

CROSSRAIL – PUDDING MILL LANE STRATFORD, LONDON, UK

Morgan Sindall / Crossrail / Land & Water

BIG Biodiversity Challenge Award category: Small Scale Permanent

Project overview

Pudding Mill Lane is a Crossrail infrastructure project in East London. Morgan Sindall were principal contractor and undertook construction of the eastern tunnel portal. Part of the site was at City Mill River, which had to be dammed to enable bridge construction. Towards the end of the project the river was dredged and a new river bed was placed. We also installed a reed bed to replace a historic reed bed originally removed for construction.

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

The site lies on the edge of the Queen Elizabeth Olympic Park and is in a heavily urban area with adjacent light industry. There is little ecology or biodiversity and the baseline water quality of City Mill River was poor.

Were there any specific reasons that led to this project?

The river improvement and reedbed installation project was carried out to improve the quality of City Mill River, and to implement ecological mitigation and ensure no net loss of biodiversity occurred.

It was also constructed with the amenity of the local area in mind, and the works assisted with CEEQUAL assessment scoring. The project team were motivated to enhance the environment with green space for the local community as studies have shown outdoor green space can help with social and health issues.



City Mill River Works – Backdrop of Olympic Park

What were the biodiversity measures taken?

The client (Crossrail) included the requirement for a new reed bed installation in the project specification. The designers (Mott Macdonald) developed the design, and this was constructed by Morgan Sindall in conjunction with specialist contractors Land & Water.

A section of the City Mill River bed was dredged using a dredger and silt curtain, to remove Arsenic contaminated soils and to re-grade the bed for navigation. Clay was imported to build up the level of certain sections and a corner of the canal was designated for reed bed installation, approximately 10 m x 25 m.

The reed bed was a high quality installation, with the designer issuing a detailed specification regarding the sustainable materials to be used. This included mature chestnut stakes, brushwood rolls (hazel, willow, Chesnut mix), untreated biodegradable wooden fixing stakes and pre-planted coir rolls and pallets, all provided by Terraqua Environmental Solutions. The planting mix comprised *Phragmites australis*, *Carex acutiformis*, and *Glyceria maxima*.

City Mill River is part of the Bow Back River Site of Borough Importance (SBI), designated by London Borough of Newham. Reed bed is a UK Biodiversity Action Plan (BAP) priority habitat and a rare habitat in the context of Greater London. Therefore it was important to install this feature to replace a smaller reed bed removed prior to construction.



Brushwood being installed within Chestnut stakes



Installation of reed bed while river dammed & being dewatered

How would you best describe the project?

Mitigation

Further information

Building on our previous volunteering work with the Canals and River Trust we further developed our good relationship with the Canals & Rivers Trust by consulting them throughout the process, along with the Environment Agency. This included review of method statements, meetings, and site inspections.

In addition to biodiversity of the reeds, the feature provides ecological value by providing habitat for aquatic life including fish (a 50 mm gap was left between coir rolls to allow fish movement). These works along with site wide landscaping and planting mean that the Pudding Mill Lane project will secure biodiversity net gain.

Lessons learnt – due to delays in the construction programme the planting took place in winter, which was not the optimal time for planting due to colder temperatures.

The long term future of the reed bed will be secured through an aftercare and maintenance programme.



Reeds flourishing two months after installation

What was your personal motivation for carrying out the enhancement?

To reduce the project impact on biodiversity and ensure no net loss of biodiversity units occurred.

To provide a much needed habitat and a refuge for local wildlife and to provide a green spot in a heavily urban environment.