

## Crossrail Wallasea Island Ecological Works

### Wallasea Island, Rochford, Essex

Crossrail, Natural England, RSPB & Partners

*BIG Challenge 2015 submission category: Large scale permanent*

#### Project overview

Crossrail Ltd has worked in partnership with the RSPB to construct the first phase (167 hectares) of the Wallasea Island Wild Coast project, a landmark conservation and engineering scheme, on a scale never before attempted in the UK and the largest of its type in Europe.

The aim of the Wallasea project is to combat the threats from climate change and coastal flooding by recreating the ancient wetland landscape.

The wetland is expected to attract large numbers of wildfowl and wading birds, together with saltwater fish.

This entry relates to the major ecological mitigation works that Crossrail carried out in order to construct the first phase of the Wallasea project.

The mitigation works were undertaken sympathetically and sustainably to relocate a range of protected species to ecologically improved receptor sites.



*Photo: Aerial image of Wallasea Island*

The main aim was to protect and enhance biodiversity and maintain the conservation status of the wildlife populations.

#### What were the biodiversity conditions on site, prior to the enhancement?

The area was previously occupied by Wallasea Farms Ltd. which was mostly arable farmland.

There were some important plant species and invertebrate communities on the seawall, in the borrow dyke and on the grassland berm immediately behind the existing seawall.

There were several protected species on site and various mitigation measures (including habitat creation) have been integrated into the scheme design to reduce impacts on these.

#### Were there any specific conditions that led to you carrying out this work?

Wallasea provided a sustainable solution to the beneficial reuse of Crossrail's excavated material.

The major ecology mitigation works to relocate legally protected species to ecologically enhanced

receptor sites was required in order for Crossrail to construct the first phase of the Wallasea project.

### What were the biodiversity measures taken?

Over 8200 common lizards, 50 adders, 200 water voles, a number of badger setts and 6 European eels were successfully trapped and translocated or naturally displaced from over 5 miles of ditch network across 167 hectares to create the first phase of Wallasea.

Enhanced receptor sites were created as part of the mitigation strategy. A 20 hectare reptile site was created which involved the construction of over 20 reptile hibernacula.

A 4 hectare water vole receptor site was created and over 10 miles of ditch network were enhanced for water vole habitat and a new artificial badger sett was constructed.

Extensive field sign and post monitoring surveys were undertaken using industry best practice methods. The overall result was the successful relocation of protected species and the creation of enhanced habitats which increased overall biodiversity.



*Photo: Artists impression of Wallasea Island*

The creation of new intertidal mudflat, saltmarsh and transitional habitats is designed to contribute towards UK Biodiversity Action Plan (BAP) targets and also help mitigate for the losses of these habitats elsewhere in Essex where they are under increasing threat due to the effects of climate change and sea level rise.

During the operational phase, the habitats on site will be managed according to a site management plan, and progress towards achieving the sites' objectives will be reported on each year in the form of an annual report.

The water levels in the coastal grazing marsh and lagoons will be monitored

and adjusted/manipulated if necessary.

Grassland and upper saltmarsh will be grazed in summer and autumn to provide suitable habitat for a range of wintering wildfowl and waders (and some breeding birds), but also to improve general biodiversity.

Grazing will be also prevent areas from becoming excessively rank. The lower saltmarsh and mudflat habitats are not anticipated to receive any habitat management.

### How would you best describe the project?

An enhancement.

### Further information

Up to 3 million tonnes of excavated material that has been excavated from our stations and tunnels has been transported via 2000 ships to the Island and is being beneficially reused at the wildlife reserve.

The Wallasea Island project offers long term benefits to the protection and enhancement of biodiversity, to recreation and to sustainable flood protection. Ecology is a hugely important aspect of large scale projects like Wallasea.

It is only through projects like this one that we gain a greater understanding of the importance of biodiversity to our natural environment.

The construction of the first phase of the works has required Crossrail to relocate legally protected species including badgers, reptiles, water voles and European eels from the site.

These works themselves have offered an opportunity to enhance biodiversity at the Island through the creation of enhanced receptor sites.

In addition, there is limited knowledge on some water vole relocation techniques and our work has also



*Photo: Ecology team relocating water vole population*

increased understanding of the best techniques that can be used to ensure populations are not negatively impacted during development works.

By tracking water vole movements across Wallasea Island we were able to determine how well water voles relocate and adapt to new habitats using both trapping/translocation and natural displacement methodologies.

These results are helpful in our understanding of the behavioural ecology of these animals and will help inform future licensable works in relation to water vole translocation and natural displacement.

Future projects such as Thames Tideway and HS2 can learn from the Crossrail legacy.