GROUND MANAGEMENT PLAN

2021

Singleton Park Campus
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SWANSEA UNIVERSITY HISTORY & HERITAGE

Swansea University's foundation stone was laid on 19th July 1920 by King George V; in the very same year, 89 students were enrolled. By September 1939, numbers had grown to 485 students and 65 staff members. By 1947, the campus comprised of just two permanent buildings namely Singleton Abbey and the Library. The principal at the time, J S Fulton recognised the need to expand the campus to a self-contained community, that is, to have both academic and residential facilities on a single site; this vision resulted in what was to become the first university campus in the United Kingdom.

The construction of new halls of residence, the Maths and Science Towers and College (later named Fulton) House were built as part of a large-scale development programme completed by the late 1960’s.

In 1984, the Taliesin Arts Centre was opened on campus followed by the relocation of the Regional Schools of Nursing to campus in 1992 with the College of Medicine opening in 2001.

The Digital Technium building was completed in 2005 followed just two years later by the Institute of Life Science, a second Institute of Life Science was also completed by 2011.

In 2020 the University celebrates its 100th year, its portfolio includes a number of valued assets such as historic and listed buildings, of which it is rightly proud. It has traditionally taken a thorough, holistic approach to building conservation, seeking to understand all the varied factors that make historic buildings significant to their diverse stakeholders, and using this to inform necessary change. The University works closely with the local authority and CADW to ensure that any adaptations to the buildings meet the requirements of a modern university and are sensitive to their historic nature. This Conservation Plan represents the continuation of this tradition of seeking to understand what makes the University’s buildings cherished assets, and of seeking ways to conserve these most important features for the enjoyment of future generations.

The Historic Environment (Wales) Act 2016 placed a duty on Welsh Ministers to compile and maintain a statutory register of historic parks and gardens in Wales. In September 2019 the historical significance of both the Singleton Abbey and the Botanical Garden within the Singleton Campus were duly recognised and included in the statutory register. The new statutory register replaces the old non-statutory register that was launched in 1994 and has grown to include almost 400 sites across Wales.
SINGLETON CAMPUS LOCATION

Set in mature parkland the campus overlooks Swansea Bay

©Swansea University

SINGLETON CAMPUS TERRAIN

The grounds of the University comprise of generally hard, flattened, fabricated surfaces. Though an ever-present threat, flooding is not really considered a major concern due to the inclined position of the campus. Despite this, there is a history of flooding in the past from run off coming from the neighbouring Singleton Park as it forms a funnel for rainwater to migrate towards the campus. The drainage of the campus has been partly mapped and a programme of works put in place to ensure that the remainder is completed as part of the University’s Environmental Management System. A part of this system has highlighted a necessity to ensure that pollution is prevented from entering local watercourses. A minimal amount of low-level radioactive waste is occasionally produced by research departments within the University and is disposed of via the foul sewer drainage under the authorisation of the Environment Agency. Several new legislative measures mean that the University as a public body has a duty to comply with the Natural Environment and Rural Communities Act 2006 (NERC) as well as other guidance and legislation such as the Wales Environment Strategy and the Natural Environment Framework that encompasses legislation to protect wildlife such as bats and badgers.
SWANSEA UNIVERSITY GROUNDS DEPARTMENT

Swansea University’s grounds are designed and maintained by in-house grounds staff.

Located within a park, the 47-acre Singleton campus is close to the city centre and a sandy beach. The grounds of the Singleton Campus are well established providing a wide variety of habitats with grassland, mature woodland, planted areas and ponds, which help to support extensive variety wildlife all of which add to the welfare of students, staff and visitors alike.

Maintenance work on the site includes mowing, weeding, shrub / tree pruning, creating summer bedding displays, litter picking, irrigation and woodland management and is all carried out by the Grounds Team.

The grounds are maintained in as environmentally friendly a manner as is possible:

- No residual weed control is applied to landscaped areas.
- Wood chip mulch is sourced and produced on site and then applied to shrub beds to avoid herbicide usage and saves watering during the summer by retaining moisture beneath it.
- Green waste produced from leaves, grass clippings, trimmings and hedge cuttings are composted on site to be re-used around the University sites.
- Where possible locally sourced materials are used on all landscaping projects.
- Priority is given to the preservation and enhancement of existing valuable habitats.
- Explanatory signs are located by valuable habitats.
- Natural habitats are preserved by leaving wildlife corridors near streams and woodland edges.
- Non-urgent tree surgery is not carried out during the bird-nesting season.
- Habitat piles created around the campus provide a source of food, shelter and hibernation.
- Bird and bat boxes are installed at suitable locations throughout the campus.
- Planting schemes incorporate a variety of plants, trees and shrubs, with varying flowering times to encourage year-round wildlife activity.
- Locally sourced bedding plants are propagated using peat-free growing medium.
- Battery powered grounds maintenance machinery is being phased into lower emissions.
- Advise and work with the Projects and Sustainability teams and volunteer groups.
This mixture of natural, cultivated and exotic woodlands further develops the biodiversity and interest of the Campus grounds. There is a wide variety of shrubs and plants on the Singleton Campus, many of which are tender or salt tolerant plants, which flourish in this climate. In the case where borders have over-matured and outgrown the space available the shrubs are either rejuvenated by hard pruning depending on the species tolerance for such action or the areas are re-designed and re-planted accordingly.

The Campus has a rich diversity of flora, much of which has been brought to the Campus from all over the world. The University is ideally situated allowing us to grow a wide range of plants, many of which are quite tender. Due to the Campus’ close proximity to the sea many of the plants, shrubs and trees were chosen for their salt tolerance. The Grounds Team are in the process of restoring the listed Botanical Garden complete with its Reptilliary and extensive Pergola to its former glory.

*Botanical Garden Reptilliary.*

*Paul Edwards, 2021*
THE ABBEY MEADOW

This area comprises largely of unimproved listed grassland set in a dune slack and dune system flood area. A low impact mowing regime is used to leave undisturbed the marsh areas at the centre of the meadow which are hosts a variety of butterflies, beetles and dragonflies as well as field mice and nesting ducks. This practise assists the preservation of a modest and highly fractured segment of a dune system that fortunately has not been engulfed and lost to continuing urban development.

