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Ecological Appraisal

Proposed New Drive-through Restaurant

Lane End, Kirkby-in-Ashfield, NG17 8AP

23 April 2024

Revision D - 11 December 2024

ENVIRONMENTAL AND
SUSTAINABILITY CONSULTANTS



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Executive Summary

This ecological appraisal report details the potential ecological effects of the proposed construction of a new drive-through restaurant at Lane End, Kirkby-in-Ashfield. The site currently comprises a vacant plot that was previously occupied by an engineering company. It contains hardstanding, post-industrial, grassland and scrub habitats as well as woodland on the edges. Non-native invasive species are present on the site and vegetation could be used by nesting birds

The proposals will not result in a significant adverse effect on ecology although there is a risk of damage to retained trees, disturbance of nesting birds and the spread of non-native species. New lighting could disrupt nocturnal wildlife. Mitigation measures should be implemented to prevent damage to adjacent trees, the spread of non-native species and the disturbance of nesting birds on or adjacent to the site. A wildlife-friendly lighting scheme is recommended.

There are opportunities to enhance the ecological value of the site post-development. These include managing retained woodland to improve its quality, planting new scrub, trees and hedgerows, sowing diverse grassland within verge areas, planting shrub species which will benefit pollinators, birds and other urban wildlife, and erecting bird and bat boxes on retained trees.

The proposals will result in a 42.09% Biodiversity Net Loss (- 0.77 habitat units) and therefore off-site compensation is required to comply with relevant policy.

Provided all the recommended mitigation measures are implemented and off-site compensation measures are delivered, the development would comply with relevant nature conservation legislation and planning policy.

1.0 Introduction

1.1 *Background*

This document details the ecological effects of the construction of a new McDonald's drive through restaurant at a site off Lane End, Kirkby-in-Ashfield (see Figure 1.1 for the site location). In March 2024, Encon Associates were instructed by McDonald's Restaurants Limited to undertake an Ecological Appraisal survey of the site in order to provide information regarding the ecology of the site and inform plans for its development.

1.2 *Brief Description of the Proposed Works*

The proposals entail the clearance of the site and the construction of a new drive-through restaurant with associated car parking, access and landscaping.

1.3 *Scope*

This document aims to assess the likely ecological effects of the proposed development.

The scope of this Ecological Assessment is to:

- Identify any potential biophysical changes as a result of the proposed development.
- Identify and provide a valuation of features of ecological interest on a site (such as habitats and protected species) and recommend further surveys should they be necessary.
- Assess the likely ecological effects of the development against relevant legislation and policy.
- Recommend avoidance and/or mitigation measures that are likely to be required to reduce the ecological impact of the proposals.

If no further surveys are recommended, this report can serve as full assessment of the ecological effects of the development in support of any planning application.

1.4 *Relevant Legislation*

1.4.1 *The Wildlife & Countryside Act*

The Wildlife & Countryside Act 1981 (as amended) (1) is the primary piece of legislation by which biodiversity in the UK is protected. The most relevant areas of the Act to development related activities are:

- The identification and subsequent protection of Sites of Special Scientific Interest (SSSIs), which prohibits damaging activities.
- The protection of certain species listed in Schedule 5, which prohibits killing, injury, disturbance, damage and/or destruction of breeding sites and/or resting places and sale (it should be noted that all parts of this protection do not apply to all Scheduled species).
- The protection of wild birds and their nests, which prohibits damage or destruction of nests whilst in use. Species listed in Schedule 1 of the act receive additional protection from disturbance whilst they are building a nest or are near a nest containing eggs or young. It also prohibits the disturbance of dependent young.
- Measures to prevent the spread of invasive plant species.

1.4.2 *The Conservation of Habitats and Species Regulations*

The Conservation of Habitats and Species Regulations 2017 (known as the 'Habitats Regulations') (2), pass two EEC Directives into UK law. The Regulations protect sites and species deemed to be of conservation importance across Europe. The most relevant parts of the Regulations to development related activities are:

- The protection of Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)
- The protection of species listed within Schedule 2 of the Regulations, which prohibits killing, injury, disturbance, damage and/or destruction of breeding sites and/or resting places and sale, this confers some level of habitat protection.

In order for activities that would be likely to result in a breach of species protection under the regulations to legally take place, a European Protected Species (EPS) mitigation licence must first be obtained from Natural England.

1.4.3 *The Protection of Badgers Act*

The Protection of Badgers Act 1992 (3), deals solely with the protection of badgers *Meles meles* in the UK. It prohibits killing, injuring or taking badgers, damaging, destroying or otherwise interfering with a badger sett, disturbing an occupied badger sett and sale of badgers.

1.4.4 *The Natural Environment and Rural Communities Act*

The Natural Environment and Rural Communities (NERC) Act 2006 (4) requires that public bodies to have regard to the conservation of biodiversity. This means that Planning Authorities must consider biodiversity when reaching planning decisions. Section 41 of the act lists habitats and species that are conservation priorities in England.

1.4.5 *The Environment Act*

The Environment Act 2021 (5) has many implications for the protection of nature conservation in a development context. Of particular relevance is the necessity for a

development to demonstrate a Biodiversity Net Gain (BNG) of 10%, using the Biodiversity Metric (6) and a biodiversity gain plan.

1.5 *Planning Policy*

1.5.1 *National planning policy*

Government policy with respect to the protection of biodiversity is laid out in the National Planning Policy Framework (NPPF) (7). This places an onus on development to minimise impacts to biodiversity and where possible to provide net biodiversity gain. The NPPF provides guidance to Local Authorities in how to conserve and enhance biodiversity through local Planning Policies and when assessing planning applications.

