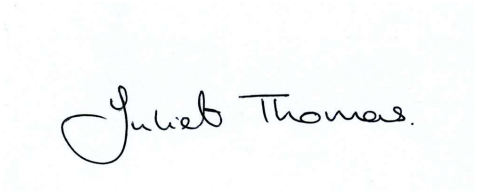
University of Kent, Estates, Biodiversity and Sustainable Landscaping Strategy 2018-2021

Statement of Support

I support the commitment of the Estates Department to work collaboratively to manage the campus grounds sustainably, to protect and enhance Biodiversity and to achieve the targets set out in this Strategy.



Juliet Thomas
Assistant Director of Estates: Facilities Management

Contents

1 Introduction

This Biodiversity and Sustainability Strategy has been produced by the University of Kent as part of its Environmental Management System which outlines the University's commitment to environmental sustainability and the way in which the Campus is managed. This strategy will set out our broad aims and objectives to ensure the campus is managed in a sustainable way and that biodiversity becomes an integral part of the day to day running of the University's outdoor spaces.

The Canterbury Campus is approximately 300 acres (1.2km^2) in area, mainly comprising ornamental horticultural features, amenity and semi-natural grassland, woodland and hardstanding. The main use is recreational, with large areas set aside for grass sports pitches. In addition, there is another 300 acres of farmland let to agricultural use, outside of the scope of this strategy.

The Medway Campus is split into two distinct areas – The Historic Dockyard, for which the University has no input and the HMS Pembroke site, covering 6.25acres and an off campus vacant site, 1.25 acres totalling 7.5 acres, which mainly comprises of ornamental horticultural features, amenity and semi-natural grassland, woodland and hardstanding. The main use is of amenity value, with the grassed areas used in the summer time for marquees.

2 Drivers for Biodiversity and Sustainability

The following drivers are fundamental influences to the way in which we currently manage our campus landscape, and how the grounds will be managed in the future.

2.1 Legal Compliance

Our Canterbury campus is contained within the North Kent Plain Natural Area, which sits between the North Downs to the South and The Thames Estuary to the north and the area also contains the large Blean woodland complex which is just to the west of the campus. This woodland is designated as a Special Area of Conservation, National nature Reserve and Site of Special Scientific Interest (SSI).

As well of these broad designations in the local area, the campus itself is subject to a number of legal protections of woodlands, trees and protected species.

All of our works are covered by the Health and Safety at Work Act 1974.

2.1.1 Tree Protection Orders (TPO)

There are four main Tree Protection Orders in force on the Canterbury campus. Full details of the orders are held by the Grounds Maintenance and Sustainability teams. These orders either specify individual trees or protect areas of woodland as a whole. Any landscape, maintenance or capital project work must take special measures to ensure protection of tree subject to protection orders.

Some of the trees on our Medway campus are also covered by TPO's, covered by Medway Council.

2.1.2 Ancient Woodlands

Most of the woodland on central Canterbury campus is designated ancient semi-natural woodland. Ancient woodland is a unique and irreplaceable habitat which covers less than

2% of the land area of the UK. It is afforded special protection in planning law and the University has a responsibility to manage and protect these woodlands accordingly.

2.1.3 Protected Species

The Canterbury campus is home to a number of species offered special protection under the Wildlife and Countryside Act. Under this act the University is required to identify whether protected species are onsite, and ensure that it will not: deliberately kill, capture, injure, or disturb them; cause damage to any breeding or resting place in done; and intentionally or recklessly obstruct access to any place used by protected species for shelter.

There are a number species of principle importance on campus that are listed under Section 41 of the Natural Environment and Rural Communities Act 2006. These species are included as part of the UK Biodiversity Action Plan and therefore must be included and considered in all management practices, including any construction work. Species included on the UK BAP and found on campus include: Great Crested Newts; Dunnocks; Starlings; Hedgehogs; Dormice; as well as a diversity of fungi, bees and butterflies. Great Crested Newts are of special consideration as they are protected under the Conservation of Habitats and Species Regulations 2010 which implements EU Habitats Directive in respect of conservation of natural habitats and wild flora and fauna.

