

Sunshine Coast Open Space Landscape Infrastructure Manual

Planting

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1.0 Overview

This category of the LIM has been developed to provide guidance for the selection, design and installation of planting.

This category addresses the following:

- **Plant selection**
- **Plant maintenance.**

Important notes:

- This resource does not try to replicate all of the provisions of Legislation, Australian Standards (AS) and corporate documentation in words and pictures, nor does it seek to define their requirements.
- It aims to draw attention to the fact that effectively applied technical requirements translate into desirable qualities for end users.
- Please refer to the relevant authority websites for updated information and current document distribution dates. These documents are subject to amendments from time to time.
- Product design, manufacture and installation requires appropriately qualified professional, fabricators and installers to provide site specific solutions.

For further information see:

- *LIM Preliminaries*
- *LIM Planting (landscape)*
- *LIM Planting (revegetation).*

This recommended planting palette is for 'landscape design' projects such as parks, gardens, landscape and amenity reserves, recreation reserves and road reserves, rather than for 'revegetation or ecological restoration' projects.

The latter require a more ecological approach; more complex, diverse and site specific species lists and planting methods consistent with regional ecosystems; and procurement of species which may not be readily available commercially.

However, as there are philosophical and species overlaps between the two approaches, revegetation planting guidelines are provided in Section 7.0 below.

This palette encourages the use of species that retain and enhance the Sunshine Coast region's specific and subtropical character across a range of landscape character types, and will be periodically updated as species are trialled.



2.0 Location

The **Sunshine Coast Environment and Liveability Strategy 2017 (ELS)** currently prescribes that 'planting (landscape)' (LIM terminology is 'planting landscape') may be located in the following open space types, as indicated per table below:

Table 1: Type of open space

Palettes	Recreation						Landscape	Sport			Trails	Environment reserves				
	Recreation parks				Amenity reserves	Linear parks	Landscape corridors	Sports grounds		Specific purpose	Recreation trails	Conservation reserves	Nature reserves	Bushland reserves	Natural amenity reserves	Coastal reserves
Council-wide	District	Local	Civic	Council-wide				District								
Planting (landscape)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Planting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓	✓	✓

Further technical information for Sport, Trails and Environment reserves will be incorporated at a later date. In the interim, the basic Recreation / Landscape information can be adapted to suit the site specific solution required.

Note:

- The design and construction of coastal and waterways infrastructure is to be consistent with adjacent open space land usage.
- The design and construction of recreation trails infrastructure is to be consistent with adjacent open space land usage or any endorsed SCC document (e.g. Coastal Pathway Master Plan)
- It is expected that council's open space documents will be reviewed from time to time and this table may be subject to change.

LEGEND - Environment and Liveability Strategy (ELS)

may be suitable based on-site assessment	✓
not suitable	
key locations / trail head only	T
where adjacent to coast or waterway	W

Broad strategic direction

LEGEND - Open Space Landscape Infrastructure Manual (LIM)

suitable	✓
not suitable	
suitable dependent on appropriate location	*

Specific site based direction

Note: SC Recreation Park Plan is currently being drafted

3.0 Performance criteria

The following performance criteria must be considered in order for the embellishment to provide a best practice solution.

Plant design and species selection must meet the following criteria:

