UWE Estates Design Specification

Chapter 9: Landscaping, Biodiversity & Public Realm

UWE Bristol | University of the West of England

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9.1 Change Control

Version Number	Date of Issue	Chapter Ref	Brief Description of Change(s)
1.4	01/05/19		Various updates as detailed in 2019 version
1.5	NOV2019		Various updates as detailed in 2019 version
2021	JAN2021		Various updates as detailed in 2021 version
2022	JAN2022		Various updates as detailed in 2022 version
2023	JAN2023	ALL	Various updates as detailed in 2023 version
2024	FEB2024	ALL	All contents reviewed and updated. Renamed as Design Specification.
2025	JAN2025		NO CHANGES

9.2 Scope

The UWE Grounds Team and Travel Team are key stakeholders in the design and planning of any project which alters or impacts on external spaces and must be consulted from the earliest stages.

UWE ambition is to create a harmonious blend of surfaces and designs. Project teams must create a solution that harmonises landscaping to that outside their own project boundary. This includes considering and accounting for new 'desire lines' that buildings will create through the campus.

Biodiversity in the built environment can be provided with high-quality green infrastructure, and is of utmost importance for social, economic, and environmental reasons, but also in terms of wellbeing, understanding the value of nature, and providing a positive learning and working space for our staff and students.

Effective design will increase UWE's resilience for Climate Change and coping with resource scarcity, such as fresh water and fuel, and the impact of extreme and unpredictable weather events.

9.2.1 Standards

All landscaping projects should deliver minimum 10% **biodiversity net gain** within the project boundary "red line". UWE's external realm will be designed and managed according to the principles set out in the **Building with Nature** Standard (see https://www.buildingwithnature.org.uk/) and elaborated in the UWE Landscape & Biodiversity Action Plan.

All projects must adhere to the **National Plant Specification (NPS)** guidelines when designing and implementing soft landscaping with specific reference to the NPS handling and establishment code of practice: Understanding the National Plant Specification - CloudScapes (cloudscapesdesign.com).

In any invitation to tender for plant supply and planting on UWE estates, the contractor must stipulate that the nursery adheres to NPS recommendation from lifting until dispatch. Contractors or sub-contractors must pay special consideration to Part 3 of the code of practice for Ground preparation, Planting and Aftercare.

9.2.2 General notes

The designer's approach to the public realm and the external spaces in general should be to create sustainable useful spaces which accommodate the necessary functions of urban living. All spaces should be designed to be welcoming, aesthetically outstanding and deliver high quality green infrastructure.

Pre-existing external spaces should be enhanced using variations in the visual character, orientation, scale, dimensions utilized through to the choice of materials for both hard and soft landscaping (with a view to increase biodiversity where possible).

The design team must consider future management of the external spaces and formulate an **external spaces management plan** for future maintenance within UWE's ability and resources. This plan must be produced in consultation with the Grounds Manager and delivered as a serviceable document at the completion of the project. This may form part of an access and maintenance strategy.

At the early design stages historic and original environmental features should be considered (e.g. freshwater habitats) to either incorporate them into the design or relocate them to a suitable location.

It is essential that projects carefully consider where their boundaries start and stop. Where appropriate, these boundaries may need to be extended to include a wider external area, ensuring that it is accessible and aesthetically in keeping with the wider campus.

Planting schemes must maintain good lines of visibility throughout the campus, to maintain the safety of drivers and pedestrians.

9.3 Temporary Works

UWE Grounds Team and Travel Team must be consulted on:

- Operations or temporary works which impact on soft landscaping must be done in consultation with the Grounds Manager (e.g. use of heavy equipment or creation of temporary footpaths or compound space on grassed areas).
- Proposed locations for stockpiling of soil.
- Operations or temporary works which impact on any roads, footpaths, or cycleways and must be identified during the pre-construction phase. The impact of diversions on emergency vehicles, maintenance operations etc. must be considered.

The proposed route of temporary roads, footpaths or cycleways must be inspected as early as possible, to confirm:

- The adequacy of existing surfaces that might be used and/or the standards required of temporary surfaces that may need to be formed
- The standard/adequacy of lighting
- The numbers of vehicles / pedestrians / cycles using the diversion
- The interface between pedestrians, cycles, deliveries, and vehicular traffic
- Alterations to wayfinding/signage (including responsibility for providing additional signage)
- Accessibility of alternative routes must be assessed
- Inconvenience/increased travel distances caused by temporary routes must be minimised as far as possible.

