Design Guidelines
September 2019: Issue 4

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Section 14 Landscaping.

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Document Control

Revision History

Revision Number	Description	Section Owner	Date
Issue 1	Original Draft	-	-
Issue 2	Internal Review	-	-
Issue 3	First public circulation	-	October 2016
Issue 4	Updated Issue	*Rob Oudshoorn*	*September 2019*

Current Document Acceptance

Update Authored	Approved	Date
Darryl Cone	*Rob Oudshoorn*	*Mark Homewood*

Key Updates from Previous Issue

Revision Item	Details
14.1.1 Purpose	*Additional purpose*
14.1.2 Acknowledgement	*New clause*
14.1.3 Landscape Master Plan	*New clause*
14.2.1 Key Design Principles	*New content*
14.2.1.1 Significant Trees	*New content*
14.2.1.2 Paths of Travel	*Reference to Landscape Master Plan added*
14.2.5 Irrigation Systems	*New content*
14.3.2.2 Grass	*New content*
Appendix B: Approved and Restricted Plant Lists	*Extensive changes to accepted and restricted plant list*

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14.1 Overview

14.1.1 Purpose

The campus landscape is a contributing factor to a prospective student's choice to enrol. The outdoor spaces are the University's first opportunity to welcome students and their families and for them to connect with the University Community. Our campus enjoys a beautiful setting which is, in comparison with other universities, a point of difference and distinction.

The University Landscaping Standard sets out the minimum requirements for landscaping design and construction at the University to develop landscape elements and fixtures that are both functional and aesthetic, and provide improved amenity. It ensures that landscaping elements are of high quality, durable, integrated with existing landscapes, cost effective to operate and maintain, and are derived from a limited palette of materials, finishes and colours currently being used on campus.

The standard focuses on providing a consistent, simplified palette and linking elements to connect disparate buildings and structures throughout the University. Landscape design should not be viewed as an afterthought or an add-on to the buildings, but as an aspect of the built infrastructure.

This section of the Design Standard Requirements is intended to be read and implemented during design in conjunction with **Section 01 – General** and any project specific brief and agreements.

14.1.2 Acknowledgement

The University of Canterbury acknowledges Ngāi Tahu as mana whenua of the lands on which the University has been constructed. Through continued dialogue and collaboration, the University continues its stewardship of the campus in partnership with mana whenua.

14.1.3 Landscape Master Plan

*Landscape designers undertaking work on the University of Canterbury campus are to be familiar with the **Landscape Master Plan, May 2017**, refer Appendix A. The recommendations, requirements and principles of the Landscape Master Plan document should be read in conjunction with the Design Guidelines*
This document should be read in conjunction with the University of Canterbury Landscape Master Plan, May 2017.
The Landscape Master Plan is a tool to ensure that future landscape projects are appropriately scoped, budgeted and prioritised in a way that settles new buildings into the surrounding landscape. It is a bridging document between the visionary framework set by the UC Campus Master Plan and future building projects and provides guiding principles and recommendations for transforming the campus landscape in the short and mid-term, leading toward a long-term vision.

14.1.4 Additional Guidance Documents

As noted in **Section 01 – General** of the Design Guideline Standards, the University has a limited number of existing landscape drawings, strategy papers, and policies available for review by consultants.

Additionally, the University has existing plans of tree protection zones for major trees on campus which the consultant should review prior to undertaking any design.

14.2 Design Concepts

14.2.1 Key Design Principles

All landscaping works must be inspected and approved by the University at the completion of the project.

Four themes underpin the Landscape Master Plan and provide principles for future projects to be designed and evaluated against. Any future project should reference some, or all of the themes and respond to the accompanying principles.

- *University Story: Institutional distinctiveness and weaving cultural narratives into landscape expression.*
- *Health Habitats: Experimental learning on display and healthy waterways*
- *Winter Campus Community: Inhabiting active communal core and shared parkland*
- *Shared Space Movement: Arrival, welcoming and safe journey with dignity for everyone*

Refer to the Landscape Master Plan for a full and detailed description of these themes and their proposed application to landscaping design on the campus.

14.2.1.1 Significant Trees

Signature Trees:

- *Lime Tree: official university tree*
- *Pin oak: unofficial university tree*
- *Rhododendrons and Azaleas: associated with Edgar Stead*

Culturally Significant Trees and Plants:

- *Original forest tress: totara, matai, kahikatea, miro*
- *Taonga species: totara (making waka), kowhai (seasonal harvest)*
- *Mahinga kai resources: harakeke (weaving), kowhai (medicinal)*

***Commemorative Trees*:**

- The University has specific policy regarding *commemorative trees*. Consultants should refer to this document to review where these trees are located and how they should be treated.

