

Woodland Management Plan and Biodiversity Strategy

For a Proposed Development Site

At Bothwell Road

Hamilton

South Lanarkshire

ML3 0AY

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Prepared by Baker Ecology

Executive Summary

Baker Ecology was commissioned in July 2022 to complete a woodland management and biodiversity strategy for a proposed development site adjacent to the eastern side of Bothwell Road (B7071), Hamilton. Many suburban/urban woodlands are in disarray due to lack of management. Woodland management costs money and there needs to be a financial support for such management that is sadly missing. This exciting small-scale residential development project is for only two new residential homes and will bring much needed money in for management of the woodland resource. The project includes removal of two mature trees (including a non-native horse chestnut that is in poor health (Category U) and a native ash (Category C), which is in poor form, as well as an area of neglected hawthorn-dominated scrub woodland to make way for the new residential development. At least 86% of the woodland in the Application Site will remain and be positively managed in the long-term, with the two homes adjacent to mature trees that will provide a fantastic mature woodland setting for this development. However, the mature woodland currently lacks any positive management, resulting in the current depauperate ground flora and the spindly drawn seedling and sapling trees (mainly of non-native species), starved of light by dense shading, much of which is from non-native trees.

Baseline ecological surveys identified roosting bats and small numbers of breeding birds as ecological constraints at the site, and confirmed the habitat structure was currently poor for wildlife with dense shade eliminating the ground flora and suppressing the understory in many areas of the woodland. This document proposes appropriate long-term woodland management driven by the proposed development of two new homes, which will serve as the financial instrument to drive this management plan forwards. The existing woodland resource will then benefit through pro-active management, and biodiversity will benefit from the habitat enhancement through actions such as establishing new native trees and shrubs, installation of bat and bird boxes, and creating dappled lighting so that the ground flora can be encouraged through planting of bluebell and other wildflower bulbs and seed, and so develop a woodland that is not only a visual asset for the local community but will help the Local Authority to fulfil its statutory duty to biodiversity.

Contents

Executive Summary	2
Contents	3
1. Introduction.....	4
2. Site Status and Developmental Impact.....	4
3. South Lanarkshire Biodiversity Action Plan (LBAP).....	6
4. Woodland Management	7
5. Biodiversity Enhancement: Botanical	10
6. Biodiversity Enhancement: Faunal	11

1. Introduction

Baker Ecology was commissioned in July 2022 to complete a woodland management and biodiversity strategy for a proposed development site adjacent to the eastern side of Bothwell Road (B7071), Hamilton (NS 71678 56543, Figure 1. and Plates). The Application Site sites within a wooded area to the north of Hamilton College and south of residential development on Hamilton Park South.

Hamilton Racecourse lies to the east. The project includes removal of only two mature trees (including a non-native horse chestnut that is in poor health (Category U) and a native ash (Category C), which is in poor form, as well as an area of neglected willow/hawthorn-dominated scrub woodland to make way for the new residential development (approx. 1/9th or less of the woodland resource) to make way for the new residential development. The completed development will sit within the eastern side of the large remaining area of woodland (approx. 9/10 or more of the resource) that currently lacks management. Baseline ecological surveys identified roosting bats and small numbers of breeding birds as ecological constraints at the site, and confirmed the habitat structure was currently poor for wildlife with dense shade eliminating the ground flora and suppressing the understory in many areas of the woodland. This document proposes woodland management to benefit the woodland resource as well as enhance the woodland for biodiversity by using the proposed development as the financial instrument to drive this management forwards.

Note that this management plan is based on needs of the woodland for management and appropriate enhancement for biodiversity. The woodland is covered by a Tree Preservation Order that provides statutory tree protection. Any removal of tree within a TPO area must only be after approval for works to trees within a TPO as obtained from the Local Authority. Any felling or thinning proposed must be approved through consultation with the appropriate statutory consultees including the Local Authority and Scottish Forestry. This document merely serves as guidance to steer management of the resource to benefit both the woodland structure and associated biodiversity, and takes no account of the TPO status.

