will provide written certification that the works have been completed in accordance with the consent and this section .
8	Occupation certificate	On receipt of an acceptable implementation report and any other non-landscape requirements of Council, the occupation certificate may be issued.

Step No.	Summary	Detail
9	Maintenance Report	A maintenance report is to be provided 12 months after the occupation certificate date. This is to certify that the landscaping works are still in accordance with the consent and that the plant material has established and is thriving.
10	3 year landscaping report	<p>Council may place a condition on consents for larger and more visually prominent developments requiring that a 3 year landscaping report be provided. This report is to be provided 3 years after the issuing of an occupation certificate and is to certify the following:</p> <ul style="list-style-type: none"> • That landscaping has matured and is in accordance with the original landscape approval, or • That landscaping has not matured and is in accordance with the original design philosophy and requires significant restoration. <p>If the latter is the case, restoration plans are to be submitted to Council for approval and implemented at the expense of the property owners.</p>

Legal Qualifier: This Section provides guidance and advice on landscaping and the development process and in some cases minimum acceptable standards which must be met. The provision of this advice, minimum standards and the approval of landscape information with a development application in no way results in Council being legally responsible for the damage that a plant species or landscape element may cause to property or person.

B. Objectives

- a) To promote landscape design and planning as part of a fully integrated approach to site development;
- b) To ensure landscape design takes into account the site's context, landscape and visual character, existing landscape features and amenity, both at the local and regional scale;
- c) To encourage the development of quality landscape design associated with new development that is consistent with industry best-practice;
- d) To encourage the retention of existing trees and vegetation to enhance landscape character;
- e) To ensure landscape design adequately complements the proposed built form and minimises the impacts of scale, mass and bulk of the development in its context;
- f) To encourage landscape design that can be effectively maintained to a high standard for the life of that development; and
- g) To establish a framework for allowing "Controlled Private Certification" of the landscape design components of new developments.

6.1 Controls

6.1.1. Development Process

1) Development Categories

This section classifies all development in the Penrith local government area into 3 categories (see Table C6.2 below). Each of these categories has different requirements in relation to the landscape design component of the development (i.e. different parts of this section apply to different types of developments).

Table C6.2

Category	Definition
Category 1	<ul style="list-style-type: none">• New single dwelling houses• Alterations and additions to single dwelling houses• Minor alterations and additions to commercial and industrial development as determined by Council• Complying development• Other minor development that in the opinion of Council would not have a significant impact on the amenity of the locality.
Category 2	<ul style="list-style-type: none">• All work below \$2 million that is not listed in category 1• Any development in category 1 which in the opinion of Council would have a significant impact on the amenity of the locality.
Category 3	<ul style="list-style-type: none">• All developments that are above \$2 million in value• Any development that is on a site with significant environmental considerations as determined by Council.• Any development that will have a significant public domain impact as determined by Council.• Any development that involves the alteration or addition to a heritage item or a property in a heritage conservation area.

In Table C6.2, there are several parameters that require an opinion or determination from Council to determine which category applies. In this regard, applicants will need to contact Council's Development Services Department for advice.

2) Submission Requirements

Depending on the type of development proposed, different types of vegetation and landscaping information will be required as part of the development application. Table C6.3 below lists the type of information to be submitted for the various categories of development.

Note: Applicants should also refer to the 'Vegetation Management' section of this Plan where landscaping works involve ringbarking, cutting down, topping, lopping, removing, injuring or wilfully destroying any tree or other vegetation prescribed under that section.

Table C6.3

Required Information	Category 1	Category 2	Category 3
Site Analysis	✓	✓	✓
Tree Survey and Assessment Report/Arboricultural Survey Report	❖	❖	✓
Tree Management Plan	❖	❖	❖
Landscape Concept Plan	❖	✓	✓
Landscape Detail Plan and additional details		❖	✓

✓ Required Information

❖ Information may be required depending on the scale of the project, the site conditions and location. (Please discuss with Council).