1.5.2 *Local planning policy*

Planning applications within the Kirkby-in-Ashfield are assessed against saved policies within the *Ashfield Local Plan Review* (8). Policies relevant to the protection of ecology include:

- Policy EV5 *Sites of Special Scientific Interest SSSIs*.
- Policy EV6 *Local Nature Reserves and Sites of Importance for Nature Conservation and Geological Significance* protects locally designated sites.
- Policy EV7 *Sites/Buildings Supporting Species Protected by Law* protects legally protected species.
- Policy EV8 *Trees and Woodlands* protects existing trees and woodland.

The full text of relevant policies is contained within Appendix 1.

1.5.3 *Other nature conservation policy*

Biodiversity Action Plans (BAPs) were the UK's response to the 1992 Convention on Biological Diversity. The UKBAP described the biodiversity of the UK and contained Action Plans for the most threatened habitats and species. It was implemented at a local level through regional and local BAPs. Whilst the UKBAP has expired, BAPs are still used at a more local level in some areas, and species and habitats which were previously priorities within the UKBAP are now listed as Species of Principal Importance within Section 41 of the NERC Act 2006 (4). The site falls into the area covered by the Nottinghamshire Local Biodiversity Action Plan (NBAP, 9).

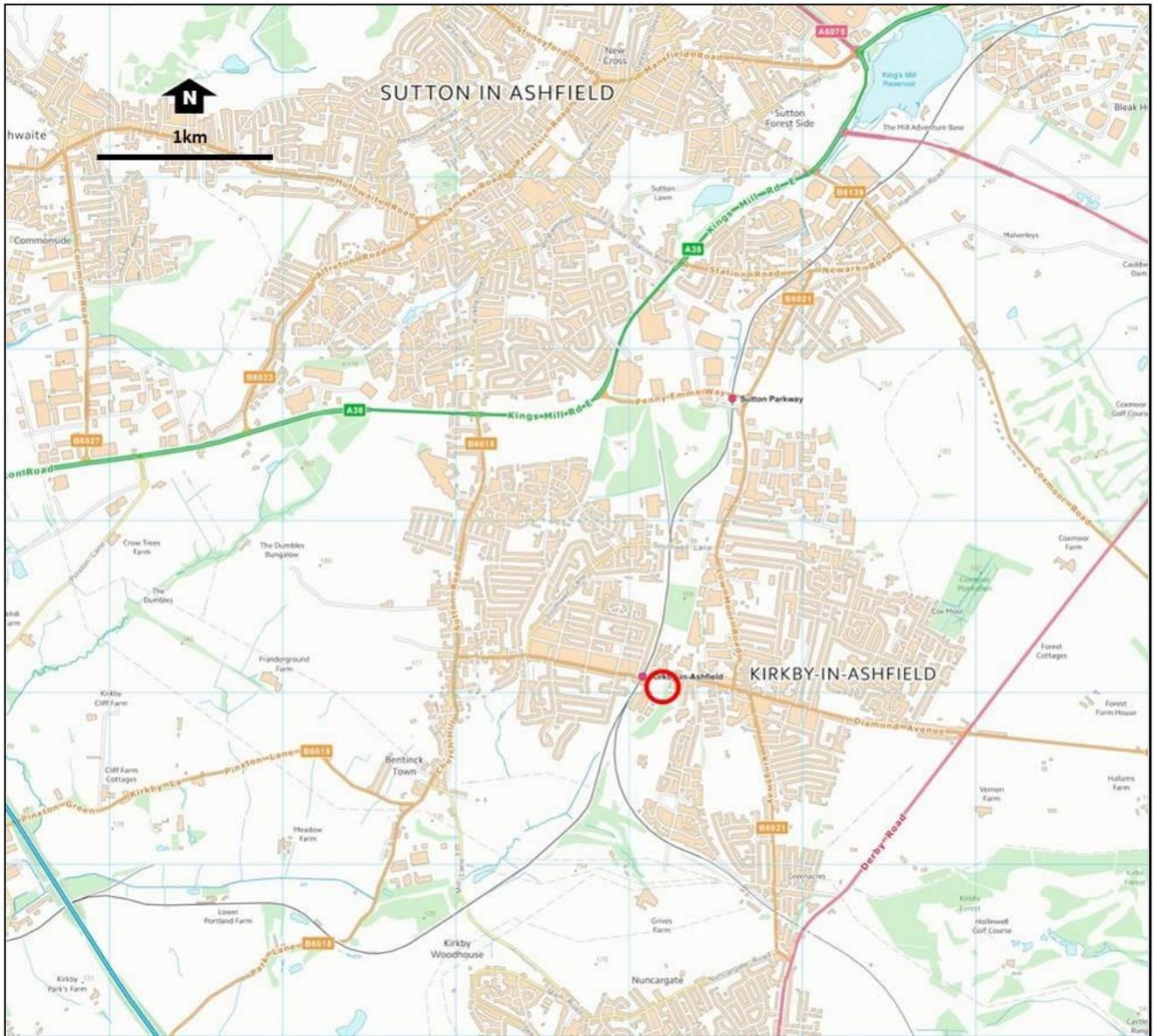


Figure 1.1: Site location. Contains Ordnance Survey data © Crown copyright and database right 2018.

2.0 Methodology

2.1 *Desk Study Methodology*

Available online resources such as the MAGIC (Multi-Agency Geographical Information for the Countryside) and NBN (National Biodiversity Network) websites were interrogated for relevant information, including statutory designated sites within 5km of the site. In addition, records of protected sites and protected and/or notable species from within 1km of the site was requested from the Nottinghamshire Biological and Geological Records Centre (NGBRC).

2.2 *Field Survey Methodology*

The survey was carried out by Dr Liam Russell CEcol MCIEEM for and on behalf of Encon Associates Ltd on 27 March 2024. The survey followed CIEEM's Preliminary Ecological Appraisal guidance (10). The survey consisted of a site walkover with all accessible areas of the site and adjacent land (where relevant) covered. The habitats present were mapped and described in accordance with UKHabs definitions (11). Attention was paid to the potential of the habitats present to support protected species and a general search for evidence of protected species was also undertaken.

