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IBI GROUP DESIGN AND ACCESS STATEMENT: ABERYSTWYTH INNOVATION AND ENTERPRISE CAMPUS (AIEC)
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The Brief
Brief Summary

The proposal is for the new build construction of the Aberystwyth Innovation and Enterprise Campus (AIEC) on the existing Gogerddan Campus for Aberystwyth University and Aberystwyth Innovation and Enterprise Campus Ltd. The exciting, three storey, split level development will require the demolition of a Silage Clamp, Pyrolysis Machine enclosure and an existing research facility (Seed Biobank) as well as the partial demolition of an existing industrial research building, known as the Granary.

The activities that take place within the buildings to be demolished (Seed Biobank and Granary) will be relocated within the new AIEC building.

The proposal includes associated works involving hard and soft landscaping. As well as complementing the building with additional parking and vehicular access provisions, the landscape plan aims to improve pedestrian access within the building, and across the wider campus. Works completed under this submission are limited to the areas indicated by the red outline on the site location plan opposite.
Vision

The objective of the proposed AIEC project is to enable the establishment of a thriving commercially focused Innovation Campus. It will increase the capacity to deliver impact driven collaborative research projects whilst facilitating the development of spin-out companies and inward investment.

The AIEC business plan identified that the project will include the following flagship initiatives: a Future Food Centre, a Centre for Food, Nutrition and Energy Security, a Seed Biobank and Processing Facility, and a Bio-refining Centre. A brief summary of each and their proposed location on site is set out on the right of this page.

The Institute of Biological, Environmental and Rural Sciences (IBERS) is an internationally recognised and world leading research and teaching centre providing a unique base for research in response to global challenges such as food security, bioenergy and sustainability, and the impacts of climate change. IBERS works both with academic and industrial partners, developing and translating innovative bioscience research into solutions designed to mitigate the impacts of climate change; plant and animal diseases; and deliver renewable energy, food and water security. IBERS’ scientists conduct research on genes, molecules, whole organisms and the environment.

With 360 members of staff, IBERS is the largest institute within Aberystwyth University, teaching 1350 undergraduate students and more than 150 postgraduate students. Their long-term strategic funding has provided the aspirational department with unique specialised facilities, biological resources and increased commercial acumen.

The vision is to rehouse some of the existing flagship initiatives into a more appropriate specialised facility that more accurately reflects the importance of the research undertaken by IBERS, and stressing the role of the department – and Aberystwyth University as a whole – as a key player in innovative environmental research.

The campus will be demand driven: continuously refreshing and developing its own expertise, resources and partnerships to pursue new scientific and commercial opportunities for its key stakeholders. Therefore the proposal must be able to respond creatively and rapidly to client and project-specific requirements, with the intention of drawing more public and private research investment.

Increasing draw of public and private research investment was also set as a primary target by the Welsh European Funding Office (WEFO). WEFO also identified four additional benefits that the proposal enabled: increase in innovation in business; commercialisation of R&D; increase in SME Numbers, Productivity and Growth; and an Improved Skilled Workforce in Research & Innovation.

Site Plan: Departments Strategy

B1 Seed Bio-Bank and Processing Facility
To enhance the current ‘public good’ seed growing programme, enabling the handling and development of wider crop species than is currently developed by IBERS, including the provision of an improved genetic seed-bank store.

B2 Bio-refining Centre
To enhance the highly successful Beacon project researching, developing and establishing commercially viable bio-refined products i.e. fluids, oils and fuels derived from plant materials.

B3 The Analytical Hub
A series of multi-use laboratory and office spaces whose use is less prescribed than other zones. The spaces are designed to be adapted to suit the nature of the research if demand changes in the future.

B4 The Future Food Centre
A new and exciting area for future food development, providing facilities to analyse emerging products (including delivery and packaging processes), enabling them to become market-ready. The centre will also help drive improvements in animal health and welfare, production efficiency, food safety and nutritional quality, and reduce environmental impact and food waste.

B5 Hub
The principle focus of the new investment and the ‘heart’ of the AIEC, providing a meeting forum (including a vibrant refectory area) to encourage the transfer of knowledge between University experts and wider industry and drive innovation, new ideas and the implementation of new projects / ventures. The facilities will be openly available to Small Medium Enterprises (SMEs) who would in some circumstances be unable to invest themselves to the same scale, thus aiding and pump-priming SME development and growth.
Brief Development

The first crucial step when developing the brief was rather than designing a series of disparate buildings in their current locations - to combine the subjects in one vibrant building, where ideas are shared between different specialities, and collaboration between academia and business is encouraged. This simple step has led the design team to imagine how this innovative way of working could best be manifested architecturally.

Having decided to explore the principle of a single building, it was important to select the correct site. When electing an appropriate site, IBI Group consulted extensively with the wider design team, user groups and stakeholders to evaluate the strengths and weaknesses of each prospective site. The sites were scored by the following criteria: Sustainability, Opportunity for Collaboration & Partnership, Providing Functional Facilities, Creating Long Term Site Strategy, Flexibility & Adaptability, Enabling Costs, Works Costs, Life Cycle Costs, Potential to Increase Draw of Public and Private Research Investment.