Traffic Safety Measures & Signs for Road Works and Temporary Situations "Chapter 8" must be adhered to. Diversions or disruptions to public rights of way will be subject to consultation with relevant External stakeholders outside UWE. The UWE Transport team will support this process.

9.4 Soft landscaping

Most topsoil to be found across UWE Frenchay and Glenside campuses is classified as Heavy clay soil, with >25% clay content. As such, any additional or imported soils added to the landscape are advised to be of sandy loam consistency. This will balance out the inherent characteristics including poor drainage and compaction associated with our landscape. All soils provided shall conform to BS 3882 and evidence of this as well as soil classification must be provided.

Bespoke soil types may be required for specific planting schemes, locations or landscape features (for example raised planters). This could include the addition of soil conditioners such as horticultural grit or organic matter. These specifics are to be agreed in consultation with the Grounds Manger at design stage.

When planning the addition or redevelopment of landscaping, an aftercare arrangement shall be developed in consultation with UWE Grounds Manager. The **aftercare package** should be time bound, include adequate defects periods and be contractually binding.

The access and maintenance strategy must include how watering and general ground maintenance will be done efficiently and safely.

9.4.1 Biodiversity net gain

Biodiversity has to be carefully considered to ensure that the maximum benefits will be achieved in the design and development - and ongoing liveability - of our spaces.

At the design stage the designers shall consult the UWE Landscape & Biodiversity Action Plan (https://www.uwe.ac.uk/-/media/uwe/documents/about/sustainability/landscape-and-biodiversity-action-plan.pdf) for planting schemes that are appropriate to the campus.

Impacts upon biodiversity must be considered when any project, internal or external is being planned. Impact from external compounds, delivery and storage of materials, scaffolding etc must be taken into account alongside works that have a physical effect upon the landscape. For small and medium sized maintenance or development projects a Biodiversity impact assessment report will assist by providing recommendations and mitigation for the project. This is available via the UWE Grounds Manager.

Planting schemes should seek to plant 'nectar rich' native species. 10% of planting must be 'edible' (improving environmental interaction and wellbeing). Planting schemes should seek to enhance the UWE Beeline or Meadowscape projects by the use of nectar rich native and near native plant species and by the addition of edible pollinators from the **Beeline Core plant list – available on request** from the Grounds Manager. The precise layout and location of new planting must be determined in consultation with the Grounds Manager. Inedible or poisonous berries must **not** be planted, so as not to be mistaken for edible ones.

9.4.2 Trees

Tree planting must be adopted in future developments where appropriate to soften the outline of the built form. Tree selection should be on the basis of appropriate form and growing habit, but all trees must be "clear stem" to allow visual sightlines to be maintained. Indigenous tree species should always be considered first. Deciduous woodland is the original type of woodland across the Bristol/South Gloucestershire region.

Tree selection must be done in consultation with the grounds manager to ensure that any trees or flora planted is in keeping with the campus as well as in line with grounds team maintenance ability and UWE's ambition to increase and enhance biodiversity.

Frenchay Campus includes several trees that have been designated local authority **Tree Protection Order (TPO) status** or are classified as significant to UWE Landscape. Both Glenside and Bower Ashton campuses fall within conservation areas and as such all trees within these locations are afforded the same protection as the TPO. It is therefore essential that any project or maintenance works that may have an impact upon UWE trees are discussed with the Grounds Manager at the preliminary stage of planning.

The Grounds Manager will offer guidance to ensure the least environmental impact, including advising on Root Protection Areas (RPA) and the health and condition of existing trees. It is important that all surrounding trees are considered within the scope of the project, not just those that fall immediately within the boundary of specific works. The University expects **BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'** to be followed in their entirety throughout the whole project.

The grounds team will assist in developing the project specification, physically marking out RPA's and will ensure the planning includes actions for the protection (e.g. temporary reinforcement of grassed areas) and remediation of the campus to the original (or better) state. This consultation should take place prior to ground works starting. Project teams will be encouraged to look at improvements surrounding their project boundary.

