



Landscape Architects

# Sydney Business Park Stage 3 Warehouse 1

## LANDSCAPE MANAGEMENT PLAN

Prepared by	Site Image NSW Pty Ltd
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## 1.0 Introduction

This Document has been prepared in response to DA consent condition B46.

It has been prepared by Nick Metcalf, Blarh Dip Hort Registered Landscape Architect no.1695.

## 2.0 LANDSCAPE DESIGN

### 2.1 Planting Species

Botanic Name	Common Name	Mature Size	Pot Size	Density
<b>TREES</b>				
<i>Pyrus calleryana</i> 'Chanticleer'	Chanticleer Ornamental Pear	11 x 6	100L	As Shown
<i>Magnolia grandiflora</i> 'Little Gem'	Dwarf Magnolia	5 x 3	100L	As Shown
<i>Corymbia maculata</i>	Spotted Gum	30 x 8	100L	As Shown
<i>Fraxinus</i> 'Raywoodii'	Claret Ash	14 x 7	100L	As Shown
<i>Lagerstroemia indica</i>	Crepe Myrtle	6 x 3	100L	As Shown
<b>SHRUBS &amp; ACCENTS</b>				
<i>Acmena smithii</i> 'Hedge Master'	Lilly Pilly	2 x 1	300mm	As Shown
<i>Callistemon viminalis</i> 'Better John'	Better John	1.2 x 0.9	300mm	As Shown
<i>Juniperus conferta</i>	Shore Juniper	0.3 x 2.5	300mm	As Shown
<i>Lavandula dentata</i>	French Lavender	1.5 x 1.5	300mm	As Shown
<i>Loropetalum chinense rubrum</i> 'China Pink'	China Pink' Loropetalum	1.5 x 1.5	300mm	As Shown
<i>Metrosideros 'Tahiti'</i>	Tahiti New Zealand Christmas Bush	1 x 1	300mm	As Shown
<i>Phormium tenax</i> 'Baby Bronze'	Baby Bronze NZ Purple Flax	0.75 x 0.8	300mm	As Shown
<i>Raphiolepis 'Oriental Pearl'</i>	Oriental Pearl	1.5 x 1	300mm	As Shown
<i>Viburnum odoratissimum</i>	Sweet Viburnum	3 x 2.5	300mm	As Shown
<i>Westringia fruticosa</i>	Costal Rosemary	2 x 2	300mm	As Shown
<b>GRASSES &amp; GROUND COVERS</b>				
<i>Carpobrotus glaucescens</i>	Pigface	0.2 x 1	150mm	5/m2
<i>Dianella caerulea</i> 'Breeze'	Breeze	0.6 x 0.6	150mm	5/m2
<i>Dichondra argentea</i> 'Silver Falls'	Silver Falls	0.1 x Spreading	150mm	5/m2
<i>Dietes grandiflora</i>	Wild Iris	1.2 x 1.2	150mm	5/m2
<i>Gazania tomentosa</i>	Silver Gazania	0.15 x 0.6	150mm	5/m2
<i>Hardenbergia 'Meema'</i>	Meema	0.5 x 2	150mm	5/m2
<i>Liriope muscari</i> 'Evergreen Giant'	Giant Turf Lily	0.6 x 0.5	150mm	5/m2
<i>Lomandra longifolia</i>	Mat Rush	0.75 x 1	150mm	5/m2
<i>Lomandra longifolia</i> 'Tanika'	Tanika Matrush	0.65 x 0.65	150mm	5/m2
<i>Pennisetum alopecuroides</i> 'Nafray'	Swamp Foxtail 'Nafray'	0.8 x 0.5	150mm	5/m2
<i>Poa labillardieri</i> 'Eskdale'	Eskdale Tussock Grass	0.9 x 0.6	150mm	5/m2
<i>Senecio 'Chalksticks'</i>	Blue Chalk Sticks	0.3 x 0.75	150mm	5/m2
<i>Trachelospermum jasminoides</i>	Star Jasmine	0.3 x 1.5	150mm	5/m2
<b>FRONTAGE MATRIX PLANTING</b>				
<i>Callistemon 'Great Balls of Fire'</i>	Bottlebrush	2 x 2	300mm	

