SYMMETRY PARK: HEDGEROW BNG CHANGE DETECTION

MapHorizon

Greggs are in the process of building a new National Distribution Centre at Symmetry Park, Kettering.

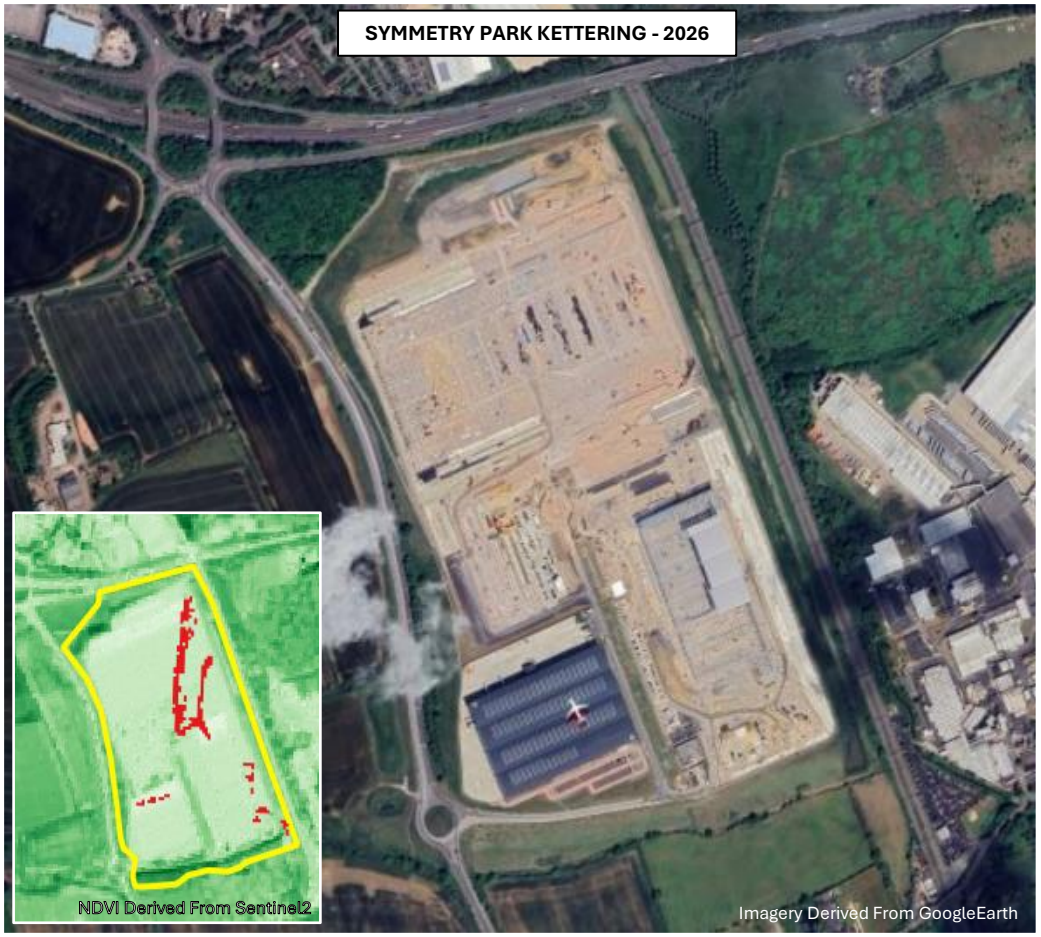
To understand Biodiversity Net Gain (BNG) implications, hedgerow change detection has been carried out using Sentinel-2 satellite imagery, comparing pre-construction (2020) and post-construction (2026) Normalized Difference Vegetation Index (NDVI) to identify *potential* sustained losses of woody linear vegetation associated with the development.

Areas exhibiting a significant negative NDVI change were classified as vegetation removal and spatially intersected with mapped hedgerow corridors to estimate the likely extent and length of hedgerow loss, providing a consistent, site-wide screening assessment aligned with BNG principles.

