

PART L10
PLANTING

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1. GENERAL

.1 This Part specifies the requirements for planting of tubestock, general nursery stock, aquatic plants, native grasses and advanced trees. Lawn Establishment is not covered by this Part (refer Part L15 "Lawn Establishment").

.2 The following documents are referenced in this Part:

Austroads Guidelines and other Service Authority legislation and regulations

(a)

2. WEED CONTROL

.1 Before planting commences, an area of 1200 mm diameter around the individual plant shall be sprayed for weeds and where existing vegetative growth exceeds a height of 150mm shall be slashed prior to spraying of weeds.

.2 Trash build-up and cut material shall be removed from the area prior to spraying with an approved herbicide incorporating a herbicide marker.

.3 Where weed control is to be undertaken in and around waterways and wetlands, an appropriate chemical for the application shall be as that nominated by the Contractor.

.4 The herbicide shall be used according to the manufacturer's recommended rates and any off-target damage shall be rectified by the Contractor.

3. SETTING OUT

.1 Prior to commencing work on site, the Contractor shall set out the location of planting areas and the location of individual plants in accordance with the Drawings. The Contractor shall provide notification when setting out has been completed and allow 2 days for inspection of the set out.

(a)

.2 Plants shall be set out in accordance with the Austroads Guidelines and other Service Authority legislation and regulations.

.3 Unless an alternative distance is stated on Drawings:

Trees and shrubs shall not be planted within 2 m of any fence; and

Trees and shrubs shall not be planted within 2.5 m of any pedestrian or cycle path.

.4 Aquatic plants shall generally be planted along the edges of water channels, swales and detention ponds. In retention ponds with permanent water, planting shall occur at the permanent water level in locations such that the water depth is not more than 100 mm above the base of the plant.

4. PREPARATION OF PLANTING HOLES

.1 As far as practicable topsoil and subsoil shall be kept separate.

- .2 Only topsoil free from deleterious material may be used for backfill for planting.
- .3 Unsuitable material brought to the surface during excavation shall be removed from the site by the Contractor.
- .4 The sides of the holes shall be rough sided to create an irregular surface which will facilitate root penetration.
- .5 Minimum hole sizes shall comply with Table 4.1 below:

	Advanced Trees	Tubestock and General Nursery Stock	Aquatic Plants planted with a hand trowel, spade or similar tool
Hole diameter	300 mm greater than the diameter of the plant root ball	150 mm greater than the diameter of the plant root ball	Large enough to accommodate the plant's rootball
Hole depth	Depth of the root ball. Subsurface material at the bottom of the hole shall be decompacted to a depth of 150 mm and lightly compacted	Subsurface material at the bottom of the hole shall be decompacted to a depth of 100 mm and lightly compacted	Large enough to accommodate the plant's rootball

- .6 Hole sizes for Viro-cells and Viro-tubes shall be appropriate for the size of the plant.
- .7 The Contractor shall use the following for the preparation of planting hole methods.

Spade Dug: Holes shall be dug using appropriate hand held tools.

(a) **Hamilton Tree Planters:** The size of the Hamilton Tree Planter shall be compatible with the tube size. This technique may be used in conjunction with ripline planting and or areas where minimum disturbance is required.

(c) **Hand Operated Auger:** Holes shall be at least 150 mm greater than the diameter of the plant root ball and a minimum depth of 100 mm below the root ball. Sides of the holes shall be rough sided to create an irregular surface which will facilitate root penetration.

(d) **Machine Mounted Auger:** Holes shall be at least 150 mm greater than the diameter of the plant root ball and a minimum depth of 100 mm below the root ball. Sides of the holes shall be rough sided to create an irregular surface which will facilitate root penetration.

(f) **Riplies:** Planting areas shall be cross-ripped to a minimum depth of 3000 mm at ripline spacings of 500 mm. Riplies shall follow contours. Ripping shall not occur within the extent of existing vegetation or the dripline of existing trees.

(g) **Hand Plugging:** A pointed implement or a small trowel shall be used to create a depression large enough to accommodate the plant's rootball.