<i>Callistemon viminalis</i> 'Macarthur'	Macarthur Bottlebrush	1.8 x 1.5	300mm
<i>Loropetalum chinense rubrum</i> 'China Pink'	China Pink' Loropetalum	1.5 x 1.5	300mm
<i>Melaleuca linariifolia</i> 'Claret Tops'	Honey Myrtle	1 x 0.8	300mm
<i>Metrosideros</i> 'Tahiti'	Tahiti New Zealand Christmas Bush	1 x 1	300mm
<i>Raphiolepis</i> 'Oriental Pearl'	Oriental Pearl	1.5 x 1	300mm
<i>Rhagodia spinescens</i> 'Aussie Flat Bush'	Aussie Flat Bush	0.4 x 1	300mm
<i>Westringia fruticosa</i>	Costal Rosemary	2 x 2	300mm
<i>Carpobrotus glaucescens</i>	Pigface	0.2 x 1	150mm
<i>Lomandra longifolia</i>	Mat Rush	0.75 x 1	150mm
<i>Myoporum parvifolium</i>	Creeping Boobialla	0.2 x 1.5	150mm

## 2.2 Carpark Landscaping

The carpark landscape provides shade amenity, greater than the 1 tree per 9 carparks as required in the BCC Growth Centre Development control plan, in addition low grass and groundcover planting is proposed to the understory to ensure sightlines and CPTED principles are maintained.

An automatic drip irrigation system is proposed as detailed in the Landscape Specification document.

## 2.3 Communal Open Space

A communal open space has been provided on level 2. The communal open space is shaded by a partial awning from the building as well as an trees and umbrellas for year round shade and shelter. Furniture shall be provided by the building tenant for staff amenity.

## 3.0 PLANT ESTABLISHMENT AND MAINTENANCE

### 3.1 Generally

The Landscape Contractor shall rectify defects during installation and that become apparent in the works under normal use for the duration of the contract Defects Liability Period (DLP).

After the DLP, the implemented landscape treatments must be managed for the life of the development.

The landscape maintenance/ management works shall include, but not be limited to, the following:

- Replacing failed plants;
- Pruning;
- Insect and pest control;
- Fertilising;
- Maintaining mulch;
- Mowing;
- Watering;
- Weeding;
- Rubbish removal; and
- Cleaning of the surrounding areas.

### 3.2 Logbook

Keep a Maintenance Logbook recording when and what maintenance work has been done and what materials, including chemical materials, have been used.

The records shall show when and where identified chemicals were used and why.

Submit the initial logbook for inspection prior to Practical Completion.

Record all major events and activities in the logbook.

Make the logbook available for inspection on request.

### 3.3 Plants

Trees, shrubs and groundcovers shall at all times display healthy vigorous growth. Spent flower heads or stalks shall be removed immediately following flowering.

**Replace failed plants:** A "failed" plant may not mean complete death of soft tissue but failure due to poor growth, appearance, or unacceptable time for plant to re-establish new growth following damage or vandalism.

Replacement plants shall be in a similar size and quality and identical species or variety to the plant that has failed.

Replacement of plants shall be at the cost of the Landscape Contractor unless advised otherwise. If the cause of the failure is due to a controllable situation then correct the situation prior to replacing plants.

Failure of a plant shall be at the sole discretion of the Landscape Architect.

### 3.4 Pruning

The pruning shall be carried out to preserve the health, structural integrity, beauty and life of trees and shrubs.

The Contractor or an appointed independent Arborist shall review the condition of trees within all Contract Areas within the Properties on a quarterly routine basis to assess suitable growth patterns, soil structure, fertilising regime, watering regime, occurrence of any diseases, and public safety.

All trees must be pruned to create a suitable clear trunk zone and canopy shape as required and directed by the Principal's Representative. Excessive foliage impacting onto roads, paths, and lighting must be pruned as required. Tree pruning shall encourage the vertical growth of trees to ensure normal use of the roads, pathways and lighting.

