9. Environment - Ecology, and Drainage





Flood Risk Assessment and Drainage Strategy

A Flood Risk Assessment will form part of the application to assess the site's current characteristics regarding flood-risk and drainage, and to assess the likely impacts of the Proposed Development. The assessments being prepared demonstrate how the development site will be drained effectively, and without exacerbating the downstream risk of flooding. The site is located within 'Flood Zone 1' where there is the lowest probability of flooding from Rivers and other watercourses, but the assessment also considers issues regarding surface water drainage and unmapped flood-risk.

The nearest watercourses are a tributary of the Wooton Brook (named Courteenhall Brook) which is located in the southern part of the main site, and which flows from west to east, passing under the A508, and a tributary of the River Tove which flows in a southerly direction around the western boundary of Roade. A hydraulic model has been prepared of these small watercourses to inform a drainage and flood-risk strategy for the main SRFI site and bypass. The assessment has confirmed that there are some localised areas of higher risk of flooding within the eastern part of the main site associated with lack of capacity in an existing culvert under the A508. There are also known flood-risk issues off-site further downstream on both the Wooton Brook and River Nene. The watercourse around Roade is not shown to flood in the modelled scenarios (up to the 1000 year event).

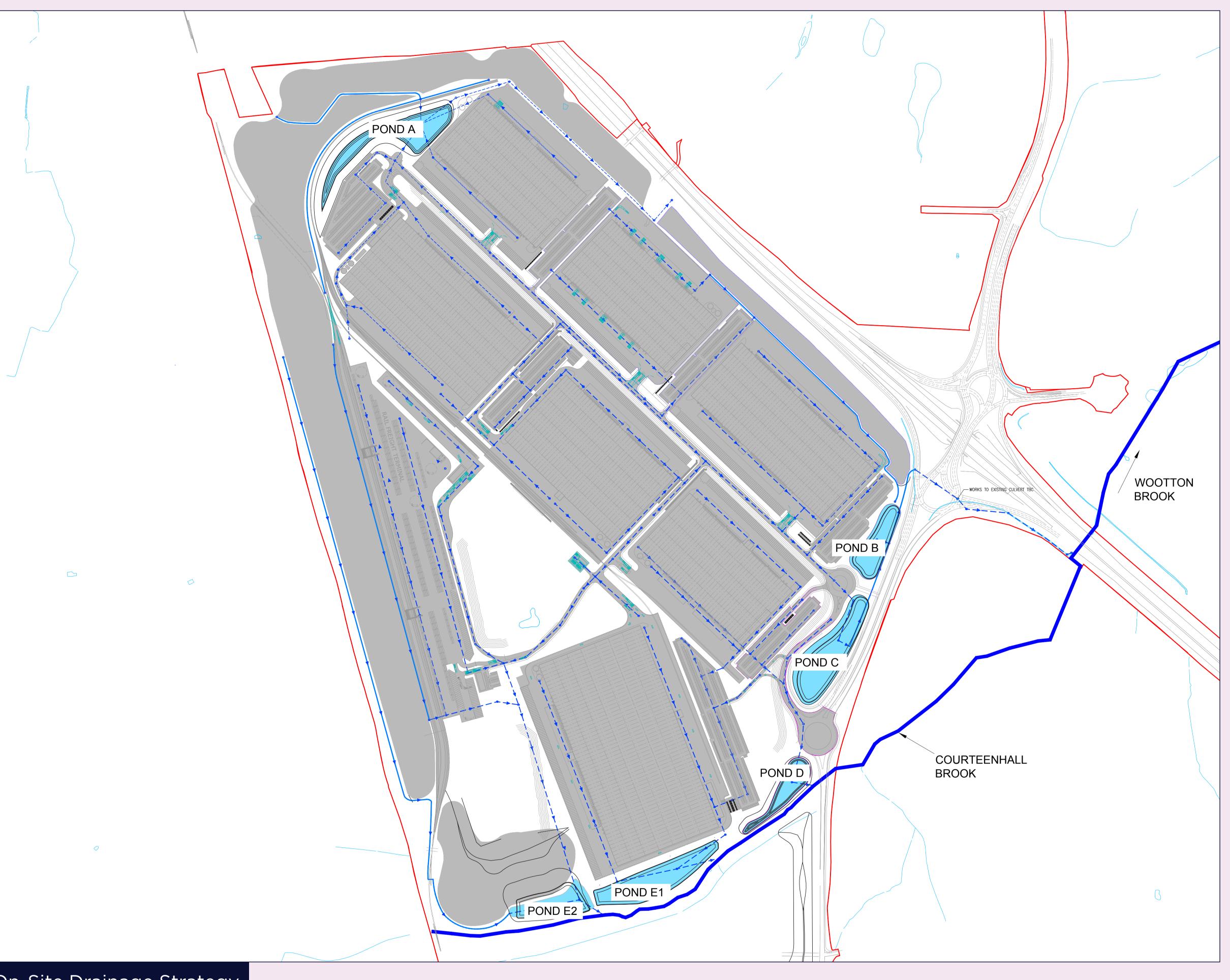
By utilising the existing culvert and amending ground levels adjacent to the Courteenhall Brook within the main site areas of floodplain storage will be created which will remove the proposed developed areas from risk and also provide an overall positive effect on peak flows downstream of the M1.