Mini Excavator/Backhoe/Skid Steer Loader: Holes shall be at least 300 mm greater than the diameter of the plant root ball and a minimum depth of 150 mm below the root ball. Sides of the holes shall be rough sided to create an irregular surface which will facilitate root penetration. The subsurface material at the bottom of the hole shall be decompacted to a depth of 100 mm.

5. PLANTING METHOD

General

- .1 Prior to planting, the plant shall be watered and the rootball fully moist.
- .2 Plants shall be removed from the containers and planted in such a way that the roots are not disturbed. Roots shall not be teased out.
- .3 The plant shall be placed vertically in the hole or ripline and the hole backfilled. The backfill shall be lightly consolidated to remove air pockets around the rootball and to ensure that the plant remains upright after watering or flooding.
- .4 The plant shall be set at a height such that the surface of the potting medium is at the same level as the surrounding soil surface.
- .5 Except for plants placed in riplies and aquatic plants placed in water, a shallow watering basin of a minimum 400 mm diameter (800 mm for advanced trees) by 100 mm deep, capable of holding a minimum of 20 litres of water, shall be constructed at the base of each plant. Each plant shall receive 20 litres (50 litres for advanced trees) of clean potable water immediately following planting.

- .6 After planting all containers, rubbish, debris, spoil and other surplus material shall be removed from the site.
- .7 The Contractor shall use the following planting methods:
- Planting into Holes:** The nursery stock shall be watered and the rootball moist prior to planting. Plants shall be removed from the containers, ensuring the roots are not disturbed. Roots shall not be teased out. The plant shall be placed in the hole, backfilled with topsoil and lightly consolidated. The plant shall be set at a height such that the surface of the potting medium is at the same level as the surrounding soil surface. A shallow watering basin (minimum 400 mm diameter by 100 mm deep), capable of holding a minimum of 10 litres of water, shall be constructed at the base of each plant.
- (a) **Planting into Riplines:** The nursery stock shall be watered and the rootball moist prior to planting. Plants shall be removed from the containers, ensuring the roots are not disturbed. Roots shall not be teased out. The plant shall be placed in the ripline, backfilled with topsoil and lightly consolidated. The plant shall be set at a height such that the surface of the potting medium is at the same level as the surrounding soil surface.
- (b) **For advanced trees:** Before planting, the base and sides of the planting hole shall be moist. When trees are being unloaded and positioned the rootball shall be supported and trees shall not be lifted only by the trunk. The trunk shall be protected and a tree sling shall be attached as close to the rootball as practical. A bar or timber shall be positioned under the rootball for support, and an additional sling shall be used to hold the bar or timber in position when lifting. Trees shall be oriented so that the peg embedded in the rootball or the red dot marked on the stem faces north in the new planting position.
- (c)
- .8 Balled and Burlapped Stock shall be placed in the hole before the hessian covering is repositioned. Then, to ensure root growth and access to nutrients and water, the hessian shall be pulled down off the rootball and left in the bottom of the hole. The hessian shall not be pulled from under the plant, as this may damage the root ball.
- .9 Where a tree is supplied in other containers or root control bags, the container or bag shall be removed immediately prior to planting. If a root control bag is enclosed in a wire basket, the basket can be left around the root ball, but the lifting handles shall be cut off 100 mm below the soil surface.
- .10 Where aquatic plants are grown en masse, plants shall be divided into the number of divisions specified in the plant schedule.

Backfill

- .11 Backfill shall consist of topsoil, which may be material excavated from the planting hole or suitable topsoil sourced from the immediate worksite. Where suitable topsoil is not available from the planting hole or immediate worksite, imported soil shall be used. The texture of the imported soil shall be light to medium sandy loam, i.e. capable of being handled when moist, but lacking cohesion so that it will fall apart easily when dry and shall be free of debris, stones, weeds, roots or other deleterious material. Organic matter shall not be added to the backfill material.

