Bermondsey Dive Under Project – Thameslink Programme
Bermondsey, London
Skanska & Network Rail

BIG Biodiversity Challenge Award category: **Medium Scale Permanent Award**

Project overview

Bermondsey Dive Under (BDU) is an infrastructure project delivered by Skanska for Network Rail as part of the Thameslink Programme (TLP). TLP aims to provide an increased railway capacity through central London, as well as better links with the London Underground system. The dive under was constructed by demolishing existing viaduct arches and building a separation junction for the Thameslink Lines approaching London Bridge station to traverse four South Eastern Lines without crossovers, therefore easing congestion on the track.

The BDU project is in close proximity to South Bermondsey train station and Millwall football stadium in an urban environment surrounded by both commercial and residential properties. The project value was £50 million and construction began in 2012 and was completed and handed over to maintenance in April 2017. At the height of construction the project employed 45 office staff and 200 site personnel including operatives from the local area.

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

The site had limited botanical diversity, low conservation value and the fragmented nature of the vegetation meant the area was a poor habitat corridor. Japanese Knotweed (JKW) and contaminated soil were extensive throughout. A small area fell within a Site of Importance for Nature Conservation (SINC) but was also poor condition.

Were there any specific reasons that led to this project?

TLP's Biodiversity Net Positive Policy established the commitment to achieve overall net positive biodiversity. Also, as the SINC area was in such poor condition (including JKW infestation and contaminated soil), the project worked with the local authority to ensure the scheme enhanced the vegetation condition throughout while complimenting the surrounding SINC area.

Photo Description: Before (Left) and after (Right) construction

Skanska formed a biodiversity working group to encourage and support our projects and customers to install enhancements. Measuring No Net Loss on this project was a great opportunity to develop practical experience which will be utilised on other projects. The project also helped achieve an 'Excellent' CEEQUAL Award of 96.6%.

What were the biodiversity measures taken?

The inherited site contained previous tenants' debris and soils heavily contaminated with asbestos, hydrocarbons and JKW. Over the course of the project 21,900T of contaminated material were removed including eradicating the JKW. The extent of this contamination meant only 0.1ha of the original 1.5ha of vegetation could be retained.

Wildflower planting and green walls were installed to offset lost vegetation using techniques easily replicable and scalable. 765m^2 of green walls were installed in locations that would otherwise be void space under arches and access ramps. 0.63ha of wildflower planting on railway embankments creates green corridors and stepping stones to the wider area. The areas are visible to the community providing social value and natural capital through promoting biodiversity and creating a visually appealing area.

The wildflower mix was selected for its native species, high distinctiveness and low maintenance parallel to the railway (where safety restrictions limit vegetation height). To attract pollinators the mix includes larval food plants such as Field Scabious and Birdsfoot Trefoil and bee-friendly Cowslip and Yarrow. The planting supports the Lewisham and Southwark local authority's Biodiversity Action Plan (LBAP) and the landscaping plan was approved by the local council prior to installation. Wildflowers also attract insects providing a valuable food source for birds and mammals recorded in the LBAPs including the red list species House Sparrows and Song Thrush and the 11 species of bats.

We produced an Operation and Maintenance Manual for Network Rail's maintenance team to ensure a good condition will be attained. The area will be serviced under the continual maintenance schedule helping the habitat mature and become ecologically valuable.

Photo Description: Embankment flowers in bloom

What were the biodiversity measures taken?

The project net biodiversity calculation included delivery risk and temporal multipliers for the post-construction units. The project was externally verified to have more than doubled the amount of preconstruction biodiversity units leading to a net positive increase of 113%.

How would you best describe the project?

Enhancement

Further information

The wildflower was ‘hydroseeded’ using a nutrient mulch mixed with water, fertiliser and seed then sprayed in place. The mix protects the seed from adverse weather conditions promoting germination and supporting sward establishment. Low nutrient soil was used to reduce weed infestation and this requires less management than the ‘normal’ 300mm topsoil as growth is less vigorous. Although low nutrient soil was used, the embankment became infested with nettle growth due to rhizomes and seeds contained in the soil. On advice from our soft estate specialist we removed the nettles by hand as spraying with herbicide had the potential of killing the wildflowers.

The green walls became infested with Buddleia due to the time of the planting leading to the surfaces being exposed to spores before cover was established. The green walls were stripped and resprayed in autumn giving the seed a better chance of achieving good coverage. Emphasising the importance of planting at the correct time to ensure success.

The scheme’s success took a concerted effort from a wide range of expertise including the project management, engineers, ecologists, clients, Local Authorities and maintainers. The lessons learnt will be used in workshops, tool box talks and posters shared with the wider business to support other Skanska and NR projects aiming for net gain. The project is being used as a case study for both company’s internal Net Positive training. The team are proud this is one of the most net positive projects on TLP and it has inspired people with no previous experience of biodiversity to promote it going forward.

Photo Description: Wildflower planting by access ramp

What was your personal motivation for carrying out the enhancement?

The enhancement leaves a fantastic legacy both environmentally and aesthetically for the local community. As a member of the Skanska biodiversity working group it has allowed me to put our ideas into practice and is great to demonstrate it is possible that construction projects can be net positive in situ.