

Harbury Railway Cutting

Harbury Village, Warwickshire

Client: Network Rail / Principal Contractor: J Murphy & Sons

BIG Biodiversity Challenge Award Category: *Pollinator Award*

Project overview

Stabilisation of a 2.4ha railway cutting on behalf of Network Rail. The works included removing 120,000 tonnes of spoil to accommodate the reprofiling of the railway cutting, installation of contiguous pile wall, soil nailing and landscaping works.

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

Baseline data identified several habitats on Harbury Cutting, including broadleaved woodland, dense scrub and semi-improved neutral grassland, all with ecological value as part of the wider ecological network. Natural England classified Harbury SSSI as 'unfavourable' relating to SSSI units not being conserved and will not reach favourable unless there are changes to site management or external pressures. Planning permission was granted December 2019 and included an approved landscaping scheme and the condition for the development to be carried out in accordance with an ecological mitigation/enhancement scheme. The National Planning Policy Framework and Stratford-on-Avon Core Strategy (2011-2031) were key policy drivers.

What were the reasons behind this project ?

Key reasons behind the works included Network Rail's commitment to biodiversity gain both through its own organisational Biodiversity Action Plan (released in 2020) and its mitigation hierarchy; in general, for all rail projects that may affect plants and/or animals, biodiversity risks and opportunities must be identified and managed in accordance with the 'Biodiversity Mitigation Hierarchy'. This includes steps to avoid, minimise, rehabilitate/restore and offset any negative impacts on biodiversity, aiming ultimately to achieve a net gain. Additional reasons related to Government targets for biodiversity net gain/offsetting, planning condition discharge and ecological requirements triggered by the site's location within a SSSI.



Harbury Cutting, Yellow Rattle (Wildflower), June 2021



Common blue recorded during the visit in June 2021.

What were the biodiversity measures taken?

The railway cutting has been seeded with over 20 different species of wildflowers and calcareous grasses, which are favourable to the existing SSSI and approved by Natural England. Species of particular value to butterflies were included, for example bird's-foot trefoil, meadow vetchling and tufted vetch.

Harbury Railway Cutting SSSI is regarded in its designation as an important site for butterflies; one of the most important in the county, with 30 species recorded. Two nationally restricted species (wood white and white-letter hairstreak) are also present, making them a key focus when creating habitats post-construction and monitoring their establishment.

Long-term management has been integrated into the site's Ecological Management Plan, including monitoring for up to five years of the seeded re-graded railway cutting slope. Butterfly monitoring surveys have also commenced since the works' completion, with five visits planned in total. The surveys are based on best practice methodology for butterfly monitoring used by the UK Butterfly Monitoring Scheme; transect routes are identified, encompassing all habitats along the survey area. Transects are walked in suitable weather conditions by a suitably qualified ecologist, with all observations of butterflies recorded and mapped. At Harbury, the transect routes covers the entire length of the embankment (approximately 800m). Butterfly populations can also be used to monitor the health of an environment, as habitat quality affects the probability of a butterfly staying on site.

Warwickshire's Local Biodiversity Action Plan lists several habitats and species which will benefit from the measures included in the EcMP/ Harbury Habitat Monitoring Plan, including invertebrates.

The aim of the project documents is to ensure that through appropriate monitoring and maintenance, the habitat creation and re-instatement for Harbury Cutting SSSI results in habitats of high biodiversity value for the target species (invertebrates in particular) and other fauna and flora of the wider landscape.



Grassland / Wildflower Meadow, Harbury Cutting



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Further information

With the interface of several parties involved in the scheme, it was important early engagement was established at the start of the planning phase of the project and the engineering and biodiversity agenda moved parallel together throughout the project life cycle. All parties achieved the end goal of fulfilling the landscaping proposal. Successful results have been seen so far, which are attributed to the seed mix applied; the increasingly rare dingy skipper butterfly was identified during the first butterfly survey, with large white, green veined white, orange tip and common blue also recorded so far.

Network Rail have identified Harbury SSSI as priority habitat, which will come under the Network Rail Sustainable Land Use Programme. Network Rail ambition is to look after nature and protect, maintain and enhance biodiversity across the railway landscape by 2035.

Network Rail are working in partnership with Natural England and other organisations to support the establishment of Nature Recovery Networks across Britain, this project has allowed all parties to enhance local biodiversity and set a precedence going forward for future renewals and enhancement projects along the railway network.

Relating to some of the target species of the SSSI (butterflies), 200m of native species-rich hedgerow located on top of the tunnel portal, once matured, will be managed on a rotational basis to provide optimal food sources for butterfly caterpillars and to ensure flowering and fruiting occur annually to provide a valuable food source for associated fauna.

Project Team

- Network Rail / Murphy
- NLG Ecology / Oliver Brown Limited (hydroseeding contractor)



Bastard Cabbage which favours by orange tip butterflies



Drone footage, March 2021



What was the motivation for carrying out the enhancement?

Pollinators were identified by Network Rail and Murphy as a key driver at the start of the planning process due to the SSSI's known value to invertebrates, including nationally scarce butterfly species. The SSSI status was unfavourable due to unmanaged vegetation. The project gave all parties the opportunity to enhance the railway cutting and local biodiversity and improve the SSSI status to favourable condition, with the additional focus of providing good quality, suitable habitat for the site's invertebrates, in particular butterflies.