14.2.1.2 Paths of Travel

When designing paths of travel, the consultant should understand and incorporate the current 'desire lines' of the flow of people. If the consultant creates a design that changes the course of travel and current 'desire lines', then the design must incorporate deterrents for use of the 'desire line' such as level changes, intense planting, furniture etc. *Refer also to the hardscape principles of the Landscape Mater Plan.*

14.2.2 Māori Influence

A key concept that is highlighted by Ngāi Tahu and Ngāi Tu-āhu-iri regarding the Te Papa Ōtākaro / Avon River corridor is that it 'has always been an area of mahinga hai and mahi kai (food gathering)' The productive aspect of the river is to be emphasised in future designs for the river margins. This, of course, extends to the upper reaches, which includes the Okeover, Avon and Ilam streams which all run through the campus.

It is worth noting that 'a subtle approach is required to incorporate Māori design in the city' and the language of faith, trust, justice and a commitment to the Crown represented by Queen Victoria runs throughout the language of Ngāi Tahu, and that this too needs to be integrated somehow into design concepts.

14.2.3 Streams

There are three tributary streams of the Avon River flowing through campus, and all are important habitats. There is a work programme established for all three streams focussing first on Okeover stream with an aim to improve in-stream biodiversity.

Endemic natives are to be planted to the areas 2.5 metres true left and true right of all waterway.

The health of the waterways is important to the University as a teaching and research resource. Therefore, there shall be no non-consentable discharge to the waterway.

14.2.4 Maintenance Considerations

Maintenance is a key consideration of the University. To facilitate ease of mowing to grassed areas and maintenance of gardens the Landscape designer is to provide a 300mm concrete strip along the perimeter of:

- All new and existing buildings and external structures adjacent grassed spaces
- All new garden beds adjacent to buildings
- All fixed furniture located adjacent grassed areas
- Retaining and freestanding walls

14.2.5 Irrigation Systems

All new planting beds are to incorporate irrigations systems which are compatible with the ICC Pro System *and Toro sprinkler heads.*

14.2.6 External Structures

All external structures must have structural engineering computations for structural elements including footings, slabs, walls and roofs.

14.2.6.1 Retaining Walls

Retaining walls are to be constructed of volcanic rock, concrete, Halswell quarry stone or timber grade H5, depending on the aesthetics of the local area. The University has a limited supply of Halswell quarry stone and volcanic rock. Crib walls will not be considered by the University.

Provide sub-soil drainage to all retaining walls. Pipework for straight lengths shall be slotted rigid uPVC pipes and fittings and elsewhere to be slotted flexible corrugated type pipe. Pipe sizes to be 90mm minimum diameter.

14.2.6.2 Freestanding Walls

Design is to be focussed on creating a low maintenance, durable and seismically stable wall.

14.2.7 Bike Stands

Bike stands are located throughout the university in strategic locations. Consultation with the University is required to determine re-location of any bike stand and temporary bike stands during construction.

The University's preference is for covered bike stands. The floor of bike stands is to be either concrete or bitumen, level with adjacent ground.

Floors are to have a three (3) degree grade from centre of bike stand to edge to ensure good drainage. Water

collection gravel pits or sumps are to be included in design to ensure there is no ponding around the bike stand.

14.2.8 Tree Protection

During design the Consultant shall consult with the University regarding the impact of the proposed construction works on the trees and waterways.

All tree and plant removal require prior approval from the University.

An assessment of each tree within the construction zone will be carried out by the University during the design process and any trees requiring protection will be nominated at this time.

Consultants are to prepare a tree protection plan for approval by the University that covers the following areas.

- Fencing
- Extent of Tree Protection zone – at a minimum should be to foliage dripline.
- Protection from compaction of soil within the tree protection zone.
- Protection of tree from construction traffic, material storage, waste water, trenching and rubbish.
- Monitoring of health of tree during construction period
- Excavation near the root zone of any tree will be subject to University assessment and prior approval

Care should be undertaken when excavating around trees.

If during construction a protected tree is in stress, advice must be urgently obtained from the University regarding immediate action.