The SRFI proposals will add new impermeable areas to the site and the drainage strategy will ensure the site can accommodate and store rainwater collected on these surfaces in a sustainable and predictable way. This technical work includes an allowance for climate change and the likelihood for more common heavy and prolonged downpours in the future.

The main drainage features proposed (attenuation and storage ponds) are included on the Illustrative Masterplan. These features will store and retain rainwater runoff from the site as part of a network of Sustainable Drainage Systems (SuDS). The Assessment undertaken suggests that the site will require a storage volume of 97,000 m³ of attenuation, and the system will be designed to slowly release water at rates limited to a maximum of the existing annual average greenfield runoff rate. This will help reduce downstream flood-risk by creating more predictable and manageable flows from the site.

The drainage system will respond to the constraints of the existing culvert beneath the A508 by providing additional storage within the site, with improvements to the capacity of the Courteenhall Brook in the southern part of the site. The modelling considers both flood risk and surface water to enable a comprehensive assessment of the post-development impacts and a joined-up approach to water management.

Runoff will be provided with appropriate treatment to ensure that all pollutants and contaminants are removed prior to discharge and where necessary oil separators and silt traps will be installed to serve higher risk areas for each unit. Drainage ponds also have benefits in terms of ecology, habitat creation and water quality as well as providing amenity benefits to employees and local people who will also be able to make use of the footpaths within the site.



