

# LANDSCAPE PROTECTION GUIDELINES FOR QUT CAMPUSES

## Aims of the Guidelines

The characteristics of the landscape and garden plantings on each of the campuses is a mixture of native and exotic and needs to be respected and appreciated for its visual significance.

As the university campuses change and grow there will be impacts on the existing landscape and these changes mostly impact when modifications or repairs are carried out and the impacts are generally negative.

Where new facilities and building are erected there is always a landscape component that creates a whole new landscape precinct. This does not impact on the existing landscape as it creates a new theme and this needs to blend into the existing landscape and complement it.

The purpose of these guidelines is to articulate the aims, methods and procedure to protect the landscape during any works that have the potential to cause damage and to identify the respective responsibilities of university staff, external consultants and contractors in these processes.

These guidelines are applicable to the whole landscape of the campus including lawns, planting beds, native gardens etc. However, because of their visual significance, their age and the time it may take for damage to them to become apparent, it is damage to trees that is of most concern and towards which these guidelines are largely directed.

The major causes of damage to trees are vehicles and machinery (directly by damage to trunks and branches or indirectly by soil compaction in the root zone) and new service reticulation particularly through trenching within the root zone.

These guidelines seek to minimise such damage by:

- 'Before' and 'After' photographs of the area where work will take place to ensure reinstatement to the same condition;
- Requiring the responsible Project Officer, Consultant or Contractor to seek the appropriate approvals before carrying out any such work on the campus;
- That a pre-start meeting with Grounds Supervisor so the impact of the project on the landscape can be measured;
- As Constructed' drawings of any underground services need to be provided;
- Any severing of water or irrigation supplies needs to be immediately rectified and any alteration to irrigation pipes needs to be discussed with the Grounds Supervisor;
- Financial penalties may need to be imposed so that damage is rectified without budget implications to the university.

The emphasis is on prevention of landscape damage through following correct procedures rather than using penalties after the damage has occurred. In addition to financial penalties, consultants and contractors who consistently fail to comply with these guidelines will not be considered for future work at the university.

**Definitions:***Arborist*

A specialist in the care and cultivation of trees. QUT use an outside independent consultant arborist whenever possible.

*Drip Line*

The area of ground directly below the outer edge of the canopy.

*Root Zone*

The space within the soil occupied by the root system of a tree.

*Significant Tree(s)*

All semi mature and mature trees on any campus are considered significant. As all trees on each campus are considered significant, any work within their vicinity requires a pre-start on-site assessment either with the Grounds Supervisor, consulting arborist or both. No 'general rule of thumb' can be applied to tree assessments so on-site visual assessments are critical.

*Soft Landscape*

Any area of land that contains vegetation and could include grass, turf or gardens which would be easily damaged by excessive foot traffic or vehicles of any kind.

*Tree Protection Zone*

This is a defined area of ground within which a tree grows and needs to be protected from any damage to its root zone or canopy.

**Procedures for handling landscape impacts**

The earlier that the issue of landscape protection is raised in any project – whether the project be a new building, building extension, building repair or maintenance or an underground service – the more easily will the requirements for such landscape protection be integrated into the program and budget of that project.

Therefore the emphasis is always to be on early, rather than late investigation of this issue. Examples include:

- For a new building project in feasibility and planning phase, the Consultants under the direction of the university Project Manager, are to consider the impact on the existing environment of the proposal in the same way as they would underground services to be relocated, adequacy of existing services etc. They will thus be required to check the proposed building footprint and service easements against the existing landscape surrounds.
- For a building already under construction, where it has become apparent that work will be required within the drip line of a significant tree (and this work was not identified in the course of previous approvals) specific application to the Grounds Supervisor for clearance.

- For new sub-surface services reticulation, the Contractor will contact the Grounds Supervisor to confirm any impact on significant trees at the planning stage and, if necessary, QUT will bring in the consulting arborist to carry out an assessment before work commences on-site.

*Note:*

*It should be mandatory to have an on-site meeting prior to any excavation or activity that will disturb the landscape on any of the QUT campuses. Clearance to proceed should only occur after consultation and advice from QUT Officers involved in projects, maintenance, grounds and any other relevant authority prior to undertaking work.*

### **Landscape Protection Plan**

Consultants, Project Managers and Contractors will need to consult with the Grounds Supervisor to enable a landscape protection plan (LPP) to be drafted. The scope of this plan will vary according to the nature of the project. Any impacts associated with significant trees will incur the cost of the QUT consulting arborist.