Historically species surveys have been carried out across the Canterbury Campus, and protected species have been identified.

2.2 Financial Risks / Opportunities

2.2.1 Compliance

The Canterbury campus is home to a number of protected species as well as a number of ecologically sensitive habitats. Managing the campus in a more proactive sustainable way will significantly reduce the risks to these habitats from pollution, erosion and general degradation which would be costly to rectify. The Environment Agency can fine or even prosecute organisations for failing to protect sensitive habitat areas so protection should be central to our grounds activities.

2.2.2 Maintenance costs

Maintenance of traditional amenity landscaping can be very labour intensive as it is focused on visual impact rather than reflecting the natural character of the landscape. Adopting sustainable landscaping techniques in appropriate areas provides financial benefit through lower maintenance costs (reduced mowing frequency, minimal or nil irrigation, lower weed growth).

2.2.3 Revenue generation

There is potential for our land to generate income for the University. Historical woodland management practices involved selling coppiced wood as fuel and there is scope for this to be explored at Kent. Revenue is generated for the University through hiring out of green space for use by Kent Sport, conferencing and events.

2.3 Improving Environmental Performance

2.3.1 Increasing Biodiversity

The University of Kent recognises that UK biodiversity is at risk due to changing land use; the use of chemicals and inorganic fertilisers; and due to the effect of climate change, and therefore, it is an imperative that we work to not only protect the biodiversity that we have but also provide opportunities for it to flourish and increase.

There is clear evidence that our decisions on how we manage land can influence the impact of climate change on species and ecosystems. Therefore, we have a responsibility to manage our site accordingly.

2.3.2 United Nations Sustainability Goals

The University is a signatory to the Sustainable Development Goals Education Accord which celebrates and advances the critical role that education has in delivering the Sustainable Development Goals. The Estates department is committed to embedding the goals into its operations and has considered the goals during the development of this strategy. Of particular significance to this Strategy are Goal 15: Life on Land, Goal 11: Sustainable Cities and Communities and Goal 6: Clean Water and Sanitation.

2.4 Education, Reputation and Image

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2.4.1 Health and Wellbeing

The links between outdoor spaces and health and wellbeing are increasingly being realised. Access to quality outside space has a proven benefit on wellbeing and reducing stress. The launch of the Kent Community Oasis Garden (KentCOG) in September 2018 for the use of Students, Staff, Partners and the Community will provide a valuable resource on Campus. Providing safe, attractive pedestrian routes helps reduce single car occupancy by encouraging more sustainable forms of transport, further improving health, air quality and wellbeing. Intelligent landscape design can also enhance security, encouraging more people to utilise outdoor areas.

2.4.2 Education

Our students live, study and research on our campus and there are many opportunities to benefit from their knowledge and enhance the student experience. Our campus can be used as a living lab to allow students from a range of disciplines to test out ideas. In particular, the Durrell Institute of Conservation (DICE) has students studying a range of topics that could be implemented on our campus to further understand and enhance biodiversity.

2.5 Internal Drivers

2.5.1 Masterplan

The University of Kent is undergoing development of a 50 year masterplan for the Canterbury campus. The overarching Strategic Spatial Vision will be supported by four emerging strategies namely, ‘Place Making’, ‘Planning and Environment’, Landscape and

Biodiversity' and 'Movement and Transport'. The outcomes of the master planning process will in time be embedded into local strategies such as this one and inform decision making within the Estates department.

2.5.2 Creative Campus

Creative Campus was established in 2008. This cultural change programme aims to cultivate an inspirational learning environment in which ideas are shared and innovation promoted by providing greater opportunities for consultation, engagement and participation by staff, students and the wider community. A major focus of Creative Campus over the years has been the enhancement of the natural environment and use of the campus as an informal classroom supporting learning and teaching.