The prospective site would need to remain at the Gogerddan Campus, due to the nature of the work carried out there, and the proximity to the other buildings belonging to IBERS. The initial site appraisal included all available sites at Gogerddan, ranging from infill areas to larger greenfield sites.

The early consultations revealed the need for a greenfield site. As well as providing the required size for all the proposed provisions, the predominantly greenfield nature of the site allowed the works to be less intrusive on existing facilities so that research could continue undisturbed. It also lifts the constraint of having to coordinate construction with the seasonal nature of the research currently taking place. A larger open site also affords contractors more space to work efficiently, and reducing the overall timescale.

The proposed site, named originally as the ‘North Cluster’ was chosen for its impressive presence at the entrance of the campus when travelling from Aberystwyth. It has good access which is key for visitors and maintenance / deliveries alike.
The Site
concrete blocks and local stone. The buildings in the wider campus are a more varied mix of uses, ranging from university offices and research facilities to buildings owned by the two independent users located on site. Due to the different use classes, these buildings inevitably vary in appearance; from two storey buildings finished in pale render to four storey modular structures clad in dark brick and light coloured metal panels.

The works include the demolition of two existing buildings which are currently used as the existing Seed Biobank and a silage clamp. The Seed Biobank is a 7m high building clad in slowly deteriorating metal cladding that is used to enable the handling and development of wider crop species. The barn-like building that houses the silage clamp is 11m in height clad in timber slats of medium quality. The proposals also include the partial demolition of the building used for granary storage immediately north of the Seed Biobank. This extension is nearly 5m in height primarily constructed of concrete blockwork. The demolition of these structures, together with the relocation of a Pyrolysis machine, will make way for the primary spine of the building, and an improved parking provision. The Seed Biobank and the machinery from the granary building will be incorporated into the proposal set out by this application, which will provide Aberystwyth University with facilities of appropriate quality.

The relocation of domestic gas pipes and overhead electricity cables as well as tree clearing works, will provide space for the southernmost block of the proposal.

Site Context
The Gogerddan Campus is set within a rural, agricultural area, with the village of Penrhyncoch and Garth to the east, and Bow Street to the north-west.

The campus is located to the east of the A4159 which connects the A44 heading east from Aberystwyth and the A487 heading north. The site is bisected by the C1010 road that runs from the A4159 to the village of Penrhyncoch. In addition the river, Nant Clarach, runs across the north of the site, while a main gas route follows the curvature of the road on the south and west boundaries (refer to Site Services Diagram on page 14). The campus is well contained by dense woodland to the north and south, with Tree Preservation Orders (TPOs) in effect on one tree on the site. Please refer to the Site Constraints Diagram on page 12 for more detailed locations.

The proposed building footprint is on a greenfield site, wooded on the south and east perimeter. The site slopes slowly down from south to north. The sloping nature of the site means that there will be a certain amount of ground redistribution to maintain a level footprint.

The buildings immediately adjacent to the proposal are owned by Aberystwyth University, predominantly agricultural in use and between one and two storeys in height. Their appearance are fairly typical of the local agricultural typology in both form and use of materials: shallow sloped roof buildings of moderate to poor quality, clad in a mix of timber, corrugated metal sheets, Site History

The site has a long history of use as a scientific research facility.

Originally the Welsh Plant Breeding Station, then as the Institute of Grassland and Environmental Research (IGER), the site is now home to the Institute of Biological, Environmental and Rural Sciences (IBERS).

IBERS is the dominant user of the site, although other departments of Aberystwyth University are currently based as Gogerddan, notably its Estates Department. There are also two independent users located on site, the Farmers Union of Wales and Gogerddan Childcare Limited’s Plas Gogerddan Nursery.
View A - Gogerddan Campus from South-West

View B - Site from East

View C - Adjacent Campus Buildings
Historical Assets

The site itself falls outside any Historic Landscape Categorisation Area, however there are a small number of historically important assets located nearby.

The closest is Scheduled Ancient Monument CD259: a small site comprising of Neolithic and Bronze Age funerary and ritual monuments located directly southwest of the site. An Iron Age crouched burial and early medieval cemetery also falls within boundary of CD259. Any structures within this area are collectively and individually considered to be of national importance: the proposals have taken this into account and are designed as sympathetically as possible, as to negate any adverse impact on them.

In addition, a series of surveys and reports have been prepared to ascertain the extent of these burials and their impact on the proposal. A Geophysical survey and desktop research exercise have been completed - refer to Geophysical Survey Report prepared by Dyfed Archaeological Trust.

The closest listed building is the Grade II listed Plas Gogerddan Mansion House (0.12km northeast) and its associated bridge, also Grade II listed (0.7km northeast). The boundary of the land associated with the post-medieval Cae Lodge house is located immediately north of the proposed site. A partial cropmark is also recorded within this boundary.

For further information regarding the historical assets, refer to the Historic Environment Desk Based Assessment prepared by Dyfed Archaeological Trust.
Site Drainage Diagram
Site Services Diagram
The Proposal
Design Evolution

Massing

The massing went through a series of iterations before arriving at the current building form. The process was an exercise in achieving the required facilities while maintaining a sensitive approach to the impact on the surrounding landscape.

