



Guildford Borough Council: Tyting Farm

Biodiversity Net Gain Plan

On behalf of **Guildford Borough Council**



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1 Introduction

1.1 Background and Proposals

- 1.1.1 In developing Guildford Borough Council's (GBC) Biodiversity Net Gain (BNG) policy, the Council are seeking to examine the ability to deliver Biodiversity Net Gain within GBC landholdings, through the stacking of Environmental benefits. The approach is in accordance with emerging policy set out in the government's recent Biodiversity Net Gain consultation paper (see Section 2 below). The purpose of confirming the capacity for GBC landholdings to deliver Biodiversity Net Gain is to demonstrate that GBC have the potential to provide a "Mitigation Bank" for developers wishing to off-set any BNG requirements which they have not been able to meet within their proposed development site, through the purchase of Biodiversity Units from GBC. GBC wish to run a pilot study, Tyting Farm, to demonstrate the potential BNG uplift value available in GBC landholdings.
- 1.1.2 Tyting Farm is approved Suitable Alternative Natural Greenspace (SANG) land, proposed as mitigation for residential development effects on the Thames Basin Heaths Special Protection Area (SPA) (planning application reference 18/P/00782, approved July 2018). The Landscape and Biodiversity Enhancement Management Plan (LBEMP) for Tyting Farm SANG (Guildford Borough Council, 2019, approved 2020) identifies the potential for additional management for Biodiversity Net Gain above and beyond the habitat creation and management requirements for a SANG.
- 1.1.3 Stantec were asked by GBC to prepare a Study which looked at the feasibility for the Tyting Farm site to achieve a Biodiversity Unit value uplift, through habitat creation and enhancement measures over-and-above those required for the site to meet with requirements for the SANG. That Study is the subject of a separate report which confirms the current baseline conditions within the Tyting Farm site and provides a feasibility study of the capacity of the site for habitat creation and enhancement (Stantec, 2022a). The study also confirms the Biodiversity Units that would be made available through the proposed habitat creation and enhancement measures, using the Biodiversity Metric 3.1 (Panks *et al.*, 2022). A summary of the findings of this report is provided in Section 3, as context to this Biodiversity Net Gain Plan.
- 1.1.4 A management and maintenance plan, providing the details of the works to be undertaken to establish the habitat creation measures, and to set out an ongoing programme of management, maintenance and monitoring is necessarily required to confirm how the habitat creation and management works to achieve Biodiversity Net Gain will be undertaken. This Biodiversity Net Gain Plan for Tyting Farm sets out the required management and maintenance actions and provides an indicative estimate of the costs required for delivery of this Plan to establish the habitat creation measures and to provide for management, maintenance and monitoring over a 30 year period¹.

1.2 Structure of Report

- 1.2.1 This Biodiversity Net Gain Plan for Tyting Farm sets out the following:
- The Legislation and Policy background regarding Biodiversity Net Gain for proposed development and the concept of Mitigation Banking
 - Summary Findings of the Tyting Farm Biodiversity Baseline and Feasibility for Biodiversity Enhancement Study

¹ The costings for a 30 year period of monitoring, management and maintenance are provided in this Plan. This is the anticipated timeframe for delivery of Biodiversity Net Gain off-sets (e.g. see <https://www.local.gov.uk/pas/topics/environment/biodiversity-net-gain-local-authorities>). This Plan does, however, have potential to be extended beyond that 30-year time-frame where appropriate and required.

- The practicalities of the Biodiversity Net Gain Plan for Tyting Farm including management responsibilities, plan period, review schedule and funding mechanisms.
- Confirmation of the initial capital works required to create and enhance habitats within Tyting Farm for Biodiversity Net Gain, with reference to estimated costings.
- Confirmation of the anticipated ongoing management, maintenance and monitoring requirement for Tyting Farm to achieve Biodiversity Net Gain, with reference to estimated costings.

1.2.2 It should be noted that where costings for initial Capital Works and ongoing management maintenance and monitoring are already accounted for (wholly or partially) in the in the Landscape and Biodiversity Enhancement Management Plan (LBEMP) for Tyting Farm SANG (Guildford Borough Council, 2019), this is clearly identified and discounted from the costing for the BNG Plan, to avoid “double-accounting”.

2 Biodiversity Net Gain: Legislation and Policy Framework

2.1 National Legislation and Policy

- 2.1.1 The UK Government's Natural Environment White Paper: 'The Natural Choice: securing the value of nature' (HM Government, 2011) introduced several policies to conserve the environment. One policy included the system of accounting, termed 'biodiversity offsetting.'
- 2.1.2 In England, the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021) sets out a broad framework of policies for the planning system in England and how they should be applied. Underpinning the framework is the principal aim of 'Sustainable Development' which is to be pursued through the fulfilment of interdependent economic, social and environmental objectives.
- 2.1.3 Chapter 15 of the NPPF details core policy principles with respect to conserving and enhancing the natural environment. Securing 'net gains' for biodiversity, in accordance with the Government's 'A Green Future; Our 25 Year Plan to Improve the Environment' paper is a key theme running through the Chapter, whereby planning decisions are required to contribute to and enhance the natural environment by "minimising impacts on and providing net gains for biodiversity", and plans should "identify and pursue opportunities for securing measurable net gains for biodiversity". The Chapter also places planning decisions in the context of the mitigation hierarchy where, if impacts on biodiversity cannot be avoided, mitigated, or as a last resort compensated for, then planning permission should be refused.
- 2.1.4 The Environment Act 2021 received Royal Assent on 9th November 2021 and includes provision for a new mandatory requirement for proposed developments (which meet certain requirements) to provide 10% Biodiversity Net Gain. This requirement is not yet mandatory but it is anticipated that the 10% Biodiversity Net Gain (and requirement to measure this using the Biodiversity Metric 3.1, or its successor) will come into force when the Secretary of State makes a Regulation to do so; likely following a two year 'transition period' after the Environment Act came into force, i.e., from November 2023.
- 2.1.5 In addition, Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. Section 41 of the Act defines Habitats and Species of Principal Importance (HoPI or SoPI) to nature conservation in England which should be considered by all public bodies, including LPAs, when carrying out their Section 40 duties. 'Planning Practice Guidance for the Natural Environment' (Planning Portal 2014) and the British Standard for Biodiversity in Planning (BS 42020:2013) both recommend the system of biodiversity offsetting as an appropriate mechanism of delivering biodiversity compensation.

2.2 Emerging GBC Policy

- 2.2.1 The Guildford Borough Local Plan: Development Management Policies Submission Local Plan (June, 2022) sets out clearly the local biodiversity context, identifying Surrey as a comparatively biodiverse county and Guildford is one of its most biodiverse districts, but also identifying that the decline in local biodiversity is even more pronounced than the national decline. Surrey has historically suffered a high degree of habitat loss and fragmentation; the Surrey Nature Partnership's (SyNP) report, "The State of Surrey's Nature" estimates that 12% of the County's species have been lost, 21% are in decline and heading for local extinction, 15% are rare but stable and only 3% of rare species are recovering (Surrey Nature Partnership, 2019).
- 2.2.2 This information is presented as a context to a new Policy for Guildford Borough Council, as presented in the Guildford Borough Council Local Plan: Development Management Policies

Submission Local Plan (June, 2022): Policy P6/P7: Biodiversity in New Developments. The proposed wording for Policy P6/P7 is provided at Appendix A.