© Swansea University

FAUNA

Beehives are located in a quiet secluded area on the south facing side of the Wallace building, itself set within the boundary of the University’s listed Botanical Garden. Now when the resident bees pollinate the plants and shrubs of the Campus the unusual pollen producing plants in garden result in creating a unique flavour to the honey produced. To date there are six hives, some of which are owned and tended by university staff members. Foxes and Hedgehogs are often seen on Campus with evidence of the occasional otter passing through as well as a wide variety of birds, mammals, amphibians, insects and reptiles.

MANMADE FEATURES

The ILS (Institute of Life Sciences) building has on the roof of its south-facing elevation a ‘Sedum Roof’ which although relatively small still supports and encourages floral and faunal diversity to the area.

© Paul Edwards 2020
HORTICULTURAL AND LANDSCAPE PROJECTS

The Grounds Team develop and adapt their working practices to support and encourage biodiversity around residential and academic buildings on Campus; log piles for example, sourced from trees cut around campus as a result of the annual tree audit have been up-cycled to form habitat piles for invertebrates. The use of herbicides has been greatly reduced by strictly adhering to a minimal ‘spot’ spraying programme this method has a reduced impact upon the environment by specifically targeting weeds rather than ‘blanket’ spraying to ultimately increase specie/invertebrate abundance which would otherwise be adversely affected by indiscriminate spraying. The application of herbicide is not carried out among any of the shrub beds on campus instead woodchip, cardboard and leaf-mould produced from material generated by the campus is used as a mulch to both reduce the growth of weeds and retain moisture during dry periods.

Composting and wood chip bays

Cardboard sheeting is first laid over problem areas such as those infested with Wild Garlic *Allium Ursinum*, which is particularly prevalent in the Botanical Garden. Leaf mould or Woodchip is then placed on top, completely cutting out the light. This method has been a successful alternative in addressing the infestation as opposed to having to use herbicides, which tend to give negligible results in any event.
The Grounds Team’s sustainable practices continues to develop; for example, the Team has gone “peat-free” when requiring a growing medium. Purpose built composting bays have been constructed to reduce the need to purchase pre-packaged growing medium in turn reducing the demand for carbon-rich planting materials to supporting the use of peat as a carbon sink. Ninety per cent of the smaller lawns of the campus are cut using ‘mulching’ mowers, which are designed to macerate the clippings depositing them directly onto the area being mowed. This self-fertilizing system reduces demand on the grounds budget while at the same time minimalises the impact of artificial nitrate run-off on the environment. Campus sourced timber resulting from remedial tree felling is utilised by the Grounds Team to not only create raised beds where desire lines have caused excessive wear but also to create traffic control log bollards. This resource is utilised throughout the campus, as it is far more aesthetically pleasing than concrete and provides a food source for the birds that feed upon the insects that themselves feed upon the slowly decaying wood.
THE SLEEPERS GROWING PROJECT

Growing project under construction

Singleton Campus
The Sleepers
Growing Project

Swanseed - sustainability programme focused on food and wellbeing. Created in 2019 through community benefits funding by the Estates and CR team with support of contractor affiliates Graham FM, Veolia and Prosser Plant Hire.

Engages students, staff and local community with environmental issues, particularly those associated with food and provides a sense of community and wellbeing. Supports the Student HEAR Sustainability Award.

© Swansea University

Growing project under construction

Proposal
• Collaboration of University Estates and Facilities Management, Contractors, Colleges and Corporate Responsibility team supported by Community Benefits Funding.
• Creating a space at Bay campus facilitating community growing area benefiting the local community of staff and students supporting sustainability and wellbeing.
• Raised beds

Current Status
• No campus student growing area
• Proposed location underutilised
• Surveys of staff and student wellbeing at the Bay campus identify a need to improve community spirit and infrastructure for mental wellbeing.

© Swansea University

SLEEPERS GROWING PROJECT – DRIVERS
The project aligns with multiple aspects of University strategy:

- Sustainability – Green League, Strategy, Biodiversity
- Wellbeing – Community and Eco-therapy space
- Community – Students, Residences
- Student and staff experience – Social Responsibility, Biosciences
- Employability – Student work experience/ SPIN/ WOW and Sustainability Award

Opportunity to offset some of campus catering’s procured ingredients, an ever increasing requirement to compete with other universities in the green league. Contributes to campus catering’s applications for soil association food for life award (set % of onsite growing).

SLEEPERS GROWING PROJECT – STAKEHOLDERS

© Swansea University

The Grounds Team maintains and creates various environments on the Campus to encourage and increase a wide variety of flora and fauna; these include ponds,
woodlands, grasslands, flower borders, mature hedgerows and wildflower areas. The wildflower areas have been seeded with ‘Pictorial Meadows’ wildflower mixes and are cut once a year leaving cut material in situ to dry out and disperse their seed heads. An unused barren area suitably low in nutrients has been utilised to create a native wildflower meadow among the students halls of residence. The seed mix used contains approximately 26 flowering species of varying height including poppies (Papaver rhoes), Cornflower (Centaurea cyanus), Borage (Borago Officinalis) and Goats beard (Aruncus ioicus). With a flowering season between May and October, they are all recognised as excellent hosts for pollinators such as bees and butterflies whilst at the same time encouraging a greater diversity of insects to the site.

*Wildflower area behind Horton Halls of Residence*

© Swansea University

*Nest box sited in the Botanical Garden*
The Grounds Team has also positioned bird and bat boxes around the Campus. Most of them are used as intended but some however have been known to house wasps and bees.

The listed Botanical Garden plans were first drawn up by pioneering British botanist and Dean of the Faculty of Science, Professor Florence Annie Mockeridge who retired in 1954 prior to the completion of the project. Dr Herbert ‘Bertie’ Street succeeded Professor Mockeridge, designing the final garden layout and overseeing its creation.
This area was under-used due to low spots of the pathway being susceptible to localised flooding; however, student volunteer group’s restoration work addressed the problem. In addition to the original woodland walk, two connecting paths that lead to the Botanical Garden meadow have been created, negating the fox den and numerous habitat piles.

