STANDARD IN ROAD TREE PLOT SOIL SPECIFICATION:

1. Undertake an assessment of the existing site soil to determine the best design approach for specifying topsoil for cost effectiveness and sustainability.
2. Soil analysis to be undertaken by a NATA accredited laboratory with recommendations from a soil scientist to determine if amending the site soil is feasible and what amelioration is required to be suitable for:
   - 2.1. its specified use
   - 2.2. to establish and provide ongoing viability of the specified vegetation.
3. If amending site soil is not feasible imported topsoil as required. The contractor or soil manufacturer must submit samples of soil to a NATA accredited laboratory to verify compliance with the specification. The contractor is to supply a certificate clearly stating compliance.
4. For a proprietary product line a document produced by the supplier may be acceptable as a compliance certificate under the following circumstances:
   - 4.1. it is an 'off the shelf. product line and not a custom mix
   - 4.2. if a representative test certificate is available and produced within the last 6 months
   - 4.3. if the testing covers the criteria in the specification
   - 4.4. the manufacturers quality assurance system is externally certified.
5. Generally the soil must be free of unwanted deleterious material.
6. Soil for in road tree plots for semi- advanced to advanced potted trees over 45L should be a sandy, well drained medium with low organic matter in accordance with the physical and chemical properties listed below.

6.1. Physical Properties

Soil Physical Properties		
Property	Units	Target Range
Texture	na	Loamy sand to sandy loam
Organic matter	% dwb	<5
Permeability (at 16 drops by McIntyre Jakobsen	mm/h	>50
Wettability	mm/h	>5
Dispersibility in water	Category	1 or 2 (AS 4419) category
Large particles (naturally occuring)		
2-20 mm	% w/w	< 20
> 20 mm	% w/w	< 10
Visible contaminants >2mm	% w/w	< 0.5

7. Chemical Properties

Soil Chemical Properties		
Property	Units	Target Range
pH in water (1:5) Standard range	pH units	5.4-6.8
pH in $CaCl_2$ (1:5) Standard range	pH units	5.2-6.5
pH in water (1:5) Alkaline range	pH units	6.8-8.0
pH in $CaCl_2$ (1:5) Alkaline range	pH units	6.5-7.5
Electrical conductivity (1:5)	dS/m	< 0.5
Phosphorus - P tolerant/standard plants. Acid soils method 18F1	mg/kg	30-80
Phosphorus - P tolerant/standard plants. Alkaline soils method 9B1 or 9C1	mg/kg	10-30
Phosphorus - P sensitive plants. Acid soils method 18F1	mg/kg	< 30
Phosphorus - P sensitive plants. Alkaline soils method 9B1 or 9C1	mg/kg	< 20
Exchangeable sodium (Na)	% of ECEC	< 7
Exchangeable potassium (K)	% of ECEC	3-10
Exchangeable calcium (Ca) method 18F1 or 15A1 in alkaline soils	% of ECEC	60-80
Exchangeable magnesium (Mg)	% of CEC	15-25
Exchangeable aluminium (Al)	% of CEC	< 5
Exchangeable Ca:Mg ratio	ratio	3-9
Available iron (Fe)	mg/kg	100-400
Available magnesium (Mn)	mg/kg	25-100
Available zinc (Zn)	mg/kg	5-30
Available copper (Cu)	mg/kg	1-15
Available boron (B)	mg/kg	0.5-5
Available N (nitrate)	mg/kg	> 20

8. A soil mix that is representative of the physical requirements of this specification is shown in the table below.

Example soil composition to meet requirements	
Property	Quantity
Sandy loam soil	60-80% by volume
On-site clay loam or clay topsoil or subsoil	20-30% by volume
Composted soil conditioner conforming to AS 4454	< 10% by volume

9. An example of soil amendment that may be required to bring a soil mix to the required specification is shown in the table below. The specific amendments required must be verified by laboratory testing and recommendations made by an agronomist.

Example soil amendment to meet requirements	
Property	Quantity
Lime and/or dolomite	2 kg/m³ at mixing
or	
Gypsum	2 kg/m³ at mixing

10. Any soil removed from site to be tested by a suitably qualified soil consultant prior to removal and a soil classification report provided which includes:
    - 10.1. a plan showing location of soil samples;
    - 10.2. tables of soil analytical results with comparisons to adopted criteria in EPA Publication 1828.2; and
    - 10.3. a soil classification letter which classifies soil in accordance with EPA Publication 1828.2, which can be forwarded to a licensed waste receiving facility.
11. The contractor must provide evidence (waste transfer certificate or similar) that the soil removed from site has been disposed appropriately in accordance with the soil classification in the soil classification report.

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A	APPROVED FOR USE	FEB 2023

CITY OF PORT PHILLIP

DRAWING NOT TO SCALE

Approved: Project Services

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