

SUPERSEDED

Technical Specification

**Transport and Main Roads Specifications
MRTS16C Vegetation Works**

April 2012

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1 Introduction

This technical specification applies to the general requirements of vegetation works for road construction and associated works.

This technical specification shall be read in conjunction with MRTS01 *Introduction to Technical Specifications*, MRTS50 *Specific Quality System Requirements* and other technical specifications as appropriate.

This technical specification forms part of the Transport and Main Roads Specifications Manual.

2 Definition of terms

The terms used in this specification shall be as defined in Clause 2 of MRTS01 *Introduction to Technical Specifications*.

Landscape and revegetation related terms and abbreviations used in this specification are defined in Table 2 of MRTS16 *General Requirements – Landscape and Revegetation Works*. Guidance on generic landscape and revegetation terms is contained in the department's *Landscape and Revegetation Works User Guideline*.

3 Not used

4 Quality system requirements

4.1 Hold Points, Witness Points and Milestones

General requirements for Hold Points, Witness Points and Milestones are specified in Clause 5.2 of MRTS01 *Introduction to Technical Specifications*.

The Hold Points, Witness Points and Milestones applicable to this specification are summarised in Table 4.1.

Table 4.1 – Hold Points, Witness Points and Milestones

Clause	Hold Point	Witness Point	Milestone
5.1			Submission of samples
6.1		Inspection of unopened bags of seed	
6.2.1	1. Submission of Seed Supply Proposal (SSP)		
6.2.4		Inspection of unopened bags or containers of fibre	
6.3.1	2. Preparation of area to be seeded		
6.3.1	3. Seed added to seeding mix		
7.3.1	4. Preparation of area to be turfed		
8.2.1	5. Submission of Plant Supply Proposal (PSP)		
8.2.1	6. Submission of inspection reports and documentation		
8.2.1		Joint plant nursery inspections	

Clause	Hold Point	Witness Point	Milestone
8.2.1		Delivery of plants	
8.3.1	7. Preparation of area to be planted with container stock		
8.3.2	8. Setout of plants		

5 General requirements

5.1 Samples

The Contractor shall submit to the Administrator, samples of materials in accordance with Clause 5.5 of MRTS16 *General Requirements – Landscape and Revegetation Work*. **Milestone**

6 Seeding

6.1 General

Where seeding is to be carried out, the Contractor is responsible for applying the seed mix, in accordance with Clause 6.2.2 and 6.2.3.

The Contractor shall advise the Administrator at least three days before applying seed to allow the Administrator the opportunity to inspect unopened bags or containers of seed. **Witness Point**

6.2 Material requirements

Seed mixes may be comprised of a cover crop and native seed and / or grass seed.

6.2.1 Seed supply proposal

The Contractor shall submit a Seed Supply Proposal (SSP) for all seed mixes. **Hold Point 1** The SSP shall be submitted to the Administrator for a determination as to its suitability, at least six weeks before seeding. The SSP shall include the following:

- a) the specified species or where specified species are unavailable, potential substitutes
- b) the proposed application rates for the substitute species
- c) the adjusted specified application rates where viable seed is less than the specified purity and germination viability percentages
- d) required certificates
- e) seed pre-treatment requirements
- f) seed inoculation requirements, and
- g) seed insecticidal requirements.

Seed purity and germination viability test certificates shall be no older than six months, from the initial issue date of the SSP.

6.2.2 Grass seed

The grass seed mix species are given in Item 3.1 of the Annexure, or as shown on the Drawings, and shall meet the requirements of Table 6.3.3.1.

The Contractor shall obtain from the supplier of the proposed seed mix, a certificate detailing the following:

- a) seed purity
- b) seed germination viability
- c) name of the supplier, and
- d) species (including cultivar) of the seed.

The supplier's certificates shall be included in the appendices of the SSP.

The specified application rates of the proposed grass mixes specified in Table 6.3.3.1 are based on each grass seed species having a minimum purity of 95% and a minimum germination viability of 80%.