New connecting woodland path (West)
New connecting woodland path (East)

Paul Edwards, 2019

The mowing regime for the Botanical Garden meadow was changed in 2017 so that it is no longer regularly cut in its entirety; instead, meandering paths are cut through it to meet up with the interconnecting Woodland Walk paths. Native and Spanish Bluebells can be found along the woodland banks and since 2017 a programme of removal of the latter has encouraged an increase in the native species reducing the chances of hybridisation.
Woodland Walk Bank
Felled timber sourced from the campus was upcycled to create an informal circular meeting place in the middle of the meadow accessible by the new pathways mown into it. The area has proven to be particularly popular during the social distancing regulations introduced during the Covid 19 pandemic.

*Botanical Garden Meadow log seating area*
HABITAT PILES

Since 2013 woody material that cannot be processed into wood-chip or made into tree stakes are instead used around the campus to form ‘Habitat Piles’. These piles consist of tree stumps, rocks, rotting logs and cut brambles etc. which all quickly become host to invertebrates and shelter for small mammals such as hedgehogs. As the piles deteriorate, they are periodically topped up with fresh inert organic material. Wooden pallets have also up-cycled to create stacked ‘bug hotels’ around the Halls of Residence using the same green materials to fill the gaps in them. A large Holm Oak that was brought down through storm damage has had its trunk cut into sections and placed along the tree canopy that meets with the Botanic Meadow to become seating popular with students, visitors and staff alike.

Botanic Garden habitat piles

Paul Edwards 2020
THE ORACLE

At the west end of the Woodland Walk the outdoor study / breakout area known as ‘The Oracle’ can be found. The Oracle stands for ‘Outdoor Research and Community Learning Environment’ and was constructed by a University spin-out company called the ‘Down to Earth Project’ with help from staff and students using ecologically low impact, locally sourced materials incorporating skills such as dry stone walling, timber frame forming and cobbing. Located conveniently at the beginning of the Biodiversity Trail the resulting unique structure is now frequently used for educational and recreational purposes not only by students and staff but also by the wider community. Traffic noise from the Mumbles road was initially an issue and so to address this surplus composted soil sourced from the campus was used to create a low wild flower embankment with log seating set into it. This sympathetic landscaping acts as an acoustic baffle to shield users from the traffic noise while adding seasonal colour, shelter, seating, privacy and tranquillity to the area. The Oracle

Paul Edwards 2020
SWANSEA UNIVERSITY BIODIVERSITY TRAIL

Opened on 11th March 2014 by Welsh television naturalist Iolo Williams, the Nature Trail has proven to be very popular with students and staff alike. Themed bi-monthly tours held throughout the seasons are guided by University staff and has not only educated but has also instilled a greater appreciation of how fortunate the University really is to be in such a wonderful location

Biodiversity Trail signage

Paul Edwards 2020
Bug Hotels constructed from softwood and bamboo canes have been sited throughout the campus, as they eventually decay they will be replaced using bamboo and surplus timber growing on site. The bamboo which regenerates quickly together with a steady supply of wood from pallets ensures a reliable source for the future.

*Bug hotels at Horton Halls*

*Paul Edwards, 2020*
Original plans for the Botanical Garden revealed that it was intended to have a marsh area opposite the existing ornamental pool with water supplied from its overspill and the small stream. Up until recently this was not completed so a weir was created from an oak trunk to impede the flow of the steam, which has not only created the marsh upstream but now also oxygenates the water that cascades over it. A second weir created further downstream has improved the water quality as evidenced by the presence of a kingfisher that can regularly be seen fishing for sticklebacks. Further improvements were made during a Campus Services team-building day to reinforce the sides of the stream by weaving a low bamboo barrier upstream of the weir along the stream bank to reduce excessive sedimentation. Subsequently silt build up is cleared from the stream and is laid behind the barrier to strengthen it while allowing invertebrates to make their way back into the water.

Botanical Garden Stream

Paul Edwards
Botanical Garden Weir

Paul Edwards

Botanical Garden Ornamental Pool

Paul Edwards
HORTON HALLS OF RESIDENCE ORCHARD

The trees were planted by winning departments of the University leg ‘Green Impact’ initiative, in a roughly oval shape with the intention of adding a shallow clay lined pond in the future.

The site itself was chosen to encourage greater use of an area otherwise of little aesthetic or environmental interest.

Paul Edwards, 2020
SWANSEA UNIVERSITY BIODIVERSITY GROUP

The Biodiversity Group in a very short time achieved a great deal with limited resources. This is due in no small part to embracing the recycling/up cycling ethic of utilising the natural by-products that result from the day-to-day maintenance of the grounds. As is so often the case with habitats that are subject to frequent footfalls and high usage, a balance has to be struck so that the open spaces can be preserved and yet enjoyed at the same time. The University’s Botanical Garden in particular has to fulfil two key roles as a ‘time out’ area for students, staff and visitors and as an outdoor teaching facility.

STUDENT CONSERVATION VOLUNTEER GROUP

The Students Volunteer Group practise and learn ‘hands – on’ conservation skills and management techniques while assisting in the aforementioned landscaping projects around campus. The Grounds Team have facilitated the students in these endeavours by working alongside them offering tuition and guidance. The Grounds team have been directly involved with numerous projects and re-developments, including some hard landscaping like building paths, steps and fences, to soft landscaping such as laying new lawns to turf, tree planting to totally re-designing areas in order to accommodate the changing needs of the Universities stakeholders.

REDUCING THE USE OF PESTICIDES AND ARTIFICIAL FERTILISERS

The use of pesticides and inorganic ‘artificial’ fertilisers used within the Grounds is kept to an absolute minimum as much as is practical. Organic substitutes such as liquid seaweed is used to great success.

