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CASE STUDY 1: WESTFIELD LIVING WALL - EDAW AECOM

Name of project: Westfield Living Wall
Location: Shepherds Bush, West London
Type of project: Commercial new build
Designer: EDAW AECOM

This project is a 170m x 4.5m high living wall designed by EDAW AECOM for the new Westfield shopping centre at Shepherds Bush, West London. The project illustrates how biodiversity can be encouraged on a commercial new build site with limited space available.

The living wall was constructed from a modular system supplied by ELT Easy Green, a Canadian company. The wall is predominantly planted with native ferns and woodland wildflowers such as violets which are suited to the north facing aspect of the wall and these plant species bring biodiversity and beauty into what would otherwise be a very urban and barren site. The multi-functional wall is designed to separate the busy pedestrian approach to the shopping centre from an adjacent residential area, providing screening, noise attenuation and evaporative cooling.

Despite difficult economic conditions, all the restaurant units which overlook the wall have been let. This commercial success has been partly attributed to the attractive outlook provided by the living wall, which has become an attraction in its own right and encourages customers to stay longer when they visit the centre.

“The living wall contributes to the environment in many ways. It looks beautiful, acts as a buffer between the scheme and nearby homes, creates a great space for diners, helps filter the air and provides a gigantic new swathe of urban habitat. We predict increasing interest in living walls because of their ability to contribute so positively to almost any environment.”

James Haig Streeter, landscape architect and project leader with EDAW.
CASE STUDY 2: HORNIMAN MUSEUM EXTENSION LIVING ROOF

Name of project: Horniman Museum Extension Living Roof
Location: Forest Hill, South London
Type of project: Extension to museum building, new build with living roof
Client: Horniman Museum
Architects: Architype

The extension to the Horniman Museum included building the new Centre for Understanding and the Environment (CUE), incorporating a 400-square-metre and 250-square-metre pitched extensive green roof. The Horniman Museum Extension living roof was designed with the help of ecologist Gary Grant, with the conservation of biodiversity an objective from the very beginning. The roof provides more biodiversity than a sedum roof as well as providing a sound barrier, increased insulation, rainfall attenuation, summer cooling and Sustainable Urban Drainage (SUDS). The roof has also had an educational benefit as a point of great interest to museum visitors.

A ten year survey found that the roof has developed into species-rich grassland supporting a number of plants notable to London. The south-facing section is sandy and dry, dominated by grasses. The roof supports abundant meadow wildflowers and taller meadow grasses on the wetter north-facing section and gaps in the turf have allowed further plant species and mosses to flourish.

Upkeep of the roof has required minimal intervention and it continues to prosper, requiring only occasional watering and annual mowing. However the original intention to cool the building structure in summer through increased evapotranspiration by way of an automatic irrigation system has been abandoned due to the system clogging with algae.
CASE STUDY 3: THE PARKS - HOMES & COMMUNITIES AGENCY

Name of project: The Parks
Location: Bracknell, Berkshire
Type of project: Large residential new build
Client: Homes & Communities Agency (formerly English Partnerships)

The former RAF Staff College and training facility, The Parks in Bracknell, was approved by Bracknell Forest Borough Council in December 2006. The site falls within the Thames Basin Heaths Special Protection Area (SPA) and with 120 homes currently under construction to EcoHomes ‘Very Good’. The site will retain the existing avenue of mature trees to create a modern interpretation of a formal garden.

A range of new linear habitats will be created to increase the biodiversity potential of the site and enhance existing habitats whilst also controlling access to existing woodland to maintain its ecological integrity. Furthermore open semi-dry swales, part of an integrated SUDS system, have been developed for both their amenity value and habitat potential, whilst native plantings that deal specifically with the requirements of existing site fauna, such as the bat population, will be introduced. In designing the wetland landscape The Parks intends to maximise the ecological value of the balancing ponds; introducing marginal aquatic planting, managing access and maintaining a constant body of water. Consequently houses have been orientated to overlook ponds and streams and habitats have been linked up to the nature conservation area.

In addition, the site promotes important ecological linkages that provide a varied network of enhanced ecological corridors to connect areas of nature conservation, particularly the wildlife meadows and wetland ponds.