The percentage of viable seeds shall be confirmed by a tetrazolium chloride test (TZ test).

The Contractor shall adjust the specified application rates to account for the lower percentage of viable seed as indicated by the outcomes of the purity and germination tests.

6.2.3 Native seed

The native seed mix species are given in Item 3.2 of the Annexure, or as shown on the Drawings, and shall meet the requirements of Table 6.3.3.2

The Contractor shall obtain from the supplier of the proposed seed mix, a certificate detailing the following:

- a) name of the supplier
- b) species of the seed
- c) purity percentage
- d) viability percentage, and
- e) harvest or collection date and harvest location.

The supplier's certificates shall be included in the Appendices of the SSP.

The percentage of viable seeds shall be confirmed by a tetrazolium chloride test (TZ test).

Those seeds that cannot be confirmed by a TZ test shall be confirmed with a germination test. Such seed types may include hard seeds (for example, Acacia) and very fine seeds (for example, Eucalyptus).

The specified application rates of the proposed native seed mixes are based on each native seed species having a minimum purity of 95% and a minimum germination viability of 60%.

The Contractor shall adjust the specified application rates to account for the lower percentage of viable seed as indicated by the outcomes of the purity and germination tests.

The harvest location of native seed shall be based on the following order of priority:

- a) first priority – local provenance
- b) second priority – regional
- c) third priority – Queensland, and
- d) fourth priority – Eastern Australia.

6.2.4 Fibres

Fibres shall be the type as specified in Item 3.3 or 3.4 of the Annexure, depending on the seed mix.

Fibre shall be free from any matter toxic to plant growth, plant propagules (unless otherwise specified), soil, rubbish and other deleterious materials.

Fibre shall have a pH range of 5.5 to 7.5.

Fibres shall be supplied to site, in unopened bags or containers showing the manufacturer's analysis of contents and weight. The Contractor shall advise the Administrator at least three days before hydraulic seeding or mulching to allow the Administrator the opportunity to inspect unopened bags or containers of fibre. **Witness Point**

6.2.4.1 Sugar cane

Sugar cane fibre shall be processed from sugar cane tops only. It shall be supplied to site, with a minimum moisture content of 15%.

6.2.4.2 Industrial hemp

Industrial hemp fibre shall be processed from the bast fibre and hurd of the stalk of the industrial hemp plant. It shall be supplied to site in closed bags or containers showing the manufacturer's description, analysis of contents and weight.

6.2.4.3 Wood

Wood fibre shall be defibrated.

6.2.4.4 Paper (cellulose)

Paper fibre shall be processed from recycled paper.

6.2.4.5 Straw

Straw mulch shall be crop residue (such as cereal straw or predominantly stalk material). Cut and bailed pasture grasses shall not be used (unless otherwise specified).

6.2.5 Organics blanket

An organics blanket shall consist of:

- a) organic soil conditioner, compliant with AS 4454, and
- b) a tackifier polymer based soil stabiliser or a natural (non-cross linked) co-polymer guar binder which complies with the requirements as specified in Clause 6.2.6.1 and shall be free from any matter toxic to plant germination or growth.

6.2.6 Binders

Binder (tackifier) type shall be as specified in Item 3.3 for hydromulching slurry mixes and / or 3.4 for straw mulching slurry mixes of the Annexure.

6.2.6.1 Guar binder

Guar binder shall be a natural (non-cross linked) co-polymer binder with the following performance characteristics:

- a) 100% pure guar
- b) biodegradable

- c) readily dispersible
- d) highly soluble
- e) self-hydrating, and
- f) displays a delayed development of viscosity before final thickening takes place.

6.2.6.2 Bituminous binder

Bituminous binder shall be a bituminous slow curing anionic emulsion in accordance with the requirements of MRTS21 *Bitumen Emulsion*, which shall be free from petroleum solvent or other components toxic to plant growth.