Prune to canopy lift all carpark trees in controlled areas including all pedestrian pathways as required to maintain a minimum of 3.0m above ground branching height and to allow clear pedestrian passage on all footpaths areas.

All pruning works are to be to latest horticultural industry standard and relative to the species. All pruning works shall be in compliance with AS 4373 'Pruning of Amenity Trees' and performed by a qualified Contractor. Advise the Principal's Representative when large trees need to be removed or pruned.

Generally trees should be pruned when they are under the least amount of stress with evergreen trees being able to be pruned all year round and deciduous trees best pruned in the winter months.

Generally trees are to be pruned to achieve the following criteria:

- To promote plant health
- Crown thinning to increase light penetration and air movement.
- Crown reduction by removing larger top branches when required.
- Remove dead, dying, diseased or broken branches.
- Cross lateral branches, sharp angled and vertically growing branches such as water shoots.
- Branches which obstruct utilities, obscure vision or impede pedestrians.
- Branches which detract from the trees appearance and shape.

### 3.5 Spraying

Avoid spraying:

- if ever possible;
- in wet weather;
- if wet weather is imminent;
- if target plants are still wet after rain;
- in windy weather; and

- if adjacent desirable species are too close to the target plants to be avoided.

Immediately report to the Project Manager any evidence of intensive weed infestation, insect attack or disease amongst plant material. Submit all proposals to apply chemicals and obtain approval before starting this work.

When approved, spray with herbicide, insecticide, fungicide as appropriate in accordance with the manufacturers' recommendations. Record in the logbook all relevant details of spraying activities including:

- Product brand / manufacturer's name,
- Chemical / product name,
- Chemical contents,
- Application quantity and rate,
- Date of application and location,
- Results of application, and
- Use approval authority.

### **3.6 Fertilising**

Fertilise gardens with a proprietary slow release fertiliser applied in accordance with the manufacturer's directions and recommendations. Record in the logbook all relevant details of fertilising including:

- Product brand / manufacturer's name,
- Fertiliser / product name,
- Application quantity and rate, and
- Date of application and location.

### **3.7 Stakes and Ties**

Adjust and replace as required to ensure plants remain correctly staked. Remove those not required at the end of the planting establishment period (Defects Liability Period).

### **3.8 Mulched Surfaces**

Maintain the surface in a clean, tidy and weed free condition and reinstate the mulch as necessary to ensure correct depth as before specified.

### **3.9 Mowing and Top Dressing**

#### **Turf Areas:**

Mow the turf to maintain a grass height of between 30-50mm. Do not remove more than one third of the grass height at any one time. Remove grass clippings from the site after each mowing.

Top dress to a maximum of 10mm as necessary to fill depressions and hollows in the surface.

### **3.10 Irrigation and Watering**

Maintain the irrigation system to sure that each individual plant receives the required amount of water to maintain healthy and vigorous growth, adjust and rectify as required.

Provide additional watering, if necessary.

### **3.11 Erosion Control Measures**

Where necessary, maintain the erosion control devices in a tidy and weed free condition and reinstate as necessary to ensure control measures are effective where deemed necessary.

### **3.12 Weeding and Rubbish Removal**

During the plant establishment period remove by hand, rubbish and weed growth that may occur or re-occur throughout all planted, mulched and paved areas.

The contractor shall target weeds that are capable of producing a major infestation of unwanted plants by seed distribution.

Whenever possible, time weed removal to precede flowering and seed set.

Ensure that areas under fence, fence posts gates and trees are raked regularly to ensure no accumulation of leaf litter and rubbish.

### **3.13 Urgent Works**

Notwithstanding anything to the contrary in the Contract, the Project Manager may instruct the Landscape Contractor to perform urgent maintenance works that place the completed contract works at risk.

If the Landscape Contractor fails to carry out the work within seven (7) days of such notice, the Project Manager (or representative) reserves the right without further notice to employ others to carry out such urgent and specified work and charge the cost to the Landscape Contractor.

Such work shall include but not limited to the inspection and clearing of drains in the pavement and gardens.