- a) Detailed requirements for the information that must be addressed by these reports is set out in Appendix F3 of this DCP. All applicants should review and address these information requirements in their submissions.
- b) If more than one type of information is to be submitted with the development application, it may be appropriate for the information to be combined in the one plan or document. This depends on the scale and complexity of the proposal, and its potential impact on the environment and amenity.
- c) Landscape plans must be prepared by a suitably qualified consultant. Landscape design consultants who are members of accredited organisations should be engaged to ensure professional standards are achieved. Accredited organisations include: Australian Institute of Landscape Architects and Australian Institute of Landscape Designers and Managers.
- d) Landscape construction should be carried out by a qualified landscape contractor to ensure that adequate standards of workmanship are achieved. Landscape contractors who are members of the Landscape Contractors Association of NSW should be engaged where possible.
- e) Development that falls into Category 1 will generally not be required to submit landscaping information; however, landscaping of such development should be designed in accordance with the landscape requirements of this section. In some cases, Council may consider that a proposal in Category 1 warrants a *tree survey and assessment report* (see the 'Vegetation Management' section of this Plan) and/or *Landscape Concept Plan*. If this is the case, this information may be prepared by anyone provided it is of a suitable standard.
- f) On completion of the landscaping works (and prior to an occupation certificate being issued by Council), an *Implementation Report* is to be submitted to Council. This is to provide written certification that the works have been completed in accordance with the consent and the provisions of this DCP (See Appendix F3 for further details).

- g) Twelve months after the date of the occupation certificate, the Implementation Report and the approved landscape design must be submitted with a *Maintenance Report*. This is to certify that the landscaping works are still in accordance with the consent and that the plant material has established and is thriving (See Appendix F3 for further details).
- h) Council may place on consents for larger and more visually prominent developments, a condition requiring that three years after the date of the occupation certificate, an Implementation Report and Maintenance Report and 3 Year Landscaping Report must be submitted (see Appendix F3 for further details). This is to certify one of the following:
 - i) The landscaping has matured and is in accordance with the original landscape approval. (This includes retained vegetation being in good condition); or
 - ii) The landscaping has not matured in accordance with the original design philosophy and requires significant restoration. (This includes retained vegetation declining in condition or has died). If this is the case, restoration plans are to be submitted to Council for approval and implemented at the expense of the property owners.

6.1.2. Protection of the Environment

1) Environmentally Sustainable Design

Council requires that all landscape designs promote best practice Environmentally Sustainable Development principles. Some of these measures are addressed in the controls below and include the following:

- a) Planting deciduous trees - These are best planted on northern and western aspects. This will allow the sun in during winter, and provide shelter from the sun in summer and morning sun year round adding to energy efficiency;
- b) Selecting low water/low maintenance plants, including drought tolerant species;
- c) Planting native or indigenous plants – These plants have lower water requirements and have evolved to cope best with the existing conditions, hence reducing maintenance, fertilising and watering requirements;
- d) Using irrigation systems that utilise drip irrigation systems;
- e) Using recycled and biodegradable products in the landscape design - Such elements could include recycled soils and other hard paving features;
- f) Allowing for composting, mulching and worm farms on site;
- g) Using quality, long lasting materials; and
- h) Using soils and mulches manufactured with recycled waste.

2) Soil Landscapes

Any Landscape Plan or assessment should include a study of the soil profile on the particular site and select plant species accordingly. In this regard, soil landscape maps and accompanying interpretive reports for Western Sydney have been produced (by the former Department of Natural Resources) and may be of assistance.

3) Minimising Soil Erosion

- a) Landscaping works must comply with the 'Erosion and Sedimentation' in the 'Land Management' section of this DCP, including the submission of an Erosion and Sediment Control Plan where required under that section.

- b) Care should be taken when undertaking landscaping works to ensure that soil from the site and any that may be brought to the site is not lost into the drainage system or surrounding environs as this may impact on indigenous flora and fauna and local waterways.
- c) Sediment control measures are to be installed prior to any excavation on site. These measures are to be maintained throughout construction of the landscaping works and until the landscaping is established.

4) Avoidance of Excavation and Filling

- a) Landscape works must comply with the 'Site Stability and Earthworks' controls in the 'Land Management' section of this DCP.
- b) Landscaping works should minimise any earthworks by accommodating the natural landform and utilising designs that require minimal cut and fill, particularly around existing trees to be retained.