2. Site Status and Developmental Impact

2.1. Botanical

2.1.1. Summary of findings

The botanical survey findings were that the Application Site was broadleaved woodland with some understory conifer present at low levels (so should not be termed mixed woodland) and was comprised of two types of woodland – open woodland with larger mature trees and high canopy, and an area dominated by willow and hawthorn with a low dense canopy and poor or non-existent ground flora. Habitats and species were typical of urban fringe woodlands and the ground layer in particular was depauperate in terms of species diversity and numbers of plants with some areas under dense canopy shade almost devoid of ground layer plants, while the understory was poor in structure, species-poor, and suppressed so saplings were spindly due to the lack of light reaching them.

2.1.2. Habitats

The extended Phase I Habitat survey found three principal Phase I habitat types present in the survey area, and another five adjacent to it [including walls and fences, scrub, mixed woodland, and other habitats (roads and paths) but no nationally notable examples or extents of any habitat:

A1.1.1: Broadleaved plantation woodland: the woodland clearly has a planted origin (hence “plantation”) but now contains a lot of self-seeded broadleaved trees dominated by sycamore and beech.

J2.4: Fence: Along the northern edge of the Site there is a wooden panel fence separating the site from the neighbouring residential properties.

J2.5: Wall: The western site boundary comprises walls which separate the site from Bothwell Road and stand at least 10 feet from the ground when viewed from the level of the site.

2.1.3. Plant Species

No locally or regionally notable plant species were found and no non-native invasive species listed on Schedule 9 of the Wildlife & Countryside Act 1981 were found. Bluebell was present but sparse and is a species of interest in Scotland as a flagship species for local biodiversity initiatives in some local authority areas. Note some yew trees are present in the understory and should be protected during all works.

2.1.4. Tree Survey

The tree survey report completed in 2020 and updated in 2021 assessed the development as having a relatively low impact on the woodland resource. It concluded that *“most of the site is dominated by trees of Category A which are the key components of a good quality mature woodland. The best trees (and all Category A trees) will therefore be retained. If development is to proceed as planned, a number of lower quality trees will have to be removed. In this event, care must be taken to ensure that construction of roads and buildings and service connections do not damage the trees to be retained.”*

2.2. Faunal

2.2.1. Summary of Ecological Survey Findings

Overall, the Application Site has a very limited faunal ecological value. Current woodland structure offered little value for breeding birds but seven trees offered potential for use by fauna such as roosting bats. Other protected species considered in the preliminary appraisal included: Otter, Badger, Water Vole, Invertebrates, Amphibians, and Reptiles).

Only two groups were considered potential ecological constraints due to their seasonal presence: bats and breeding birds:

2.2.2. Bats

Roosting bats were a confirmed ecological constraint within the development site with two non-breeding Soprano Pipistrelle roosts identified in tree 2063 during July and August 2022, with only one bat present in each. Of the seven trees present that had bat roost potential present the development will result in the loss of Goat willow 2215, which had only low potential, and 2063 (Horse chestnut) which was high roost potential and in fact had two confirmed bat roosts present.

2.2.3. Breeding Birds

The Application Site had very low numbers of breeding birds present in July 2022, with only single birds of the following species confirmed: Blue Tit, Coal Tit, Goldcrest, Magpie, and Treecreeper, bearing in mind that birds were present breeding in adjacent woodland in other ownership where habitat offered more value to breeding birds.

2.3. Conclusions Based on Survey Findings

Although the Application Site has an overall low ecological value at present, it is used by small numbers of non-breeding bats. As the Horse chestnut 2063 is to be removed then a developmental licence will need to be applied for (NatureScot – see Bat Roost Survey report) and approved prior to any works to this tree or any other tree within 0 to perhaps 20+ metres away (i.e., any distance where the works could be construed to disturb a roosting bat). A high due regard must therefore be maintained for roosting bats, as well as for breeding birds between March and September in any year. The fieldwork completed to date does, however, clearly show that the woodland significantly lacks management and there are simple but effective opportunities to considerably enhance it for biodiversity through a series of simple management options that can be conditioned as part of planning approval for the development. This is considered to be a potentially significant gain for the loss of the small area of woodland of lower quality. For bats in particular, it is considered that the proposed development will provide significant potential for management and enhancement of the woodland resource to benefit suburban / urban fringe biodiversity.