9.5 Hard Landscaping

The proposed layout of roads, footpaths and other hard landscaping must be agreed with the UWE travel team. They will help assess the impact on people movement and potential consequences for disabled people. Consultation with the UWE Grounds Team should also take place.

Designers shall comply with the Department for Transport's Manual for Streets Parts 1 & 2. UWE expects that laying courses consist of bound materials held together by a binder such as cement.

9.5.1 Pavements/Footways/Cycleways

Footways must be at minimum 2m wide on all sides in order to enable two wheelchairs to pass at the same time. Routes should be made as inclusive as possible by:

- Avoiding circuitous routes for wheelchair users.
- Placing dropped kerbs with tactile paving at convenient and appropriate locations (which will also assist porters, catering staff etc. using trolleys etc.). For the avoidance of any doubt, a 'flush' or dropped kerb means a 0mm upstand.
- Achieving gradients that comply with BS 8300.
- A strong tonal difference should be achieved between pavement and roadway and between street furniture and the surrounding paving.
- Careful consideration must be given to the use of 'stripes' (e.g. different coloured modules creating striped bands running across pavements, courtyards etc.) and they should be avoided. For example, for someone with a visual impairment, a dark strip could create the false perception of shadows and a kerb line.
- Designs must design out trip hazards.

UWE does not desire shared spaces, where vehicles and pedestrians share the same space. Pavements and Cycleways should be designed away from vehicle carriageways by use of a soft verge or other sustainable features such as SUDS, SWALES or Rain gardens.

All the following specifications are taken from Gloucestershire County Council manual for Gloucestershire Streets (4th edition), 01/04/16. They are purely indicative.

Type	Construction Layer	Thickness (mm)	Material	Binder (Penetration Grade Macadam)	Min PSV of Coarse Aggregate	Max AAV
Footways and cycleways	Surface course	25	AC 6 Dense Surf	70/100	All situations 45	16
	Binder course	50	AC 20 Open Bin	160/220		
	Sub base	250	Granular Sub Base Type 1			

If paviours are to be used, they should meet the relevant council standard (this is indicative):

Type	Layer	Thickness (mm)	Material
Footways / cycleways	Surface	80	80mm (min) thick paver block
	Laying Course	35	Clean sharp sand to BS EN 12620 grading C
	Sub base	225	Granular sub base material type 1

9.5.2 Lighting

Effective external lighting reduces the likelihood of trips and promotes a sense of personal safety. Technical aspects of external lighting are addressed in the electrical chapter. All vehicular and designated pedestrian routes will be lit along with 'plazas', pedestrian bridge tunnels, external stairs etc. Designated external escape routes or assembly points will also have emergency lighting.

Lighting is to be designed and installed with the impact on neighbouring communities and ecology in mind. Designers shall:

- Use 'warm' colour temperature (below 2700 K)
- Use low-level lighting and reduced PIR sensitivity, noting that key stakeholders must be consulted, in particular the security and grounds teams
- Install directional accessories on light columns to minimise light pollution and energy wastage i.e. direct the light downwards to where it is needed
- Use downward facing light on wall-mounted fittings
- Enable automatic dimming on lights when not in use

9.5.3 'Private streets'

All main arterial roads through campuses shall be designed as a high street as set out by the local authority. This is purely an indicative standard:

Construction Layer	Thickness (mm)	Material	Binder (Penetration Grade Macadam)	Min PSV of Coarse Aggregate	Max AAV

Surface course	30	AC 10 Close Surf	100/150	i) 65 ii) 55	16
Binder course	60	AC 20 Open Bin	100/150	iii) 50 **	
Base course	110	AC 32 Dense Bin	100/150		
Sub base	390	Granular Sub Base Type 1*			

Review the specific demands a road is exposed to e.g. if the access and maintenance strategy indicate that heavy plant (such as cranes) would need to be deployed on the road.

Tracking (or 'swept path') analysis may be needed. A 3 axle refuse vehicle should be used for this study and the swept path should be no closer than 500mm from any kerb, vertical structure, tree, or formal parking space.

9.5.4 Car, motorcycle, and cycle parking

All buildings must have disabled parking spaces in line with Part M of the Building Regulations. When providing disabled parking bays, locate these within a short, level distance of the building entrance. In a row of disabled parking spaces, one will need to be sized to accommodate a large vehicle allowing for a side or rear access hoist.