2.3 *Assessment Methodology*

2.3.1 *Introduction*

The methodology for the assessment of the likely ecological effects of the proposed development is based on the principles of CIEEM's *Guidelines for Ecological Assessment in the UK, 2nd Edition* (12). Although this assessment does not constitute a formal Ecological/ Environmental Impact Assessment, the CIEEM guidelines provide a useful framework for assessing ecological impacts at any level.

2.3.2 *Valuation*

Features of ecological interest are valued on a geographic scale. Value is assigned on the basis of legal protection, national and local biodiversity policy and cultural and/or social significance.

2.3.3 *Identification of Potential Ecological Impacts in Absence of Mitigation*

A development may have ecological effects beyond its site boundaries, therefore the CIEEM guidelines require that the 'zone of influence' be identified. Due to the relatively small size of this development, for the majority of ecological features, the zone of influence is considered unlikely to extend beyond the footprint of the works and immediately adjacent habitat.

Without mitigation, the proposed development may result in the following biophysical changes during construction and/or operation:

- Loss of and damage to habitats within or adjacent to the footprint of the development and construction zone.
- Any loss or damage of habitats could result in death and/or injury to protected species should they be present.
- Disturbance of immediately adjacent habitats and any wildlife using them during construction.

2.3.4 *Biodiversity Net Gain*

Predicted changes in the biodiversity value of the site are assessed using the Biodiversity Net Gain (BNG) methodology (metric 4.0) (6). This assigns a value to habitats on the site based in their distinctiveness and condition and calculates the difference between the existing (baseline) value and the predicted post-development value.

It is a statutory requirement for developments to achieve a minimum 10% net gain in biodiversity on site. Any shortfall in achieving this target must be achieved off site or via a financial contribution.

2.4 *Limitations*

This survey comprised a single walkover. As such it is only possible to gain a snapshot of the ecology of the site and it is possible that some seasonal species could be missed. However, given the location of the site, its history and the habitat types present, it is considered highly unlikely that any species or ecological features of significance would be missed.

The ecology of a site can change quickly over time. Therefore, this survey is considered valid for two years from the date of the report.

3.0 Ecological Baseline

3.1 *Site Context*

The site is located close to the centre of Kirkby-in-Ashfield (see figure 1.1 for the site location). This is at the southern end of the Southern Magnesian Limestone National Character Area (NCA), which is a very long and thin NCA that stretches from Thornborough in the north down through north Derbyshire to the outskirts of Nottingham further south. The underlying limestone creates a ridge, or narrow belt of elevated land, running north-south through the NCA, forming a prominent landscape feature. The geology has influenced many aspects of the landscape, from use of its limestone resource as a local building material to the specialised limestone grasslands associated with limestone areas (13).

The site is a vacant plot of land located close to the centre of Kirkby-in-Ashfield. The surrounding area is generally urban/suburban in nature comprising a mixture of residential, commercial and light industrial development. However, an area of woodland extends into the developed area to the south of the site, which links directly to the wider countryside outside of the town. The land surrounding the site is mostly developed with residential development to the east, and light industrial and warehouse-style commercial premises to the south, west and north. The site was previously occupied by an engineering works which appears to have been demolished in the late 2000s.

3.2 *Protected Sites*

3.2.1 *Statutory sites*

One statutory protected site is located within the vicinity of the development site. Kirkby Grives SSSI lies approximately 420m to the south southwest. It contains both calcareous

and more neutral grasslands, with areas of scrub, floristically species-rich woodland, a stretch of disused railway line and riparian habitats associated with the River Erewash which runs through the site.

3.2.2 Non-statutory sites

Four non-statutory Local Wildlife Sites (LWS) are present within the search area. Details are shown in table 3.1.

Table 3.1: *Details of Local Wildlife Sites (LWS) and Local Nature Reserves (LNR) within the search area.*

Site	Designation	Distance (m) and bearing	Features of interest
Glasswork Grassland	LWS	200 SW	Magnesian Limestone grassland.
Kirkby Grives	LWS	260 SSE	The LWS includes some additional areas that are not designated within the SSSI, the closest part to the site contains species-rich woodland.
Kirkby Wasteland	LWS	270 N	Mosaic of species-rich calcareous and neutral grassland with patches of scrub. Also, an important site for butterflies.
Kirkby Dismantled Railway	LWS	750 N	Species-rich calcareous grassland and scrub.

3.2.3 Protected sites within the Zone of Influence

It is possible for ecologically sensitive sites to be affected by development within their vicinity. However, all the designated sites identified here are considered to be outside of the zone of influence of the proposed development. They do not fall within the site or directly adjacent to it and therefore, no direct impacts in terms of habitat loss, damage or disturbance will occur. The proposed development site lies within a SSSI Impact Risk Zone for the SSSI/SAC, but the proposed development does not fall within any of the categories considered likely to pose a risk to the designated site. As such, they are considered to be outside of the zone of influence, these sites are not addressed further within this report.

3.3 *Description of Habitats Within the Zone of Influence*

3.3.1 *Introduction*

Habitats are classified and described in accordance with UKHabs descriptions (11) to enable a BNG assessment (6). A map of the habitats on the site with target notes is provided in figure 3.1 and habitat condition assessments (where applicable) are provided in table 3.2.

The site is a plot of previously developed land which was occupied by an engineering works that was demolished in the late 2000s. The majority of the habitats currently present have developed since this time, however there are some more established habitats at the edges of the site that were part of landscaped areas when the site was occupied.

3.3.2 *Habitats*

The majority of the site is occupied by habitats that have developed since the demolition and site clearance of the engineering works. These include two large areas of concrete that were the floors of the previous buildings (target note 1). These are beginning to be colonised by vegetation, mostly mosses, with some scrub encroachment at the edges (photo 1). Other than the areas that have become vegetated, these are classified as u1b *Developed land; sealed surface*.