ACTIVITIES AND FACILITIES

Ecology courses directly benefit from having the Botanical Garden right on their doorstep as it literally becomes an outdoor classroom for them offering tangible subjects that cannot be duplicated electronically. The wide green spaces around the Singleton Campus are enjoyed for leisure activities throughout the year for team building days, the annual students Summer Ball to the more unusual (the University has a very enthusiastic Harry Potter inspired ‘Quidditch’ team!) and of course as a place to relax and reflect.
AMENITIES

Singleton Campus amenities are situated within University buildings. Toilet facilities and rest areas are within buildings, including areas with disabled access. Other amenities on Campus include libraries, Student’s Union, numerous eateries and the Taliesin Theatre. The Taliesin building also provides opportunities for public engagement and also facilitates performance spaces.

SIGNS AND INFORMATION BOARDS

Campus signage indicates the locations of buildings and areas of interest such as the Biodiversity Trail and Heritage areas providing a welcoming atmosphere to ensure users of the Campus all feel comfortable and safe walking around the site. Maps of the site are also readily available from reception areas and accessible on the university’s web site.

SAFETY, SECURITY AND CLEANLINESS

SECURITY

Swansea University Site Security operates 24/7, every day of the year, and is available to offer assistance and advice to students, staff and members of the public alike on any security related matters. To this end, their remit is to maintain a secure academic and business environment by protecting people, information, property, and safeguarding the University’s professional standing. Swansea University is one of the safest places in the UK to study or visit and boasts one of the lowest crime rates in the country.

The Security team patrol the University Campus in liveried vehicles and on foot, around the clock, and monitor the roadways and car parks. They also report accidents, incidents and equipment failings such as defective street lighting at the earliest opportunity through the appropriate channels.

CCTV is prevalent throughout the campus, with intruder alarms providing an additional layer of security at a number of potentially vulnerable locations.

Reception at the campus is manned 24/7 to provide a central point of contact for staff, students and members of the public who seek advice, parking information or to report lost items. We also provide visitors with Campus and town maps, prospectuses, bus timetables, taxi numbers and other relevant useful literature.
STREET LIGHTING

Providing adequate street lighting throughout the Campus is essential from both a welcoming and safety aspect. Street lighting has been upgraded to LED lights supporting the University’s Environmental Policy & to improve lighting levels.

ACCESSIBILITY

The Singleton Campus has gradients of varying degrees therefore disabled access, especially wheelchair access, can sometimes be challenging. The Universities obligations are to provide all students, staff and visitors with an experience of the highest quality and to make facilities across the campus available for everyone. Swansea University is committed to the Equality Act 2010, (and before that the Disability Discrimination Act 1995), to implement this commitment the Campus is being frequently being adapted with disabled access in mind, with access ramps, accessible toilets and automated lifts where possible. There are also specially allocated parking areas for disabled blue badge holders throughout the campus.

GRITTING AND SNOW CLEARANCE

During the winter months the gritting of the Singleton Campus is provided by external services however the Grounds Team is responsible for monitoring any forecast adverse weather and are equipped to carry out the gritting and the snow clearing of the University should the need arise.

LITTER REMOVAL PROVISION

The Grounds Team are responsible for the emptying of all external litterbins and litter collection and work closely with the Campus Services, Events and Projects teams to ensure the campus is kept clean and tidy before and after construction work or events such as the annual Summer Ball.

MAINTENANCE OF WATER FEATURES

Ponds

There are two formal feature ponds on the Singleton Campus, the Grounds Team clean and generally maintain and enhance the ponds and their surroundings.
Fountains

Following earlier restoration attempts of the Abbey Fountains they leaked quite badly and quickly deteriorated, in 2020 to commemorate the Universities Centenary Year restoration began but unfortunately due to the Covid19 pandemic progress has understandably stalled a little nevertheless the university is committed to seeing them fully restored to their former glory.

Abbey ‘Mermaid’ fountain prior to previous restoration attempt
Abbey ‘Mermaid’ fountain before restoration
Abbey ‘Mermaid’ fountain under restoration

Paul Edwards 2021
The Dolphin fountain in its prime
Abbey ‘Dolphin’ fountain before restoration
Rainwater harvesting has been implemented by installing water butts to collect rainwater from the Botanical Garden greenhouses and the 1937 library. Both locations were chosen for their proximity to summer bedding planting schemes that require additional irrigation during the summer months.

VANDALISM AND ANTI-SOCIAL BEHAVIOUR

Student activity does provide challenges however vandalism and anti-social behaviour is not a common issue. Seasonal events such as Varsity, the Summer Ball and even Halloween do see a very marginal increase and on the rare occurrences of graffiti appearing it is dealt with in the most effective way and removed immediately.
MAINTENANCE AND RESOURCES

STAFFING

The Grounds staff were awarded ‘Team of the Year’ at 2019's annual staff conference and currently consist of the Grounds Manager, Grounds Team Leader, four Grounds Assistants and well as assistance from the Campus services Team. The Grounds Team are utilised on the Singleton Campus, Bay Campus and other small facilities leased or owned by the University. The Grounds Team interact with students, visitors and other staff daily and are always approachable, friendly and happy to help, particularly offering horticultural advice or indeed helping anyone in difficulty. Recent training in Customer Care has aided them even further in the service they provide.

There is also a Sports Grounds Team working at the Sports Centre that look after all the external sports facilities. These include football pitches, Rugby pitches, a 3G pitch and a running track. Although under different departments, both work closely together, assist each other and share resources as and when needed.

Due to the ever-expanding areas that are maintained by the Grounds Team, alternative ways have been looked to save both time and labour. For example, two self-propelled Road-Vacuum machines are now used to sweep the vast amount of pedestrianised areas around the campus which as well as saving time also frees up team members to carry out other grounds related tasks. Another labour-saving piece of equipment was the purchase of a ‘Gator’ ATV, this vehicle with its ‘go anywhere’ ability and low ground pressure tyres has assisted greatly in transporting staff and materials quickly around and between campuses increasing the efficiency and response time for the Grounds Team. Petrol powered machinery such as strimmers and hedge trimmers have been phased out and replaced with battery powered alternatives to great effect with zero emissions and greatly reduced sound levels.