14.3 Materials & Equipment

14.3.1 Materials

Elements selected for use throughout the University are derived from a limited palette of materials, finishes and colours. Selection of landscape elements must ensure that they:

- Can be replicated and reproduced
- Have a secured supply over time to ensure continuity
- Meet the accessibility requirements of the University
- Have low maintenance costs
- All concrete paths, slabs to be designed by structural / civil engineer to ensure slab loading is adequate.
- All concrete to have steel trowel finish. Broom finish will not be approved.

All external structures are to use materials low in maintenance. Galvanised steel is the preferred material for structural elements and Colorsteel for walls and roofing materials.

14.3.2 Gardens and Grassed Areas

14.3.2.1 Grass

Hydroseed all new lawns with a fescue / brown top mix. For shady areas use a 70/30 mix and for all other areas use a mix of 30/70.

Fescue / rye mix may be used for turf in the same ratios as the fescue / brown top mix.

14.3.2.2 *Soil preparations requirements – before seeding or laying turf*

Top soiled areas to be grassed or Turfed shall be cultivated to a depth of 100 - 150mm, clod free to provide a suitable tilth for seed distribution and grass growth. Remove weeds, root material, stones, rubble and any other debris exposed during cultivation.

Cultivate by mechanical means with rotary hoes except within the root zones of trees to be retained. Within the root zone, cultivate with hand tools (spades etc.). Following cultivation, spread area with 100mm compacted depth of topsoil. Carry out minor regrading to ensure an even surface with no low points, particularly at junctions with edgings, kerbs, manholes and paths etc.

14.3.2.3 *Soil ph level*

Target a soil pH level of between 5.5 and 6.0. Dress clay based soils with agricultural lime, applied at the rate of 150gms/m², and thoroughly 'work in' during cultivation (unless soil tests prove otherwise).

14.3.2.4 *Fertiliser*

Apply Di-ammonium phosphate applied at 150kg-200kg/ha dressing of fertiliser and work into the top 50mm of soil immediately prior to seeding.

14.3.2.5 *Standards and tolerances - seeding & turfing*

Completed topsoil shall be 15mm above paths, paving and tops of kerbs, manhole covers and catch pit aprons, and free draining. It shall not have depressions capable of ponding.

Grassed surfaces shall be deemed to be in an acceptable condition when;

- Fully established with vigorous growth

- No ponding of surface water occurs

- Grass covers 95% of the grassed areas

- Single areas of exposed soil are less than 100mm diameter in any one location

- Broad leafed weeds visible by eye through 360 degrees from any location are limited to 4 plants/m².

- Kikuyu grass is not present.

All lawns/ grass areas should be to fully established 6 months before maintenance contract period closes

REMEDIATION OF LAWNS

- Aerate and de-compact turf or soil in area of remediation to a depth of 150mm.

- Scarify area.

- Top dress with screen turf soil. Completed topsoil shall be 15mm above paths, paving and tops of kerbs, manhole covers and free draining. It shall not have depressions capable of ponding.

- Hydroseed or seed and rake in, with Winter Rye, Fescue/ Creeping Fescue, blend. Applied at the rate of 30-50 gms/m²

- Fertilise 25gm/ m2 NPK fertiliser.

14.3.2.6 Mulch

Mulch shall be applied to the surface of all gardens to a depth of 100mm. All mulch for any garden / landscape planting to be either 25 mm hoop pine chips or bark of 25mm or larger to allow for water penetration.

14.3.2.7 Garden Beds

Soil used in garden beds is to be garden mix soil free from weeds and contamination to a depth of min. 400mm

14.3.2.8 Garden Edges

Concrete, timber or cut edges are all acceptable methods of edging a garden bed. Timber edge strips are to be a minimum of 50mm thick and made of H5 grade only.

14.3.2.9 Sheet Materials

Light weight material such as compressed cement sheet, hardiboard would not be considered durable or suitable materials to be used.

14.3.2.10 Garden Taps

Install 18 or 20 mm vandal-proof brass hose cocks, located at intervals of approximately 50m around the perimeter of each building with at least one on every façade, 400mm above natural ground level securely fixed to the external wall..

Hose cocks are to be provided to all areas of the university at maximum 50 metres intervals. If located on a grassed area, they are to be located within a ‘toby box’.

These garden points may be supplied from the domestic service with no further back flow prevention required.

14.3.3 Plants

Plant selection must blend in with existing planting. A list of approved *and restricted* plants is attached in Appendix B below. Our general strategy for planting is to use

indigenous planting that is easily cultivatable and maintained and enhances native biodiversity.