Most of the southern area of the site appears to have previously been hard-surfaced, but this has now become vegetated (target note 2, photos 2 and 3). The hard surfacing may have been scraped back into a low bank along the eastern side of the site (target note 3, photo 4) and piles near the site entrance (target note 4, photo 5). These areas have been colonised by a mixture of mosses, grass and flower species tolerant of disturbed ground and scrub. The most common grass species is common bent *Agrostis capillaris*, with

flowering and ruderal species such as dandelion *Taraxacum officianale* agg., common cat's-ear *Hypochaeris radicata*, creeping cinquefoil *Potentilla reptans*, ribwort plantain *Plantago lanceolata*, creeping thistle *Cirsium arvense* and rosebay willowherb *Chamaenerion angustifolium*. Silver birch *Betula pendula*-scrub has developed in some areas (target note 5), which also includes significant quantities of buddleia *Buddleia davidii* and bramble *Rubus fruticosus* agg., along with less frequent goat willow *Salix caprea* and red flowering currant *Ribes sanguineum*. The majority of the trees present are young and very small; however, one large multi-stemmed goat willow is present along the eastern boundary (target note 6, photo 6). This is a recently developed habitat on a post-industrial site; however, vegetation cover is too high to qualify as u1f *Sparsely vegetated urban land* and it is too small to be classified as u1 *Built up areas and gardens* (80) *Open mosaic habitats on previously developed land*. Therefore, it is classified as u1 *Built up areas and gardens* (82) *Vacant or derelict land*.

A south-facing bank is present along the northern edge of the site. This was a grassy area whilst the site was occupied, but has been unmanaged since it was vacated. Part of the bank is occupied by grassland which extends into an adjacent flatter area (target note 7, photo 7). This is dominated by coarse grass species such as cock's-foot *Dactylus glomerata* and false oat-grass *Arrhenatherum elatius* as well as common bent and frequent mosses. A few flowering species are present including creeping cinquefoil, creeping buttercup *Ranunculus repens*, dandelion, coltsfoot *Tussilago farfara* and ribwort plantain. Towards the western end of the bank, the grassland is dominated by rosebay willowherb, along with curled dock *Rumex crispus* and occasional ornamental daffodils *Narcissus* sp. (target note 8, photo 8). Due to the low number of species present in the sward, this is classified as g4 *Modified grassland*.

An area of dense bramble (h3d *Bramble scrub*) is present in the centre of the bank (target note 9, photo 9), also containing a mature hawthorn *Crateagus monogyna*; and a group of early mature wild cherry *Prunus avium* are present at its eastern end (target note 10).

The western and southern edges of the site contain a strip of woodland. Along the eastern side, this is dominated by five large, mature silver birch trees (target note 11, photo 10). The southern edge is much more recently developed, it is also dominated by silver birch, although goat willow and sycamore *Acer pseudoplatanus* are also present (target note 12, photo 11). Very few shrub species are present, although a few hawthorn were recorded along with non-native snowberry *Symphoricarpos alba*. The field layer is almost completely suppressed by ivy *Hedera helix* (which also covers the trunks of the mature birch trees) (photos 11 and 12) although some false brome *Brachypodium sylvaticum* and bramble is present, as are some very small tree saplings. This habitat is classified as w1g *Other broadleaved woodland*.

Table 3.2: Condition assessment for existing site habitats

Habitat	Condition	Details
u1b <i>Developed land; sealed surface</i>	N/A - other	N/A
u1 <i>Built up areas and gardens (82) Vacant or derelict land.</i>	Moderate	Varied structure but limited range of species beneficial to invertebrates. Invasive species (not listed in the WCA) are present but cover <5%.
g4 <i>Modified grassland</i>	Poor	Less than 6 species per m ² .
h3h <i>Bramble scrub</i>	N/A	N/A
w1g <i>Other broadleaved woodland</i>	Poor, (scores 24)	One age class present in each plot; no evidence of browsing damage; invasive species present but low cover; >80% trees native; no open space; only one age class present in each plot; no evidence of pests/disease; no recognisable ground layer community; one storey at each survey plot; no deadwood; no evidence of enrichment or ground damage.
Individual trees (urban trees)	Good/Moderate	Five small cherry trees in good condition, three small goat willow in moderate condition, one medium goat willow in moderate condition.

3.4 *Protected or Notable Species*

3.4.1 *Introduction*

NGBRC returned a few records of protected or notable species from within the search area. Many of these were for species that would be unlikely to occur in the habitats present on the site, for example, there were several records woodland and calcareous grassland plant species recorded on LWS within the search area. Due to the nature of the habitats present, there is limited potential for protected species to be present on the site. However, species which could be found within the zone of influence are considered below.

3.4.2 *Nesting birds*

Trees and scrub on the site could be used by a variety of bird species for nesting.

3.4.3 *Bats*

NGBRC returned a few records of bats from within the search area, these were almost all common pipistrelle *Pipistrellus pipistrellus*, although soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, brown long-eared bat *Plecotus auritus* and a number of unidentified bats were also recorded. Common pipistrelle has been recorded roosting within the vicinity of the site.

No features of high bat roost potential (such as holes, cracks, splits or lifted or flaking bark) were noted on any of trees on or immediately adjacent to the site. However, several of the silver birch trees on the western edge have a covering of ivy and therefore are assessed as having PRF-I roost potential (i.e. only suitable for low numbers or individual bats), in accordance with best practice guidance (14).

3.4.4 *Other terrestrial mammals*

NGBRC returned several records of hedgehogs *Erinaceus europaeus* from within the search area, including one from an adjacent plot of land. The site is suitable for foraging hedgehogs. No evidence of badgers *Meles meles* was found on the site.