5) Conserving Site Soil

- a) Where it is necessary to remove areas of topsoil as a result of cut and fill requirements, this should not be removed from the site but stockpiled in another part of the site for re-use in the landscaping process. This is both beneficial for the environment and saves money.
- b) The following controls apply to topsoil stockpiled on-site:
 - i) Do not store topsoil in any of the tree protection areas (see item 8 below);
 - ii) Ensure that the stockpile is stabilised during the construction period by covering it with hessian, mulch or a cover crop;
 - iii) Ensure that the stockpile will not blow away on windy days by either providing adequate covering or ensuring that it is kept well watered; and
 - iv) Use appropriate sediment and erosion control techniques to ensure that the stockpile is retained and does not leave the site.
- c) The proposed location and management of stockpiles of topsoil should be detailed in the landscape information that accompanies the development application.

6) Species Selection

- a) Plant selection for all landscaping works must consider and will be assessed for its suitability to existing site conditions such as soils, aspect, drainage and micro-climate.
- b) Native species is encouraged for any landscape design.
- c) The use of exotic or introduced species may be considered if they are part of a site's and locality's existing landscape character and there is a low chance of spreading into native bushland.
- d) If a site has remnant native bushland or is located adjacent to native bushland, the plant species that should be used in the landscape design should be those that occur in the bushland, preferably provenance stock.
- e) Species selected should not include those listed in the *Noxious Weeds Act 1993* or on the list of environmental weeds (see Appendix F4 Technical Information to this DCP).
- f) Planting should consist of a variety of trees, shrubs and ground covers to contribute to biodiversity.

7) Bushfire Resistant Species

To determine whether a particular site is 'bushfire prone land', advice should be sought from Council's Development Services Department. In these areas, appropriate landscape design and plant species selection will help reduce the risk of bushfires. While no plant is fire proof or completely fire resistant, some plants are less flammable than others.

Landscape design and plant selection should consider bushfire risk. The recommended list of indigenous species in Appendix F4 has a reference to some plants, which are appropriate to these areas due to their low level of flammability and ability to regenerate after a fire.

8) Protection of Trees and Vegetation on Construction Sites and Adjoining Public and Privately Owned Land

- a) If a Tree Management Plan is required, it must identify the vegetation that is to be retained with the development and how it will be protected during and after construction. Tree protection measures must be in accordance with Australian Standard AS4970-2009 Protection of trees on development sites.
- b) Where existing vegetation is to be retained, that vegetation must be protected from soil compaction, root, trunk and limb damage, soil contamination and changes in surface levels that affect the health of the vegetation.
- c) The Tree Management Plan is to be in place prior to commencement of any site works. "Site works" includes the demolition of existing structures or the entrance onto the site of any machinery for excavation, demolition or large scale rubbish removal. Protection measures are to be installed prior to the commencement of any site work in accordance with Australian Standard AS4970-2009 Protection of trees on development sites.
- d) Trees, vegetation and their root zones on public property and private land adjacent to the development site may also need to be protected during the construction process. A common example of this is the protection of street trees located in the public footpath. These trees and vegetation will also need to be included in the Tree Management Plan and protected in accordance with its recommendations.

9) Vegetation Communities

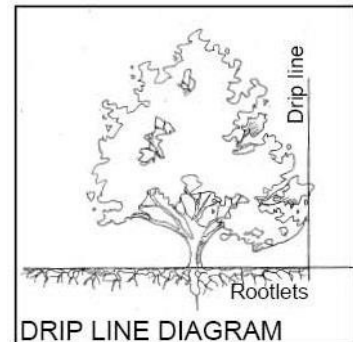
- a) In some cases, there may be sites that contain remnant native vegetation. Where remnant native vegetation exists on a site, a flora and fauna assessment report will be required. (See the 'Vegetation Management' section of this Plan for further details). The purpose of the flora and fauna assessment report is to determine whether the proposed development, including landscaping works, are likely to significantly affect any threatened species, populations or ecological communities or their habitats listed under the *Threatened Species Conservation Act 1995*.