2.3 Biodiversity Offsetting and Mitigation Banking

- 2.3.1 As discussed above, the 'Planning Practice Guidance for the Natural Environment' (Planning Portal 2014) and the British Standard for Biodiversity in Planning (BS 42020:2013) both recommend the system of biodiversity offsetting as an appropriate mechanism of delivering biodiversity compensation. This is a process whereby the compensation, or in the case of Biodiversity Net Gain this would be measured in Biodiversity Units to achieve Biodiversity Net Gain, is provided outside the proposed development Site boundary, secured by a Section 106, or other appropriate measures to link it to the development which is the source of the impact.
- 2.3.2 Guidance provided to Local Authorities by the Local Government Association's Planning Advisory Service² advises that there is scope within the approach set out by the Environment Act, 2021 for Biodiversity Net Gain delivery to be achieved through the development of a local habitat bank (on LPA or other third party land) from which multiple developments could secure their Biodiversity Net Gain offset requirements through the purchase of Biodiversity Units. The habitat bank, however, would need to demonstrate how biodiversity units would be provided by the land, as measured by the Biodiversity Metric, as well as being able to demonstrate how the biodiversity units will be delivered and monitored over a 30 year period through a Biodiversity Net Gain Plan.
- 2.3.3 The recent Department of Environment Food and Rural Affairs (Defra) consultation on Biodiversity Net Gain Regulations and Implementation (Defra, January 2022) discussed the stacking of payments for environmental services. The consultation paper acknowledged that the market for biodiversity units will need to work alongside other environmental markets, such as nature-based carbon and nutrient trading and established markets for provisioning services, such as agricultural and forestry products, as well as UK Government-funded programmes such as the new schemes to reward environmental land management.
- 2.3.4 The consultation paper (Defra, January 2022) stated that the government were minded to allow landowners and managers to combine payments for biodiversity units with other payments for environmental services from the same parcel of land, provided they are paying for distinct, additional outcomes (for example, carbon sequestration and biodiversity benefits). By "services" the consultation paper stated that this meant distinct environmental services (including supporting and regulating services) or benefits such as carbon sequestration, pollution mitigation, biodiversity, or recreation. The paper clarified that separate agreements must be compatible, pay for different or additional outcomes and must not pay for the same outcome twice.

² <https://www.local.gov.uk/pas/topics/environment/biodiversity-net-gain-local-authorities/biodiversity-net-gain-faqs#delivery-of-bng>

3 Biodiversity Net Gain Baseline Report and Feasibility Study

3.1 Overview of Outcomes

- 3.1.1 Stantec have completed a Biodiversity Net Gain Baseline Report and Feasibility Study in parallel with this Biodiversity Net Gain Plan (Stantec, 2022a). The Stantec (2022a) report confirms the baseline ecological context, habitat extents and condition, and relevant physical conditions of the Site. Taking the baseline into account, the Stantec (2022a) report identifies proposed habitat creation and enhancement measures suitable for the Site. The Report goes on to determine the uplift in Biodiversity Units (Habitat Units and Hedgerow Units) realistically available from management and enhancement of the Tyting Farm site over a 30 year period (the duration of this BNG Plan).
- 3.1.2 Through a desk study, soil sampling and analysis and ecological survey, the baselined Biodiversity Unit value for Tyting Farm was calculated using Defra’s Biodiversity Metric 3.1 tool (Panks *et al.*, 2022). Feasible options for habitat creation and enhancement were developed and informed by practical management considerations, site conditions including current habitats and soil parameters, and context in relation to linkages to surrounding habitats and sites. The current site management was also taken into account and illustrates the importance of discussions with site managers as an integral part of the development of a BNG Plan, especially where the stacking of environmental services is being proposed.
- 3.1.3 Recommended habitat creation and enhancements at Tyting Farm sought to ‘dove-tail’ with the wider strategic nature recovery context at the Parish, county and wider levels (Biodiversity Opportunity Area ND02: North Downs Scarp & Dip; Guildford to the Mole Gap, Surrey Nature Partnership, 2019). This includes, in the case of Tyting Farm, consideration of linkages with nearby sites such as St Martha’s Hill and Newlands Corner, as well as consideration of the landscape character and heritage of the area.
- 3.1.4 The potential habitat units arising from the proposed habitat creation and enhancement changes were then calculated, again using the Biodiversity Metric 3.1 tool.

3.2 BNG Unit Uplift from Proposed Habitat Creation and Enhancement

- 3.2.1 The proposed initial capital works to set up the habitat creation and enhancement works for Tyting Farm, and the subsequent management, maintenance and monitoring proposals over the 30-year period of the BNG Plan are set out in Sections 5 and 6 below. The anticipated uplift in Biodiversity Units for both habitats and linear features (hedgerows), as a result of implementation of the BNG Plan, is set out in Table 3.1 below.

Table 3.1 Changes in Habitat Units Arising from Proposals for Tyting Farm (Taken from Stantec 2022a)

Habitat type UKHAB	Unit change	% change
Habitats	141.30	47.32%
Linear features (Hedgerows)	29.04	108.56%

4 Biodiversity Net Gain Plan

4.1 Approach

4.1.1 This Biodiversity Net Gain Plan (hereafter BNG Plan) provides detail of initial works to establish the measures proposed for Biodiversity Enhancement within Tyting Farm, along with proposed ongoing prescriptions for long-term management, maintenance and monitoring (see Appendix B), forming an overarching structure for implementation and management of the Biodiversity Net Gain measures. This document defines the areas covered under the plan and sets out the mechanism for management and responsible bodies, and provides specific management prescriptions for the different elements of the BNG Plan. Figures 1-3 show the habitats and linear features present within the Site and their current condition (as of August 2022). Figures 4-6 shows the proposed habitats and linear features within the site and their target condition, with the implementation of the proposed habitat creation and enhancement measures described in this BNG Plan.

4.2 Area Covered by the Biodiversity Net Gain Plan

4.2.1 This management and maintenance plan relates to the GBC landholding known as Tyting Farm, as shown in Figure 1.

4.3 Ownership and Management Responsibility

4.3.1 The entirety of the Tyting Farm site is owned and managed by Guildford Borough Council. Guildford Borough Council will therefore be responsible for the initial habitat establishment works and for the ongoing management, maintenance and monitoring of the Tyting Farm for the 30-year period of the BNG Plan. Contractors may be appointed by GBC to deliver some elements of the works required. Furthermore, GBC may work with some volunteer groups to deliver some elements of the ongoing management/maintenance.

