

Lawn Solutions Australia

Subgrade Preparation Specification Guide

Technical and practical information for installation, maintenance and continued turf performance.

Good preparation and drainage is a must for optimum lawn performance which can be difficult to achieve if not addressed at the outset.

Preparation of Subgrade

Site preparation for lawn establishment usually begins after construction activities have ceased or before pre-existing or imported topsoil has been brought in.

It is important to inspect and assess the site before commencement and to locate all services before contemplating any excavation work.

Successful establishment of all lawn-types is highly dependent on proper soil preparation. Without this, many lawns can eventually suffer and succumb to poor soil drainage, compaction, pH or fertility problems that could have been avoided with correct preparation from the outset.

Soil tests should be carried out upon early access to site on subgrade and any stored or imported topsoil. Use soil tests from a reputable soil lab and recommendations from results to determine soil additives or ameliorants that may be required following excavation or levelling work to predetermined levels.

Remove Weeds & Debris

Eliminating weeds and minimising weed-seed production on site should be considered throughout the construction process.

An environmentally acceptable method such as spraying non-residual broad spectrum herbicide (glyphosate or similar) should be used to eliminate weeds prior to subgrade preparation.

Clear the site of all builders debris, rocks, spilled mortar or concrete, tree roots or dead vegetation that has resulted due to spraying.

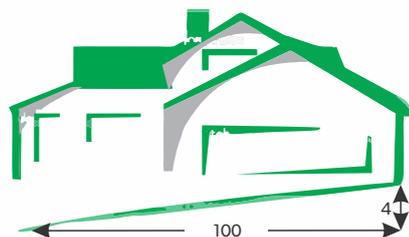
Vegetative weed spoil should be removed from the site and then the area should be rough graded to surface-drainage requirements.

Generally, a one to four percent slope away from buildings is adequate to facilitate overflow drainage on turf areas.

For larger commercial, sporting and specialised turf surface areas, proper design and drainage considerations are imperative. Consultation should be made with sportsfield specialist designers and specifications for works of this nature.

Establish levels

To aid in establishing final levels and to ensure consistent topsoil cover, pegs should be driven into the soil to indicate both the depth to which excavation needs to take place as well as to indicate the depth to which the topsoil is to be filled.



Preparation of subgrade should include work to slope drainage away from structures if possible

Establish levels and gradients to avoid water pooling, with subgrade ideally sloping away from buildings or other drainage methods will be required to be engaged.

Ensure that excess water is dealt with on site, no water must be led to run off onto an adjoining property.

When establishing levels, keep in mind that a layer of between 100mm to 150mm of high quality topsoil is required over the entire subgrade to produce a high-quality, trouble-free lawn.

Rough Grading

Rough grading involves levelling or contouring of the subsoil to provide the general grade and slope of the finished lawn surface.

The final grade should slope enough to allow surface water to drain away from buildings yet be gradual enough to allow for easy maintenance and outdoor activities.

Typically, grading begins on the subsoil (the soil layer beneath topsoil), before the topsoil is replaced. Rough grading may also be performed on topsoil if it has not been removed and stockpiled prior to construction activities.

Allow sufficient depth adjacent to pathways, drives and garden edges etc., (at least 100mm) if topsoil is to be brought back onto site.

Drainage and/or Irrigation

If subterranean drainage is required or sub-irrigation systems are to be installed, the subgrade shaping stage is the best time to complete these components of construction.

Good drainage is a must for optimum lawn performance and can be difficult to achieve if not addressed at the subgrade construction-stage.

Specialised drainage and/or irrigation consultants should be engaged for major works. Most landscape contractors have experience in installation of these components under the instruction or design recommendations of such specialists.

On sites where buildings have been built into slopes, appropriate drainage swales should be provided around the top sides.

Where steep slopes exist (over 40 percent) and/or grades change drastically, consider installing retaining walls or other surface plantings in these areas as mowing and other maintenance may prove difficult on completion.

Subsoil treatment

Identify all services, tree roots and any other obstacles and excavate subgrade to required depths ensuring work to pre-determined levels.

Do not compact subgrade in turf areas to greater than to 90% of the dry density ratio of the surrounding soil as determined by AS 1289.5.1.1 and AS 1289.5.4.1 (standard compactive effort).