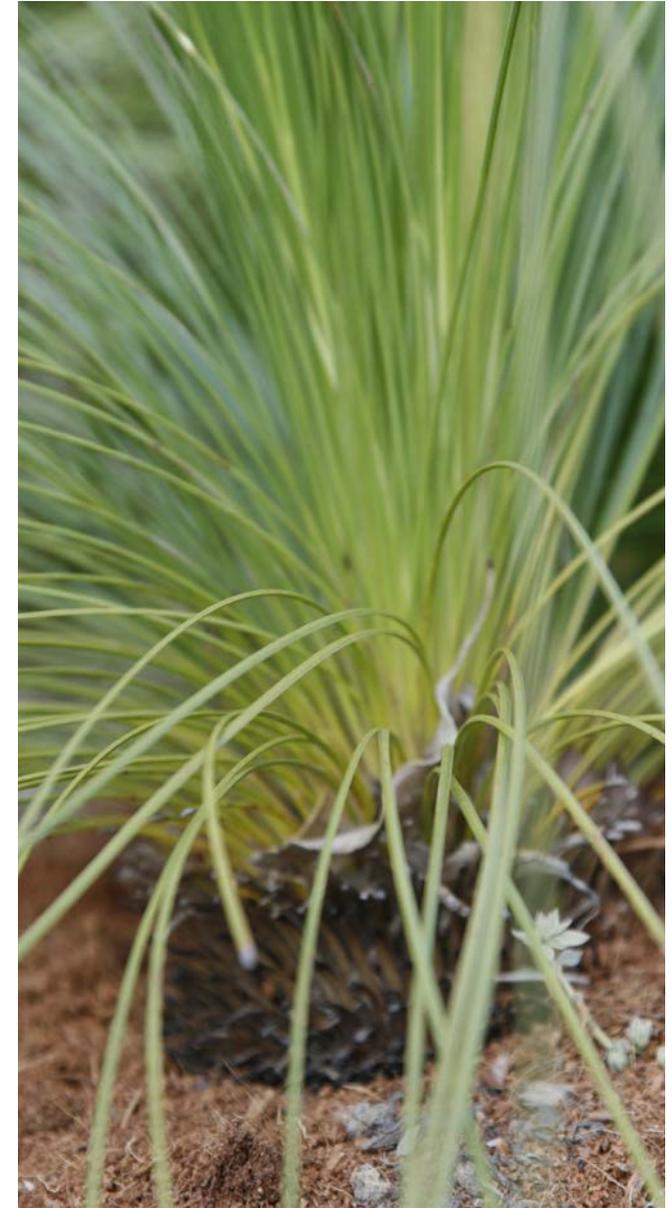
- the type of development – park, recreation, road, industrial, commercial, housing – and desired open space character.
- the size of planting area
- the condition and performance record of proposed species
- the existing vegetation – on site and in surrounding neighbourhood.
- the existing architectural, landscape and planting character – on site and in surrounding neighbourhood.
- type of topography and slope
- the local climatic and site-specific micro-climatic conditions – temperature, heat (including radiant heat and heat island effects), aspect, sun, shade, frost, wind, rainfall and drainage patterns.
- the soil type and condition
- the surrounding infrastructure and potential for damage
- the location of overhead and underground services
- the views into and out of site – including traffic sight lines
- the cultural and heritage issues
- the existing and potential wildlife habitat
- the opportunity for botanical / environmental interpretation

- the site user safety (CPTED issues)
- the pedestrian and vehicular access / circulation
- the site connectivity within the locality
- the adjacent noise sources such as busy roads (in conjunction with design of noise attenuation walls).
- the adjacent site uses
- the potential impacts upon adjoining properties
- the ongoing maintenance requirements and access
- the future site upgrades
- the government legislation and requirements.

Plant selection must meet the following criteria:

- comply with relevant legislation, standards and corporate documentation.
- designed by – plant aesthetics, form, function and suitability for site opportunities and constraints.
- sustainable – species either local native and consistent with original ecosystem types, or non-invasive Australian natives and exotics; generally long-lived; and water efficient where possible (in the context of a subtropical rather than temperate climate).
- maintained – such as; healthy robust plants requiring minimal pruning, weeding, watering, fertilising and risk management.
- available – local / regional supply, timeliness, affordability
- low maintenance.

For specific requirements for plant condition, planting and maintenance see LIM Planting (landscape).



4.0 Sustainability (plant selection)

Hierarchy of plant species (in preferential order) is as follows:

Sunshine Coast natives

- Regional ecological and aesthetic integrity is to be retained.
- Existing remnant vegetation is to be retained and enhanced.
- Locally native species are generally better suited to local conditions and therefore require less maintenance. (Note that there are exceptions. Some local natives are not suited to formal landscape settings and better utilised in natural areas, and some are high maintenance; while many other Australian natives and introduced exotics require little or no maintenance).
- It is preferable to use local species rather than similar non-local Australian species to avoid potential displacement of local species.
- Landscape planting design should reference the site's original regional ecosystem(s) to help retain ecological and aesthetic diversity across the region. See the *Queensland Department of Heritage and Wildlife* website (wildlife and ecosystems / regional ecosystems) for key species – especially trees.
- Plants should be of local / regional provenance and locally procured where possible.

- Rare and endangered Sunshine Coast species listed in State and Federal legislation are to be planted to keep them in cultivation and ensure their ongoing existence in case their natural habitat is destroyed. Refer to *Sunshine Coast Biodiversity Strategy* Tables 1 and 2; the *Queensland Department of Heritage and Wildlife* website (wildlife and ecosystems / threatened species); and to a complete list of rare and endangered plants in the *Queensland Nature Conservation (Wildlife) Regulation 2006*.