4.4 BNG Plan Period & Review Schedule

4.4.1 The BNG plan provides the overarching approach to implementation and management of the BNG measures over a 30-year period. However, it is recognised that an adaptive approach to management and maintenance will be needed to respond to monitoring results, as the Plan progresses. As such, the BNG Plan will be subject to periodic review, to inform ongoing management activities. Ecological survey and monitoring will take place on completion of the initial establishment works, in years 1, 3, 7, and then every 5 years following, with outputs to include reporting of the results, progress against targets and any adaptation requirements for the Management Plan. Soil sampling and laboratory analysis to track key soil nutrient parameters as the Management Plan is implemented also forms part of the ongoing monitoring (years 3, 7 and every 5 years following). The findings would also be reported with the ecological survey and monitoring results to inform progress against targets and any adaptation requirements for the Management Plan.

4.5 Costings and Mechanism for Funding

4.5.1 **Appendix C** provides estimated costs associated with the establishment and ongoing management and monitoring of a BNG Mitigation Bank at Tyting Farm for thirty years. The final costings **will be confirmed** by GBC and will be determined by the timing of implementation of the plan and confirmed procurement costs. The costings have however been informed by GBC's experience of habitat management within SANGs and current market prices for physical items (seed, plant stock etc). GBC currently manage the area, with the intention of use of the land as a SANG. The costings for the BNG Plan provides for additional costs over and above those already accounted for in the **SANG Management Plan**. Appendix D provides Funding Model Projections produced by GBC which determines an anticipated cost per

Biodiversity Unit, taking account of the estimated costings in Appendix C and GBC's cost projection over the 30-year BNG Plan period, including inflation and anticipated income from investment.

- 4.5.2 It is anticipated that the additional budget to fund the BNG Plan will be funded through monies secured from off-site biodiversity offsetting to meet anticipated Biodiversity Net Gain requirements for future development. This BNG Plan, costings and funding model projections contributes to evidence for the capacity of GBC landholdings to provide cost-effective options for off-set BNG delivery.

5 Initial Capital Works

5.1 Overview

- 5.1.1 The primary objective of the Capital Works is to set up habitat creation works and additional management/maintenance and monitoring, where required, to support the habitat creation and proposed habitat enhancement. It should be noted that the Capital Works set out in this plan do have some overlap with the works described in the Landscape and Biodiversity Enhancement Management Plan (LBEMP) for Tyting Farm SANG (Guildford Borough Council, 2019). Where this is the case, the costings clearly identify where the measures are already partly or wholly covered by the SANG LBEMP. It is important to note, however, that the purpose of GBC including Biodiversity Enhancement measures within the LBEMP for Tyting Farm SANG was to demonstrate the acceptability of such measures for the Site through the Change of Use Application documentation, the Biodiversity Enhancement measures in the LBEMP are over and above the measures required for Tyting Farm to meet the requirements for SANG provision.
- 5.1.2 The proposed infrastructure, habitat creation and enhancement measures proposed for Tyting Farm are set out below. Appendix C provides the details of indicative estimated costings (agreed with GBC) for these measures and the specification on which they are based, along with notes on timing and other considerations relevant for implementation. Appendix D provides GBC's Funding Model Projections based on the costings in Appendix C.

5.2 Infrastructure/Hard Landscaping including street furniture

- 5.2.1 The access and footpaths required for Tyting Farm and street furniture such as dog waste bins and litter bins are entirely a SANG requirement and therefore will be costed and delivered through the SANG.

5.3 Information and Interpretation

- 5.3.1 The signage for Tyting Farm, including information/interpretation boards will be costed and delivered through the SANG. However, a provisional additional sum has been allowed to incorporate additional information and/or QR codes to the information boards relating to the Biodiversity Net Gain aspects.

5.4 Boundary Treatments and Measures to Manage Grazing.

- 5.4.1 Fencing of Tyting Farm for security is again already costed for as part of the SANG Management Plan. The grazing of cattle on the fields is on an adhoc basis for the SANG, rather than a specific "conservation grazing" approach. To facilitate a conservation grazing approach without the need for the provision further new fencing (permanent or temporary electric) which may affect the "semi-natural feel" of the site necessary to meet SANG requirement, it is proposed to invest in GPS collars for livestock. These collars will allow control and focus of the areas in which the cattle graze, with the purpose of directing the grazing effort to areas which most need it (see also management, maintenance and monitoring prescription for grassland at Appendix B).

5.5 Habitat Creation and Management: Initial Works

Hedgerow Creation

- 5.5.1 There are a large number of defunct hedgerows present within the site. Whilst some hedgerow planting is proposed for the SANG, this is largely for the purpose of providing screening between the SANG and adjacent properties. However, the Tyting Farm Biodiversity Net Gain Baseline Report and Feasibility Study (Stantec, 2022a) demonstrates capacity for

additional hedgerow planting which will provide ecological connectivity between woodland and scrub habitats across the site, as well as provide varied habitat structure. Both mixed native species hedgerow planting (whips) is proposed, whilst some other hedgerows are proposed to include trees within the planting mix, to encourage standard trees within some of the hedgerows. This again will provide diversity of structure and opportunities to support a variety of faunal species, with time.

Implementation of Grassland Management

- 5.5.2 The poor calcareous grassland in the north-east of the site is not currently in any active management. The lack of management in these fields has resulted in the development of a dense sward of tussocky grasses. 'Other neutral grassland' is present in the north-western most slopes of the Site but underlying geology would suggest movement towards a more calcareous nature is possible. The biodiversity value uplift potential of these grassland areas is constrained by the existing soil nutrient levels, notably including high levels of phosphorous. However, these excess nutrients with time and conservation management will leach out, especially from the steeper slopes. To encourage this process, restorative management including seasonal cutting and removal of arisings and implementation of a conservation grazing regime is proposed. A rotational approach to the mowing and grazing is proposed so that a long sward will remain in parts of the Site in any given year, in order to maintain a structural diversity to the grassland. This approach will be of benefit to species groups such as invertebrates.
- 5.5.3 Two trial areas of soil stripping using plant are also proposed (5 x 5m) on the steeper chalk slopes to the north of the Site. This will investigate whether the use of plant to strip the topsoil would help to restore the grassland to a diverse and high-quality sward more quickly than would otherwise be the case through more traditional grazing management. If successful, this trial could inform potential future management recommendations.
- 5.5.4 Neutral and modified grassland at the base of the slopes at Tyting Farm also has biodiversity value uplift potential, with improvements in sward structure representing a potential gain for biodiversity enhancement. Due to the position and underlying geology of the grassland, the potential to reduce soil fertility to levels conducive to high species-richness are less likely; as such, a focus on improvements in habitat structure and diversity are proposed, through the same management of combined mowing and grazing. The small area of modified grassland to the south of the existing houses may not be possible to graze due to its position but will instead be managed through mowing alone.