'Fast chargers' recharging points for electric vehicles (i.e. minimum 22kW supply) aiming to provide a full charge in 1hr 30minutes shall be installed in any new carparks. The charging points are to have Ingress Protection rated at 55. Charging points are to be individually metered.

Provide space for at least one 3-wheel tricycle in any parking designed for motorcycles.

The requirement for secure cycle parking facilities, and size of this provision will be influenced by the number of building users, the proximity to existing facilities etc. as well as constraints such as space.

Designs shall consider wind loading/direction when selecting and positioning bike shelters, especially open-faced shelters. Shelters should not be positioned in infrequently used or obscured locations, as this could encourage theft. The transport team will advise on security requirements, but cycle hubs will need swipe access, CCTV and lighting with attendant power/data supplies. Consult at RIBA stage 2 or earlier for any major refurbishment or new build to assess existing provision and for advice on how cycle provision could be enhanced.

In any cycle parking provision, there must be at least one cycle space that is wide enough to accommodate a recumbent trike which may be used by a disabled person. There will also need to be space for storage of a wheelchair.

9.5.5 Barrier Controls

Barrier controls should be operated by swipe cards or key codes (the transport team will advise) and without the need for users to leave their vehicle. Intercom is only a 'back up' method of operating barriers: Not all users will have hearing or speech. Barriers must be designed to prevent harm or damage to people or property and barriers shall be designed to allow cyclists to pass unhindered.

9.5.6 Designing for deliveries, maintenance & emergencies

The access and maintenance strategy, and fire strategy will help establish these requirements. UWE wishes to avoid the need to repair brand new footpaths etc. damaged by the weight of vehicular traffic which was foreseeable from the outset. Designers must ensure that there is at least one vehicular route and parking area for each building, capable of taking the weight of a 3 axle refuse vehicle.

9.5.7 Pollution prevention

Hard infrastructure must include appropriate pollution prevention measures. The UWE Sustainability Team can provide advice on the requirement for interceptors or the risk to existing drainage e.g. surface water drains in proximity to a new delivery bay.

Use the drainage plan to identify the safest place to store materials. Any higher risk external spaces (loading bays or near hydrocarbon storage tanks) will need storage for a UWE spill kit (depending on the distance to an existing kit). This will need to be allowed for in the design process.

In line with Pollution Prevention Guidelines (PPG) 1 and 22, UWE requires that: "gullies, grids and manhole covers are colour-coded to aid identification, using blue for surface water and red for foul and arrows to indicate the direction of flow." This colour-coding must be implemented.

9.6 Underground Services

Numerous mechanical, electrical, and data services, cables and ducts are underground. This makes them vulnerable to inadvertent damage, especially during works, or even by the weight of heavy lorries. All underground services must conform to Street Works UK and BS1710 on positioning, minimum depths, and labelling all underground services.

Depths must conform to 'carriageway' standards and not footways nor verges. Identification tape shall be applied continuously along the whole length of all underground services. The tape shall incorporate a corrosion resistant tracing system.

Consideration should be given to the use of trenches and ducts when laying or altering underground services. A minimum 50mm data duct at 350mm depth should be provided in any trenching work. Fully accessible inspection chambers must be provided.

9.7 Street Furniture

Street Furniture must be robust with a design that is sympathetic to the surrounding built and natural environment. Refer to the Design Guide section on Wayfinding and comply to the UWE Signage Specification. Street furniture must be integrated into designed elements, such as paving bands. Recognise how detrimental 'clutter' can be to the public realm.

There should be a mixture of external seating, offering opportunities for individuals to rest as well as collaborating on course work etc. Seating should include some with backs and arm rests, providing a selection that people can pick to suit their health and physical condition. If there is space for only one external seat, it shall be fitted with arm and back rests.

The design and material will need to match the environment. Design location and configuration of the seating should consider protection from exposure to prevailing winds, cold and wet weather. The comfort of the user is paramount, and design should take this into account, for example with natural or physical wind barriers, covered areas with protection from the elements.

The UWE Grounds Manager shall be consulted on design and specification of benching and external social spaces.