The site also offers community access and amenities to residents and the public, including a network of footpaths for circular walks within the development where the existing parkland trees have been retained and a flexible open space for a range of sports and informal play has been secured with an open amenity grassland area. The site will further provide traffic free ‘green footpaths’ to link areas of open space and minimise road crossings, helping to create legible links to the external footpath network and establish a variety of spaces from enclosed woodland to open glades and formal avenues.
CASE STUDY 4: SIDEWAYS - PROLOGIS

Name of project: Sideways  
Location: Stoke-on-Trent  
Type of project: Large new build retail distribution centre  
Client: ProLogis  
Project team: Stephen George & Partners (Architects), Battle McCarthy (Ecologists)

Sideways is a project for a major retailer’s large distribution centre in Stoke-on-Trent. The land and site is retained under ProLogis ownership and through working with landscape architects and ecologists and implementing ProLogis’s own in-house sustainability procedures, their vision for biodiversity was implemented and the project achieved a BREEAM ‘Excellent’ rating.

Biodiversity conservation was prioritised throughout the design of the project and measures to promote biological diversity were considered in conjunction with the needs of the local Biodiversity Action Plan.

An existing water course runs through the site into an area of existing grassland which lies within the boundaries of the site. Improvements to the watercourse were made in order to increase the level of biodiversity associated with the watercourse and the grassland areas were also improved to promote species richness through traditional grassland management techniques. Effective management of the grassland on the site supports BAP priority species of birds such as Skylark and Lapwing. Around the main buildings on the site, green walls were used to provide screening and private areas, along with reduced sound and improved air quality.
CASE STUDY 5: A63 BYPASS - SKANSKA

The project
The A63 Selby Bypass was constructed by Skanska to relieve severe traffic problems in Selby town. The project used waste materials in the construction and ensured there were minimal adverse effects on local flora and fauna. The project won gold in the Considerate Constructors Scheme’s Most Considerate Contractor national award in 2005.

Biodiversity preservation
An ecologically valuable meadow and reed beds by the Selby Canal that would have been destroyed by the bypass were relocated to new sites adjacent to the new route. The meadow primarily consisted of damp grassland and sedge and a receptor site was prepared with different depth trenches to accommodate both types of turf. The receptor site was fenced off and warning signs were erected to prevent the area being disturbed during the construction of the bypass. The reed beds were relocated to a temporary pond for 15 months before being placed into the newly constructed balancing ponds adjacent to the bypass.

Promoting biodiversity
157,000 trees and shrubs, 75,000 smaller plants, 30,000 bulbs and 11 km of hedgerow were planted. Various local tree species were planted, including oak, pine, birch and field maple to improve biodiversity and provide a natural barrier between the bypass and residential areas. A class of school children from a local school helped plant several hundred trees along the bypass as part of National Tree Week. Wild seeds were sown on the embankments to promote biodiversity and Skanska established a project with a local ornithologist to create winter sustenance for rare birds living in woodland close to the bypass. The project, which included the construction of bird feeding stations, has continued since the completion of the bypass with funding from local organisations.

Badger protection
A badger survey identified five active badger setts, including one main sett, adjacent to the site. The bypass did not directly disturb the setts but three badger tunnels were constructed under the road to ensure that the badger clan did not lose access to foraging territory. Permanent fencing was erected along the section of the bypass to prevent badgers from venturing on the road and plans to modify a ditch were abandoned to avoid disturbing the badgers.
CASE STUDY 6: WHITSTABLE COMMUNITY COLLEGE - WILLMOTT DIXON

Name of project: Whitstable Community College
Location: Kent
Type of project: Building Schools for the Future project
Client: Whitstable Community College
Project team: Willmott Dixon

Willmott Dixon is working with Kent County Council on the redevelopment of Whitstable Community College as part of the Kent Building Schools for the Future (BSF) programme. The school development will comprise demolition of current school buildings, redevelopment of new buildings and the refurbishment of the remaining school buildings.

Extensive ecological surveys have been carried out on-site and several species of reptiles, bats, birds, great crested newts and hedgehogs have been identified as requiring potential mitigation measures. Data from the Kent and Medway Biological Records Centre includes records for protected species, Kent Red Data Book (KRDB) species and Biodiversity Action Plan species, including records for three UK BAP protected plant species.

Great Crested Newts are present on the site and both the species itself and their habitat are protected under the amended Habitat Regulations 1994. Following discussions with English Nature and BTCV/Kent Reptile and Amphibian Group, they have indicated that a strong population of Great Crested Newt, a European Red List and highly protected species occurs on the site. Willmott Dixon have engaged with the school to regenerate an area of adjacent land owned by the school and will dredge out a pond to provide new habitat for this and other species. In addition, the project will create a new learning area, footpaths around the ponds and a small farm area.

