Specification for temporary erosion and weed control matting of constructed Melbourne Water assets.

Scope

This specification is to be adopted for the construction of Melbourne Water assets requiring the utilisation of erosion and weed control matting where temporary soil stability, moisture retention and weed control is required. Erosion and weed control matting are an interim solution that must be accompanied by a suitable vegetation design that supersedes the life expectancy of the matting.

Purpose and Application

Erosion and weed control matting considered in this specification covers the following uses:

- Temporary protection against erosion (including wind, shoreline, stream bank and direct rainfall/runoff erosion)
- Weed suppression
- Facilitating vegetation establishment
- Sediment reduction entering waterways
- Retaining soil moisture
- Promote seed germination and seedling growth

This guide provides recommendations for the placement of erosion and weed control matting that can be applied within constructed waterways, wetlands, rain gardens and retarding basins.

Product choice

The choice of the erosion and weed control product is dependent on the design application and site conditions (i.e. its purpose, slope, channel, flow velocity, type of planting and life span). The choice of product is to be guided by

Table 1, Appendix A and the typical drawings in Appendix B. The following products or their equivalent have been approved for use by Melbourne Water:

- Jute Mat Thick/Heavy (Needle punched high density hessian and jute fibre matting)
    - TEC Mat®Jute Heavy (Polyfabrics Australia)
    - Jute Mat Thick (Geofabrics)
    - JUTELOK™ Heavy (Global Synthetics)
    - SureJute (Sure Gro Tree Max Australia)
- Jute Mat Fine/Light (Needle punched hessian and jute fibre matting)
    - TEC Mat®Jute Light (Polyfabrics Australia)
    - Jute Mat Fine (Geofabrics)
    - JUTELOK™ Light (Global Synthetics)
    - Sure Gro Jute Advanced (Sure Gro Tree Max Australia)
- Coir/Jute Mesh (Open weave matting)
    - TEC Mat® Coir (Polyfabrics Australia)
    - Coir Net (Geofabrics)
    - Jute Mesh (Geofabrics). May be used where the equivalent lifespan can be achieved (refer to Appendix A)
- Mulch
    - Recycled timber biodegradable mulch

Only biodegradable products are to be used for erosion and weed control works. Alternative equivalent products to those listed above may be considered for use subject to approval from Melbourne Water.

Design & Installation

The following procedure outlines the general design and installation process to be followed. It should be considered in line with the manufacture's installation guide and specification and modified to suit the chosen asset type:

- Prior to placement surface areas to be treated are to be sprayed for weeds and topsoil layer prepared in line with the Melbourne Water topsoil specification – available here.
- Prior to placement surface areas to be treated are to be free of obstructions: tree roots, stones, rocks, lumps etc. The smoother the surface the better contact between soil, matting and pins will be achieved.
- To keep the area smooth, minimal disturbance to any placed topsoil or laid seedbed is desired
- Pre slit jute mat can be used/ordered where required.

- In waterways jute mat must laid at right angles to the flows, with upstream overlapping on top of downstream sheets. Minimum side overlap 150 mm to be achieved and 300 mm within the direction of the flow path. Leading/starting edge to be buried.w
- In wetlands and retarding basins jute mat may be laid parallel to the water's edge, with upstream overlapping on top of downstream sheets. Minimum side overlap 150 mm to be achieved.
- Matting to be laid evenly but loosely on the soil surface to allow the matting to follow the surface contour.
- Pinning rate to be no less than 3 pins per square metre. Pins to be mild steel and minimum length of 300mm.
- Overlap and ends to be pinned at minimum 300mm intervals/distances.
- Bury the up-channel and top of bank end of each installation in a narrow 150mm minimum deep trench with previously excavated material and compacted lightly (by foot).

A summary of the design properties and installation requirements are attached in Appendix A. Typical installation drawings are attached Appendix B.

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Table 1. Temporary Erosion Control Matting Selection Guide

	General:	***Erosion/weed control:***			***Weed control:***		***Spray irrigation:***
Product	Biodegradable erosion control matting on slopes 1V:3H or flatter	High velocity (>1.8m/sec) & infrequent inundation (>10% AEP)	Medium velocity (<1.8m/sec) or frequent inundation (<10% AEP)	Low velocity (<1.5m/sec) & infrequent inundation (>10% AEP)	Native ground and shrub planting >1% AEP inundation (outside of waterway/wetland)	Turf planting >1% AEP inundation (outside of waterway/wetland)	General planting where spray irrigation is used
Jute Mat Thick/Heavy	✓	*	✓	✓	✓		
Jute Mat Fine/Light	✓	*		✓**		✓	
Coir/Jute Mesh	✓	*				✓	✓
Mulch		*			✓		✓

* Consider the use of alternative engineering stabilisation treatments.
** Jute Mat Fine/Light is acceptable for use where grassing is proposed.