Green Lane Management

- 5.5.5 A narrow strip of lowland calcareous grassland is present in a 'green lane' leading from White Lane to the south of the Site. This grassland is the most diverse and species-rich grassland present on Site. The BNG Plan proposes management of the scrub habitats and removal of dumped garden waste, to avoid this calcareous grassland developing into scrub habitats.

Woodland Parkland Planting

- 5.5.6 Wood pasture/parkland habitat is proposed to be planted in the eastern-most modified grassland field of the Site (see Figure 4). This habitat is intended to provide a habitat linkage between the neutral ancient woodland at the base of the slopes within the Site, to extensive areas of acid-character woodland to the south of the Site, including St Martha's Hill. Habitat enhancement proposals for existing woodland within the site include ongoing control of invasive species including rhododendron which would improve the condition of the woodland habitat, as well as a long-term strategy to maintain and enhance woodland structure and to replace non-native trees

Orchard Creation

- 5.5.7 The proposed habitat creation includes the creation of a Traditional Orchard to the west of the Site. There are remnant apple trees *Malus domestica* embedded in nearby dense scrub suggesting that an orchard was present in the area previously. Photographs and historical maps also suggest the presence of kitchen garden features amongst the previous farm buildings. Therefore the creation of this habitat type contributes to maintenance of the historic management of the Site, in addition to providing the biodiversity value inherent in traditionally-managed orchards, which would also have the potential to provide community value.

Pond Enhancement

- 5.5.8 The existing large and shaded pond in the west of the Site is proposed to be enhanced through clearing back of woodland from around the pond edge to open the pond up and to reprofile the pond edges to provide some variation in bank profile, including some shallow edges. Both measures would encourage macrophyte growth and diversification of the pond.

Bracken Management and other Invasive Species

- 5.5.9 Areas in the west of the site include a 0.52ha area of Bracken (see Figure 1). It is proposed to put in place management measures to control the bracken and encourage the establishment of acid grassland in its place (see Figure 4) through the BNG Plan. Ongoing management and monitoring will be required to contribute to the success of the bracken management and establishment of acid grassland.
- 5.5.10 The treatment of Japanese knotweed within the Site is included and costed as part of the SANG LBEMP.

6 Management, Maintenance and Monitoring

6.1.1 The specific habitat management, maintenance and monitoring prescriptions are provided within **Appendix B**. The habitats are grouped where it is appropriate to do so, primarily on the basis of aligned management objectives and prescriptions. The prescriptions have been defined following consideration of the ecological (habitats and species) baseline information, and capacity for habitat creation and enhancement to generate Biodiversity Units, as described in the Biodiversity Net Gain Baseline Report for Tyting Farm (Stantec 2022a). Habitat management considerations for have influenced the specific prescriptions for each habitat type defined within the Tables in **Appendix B**. The habitat management, maintenance and monitoring includes prescriptions for the following:

- Retained Woodland and Trees
- Proposed Trees including Parkland, Orchard and Hedgerow Trees.
- Retained and Proposed Hedgerows
- Grassland
- Bracken and Scrub
- Pond

7 Summary and Conclusion

- 7.1.1 Stantec, on behalf of Guildford Borough Council have prepared this Biodiversity Net Gain Plan for Tyting Farm, a site owned and managed by Guildford Borough Council. The current use of the site is as a SANG. The purpose of this report is to determine additional habitat creation and management measures, over and above those required for SANG purposes, in order to provide a Biodiversity Offsetting Mitigation Bank at Tyting Farm.
- 7.1.2 This Biodiversity Net Gain Plan for Tyting Farm set out the works to be undertaken to establish the habitat creation measures, and outlines an ongoing programme of management, maintenance and monitoring which will necessarily be required for the habitat creation and management works to deliver Biodiversity Net Gain within the site over 30 years. The plan also sets out an estimate of the costs required for delivery of this Plan - to establish the habitat creation measures and to provide for management, maintenance and monitoring over a 30-year period³. Clarity is provided over the additional measures and costs over-and-above those already provided for through the Tyting Farm SANG Landscape and Biodiversity Enhancement Plan.
- 7.1.3 This Biodiversity Net Gain Plan therefore sets out the requirements and costs to establish a Biodiversity Offsetting Mitigation Bank at Tyting Farm. These costs have been used by GBC to determine the cost per Biodiversity Unit (Habitat Units and Hedgerow Units) for the delivery of the Biodiversity Net Gain at Tyting Farm using a funding model projection which takes account of inflation and anticipated income from investment. This cost can then be used to determine the charge for Biodiversity Units sold to developers requiring biodiversity off-sets for their proposed developments within Guildford Borough.

³ The costings for a 30 year period of monitoring, management and maintenance are provided in this Plan. This is the anticipated timeframe for delivery of Biodiversity Net Gain off-sets (e.g. see <https://www.local.gov.uk/pas/topics/environment/biodiversity-net-gain-local-authorities>). This Plan does, however, have potential to be extended beyond that 30-year time-frame where appropriate and required.