3.4.5 *Amphibians and reptiles*

NGBRC returned only two records of amphibians from within the search area, both of common frog *Rana temporaria*. No ponds are present on the site, and none could be identified within the 250m during the site visit and using Ordnance Survey mapping and online aerial imagery. It is possible that small garden ponds are present within the area. Habitats on the site are potentially suitable for amphibians during the terrestrial phase of their lifecycle. However, given the absence of ponds within the immediate vicinity, it is unlikely that amphibians, other than common frog would be present on the site.

Only two reptile records were returned, both of grass snake *Natrix helvetica* and which were more than 20 years old. NBN was searched for records over a wider area (up to 5km from the site) and returned more records of grass snake, 20 of viviparous lizard *Zootoca vivipara* and only two of slow worm *Anguis fragilis*, which were almost 40 years old. The grassland and the edges of the bramble scrub habitat are potentially suitable for reptiles such as slow worm. However, the urban situation of the site, its previous history and the extremely low prevalence in the surrounding area, means that reptiles are highly unlikely to be present.

3.5 *Ecological Valuation*

Most of the habitats within the site are considered to be of low ecological value. They are artificial, commonplace within the local area, contain invasive non-native species such as buddleia and are unlikely to support protected or notable species. Therefore, the site is considered to be of ecological value within the zone of influence only. However, the woodland on the western boundary of the site, particularly the mature silver birch trees which are very large for their species and have some suitability for roosting bats, are of greater ecological significance and are therefore considered to be of local ecological value.

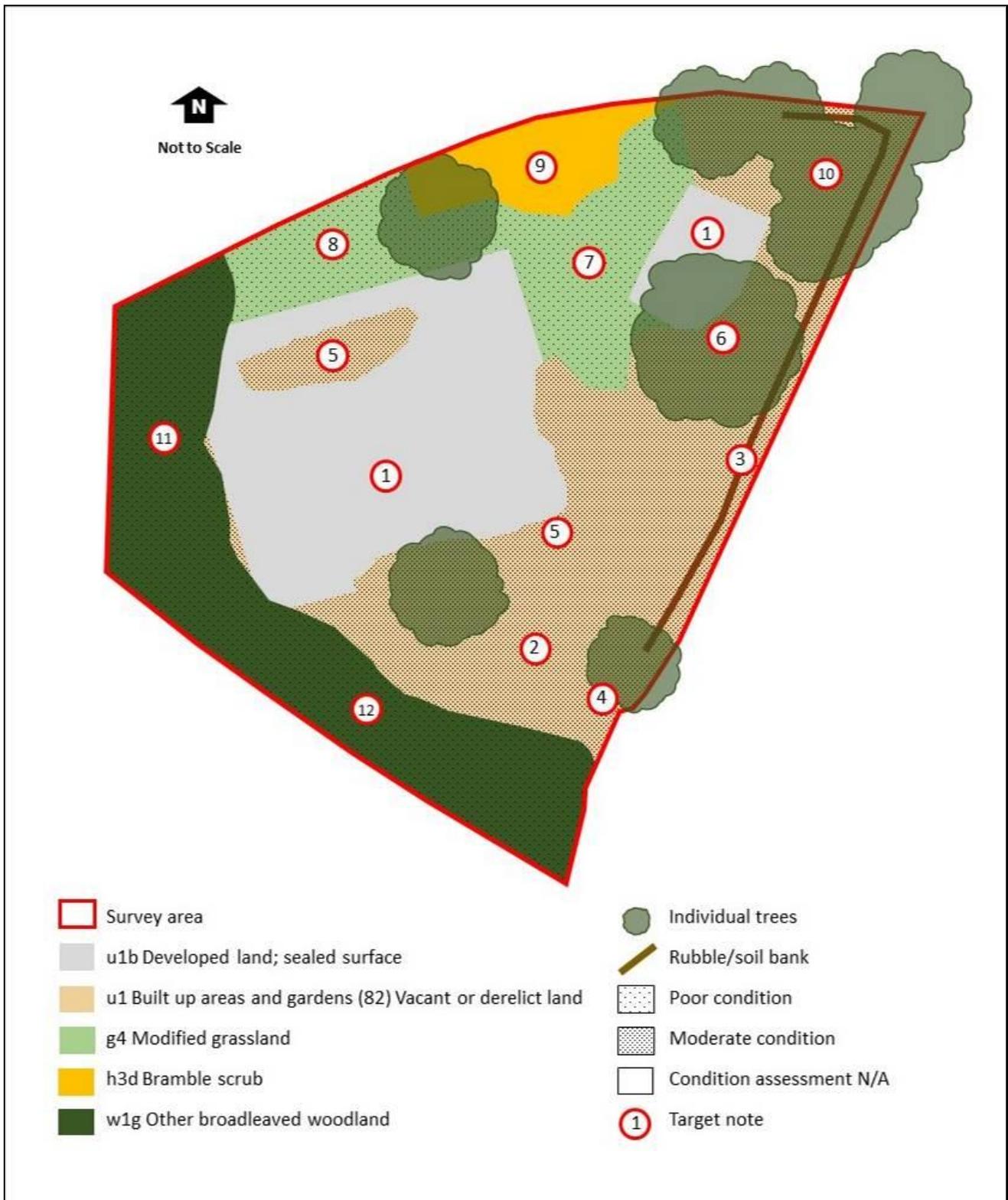


Figure 3.1: Habitats present on the site. See main text for target note descriptions.



Photo 1: The concrete floors of the previous buildings remain present on the site.



Photo 2: Much of the site contains disturbed habitats.



Photo 3: Disturbed habitats in the south of the site are beginning to revegetate including with birch scrub.



Photo 4: A low rubble bank is present along the eastern side of the site.



Photo 5: Spoil heaps from the previous site clearance are present close to the site entrance.



Photo 6: A mature goat willow is present on the eastern side of the site.