On-Site Drainage Strategy

Ecology

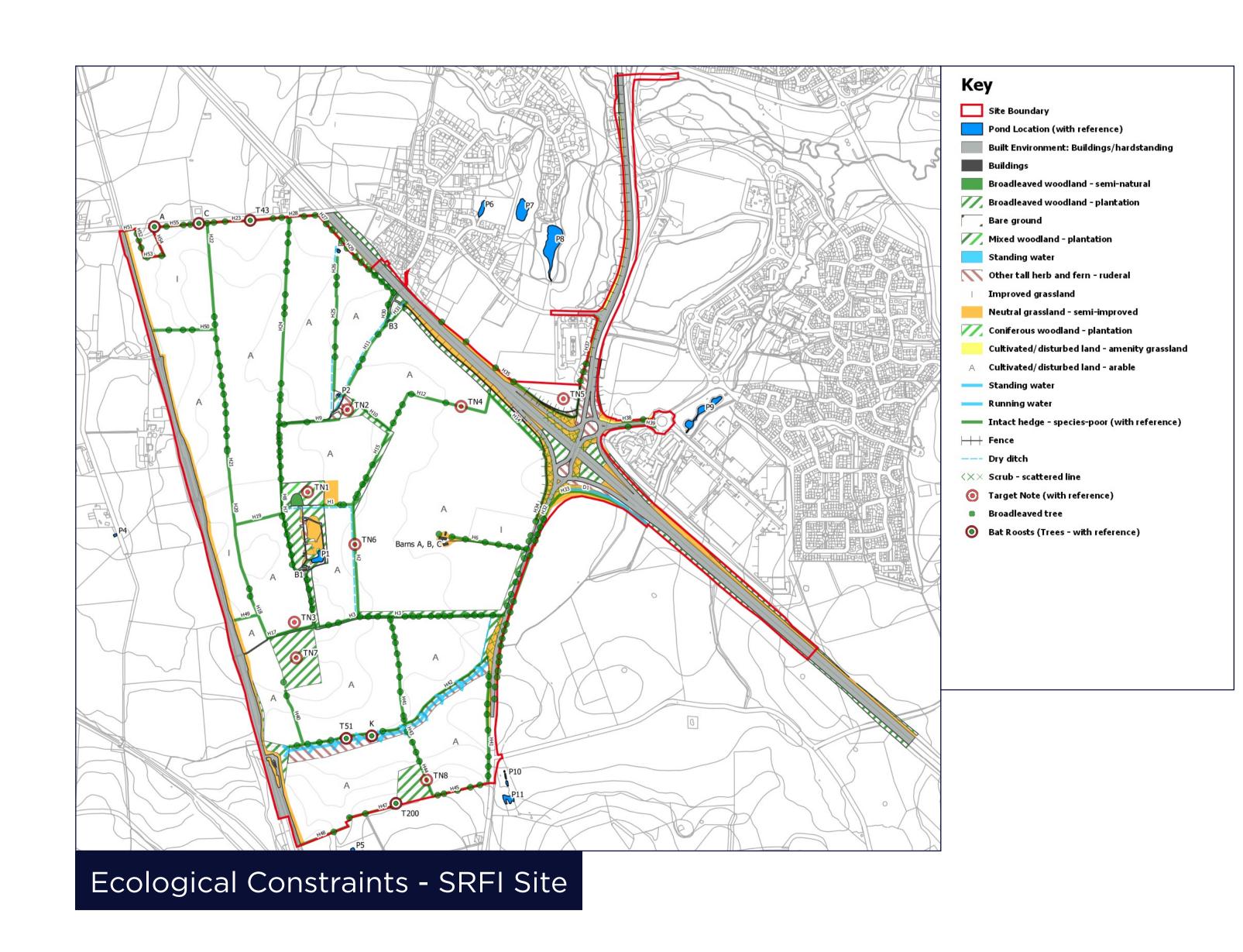
A full suite of ecological surveys have been completed on the SRFI site and are informing the emerging proposals with regard to both protection of any key existing habitats of importance, and provision of new or replacement habitats on site. Further afield (approximately 5.5km to the north-west) is the Upper Nene Valley Gravel Pits SPA/SSSI, and any potential effects on that designated site are also being assessed.