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9 Figures

Figure 1. Baseline Habitats

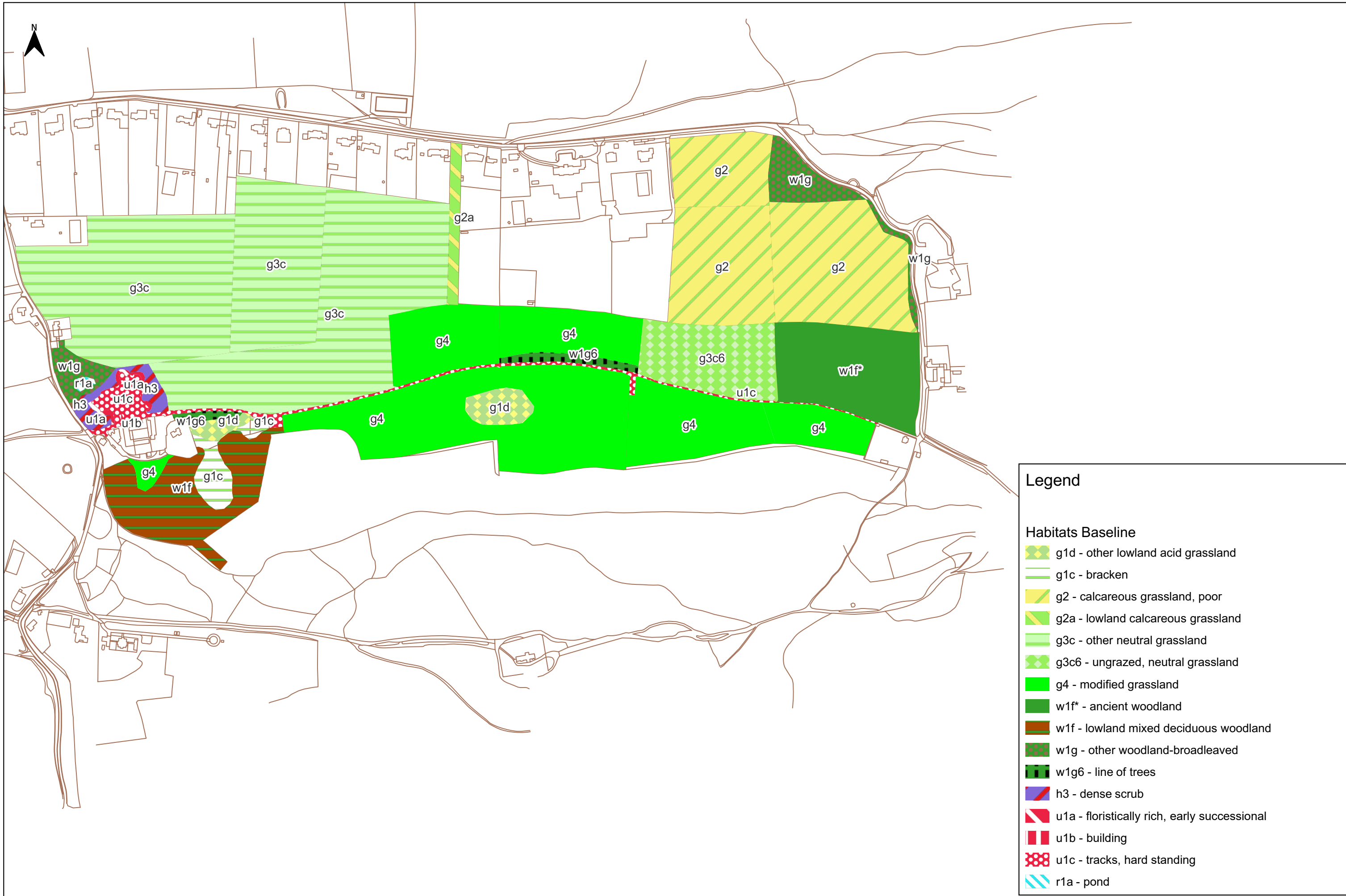
Figure 2. Baseline Linear Features

Figure 3. Baseline Condition (Habitats and Linear Features)

Figure 4. Proposed Habitats

Figure 5. Proposed Linear Features

Figure 6. Proposed Condition (Habitats and Linear Features)



Legend

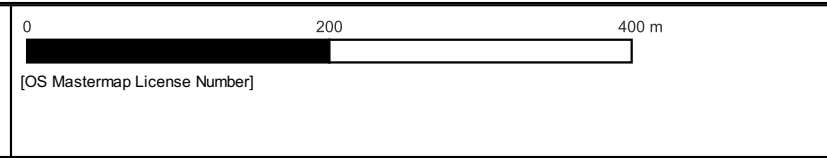
Habitats Baseline

- g1d - other lowland acid grassland
- g1c - bracken
- g2 - calcareous grassland, poor
- g2a - lowland calcareous grassland
- g3c - other neutral grassland
- g3c6 - ungrazed, neutral grassland
- g4 - modified grassland
- w1f* - ancient woodland
- w1f - lowland mixed deciduous woodland
- w1g - other woodland-broadleaved
- w1g6 - line of trees
- h3 - dense scrub
- u1a - floristically rich, early successional
- u1b - building
- u1c - tracks, hard standing
- r1a - pond



Client
For Guildford Borough Council

Tyting Farm Baseline Habitats



1:5000 @ A3	Date: 12/10/2022
Drawn: KJ	Checked: HE
Figure 1	Rev B



Legend

Linear features

- Line of Trees (w1g6NE2)
- Native Hedgerow (h2NE5)
- Native Hedgerow with trees (h2NE4)
- Native Species Rich Hedgerow (h2NE2)



Client
For Guildford Borough Council

Tyting Farm Baseline Linear Features



1:5000 @ A3	Date: 12/10/2022
Drawn: KJ	Checked: HE
Figure 2	Rev B



Legend

HEDGEROWS

Proposed Hedgerow Condition

Good

Moderate

Poor

HABITATS

Proposed Habitat Condition

Good

Moderate

Poor















N/A

Document Path: G:\GIS Projects\Tyting Farm BNG\Biodiversity Metric 3.1 - QGIS Template