6. FERTILISER

- .1 Fertiliser shall be applied in accordance with the Drawings. The application rate per plant and method of application shall comply with Table 6.1 below:

	ADVANCED TREES	GENERAL NURSERY STOCK	TUBESTOCK, CELLS AND DIVISIONS	AQUATIC STOCK	NATIVE GRASSES
(a) Slow Release Tablets Plant tablets shall be placed evenly around the root ball approximately 50 mm from the root tips after the plant has been placed in the hole and the hole backfilled to half way.	Three 10 g Agriform or equivalent plant tablets	Two 10 g Agriform or equivalent plant tablets	One 10 g Agriform or equivalent plant tablets	Not applicable	One 10 g Agriform or equivalent plant tablets
(b) Slow Release Granule Granules to be placed 50 mm below the root ball and mixed into the soil at the base of the planting hole.	30 g of Nutricote or Osmocote general purpose or equivalent	5 g of Nutricote or Osmocote for natives 6-12 months or equivalent	5 g of Nutricote or Osmocote for natives 6-12 months or equivalent	5 g of Nutricote or Osmocote for natives 6-12 months or equivalent	5 g of Nutricote or Osmocote for natives 6-12 months or equivalent
(c) Complete Organic Dynamic Lifter, Manure or Biosolids shall be incorporated into the backfill material at the manufacturer's recommended rates.	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	Not applicable	At the manufacturer's recommended rates.
(d) Complete Mineral Complete Mineral Mix shall be incorporated into the topsoil material	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	Not applicable	Not applicable
(e) Soluble Mineral Aquasol or Thrive or equivalent shall be applied	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	Not applicable	Not applicable
(f) Liquid Maxicrop or Fish Emulsion shall be applied	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	Not applicable	At the manufacturer's recommended rates.
(g) Granular TerraCottem or equivalent shall be applied	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	At the manufacturer's recommended rates.	Not applicable	Not applicable

7. ROOT CONTROL

General

- (a)
(b)
(c) Installation shall be in accordance with the manufacturer's instructions to extend 1500 mm either side of the tree root ball.
(d)
(e)

.2 The Contractor shall use the following installation types in accordance with the manufacturer's instructions:

Root Barrier Types

Woodchuck Equipment RS 500 – 500 mm wide;
Woodchuck Equipment RS 1000 – 1000 mm wide;
Woodchuck Equipment RS 1500 – 1500 mm wide;
Geofabrics Australasia RCM 03030 – 300 mm wide;
Geofabrics Australasia RCM 06030 – 600 mm wide

Geofabrics Australasia RCM 09030 – 900 mm wide
 Geofabrics Australasia RCM 12030 – 1200 mm wide

Root Director Types

Woodchuck Equipment RD 640
 Woodchuck Equipment RD 1050

Tree Containers

- .3 (f) The containers shall be 1600 mm wide x 1800 mm deep, manufactured from polyethylene, with a wall thickness between 7 mm and 9 mm.
 (g)

8. TREE STAKES FOR ADVANCED TREES

- (i)
 .1 Advanced trees shall be planted with tree stakes. The Contractor shall use the following:

Hardwood Stakes: Two 50 x 50 x 2500 mm hardwood stakes installed vertically to a minimum of 750 mm deep into the ground, located a minimum of 500 mm from the trunk to avoid damage to the root ball.

- (a) **Treated Pine Posts:** Two 3000 x 100 mm diameter machine finished treated pine posts installed vertically to a minimum of 1000 mm deep into the ground, located a minimum of 800 mm from the trunk to avoid damage to the root ball.

- (b) **Star Droppers:** Two 2400 mm black varnished star droppers driven vertically to a minimum of 750 mm deep into the ground, located a minimum of 500 mm from the trunk to avoid damage to the root ball. Black protective caps shall be installed to all droppers.

(c)

9. MARKER STAKES

- .1 All plants other than advanced trees shall be identified by marker stakes. Stakes shall be straight, free from knots or twists and pointed at one end, and driven a minimum of 250 mm into the planting hole with no less than 500 mm remaining above ground level. Colour coding for specific species will appear on the planting schedule if applicable.

- .2 The Contractor shall use the following marker stakes:

- (a) **Bamboo Stakes:** 750 mm long, 10-12 mm diameter.

- (b) **Hardwood Stakes:** 750 mm long, 25 x 25 mm.

- (c) **Recycled Plastic Stakes:** 750 mm long, 25 x 25 mm.

10. TREE TIES

- .1 (a) An approved product shall be installed in accordance with the manufacturer's instructions.