10) Irrigation/Water Consumption

- a) Landscape design should minimise water consumption through selection of indigenous and drought-tolerant species and use of water retaining mulches and soil treatments. It should also include species that can act to establish a micro-climate quickly to assist slower growing species and reduce water consumption.
- b) If additional watering is required, preference is for low water usage irrigation devices, such as drip irrigation systems, during the plant establishment period.
- c) The proposed irrigation system should be detailed in the landscape information submitted as part of the development application.

11) Minimisation of Impervious Surfaces

- a) Where possible, all landscape designs should include permeable paving options. Permeable paving includes the use of permeable/porous paving units, ornamental gravel and paving on a compacted sand bed. The benefits of using permeable paving include:
- i) Ensuring that air and water are available to roots to ensure healthy, secure growth;
 - ii) Providing a safe and stable pedestrian/vehicular surface treatment; and
 - iii) Assisting in the protection and conservation of large, established trees where the root system extends beyond the drip line.
- b) The following minimum areas of permeable surfaces are required to facilitate on-site stormwater infiltration for each land use:
- i) Residential – please refer to controls included in the Residential Development section of this Plan.
 - ii) Industrial - 15% of the site area.



12) Salinity

- a) Landscape designs must take into account the salinity controls in the 'Land Management' section of this Plan.
- b) All landscape designs should consider soil salinity and undertake the following practices:
- i) Select salt tolerant plant species and raise garden beds, ensuring adequate drainage;
 - ii) Use mulch in all garden beds;
 - iii) Minimise the area of lawn as this requires large quantities of water;
 - iv) Use 'water wise' garden design features (including timers, selection of plants with low water needs, grouping plants of similar water usage together, etc);
 - v) Plant native trees and shrubs;
 - vi) Use non-corrosive materials when constructing pipes and channels;
 - vii) Assess current and proposed water storages, artificial lakes and drainage basins as they contribute to groundwater recharge, and minimise where possible;
 - viii) Correct drainage to protect building footings and foundations; and
 - ix) Refer to the Map of Salinity Potential in Western Sydney (DIPNR, 2002) and the accompanying Guidelines for advice on specific ways salinity may affect a particular site.
- c) Soil tests and urban capability mapping are recommended to determine whether salinity is likely to be a problem. If the land is potentially affected by salinity, prevention and monitoring strategies should be employed, such as:
- i) Carrying out soil tests as advised by the Office of Environment and Heritage;
 - ii) Ensuring adequate drainage is located away from buildings and associated infrastructure to avoid ponding;
 - iii) Connecting roof drainage to stormwater systems, rather than sullage pits;
 - iv) Monitoring changes in water table levels and groundwater quality by installing piezometer ('monitoring bore') networks;

- v) Avoiding over-watering of lawns and gardens;
- vi) Selecting plants with low water requirements and applying mulch; and
- vii) Checking and repairing water leaks as soon as possible.

13) Materials Selection

- a) Landscaping works must comply with the controls relating to the use of sustainable materials in the 'Waste Management' section of this Plan.
- b) The use of recycled and biodegradable products is preferred in landscape design, such as recycled on-site soils and recycled hard landscaping materials.

6.1.3. Neighbourhood Amenity and Character

1) Landscape Character

- a) Landscape design should reinforce the identified natural attributes of the site including, but not limited to, watercourses, landmark elements, landforms, views and vistas, significant trees, vegetation patterns and historic buildings.
- b) Remnant native vegetation should be retained, managed and incorporated into landscape designs to conserve the natural biodiversity across the landscape.
- c) Landscape design should enhance the amenity and visual quality of the site. Landscaping solutions are to be used to screen and enhance visually obtrusive land uses or building elements within their setting.

2) Integration of Design

- a) All landscape and building designs should be complementary and aim to achieve similar design outcomes. The design of both buildings and landscaping should utilise the same site analysis drawings and concepts. In this way, the site will be developed with a building design and a landscape design that deliver the best possible development solution for the owners and the community.