Planting design must satisfy the following general requirements:

- Continuity of form & structure.
- Context with existing planting.
- Clear, unified planting structure.
- Strong massed planting with large numbers from a limited species range.
- Species selected that are suitable for the available solar access, both present and future.
- Species suited to location & micro-climate.
- Shade trees selection which recognises the impact on both open spaces they overshadow and likewise the passive solar requirements of adjacent buildings.
- Resistance to pests and diseases.
- Low maintenance requirements. Requirement for dead heading, hedging, pruning or pollarding etc. Should be minimised.

Species can be selected from the various schedules and additional species may be selected with the aim of fulfilling the principles outlined to achieve a contiguous University character.

Tree planting throughout should be guided by:

- Visual impact
- Size of mature canopy
- Growth habit
- Root zone constraints
- Environmental contribution

14.3.4 Furniture

Timber or concrete is the preferred material for external furniture. Steel may be used but should be vandal proof and indestructible.

All furniture must be fixed in place on concrete footing and slab.

14.3.4.1 Sculptures

All ground attached sculptures should be fixed to a concrete footing and slab. Sculptures are to be designed to fit in with the general aesthetics of the area in which they are to be located.

14.3.5 Rubbish Bins

The University has standard issue rubbish bins that are located around the university. They consist of a bank of 5 bins in a row on hardstand or bitumen.

If rubbish bins are to be included in any design the Consultant is to refer to the University for guidance in placement.

14.4 Installation Requirements

14.4.1 Pipework

All pipework to be a minimum depth of 300mm

Pipework shall be surrounded in 150mm clean, washed, evenly graded, granular bedding material. The granular material and pipework shall be overwrapped with a geotextile layer to prevent fines and liquefaction entering the drainage system.

The system should be designed to ensure that drainage gravitates to appropriate stormwater drains.

Filter boxes etc. are to be included to prevent contamination.

14.4.2 Valve Boxes

All valve boxes are to be flush with top of garden mulch and level with lawn.

They must be accessible at all times.

Appendix A – Landscape Master Plan

Available from the UCPM upon request.

Appendix B – Approved & Restricted List of Plants

A

Abelia grandiflora

Acaenae intermis Purpurea

Acer capillipes

Acer palmatum

Acer palmatum viridis

Agapanthus baby blue

Agapanthus sarah

Agapanthus streamline

Agathis australis

Alectryon excelsus

Anemanthele lessoniana

Arctostaphylos nevadensis

Arthropodium cirrhatum

Asplenium

Astelia fragrans

Azaleas deciduous *species*

Azaleas evergreen *species*

Azara serrata

B

Blechnum nova zealandica

Brachyglottis repanda

C

Calluna *species*

Camellia *species*

Camellia reticulata

Camellia sasanqua

Carex comans

Carex comans Bronze Form

Carex secta

Carex testacea

Carpodetus serratus

Cercis siliquastrum

Chimonanthus praecox

Chionchloa conspicua

Citrus species

Clianthus puniceus

Coprosma acerosa

Coprosma acerosa f brunnea

Coprosma *species*

Coprosma x kirkii

Corokia *species*
Coryncarpus laevigatus

Cornus species

Cotinus coggygria purpurea

D

Dacrycarpus dacryioides

Dacrydium cupressinum

Daphne *species*

Dianella nigra

Dodonaea viscosa

Drimys aromatica

E

Eleaocarpus dentatus

Erica *species*

F

Fagus sylvatica purpurea

Fuscospora *species* (nothofagus) fusca

Fuscospora *species* (nothofagus) solandrii

Fuchsia excorticate

Fuchsia procumbens

G

Gingko biloba

Gleditsia triacanthas

Griselinia littoralis

H

Hebe albicans

Hebe anomala

Hebe armstrongii

Hebe Autumn Glory

Hebe buxifolia

Hebe cantabriensis

Hebe diosmifolia

Hebe hybrids

Hebe 'Inspiration'

Hebe pinguifolia

Hebe Red Edge

Hebe salicifolia

Hebe toparia

Hebe 'Wiri Charm'

Heliohebe hulkeana

Hymanthera aborata

I

J

K

Kunzea ericoides

L

Leptospermum scoparium

Libocedrus bidwillii

Libertia species

Ligustrum rotundifolium

Liriope muscarii

Lithocarpus edlis

Lohozonia (nothofagus) menziesii

Lophomyrtus bullata purpurea

Lophomyrtus kathryn

Lophomyrtus obcordata

M

Metrosideros excelsa

Magnolia decidious

Magnolia grandiflora

Magnolia stellata

Michelia doltsopa

Michelia figo

Michelia yunnanensis

Muehlenbeckia sp.