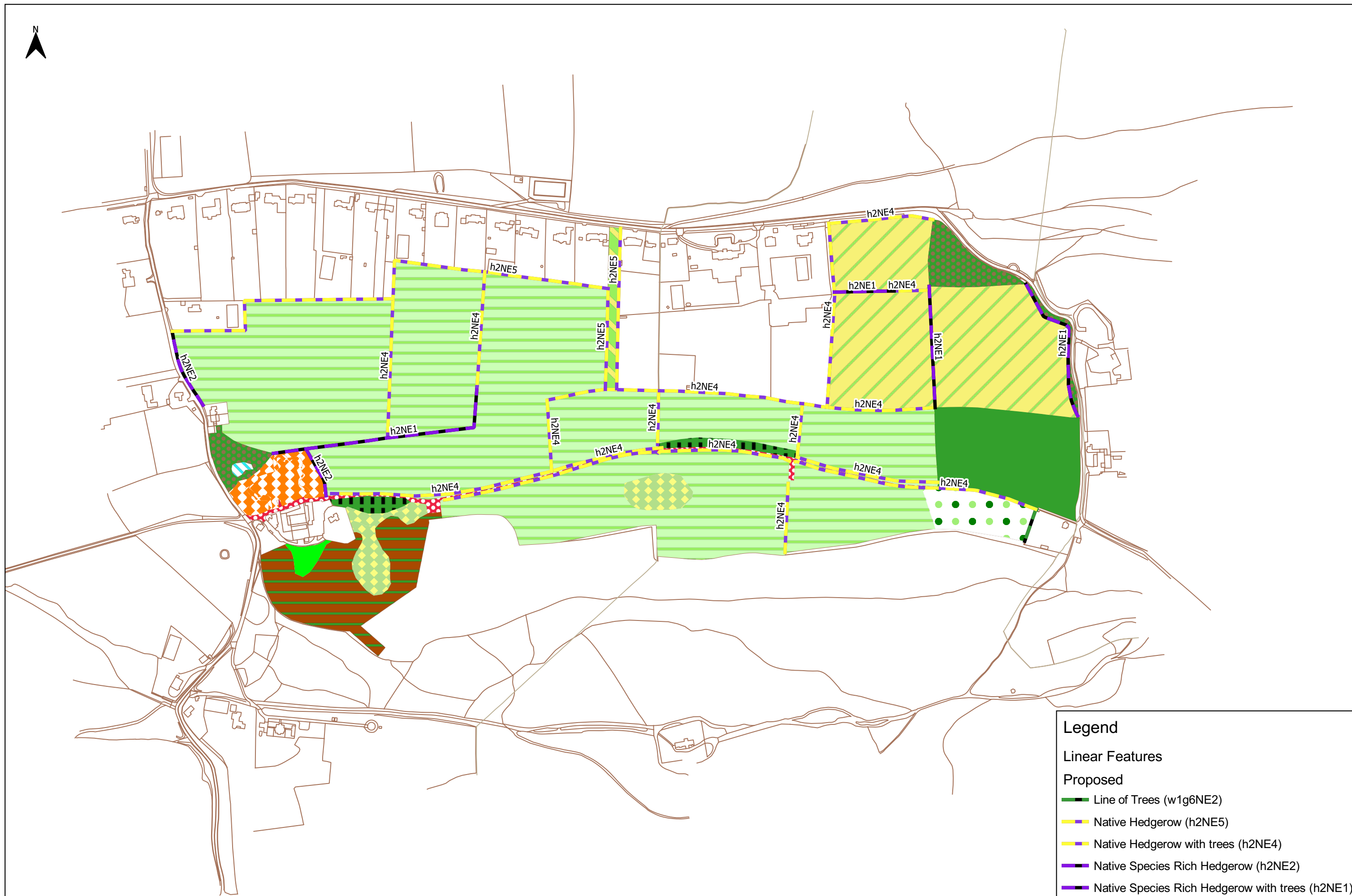


Legend

Habitats Proposed

-  g1d - other lowland acid grassland
-  g2 - calcareous grassland
-  g2a - lowland calcareous grassland
-  g3c - other neutral grassland
-  g4 - modified grassland
-  w1f* - ancient woodland
-  w1f - lowland mixed deciduous woodland
-  w1g - other woodland-broadleaved
-  w1g6 - line of trees
-  u1b - building
-  u1c - tracks, hard standing
-  r1a - pond
-  g920 - traditional orchards
-  g20 - wood-pasture

Document Path: G:\GIS Projects\Tyting Farm BNG\Biodiversity Metric 3.1 - QGIS Template



Legend

Linear Features

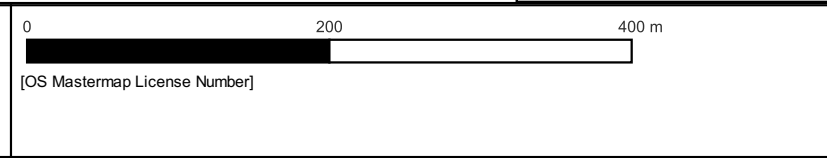
Proposed

- Line of Trees (w1g6NE2)
- Native Hedgerow (h2NE5)
- Native Hedgerow with trees (h2NE4)
- Native Species Rich Hedgerow (h2NE2)
- Native Species Rich Hedgerow with trees (h2NE1)

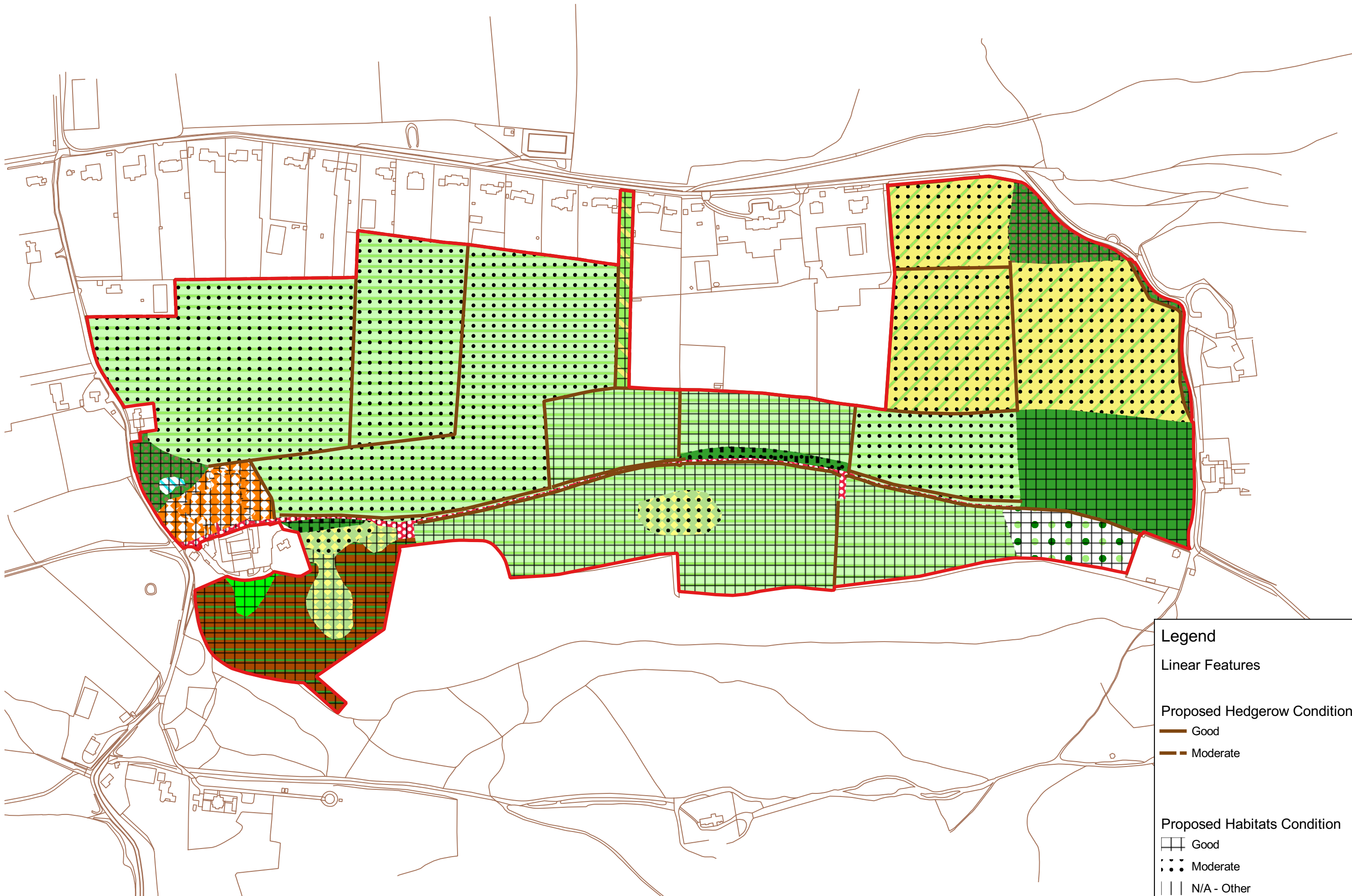


Client
For Guildford Borough Council

Tyting Farm Proposed Linear Features



1:5000 @ A3	Date: 12/10/2022
Drawn: KJ	Checked: HE
Figure 5	Rev B



Legend

Linear Features

Proposed Hedgerow Condition

- Good
- - - Moderate

Proposed Habitats Condition

- ▣ Good
- ⋯ Moderate
- ▤ N/A - Other



Client
For Guildford Borough Council

Tyting Farm Proposed Condition



1:5000 @ A3	Date: 19/10/2022
Drawn: KJ	Checked: HE
Figure 6	Rev B

Appendix A Guildford Borough Council Local Plan: Development Management Policies Submission Local Plan

Policy P6/P7: Biodiversity in New Developments.