3) Streetscape

- a) All sites make a contribution to the streetscape by way of the design of any structures or vegetation. Therefore, any landscape submission must include an assessment of the streetscape.
- b) Generally, Council requires that dominant positive streetscape elements are to be continued in the design of any landscaping works to ensure that the development integrates into and enhances the existing streetscape character. Features that contribute to the existing streetscape include:
 - i) Street trees and vegetation;
 - ii) Pavement materials/details;
 - iii) Architectural character;
 - iv) Setbacks of buildings and other structures;
 - v) Existing uses, e.g. residential/retail/industrial;
 - vi) Heritage items;
 - vii) Traffic – vehicular and pedestrian;

- viii) Car parking – off street, on street, access, etc;
 - ix) Privacy;
 - x) Building heights, mass, material and colour;
 - xi) Links with other spaces;
 - xii) Street dimensions/scale – street width, verge and path treatments;
 - xiii) Lighting;
 - xiv) Maintenance issues, e.g. rubbish collection, letterboxes;
 - xv) Landscape style; and
 - xvi) Street furniture, fences, gates and signage.
- c) Some elements of landscape design and streetscape that should be implemented include the following:
- i) Landscape design should be used to soften the impact of buildings and as a visual element between the street and the development;
 - ii) Fencing that is forward of the building line should be incorporated with the landscape and consistent with that in the street or locality;
 - iii) Landscape design should be used to soften the impact of car parking areas; and
 - iv) In open car parking areas, one large shade tree for every 6 car spaces is to be provided as a minimum to improve visual amenity and reduce the heat island effect.

4) Community Safety

- a) Landscape designs must comply with the safety and crime prevention controls in the 'Site Planning and Design Principles' section of this DCP.
- b) All landscape designs should promote the safety of the community through the maximisation of natural surveillance and appropriate lighting. Such measures include the following:
 - i) Appropriate levels of lighting of public spaces such as driveways, gardens and links through the site;
 - ii) Appropriate lighting and visibility of the entry to dwellings;
 - iii) Provision of appropriate plant species that minimise opportunities for concealment of intruders and do not provide hidden recesses;
 - iv) Dwelling entries that are visible from the street or other public areas;
 - v) Fences or planting that allow glimpses or overview of the street, private courtyards and other open space areas;
 - vi) At driveways, street intersections and other crossing points, landscaping that does not block views between pedestrians and approaching vehicles; and
 - vii) Landscaping that does not prevent surveillance of car parking areas.

5) Fencing and Retaining Walls

- a) Landscape designs must comply with fencing controls required by this DCP.
- b) Fencing and retaining walls are an important part of any landscape design and can alter the style and character of the development and the streetscape. Considerations when designing fencing or screening include:

- i) Rights of access;
 - ii) Community safety;
 - iii) Design;
 - iv) Aesthetics;
 - v) Existing vegetation;
 - vi) Boundaries, easements and emergency access routes - these are not to be compromised;
 - vii) Materials and size relative to the proportions, scale and character of the street, surrounding buildings and landscape; and
 - viii) Maintenance issues to avoid graffiti and vandalism, and life cycle cost (i.e. considering the cost of a product over its entire life span).
- c) Retaining walls are to be kept to a minimum to reduce earthworks. See the 'Land Management' section of this DCP for requirements for excavation and filling.
 - d) All retaining walls are to be constructed of masonry or concrete material. Timber retaining walls are not permitted.
 - e) Development involving earthworks and retaining walls need to have regard for the amenity of any adjoining/surrounding properties and natural flow of water across the land. See Council's *Stormwater Drainage Specification for Building Developments*.

6) Planting on Structures

- a) Landscape designs that propose planting on structures will require a Landscape Concept Plan which must outline how the area of planting on structures will be maintained for the life of the development.

7) Buffer zones

- a) Where buffer zones are provided to help minimise land use conflicts, they must be densely planted in accordance with the requirements of this section of the DCP, using generally native or indigenous species. Council requires that these buffer areas be fully maintained continuously, with failed plants and trees to be replaced immediately with new plantings of the same species.