6.2.7 Seed mix fertilisers

Fertilisers shall be as specified in Item 3.3 for hydromulching slurry mixes and / or 3.4 for straw mulching slurry mixes of the Annexure and in accordance with Clause 5.4.2 of MRTS16 *General Requirements* and as follows:

- a) a short term (approximately three months) organic fertiliser
- b) a controlled release, long term (minimum nine months) fertiliser
- c) have an N:P:K analysis within the following ranges:
 - i. for organic fertiliser:
 - N: 3 - 9
 - P: 1 - 4
 - K: 2 - 5
 - ii. for controlled release fertiliser:
 - N: 7 - 18
 - P: 0.3 - 1.5
 - K: 4 - 8

6.3 Construction

6.3.1 General

Seeding is the process of applying seed and / or fibre, water, fertiliser and binder pneumatically, manually or mechanically.

The application of seeding shall not take place until the prepared area has been constructed in accordance with the specified requirements. **Hold Point 2**

Seeding shall be applied within two days of the planting media being placed, as per Clause 7.3.3 of MRTS16B *Vegetation Ground Works*.

The Contractor shall water the prepared surface, to ensure it is damp, prior to the application of seeding treatments.

The Contractor shall ensure coverage of seeding and organics blanket applications protect the hinge points of cut and fill embankments; and ensures water flows do not negatively impact on the seeding and organics blanket treatments.

Fertilisers, in accordance with Clause 6.2.7, shall be incorporated as per the manufacturers recommended rates into the seed mix.

The Contractor shall have the Administrator witness the seed being incorporated into the mix.

Hold Point 3

The Contractor shall not carry out seeding operations:

- a) when wind speed exceeds 15 km/hr
- b) where the surface is fully saturated
- c) when temperatures exceed 37°C, and
- d) during rain periods or when rain appears imminent.

6.3.2 Seed mix preparation

6.3.2.1 Seed pre-treatment

The Contractor shall pre-treat the seeds as per the Seed Supply Proposal (SSP), unless otherwise specified in Item 3.5 of the Annexure. Seed shall be sown within 24 hours of pre-treatment.

6.3.3 Seed mix application rates

6.3.3.1 Grass seed mix

The grass seed mix application rates are specified in Item 3.1 of the Annexure, or as shown on the Drawings. Seed mixes shall meet the minimum requirements listed in Table 6.3.3.1 and Clause 6.2.2.

Table 6.3.3.1 – Grass Seeded Mix - Minimum Application Rate

Time of Year	Grass Seed Mix	Minimum Application Rate kg/ha
** Warm Season	* Mix of perennial species	30
October – March	Japanese Millet – sterile hybrid	10
** Cool Season	* Mix of perennial species	30
April – September	Wimmera Rye – sterile hybrid	10

* Perennial species must not exceed a mature growth height of 500 mm; and where no perennial species are specified, *Cynodon dactylon* (70% unhulled, 30% hulled) shall be used as the default species.

** Apply the 'off-season' mix when seeding at the end of a season.

6.3.3.2 Native seed mix

The native seed mix application rates are specified in Item 3.2 of the Annexure or as shown on the Drawings. Seed mixes shall meet the minimum requirements listed in Table 6.3.3.2 and Clause 6.2.2 and 6.2.3.

Table 6.3.3.2 – Native Seed Mix - Minimum Application Rate

Grass Seed Mix	Description	Minimum Application Rate kg/ha
Native Seed Mix		
*Acacias	Mix of a minimum of 3 regional species	6
*Trees	Mix of regional species	1.5
*Shrubs	Mix of regional species	1.5
Grass	Mix of perennial species	25
**Cover Crop		
October – March	Japanese Millet – sterile hybrid	10
April – September	Wimmera Rye – sterile hybrid	10

* Seed mixes applied in clear zone areas shall exclude non-frangible species

**Apply the 'off-season' cover crop mix when seeding at the end of a season.

6.3.4 Drill seeding

The Contractor shall invert the soil and broadcast or drill the seed over the treated area. After seeding, the Contractor shall ensure all seeds are covered with planting media to a depth equivalent to 1½ - 2 times (where practicable) the diameter of the seed.