General principles

- 1) Development proposals, including those exempt from minimum biodiversity net gain standards, are required to seek maximum biodiversity gain and to follow the mitigation hierarchy.
- 2) Development proposals within or adjacent to a Biodiversity Opportunity Area (BOA) are required to: a) contribute towards the achievement of the objectives of the BOA as set out in the relevant BOA policy statement (and its successor revision documents); b) protect and enhance designated and priority habitats and species within the BOA; and c) improve habitat connectivity across and/or into the BOA.
- 3) In addition to the BOAs, biodiversity measures are required to align with and deliver the Local Nature Recovery Strategy (to be prepared) and take account of other national, regional and local biodiversity strategies.
- 4) Major development proposals are required to set out plans for long term management and maintenance of on-site biodiversity. Planting schemes, landscaping and water management
- 5) Planting and landscaping schemes, open spaces, Sustainable Drainage Systems (SuDS) and Natural Flood Management measures are expected to incorporate species, habitats and management regimes that provide best biodiversity benefit as set out in BOA policy statements and other strategies.
- 6) Tree canopies are expected to be retained and new tree planting is expected to focus on the creation of new connected tree canopies and/or the extension of existing canopies, unless doing so would adversely impact on sensitive species or habitats. Tree planting schemes are expected to provide resilience in terms of climate, disease and ageing, incorporating large species with long lifespans where opportunities arise.
- 7) Planting schemes are expected to use UK sourced, native species, unless imported strains of native species would offer greater resilience and are free from disease. Measures on building structures
- 8) Development proposals are required to include appropriate features in or on building structures that support nature, will last for the lifetime of the development and will cater for appropriate species and habitats.

Site design

- 9) Development proposals are expected to be designed to create areas of new habitat and provide appropriate links and corridors between new and existing habitats, avoiding and reversing fragmentation and species isolation. Development sites and built features are expected to be permeable for wildlife.
- 10) In areas where invasive species are present, site design should not facilitate their spread. Where invasive species are present on development sites, they should be eradicated, or controlled where eradication is not possible. Planting schemes must not include invasive plants.
- 11) Major development proposals are expected, and minor development proposals are encouraged, to deliver measures that promote a sense of community ownership of green spaces and habitats.

Biodiversity Net Gain

- 12) Qualifying development proposals are required to achieve a biodiversity net gain of at least 20 per cent, or the advised national minimum amount, whichever is greater, measured using the national biodiversity net gain calculation methodology.
- 13) Biodiversity net gain is not a requirement on previously developed land, unless it supports at least one protected or priority species population or habitat, or an assemblage of species with an otherwise demonstrably high biodiversity value. Where these are present, a measurable net gain for those features is required.
- 14) Biodiversity gains are required to be delivered in a manner that is consistent with the biodiversity policies in this plan and LPSS 2019 Policy ID4: Green and Blue Infrastructure so that measures are focused on local priorities and will provide the best biodiversity value.
- 15) New habitats and habitat improvements that contribute towards the achievement of biodiversity net gain are required to be secured and maintained for at least 30 years, or a period of time set out in national policy or legislation if this is greater.
- 16) Where the applicant is unable to provide the gains on-site, provide the gains off-site or fund gains off-site on third-party sites, a justified and proportionate financial contribution to fund off-site measures will be secured.
- 17) Development proposals for the creation of biodiversity sites will be supported where these are well located and will be appropriately managed in order to align with local, regional and national strategies and provide best biodiversity value.

Appendix B Specific Management, Maintenance and Monitoring Objectives and Prescriptions

B.1 Retained Woodland and Trees

Note: All tree works should be undertaken by a qualified arboriculturist or tree surgeon. Works are to comply with BS3998 and HSE Forestry and Arboricultural safety leaflets. Trees are to be left with a well-balanced shape and natural appearance. Chainsaw operatives must hold a certificate of competence. Chain or hand saw wounds will be as small as possible, cutting back to sound wood leaving a smooth surface, angled to shed the water and avoiding bark tears.

Management or Monitoring Prescription	Management Objectives or Monitoring Aims	Specific Prescription	First Year and Frequency	Other Considerations
Health and Safety Inspection to define Specific Management Needs	Where trees are retained, promote healthy growth and a natural shape, avoid health and safety concerns, maintain and enhance the value of the site for any roosting bats and nesting and foraging birds. Enhance existing trees to positively contribute to landscape.	<p>Site inspection will include consideration and specification of the following works as required:</p> <ul style="list-style-type: none"> - Major deadwood requiring removal from crowns - Split or damaged branches and open wounds occurring naturally or due to severe weather conditions that require tidying up - Any forks, cavities or major defects that could result in structural failure, along with any bark wounds or fungus; an arboriculturist will be required to determine course of action - Any basal suckers or epicormic growth requiring removal from main trunk - Poor quality trees with any structural defects requiring pruning or felling - Diseases <p>Note: Ivy on tree trunks will be retained, except where it needs to be removed to</p>	Spring in years 1, 3, 7 and every 5 years for the duration of the 30 Year BNG Plan.	Prior to any works carried out on trees, checks should be made to ensure there is no impact on active bird nests or bat roosts (both of which are protected by law). An Ecological Clerk of Works should provide a pre-works check and/or watching brief during works. If works affecting a bat roost are required, a license from Natural England would need to be secured.

Management or Monitoring Prescription	Management Objectives or Monitoring Aims	Specific Prescription	First Year and Frequency	Other Considerations
		facilitate inspection of trees or where it has become extensive and could result in a tree falling in high winds.		
Litter Removal	To maximise the amenity value for users and ensure their safety and security.	Litter and fly-tipping material will be removed	From Year 1 onwards. 4 times a year (minimum).	
Traditional Orchard Management	To maintain function and ecological value of retained orchard trees and proposed new orchard trees	As rows above but in addition, rotational pruning of retained orchard trees, and new orchard trees once established, to encourage and maintain growth and form to be undertaken in the winter.	From Year 1 onwards in winter. Further pruning can be undertaken at other times to maximise fruit yield, if required.	

B.2 Proposed Trees Including Parkland Planting, Orchard and Hedgerow Trees

Note: All tree works should be undertaken by a qualified arboriculturist or tree surgeon. Works are to comply with BS3998 and HSE Forestry and Arboricultural safety leaflets. Trees are to be left with a well-balanced shape and natural appearance. Chainsaw operatives must hold a certificate of competence. Chain or hand saw wounds will be as small as possible, cutting back to sound wood leaving a smooth surface, angled to shed the water and avoiding bark tears.

