

10 LANDSCAPE MAINTENANCE

10.1 Landscape establishment and maintenance

This section identifies landscape maintenance activities required to be undertaken for landscape areas on the WestConnex M4 East Project by CSJ until handover of the project to the Project Company (WCX M4 Pty. Ltd). The Operations and Maintenance Manual will, when prepared, include monitoring and maintenance procedures for the built elements, rehabilitated vegetation and landscaping (including weed control) including performance indicators, responsibilities, timing, duration and contingencies where rehabilitation and landscaping measures fail. The documented monitoring and maintenance procedures will cover, as minimum, the requirements contained in RMS Specification D&C R179 version for M4 East (August 2014). The specification covers standards and methods for all the normal tasks required for landscape/horticultural maintenance. The scope of this work comprises:

- Weeding
- Pruning
- Mulching
- Fertilising
- Pest and disease control
- Replacement planting and
- Mowing

10.2 Summary table of maintenance required

This table summarises the landscape maintenance actions / tasks required and their time frames and frequency of activity.

Maintenance actions	Tasks	Time frames / Frequency								
		Weekly	Monthly	Seasonal				As required	As Specified Below	
				Sum	Aut	Win	Spr			
All Areas										
1. Pruning of vegetation for safety	Maintaining driver sightlines									
	Pruning trees over carriageways, roads, paths and cycleways.									
2. Management of non-frangible vegetation	Remove woody "non-frangible" vegetation in setbacks									Once per year
3. Noxious weed control	Treat noxious weeds according to control category									
4. Rubbish removal	Remove all roadside litter and debris.									And prior to mowing
5. Mowing verge areas	Maintain a 2m wide mown strip to the edge of all road surfaces									When growth exceeds 100mm high
6. Auditing and reporting	Audit and report on maintenance and additional works									Monthly
Mulched massed planting areas										
1. Watering	Water hydromulched areas as required to germinate seed and maintain healthy growth									
	<ul style="list-style-type: none"> 20 litres per plant 									First 12 weeks after planting
	<ul style="list-style-type: none"> Thereafter to 26 weeks after planting – 10 litres per plant 									At 14 day intervals
2. Weeding	Weed planting areas (manual or herbicide) before weed seed set.									
	Replace landscape planting damaged or killed by herbicide									Should this happen it suggests improper use. Review manufacturers instructions and application method.
	Herbicide application. After spraying lop any dead weeds flush with the ground surface and dispose of cuttings.									
3. Mulching	Reapply mulch to maintain to a depth of 10cm									
4. Removal of dead / dying plant material	Cut back and remove dead, dying planting or planting with poor growth planting material. Do not pull root out. Replace topsoil as required. Prepare topsoil by loosening surface. Ensure topsoil depth is even across affected area and has a smooth transition into the existing vegetation.									Within 14 days of detection
5. Replacement plantings	Replace failed plantings with specified species and densities.									
	Water replacement plantings as listed in item 1									As listed in item 1
6. Tree guards and stakes	Replace damaged tree guards and stakes during establishment									
	Remove tree guards and stakes.									12 months after planting is established as required to maintain healthy condition
7. Horticultural maintenance	Fertilise all plantings at specified rates.									

Maintenance actions	Tasks	Time frames / Frequency							
		Weekly	Monthly	Seasonal				As required	As Specified Below
				Sum	Aut	Win	Spr		
	Prune all plantings in specified manner:								
	• Canopy trees								
	• Sub-canopy trees / large shrubs								
	• Low shrubs								Annually after flowering
	• Climbers								Annually
	• Grasses and ground covers								After flowering
									Every 4 years
Tree plantings									
1. Watering	Water plants to maintain adequate soil moisture availability during establishment and to prevent plants from drying out:								
	• 20 litres per plant								First 12 weeks after planting
	• Thereafter to 26 weeks after planting – 10 litres per plant								At 14 day intervals
2. Weeding	Weed mulch pads to spot plantings (manual or herbicide) before weed seed set.								
	Replace landscape plants damaged or killed by herbicide.								Should this happen it suggests improper use. Review manufacturers instructions and application method.
3. Mulching	Herbicide application. After spraying lop any dead weeds flush with the ground surface and dispose of cuttings. Reapply mulch to maintain to a depth of 10cm to an area 1.0m in diameter around each plant								Every 2 years
4. Removal of dead / dying plant material	Remove dead or dying planting material and replace.								
5. Replacement plantings	Cut back and remove dead, dying planting or planting with poor growth planting material. Replace topsoil as required. Prepare topsoil by loosening surface. Ensure topsoil depth is even across affected area and has a smooth transition into the existing vegetation Replace failed plantings with specified species and densities.								
	Water replacement plantings as listed in item 1								As listed in item 1
6. Tree guards and stakes	Replace damaged tree guards and stakes during establishment.								
	Remove tree guards and stakes.								Remove tree guards and stakes progressively as plants mature and where it is deemed that the tree guard provides no further benefit to the establishment of the plant.

7. Horticultural maintenance	Fertilise all plantings at specified rates.		As required to maintain healthy condition
	Prune all plantings in specified manner:		
	<ul style="list-style-type: none"> • Canopy trees 		
	<ul style="list-style-type: none"> • Sub-canopy trees / large shrubs 		

Turfed Areas

1. Watering	Water turf to maintain adequate soil moisture availability during establishment and to prevent turf from drying out		
	<ul style="list-style-type: none"> • Water immediately after laying until the underlay is moistened to its full depth. Continue watering every second day 		For the first 14 days until the turf is established. Turf must not be allowed to dry out during the establishment period. As required until turf has taken root and is making healthy growth. When growth exceeds 75mm
	<ul style="list-style-type: none"> • Thereafter 		
2. Mowing	Mow grass to a maximum height of 50mm		
3. Replace damaged turf	Remove damaged areas of turf and replace with new turf		
4. Weed control	Control weeds in turf areas using selective herbicide		



Aerial view over Concord Road Interchange (Artists impression only)