2.5.3 Environment Policy

The University of Kent's Environment Policy was last updated and signed by the Vice Chancellor and Chair of Council in October 2016 and sets out our objectives and commitments to environmental management including:

- Manage our campuses to protect and enhance biodiversity

2.5.4 ISO14001:2015

The University of Kent operates an Environmental Management System (EMS) certified to ISO14001:2015. This system requires us to identify our significant environmental aspects and develop a programme of improvement, identify relevant legislative requirements and ensure operational control in order to achieve continuous improvement in environmental performance.

3 Key Principles of Sustainable Landscape Management

"A sustainable landscape is designed to be both attractive and in balance with the local climate and environment and it should require minimal resource inputs. Thus, the design must be "functional, cost-efficient, visually pleasing, environmentally friendly and maintainable" As part of the concept of sustainable development it pays close attention to the preservation of limited and costly resources such as fresh water, reducing waste, and preventing air, water and soil pollution. In addition, woodland management, integrated pest management, planting design, irrigation efficiency and drought resistant gardening are all components of sustainable landscaping"

3.1 Ecosystem Services

Ecosystem services are the many and varied benefits that human's gain from the natural environment and from properly functioning ecosystems. Ecosystem services can be grouped into four main categories:

- provisioning, such as the production of food and water;
- regulating, such as the control of climate and disease;
- supporting, such as nutrient cycles and crop pollination and;

- Cultural, such as wellbeing and recreational benefits.

Landscape planners are increasingly developing strategies that seek to use an ecosystem services framework to help communities adapt to the effects of climate change.

3.2 Treat water as a valuable resource

Fresh water is a valuable commodity. The South East of England is the most water stressed region of the UK which as a whole has less available fresh water per person than most other European countries. Minimising water wastage and retaining rainfall for use by the landscape is one of the major guiding principles of sustainable landscaping. Potable water in particular is both environmentally costly and not ideally suited to use in landscaping. Groundwater extracted through boreholes should be used in preference to potable water where water use cannot be avoided.

3.2.1 Low Water Usage

Xeriscaping is landscaping that reduces or eliminates the need for supplemental water from irrigation. Key to this is selecting plants whose natural requirements are appropriate to the local climate. Other ways to reduce the need for supplementary water include increasing the soils capacity to store water through composting and mulching, choosing plant locations carefully so moderate water use plants are placed in shaded areas or where natural run-off from slopes and roofs can be utilised.

One of the main benefits of xeriscaping techniques is that they are low maintenance providing economic as well as environmental savings.

3.2.2 Sustainable Drainage Systems (SuDS)

Sustainable urban drainage systems (SUDS) have been developed to improve drainage and reduce the volume of surface runoff in urban areas. Alongside a reduction in the risk of flooding, SUDS in the urban landscape can also provide other environmental and ecological benefits. The inclusion of green space within SUDS can also contribute to noise reduction, air filtering and provide an aesthetically pleasing communal green space. Furthermore, green roofs have been found to support a wide variety of insects and birds, and wetlands can support aquatic species.

3.2.3 Ponds

As well as their impact on controlling surface waters running across landscapes, ponds contribute significantly to the regional species pool providing a vital habitat for many invertebrates and amphibians of significance as well as a source of food and water for birds and mammals. Well managed ponds for biodiversity will have partial shading, a variety of depths, gentle banks, a variety of vegetation presence in and around the pond, controlled reed mace, and little human interference e.g. dumping of fish, artificial feeding of waterfowl.

3.3 Consideration / Mitigation Through design

3.3.1 Planting

Typically, native species of plants require less maintenance than non-native species as they are better suited to the local climate and soil conditions. When considering plants, species selection should take into account aspect, soil type and accessibility to reduce management input. To further reduce management input, weed suppressant planting can be considered.

3.3.2 Layout and Design

When planning landscape design, consideration should be given to how the space will be used and maintained.

- Have desire lines been identified?
- If lawned areas are included has mower accessibility been considered?
- Is there potential to include long, unmown grass at the borders of planting areas?
- Has water flow been considered?