This approach gives Greggs early, objective evidence of hedgerow impacts, helping to quantify replanting requirements, prioritise mitigation or offsetting locations, and demonstrate proactive biodiversity stewardship to planners, regulators and stakeholders.

Area:	**~2.4 ha**	Area of Woodland / Hedgerows that have been removed during construction of Symmetry Park
Linear:	**~950m**	

North:	**~300m**	Approximate proximity of removed hedgerow centre of mass to retained woodland at Symmetry Park
East:	**~330m**	
South:	**~450m**	
West:	**~300m**	



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LEAP ASSESSMENT

Locate – The assessment focused on the Kettering distribution centre site and its immediate surroundings, using the yellow-line boundary and adjacent land parcels where construction-related vegetation loss could reasonably occur. Sentinel-2 satellite imagery from pre-construction (2020) and current construction (2026) was used to spatially locate areas of potential hedgerow and woody vegetation removal across the site at consistent resolution and extent.

Evaluate – Vegetation condition was evaluated using Normalised Difference Vegetation Index (NDVI), calculated for both time periods and differenced to identify sustained negative changes indicative of woody vegetation removal. A validated dNDVI threshold was applied to distinguish genuine clearance from seasonal variation, producing a site-wide screening layer of potential hedgerow and woodland loss independent of contractor records or site surveys.

Assess – Identified vegetation-loss areas were intersected with mapped hedgerow corridors to assess the likely extent and length of hedgerow removal, alongside area-based assessment of woodland and scrub loss. This enabled Greggs to assess the scale, spatial distribution and connectivity implications of hedgerow impacts, and to distinguish between larger confirmed losses and narrower linear features requiring follow-up verification.

Prepare – The outputs provide an auditable evidence base to inform Biodiversity Net Gain (BNG) mitigation planning, including targeting on-site reinstatement, identifying where off-site compensation may be required, and prioritising areas for higher-resolution aerial or ecological survey. By embedding satellite-based screening into the LEAP process, Greggs could strengthen its ability to demonstrate proactive, data-led biodiversity management and reduces planning, compliance and reputational risk associated with hedgerow loss.

LIMITATIONS & ASSURANCE

Limitations - This assessment uses Sentinel-2 satellite imagery at 10 m spatial resolution and is therefore intended as a screening-level tool rather than a definitive habitat survey. Narrow hedgerows, recently planted features, or partial trimming may be under-detected or mixed within single pixels, and seasonal differences between image acquisition dates may influence vegetation indices despite the application of conservative change thresholds. As a result, estimated hedgerow extent and vegetation loss should be treated as indicative and may under-represent fine-scale linear features.

Assurance - To address these limitations, conservative NDVI change thresholds were applied to minimise false positives and focus on sustained vegetation removal. The use of independently sourced, time-stamped satellite imagery provides an auditable and repeatable evidence base, supporting transparent identification of potential impacts. Areas flagged through this analysis can be prioritised for targeted site surveys, aerial or drone verification, and ecological assessment, ensuring that final Biodiversity Net Gain calculations and mitigation actions are robust, proportionate, and compliant with planning and regulatory expectations.

SOURCE DATA

Copernicus Programme Sentinel-2 Level-2A multispectral imagery (accessed via Copernicus Browser)

Pre-construction image: **18 September 2020**
Current-construction image: **5 January 2026**
Spatial resolution: **10 m** (Bands B04 – Red, B08 – Near-Infrared)
Processing level: **Bottom-of-atmosphere reflectance (L2A)**

Derived datasets (created in QGIS)
NDVI rasters for 2020 and 2026
NDVI difference raster (dNDVI) identifying sustained vegetation loss
Polygonised vegetation-loss layer used for area and length calculations

Ancillary spatial data (for interpretation and attribution)
Greggs Kettering distribution centre site boundary
Mapped hedgerow and woodland baseline layers (where available) for intersecting and classifying detected vegetation loss