To address the problem of discarded chewing gum two environmentally friendly steam powered gum removal machines were purchased and have made an impact on the appearance of the campus in a very short time. They can be used at peak times or even during exams being silent, portable and environmentally friendly. The cleaning solution produced from renewable sources is based on a sugar surfactant rather than oil based making it completely biodegradable.

© Eco Removal Systems Ltd
MACHINERY AND MACHINERY MAINTENANCE PROCEDURE

The relative original suppliers carry out major machinery servicing and repairs. Smaller machinery routine maintenance is carried out ‘in house’ by their respective operators within the Grounds Team. Annual ‘Toolbox Talk’ training provided to the operators includes pre-checks, daily maintenance and risk assessments related to the safe operation of the machinery.

ARBORICULTURE

A small number of the Grounds Team are qualified in chainsaw use at different levels. At present, a combination of the Grounds Team and contractors are used to deal with the more challenging tree work. The aim is to continue to develop the in-house team in order to be able to undertake internally most if not all of the tree maintenance in the future.

Tree surveys are carried out annually by the Grounds Manager and the appointed Arboriculturalist to highlight and address any defects in trees on campus that are in close proximity to buildings, pedestrianised areas or car parks.

BUILDINGS

There are a variety of different types and ages of buildings across Singleton Campus, some of which are listed and are used for a range of purposes including teaching, research, administration, sport and leisure activities. The buildings are predominantly suited within a grid layout running through the site. Landscaping and the inclusion of greenspace throughout the site remain a major priority when considering further development of the campus.

Singleton Abbey

The nucleus of Singleton Abbey was constructed in 1784 by customs official Edward King. By 1817 it was bought by the industrialist John Henry Vivian who further extended the house by re-modelling it into a neo-gothic style by engaging architect Peter Frederick Robinson (1776-1858) who was well-known at the time for his ‘Designs for Ornamental Villas’ and other pattern book publications.
In July 1919 Ernest Vivian, 2nd Baron Swansea, sold Singleton Abbey to Swansea Corporation. The council wanted to develop the estate largely for housing purposes but gifted the mansion to the Swansea University College in 1923.

The grade II listed terrace of the Abbey dates from the era of Sarah Vivian, John Henry Vivian’s wife (1830s). Herself a talented gardener, much of her work can still be seen in evidence today and continues to influence the restoration work conducted by the University. A most noteworthy feature of the Abbey terrace is the large magnolia tree to be seen on its south facing elevation. Through the decades, a tradition was established by the students that if the tree had begun to flower and you were not revising for your summer examinations, then was too late.

The Abbey’s grounds are intrinsically linked to the University’s heritage, contributing to the biodiversity of the parkland in which they are set. This stunning open space offers views over the Abbey (listed) meadow and Swansea Bay itself and is open for the local community to visit and enjoy. The landscaping and planting have been laid out to be sympathetic to how the gardens would have appeared in the Abbey’s prime, while still encompassing a vibrant welcoming campus atmosphere.

**Vivian Tower**

Opened in 1966 the nine-storey Vivian Tower was originally known as the Physics and Mathematics Building. It was later named the Vivian Tower in recognition that the original University building, Singleton Abbey, had been the home of the influential Vivian family before 1920.

The tower itself was part of a large phase of expansion that took place at the University in the mid-1950s and ended in the early 1970s. When the tower was opened there were only 3,000 students enrolled at what was then called ‘the University College, Swansea’. The pool on the south facing elevation is in-keeping with the design of the tower itself having been developed at the same time.
**Confucius Statue**

Even though it is now surrounded by other university buildings, the pond is home to a range of aquatic plants and animals and offers a tranquil meeting place to relax and enjoy.

A gift from the Chinese government to the University, the statue of Confucius can be seen overlooking the pool. It was received in 2009 symbolising the close links that have been forged between the two.

©Swansea University

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**Institute of Life Science**

The Institute of Life Science (ILS) is Wales’ premier purpose-built medical research facility. It is a collaboration between Swansea University and the Welsh Government, together with Abertawe Bro Morgannwg University (ABMU) Health Board, IBM and industry and business partners. It is the single largest investment ever made by the Welsh Government on any university campus. The vision for the ILS is to advance medical science through multi- and interdisciplinary research and innovation for the benefit of human health, and to link those benefits to the economy by encouraging interaction with other organisations in a spirit of Open Innovation.

The environmental features encompassed in this building include a ground source heat pump, which reduces the reliance on artificial mechanisms of energy generation; this will greatly reduce the buildings CO2 emissions. It also has sub-meters to monitor the high-energy load areas, such as laboratories. There is also natural ventilation with a louvered façade, a night cooling system and daylight dimming controls, which optimises the use of daylight and thermal gain.
FOOTPATHS
The majority of the footpaths are either constructed from concrete slabs, concrete, tarmac or resin bonded aggregates. All installation of new paths are undertaken by the Estates Department and then maintained by the Grounds Team. Potholes, loose slabs etc. are reported via the helpdesk, an automated system then tracks the progress of each hazard recorded.

The Grounds Team occasionally create woodchip or locally sourced cockleshell paths and repair the edges of some of the paths where erosion is a problem. However, the chief role of the Grounds Team is to trim any shrubbery likely to encroach on pathways and roads to ensure that a clear line of sight and light levels are maintained. This process is either carried out by hedge-trimmer, hard pruning or re-profiling footpaths by taking out overgrown specimens and replacing them with lower growing alternatives.

STREET FURNITURE

Benches
Around the Campus there are several wooden memorial benches, a few older ones made from prefabricated concrete and wood, modern stainless-steel types and bench / table units. Installed in 2020 to facilitate Covid 19 social distancing measures, an additional 30 appropriately labelled bench / table units were located around the campus grounds.

Litter Bins
The older concrete litterbins are being ‘re-purposed’ to create planters and round plastic bins are gradually being replaced with multi wastes stream bins to aid the level of recycling on campus.

Flower Bed Edging
Edging made from 100% recycled plastic has been sourced and is proving very successful as it does not rot or corrode. As the old galvanised / wooden edging deteriorates it will be replaced by the recycled plastic edging highlighting the University’s commitment to minimise its impact on the environment through the products it purchases.