3.3.3 Integrated plant pest management techniques

Avoiding use of chemical pesticides significantly reduces the impact on the ecosystem. Use of integrated pest management techniques should be used to control plant pests and diseases. Principles of integrated pest management include; focusing on control rather than eradication, preventing pests through maintaining healthy plants and quickly removing diseased specimens, regularly monitoring and promoting beneficial insects or other forms of biological control.

3.4 Enhancing Biodiversity

3.4.1 Woodland Management

A simple principle for enhancing landscapes for biodiversity is to start with the diversity of the vegetation. By increasing the variety of vegetation, be that by planting or by allowing areas to naturalise you are creating new habitats and foraging opportunities for invertebrate and vertebrate species.

Within our woodlands, coppicing trees in sections each year, opens up the canopy allowing for light to flood in and for the seed bank already within the soil to germinate and grow. This will increase the variety of plants as forage and shelter for surrounding species and may even encourage new species to move in. The coppicing of different sections of our woodland each year we will give us a mosaic of habitats with tree growth at different stages providing a complex and diverse habitat for insects, mammals and birds to use. Work on woodland management is defined in the supporting document: Woodland Management Plan.

3.4.2. Grasslands

If left to grow uncut, will naturally diversify with a number of grass and wildflower species that are extremely important to our bees and butterflies. Wildflower meadows can also be seeded to increase the diversity of our meadows even more.

3.4.2 Urban Wildlife

Certain species of plants and flowers are known to support the foraging behaviours of native bees and butterflies. In addition, features such as green walls and roofs can be included on buildings to encourage urban biodiversity.

3.4.3 Wildlife Corridors

In an increasingly urban environment, the roads and impermeable pathways, and the short cut amenity grasslands, act as barriers for wildlife, preventing them from finding suitable and abundant forage and shelter. By looking at the different habitats all together we can start to look at way we can create wildlife corridors between them so that no habitat is isolated.

4 Progress 2012-2017

In 2015 we launched our first Biodiversity Management Plan setting out our objectives for enhancing Biodiversity across the four main habitat types on campus; grasslands, wetlands, woodlands and hedgerows. While we did not achieve all of our aims, we have implemented a number of initiatives and completed some improvement works which have had a positive impact on the natural environment.

4.1 Coppicing work

Coppicing takes place on campus every winter. To date most of Bluebell Wood and coupes in both Parkwood and Brotherhood Wood have been coppiced. We plan to continue this coppicing long-term in line with the woodland management plan to ensure the ongoing heath and Biodiversity of our ancient woodlands.

4.2 Pond works

Pond improvement work was carried out in lower Eliot pond in 2012 and a number of campus ponds have since been managed to improve light levels and control margin vegetation. As a result of some of the improvements made, Great Crested Newts have been spotted breeding In Upper Eliot pond for the first time. Future pond works are subject to additional funding applications and so are not explicitly targeted in this Strategy. As and when funding allows, ponds work will be conducted in order of priority and work undertaken in line with guidelines produced by the Sustainability team.

5 Targets

A number of targets underpin this strategy based around the strategic themes listed in section 6. An additional target for woodland management is included in support of our Woodland Management Plan.

KPIs for each of the main strategic aims are given in the Appendix

Strategy Area	Target
Manage	80% of planned biodiversity work completed on time
Design	Create 5 new areas incorporating sustainable landscaping each year, subject to funding.
Enhance	5 Biodiversity enhancements projects completed each year, subject to funding.

Create Opportunities	Reinvest 100% of copping revenue back into projects which improve access to the campus environment

6 Vision for Sustainable Landscape Management 2018-2021

With the recent certification of the Universities Environmental Management System to the upgraded ISO14001:2015 standard and development of the concept campus masterplan and FutureProof programme there is a clear mandate for the Estates department to look beyond its traditional Grounds management practices to developing a more holistic sustainable landscaping approach.

