

Best practice example:	Semi-permanent water features
Project:	Ancient woodland feature translocation
Client:	Fusion/HS2
Location:	Calvert, Buckinghamshire
Timescales:	2019 – 2020 (Feasibility study) 2020- 2021 (Main translocation works)

Background

- The area is underlain by Oxford Clay meaning the soils do not freely drain and when wet create fine, silt particles which can pollute watercourses. Bisecting the Ancient woodland receptor site is a watercourse which connects to a main watercourse offsite and downstream of Fusion works.

Active water management

- As detailed in BPoX, an active water management system was required to allow rainfall to percolate through the soil horizons and reduce the risk of creating wet 'plastic' soils which are prone to smearing; this would have prevented works from taking place until the following spring.
- An extensive network of shallow drainage ditches were dug across the receptor site which fed into collection 'sumps' as shown in **Figure 1** below.

Figure 1: Active/ passive surface water and silt management system



Innovation

- The installation of this system allowed the opportunity to consider retaining some of the features and incorporate them into the permanent design to provide additional ecological benefit.
- This also meant that the deliverable of replicating the micro-topography at the donor sites was completed, as the donor site adjacent to the retained Decoypond wood contained a network of shallow ditches, with two leading from a pond just beyond the red line boundary of the works.
- The two sumps were partially infilled, creating scrapes (shallow hollows) with a clay base layer; these are intended to be seasonally/ intermittently wet.
- A number of the ditches were reprofiled to make them shallower and more sinuous; some were left as blind ditches but a number now drain into the scrapes.

Benefits

- It is hoped that these features will contribute to the overall biodiversity of the site and provide habitat opportunities for flora and fauna.
- The system will also help to facilitate drainage during very wet periods, again mimicking the way in which the donor sites have evolved to cope with the underlying geology of the area which does lead to severe waterlogging during sustained periods of heavy rain. This will help to prevent the root systems of trees and ground cover plants from becoming waterlogged.



Above left: Drainage ditch during works acts to channel water from topsoil layer



Above right: Ditches re-profiled and incorporated into final design – now acting as semi-permanent wet features



Above left: Sump collecting water from ditch network



Above right: Sumps partially filled in and re-profiled to create scrapes which are wet on a semi-permanent basis



Above: Ditch in dry state after period without rain



Above: Water collects in depression - formed to mimic the hollow left when a tree plus its rootball topples over



Above & below: Photos taken from drone survey in May 2021. Scrapes can be seen as shown by red arrows and one of the re-profiled ditches as shown by the blue arrow

