

HOWDON ECOLOGICAL MITIGATION STRATEGY
HOWDON, NORTH TYNESIDE
ATKINS, NEXUS AND BUCKINGHAM GROUP

BIG Biodiversity Challenge Award Category: *Habitat Creation – (< 5Ha small scale)*

Project overview

Atkins was commissioned by Nexus in 2018 to produce and implement an Ecological Mitigation Strategy to ensure construction of a new satellite depot at Howdon, North Tyneside, would not have any lasting negative impact on local biodiversity, notably the dingy skipper butterfly.

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

Baseline ecological studies carried out in 2017 recorded dingy skipper, a priority species of both national and local importance, utilising open mosaic habitats that have established across the former landfill site at Howdon. Of particular value was a 1.2 hectare area of short perennial grassland along the eastern boundary of the development site containing high proportions of bird's foot trefoil in prostrate form, which had established over made ground and low fertility soils. The Ecological Impact Assessment predicted approximately 0.8 hectares of dingy skipper habitat would be permanently lost to the development.



The nationally and locally important dingy skipper butterfly (Source: Shutterstock)



Pre-construction baseline within the receptor site showing low quality dingy skipper habitat (Feb 2019)

What were the reasons behind this project ?

Nexus acquired planning consent from North Tyneside Council in 2018; and subsequently commissioned Atkins to prepare an Ecological Mitigation Strategy (EMS) required to discharge pre-commencement planning conditions.

What were the biodiversity measures taken?

The design principles of the EMS were focused on protecting local dingy skipper habitats and populations as far as practicable; maximising fecundity of newly created habitats and providing a residual biodiversity gain in relation to habitats and species. This was achieved through the creation of niche oviposition sites within a functional open mosaic by encouraging high proportions of prostrate forms of bird's foot trefoil to grow out over bare ground. Newly created habitats comprise 50 % bare ground and 50 % vegetation cover using a bespoke open mosaic seed mix with a low percentage grass component, supplemented with additional plug planting to increase the value to egg-laying dingy skipper. Bare ground was initially established through soil stripping followed by the application of recycled granular sub-base (Type 1), railway ballast and limestone chippings to encourage good drainage and low soil fertility, with a pH level of neutral to alkali to promote high botanical diversity. Aggregates were partially compacted to create shallow depressions and divots to provide microclimatic conditions and suitable basking habitat for dingy skipper. In addition, a series of four butterfly bunds were created through the open mosaic to provide specific south-facing slopes, which were formed through innovative soil inversion techniques (to further minimise soil fertility and recycle soils excavated during site clearance) and dressed with medium-coarse aggregate. The butterfly bund and boundary features were dressed with a bespoke flowering perennial seed mix, with supplementary plug planting also carried out to provide immediate roosting and sheltering habitat for dingy skipper. The EMS was approved by North Tyneside Council in spring 2019, which included a commitment to undertake management and monitoring of newly created habitats up to five years post-construction. Habitat creation works were completed by the Principal Contractor (Buckingham Group) and their landscaping sub-contractor (Lowther Forestry) by autumn 2019.



View of habitat creation works within the receptor site following earthworks phase (July 2019).



Overview of habitat creation works within the receptor site following wildflower seeding (July 2019).

Further information

Year 1 post-construction monitoring surveys recorded a peak count of two prospecting dingy skipper in May 2020 – within 12 months of habitat creation works – demonstrating how well vegetation established within the receptor site and the presence of high-value functional habitat for dingy skipper. Project successes are attributed to the collaboration between Nexus, Atkins, North Tyneside Council and Buckingham Group to prepare and implement a robust and evidence-based EMS; as well as engaging with a highly skilled and competent professionals to undertake habitat creation works safely and to very high standards. A site-based ecologist was also present to provide regular advice and site support during the works to make sure habitat creation was carried out in accordance with the EMS. Open mosaic and flowering perennial seed mixes described in the EMS were incorporated into the new depot's 10-Year Landscape Management Plan, targeting embankments and cuttings. In addition, excess wildflower plugs intended for habitat creation in the receptor site were repurposed within the development site to enhance 0.7 hectares of existing dingy skipper habitat protected during the construction phase. Therefore, the total area of wildflower-rich grasslands of high-value to dingy skipper at Howdon increased from 1.2 hectares to approximately 1.8 hectares as a direct result of the EMS, which equates to a 0.6 hectares gain in habitat area, which is also anticipated to benefit bumblebee populations and associated ecosystem services (pollination) in the locality.

Project Team

- Nexus (Client)
- Atkins (Design Consultant); Buckingham Group (Principal Contractor)
- Other stakeholders – North Tyneside Council

What was the motivation for carrying out the enhancement?

Nexus is committed, through their Environment Policy, to reducing the environmental impact of their operations; as well as contributing to the cultural and economic development of Tyne and Wear in an environmentally sustainable way. The principles of sustainable development were embedded from an early stage with a shared common goal to deliver a new satellite rail depot without having a lasting negative impact on local biodiversity.



Year 1 post-construction baseline showing established short perennial vegetation within open mosaic habitat (May 2020).



Year 1 post-construction baseline showing flowering bird's foot trefoil fronting the butterfly bank (June 2020).