3. South Lanarkshire Biodiversity Action Plan (LBAP)

The LBAP established the way forward was to focus on an ecosystem and integrated habitat network approach that will allow species to move through a landscape. At the Development Site it is considered that both soft landscaping enhancement and actual houses both have a role to play as part of the overall habitat and ecological niche availability, with some species following green corridors created by soft landscaping such as lawns and hedges/trees and others utilizing these corridors and also homes (for example, commuting and foraging bats).

The LBAP includes five key ecosystems, with the one of relevance to the Application Site being Woodland ecosystems. Although the ecosystems approach has been taken the LBAP still includes a draft list of priority species including Bats: Soprano & Common Pipistrelle bats were key species in the previous South Lanarkshire Biodiversity Strategy as all UK key BAP species were classed as key species locally. In the latest version of the strategy an ecosystem approach is taken, which encompasses conservation of key species by conservation of habitats.

4. Woodland Management

4.1. Tree Retention and Protection

Existing trees to be retained in proximity to the proposed developmental footprint have had their root protection areas (RPA) identified (See Site Tree Survey Report 2021) and a scheme of protection has been provided to the developer showing the extent of and location of robust barrier to protect these RPAs to ensure no damage during the developmental process (Tree Protection Plan). Detailed information regarding appropriate protection of trees is detailed within the BSI Standards Publication - BS 5837: 2012 Trees in relation to design, demolition and construction, as well as in – BS 3998: 2010 ‘Recommendations for Tree Work’ Recommendations should be followed and reference may also be required in regard to the NJUC ‘Guidelines for the Planning, Installation, and Maintenance of Utility Apparatus in Proximity to Trees’.

It would also be important to ensure that site contractors were aware of the best working practices for sites where trees are present and that common types of accidental damage that may occur to trees during development may include the following:

- abrasion of bark and wounds that leave wood tissue exposed;
- crushing of roots by vehicles / plant equipment and / or storage of materials;
- severing and removal of roots by excavation;
- broken branches leaving wood tissues exposed;
- poor pruning;
- fire damage;
- poisoning of roots from spillage or storage of fuel, oil, chemicals and any other potentially noxious materials;
- changes in soil levels around trees resulting in root death; and
- installation of impermeable surfaces

The part of the tree most susceptible to damage is the root system because:

- roots cannot be seen and their extent is not realized; and

- of a lack of understanding of root function and their importance for the health of the tree

The effects of damage can be serious but often it takes several years for this to become evident, with trees dying over a period of 5 - 10 or more years, and is not always linked back to the actual cause during development work. Often by the time the damage becomes evident the developer may no longer own the site leaving the new owner with the problem and the potential need for costly tree work. Lack of protection can also result in damage to bark and branches that can disfigure a tree and result in disease and decay that also reduce safe life expectancy.

We would also recommend adhering to the following best practice guidance to protect any tree being retained:

- No storage of soils or construction materials, or parking of machinery or other vehicles within the drip line of any retained tree during site preparation;
- Ground levels shall not be uplifted above existing ground levels of retained trees within the drip line of their canopies due to impact on root systems;
- The RPA protection areas must be clearly demarcated using Heras or similar fencing to prevent machinery from inadvertently tracking within root protection areas or within drip lines of retained trees;
- Any trees retained where branches may obscure access or works area must be appropriately trimmed by an arbor squad and not have branches broken off by machinery. Canopy lifting may be required;
- If any work within the drip line of any retained tree is essential then it is recommended that ground protection mats are used to minimise soil compaction and damage to root systems: <http://www.grassform.co.uk/ground-protection-mats.htm>; and
- The completed development should have appropriate stormwater and groundwater drainage systems such that there is negligible impact on the current groundwater system of the site. It is not only essential to prevent water logging that may result in tree death but also to prevent any long-term drying out of the ground that may impact tree health in the long-term due to over efficient drainage

4.2. Woodland Management

The overall aim is to manage the woodland to preserve the canopy cover and existing key trees, whilst enhancing the diversity of the woodland, particularly at ground level both in terms of species and structure through simple yet appropriate management tasks.