The LPP will take the form of a site plan marked up with notes relating to the various landscape protection issues. Photographs of the site in its current condition need to be taken and attached to the LPP.

#### **Site Features**

Site features requiring particular protection include underground irrigation, lawn areas and/or significant trees and sensitive landscape sites. The Grounds Maintenance Section will endeavour to identify such features within proximity to the project. Such features may need to be protected by fencing and the on-site Works Manager will be responsible for ensuring that the protected areas are not entered or used for any purpose associated with the project.

#### **Site Access**

This is to be agreed on the basis of minimising landscape damage while providing convenient access. Where gates are installed they will be used to regulate the entry/exit to the site. Where heavy or special vehicle access is required (cranes, trucks etc) suitable damage minimisation measures are to be undertaken (eg timber boards positioned in wheel traverse areas over soft landscape).

#### **Contractor Vehicle Parking**

Contractor vehicles are subject to QUT parking regulations unless the manager of Parking Operations has been consulted and has approved other arrangements. Where parking in areas other than designated car parks is unavoidable a special parking area will be fenced off and designated 'Construction Only Parking'. Where this area encompasses soft landscape features, strategies to minimise damage/compaction will be practiced.

#### **Storage of Materials**

All building materials will be stored in a manner that does not compromise the safety of the public or impact negatively on the landscape. It is strictly prohibited to use garden or shrub beds to store materials or waste. Where turf areas and/or an area on a pedestrian route have to be used as storage areas, the area will be fenced off and reinstated following completion of the project.

#### **Rubbish Skips**

Rubbish skips will be positioned in a manner that does not compromise the safety of the public or impact negatively on the landscape. It is strictly prohibited to use garden or shrub beds to store

rubbish. Where turf areas and/or an area on a pedestrian access route have to be used to hold rubbish skips, the area will be fenced off and reinstated following completion of the project. Because of the enormous amount of potential damage that may be caused by waste removal trucks, it is crucial that rubbish skips be placed in a location where they may be emptied without the need for the truck to traverse soft landscape areas. An agreed access route will be identified and the subsequent documentation passed to the Contractor.

#### Landscape Reinstatement

On completion of the project, the landscape is to be reinstated according to the way it looked in the 'Before' photograph and to the satisfaction of the Grounds Supervisor.

#### **Individual Tree Protection**

The following procedures for protecting individual trees will form part of the Landscape Protection Plan for any project impacting on a significant tree. In addition, even where an LPP is not required, these procedures are to be followed whenever activity is taking place within the drip line of any tree.

#### Identifying a Tree Protection Zone

Where there is the likelihood of a project impacting on existing trees, the Consultant, Contractor or Project Officer needs to consult with the Grounds Supervisor as to whether a decision can be made or whether to hire the QUT consulting arborist to give appropriate advice on tree protection.

The size and shape of a particular protection zone will vary according to individual tree species and the site. The zone will be determined by the Grounds Supervisor or the consulting arborist prior to commencing the project and will remain in place until project completion.

#### Pruning

Prior to establishing a tree protection zone, trees to be protected will be pruned focusing on the removal of dead or broken branches. This will be an additional cost as the work will be carried out by tree contractors.

The purpose of the pruning is primarily safety but it serves as a monitor for any damage that may occur during construction. Construction Contractors are prohibited from undertaking any additional pruning as this activity, if not performed properly can be harmful to the tree.

#### **Establishing the Tree Protection Zone for Long Term Projects**

##### Fencing

Secure posts with 1.8m high sturdy fencing to be erected, maintained and removed by the Contractor to the outer edges of the protection zone.

##### Trunk Protection

1.8m high timber palings strapped to the trunk.

##### Mulching

100mm of compost mulch cover over the ground within the tree protection zone in order to retain soil moisture and encourage microbial activity.

## Irrigation

Natural moisture levels need to be maintained and this could be from supplementary watering depending on weather conditions, time of year and any water restrictions that are in place.

## Drainage

The natural drainage patterns around the root zone should not be altered.

## Signage

Signage should include:

- No Vehicle –Movement
- No Storage of Building Materials
- No Washing of Equipment
- A contact name and number for enquiries

## **Activities within the Tree Protection Zone**

Undertaking any activity inside the tree protection zone is considered a breach of these guidelines.

If, during the course of a project, it becomes unavoidable for activities to take place inside the protection zone then consent must be gained from the Grounds Supervisor or consulting arborist.