Myrsine australis

Myrsine salicifolia

Myrtus ugni

Myrtus ugni Variegata

N

Nandina domestica Pygmanum

Nandina richmondii

O

Olea *europaea*

Olearia arborescens albida

Olearia avenicifolia

Olearia paniculata

Ophio*pogo*n (Greino)

Ophiopog*o*n nigrescens

Osmanthus heterophyllus

P

Parahebe catarractae 'Baby Blue'

Phebalium illumination

Phebalium squameum

Pieris Flaming Silver

Pieris japonica

Pittosporum *species*

Podocarpus acutifolia

Podocarpus dacrydioides

Podocarpus nivalis

Podocarpus totara

Podocarpus totara 'Aurea'

Pratia *species*

Prumnopitys ferrigunea

Pseudopanax *species*

Q

Quercus sp.

R

Raphiolepis umbellata

Rhododendrons *species*

Examples:

Rh Anna Rose Whitney

Rh burmanicum

Rh Countess of Athlone

Rh Crossbill

Rh Doc
Rh Edgar Stead
Rh Fireman Jeff
Rh Golden Horn
Rh grierson hybrid
Rh Ilam Cerise
Rh Ilam Pearl
Rh IOW
Rh Irene Mary Stead
Rh polysandrum
Rh Princess Alice
Rh Seta
Rh Stead's Best
Rh 'yellow'
Rhopalostylis sapida (Nikau Palm)
Rosmarinus prostrata
Rosmarinus tuscan blue

S

Senecio monroei
Senecio 'Sunshine'
Sophora microphylla
Sophora microphylla prostrata
Sophora molloyii
Sophora tetraphylla
Sopohra longicarinata

T

Taxus bacata 'Fastigata'
Tilia *species*

U

Ulmus glabra horizantalis

V

W

Weinmannia racemosa
Westringia fruticasa
Westringia morning light

X

Y

Z

Zelkova serrata

Water Way *Plants*

Refer to the CCC, Christchurch City and Lowland Canterbury Streamside Planting guide.

Restricted Plants

(accepted on approval from UC Grounds)

Harakeke – Phormium species

Toe Toe – Cortaderia species

Tikouka – Cordyline species

Upoko-tangata – cyperus species

Hypolepis ambigua

Cabbage trees, ti kouka, Cordyline australis

Compliance Checklist

Project Name:	Date:
Submitting Consultant:	Design Stage:

Section 14 – Landscaping Compliance Checklist		Complies	Does Not Comply	Not Applicable	Comments:
1.0	**Section 01 – General**				
#	All Clauses	☐	☐	☐	
14.1	**Overview**				
14.1.1	Purpose	☐	☐	☐	
14.1.2	Acknowledgement	☐	☐	☐	
14.1.3	Landscape Master Plan	☐	☐	☐	
14.1.4	Additional Guidance Documents	☐	☐	☐	
14.2	**Design Concepts**				
14.2.1	Key Design Principles	☐	☐	☐	
14.2.2	Māori Influence	☐	☐	☐	
14.2.3	Streams	☐	☐	☐	
14.2.4	Maintenance Considerations	☐	☐	☐	
14.2.5	Irrigation Systems	☐	☐	☐	
14.2.6	External Structures	☐	☐	☐	
14.2.7	Bike Stands	☐	☐	☐	
14.2.8	Tree Protection	☐	☐	☐	
14.3	**Materials & Equipment**				
14.3.1	Materials	☐	☐	☐	
14.3.2	Gardens and Grassed Areas	☐	☐	☐	
14.3.3	Plants	☐	☐	☐	
14.3.4	Furniture	☐	☐	☐	
14.3.5	Rubbish Bins	☐	☐	☐	
14.4	**Installation Requirements**				
14.4.1	Pipework	☐	☐	☐	
14.4.2	Valve Boxes	☐	☐	☐	

Compliance Checklist

Project Name:	Date:
Submitting Consultant:	Design Stage:

Section 14 – Landscaping Compliance Checklist	Complies	Does Not Comply	Not Applicable	Comments:
Date:			☐	Acceptable
University Reviewer:			☐	Acceptable subject to comments
Signed:			☐	Resubmission required