Using a machine with tynes or teeth at 100-200mm intervals, rip parallel to final contours wherever possible. Avoid ripping if possible when the subsoil is wet or plastic and avoid the dripline of retained trees and shrubs.



Preparation and cultivation of the site subgrade is important to be carried out prior to installation of final topsoil.

Soil tests and visual site inspections should aid in determining depth but generally compacted subsoil should be ripped to at least 300 mm deep and heavily compacted clay subsoil to 450 mm deep.

Cultivation

Use specialised roto-tiller type machinery or similar and handtools within 300mm of structures to cultivate subsoil to 150mm depth.

Do not disturb services and keep clear of tree roots in drip zone. Cultivate by hand or hand-operated machinery near these areas if necessary, whilst not disturbing structures.

Additives / ameliorants

Additives or ameliorants should be as determined per original soil tests and site conditions and incorporated after ripping or cultivation into the upper 100 mm layer of the subsoil.

Gypsum is generally recommended to help reduce layering at the subsoil surface and should be incorporated at the recommended rate.

Cultivate manually within 300 mm of paths or structures. Remove stones exceeding 25 mm, clods of earth exceeding 50 mm, and weeds, rubbish or other deleterious material.

Trim the surface following cultivation and amelioration to design levels prior to re-establishment or importation of topsoil and turf installation.

Specification Summary - typical

PREPARATION OF SUBGRADE

Weed eradication

- Herbicide: Eradicate weeds using environmentally acceptable methods, such as a non-residual glyphosate herbicide at recommended label rates.

Soil Tests

- Soil tests should be carried out on subgrade and any stored or imported topsoil. Use soil tests from a reputable soil lab and recommendations from results to determine soil additives or ameliorants that may be required.

Vegetative and other spoil

- Remove vegetative and any other spoil from site. Do not burn and ensure proper disposal and recycling where appropriate.

Establish Levels

- Establish and stake or mark out subgrade and topsoil levels keeping to requirements for any drainage, irrigation and shaping work.

Subgrade rough grading

- Identify all services, tree roots and any other obstacles and excavate subgrade to required depths ensuring work to determined levels.
- Do not compact subgrade in turf areas to greater than to 90% of the dry density ratio of the surrounding soil as determined by AS 1289.5.1.1 and AS 1289.5.4.1 (standard compactive effort).

Subsoil treatment

- Ripping General: Using machine with tynes or teeth at 100-200mm, rip parallel to final contours wherever possible. Do not rip when the subsoil is wet or plastic. Do not rip within the dripline of trees and shrubs to be retained.
- Compacted subsoil: Rip 300 mm deep unless specified otherwise.
- Heavily compacted clay subsoil: Rip 450 mm deep unless specified otherwise.

Cultivation

- Use specialised roto-tiller type machinery or similar and handtools within 300mm of structures to cultivate subsoil.
- Cultivation depth of subgrade: 150 mm unless specified otherwise.
- Services and roots: Do not disturb services and keep clear of tree roots in drip zone. Cultivate by hand or hand-operated machinery near these areas if necessary, whilst not disturbing structures.

Additives / ameliorants

- General: Apply additives / ameliorants after ripping or cultivation and incorporate into the upper 100 mm layer of the subsoil. Additives types are determined by the chemical and structural condition of the site soils compared to the acceptable ranges described in AS 4419.
- Additives or ameliorants should be as determined per original soil tests.
- Gypsum is generally recommended to help reduce layering at the subsoil surface and should be incorporated at the rate of 250g/m² where required.
- Method: Thoroughly mix in additives that are required to be incorporated into the subsoil. Cultivate manually within 300 mm of paths or structures. Remove stones exceeding 25 mm, clods of earth exceeding 50 mm, and weeds, rubbish or other deleterious material brought to the surface during cultivation. Trim the surface to design levels after cultivation and amelioration prior to re-establishment or importation of required topsoil.



Lawn Solutions Australia Pty. Ltd.

PO Box 282 Berry NSW 2535

Phone: 1300 883711

Email: info@lawnsolutionsaustralia.com.au

www.lawnsolutionsaustralia.com.au