Notes:

- No mulch to be placed below the 1% AEP flood extent.
- Jute mat within wetlands to be placed generally from 100mm below the Normal Water Level to the Top of Extended Detention (except where alternative erosion control measures are implemented).
- Where multiple options exist, the final product selection will be subject to desired life span, type of vegetation planting and cost.

Appendix A - Product details

Jute Mat THICK/HEAVY TEC Mat®Jute Heavy (Polyfabrics Australia) Jute Mat Thick (Geofabrics) JUTELOK™ Heavy (Global Synthetics) SureJute (Sure Gro Tree Max Australia) Or equivalent	Use: Robust weed and erosion control geotextile	
	Material: 100% Biodegradable made of jute fibres and hessian mesh.	
	Material: Central hessian scrim with top and bottom layer of jute fibres	
	Mass: 620-770 gsm	
	Thickness: ± 6mm	
	Planting: Option to have pre-cut slits at 4 or 6 m^2	
	Lifespan: 6-18 months life span depending on grade and climatic conditions	
	Pinning Rate: Min 4 pins per m^2, overlap and ends @ 300mm intervals minimum, Minimum pin length 300mm (Should it be unachievable, contact Melbourne Water).	
	Roll size: 2m * 25m	
	Applications:	Slopes up to 1:3 grade
		Wetland & riparian batters
		Waterway and riverbank batters
		Coastal sites
		Water velocities of up to 1.8m/sec
	Benefits	Erosion and weed control
		Mulches
		Retains water
		100% organic

Jute Mat FINE/LIGHT TEC Mat®Jute Light (Polyfabrics Australia) Jute Mat Fine (Geofabrics) JUTELOK™ Light (Global Synthetics) Sure Gro Jute Advanced (Sure Gro Australia) Or equivalent	Use: Light grade erosion control geotextile to prevent topsoil loss	
	Material: 100% Biodegradable made of jute fibres and hessian mesh.	
	Material: Central hessian scrim with bottom layer of jute fibres	
	Mass: 250-350 gsm	
	Thickness: ± 3mm	
	Planting: Option to have pre-cut slits at 4 or 6 m^2	
	Lifespan: 6-month life span depending on grade and climatic conditions	
	Pinning Rate: Min 4 pins per m^2, overlap and ends @ 300mm intervals minimum, Minimum pin length 300mm (Should it be unachievable, contact Melbourne Water).	
	Roll size: 2m * 25m	
	Applications:	Slopes up to 1:3 grade
		Wetland & riparian batters
		Turf planting
		Water velocities of up to 1.5m/sec
		NOT suitable on highly erodible or frequent inundation flow sites
		NOT suitable for weed control
	Benefits	Erosion control
		Encourages seed germination through matting
		Reduces heat absorption
		100% organic

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Coir/Jute Mesh TEC Mat® Coir (Polyfabrics Australia) Coir Net (Geofabrics) Or equivalent (e.g. Jute Mesh - Geofabrics may be used where the equivalent lifespan can be achieved)	Use: Robust erosion control geotextile with high tensile strength	
	Material: 100% Biodegradable made of coconut fibre spun and woven into a net matting.	
	Open area measured: 65% to 34% (subject to grade chosen)	
	Mass: 400-900 gsm (subject to grade chosen)	
	Thickness: 7 – 7.5mm (subject to grade chosen)	
	Planting: Does not come pre-cut	
	Lifespan: 24-month life span depending on grade, type and climatic conditions	
	Pinning Rate: Min 4 pins per m^2, overlap and ends @ 300mm intervals minimum, Minimum pin length 300mm.	
	Roll size: 2m * 25m	
	Applications:	Slopes up to 1:3 grade
		Wetland & riparian batters
		Waterway and riverbank batters
		Water velocities of up to 2.7- 4.2 m/sec (subject to grade chosen)
		NOT suitable on highly erodible or frequent inundation flow sites
		NOT suitable for weed control without the use of mulch unlaid
	Benefits	Erosion control
		Mulches
		Retains water
		100% organic

Mulch Mossrock MR20 or equivalent	General: • All mulch is to be made from recycled timber, screened to 10-20mm in diameter. Mulch is to be free from CCA treated pine, Laminated timber, Craftwood, Masonite, and Painted timber. A large sample of mulch to be used is to be supplied to site for approval by Melbourne Water prior to use. • The approved mulch is to be supplied and spread to a depth of 75mm. • No mulch installation is to occur without prior approval of weed control on site by Melbourne Water. • The mulch is to be kept weed free and topped up to achieve 75mm depth to the satisfaction of Melbourne Water	
	Applications:	Slopes up to 1:3 grade
		Wetland & riparian batters outside of the 1% AEP flood extent
		Native shrub and ground planting
		NOT suitable on highly erodible or within the 1% AEP flood extent
		NOT suitable for erosion control
	Benefits	Weed control
		Composts
		Retains water
		100% organic

Appendix B – Typical Drawings

Refer Melbourne Water Website - https://www.melbournewater.com.au/planning-and-building/developer-guides-and-resources/guidelines-drawings-and-checklists/drawings

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