6.1.4. Site Amenity

1) Contextual Design

- a) Landscape designs should seek to screen development, particularly from the sides and rear of an allotment.
- b) Landscape design should be used to highlight architectural features, define entry points, indicate direction, and frame and filter views into the site. Landscape design should also be responsive to the bulk and scale of the development.
- c) Shrubs and small trees should be used to screen service areas and block unwanted views that reduce privacy.
- d) Plantings should be of advanced species except where it is demonstrated to Council's satisfaction that semi-advanced stock is more suited to soil and/or plant characteristics.
- e) Landscape design should ensure that plantings when mature will not conflict with structures and services.

2) Open Space Requirements

- a) The amount of open space is crucial to the landscape design. This amount will vary depending on:
 - i) The use proposed on the site;
 - ii) The requirements of the occupants;
 - iii) Character of the neighbourhood;
 - iv) Requirements in other sections of this DCP;
 - v) Retention of mature/significant trees/vegetation; and
 - vi) Whether the space is a private or public space.
- b) Communal space/recreational facilities must be located and designed to avoid nuisance or danger to neighbours, residents and visitors. Consideration should be given to the type of activities to be undertaken, hours of use, noise generation and on-going maintenance and safety of the space/recreational facility. Consideration should also be given to:
 - i) Separating conflicting activities (e.g. play spaces away from driveways); and
 - ii) Including equipment such as seating, shade structures and children's play equipment.
- c) Communal open space should generally have access only from within the site. Communal open space for multi dwelling housing should be accessible from all dwellings within the development. Surveillance of this space should be possible from at least 2 dwellings.
- d) The design of a development should maximise solar access to all open spaces.
- e) Trees should be selected and located to regulate solar access to buildings. Deciduous trees are best planted on northern and western aspects to allow solar penetration in winter and shade in summer.

3) Deep Soil Zones

- a) Landscape design should maximise the area of a deep soil zone, especially around existing trees to provide sufficient soil depth for roots.
- b) The following minimum areas for a deep soil zone are required for each land use:
 - i) Residential - please refer to controls included in the Residential Development section of this DCP;
 - ii) Industrial - 10% of the site area.

4) Equal Access

- a) In accordance with the Federal *Disabilities Discrimination Act 1992* and the NSW *Anti Discrimination Act 1977*, and all relevant Australian Standards, the following design elements must be considered when designing any landscape projects to ensure equal access for people with disabilities:
 - i) Pedestrian routes;
 - ii) Tactile warning strips with a strong contrast to adjoining paving;
 - iii) Stairways/steps;
 - iv) Landings;

- v) Ramps;
- vi) Handrails;
- vii) Seating;
- viii) Lighting;
- ix) Signage
- x) Luminance contrast of street and park furniture.

5) Heritage

- a) Landscape designs must comply with any relevant requirements of the 'Culture and Heritage' section of this DCP.
- b) If a site is listed as a heritage item or is within a heritage conservation area, a heritage impact statement may be required. The landscape design is to retain any natural, cultural or architectural features that are essential to the conservation of the heritage significance of the place. The landscape design should respect the importance of these heritage features, be of a sympathetic style and form, and should be influenced by any relevant heritage landscape evidence.

For more information contact Council's Development Services Department.

6) Noise, Vibration and Dust Reduction

- a) Where appropriate, all landscape designs are to incorporate landscape techniques to act as a barrier or buffer to reduce dust, noise and vibration levels from adjoining activities. Examples include fencing and planting adjacent to driveways and the like which can contribute to noise attenuation.

7) Location of Utility Services

The location of utility services, such as gas and electricity, can significantly impact upon existing vegetation and locations for proposed vegetation. As such, the following requirements are applicable:

- a) Common trenching for compatible underground services should be maximised to reduce repeated disturbance to established plantings.
- b) Overhead cabling of services should be placed in allocated easements.
- c) Selected plant species should not obstruct or interfere with infrastructure facilities having regard to:
 - i) The mature height of trees and shrubs beneath overhead services; and
 - ii) The root growth of trees and shrubs and underground services.
- d) Services should be located away from existing and proposed vegetation and their root zones.

8) Utility Areas

- a) Waste and recyclables storage facilities should be located behind the building line and not adjacent to communal outdoor seating/recreation areas.
- b) The storage area is to be suitably screened.