In order to achieve this, this strategy has been broken down into 4 separate sections.

- Manage
- Design
- Enhance
- Create opportunity

Together these four themes cover how overall grounds maintenance operations are managed, how capital projects that impact on the campus landscape should be planned and implemented, ways to enhance the campus landscape for Biodiversity and explores opportunities to improve our campus and to potentially generate income.

6.1 Manage

6.1.1 Estate Management

Aim: Ensure our grounds maintenance operations run as efficiently as possible and that work is proactively planned and carried out collaboratively with other sections, rather than reactive to problems.

Key objectives:

- Develop robust annual management schedules which take into account all general maintenance and habitat improvement works
- Explore options to use GIS campus mapping to inform grounds maintenance planning
- Explore options within Electronic Planned Maintenance System to improve scheduling of regular grounds maintenance tasks
- Prepare detailed documentary evidence to support additional budget requests for additional grounds maintenance resources.

6.1.2 Compliance

Aim: Maintain legal compliance across all of our grounds operations

Key objectives:

- Plan grounds activities to take into account time-bound legal requirements
- Identify those grounds maintenance activities which are restricted by legal requirements and develop guidance for grounds staff on compliance

- Ensure legal requirements are communicated to other sections whose activities impact of the campus grounds (maintenance, projects)

6.1.3 Monitoring

Aim: Assist the sustainability team to regularly measure and monitor the ecological health of our habitats

Key objectives:

- Regularly monitor the health of campus ponds through visual inspection and use of field water testing kits
- Develop a central 'library' for all documents and surveys arising from grounds, projects and maintenance work
- Communicate with DICE on potential to collaborate on work to survey and monitor ecological health
- Include surveying requirements in additional budget requests

6.2 Design

Projects Aim: Ensure sustainable landscaping is considered and incorporated into the design of new developments and that SuDS are considered the default drainage solution

Key objectives:

- Ensure the soft landscaping specification is included in initial tender documentation for capital projects
- Develop effective communication between projects and grounds maintenance to ensure sustainable landscaping principles are adopted from the outset
- Grounds maintenance will take on all landscaping works on completion of planting / reinstatement of apiece of ground, at a cost to the project, in line with the issued Soft Landscape Specification
- Develop a University-wide SuDS strategy to consider movement of water across at the campus scale rather than on an individual project basis.
- Assist projects to ensure that compliance with the planning requirements relevant to Biodiversity and sustainability are discussed and understood and that Projects responsibilities are accepted.

6.2.1 Urban wildlife

Aim: Identify and promote opportunities to encourage wildlife into the urban campus centre through building design, varied habitats and feeding and shelter opportunities

Key objectives:

- Use BREEAM and SKA as a framework to develop targets for projects to consider Biodiversity during major construction and refurbishment works.
- Provide web based information for staff and students on how Grounds activities support wildlife and guidance on how individuals can encourage urban wildlife, for example bird feeding over winter.
- Identify areas on central campus where wildlife could be encouraged through development of green walls, new ponds and diverse wildlife friendly planting areas.

6.2.2 Place Making

Aim: Create spaces on campus that are unique, identifiable and appropriate to the local landscape, with reference to the published Estate Master Plan.

Key objectives:

- Identify areas of campus where opportunity exists to create character areas in line with the principles of sustainable landscaping
- Consider public interaction and desire lines in the design on landscape areas. Create opportunities for innovative seating and shelter options which utilise natural resources and enhance the sense of 'place' and make the most of views towards Canterbury.

6.2.3 Amenity planting

Aim: Provide bespoke amenity planting schemes that maximise available water, reduce maintenance demand, promote and enhance biodiversity and have a high visual impact.