Signage
Singleton Campus boasts a wealth of features in its landscape promoted by the installation in 2020 of the first phase of new informative ‘Heritage’ signage at key locations around the campus to inform students, staff and visitors alike. The signage now not only informs but also raises the profile of the University’s grounds as a place to relax, enjoy and study in, as well as providing an environment to enhance people’s wellbeing and ‘down time’. 
Signage locations

Location 1: The Botanical Garden Reptiliary

The listed Botanical Gardens many unique features are highlighted in the new signage. The location offers the best vista allowing direct references from such a vantage point. Despite being created for reptiles, it is now home to frogs and newts who use its moat to spawn. In the spring ducks occasionally scoop some of the frogspawn up into their beaks!

Botanical Garden signage
Botanical Garden signage location

Paul Edwards, 2020
Location 2: Vivian Tower Pool.

Being almost completely encompassed by surrounding buildings, the pool could easily be missed altogether. It is for this reason that a sign has been located at the east-side entrance area to the Vivian Tower as the best place to inform regarding points of interest such as the statue of Confucius and what wildlife (Flora and Fauna) can be seen there such as eels, ducks and dragonflies with ducks nesting on the central island. Dragonflies hunt above and lay their eggs at the water’s edge and even eels can be found here.

Vivian Tower Pool Signage @Swansea University
Vivian Tower Pool Signage location

Paul Edwards 2020
Location 3: Singleton Abbey

The sign is in the Abbey upper level azalea bed which gives views of the (listed) meadow. The sign includes information about the Abbeys history, its links with the University and the landscape it resides in. The Abbey is host to Pipistrelle bats; these tiny creatures weigh about the same as a 20p coin yet can eat around 3000 gnats in a night, crawling into cracks in the walls and roof of the Abbey to raise their young in summer and to hibernate in winter.

Abby Signage
Abbey Signage location
ENVIRONMENTAL SUSTAINABILITY

SUSTAINABILITY POLICY AND MANAGEMENT

The University has a number of sustainability policies, which highlight its commitment to sustainability and environmental management. The Sustainability Policy outlines the University’s key commitments as part of its ISO 14001 (2015) Environmental Management System, of which the grounds are a key component. Other aspects mentioned in the Sustainability Policy include the need to:

- Minimise greenhouse gas emissions from University operations.
- Reduce the consumption of primary raw materials (including fossil fuels, water and energy).
- Promote biological diversity on sites that the University manages or owns.
- Minimise waste production and divert waste from landfill through increasing re-use, recycling and recovery.
- Promote and support environmentally responsible behaviours throughout the University community.
- Work with the Students Union and other partners to enhance the sustainability of the University.
- Ensure that the University builds resilience to climate change risks.

The University’s Carbon Management Plan sets out Swansea University’s commitment to manage and reduce its carbon emissions. The carbon reduction agenda is increasingly being reflected in both legislative and fiscal UK policy, and at a pragmatic level, there is a need to manage carbon emissions to reduce operational costs as fuel prices and associated taxes rise, and to protect our institutional reputation. In 2019 the University declared that there is a state of Climate Emergency. By late 2020 the University will publish its first Climate Emergency Plan - this will supersede the existing Carbon Management Plan and will also contain the University’s first climate adaptation actions, and in which grounds management will be a key stakeholder. The University also has a Biodiversity Action Plan for both campuses, which sets out a range of activities that are designed to protect, enhance and promote biological diversity on University land.

As part of the EMS, every area has their own Sustainability Action Plan (SAP). The Grounds team’s actions are incorporated into the SAP for Estates and Facilities Management (E&FM). The plan has assessed the aspects and impacts associated with E&FM and seeks to manage, mitigate and minimise the most significant impacts. Grounds aspects and impacts identified during the assessment and associated mitigation include:
• **Water consumption**: No further action, best practice employed.
• **Interference with biodiversity**: No further action, best practice employed.
• **Use of resources (chemicals)**: No further action, best practice employed.
• **Localised nuisance (noise)**: No further action, best practice employed.
• **Use of resources (other) emissions of GHG and noise (noise, visual emissions on start-up)**: No further action, best practice employed.
• **Use of resources (other) purchase and consumption of raw materials (soil)**: Action: Formulise composting/chipping etc. practices under the EMS in line with exemption requirements and to standardise practice and minimise risk of contamination.

The SAP is reviewed periodically with the E&FM Environment Officer and through the annual ISO14001 internal audit schedule, of which Campus Operational Services (COS) is included.

**WATER STRATEGY**

New buildings and major refurbishments must comply with the strict requirements of the Water Section in BREEAM standards and must be fitted with audible leak detection facilities, dual-flush low flow toilets, low flow taps, low flow urinals and low flow showers. Rainwater harvesting for flushing toilets and irrigation of garden features plus the potential for grey water recycling and waterless urinals will always be considered for future developments.

**TRANSPORT AND CYCLING**

The University has recently invested to improve the Campus infrastructure for walking and cycling to and from Campus. This has included secure bike shelters and accessible showers in the majority of buildings. The University also offers its cycle-to-work scheme, where it is possible to pay a lease payment for a bicycle and road safety (lighting) equipment. We also have a number of Santander bikes available at both Campuses which can be hired ad hoc or on an annual membership basis. There are 6 hubs available between the Bay Campus and Mumbles with further ones planned.

The bus links have been improved on and between Campuses and student bus passes have been arranged at a discounted rate with free ones made available to staff working between campuses. It is hoped that this incentive will encourage students and staff to utilise public transport more frequently. The University has put together and promoted a travel survey to assess travel habits of students and staff with the aim of highlighting areas for concern and action.
GROUND WASTE AND COMPOSTING

Waste is kept to a minimum by mulching the majority of the lawns. This process introduced approximately 15 years ago does away with the need to deal with grass clippings at the same time eliminating the need for any fertilisers or selective herbicides.