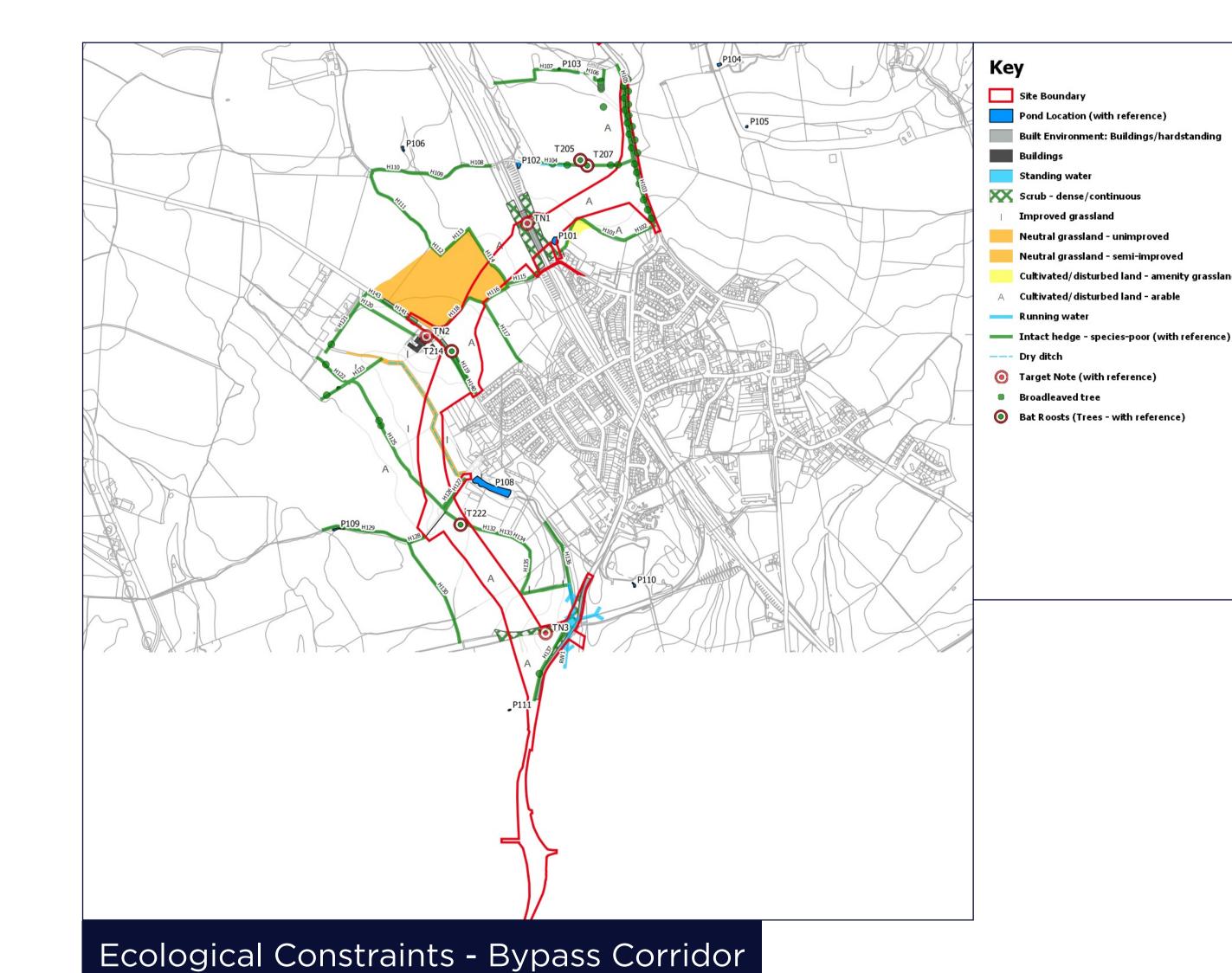
The survey data shows that the site is dominated by arable fields of low ecological value or interest. However, there are some areas which contain specific features or habitats of ecological interest, and the SRFI site includes a potential Local Wildlife Site (pLWS) at Highgate wood, and another (Junction 15 pLWS) at the eastern boundary. There is also a network of native hedgerows and a number of mature trees, as well as a brook in the southern part of the SRFI site.

A number of notable species are known to either be present on-site, or to use parts of the site. These include badgers, bats, great crested newts in a single pond on-site, common lizard and farmland birds, such as over-wintering golden plover.

The proposed Roade Bypass corridor includes areas of grassland and a watercourse with ponds close by, as well as boundary hedges and trees. Surveys have confirmed the presence of notable species, including great crested newts, common lizard, badgers, birds and bats. The route of the bypass corridor includes the Roade Cutting pLWS (which corresponds to the boundary of the Roade Cutting SSSI geological site).

Mitigation and compensation measures are forming an integral part of the development design on both the main site and the Bypass site to ensure that existing ecological features are protected and, wherever possible, enhanced. The majority of residual impacts on ecological features are therefore likely to be low. Indeed, through the additional habitat creation, including grassland, woodland and wetland features, there is likely to be a net gain in biodiversity in line with the aims of planning policy.





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