Photo 7: the disturbed habitats give way to grassland in the north of the site.



Photo 8: In places the grassland is dominated by ruderal species.



Photo 9: Bramble scrub is also present along the northern boundary.



Photo 10: Mature ivy-covered silver birch trees are present on the western boundary.



Photo 11: The woodland on the southern boundary is much less mature.



Photo 12: Ivy has suppressed the ground flora in the woodland areas.

4.0 Assessment of Likely Impacts in Absence of Mitigation

4.1 *Introduction*

The CIEEM guidelines (12) require that the potential impacts of the proposals should be considered in absence of mitigation. In order for a significant adverse effect to occur, the feature being affected must be at least of local value. However, in some cases, features of less than local value may be protected by legislation and/or policy and these are also considered within the assessment. Although significant effects may be identified at this stage of the assessment, it is often possible to provide appropriate mitigation. The effects of impacts to habitats of less than local ecological value are assessed as part of the BNG assessment in Chapter 6.

4.2 *Site Preparation and Construction Activities*

4.2.1 *Habitats*

Most of the habitats on the site are not considered to be of significant ecological value and therefore their loss or damage as a result of the proposals would not have a significant ecological impact.

Woodland on the western edge of the site is considered to be of local ecological value, due to the presence of mature silver birch trees. Other than a narrow strip at the edge, this habitat will be retained. However, it is possible that the trees could be accidentally damaged during construction due to root compaction and direct crown damage by machinery.

4.2.2 *Nesting birds*

Vegetation on and adjacent the site could be used by nesting birds. If clearance works occurred whilst birds were nesting, they could be disturbed, and their nests destroyed or damaged. The nests, eggs and nestlings of all wild birds are protected from disturbance, damage and destruction under the Wildlife & Countryside Act (1) and therefore this could result in a legal offence.

4.2.3 *Invasive Non-native Species*

Buddleia is common on the site and snowberry is also present. Although these species are not listed in the Wildlife & Countryside Act, they do have some invasive potential. There is a risk that construction activities could result in the spread of these plants into adjacent areas, or further afield if plant material is taken off site.

4.3 *Site Operation*

Although the site is already relatively brightly lit due to the adjacent roads and buildings, once built, there is likely to be an increase in the level of artificial lighting on the site. This could result in the disturbance of nocturnal wildlife, particularly bats and hedgehogs.

5.0 Mitigation, Compensation and Enhancements

5.1 *Introduction*

This chapter contains recommendations for further works needed to fully assess the ecological impacts of the proposals and to mitigate any potential adverse effects. In addition, recommendations for the enhancement of nature conservation and biodiversity on the site are included.

5.2 *Further Survey*

No further surveys are recommended.

5.3 *Mitigation Measures*

5.3.1 *Nesting birds*

Clearance of scrub on the site should be timed to take place outside of the nesting bird season (typically March to August inclusive). If it is necessary to undertake any vegetation clearance or demolition within this period, any vegetation to be cleared should be thoroughly checked for the presence of active nests. If any nests are found, they should be retained *in situ* with a suitable buffer of uncleared vegetation until the nestlings have fledged.

5.3.2 *Tree protection*

Retained trees and woodland should be protected from accidental damage during construction. The site boundaries should be clearly marked and fenced off to prevent machinery entering areas where trees could be damaged.

5.3.3 *Invasive Non-native Species*

In order to prevent the spread of invasive non-native species such as buddleia and snowberry, existing plants should be carefully removed from the site and disposed of safely and in accordance with regulations surrounding the transfer of waste, prior to any construction work starting. This should include the excavation and careful disposal of any root material.

5.3.4 *Wildlife-friendly lighting*

New lighting associated with the proposals must be designed to minimise the effects on nocturnal wildlife, particularly bats, and should follow best practice guidance (15). In particular, any new lighting should not increase the level of light falling on the trees on the southern and eastern boundaries. The following principles will minimise the impact of lighting on nocturnal wildlife and should be applied to the lighting design across the site:

- Use of low-level bollard lighting to minimise light spill.
- Directing lights away from the edges of the site and the use of hoods or similar measures to direct light away from important habitats.
- Restriction of UV light frequencies through selection of suitable lighting elements or the use of filters.
- Use of warm white spectrum lighting elements.

5.4 *Recommendations for Ecological Enhancements*

5.4.1 *Introduction*

Planning policy requires development to provide some form of ecological enhancement. Due to the situation and existing ecological value of the site, opportunities for enhancements are limited. However, the following measures would provide some ecological enhancements within the proposed development.

5.4.2 *Enhancement of retained woodland*

The existing woodland on the western and southern edges of the site is currently in poor condition. There is potential to improve its condition by appropriate management, by promoting a more diverse structure, improving the ground layer, diversifying the range of species present and providing more ecological niches. The following measures will be undertaken:

- Thinning out of younger trees on the southern edge, retaining larger specimens.
- Planting of new trees within the southern including larger canopy-level and shrub layer species including sessile oak *Quercus patrea*, holly *Ilex aquifolium*, field maple *Acer campestre*, alder *Alnus glutinosa*, hazel *Corylus avellana*, elder *Sambucus nigra*, rowan *Sorbus aucuparia*, wild service tree *Sorbus torminalis*, hawthorn, blackthorn *Prunus spinosa* and dogwood *Cornus sanguinea*.
- Removal of ivy from the ground (whilst retaining ivy on existing trees) and sowing an appropriate woodland ground flora.
- Provision of deadwood by placing logs from trees felled on other parts of the site into the woodland.