Such activities may include the erection of scaffolding, vehicle movement, trenching or excavation. The Grounds Supervisor or consulting arborist will determine whether it is appropriate to undertake that activity and advise of the most appropriate way to undertake such activities or suggest possible alternatives.

Pruning of branches and/or roots may be required. If so, these activities should be undertaken by a suitably qualified contractor or supervised by a qualified arborist.

## Trenching & Excavation

When trenching or excavation is to be undertaken within the root zone of any tree, roots will be severed cleanly rather than torn with a backhoe or any other trenching equipment. All roots are to be exposed first and then cut cleanly with as sharp saw or loppers. Exposed roots are to be kept moist and covered with Hessian for the duration of the exposure. Where roots with a diameter larger than 50mm are encountered, excavation should be undertaken by hand and such roots tunneled under.

Where a significant tree with extensive root systems is encountered during pipe work, then tunnel boring under the tree may be an alternative way of proceeding.

## Vehicle & Pedestrian Movements

Continuous vehicle and pedestrian movement can be particularly damaging to trees causing soil compaction and subsequent death of roots. A thick layer of mulch (150mm – 200mm thick) or recycled crushed road base material (not rocks, stone or gravel) spread over the soil to a depth of 150mm – 200 mm is mandatory in order to reduce the effects of soil compaction within the root zone of any tree.

## Monitoring & Reporting

Regular monitoring is necessary for long-term projects. A monthly site inspection will be conducted to ensure that protection measures are being adhered to. Following this inspection, a report will be generated and kept on file. This report will be used to issue warnings or to pursue claims for compensation for damaged trees. Progressive photographs of the site will be taken to monitor changes or damage.

Inspections will be carried out by either the Grounds Supervisor or the consulting arborist.

## Soil Injection

If deemed necessary by the Grounds Supervisor or consulting arborist, a soil injection treatment will be applied to the root zone of any tree that has been adversely affected by a project. The soil injection treatment is a combination of water, nutrients and other agents that promote root growth. This treatment will be administered at the cost to the project.

## Financial Sanctions

Failure to follow the above policies may result in financial penalties being applied to the relevant Contractor or Consultant. It should be noted that these penalties relate to non-compliance with university policies rather than proven landscape damage (this approach has been selected because of the difficulty in assigning value to landscape damage and the fact that such damage may not become apparent for some considerable time after the work has occurred). Monies recovered through this process would be used by Grounds Maintenance Staff or contractors for remedial landscape work.

Contractors, Consultants and Project managers may have to lodge a bond at the commencement of the project to cover any damage which occurs and the bond may be held on large projects for a period of time after completion to ensure no damage becomes evident.

Where the Contractor or Consultant can be shown to have failed to follow the procedures set out in this document, regardless of whether landscape damage has occurred as a result of the work for which they are responsible, QUT may deduct an amount up to \$10,000.00 from monies owing from QUT to the Contractor or Consultant.

## Point of Contact

Any enquiries, regarding this document, should be addressed to the Grounds Supervisor, QUT.

## Summary of Procedures to be followed

The following is a summary of procedures to be followed by Consultants and Contractors working on any QUT campus. Failure to do so may result in financial sanctions being invoked or forfeiture of bond money.

- At the earliest practicable stage in the planning of any project which will potentially impact on landscape (including trees, shrubs, lawns, garden beds etc) be it a new building, a building extension, new services reticulation or other, the responsible Consultant or Contractor is to ascertain, in conjunction with the Grounds Supervisor or consulting arborist, the implications of the project for the existing landscape.
- Having made these investigations, if it becomes apparent that the project will impact on the landscape then these guidelines will be invoked.
- If the project is large or ongoing, then the Consultant or Contractor will prepare a Landscape Protection Plan (LPP) and this plan will need to be approved by either the Grounds Supervisor or the consulting arborist before any work commences on the site.

- Small projects will still require LPPs which will be drawn up by the Project Officer, Consultant or Contractor in discussion with the Grounds Supervisor.
- Photographs will be taken before, and during, the project and used in the case of settling damage compensation/financial sanction disputes.
- Regardless of any other requirements of the Grounds Supervisor, the Consultant or Contractor is to abide by the procedure set out under the individual tree protection wherever any work is taking place within the tree protection zone of any tree. There may be circumstances where an on-site meeting between Consultants or Contractors and the Grounds Supervisor may identify a need to modify or change these procedures but that will happen on a case-by-case basis.