Seed mix shall be uniformly blended with a bulking agent such as dry sharp sand or dry, fine sawdust at a rate of 1 part seed to 5 parts bulking agent by volume.

6.3.5 Broadcast seeding

The Contractor shall manually distribute seed and fertiliser over the treated area. After seeding, the surface of the planting media shall be lightly raked over the seeded area to ensure all seeds are covered with planting media to a depth equivalent to 1½ – 2 times (where practicable) the diameter of the seed.

Seed mix shall be uniformly blended with a bulking agent such as dry sharp sand or dry, fine sawdust at a rate of 1 part seed to 5 parts bulking agent by volume.

6.3.6 Hydromulching

The Contractor shall use purpose-built equipment, capable of:

- a) producing a homogenous slurry, and
- b) uniformly applying the slurry over the area to be treated.

Application of the hydromulching slurry shall be from at least two directions to prevent a shadowing effect resulting in an uneven coverage of slurry. An indirect, dispersed spray pattern shall be used to achieve a uniform cover.

Products, application types and rates and shall be as specified in Item 3.3 of the Annexure or as shown on the Drawings.

Mix types shall comply with the minimum requirements in Table 6.3.6.

Table 6.3.6– Hydromulch Application Rates

Function	Application Rate (dry weight) kg/ha	Kilograms of Binder (dry weight) to 1000 Litres of Water	Minumum Water (L/ha)	Organic fertiliser (kg/ha)	Controlled release fertiliser (kg/ha)
Sugar Cane Mulch					
Temporary works	2500	2	25,000	250	Refer to section 6.2.7
Permanent works on batters <1:3	4000	2	40,000	250	
Permanent works on 1:3 and steeper	6000	3	40,000	250	
Wood Fibre					
Permanent works on batters	2500	2	30,000	250	Refer to section 6.2.7
Paper Pulp					
Temporary works	2000	2	25,000	250	Refer to section 6.2.7
Industrial Hemp					
Temporary works	2500	2	25,000	250	Refer to section 6.2.7
Permanent works on batters <1:3	4000	2	35,000	250	
Permanent works on 1:3 and steeper	6000	3	40,000	250	

6.3.6.1 Hydromulching single pass – grass seeding

All materials including fibre, seed and binder are applied in a single pass.

6.3.6.2 Hydromulching multiple pass – native seeding

The first pass shall consist of a slurry of water, fibre (approximately 10% of the total specified amount of fibre), seed and fertiliser to the prepared surface. The second and subsequent passes shall consist of a slurry of water, fibre and binder only.

The Contractor shall allow sufficient time between passes such that slumping of the hydromulch treatment does not occur.

6.3.7 Straw mulching

Where straw mulching is specified, two separate applications are required. The initial application shall consist of a slurry of water, wood fibre, seed and fertiliser to the prepared surface. The second application shall consist of dry straw and binder applied simultaneously.

All products, application types and rates and shall be as specified in Item 3.4 of the Annexure. All nominations shall meet the minimum requirements of Table 6.3.7.

Table 6.3.7 – Hydromulch Application Rates

Function	Application Rate (dry weight) kg/ha	Emulsion (L/ha)	Water (L/ha)	Organic fertiliser - pelletised poultry manure (kg/ha)	Controlled release fertiliser (kg/ha)
Straw Mulch					
Initial hydroseeding prior to straw mulch layer	200 (wood fibre used as seed carrier)		20000	250	Refer to section 6.2.7
Temporary works	2500	1500	-	-	-
Permanent works on batters	5000	2500	-	-	

6.3.8 Organics blanket

Organics blanket, including tackifiers, seed and fertiliser, shall be pneumatically applied to ensure a smooth, even surface is achieved.

The organics blanket shall be applied to a minimum depth of 50 mm.

Organic blanket berms shall be placed at regular intervals to minimise erosion and divert sheet flows as required.

7 Turfing

7.1 General

Turfing operations shall be carried out where shown on the Drawings, or as specified elsewhere in the Contract.

