

PART L15
LAWN ESTABLISHMENT

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1. GENERAL

- .1 This Part specifies the requirements for the establishment of various types of lawn including Broadcast Seeding, Hydroseeding, Instant Turf, Plugging and Synthetic Turf.
- .2 The following documents are referenced in this Part:

	AS 4419	Soils for Landscaping and Garden Use
(a)	ISO 9001	Quality Management Systems

2. WEED CONTROL

- .1 Before planting commences, the areas to be planted shall be eradicated of weeds and any existing vegetative growth (excluding native vegetation) shall be slashed to a height of 150 mm. Trash build-up and cut material shall be removed from the area prior to spraying with a knockdown herbicide (Roundup) incorporating a herbicide marker. Roundup Biactive shall be used around wetlands and waterways. The herbicide shall be used according to the manufacturer's recommended rates and any off-target damage shall be rectified by the Contractor.

3. GROUND AND SOIL PREPARATION

- .1 After a period no shorter than 10 days after spraying, the areas to be turfed shall be cultivated. Soil shall be cultivated to a depth of 150 mm in order to break up compacted soil and incorporate any specified soil additives. Preparation works shall not be carried out if the soil is too wet or too dry. The soil shall be cultivated to a fine tilth, raked and lightly rolled to bring the surface to an even grade, free from small mounds and hollows. All deleterious material including roots, stones and building debris exceeding 50 mm in diameter, which is unsuitable for respreading, shall be removed and disposed of at a location in accordance with Environmental Requirements.
- .2 If an irrigation system is to be installed, it shall be completed prior to final levelling.

4. SOIL TESTING

- .1 The Contractor shall perform analysis of the underlying subsoil so that appropriate amendments may be applied before topsoil is placed. Analysis may include pH, EC, Organic Matter, Major and Trace Elements and Exchangeable Cations.

5. SUPPLY OF SOIL

- .1 Imported soil shall be in accordance with AS 4419. The texture of the imported soil blend shall be a sandy loam capable of being handled when moist, but lacking cohesion so that it will fall apart easily when dry. Soil shall be free of debris, stones, weeds, roots or other deleterious material, plant pathogens and other pests.
- .2 The Contractor may modify soil on site to bring it up to the required standard. The supply and spreading of the necessary fertilisers and additives shall be at the Contractor's expense, and the work shall be carried out immediately after the soil is laid down.

.3 The Contractor shall use the following soil:

DPTI Premium Soil Mix

The soil shall be tested for conformity with the following soil descriptions:

- pH shall be between 6 to 7.5 for water pH (pHw);
- EC (dS/m) shall be no higher than 1.25 dS/m (800 ppm);
- Available Phosphorous shall be between 15 to 50 ppm Colwell or 12 to 30 ppm Olsen;
- Available Sulphur shall be greater than 12 ppm and less than 100 ppm;
- (a) • Exchangeable Aluminium and Sodium shall be less than 6% of total cations;
- Exchangeable Sodium shall be less than exchangeable Potassium;
- Calcium : Magnesium ratio shall be greater than 3.0 and ideally between 5 and 7; and
- The Cations Exchange Capacity shall be greater than 5 and less than 20 meq/100 g.

The above tests shall be conducted by a laboratory accredited under ISO 9001 and results shall be submitted to the Principal.

General Landscape Soil 60/40

General Landscape Soil 80/20

- (b) Soil from Off Site
- (c) Soil from Off Site
- (d) Topsoil from Off Site
- (e) Topsoil from On Site
- (f) Topsoil from On Site

6. SPREADING OF SOIL

- .1 Soil shall be evenly spread, lightly consolidated and levelled to provide a surface free from lumps and hollows to a minimum depth of 100 mm. The finished soil level for seeded lawns is to be flush with adjacent hard surfaces such as kerbs, paths and mowing strips. The finished soil level for turf lawns is to be 30 mm below adjacent hard surfaces such as kerbs, paths and mowing strips to allow placement of turf. Soil shall not be worked in a muddy condition.