All suitably sized green material is processed through the wood chipper and the woodchip is then used both as mulch around established shrubs beds to offset the frequency of weeding and irrigation. Pre-used potting compost, leaf mould and composted material is also used as a soil improver before and after planting.

Herbicide use is kept to a minimum by using leaf-mould and woodchip as both a mulch and weed suppressant aided by ‘spot’ application of bio degradable Glyphosate such as 'Roundup Pro-Biactive’ on the larger planting schemes.

Small-scale composting is carried next to the ‘Sleepers Growing Project’ whereby fruit and vegetable peelings are composted to be utilised in the sleeper beds themselves. Campus catering outlets also provide compostable materials such as coffee grounds and biodegradable coffee cups.

CONSTRUCTION SITE WASTE MANAGEMENT

The University's aim is to reduce to an absolute minimum the environmental impact caused by any construction works. Project teams will consider means to minimise construction waste from the inception to the completion of the project, through the initial brief, design process, materials selected, construction techniques and operational methods.

RECYCLING

Waste is segregated and recycled as much as is possible; there are separate skips for metal, processed wood, rubble and general waste. However, other waste is also dealt with separately, such as waste oil, old batteries, old gas bottles, cardboard, old chemical containers and electrical / electronic equipment. Recycling bins on Campus are displayed clearly around the site to ensure waste is segregated into their relevant waste-streams.

SUSTAINABLE GROUNDS MANAGEMENT – PESTICIDES AND INSECTICIDES

Insecticides are applied by an out-sourced service provider to control nuisance pests such as wasps. Users of the Botanical Garden Greenhouses use biological control.
FERTILISERS

No artificial fertilisers are used on the lawns. For many years, fertiliser purchases have been of an organic nature such as liquid seaweed and ‘fish, blood and bone’.

HERBICIDES

Herbicide use is kept to a minimum by using leaf-mould and wood chip as both a mulch and weed suppressant, regular mechanical sweeping of the roads has also resulted in a marked reduction in kerb-side weeds.

PEAT

Only peat free compost is now used for propagation and ‘potting – on’ etc.

BIOMASS PRODUCTION

Currently no biomass for renewable energy generation is produced on Singleton Campus. However, a feasibility study will be carried out to assess and investigate the potential biomass resource available and ways to manage this appropriately.

HERITAGE AND CONSERVATION

WILDLIFE CORRIDOR DEVELOPMENT

During the construction of the Institute of Life Sciences building, bat and wildlife corridors were preserved. After consultation with the local bat group existing bat flight lines will continue to develop and link wildlife corridors on the Singleton Campus to allow unhindered access for wildlife residing in or passing through the campus. This successful stance is evidenced by the popularity of organised ‘bat walk’ which has become very popular.
TREE PRESERVATION ORDERS

There are currently no Tree Preservation Orders (TPOs) on Singleton Campus however to ensure numbers of native species are maintained for the future the University marked its centenary by planting of 25 oaks trees on the Singleton Campus and 25 more on the Bay Campus. The parkland landscape of Singleton is synonymous with its veteran oak trees, no other tree hosts such a diversity of life and none is as important in our culture as the Welsh Oak, *Quercus petraea*. The prophetic planting of the Vivian Estate 150 years ago has given us the wonderful specimen trees that we enjoy today. These trees are now beginning their slow decline into senescence and although they will provide a home for a vast array of wildlife and enjoyment for people for decades to come, they will not, sadly, last forever so when the University celebrates its second centenary it is unlikely that many will remain. Veteran trees simply cannot be replaced in the short term; trees planted today will take at least 100 years to reach maturity. While both campuses have had many trees planted in recent years, providing wide-ranging environmental benefits, most are relatively short-lived species that will be long gone before the oaks.

Commemorative trees will be supplied as container-grown specimens to give them the best possible start and planted during the official ceremony by the individuals being commemorated or after the event by the Grounds team. The remaining trees will be planted in conjunction with the NUS’s *Students for Trees* campaign and the Woodland Trust’s Tree Charter to deliver the project with the help of staff and student volunteers.

The Woodland Trust will supply the trees as part of their Trees for the Community project, but if these gratis trees become unavailable, the opportunity will then arise for individuals and teams within the University community to sponsor a tree and even plant it themselves if they so wish. The initial aftercare of the trees will be carried out by the Grounds team as well as maintaining them for the future. To ensure locations for commemorative trees in the future, all campus development will include suitably marked locations for long-term planting with future campus masterplans incorporating such areas into the landscape strategy.

It should be noted that this is not the only tree planting that will be carried out across both campuses as good practice dictates that diversity of tree species is required to create a biodiverse and resilient environment and will continue to be planted as they are at present.
COMMUNITY AND MARKETING

COMMUNITY ACCESS AND INVOLVEMENT

Singleton Campus attracts a wide variety of users throughout the year from students and staff to members of the local community, and visitors to the area. Whilst their reasons for visiting the Campus vary, every effort is made to instil a welcoming and community orientated atmosphere. The safety and enjoyment for users is paramount and enhanced at every opportunity. The condition and standard of all the varied green spaces of the Universities grounds is vital. The University acknowledges the important role it plays as part of the community working closely with volunteer led organisations such as Discovery and continues to be dedicated to creating a vibrant, healthy, and above all welcoming Campus. Filming of the Grounds Teams work is due to be added to a new Grounds ‘Virtual Tour’ on the website to raise not only the universities grounds profile but also the great work that the Grounds Team do.
TALIESIN THEATRE

The Taliesin theatre is located right in the heart of Singleton Campus and is a popular part of the University and local community. Taliesin has become a focal point as it brings together all users of Singleton Campus in a welcoming and inclusive way.

THE SLEEPERS – GROWING PROJECT

As previously described, there is a horticultural project whereby students and staff can develop their skills by growing their own fruit and vegetables. ‘The Sleepers’ project led by members of University staff is run on a voluntary basis and relies on enthusiasm and dedication to make it viable.

PRIMARY SCHOOL GROUNDS ACTIVITY DAYS

Continued local school visits have been a great success giving schoolchildren the opportunity to have a hands-on gardening experience from seed sowing to making bird boxes and ‘bug hotels’

PARTNERSHIPS

The Universities Campus Services Teams have been working collaboratively with the Grounds Team in recent years. Although the departments provide different services, they often support each other especially during peak times of the year.