5.4.3 *Scrub, tree and hedge planting*

The site presents opportunities for planting native trees, scrub and hedgerows. The following measures are recommended:

- Planting native scrub on the northern boundary of the site. Appropriate species include hawthorn, Midland hawthorn *Crateagus laevigata*, hazel, blackthorn, wild service tree, elder, dogwood, osier *Salix viminalis* and holly. This would create an area of h3h *Mixed scrub* habitat.
- Planting a new native species hedge on the eastern boundary of the site including species such as hawthorn, hazel, goat willow, dogwood, elder and blackthorn; as

well as incorporating larger trees such as field maple, alder, downy birch *Betula pubescens*, crab apple *Malus sylvestris* and whitebeam *Sorbus aria*.

- Planting specimen trees in landscaped areas such as field maple, alder, silver birch, sessile oak, rowan and wild service tree.

5.4.4 *Replacement of bioswale in proposal*

In previous revisions, the development included a bioswale in the northeast corner of the site. Since the last revision was written, a sewage pipe has been identified along the sites eastern boundary, proposals now show this to be connected to the development for drainage purposes. Since this area will no longer be utilised for surface water drainage and the soil designation is 'freely draining lime-rich loamy soils' (16), little water is expected to accumulate in this area. Therefore, we recommend changing this habitat designation to flowering lawn, to be sown with a grass mix containing wildflowers that are tolerant of mowing. These areas will be managed to reduce mowing frequency. This would provide a resource for pollinating insects such as bees.

5.4.5 *Flowering lawns*

The development includes grass verges within the landscaped areas. These will be sown with a grass mix containing wildflowers that are tolerant of mowing, and these areas will be managed with a reduce mowing frequency. Given the level of disturbance likely and the need to maintain them to a degree, it is unrealistic to create g3c *Other neutral grassland* (or similar). However, g4 *Modified grassland* in moderate condition is achievable. This would provide a resource for pollinating insects such as bees.

5.4.6 *Planting to benefit pollinators*

Where landscape planting is undertaken within the developed area, nectar-rich shrub species should be planted to provide a food source for a variety of urban/suburban pollinator species including bees. Native species are preferred as they will benefit the widest range of species. However, due to the relatively suburban location of the site, other beneficial species such as lavenders *Lavendula* spp., would also be appropriate in more formal landscaped areas.

5.4.7 *Bird boxes*

A number of bird boxes should be fixed on retained trees. A variety of designs should be used so to be suitable for a number of species. Several suitable designs of nest boxes are commercially available.

5.4.8 *Bat boxes*

A number of bat boxes should be fixed on retained trees. The designs used be suitable for pipistrelle species bats, which are the most likely to be recorded in a semi-urban environment and have been recorded in the local area. Several suitable designs of nest boxes are commercially available.

6.0 Biodiversity Net Gain

6.1 Introduction

A Biodiversity Net Gain (BNG) calculation has been undertaken for the proposed development, using the Natural England/Defra Biodiversity Method (6). The existing conditions are based on the findings of the Ecological Appraisal survey (see section 3.1 and figure 3.1). Post-development habitats are based on the final landscaping drawing for the project¹. This chapter summarises the results of the BNG calculation, the full calculation is provided in a excel spreadsheet showing the habitat losses and gains.

6.2 Calculation

The figures used in the BNG calculation a provided in tables 6.1a, 6.1b and 6.1c for area habitats and 6.2 for hedgerow habitats. In summary:

Habitats

- The existing habitats biodiversity value of the site is 1.82 habitat units.
- The post-development habitats biodiversity value will be 1.05 units, a loss of 0.77 habitat units (-42.09%).

Hedgerows

- The existing hedgerow biodiversity value of the site is 0.00 units.
- The post-development hedgerows biodiversity value will be 0.12 units, a gain of 0.12 hedgerows units (% not calculated).

¹ A6605-04A *Landscaping Scheme - Proposed New Drive Thru, Lane End, Kirkby in Ashfield*. Produced by Encon Associates, Nottingham. 13 May 2024

6.3 Conclusion

The proposal will result in a 42.09% Biodiversity Net Loss (0.77 habitat units). However, it will result in an additional gain for hedgerows of 0.12 hedgerow units, although it should be noted that these units are not necessarily interchangeable. Due to the slight reduction in the extent of the woodland on the site, trading rules are not satisfied. Therefore, in order to comply with relevant policy, off-site compensation measures will be required. This could be achieved via financial contribution to a local authority scheme or from a private arrangement.

Table 6.1a. *Habitat baseline. No habitats are within an area strategic significance. Areas of individual trees are additional to areas of other habitat types.*

Broad habitat	Habitat type	Area (ha)	Distinctiveness	Condition	Retained (ha)	Enhanced (ha)
Urban	Developed land; sealed surface	0.1018	V. low	N/A - Other	-	-
Urban	Vacant or derelict land	0.1589	Low	Moderate	-	-
Grassland	Modified grassland	0.0550	Low	Poor	-	-
Heathland and scrub	Bramble scrub	0.0189	Medium	N/A	-	-
Woodland and forest	Other woodland; broadleaved	0.0902	Medium	Poor	-	0.045
Individual trees	Urban tree	0.0489	Medium	Moderate	-	-
Individual trees	Urban tree	0.0204	Medium	Good	-	-

Table 6.1b. *On-site habitat creation. No habitats are in an area of strategic significance. Areas for individual trees are additional to areas of other habitat types.*

Broad habitat	Habitat type	Area (ha)	Distinctiveness	Condition
Urban	Developed land; sealed surface	0.2345	V. Low	N/A - Other
Urban	Introduced shrub	0.004	Low	N/A
Heathland and scrub	Mixed scrub	0.0330	Medium	Moderate
Grassland	Modified grassland	0.092	Low	Moderate
Individual Trees	Urban tree	0.0651	Medium	Moderate

Table 6.1c: *On-site habitat enhancement. No habitats are in an area of strategic significance*

Existing		Proposed		Area (ha)	Condition change
Broad habitat	Habitat type	Broad habitat	Habitat type		
Woodland and forest	Other woodland; broadleaved	Woodland and forest	Other woodland; broadleaved	0.045	Poor-Moderate

Table 6.2. *On-site hedgerow creation. No habitats are in an area of strategic significance.*

Habitat type	Length (km)	Distinctiveness	Condition
Native hedgerow with trees	0.032	Medium	Poor

7.0 Summary and Conclusions

7.1 *Summary*

The proposed development at Lane End, Kirkby-in-Ashfield will not result in any significant ecological effects as a result of habitat loss or damage. Although there will be a loss of lower significance habitats. The site also has a low likelihood of being occupied by protected species. However, there is a risk of damage to retained trees, disturbance of birds nesting on the site and the potential for works to spread invasive non-native species. Increased lighting as a result of the proposals could affect nocturnal wildlife.