7.2 Material requirements

7.2.1 Turf

Turf species shall be as specified in Item 4.1 of the Annexure.

The quality of the turf shall comply with the following:

- a) A-grade turf shall consist of 95% of the specified turf species
- b) B-grade turf shall consist of 80% of the specified turf species
- c) be in a healthy condition free from weeds, pests, diseases and any matter toxic to plant growth
- d) have a minimum 30 mm depth of sod
- e) be showing signs of active growth, and
- f) and true to form of the species.

7.2.2 Reinforced turf

Reinforced turf shall consist of a layer of mature turf grown onto a reinforced layer.

The reinforced turf shall be certified as withstanding surface water flow rates of 3 m/s without degradation.

Reinforced turf species, grade and width shall be as specified in Item 4.2 of the Annexure.

7.2.3 Turf stakes and fixing pins

Stakes shall be 25 x 25 x 300 mm hardwood stakes or equivalent. Stakes shall be removed and disposed of following establishment of the turf.

Fixing pins used to secure turf shall be 'U' shaped mild steel and of a size and strength to ensure turf maintains direct contact with the ground.

7.2.4 Turf fertilisers

Fertilisers shall be specified in Item 4.3 of the Annexure, and in accordance with Clause 5.4.2 of MRTS16 *General Requirements* and as follows:

- a) a controlled release, long term (minimum 9 months) fertiliser
- b) have an N:P:K analysis within the following ranges for controlled release fertiliser:

N: 10 - 22

P: 1 - 4

K: 2 – 8

7.3 Construction

7.3.1 General

Turfing is the process of manually or mechanically installing turf.

The installation of turf shall not take place until the prepared area has been constructed in accordance with the specified requirements. **Hold Point 4**

Turf shall be applied within two days of the planting media being placed, as per Clause 7.3.3 of MRTS16B *Vegetation Ground Works*.

7.3.2 Installation of turf

Turf shall be delivered within 24 hours of cutting.

Installation of turf shall commence within 24 hours of delivery.

Fertilisers, in accordance with Clause 7.2.4, shall be broadcast evenly over the prepared area, as per the manufacturers recommended rates.

Turf shall be installed in accordance with Standard Drawing 1651.

Turf shall be laid parallel to the contour on prepared ground. Cross joints shall be staggered and butted together.

Turf shall be rolled or tamped to achieve a consistent contact between planting media and sod and watered to minimise air pockets between the turf and the planting media.

7.3.3 Installation of reinforced turf

Reinforced turf shall be installed in accordance with Clause 7.3.2 and Standard Drawing 1652 with the following additions:

- a) refer to Drawings for details including the anchoring of the leading edge of turf in trenches
- b) lay turf parallel to the surface flow, and

- c) pull turf taut before pinning down.

8 Planting of container and ex-ground stock

8.1 General

Planting of container, ex-ground stock and / or site harvested plant material operations shall be carried out where shown on the Drawings, or as specified elsewhere in the Contract.

8.2 Material requirements

Plant material used in planting operations may comprise plant stock obtained from nurseries, plant stock propagated from site plant material and grown-on in nurseries and / or material harvested and planted as is on site.

The quality of ex-ground stock and container stock, 25 L and greater, shall conform to the requirements in the NATSPEC Guide: Specifying Trees.

The plant material species are shown on the Drawings.

8.2.1 Plant supply proposal

Where planting has been scheduled using one or more of Items 3787 – 3791, the Contractor shall submit a Plant Supply Proposal (PSP) covering nursery supplied, nursery propagated and / or site harvested material. No plant stock shall be ordered until the PSP is deemed suitable by the Administrator. **Hold Point 5** The PSP shall be submitted to the Administrator for a determination as to its suitability, within the period specified in Item 5.1 of the Annexure. Where not specified the Contractor shall provide the PSP within one month of Possession of Site. The PSP shall include the following:

- a) the proposed species or where specified species are unavailable, potential substitutes
- b) the proposed planting patterns and spacings, for the substitute species
- c) harvesting and / or propagation proposals for site harvested plant material
- d) growing on, storing and maintaining plant stock
- e) inspection report forms and documentation
- f) required certificates and permits, and
- g) proposed plant delivery program including dates for joint inspections at the nursery.