Australian natives

- Some Australian native species become weeds when grown outside of their area of natural distribution.
- Cultivars / hybrids of native species are acceptable in most landscaping projects, but not in ecological restoration projects which require pure species of regional provenance.

Introduced exotics

- Some exotic species are actual or potential weeds.
- Exotic species are acceptable in some situations as long as they have proven over time to be non-invasive. As some exotics may be better suited to some urban environments than native species, they may be trialled for later addition to this palette.
- Many introduced species are attractive and non-invasive and may be suitable for feature plantings – such as specimen trees.

Non-listed plants

- Plants other than those listed may be proposed, but will be assessed on their merits.
- Proposed non-listed plants will be assessed in context. For example, bamboo may be acceptable in contained planter beds in a city centre, but not in open ground adjacent to a national park.
- Proposed non-listed plants must not be 'prohibited invasive plants' or 'restricted invasive plants' listed on the *Queensland Government Department of Agriculture and Fisheries* website, or listed in the *Sunshine Coast Council Local Government Area Biosecurity Plan 2017*.

The ratio of Sunshine Coast native, Australian native and introduced exotic species will vary between projects, such as:

- revegetation projects should be 100% Sunshine Coast native species, and preferably site specific.
- recreation areas which have secondary ecological values (and especially if there are watercourses) may also require 100% locally native species, or a high proportion (say 70%) of locally native species (by species count and total plant numbers) with a balance of non-invasive Australian natives and/or introduced species.
- some gardens may require a mix of native and exotic species, as not all native species are suited to formal plantings.
- harsh and/or relatively polluted city-centre urban streetscapes may require up to 100% introduced species if native species are unsuited to these conditions.

5.0 Sustainability (maintenance)

Ensure manageable ongoing maintenance as follows:

- Plantings should group species of similar water and maintenance requirements and avoid plants which:
 - are short-lived and require regular replacement (with the exception of short-lived pioneer species in revegetation works).
 - require high maintenance
 - require regular irrigation.
- Species choice and planting design must also consider growth habits and placement near paths and other assets or infrastructure. Avoid over planting which prevents plants from developing their true form and aesthetic potential; and planting too close to paths, assets and road median edges which necessitates ongoing pruning of overhanging foliage.
- Higher maintenance plantings for special effect may be allowed in high profile areas or special circumstances where agreed.
- Species choice and planting design must also consider the safety of maintenance staff – such as allowances for unplanted maintenance buffers on road medians.
- Myrtle rust (also known as eucalyptus or guava rust) is currently problematic in Queensland, and susceptible plants from the Myrtaceae family should be used sparingly. For a list of affected species refer to the Queensland Government *Department of Agriculture and Fisheries* website.

6.0 General principles

Landscape planting is to include the following principles:

- The Sunshine Coast is floristically diverse. Its variety of ecosystems, environments and open space types are a major regional asset and tourist attraction. It is important to retain and enhance this diversity for ecological, economic, social and cultural reasons. Landscape plantings are an essential contribution.
- Sunshine Coast native species are to be prioritised as much as possible in planting schemes.
- Trees over shrubs and groundcovers are to be prioritised for shade, amenity, longevity and landscape framework.
- Species diversity is preferable to monoculture plantings
- Mass plantings of several species are preferable to those of:
 - multiple species – where differing maintenance requirements may be overly demanding of maintenance resources.
 - single species – in the event of mass plant failure (such as disease).
- Planting must balance ecological, aesthetic and safety factors.
- Large trees are to be retained and encouraged for continued landscape presence, scale, shade and habitat.

For guidance on clearances, including clearances and setbacks for airport environments, see the following LIM categories:

- *LIM Planting (landscape)*
- *LIM Planting (revegetation)*.

7.0 Revegetation planting

Revegetation planting is generally undertaken as part of ecological restoration works (reconstruction or fabrication).

Their respective objectives for site and circumstances will determine the most appropriate species to be used. The *South East Queensland (SEQ) Ecological Restoration Framework Manual* provides a guide to species selection and sourcing of plant stock.