ACCREDITATIONS

Work to encourage wildlife to thrive on the campus has earned the University the Bee Friendly status award. Bee Friendly is a Welsh Government initiative which aims to encourage people to help pollinators like bees and butterflies. We are very proud to be the first official Bee Friendly University in Wales.

ISO 20121

Swansea University has been awarded the Eco-Campus PLATINUM award and the international standard ISO 14001 for its environmental management systems.
Swansea is the first University in Wales to achieve the top Platinum award, and only the thirteenth organisation in the UK as a whole. This helps the University with its legal compliance, Green League score, Sustainability Strategy, and represents the first international standard that the University has achieved across all Colleges and administrative functions. Eco-Campus is the leading national Environmental Management System (EMS) and award scheme for the higher and further education sectors. The scheme enables universities to systematically identify, evaluate, manage and improve their environmental performance and practices. Swansea University now hopes to be the first UK University to achieve ISO 20121.

**SWell – Sustainability and Wellbeing Rewards Scheme**

Swell is a staff engagement programme that rewards staff for their sustainability and wellbeing actions whilst at work.

Once signed up sustainability activities can be completed or events attended to earn ‘Swell’ points, which then help staff to climb the leader board to win prizes.

**Corporate Health Standard Award**

The Corporate Health Standard, run by the Welsh Government, is the quality mark for workplace health promotion in Wales. It is presented in bronze, silver, gold and platinum categories to public, private and third sector organisations implementing practices to promote the health and well-being of their employees. The campus grounds play an important part of this by encouraging staff to spend time in the outdoor environment essential for physical and mental health. University staff have also bought into this ethos by aiming to green their workplaces through working on different themes such as water, energy, waste and recycling, procurement, travel, health and wellbeing, biodiversity and community.

In 2019, Swansea University was presented with the highly recognised Corporate Health Standard Silver Award for its unifying and caring approach to staff health and wellbeing provision.
Swansea in Bloom Award

Swansea University first entered Swansea in Bloom in 2009 and was awarded Bronze in the best newcomer category. Since then it has been a regular contender in the competition, which aims to encourage Swansea businesses and the local community to invest in floral displays in order to make Swansea a more beautiful place for both its residents and visitors to the City. In 2016, Swansea University once again won the Gold award for its Singleton Campus floral displays and was awarded ‘Highly Commended’ in 2017. The competition dissolved in 2018 after Swansea City Council withdrew their sponsorship however due to local volunteers it has returned so the University will once again aim to gain further accolades.

Swansea in Bloom Award

© Swansea University
The Grounds Team

Singleton Campus Green Flag award winner 2020

© Swansea University
ENGAGEMENT PROJECTS

Volunteering

Volunteering is essential to community and University life and Singleton Campus provides a variety of volunteering opportunities. Student volunteers can undertake weekly gardening sessions around the University Campus as well as at the new ‘Sleeper beds’.

In September 2019 the historical significance of both the Singleton Abbey and the Botanical Garden within the Singleton Campus were recognised after being included in the statutory register of historic parks and gardens in Wales. To assist in the upkeep of these areas the University was fortunate enough to have the assistance of a group of very enthusiastic and knowledgeable Alumni volunteers. Their continued hard work resulted in great progress in the restoration and rejuvenation of gardens defined by their physical, social and cultural history that has shaped them to the present and which will continue to shape their future.

The University has a wealth of such assets worthy of promoting, preserving and developing to share with students, staff, the public and volunteers alike. Sadly, due to the Covid 19 pandemic volunteering has been temporally put on hold. However, several nature trail walks were squeezed in before March and even during lockdown online activities were made available such as a ‘Backyard Bioblitz’, ‘Burst of Birdsong’ and creating self-watering plant pots from upcycled plastic bottles.

Recent volunteer days poster
Case Study: Grounds Experience ‘Taster Sessions’

In late January 2019, students began a series of ‘Grounds Experience Taster Sessions’ to get them involved with the various tasks required when maintaining and enhancing the external environment of Singleton Campus.

The first mini project was to create a series of ‘bug hotels’ in the Botanical Garden woodland. To build the bug hotels materials such as wooden pallets and plant trimmings sourced from around the campus were ‘up-cycled’.

*Materials ready for use*

*Dave Tucker, 2019*
Bug hotel completed

Dave Tucker, 2019
A university staff ‘Team Building Day’ followed later in the year and proved a great success with one team ‘adopting’ a flowerbed to nurture and enjoy for years to come.

Publications, Guides and Website

A wide range of publications and guides are available for users of Singleton Campus. The majority of these documents are also available on the University website such as: sustainability@swansea.ac.uk wildlife@swansea.ac.uk

In 2020 the universities grounds web page was completely revamped and can be accessed via https://www.swansea.ac.uk/life-on-campus/our-grounds/

The publications and guides, including maps and leaflets, can be picked up for free at various locations across the site, including departmental receptions and other public-facing buildings. This compliments the signage on site to ensure users and visitors feel welcome and are able to find their way across the Campus in a safe relaxed manner.

The University's website is also used as a key marketing tool showcasing up-and-coming events and activities for both members of the University and the surrounding community. For example, in addition the main University website Taliesin and Sports Centre webpages both contain news and events sections highlighting opportunities to get involved. In addition, the Sustainability website provides information on the latest campaigns and events, which directly relate to users of the Campus grounds.

SINGLETON CAMPUS ACTION PLAN 2021 - 2022

INTRODUCTION

The aforementioned grounds projects continue to be based around the Green Flag criteria to ensure that they can be feasibly and realistically applied. These actions encompass existing building projects planned for the Campus.

The Action Plan has been developed to cover the period from 2021 to 2022 in the first instance as the University’s departments are undergoing organisational changes due in no small part to the current and ongoing Covid 19 pandemic.

However, the action plan will continue to be reviewed regularly to ensure compatibility with both outside organisations, legislation and University directives.