4.2.1. Canopy layer

The canopy layer is the key constraint restricting the development of the ground flora and understory layers. For some species with particularly dense shade (sycamore, Horse chestnut, and beech), we recommend an assessment be completed by a tree surgeon to determine if any crown lifting is feasible for only a limited number of the mature trees where it is apparent they are having an adverse impact on the lower vegetation layers. For such species as sycamore and Horse chestnut in particular, limited sensitive pruning to lift the canopy would help reduce levels of shading at ground level.

It is noted that beech has a significant impact on the ground layer in the woodland but this is due to an allelopathic affect – the roots of the tree release a chemical to inhibit ground layer plant growth so minimising competition for its seedlings. This species is therefore undesirable in a woodland (see later for management).

It will then be possible to establish a low number of new specimen trees of native species such as oak and birch, which will contribute to the future canopy for the woodland as well as a future biodiversity benefit as they mature (and “naturally” replace other currently mature trees as these senesce and decline). We would recommend such trees are at least heavy standard size and preferably extra-heavy standard.

Note that many lime trees have significant epicormic masses near the base. These can impact ground layer vegetation; however, they are of potential value as cover for nesting birds so should not be removed.

4.2.2. Understory layer

The woodland currently has many spindly, suppressed and dying saplings present. Competition for light is intense at this level. We recommend extensive selective thinning of this layer by preferential selection for native species such as oak, birch, and lime which should be allowed to continue to grow unless badly mis-shapen, and complete removal of non-natives such as sycamore and all beech saplings (due to their potential for significant impact on the woodland structure in the long-term both in terms of shade and also in terms of loss of ground flora diversity). It will also be necessary to drastically thin hawthorn and any willow at this level. It will then be possible to establish a low number of new specimen trees of native species such as holly and rowan, which will contribute to the future understory canopy and a future biodiversity benefit as they mature. We would recommend such trees are at least heavy standard size and preferably extra-heavy standard.

At this layer the allelopathic non-native invasive *Rhododendron* can be found. This species should be eliminated from the woodland. The most cost effective way to do this is to drill holes in the stems and

inject Roundup herbicide, then sealing or capping the drill sites. Death should occur within 9 months. Once dead the bushes and associated leaf fall can be cleared up and removed. Such locations may provide ideal locations for establishment of new heavy standard or extra heavy standard replacement canopy trees depending on the relative position to existing canopy trees. If the presence of existing canopy trees prevents establishment of new canopy trees at these locations then native shrubbery may be a suitable alternative such as holly or hawthorn, subject to depth of shading. This would all be assessed on a micro siting level at the time of woodland management.

4.2.3 Ground Layer

The woodland should be checked every fifth year for new emerging saplings, at which time any non-native or problem species of young sapling such as beech and sycamore can be removed.

4.2.4. Tree Condition

It is recommended that the condition of all trees is examined by a resurvey (Formal Inspection and highly likely a Detailed Tree Condition inspection) on at least a five yearly basis if not every two years, and is imperative soon after any significant climatic event such as a storm that could destabilise or damage any tree, or result in hung branches that could injure or kill passers-by for example. This will help to fulfil the Landowner "Duty of Care" and the findings should be formally recorded each time this takes place.

5. Biodiversity Enhancement: Botanical

5.1. Soft Landscaping for Completed Development

The Landscape Works will be maintained and protected in accordance with BS7370 (Ground Maintenance) and BS4428 (General Landscape Operations), and shall include all operations required to ensure the establishment of healthy, vigorous plants and grassed areas. The maintenance of the proposed soft landscape tree and shrub planting is expected to be undertaken by the owners to a regime that will be established by the project Landscape Architect. Its direct relevance to this Biodiversity Strategy is ensuring that maintenance regimes for habitats that could be used by wildlife are taken into consideration and are appropriate.

5.2. Establishment of New Trees

This will ensure a diversification of age ranges of quality specimens in the woodland that will provide additional habitat niches for wildlife particularly birds and insects.