- (b) The Contractor shall use the following tree ties:
 (c)

- (d) Hessian Tree Tie - Woodchuck Equipment HTT – 30 mm wide.
 Hessian Tree Tie - Woodchuck Equipment HTT – 50 mm wide.
 Polyethylene Tree Tie - Woodchuck Equipment PTT – 50 mm wide.
 Maxilock Tree Tie - Woodchuck Equipment ML - 10 – 10 mm wide.
 Maxilock Tree Tie - Woodchuck Equipment ML- 25 – 25 mm wide.

- .3 When tying, one loop or figure-eight tie shall be placed between each stake and the tree trunk. Each tie shall be secured near the top of its stake and should permit some movement under normal wind conditions without allowing the roots to move or the trunk to rub against the stake. The tie shall have a broad, smooth surface where it meets the trunk and enough elasticity to minimise trunk abrasion cutting. Where Advanced Trees are subject to lateral movement in areas of high wind, 100 mm of black carpet underlay shall be wrapped around the trunk and secured by the tree tie.

11. TREE GUARDS

- .1 Tree Guards will be supplied by the Principal and they will be available from the DPTI Depot, Bridge Road, Walkley Heights. The Contractor shall give at least 2 working days notice prior to collecting the tree guards. Where tree guards display a logo, it shall face the traffic.

- .2 Where Tree Guards are specified, an approved type shall be installed in accordance with the manufacturer's instructions. The Contractor shall use the following:

Rigid Polypropylene Fluteboard: 450 mm high with 230 mm wide sides.

Polyethylene Plastic Sleeve: 450 mm high with 350 mm flat width.

Recycled Polypropylene Mesh: 450 mm high with 400 mm flat width.

Mesh Guard: Tree guards shall be assembled and positioned around the plant in accordance with the manufacturer's instructions. Support stakes shall extend 50 mm above the tree guard, and be driven a minimum of 250 mm into the ground.

(a)

12. WEED MATS

(b)

(c)

- .1 An approved product shall be installed in accordance with the manufacturer's instructions.

- .2 The Contractor shall use the following Weed Mats:

Jutemat biodegradable (750-800 gsm) - 370 x 370 mm

Jutemat biodegradable (750-800 gsm) - 600 x 600 mm

ReCover 100% recycled fibre (285 gsm) - 370 x 370 mm

ReCover 100% recycled fibre (285 gsm) - 600 x 600 mm

(a)

(b)

13. MULCH

(c)

(d)

- .1 At a minimum, mulch shall be evenly spread in accordance with Table 13.1 below:

	ADVANCED TREES	GENERAL NURSERY STOCK	TUBE STOCK	AQUATIC STOCK	NATIVE GRASSES
Average Thickness (mm)	100	100	100	75	20
Minimum coverage, measured from plant (m)	1.0	1.0	1.0	0.5	0.5

- .2 All mulch material shall slope toward the base of stems of plants so that the mulch is not in contact with the stems of the plants, and shall be raked to an even surface flush with the surrounding finished levels. The mulch shall be well leached, free from deleterious material such as soil, weeds, sticks and sawdust. Mulch available from removal of on-site vegetation shall be used only when approved for this use in the Environmental Management Plan.

- .3 Red Gum Chip, Forest Mulch and Eco-Mulch shall not be used with Aquatic Plants.

- .4 The Contractor shall use the following mulch:

(b)

(c)

Shredded Pine Mulch: Pine mulch shall be produced from plantation trees and shall be of a consistent grade free of bark.

(d)

(e)

Pine Chip: Pine chip shall be produced from plantation trees and shall have a consistent size of approximately 25 mm x 25 mm x 3 mm.

Red Gum Chip: Red gum chip shall be of a consistent grade and free of bark.

Forest Mulch: Forest mulch shall be fully recycled from shredded green organics and composted.

Eco-Mulch: Eco-mulch shall be manufactured from fully recycled industrial timber materials and free from nails, staples and cardboard.

14. NATIVE REVEGETATION AREA SIGN

- .1 The Contractor shall install Principal supplied "Native Revegetation Area" signs in accordance with Attachment L10A.

15. HOLD POINTS

- .1 There are no Hold Points referenced in this Part.
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16. **ATTACHMENT L10A – NATIVE REVEGETATION SIGNAGE**