9.8 Waste Handling & Storage Facilities

External waste and recycling facilities (bin stores) should be designed in consultation with the Sustainability Team, specifically the Waste and Resources Manager, to ensure sufficient and appropriate facilities are provided in line with contractual and legal obligations.

Bin stores shall be enclosed to aid with secure waste containment in line with legal obligations. The size of the bin store will be in direct proportion to the square meterage of the building as per BREEAM guidance. The exact number of wheelie bins required will depend on the occupancy and use of the building; this will be determined by the relevant UWE personnel and the Waste & Resources Manager.

UWE has a strategic priority on recycling which will impact on designs; internally there must be space and adequate bins for separate recycling streams. This includes all areas of the

building: offices, kitchens, eating areas, etc. internal recycling provision must mirror the available bins in external bin stores.

All bin stores must allow for 1100L recycling and general waste bins to be moved in and out, for example wide enough access and egress points. There must also be adequate head height to lift the lid fully to empty in smaller bins and bags.

Approximate bin dimensions for the different waste streams are shown below:

	General Waste	Paper and Card	Plastic and Cans	Glass	Food
Container size	1100 litre	1100 litre	360 litre	240 litre	140 litre
Container dimensions	Width: 1265mm Depth: 984mm Height: 1280mm	Width: 1265mm Depth: 984mm Height: 1280mm	Width: 580 Depth: 875 Height: 1080mm	Width: 575 Depth: 730mm Height: 1060 mm	Width: 505 mm Depth: 555 mm Height: 1100 mm

Building plans should include the dimensions of the bin store and indicate the correct number and type of bins in each store. The plans will need to demonstrate that the bins will fit within the proposed bin store area with sufficient room for access and manoeuvring, and that all bins are always accessible. There should be sufficient space between bins to allow access for both UWE personnel and collection operatives. This will prevent waste being left on the floor and missed collections from contractors.

Bin stores should be as large as practicable to future proof against any potential changes in collection methodology resulting in a larger quantity of bins being required.

Other requirements for bin stores include lighting, drainage, Category 5 water points, easily cleanable impermeable surfaces, signage boards, hand sanitiser units.

It is essential that bin stores are well lit to allow bin signage to be read, to promote proper use and to counteract concerns about them feeling dirty or unsafe. Lighting must be controlled by motion sensors to avoid it being left on when the bin stores are not in use.

Bin stores should be designed to be attractive as well as functional. There are opportunities for in-built behavioural psychology and 'nudge' elements in design of bin stores to increase recycling outcomes.

Bins stores must be external to main buildings and located at least 10m away from all buildings for fire and insurance purposes. If this is not possible, advice should be sought from the UWE Fire Safety Adviser and Insurance Manager.

For residential developments, Schedule 1, Part H of the Building Regulations (2000) states that residents should not have to carry waste more than 30 m (excluding any vertical

distance) to their waste storage point. For non-residential buildings consideration must be given to the distance that cleaning staff will be required to transport waste to the bin store.

Access to the bin stores will be required by refuse and recycling contractors' vehicles.

- The gradient between bin store and collection vehicle should not exceed 1:12 (Building Regulations, 2000)
- The distance over which containers are transported by collectors should not exceed 15m for two-wheeled containers, and 10m for four-wheeled containers (BS 5906: 2005)
- The route between the bin store and the collection point should be free from curbs, upstands, steps (HSE) and any uneven surfaces.

UWE has a 'forward gear only' policy for waste collection vehicles on UWE campuses. Contractor access to bin stores should be designed in such a way that reversing is not required. Waste contractor access to external bin stores must be addressed in the Access and Maintenance Strategy.

Hazardous waste will need additional storage and disposal methods. Hazardous waste storage and collection is not included in BREEAM calculations. The exact requirements will depend on overall size/use of the building. The Waste and Resources Manager must be consulted regarding what containment for hazardous waste is required.

9.9 Rainwater management

Campus development projects must consider flood risk, taking note that the intensity of rainfall events is anticipated to increase over time in response to climate change.

Designers must ensure that green and blue infrastructure is included in schemes such that flood risk is mitigated (both on campus and downstream). Measures to incorporate include rainwater harvesting schemes, green roofs, rain gardens, infiltration systems, filter strips, swales, trees and soft landscaping measures, pervious paving, ponds and surface water features.