5.3. Establishment of Woodland Species-rich Ground Flora

5.3.1. Species-rich Hedgerow Mix

For use besides hedges/under them or in close proximity to the woodland edges where some light shade will be experienced would contribute to a significant enhancement of the ground flora. Where possible this will merge with areas of Flowering Lawn mix if it adjoins open grassland areas. This has a visual amenity benefit and biodiversity benefit for invertebrates and birds in particular. This mix should not be cut between April and late August.

5.3.2. Woodland Ground Flora

We recommend the use of both woodland flora seed and also planting of bulbs to enhance and diversify the woodland ground layer to that resembling a natural broad-leaved woodland. Scotia Seeds retails a Woodland Meadow Mix <https://www.scotiaseeds.co.uk/shop/woodland-mix/> that will thrive in deep shade and includes the general wide range of 19 wildflower and five grass species that should typically be in many of our native woodlands. This should be sown after the planting of bluebell bulbs, which should be densely and widely planted to create colourful swathes of vivid blue in the late spring. The wildflower mix should not be sown over the bluebell areas as the bluebells will tend to be so dense they will outcompete and exclude or kill other species. Rather the two-pronged approach will ensure a diverse woodland ground layer, with significant benefit to insects, and consequently birds and bats as well.

6. Biodiversity Enhancement: Faunal

6.1. Overall Faunal Benefit

The general potential value of the habitats will be for a range of species from invertebrates including butterflies and bees, to small mammals, bats, and birds, although all will have to find the site to be able to start to use it. Species groups such as invertebrates are often overlooked in nature conservation and the newly enhanced habitats would provide conditions suitable for a number of invertebrate species to breed.

6.2. Bats

6.2.1. Enhancement of the woodland for roosting bats

Enhancement is simply the installation of multi-season bat boxes through the woodland area to provide additional roosting habitat. All boxes should be of a woodcrete type construction not timber and be between 2 and 6m up trees with clear flight paths for the bats to access them,. It's recommended that the foraging patterns of bats and associated flightpaths are confirmed after tree works are complete as they may be radically different to those observed now. On this basis, the bat boxes can be placed where there's a high chance of bats detecting them while foraging. These bat boxes are not necessarily the ones associated with any developmental licence requirements for the developmental process.

6.2.2. Enhancement of the woodland for foraging bats

Careful planning will be required with the clearing of understory and establishment of replacement trees as this process can be used to create or enhance corridors that will facilitate bat foraging flight paths, particularly between bat boxes and any other roost sites subsequently discovered.

6.3. *Breeding Birds*

The woodland management proposed will enhance the woodland layers for a number of breeding bird species but the woodland may still lack cavities for hole-nesting birds. We recommend a range of bird boxes be installed including open fronted boxes for species such as Robin and Spotted Flycatcher, as well as traditional hole entrance boxes for species such as titmice and Starlings. These boxes should be placed in a selection of locations to include woodland edge, clearings, and denser cover areas for the species such as Robin. Advice can be provided at the time of selection of boxes and suitable locations for placement.

Note: The habitat enhancement should result in not only more cover for nesting birds but also in more food resources. However, it should be noted that species and numbers gradually build up as the habitat matures over a 10 – 15 year period, so the general benefit of such habitat creation usually isn't a quick fix but time will be required to see the full benefit.

6.4. *Critters*

We recommend the creation of a number of habitat piles in the woodland during the works to trees. These will include brash piles and also log piles and may be used by species such as Hedgehogs, small mammals such as mice and shrews, frogs, toads, and many invertebrates, so that a wide range of biodiversity has opportunity not just the showcase species such as birds and bats.

We do not consider it worthwhile creating any artificial sett for Badgers as if Badgers opt to occupy the woodland they are quite capable of making their own homes.

6.5. *People*

The local community is an important part of the area's biodiversity, and the applicant has made a commitment to enhancing public access to the woodland for recreational purposes. It is recommended that any paths created must be low impact, or simply trails with marker posts at regular intervals. Trails should avoid key ground flora but showcase areas such as carpets of dense bluebells. Paths will therefore be designed and routes selected only after the scheme for the proposed diversification of the ground flora has been established. Note that should trails be considered to be unsuitable for all-abilities then a path tray can be installed using geogrid to minimise impact on tree roots. Path surface

choice would need to be carefully selected in that case to ensure one with minimum maintenance requirements be chosen.