In order to mitigate the ecological effects of the proposals, adjacent trees should be protected during construction and measures to protect nesting birds and prevent the spread of non-native species should be implemented during site clearance. A wildlife-friendly lighting scheme is also recommended.

There are opportunities to enhance the ecological value of the site post-development. These include managing retained woodland to improve its quality, planting new scrub, trees and hedgerows, sowing diverse grassland within verge areas, planting shrub species which will benefit pollinators, birds and other urban wildlife, and erecting bird and bat boxes on retained trees.

7.2 *Biodiversity Net Gain*

The proposal will result in a 42.09% Biodiversity Net Loss (0.77 habitat units), but will deliver 0.12 hedgerow units. Therefore, in order to comply with relevant policy, off-site compensation measures are required.

7.3 *Residual Impacts*

Off-site compensation measures are required in order to comply with Biodiversity Net Gain policy. Provided all the recommended mitigation measures are implemented, there would be no other significant residual impacts.

7.4 *Compliance with Legislation and Policy*

The following further actions are required to ensure the development complies with relevant legislation and policy:

- Measures to prevent the disturbance of nesting birds must be implemented during site clearance.
- Habitat enhancement and creation measures must be implemented to comply biodiversity gain policy.
- Off-site compensation measures are required to comply with Biodiversity Net Gain policy.

8.0 References

1. *The Wildlife & Countryside Act 1981*. <https://www.legislation.gov.uk/ukpga/1981/69>.
2. *The Conservation of Habitats and Species Regulations 2017*. <https://www.legislation.gov.uk/uksi/2017/1012>.
3. *The Protection of Badgers Act 1992*. <https://www.legislation.gov.uk/ukpga/1992/51>.
4. *The Natural Environment and Rural Communities Act 2006*. <https://www.legislation.gov.uk/ukpga/2006/16>.
5. *The Environment Act 2021*. <https://www.legislation.gov.uk/ukpga/2021/30>.
6. Natural England. (2023). *The Biodiversity Metric 4.0 - User Guide*. Natural England, Peterborough.
7. Department for Communities and Local Government. (2012). *National Planning Policy Framework: Biodiversity and Geological Conservation*. TSO, Norwich.
8. Ashfield District Council (2002). *Ashfield District Local Plan Review Adopted November 2002*. Ashfield District Council, Kirkby-in-Ashfield.
9. <https://nottsbag.org.uk/lbap/>.
10. CIEEM (2013). *Guidelines for Preliminary Ecological Appraisal*. Chartered Institute of Ecology and Environmental Management, Winchester.
11. UKHab (2023). *UK Habitat Classification - V2.0*. (at <http://ukhab.org>.)
12. CIEEM. (2016). *Guidelines for Ecological Assessment in the UK and Ireland - Terrestrial, Freshwater and Coastal, 2nd Edition January 2016*. Chartered Institute of Ecology and Environmental Management, Winchester.
13. Natural England (2013). *National Character Area profile: 30. Southern Magnesian Limestone*. Natural England, Peterborough.
14. Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists - Good Practice Guidelines, 3rd Edition*. The Bat Conservation Trust, London.
15. Bat Conservation Trust & Institute of Lighting Professionals (2019). *Guidance Note 08/18 Bats and artificial lighting in the UK - Bats and the Built Environment series*. Institute of Lighting Professionals, Rugby.
16. Soilscales Viewer, LandIS (2024). <https://www.landis.org.uk/soilscales/>.

Appendix 1

Relevant planning policy from the *Ashfield Local Plan Review 2002*.

Policy EV5 - SITES OF SPECIAL SCIENTIFIC INTEREST

Proposals for development in, or likely to affect, Sites of Special Scientific Interest (SSSI) will be subject to special scrutiny. Where such development may have an adverse effect, directly or indirectly, on the SSSI it will not be permitted unless the reasons for development clearly outweigh the nature conservation value of the site itself and the national policy to safeguard the national network of such sites.

Where development is permitted, consideration will be given to the use of planning conditions or planning obligations to ensure the protection and enhancement of the site's nature conservation interest.

Policy EV6 - LOCAL NATURE RESERVES AND SITES OF IMPORTANCE FOR NATURE CONSERVATION AND GEOLOGICAL SIGNIFICANCE

Development which adversely local nature reserves or sites of importance for nature conservation or geological significance will only be permitted where:-

- a) provision is made within the development for the protection of features of nature conservation or geological significance, or
- b) the development cannot be located elsewhere. In the case of nature conservation features adequate provision is made for the creation of similar habitats, where feasible, preferably in the locality, negotiated and secured by a planning condition or planning obligation.

Policy EV7 - SITES/BUILDINGS SUPPORTING SPECIES PROTECTED BY LAW

Development which would adversely affect sites or buildings supporting species protected by law will only be permitted where:-

- a) Provision is made within the proposed development to avoid or minimise disturbance to the species, or
- b) Provision is made for the creation of similar habitats, where feasible, preferably within the locality, negotiated and secured by a planning obligation.

Policy EV8 - TREES AND WOODLANDS

Development which adversely affects trees worthy of retention, including woodland and individual trees, will not be permitted. Where trees are lost as a result of development, replacement or mitigating planting will be required.