### **3.14 Completion**

A final inspection shall be made by the Project Manager, Landscape Contractor and Landscape Architect before the completion of the Plant Establishment Maintenance Period (Defects Liability Period).

Any items requiring rectification shall be repaired before completion of the relevant works and finally approved prior to certification.

### 3.15 Maintenance Schedule

Table	ACTIVITY	FREQUENCY						ACTION Daily, Weekly, Monthly
		D	W	2W	3W	M	3or6M	
1	Logbook	+		+		+		Complete a logbook entry every day at site and at least every two weeks. All actions listed below require a logbook entry. Upon request, make the logbook available for inspection. Submit copies of new entries in the logbook to the Contract Administrator on a monthly basis. Please note that more frequent, short, occasional inspection should result in less maintenance work when problems are observed earlier than they might otherwise have been seen. Maintenance requirements should extend for a minimum of two years after the completion of works or until such time as a minimum 80% survival rate for all plantings and a maximum five percent (5%) weed cover for the treated riparian corridor (controlled activity) is achieved. Maps or diagrams which identify the proposed riparian area, existing vegetation, vegetation to be retained, vegetation to be cleared, footprint of construction activities, areas of proposed revegetation etc should be prepared
2	Plant replacement			+		+		Inspect and replace failed plants within 2 weeks of observation of failure. Match species, size (original) and location of new with old.
3	Mulch			+		+		Inspect and replace mulch deficiencies within 2 weeks of observation. Prior to placing new mulch aerate the soil by fork turning to a depth of at least 100mm, roughly level the soil and then place mulch. Do not disturb major plant roots while aerating soil. It can be expected that mulch will have significantly broken-down after an estimated 12-month period following initial application. It is therefore recommended that all mulch beds are topped-up with a 50mm layer of woodchip/leaf mulch (Compliant with AS 4454) at this stage. This should be accompanied by a topdressing application of a 9-month, slow release, low phosphorous fertiliser to ensure that semi-established plantings do not suffer as a result of potential nitrogen draw-down that may be associated with the application of the 50mm mulch layer at the 12-month period.

4	Erosion control			+				Inspect every two weeks and repair ground, soil and mulch immediately. Maintain erosion control device as necessary. Silt fencing installed for sediment control purposes to the east of the tributary. Silt fencing should be regularly inspected and repaired or reinstalled as necessary.
5	Stakes and ties			+				Inspect every two weeks, adjust and/or replace as necessary but remove as plants mature and are able to support themselves.
6	Weed and rubbish removal			+				Inspect and remove immediately upon observation. Leave no waste on site. Dispose of waste material at a designated waste disposal site. All herbaceous weeds should be managed to be at very-low percentage cover levels, (as a minimum), or better. Pasture grasses should be prevented from spreading into any bushland zones by applying a spot glyphosate herbicide spray application on the 1-metre wide buffer zone, on a monthly basis or as required. Maintenance weeding for a period of 24 months after the completion of primary works with an increase in maintenance hours occurring throughout the warmer growing months.
8	Pruning			+				Inspect every 2 weeks and prune as necessary to remove dead wood, improve plant shape and promote healthy vigorous new growth.
9	Spraying			+				Inspect every 2 weeks and action as necessary. Do not spray if other non-chemical methods will satisfy the need to remove insects. Spray for disease control only when absolutely necessary.
10	Urgent works		+					Complete within 1 week (7 days) of notification. Inspect and clear drains.
11	Planting and fertilising			+			3m+	Inspect every 2 weeks and remove spent flowers and dead stalks as they become apparent. Fertilise gardens every 3 months or other frequency in accordance with fertiliser manufacturer's directions.
12	Watering	+		+				Water when and where necessary every day at site and at least every 2 weeks generally. Do not allow soil and plants to dehydrate. Allow for prolonged rain, windy and dry periods. Water in the early morning or late afternoon to avoid excessive evaporation during the heat of the day.
13	Mowing, top-dressing and edging			+		+	6m+	Summer fortnightly. Winter monthly. Top-dress 6 monthly.