The school carries out GCSEs in brickwork and carpentry and Willmott Dixon are working with the school to encourage students to carry out a percentage of the works under their management. Students at the school and the local community will benefit from the scheme.
CASE STUDY 7: JUBILEE PARK - CANARY WHARF GROUP

Name of project: Jubilee Park  
Location: Canary Wharf, London  
Type of project: Commercial new build  
Client: Canary Wharf Group PLC  
Landscape Design Architects: Wirtz International NV  
Executive Landscape Architects: Barry Chinn Associates  
Main Contractors: Canary Wharf Contractors Limited  
Landscape Contractors: Willerby Landscapes

The Canary Wharf Group works with external agencies and initiatives to encourage a diverse range of species across the Canary Wharf Estate and protect existing indigenous species. The Group is currently implementing a Biodiversity Action Plan for the period 2008-2013 that outlines provisions made across the estate for birds, saltwater and freshwater fish, other wildlife, trees and intensive green roofs and they continue to work with tenants to encourage them to implement their own Biodiversity Action Plans and aims.

Jubilee Park sits over the Jubilee Line underground station and Jubilee Place retail mall in the centre of the Canary Wharf development in London, completed mid 2002. Jubilee Park covers an area of nearly 10,000 square metres that provides a biologically diverse green space in the midst of a very large and concentrated commercial office development. The park was designed to contrast with the height and formality of the adjacent buildings and the trees, shrubs and water features, dry stone walls and areas of grass offer users contact with nature and support various bird and plant species. Various semi-mature tree species thrive on the estate including American Dawn Redwood, flowering cherries, swamp Cyprus, oak trees and a beech.

“A large part of the estate is dedicated to green space and Jubilee Park is an essential component of the estate that has been critical in attracting tenants to Canary Wharf and providing a state of the art environment for their employees.”

Canary Wharf Group
CASE STUDY 7: BRITISH LAND

British Land is a large commercial development company that has integrated the enhancement of biological diversity throughout their new build projects and the management of their existing assets. Management of biodiversity is integrated into British Land’s business practices, through site specific management plans, and the Sustainability Brief for new developments. Responsibly managed biodiversity brings benefit to the environment and British Land’s business operations; reducing risk, building trust, providing natural and human amenity, and enhancing reputation.

Since 2006, British Land has promoted green roofs in their new buildings and across their managed estates. All of their new London office buildings incorporate Green Roofs or Walls to encourage biodiversity and improve building insulation, as well as providing an attractive area for occupiers and enhancing the appearance of the building. They have also reviewed opportunities to retro-fit green roofs to existing properties, such as their head office in Marble Arch and the Broadgate Estate near Liverpool Street Station.
CASE STUDY 9: STEPHEN GEORGE & PARTNERS

In August 2008 we were invited to join the UK-GBC Biodiversity Task Group through our client ProLogis. Joining a wide group of experts from the construction industry and ecology, we have been part of a dedicated workstream to develop best practice guidance on the provision and means of assessment of biodiversity within the built environment.

As a practice we have been committed to the development of sustainable design. This commitment goes back to 1978 when we were commissioned to research passive solar energy collection by the European Commission. Our development is co-ordinated through our own sustainability steering group which is composed of suitably experienced personnel from across our office locations.

Following from what we learnt from our time with the task group we were keen to put the group’s aims and objectives into practice through our provisions for biodiversity within our own projects and through our internal sustainability processes and procedures.

We have formulated our own in-house Biodiversity Action Plan to work alongside the sustainability steering group internally and aid and encourage the design team to take onboard the guidance provided by the task group on promoting biologically diverse habitats and supporting a variety of species.

We were also able to encourage better working practices for our client, ProLogis and we have worked with them to implement:

- A method of assessment for their existing sites to show their contribution to both local and national Biodiversity Action Plans.
- A strategy for ongoing methods of management of existing and future sites to ensure success beyond the level of practical completion.
- A structure to enable large companies such a ProLogis to form their own in-house Biodiversity Action Plan as part of their sustainability policies. This in turn helps our clients to work with local planning authorities and build a level of confidence in their ability to deliver sustainable solutions at a local level that is beneficial to the natural environment.

See ‘case study 4: Sideways’ as an example of a project we worked on with ProLogis to promote biodiversity in developing a large retail distribution centre.