Species selection

- Selecting plant species for reintroduction to a site requires the following:
 - Site examination to determine which species may have historically grown there.
 - Research of regional ecosystems, historical records, and anecdotal information to gain ideas about previously occurring vegetation.
 - Consideration of site climatic and micro-climatic conditions – susceptibility to frost, heat, drought, wind and sea salt spray – as plants vary in their tolerances to these and must be chosen to suit the conditions. Less tolerant plants can be planted in sheltered niches or be introduced during a secondary planting after the vegetative structure has been created.
- Pioneer and early secondary species (fast growers adapted to colonising disturbed areas) are ideally suited for reintroduction planting because of the following characteristics:
 - Quick formation of canopy – e.g. *Macaranga (Macaranga tanarius)* and Brown Kurrajong (*Commersonia bartramia*) in rainforests; and Acacias, Eucalypts and Casuarinas in sclerophyll communities.

- Fixing of atmospheric nitrogen in the soil (such as *Acacia* species).
 - Rapid growth, resulting in early ‘capture’ of the site.
 - Early senescence, making way for other late secondary and mature phase species to establish and eventually dominate.
- Mature-phase species (representative of the climax vegetation) may in some circumstances be introduced during the initial planting. However, these plants are slower growing and may not exhibit rapid bursts of growth until changing site conditions become right for them (e.g. site senescence of pioneers).
 - Early flowering and fruiting species will attract birds and bats to the site, resulting in the introduction of seeds that promote natural regeneration.
 - Species should include all vegetation layers (i.e. trees, shrubs and ground covers). However, ground covers can be difficult to maintain and often establish naturally on a site, so it may be better to rely on their natural regeneration.
 - Lead-in to planting must be planned carefully to ensure that good-condition plants grown from locally collected seed are available.
 - The plant species list may not necessarily reflect the expected composition of the climax community. Ecological restoration techniques ensure that birds, bats, insects and other animals will assist in the reintroduction of seeds to the site over time. Species selection for fabrication works will not have an historical basis, so the goal (as with assisted natural regeneration and reconstruction works) is to create a functioning system. However, this system will not necessarily represent the site’s previous or original vegetation.

- There are two ways of achieving the required functionality:
 - Copy an existing vegetation community if conditions are suitable.
 - Create a vegetation community based upon vegetative elements and conditions that could be expected to interact together to produce a self-sustaining system.

Sourcing plant material

Limited resources such as time, finances, and available skill-base will determine whether to propagate plants or purchase them commercially. In all but the largest organisations, purchasing plants from a commercial native plant nursery is more usual as it draws upon reputable seed-collection, propagation and plant raising expertise. A nursery may also be engaged 'contract grow' for a specific suite of plant species well before planting as this allows procurement of the exact species required. Using a specialist native plant nursery has the following benefits:

- Awareness of genetic considerations when collecting seed and plant material.
- Experience with breaking dormancy mechanisms in hard-to-germinate seeds.
- Highly successful propagation techniques
- Ability to provide high-quality stock to order
- Wide range of stock for purchase
- Ability to draw on the resources of Greening Australia's Florabank for best-practice native species seed management.

It is advisable to check the quality of the plants to be purchased, for example:

- Plant provenance – whether seed or vegetative material for propagation was collected from within the same catchment as the planting site, and generally within a 10km radius.
- Plant size – pots or tubes.
- Plant health – whether plants are in good condition, free of pests and disease, vigorous without having overgrown their pots, and with a well-developed root system without being pot-bound.
- Sun hardening – whether plants have come straight from a shade house. If so, sun hardening for a minimum of 2 weeks prior to planting is necessary in order to minimise transplant shock.
- Coastal exposure hardening (if applicable) – whether plants have been exposed to coastal wind and salt spray conditions typical of the site in which they are to be planted.

8.0 Recommended standards

Plant selection require an appropriately qualified professional to provide site specific solutions.

Where Australian Standards or part thereof have been adopted by legislation, they are a legal requirement.

Palettes should satisfy the following requirements, including but not limited to:

LIM Introduction and design principles

See *LIM Introduction and design principles* for:

- Legislation framework
- Strategic and planning framework
- Design principles.

LIM Preliminaries

See *LIM Preliminaries* for further guidance on overarching categories, such as:

- **General** (Health and safety, Site set up)
- **Environmental management** (Fauna, Flora)
- **Vegetation management.**

Legislation

International legislation

- *International Union for Conservation of Nature (IUCN)*, who's mission is to 'influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable'. Conserving biodiversity is central to this mission. Although not legislation, the IUCN is a neutral forum for governments, NGOs, scientists, business and local communities to find practical solutions to conservation and development challenges.
(prescriptive not legislative).

National legislation

- *Environmental Protection and Biodiversity Conservation Act 1999*. Provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places..
- *Airports Act 1996 and Airports (Protection of Airspace) Regulations 1996*. Establish a framework for the protection of airspace at and around airports (to prevent bird / bat strike).