7. SOIL ADDITIVES

- .1^(a) The Contractor shall use the following Soil Additives:

- (b) **Gypsum:** Agricultural gypsum (Calcium Sulphate) shall be applied to all planting areas prior to any cultivation at a rate of 2 kg/m², and shall be incorporated into the surface by rotary hoeing. Gypsum shall not be applied to creek environments or areas adjacent to ephemeral wetlands. Planting or grassing shall not be carried out within 2 weeks of the gypsum application. Gypsum derived from recycled plasterboard shall not be used.
- (c) **Organic Compost:** Two to three weeks before planting, 2 cubic metres of organic compost per 100 square meters shall be spread and thoroughly incorporated into the cultivated zone during cultivation in order to stimulate soil microbial activity to convert some of the organic matter to available nutrients prior to planting.
Organic compost shall be well rotted vegetative material or animal manure, or other approved material free from chemicals, grass and weed growth, with a neutral pH value. All the material must have been through a controlled composting process to ensure the elimination of pathogens and weed seeds.
- (a) **Lime:** On very alkaline clay soils the Contractor shall add lime mixed with gypsum at the rate of 3 kg of general landscaping lime to 25 kg of gypsum and spread over 50 square metres.

8. FERTILISER

- .1 The Contractor shall comply with the following fertiliser requirements.

Pre- Planting Fertiliser: Turf Starter Fertiliser NPK 12-10-11 (or approved equivalent) shall be applied to the top of the prepared ground at the manufacturer's recommended rates before installation of broadcast seeding, hydro seeding, instant turf or sod plugging.

Soil Additives: Water Retention agents (i.e. Wettasoil, Dispatch or Primer 604) shall be applied in accordance with the manufacturer's instructions and recommended rates. The watering regime during the maintenance period shall be closely monitored to ensure over watering does not occur.

9. SUPPLY OF SEED AND TURF

.1 The Contractor shall utilise the following supplies of seed and turf:

- (b) **Supply of Seed by the Principal:** It shall be the Principal's responsibility to source/collect the seed for supply to the Contractor.
- Supply of Seed by the Contractor:** Arrangements for seed sourcing/collection shall be the Contractor's responsibility. There shall be no substitution of any species without the Principal's approval.
- Seed mixtures shall be pre-packed and commercially prepared. A certificate of germination shall be provided (upon request) to the Principal before sowing, identifying seed species and germination viability.
- (a)
- (b) **Supply of Instant Turf by the Contractor:** Instant turf shall be sourced and supplied by the Contractor. There shall be no substitution of turf type without the Principal's approval.
- Supply of Synthetic Turf by the Contractor:** Synthetic turf shall be sourced and supplied by the Contractor.
- (c) **'Male Sterile' Kikuyu - *Pennisetum clandestinum* spp:** A very soft broad-leaved, warm season grass, good for high traffic and is drought tolerant. It has a vigorous growth habit and invasive if not maintained.
- (d)
- (e) **'Sir Walter' Buffalo - *Stenotaphrum secundatum* spp:** A slow creeping broad-leaved grass that can be easily contained. It has limited mowing and low thatching requirements. It has a high wearing capacity, good drought tolerance and is suitable in both sun and partly shaded areas.
- (f) **'Wintergreen' Couch - *Cynodon dactylon* spp:** A fine-leaved grass that thrives on sun and heat. It is drought tolerable and ideal for heavy traffic. It has a good resistance to pests and diseases and will tolerate a wide range of soil conditions.
- (g) **'Santa Anna' Couch - *Cynodon dactylon* spp:** A fine leaved soft textured variety ideal for drought conditions and heavy traffic areas. Grows best in full sun, but will tolerate medium shade.
- (h)
- (i) **Synthetic Turf:** Synthetic turf is a 45 mm polyethylene green fibre filled with a mix of rubber granules and sand to give it a lawn look and feel.

10. SEED AND TURF INSTALLATION

.1 Newly seeded and turfed areas shall be identified using a bunting tape or approved equivalent during the establishment period.

(a)

.2 The Contractor shall use the following installation techniques:

Broadcast Seeded (by hand): Following ground preparation, and a minimum of 10 days after weed control spraying, the soil bed shall be lightly raked in one direction, allowing the rake to drag across the area creating shallow seed furrows. On sloping sites the soil bed shall be lightly raked along the contour. The seed mix shall be prepared by mixing the seed, fertiliser and bulking medium in the specified proportions and shall be uniformly sown over all specified areas.

(b) The seed mix shall be broadcast either by hand, through a Roto-spreader or by a machine-mounted spreader in one direction (east-west) and then again in another (north-south). Once seeded, lightly rake the area in the opposite direction of the last broadcast and lightly roll the area bringing the seed in contact with the soil.