The original massing model was concerned with creating a strong corner to maximise the proposal’s importance as a landmark entrance to the Gogerddan campus. Although this aim was achieved, it was deemed that a more considerate stepping of the building down towards the road was more appropriate. The blocks adjacent to the bisecting road is reduced to one storey, while the larger elements are more comparable to the heights of the existing campus buildings.
Form

The form of the building has developed from its infancy as one large block, into more considerate assembly of smaller forms that take greater reference from its context. The plan form is made up of three narrow rectangular elements. This is a reference to the agricultural typologies of the campus’ existing buildings which typically have long and narrow footprints.

The next development of the building’s form came through establishing the Hub element of the project. The principle of a building that encourages collaboration has been a key design driver from conception. The Hub element is a series of spaces ranging from informal open environments to adaptable meeting rooms where teams of people from different research backgrounds, with different talents and skills, are brought together to solve complex problems.

The Hub spaces serve as a collaborative epicentre between the numerous in-house scientists and external parties, and as such is strategically positioned at the intersection of the two main research wings, and as the first point of entrance into the building.

The layout was further developed by the introduction of a designated service access core. This is an internal courtyard that allows the delivery and collection of goods to be carried out in a secure and designated environment that does not disrupt regular vehicular traffic. A large number of the facilities with industrial uses require delivery access for goods and removal of waste material. All of these facilities have been situated to have direct access from either the service access core or one of the two secondary accesses from the north.

The service access core also offers the scheme a number of secondary benefits such as separating industrial facilities from more general university and laboratory uses. This separates any odours, noise or dust that may occur in the industrial processes from the laboratories, dining and meeting spaces. This device also provides greater distinction between pedestrian and vehicular routes. The core will also provide adequate access for any emergency vehicles.
One of the key concepts was that any proposal should allow for agile and resourceful management, and be able to adapt to the building users’ future needs. The elevational treatment of the analytical hub was therefore developed to maximise flexibility inside. The continuous ribbon windows that occur on these facades allows a certain flexibility of internal spaces while retaining the current elevational configuration.

The windows and curtain walling also reflect the transparent nature of the research being undertaken, and encourages interaction and engagement between researchers and visitors. People are drawn into the building by seeing events taking place inside.

Reflecting the biological nature of the research in the elevational treatment can also be seen, perhaps more literally, in the choice of extensive green walls and roofs – another key step in the design’s evolution.

Colour was introduced through a series of vertical brise soleil elements at the entrance and car park-facing elevation. The green refers to the living walls, the nature of the research that takes place within, and the green landscape setting. In addition, it also picks up the current AIEC logo palette. The bright colours contrast and compliment the darker blue brick on these elevations.
Site Strategy: Enabling Works (1)

- Demolition of Existing Seed Biobank (1)
- Partial demolition of granary building (2)
- Relocation of domestic gas pipe & Overhead Electricity Cable (3)
- Tree clearing works (4)
- Relocation of Pyrolysis machine (5)
- Relocation of Silage Clamp (6)
Site Strategy: Enabling Works (2)

- Demolition of Existing Seed Bio-bank (1)
- Partial demolition of granary building (2)
- Relocation of domestic gas pipe & Overhead Electricity Cable (3)
- Tree clearing works (4)
- Relocation of Pyrolysis machine (5)
- Relocation of Silage Clamp (6)

Enabling Works

The activities contained within the demolished buildings will be rehoused in the proposals. However, the relocation of the Pyrolysis Machine and Silage Clamp will not be a part of the proposals, and will instead be included in a separate application.
Site Strategy: Zoning

- **B1** – Seed BioBank / Seed Processing Unit
- **B2** – Bio Refining Centre
- **B3** – The Analytical Hub
- **B4** – Future Food Centre
- **B5** – Hub
Site Strategy: Vehicular Movement
Site Strategy: Pedestrian Movement
Layout

Adaptability

Research needs change over time. As a result it is important to develop a research facility that has a level of flexibility and adaptability.

The design of the building has been developed to enable flexibility, particularly within the laboratory areas. IBI have developed a flexible shell and core building that can cater for a variety of research needs. In the AIEC, we have adopted the principle of a 6.6m structural grid module that can accommodate an office or a laboratory. It improves efficiency by reducing the number of walls and boundaries, promoting open lab working.

Laboratories have three distinct zones, known as Primary (generally open plan wet-lab space), Secondary (for example, individual rooms for specialist equipment, such as high specification microscopes) and Tertiary (dry-lab/office space for writing up work). The percentage area of primary, secondary and tertiary laboratory space in the proposed AIEC building are based on the current needs of the research team. However, if future demand requires it, this percentage can be adapted through minor internal work, so that, for example the primary lab area can be reduced to increase secondary or tertiary lab area or vice versa.

Calculations

The room sizes were calculated to adequately house the processes and large scale machinery required for semi-industrial processes, and not necessarily the number of occupants. Mechanical and Electrical Engineer calculations relating to ventilation, heating and cooling are similarly based on the needs of the research environment, many of which are specialised in nature.