Queensland legislation

- *Aboriginal Cultural Heritage Act 2003*. The main purpose of this Act is to provide effective recognition, protection and conservation of Aboriginal cultural heritage.
- *Biosecurity Act 2014* and regulations. Provides a framework for an effective biosecurity system for Queensland.
- *Environmental Protection Act 1994* and regulations. The object of this Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (*ecologically sustainable development*).
- *Local Government Act 2009 (LGA)* and regulations. Provides for the extent and nature of local government responsibilities and powers.
- *Nature Conservation Act 1992* and regulations. Establishes a framework for creation and management of protected areas and protection and management of native flora and fauna.

- *Planning Act 2016* and regulations: Establishes a framework for Queensland's planning system and provides the foundation for elements such as plan making, development assessment and dispute resolution.
- *Vegetation Management Act 1999* and regulation: The purpose of this act is to regulate the clearing of vegetation in a way that conserves remnant vegetation, does not cause land degradation, prevents biodiversity loss, maintains ecological processes and allows for sustainable land use.

Australian Standards / industry guidelines

The Planting palette is a guideline to the selection of suitable plant species for certain situations, therefore there are no Australian Standards specifically for this purpose.

See the following *LIM* categories for further guidance and relevant standards:

- *LIM Preliminaries*
- *LIM Planting (landscape)*
- *LIM Planting (revegetation)*
- *LIM Landscape drainage*
- *LIM Garden edging*
- *LIM Irrigation.*

Erosion and sediment control

- *Erosion and Sediment Control, International Erosion Control Association (IECA), 2008.* International Erosion Control Association Best Practice Erosion and Sediment Control (BPESC) documents.

Trees

- *AS 4373:2007 – Pruning of Amenity Trees.* Specifies methods for pruning trees and gives guidance on correct and uniform practices.
- *AS 4970:2009 – Protection of Trees on Development Sites.* Provides guidance on the principles for protecting trees on land subject to development.

Approvals / authorised person

Other

- Ensure all relevant approvals are obtained from the appropriate governing bodies and all conditions are observed.
- Department of Transport and Main Roads (DTMR) approval is required for works near state controlled roads. This applies to any part of the road reserve including pathways, kerb and channelling, nature strip and traffic island.

SC Council additional requirements

Corporate documents

- *Sunshine Coast Planning Scheme 2014* – provides guidance and technical advice for development.
- *Sunshine Coast Environment and Liveability Strategy 2017 (ELS)* – sets strategic directions to provide guidance to ensure a healthy environment and liveable Sunshine Coast to 2041.
- *Sunshine Coast Design Strategy (2020)* – as part of the strategy, the *Sunshine Coast Design* book has been developed to guide quality place-based design of buildings, streets and spaces using a simple set of values and design principles.
- *Sunshine Coast Recreation Parks Plan 2021-2031 Draft* – provides guidance on the types and levels of infrastructure utilised to support park activities and functions.
- *Sunshine Coast Community Strategy 2019-2041* – provides a long-term framework for how council and our community will work together to advance our shared goal of a strong community through to 2041.
- *Smart City Implementation Plan 2016-2019* – lays out a structure, program of works and deliverables for the implementation of the Smart City Framework into Council projects, systems and processes.
- *Sunshine Coast Biodiversity Report 2020*. The Biodiversity Report provides valuable data on the Sunshine Coast Council area's biodiversity assets, in inform biodiversity network planning and delivery of conservation outcomes.

- *Sunshine Coast Council Local Government Area Biosecurity Plan 2017*. Prepared in accordance with the *Biosecurity Act 2014*, this plan provides a framework for the management of priority invasive pests and animals in the Sunshine Coast local government area.
- *Sunshine Coast Street Tree Master Plan 2018*. Sets the direction for future street tree planting in the Sunshine Coast Council region.

Corporate liaison

Developer delivered assets

- SCC Development Services – all works associated with any development application.

Council delivered assets

- SCC Parks and Gardens – recreation parks, amenity reserves, linear parks, landscape corridors, sports grounds and recreation trails enquiries relating to asset management and business planning and direction.
- SCC Design and Placemaking Services – recreation parks, amenity reserves, linear parks, landscape corridors, sports grounds and recreation trails and streetscape / centres enquiries relating to design.
- SCC Environmental Operations – recreation trails, foreshore infrastructure, environment reserves, constructed waterbodies and wetlands.

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Acknowledgements

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