If the seed mix is not sown in accordance with this Specification, the seed shall be replaced. If sowing operations have been completed, the germinating seedlings shall be sprayed out with Roundup (Roundup Biactive shall be used around wetlands and waterways), cultivated and the correct seed sown by the Contractor.

Hydroseeding: The mixture shall be prepared by mixing the mulch, seed, fertiliser, pigment and water in the specified proportions and sown at the specified. The mulch shall be a paper/water mixture containing no growth inhibiting substances and shall be manufactured in such a manner that, when thoroughly mixed with seed and fertiliser in the specified proportions, it forms a homogenous slurry capable of being sprayed through a hand held nozzle. The mix shall contain a green biodegradable, non-toxic pigment.

Fertiliser with an N:P:K ratio of 18:10:10 shall only be included in exotic grass seed mixes. The mix shall be applied using mobile plant with tank(s) having a built-in continuous agitator and recirculation system of sufficient operating capacity to produce and maintain a homogenous mix.

The discharge system shall be capable of spraying the slurry continuously and uniformly at the specified rate.

If the seed mix is not sown in accordance with this Specification, the seed shall be replaced. If sowing operations have been completed, the germinating seedlings shall be sprayed out with Roundup (Roundup Biactive shall be used around wetlands and waterways), cultivated and the correct seed sown by the Contractor.

Instant Turf: On delivery, rolls of turf shall be stacked in a cool location out of the sun, lightly sprinkled with water and covered with wet hessian to prevent the turf drying out. Turf shall be laid within 24 hours of delivery. If the weather is hot, the ground shall be dampened prior to laying turf to ensure minimum root damage.

(c) Laying the turf shall begin along the longest straight boundary line. The underside of the turf shall be in full contact with the soil bed. Butt adjoining edges and ends shall be butted tightly together avoiding gaps and overlapping. Rolls of turf shall be staggered in a brick like fashion (stretcher bond) and excess overhang trimmed with a sharp knife to achieve the desired shape. Narrow strips of turf shall be avoided, as they will struggle to survive.

On sloping sites, the turf shall be laid parallel to the contour and peg or stake as required. After installation, the turf shall be lightly rolled to remove air pockets and bring the roots in contact with the soil. Turf varieties such as 'Sir Walter' Buffalo and Kikuyu shall be lightly top dressed at the time of laying.

Synthetic Turf (used for Median Strips and Roundabouts): The installation of synthetic turf shall be undertaken by a specialist contractor to the manufacturer's recommendations.

11. WATERING

- .1 Watering shall be carried out by the Contractor from the time of installation until the end of the establishment period at the required frequency.
- .2 Post germination of broadcast and hydro seeded areas shall be irrigated with a fine spray until the topsoil is moistened to its full depth. Watering shall be continued until germination to keep the surface damp and the topsoil moist but not waterlogged. After germination watering shall continue to maintain a healthy condition, progressively reducing watering to the required frequency.
- .3 Watering of instant turf shall occur immediately after laying until the topsoil is moistened to its full depth. Turf shall be watered frequently to maintain moisture to this depth whilst continuing a healthy condition. Where an irrigation system is present the Contractor shall monitor the watering program and irrigation system to ascertain any faults and malfunctions.
- .4 The Contractor shall be responsible for the loss of turf due to the fault or malfunction of the irrigation system (which has not been the result of vandalism) and shall reinstate the lost turf in accordance with this Specification.

12. ESTABLISHMENT

- .1 The Contractor must perform an establishment period.
- .2 Establishment means the continuing care and maintenance of the Contract areas to promote healthy and vigorous growth by implementing accepted horticultural practices, as well as rectifying any defects that become apparent in the works under normal use.
- .3 On completion of the establishment period, seeded and turf areas shall have a healthy, dense continuous sward notwithstanding adverse weather conditions at the time. Irrigated grass shall be evenly green. Dry-land grass areas shall be kept green and actively growing until continuous healthy grass cover has been achieved; then the watering program shall be adjusted gradually until the grass is hardened off to natural climatic conditions.
- .4 Practical Completion means that an even and continuous sward has been achieved over the whole area.

13. HOLD POINTS

- .1 There are no Hold Points referenced in this Part.