- c) Outdoor clothes drying facilities are to be hidden from the street.

9) Landscaping and Above Ground On-Site Stormwater Detention

- a) Landscape works must comply with the stormwater management and drainage requirements in the 'Water Management' section in this DCP.
- b) All landscape works are to include provision for adequate drainage including collection or dispersal of stormwater runoff, prevention of ponding of water on pavements or discharge of runoff onto adjoining properties or public areas.
- c) Above ground detention structures should be suitably landscaped to improve the visual amenity of the development.
- d) Detention structures should be suitably integrated into the landscaping for the whole site, including common open space areas. Ideally, such structures should appear as a feature as opposed to an engineered structure or element.
- e) Plant species used in these areas must be capable of withstanding periodic inundation and must not impact upon the functioning of the area as a detention structure.
- f) Where above ground storage of detained water is proposed, the landscape design will be required to accommodate this through the following:
 - i) The maximum allowable depth of ponding in residential areas is 300mm, and in industrial/business areas is 1.2m;
 - ii) Subsoil drainage is to be installed around the outlet to prevent the area remaining saturated during wet weather;
 - iii) The maximum batter slope around a landscaped area is to be 1 in 4, with 1 in 6 being preferable;
 - iv) Mulching with wood or bark chip in storage areas subject to inundation in more frequent storm events (i.e. up to and including the 20% Annual Exceedance Probability (AEP) storm) is not considered desirable. Weedmat or similar should be used in these areas;
 - v) Those areas of the basin subject to inundation up to and including the 5% AEP storm are to be turfed. Trees may be planted in the turfed area. Shrubs and/or groundcovers may be planted above the 5% AEP water level; and
 - vi) Careful consideration should be given to the types of planting within the basin to ensure the area can be maintained and the storage volume is not reduced to an unacceptable level. If substantial planting is proposed within the basin, the storage volume is to be increased to accommodate this. Refer to the Landscape Technical Specifications in Appendix F4 Technical Information for a plan relating to some of the above details.

10) On-Site Effluent Disposal and Landscaping

- a) As sewer is not available to some areas of Penrith, some developments may need to consider on-site effluent disposal, and in particular, land application areas for the disposal of treated effluent. If this is the case, specific vegetation will be required that can cope with this treated effluent. Appendix F4 provides a list of species which are appropriate for such land application areas. Additional requirements for on-site sewage management are included in the 'Infrastructure and Services' section of this DCP.

11) Car Wash Bays

- a) Where appropriate, landscape designs should incorporate an area with a permeable surface where a car can be washed.
- b) The car wash bay may be turfed or gravel and should prevent contaminants from entering the stormwater system.

6.1.5. Construction

All landscaping construction is to meet the minimum 'Landscape Technical Specifications' in Appendix F4 Technical Information to this DCP.

C. Lifting the Bar

The following represent some ways in which applicants can demonstrate additional commitment to the landscape principles expressed in this DCP. Demonstration of this commitment may lead to Council considering variation of development controls. Applications that vary the development controls listed in this section will need to demonstrate that the proposed development complies with the objectives relevant to the development controls it seeks to vary.

- a) Landscape irrigation/watering systems should, where possible, utilise recycled grey-water/stormwater or water from on-site detention systems to avoid use of potable drinking water for this purpose; and
- b) 'Greening' of all suitable roof spaces in order to reduce energy needs for cooling and create more sustainable roof designs.

D. Other Information

It is recommended that applicants seeking to address this issue also refer to other relevant information including:

- Centre for Architectural Ecology - Collaborations in Green Roofs and Living Walls: BCIT School of Construction and the Environment at <http://commons.bcit.ca/greenroof/case.html>
- Green Roofs Australia at <http://greenroofs.wordpress.com/>
- Penrith City Council's *Landscape Character Strategy* (2006)
- Penrith City Council's *Sustainability Blueprint for urban release areas* (June 2005)
- SEDA: Solar Access for Lots, Available at www.energysmart.com.au/brochures/Solar_Access_for_Lots_Guide.pdf.