The Contractor shall supply inspection report forms and documentation, as per NATSPEC Guide: Specifying Trees Appendix 2, a minimum five days prior to the delivery of stock on site. **Hold Point 6**

The Contractor shall give the Administrator a minimum of five days notice of plant nursery joint inspections which are required within two months of the Administrator deeming the PSP suitable and every following two months where the growing on period is greater than two months. **Witness Point**

The Contractor shall give the Administrator a minimum of 24 hours notice of plant delivery.

Witness Point

8.2.2 Containerised plants and ex-ground stock

Plant material shall comply with the following:

- a) plants shall be acclimatised to the conditions of the project site – acclimatisation shall include sun hardening and reduction in water
- b) plants shall be of a size commensurate with the container size
- c) plants and container soil shall be in a healthy condition free from weeds, pests and diseases
- d) plants shall be showing signs of active growth relative to season and true to form of the species
- e) plant roots shall be healthy, not pot bound and able to support healthy plant growth
- f) trees shall have a single leading stem unless otherwise specified
- g) plants shall be delivered to site in fully enclosed trucks or covered by tarps
- h) each group of plant species shall be clearly and correctly labelled according to botanical nomenclature
- i) labels shall be water resistant and tied securely to one species per tray, and
- j) ex-ground stock and container stock, 25 L or greater, shall conform to the requirements in the NATSPEC Guide: Specifying Trees.

8.2.3 Plant stakes and ties

Plant material shall be staked as per Table 8.2.3.

Hardwood plant stakes are to be free of knots and twists.

The proposed plant material to be staked shall be secured to Stake Types 1 and 2 with ties made from 50 mm wide hessian webbing.

Table 8.2.3 – Plant Stake –types and sizes

Stake Type	Description	Container
1	1500 x 25 x 25 mm hardwood stake	25 L stock
2	1800 x 50 x 50 mm hardwood stake	45 L – 200 L stock
3	600 x 10 mm diameter bamboo stake free from twists	Tube – 200 mm stock, where used as supplementary planting in seeded areas

8.2.4 Plant guying system

The proposed plant material to be installed with a guying system is shown on the Drawings. Guying systems shall be as per Standard Drawing 1656 and comply with the following:

- a) wire cable shall be sized to adequately support the particular plant size
- b) turnbuckles shall be galvanised and sized to suit the cable
- c) wire cable shall be encased in hosing where it encircles the plant trunk and branches
- d) pegs shall be capable of anchoring the cable and support the plant, and
- e) flags or plastic streamers shall be fixed to the cables and visible to prevent tripping or mowing over cables and pegs.

8.2.5 Site harvested plants

The proposed site harvested plant species and locations are as shown on the Drawings.

8.2.6 Sub-soil drain

The materials required for sub-soil drainage systems are shown on Standard Drawing 1653-4.

8.2.7 Container and ex-ground stock fertilisers

Fertilisers shall be specified in Item 5.2 of the Annexure, and in accordance with Clause 5.4.2 of MRTS16 *General Requirements* and as follows:

- a) a controlled release, long term (minimum 9 months) fertiliser
- b) have an N:P:K analysis within the following ranges for controlled release fertiliser:

N: 10 - 22

P: 1 - 4

K: 2 – 8

8.3 Construction

8.3.1 General

Planting is the process of planting plant stock obtained from nurseries, plant stock propagated from site plant material and grown-on in nurseries and / or site harvested plant material.

The planting of plant material shall not take place until the prepared area has been constructed in accordance with the specified requirements **Hold Point 7**

Container stock shall be applied within two days of the mulching being placed, as per Clause 7.3.3 of MRTS16B *Vegetation Ground Works*.

The Contractor shall water the prepared surface, to ensure it is damp, prior to the installation of container stock.