Key objectives:

- Utilise an areas of campus earmarked for planting to create an example amenity planting scheme which incorporate sustainable landscaping principles
- Consider creating an amenity planting 'catalogue' listing the most suitable planting options for different areas, and examples of layouts and management options that minimise maintenance input

6.3 Enhance

6.3.1 Habitat improvements

Aim: Develop a series of habitat profiles which inform decision making on enhancement works

Key objectives:

- Bring together survey results, University knowledge and external advice to create a series of habitat profiles covering wetlands (ponds), woodland, grasslands and hedgerows.
- Identify improvement works for the main habitat types on campus and where required prepare budget requests for this work

6.3.2 Connectivity

Aim: Seek to connect green spaces to provide wildlife corridors and embed the campus into the wider Blean woodland complex, as part of the aims of the Estate Master Plan.

Key objectives:

- Conduct a mapping exercise and visual survey to identify opportunities to re-connect green spaces

- Consider re-instating historic field boundaries through planting of new hedgerows and restoration of degraded hedgerows

6.4 Opportunities

6.4.1 Woodland Management

Aim: Develop woodland management practices which generate revenue or resource for the University

Key objectives:

- Develop a coppicing PPM specification to ensure that all coppicing activities are conducted in accordance with relevant legislation, maximise biodiversity enhancements and generate maximum resource, and that suitable space for storage and management of this resource is provided
- Continue to coppice for biodiversity, selling on the timber produced to “EuroForest” for the CHP Plant at Sandwich, providing sustainable power to 50,000 homes in that local area.

6.4.2 Access and Amenity

Aim: Improve access to the natural environment through creation of trails, paths and cycle ways and improve understanding through education.

Key objectives:

- Produce and install a series of interpretation boards at key locations across campus to improve knowledge and understanding of the biodiversity on campus
- Fully restore the campus nature trail including signage, way-marking posts, bridges and pathways. Develop web-based and paper route maps and ensure the nature trail is communicated across the University and local community
- Re-establish the eco-trail across campus
- Produce regular updates for campus online and other University newsletters highlighting the opportunities for walking, cycling and access to green spaces.

6.4.3 Space to grow

Aim: Provide areas for students, staff or local business to utilise the land for growing

Key objectives:

- Re-develop the campus garden providing accessible growing space for use by staff, students and community groups
- Consider options for using other areas of campus for growing food for use in internal catering and local businesses
- Explore options for using University land as a plant nursery to produce our own plants for use across campus.

7 Beyond 2021

Implementation of this strategy will help ensure that we maximise the benefits to be gained from the natural capital of our campuses. Further plans beyond 2020 will in large part be informed by the ongoing development of the campus Masterplan and the grounds team will continue to work closely with those responsible for its development.

We hope that by 2021 we will be in a strong position to celebrate our campuses and seek recognition for their management by exploring Green Flag status and participation in Canterbury in Bloom.

Appendix - KPIs

Strategy Area	Strategic Aims	KPI	Baseline Year
Manage	Ensure our grounds maintenance operations run as efficiently as possible and that work is proactively planned rather than reactive to problems.	ppm completed on schedule 80 %	2018/19
	Maintain legal compliance across all of our grounds operations	No. of non-conformances (absolute)	
	Assist the sustainability team to regularly measure and monitor the ecological health of our habitats	Ponds monitored (absolute)	
Design	Ensure sustainable landscaping is considered and incorporated into the design of new developments and that SuDS are considered the default drainage solution	Projects where sustainable landscaping is embedded (Absolute)	2018/19
	Create spaces on campus that are unique, identifiable and appropriate to the local landscape	Creation of 'places' on campus (Absolute)	
	Provide bespoke amenity planting schemes that maximise available water, reduce maintenance demand, promote and enhance biodiversity and have a high visual impact.	Sustainable amenity planting areas created (Absolute)	
Enhance	Develop a series of habitat profiles which inform decision making on enhancement works	Budget secured for improvement works (£)	2018/19
Create Opportunities	Develop woodland management practices which generate revenue or resource for the University	Coppicing revenue (£)	2018/19
	Improve access to the natural environment through creation of trails, paths and cycle ways and improve understanding through education.	Communications sent out (Absolute)	
	Provide areas for students, staff or local business to utilise the land for growing	m2 land provided