8.3.2 Setting-out of plants

The Contractor shall determine locations of all services, road furniture, lighting, road signs, clear zones and sight visibility zones prior to setting out.

The Contractor shall set out containerised and ex-ground plant stock in the locations as shown on the Drawings.

The plants shall be offset from all existing and proposed services, road furniture, lighting and road signs by the offset distances as shown in the Drawings.

The Contractor shall give the Administrator a minimum of 24 hours notice prior to commencement of planting operations, to allow for the inspection of plant set out. **Hold Point 8**

8.3.3 Installation of containerised plants

Planting holes shall be excavated to a minimum width / diameter equivalent to twice the diameter of the plant container and to a depth equivalent to the height of the plant container. The material at the bottom of the hole shall be broken up to a depth of 50 mm. The sides of the hole shall be roughened.

The plant shall be installed so that the top of the root ball is level with the surrounding finished ground level. Mulch materials shall not contaminate backfill material.

Fertiliser shall be placed at approximately half the hole depth. Fertiliser shall not be placed at the base of the plant or in contact with the plant's root system.

The planting media shall be tamped down to create a depressed area surrounding the plant – without exposing the plant's root system.

Where individual plantings, with a container size of 45 litres or greater, are installed a water retention basin shall be shaped around each planting hole. The basin shall have a minimum diameter of 1000 mm and a minimum berm height of 75 mm. The size and depth of the basin for individual plantings with container sizes less than 45 litre shall be adjusted proportionally.

As soon as practicable after planting, plants shall be watered as per Table 8.3.3.

Watering shall be conducted in a manner that does not cause damage to installed works.

Table 8.3.3 – Initial Watering

Container Size	Quantity of Water
Tube	5 L
140 – 200 mm	10 L
25 L – 45 L	30 L
100 L – 200 L	50 L
Ex-ground	100 L

The Contractor shall leave planting areas in a tidy condition. All rubbish shall be removed.

The Contractor shall leave sufficient plant tags on plants to allow identification of each plant species in any given area.

8.3.3.1 Installation of containerised plants on sloped surfaces

Plants to be installed on a sloped surface, for example embankments, shall be installed in accordance with Clause 8.3.3 and with the following additions:

The excavated face of the subsoil shall:

- a) in free draining embankment material, slope downwards towards the centre of the embankment, and
- b) in heavy clay embankments, slope downwards towards the face of the embankment.

Where a subsoil drainage system to planting holes of advanced stock is shown on the Drawings, the installation of subsoil drain shall be in accordance with Standard Drawing 1654.

Where planting of container stock other than advanced stock is shown on the Drawings, the stock shall be planted in accordance with Standard Drawing 1655.

8.3.4 Staking and tying

Where two stakes are required per plant, the stakes shall be installed perpendicular to prevailing wind direction. Where two stakes are required per plant, and the plants to be staked are located near hardstand areas, the stakes are to be installed parallel to the hardstand areas.

Stakes shall be driven into the ground to approximately one third of the length of the stake. Stakes shall be positioned close to the plant without passing through the root ball. Type 1 and Type 2 stakes shall be tied to the plant at a height in accordance with Standard Drawings 1653-1655.

Type 3 stakes shall not be tied to the plants unless otherwise specified.

All stakes installed in plant containers as part of plant production, shall be removed from site following planting operations. Only stakes as required in the Drawings shall remain.

8.3.5 Installation of ex-ground stock

The Contractor shall install ex-ground stock in accordance with the requirements of Clause 8.3.3.

Guying shall be installed in accordance with Standard Drawing 1656.

8.3.6 Harvesting and planting of site plants

The site plant species and harvest areas shall be as shown on the Drawings. The harvesting, storage and care methods for each species to be site harvested is specified in Item 5.3 of the Annexure.

8.3.7 Potting on

Where containerised plant stock becomes pot bound, the Contractor shall arrange for the plant supplier to pot on the stock to the next largest container size.

9 Supplementary requirements

The requirements of MRTS16C *Vegetation Works* are varied by the supplementary requirements given in Item 6 of the Annexure.

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