Management or Monitoring Prescription	Management Objectives or Monitoring Aim	Specific Prescription	First Year, and Frequency	Other Considerations
Litter Removal	To maximise the amenity value for users of the SANG.	Litter and fly-tipped material will be removed.	From Year 1 of this BNG Plan onwards. Four times a year (minimum)	-
Replace Failures	Ensure the BNG Plan delivers the proposed tree planting described in the plan.	Replace dead, missing, dying or defective plants. Source replacement trees from local nursery stock and, where possible, use native trees of local provenance	Annually, November / December for first five years of this BNG Plan	Where possible, the cause of failure should be established. This should inform consideration of whether a like for like replacement is

Management or Monitoring Prescription	Management Objectives or Monitoring Aim	Specific Prescription	First Year, and Frequency	Other Considerations
				appropriate, whether an alternative solution is required, or if it is necessary to amend the management prescription accordingly. Once established, follow management and monitoring prescriptions for retained woodland and trees.
Tree Stakes	Enable trees to anchor and support vertical growth form	Adjust/replace/remove all tree stakes, ties and guards as required until anchorage has been achieved and tree has a vertical growth form. Trees planted within hedgerows need to be marked with a fluorescent tag to make them clearly visible to prevent them being topped when the hedges are flailed.	From Year 1 of this BNG Plan onwards as required.	-
Bark Mulch	Suppress weeds, retain moisture, improve soil composition and fertility.	Top up composted woodbark mulch annually for the first 3 years after implementation to suppress weeds and retain moisture;	Annually, first two years of this BNG Plan	
Seep hose for proposed orchard planting	Support successful establishment of tree(s).	Maintenance of seep hose to maintain water supply to establishing new orchard trees.	Annually, up to 10 years	

B.3 Hedgerow Management – Retained and Proposed Hedgerows

Management or Monitoring Prescription	Management Objectives or Monitoring Aim	Specific Prescription	Timing	Other Considerations
Flailing	Promote healthy growth, a natural shape.	Undertake a hedgerow flail to remove leggy growth on retained hedgerows and once new hedgerow planting is established.	Outside the bird nesting season, and dormouse active period preferentially before sap rises within plants (i.e. November to January inclusive).	Care must be taken to avoid flailing standard trees planted within the hedgerow, hedgerow trees will be tagged with fluorescent marker. Assumed rotational management

Management or Monitoring Prescription	Management Objectives or Monitoring Aim	Specific Prescription	Timing	Other Considerations
			Flailing assumed to commence from year 5, after establishment of proposed hedgerows. Rotational flailing to take place every two years with max one quarter of hedgerows flailed in any given year.	
Hedgerow laying	To maintain traditional management techniques for hedgerows within the Site and to encourage hedgerow regeneration and structure	Plan hedgerow laying for sections of established hedgerow every year.	Annually Outside the bird nesting season, and dormouse active period preferentially before sap rises within plants (i.e. November to January inclusive). Assume 100m hedgerow per year managed in this way	Care must be taken to avoid flailing standard trees planted within the hedgerow, hedgerow trees will be tagged with fluorescent marker.
Replace Failures	Facilitate the delivery of the hedgerows and their proposed enhanced connectivity function	Replace dead, missing, dying or defective plants. Source replacement trees from local nursery stock and, where possible, use native trees of local provenance.	Annually, November / December for first five years of this BNG Plan	Where possible, the cause of failure should be established. This should inform consideration of whether a like for like replacement is appropriate, whether an alternative solution is required, or if it is necessary to amend the management prescription accordingly.
Litter Removal	To maximise the amenity value for users of the SANG and ensure their safety and security	Litter and fly-tipped material will be removed.	Four times a year (minimum)	-
Monitoring	To monitor success of hedgerow planting and developing structure of hedgerows	Monitor through observation as part of the Ecological Monitoring programme	Monitoring in years 1, 3, 7 and every 5 years after that.	Monitor to confirm establishment of species diversity and structure – against the BNG Metric Condition Assessment Sheets and with reference to the Hedgerow Survey Handbook (Defra, 2007)

B.4 Grassland Management

Management or Monitoring Prescription	Management Objectives or Monitoring Aim	Specific Prescription	Timing	Other Considerations
All grassland types				
Litter Removal	To maximise the amenity value for users of the SANG and ensure their safety and security	Litter and fly-tipped material will be removed.	Four times a year (minimum), prior to each cut (see below)	-
Mowing of grassland	To encourage a diverse sward and encourage depletion of nutrients from soil.	<p>Mowing of the grassland will be done on an annual basis on hot, dry days and preferentially in late summer, with the arisings removed to the edges of the fields, this is to encourage removal of nutrients from the topsoil and to encourage diversification in the sward.</p> <p>So that longer areas of grassland remain in any one year (for invertebrates and other wildlife), the annual cut will be limited to 30% of the grassland fields within the Site and the fields being cut will rotate each year.</p>	Annually (on rotation)	
Monitoring	Monitoring sward diversity and structure to inform management.	<p>The grassland will be monitored in the summer months when botanical species are readily able to be identified in the sward, the surveys will seek to record changes in the grassland using a combination of the UKHab survey methodology, with a condition assessment using the Defra Metric 3.1 criteria (Panks et al. 2022c) and the Common Standards Monitoring Guidance for Lowland Grassland Habitats (JNCC, 2004).</p> <p>Key parameters will include:</p> <ul style="list-style-type: none"> - Sward composition: (grass:herb ratio) – aiming to achieve more than 40% herbs (for neutral and calcareous grassland). - Sward composition – positive indicator species which indicate development of grassland towards its target habitat type (ref UKHab and NVC) - Sward composition – presence of negative indicator species which can indicate that undesirable effects are 	Monitoring in years 1, 3, 7 and every 5 years after that	To be undertaken in the summer months when botanical species are readily able to be identified in the sward.

Management or Monitoring Prescription	Management Objectives or Monitoring Aim	Specific Prescription	Timing	Other Considerations
		<p>taking place if they increase in cover or frequency and/or non-native or invasive species.</p> <ul style="list-style-type: none"> - Record any indicators of local distinctiveness - Sward structure – height and presence of litter accumulation - Sward Structure – presence of bare ground 		
Monitoring – Soils	Monitoring of key soil parameters relevant to grassland diversity	Following methods employed for the baseline study to allow direct comparison of changes in soil parameters over time, following instigation of the management prescriptions.	<p>To be undertaken in parallel with the botanical monitoring.</p> <p>Monitoring in years 1, 3, 7 and every 5 years after that</p>	
Proposed Other Neutral Grassland and Calcareous Grassland (in addition to items above)				
Grazing	Enhance grassland diversity and structure.	<p>Conservation grazing regime assumed for the purposes of this BNG Plan to provide grazing from mid-summer (following mowing ('aftermath grazing'), or some fields just grazed) to early winter (assumed 5 months) by max 25 cattle per week.</p> <p>The cattle will be focussed on specific areas of the Site where coarse grasses are prevalent in the sward. The grazing areas will be controlled through the use of GPS collars.</p> <p>So that longer areas of grassland remain in any one year (for invertebrates and other wildlife), the grazing will be rotated within the Site.</p>	Mid Summer-Early Winter Annually	Adaptive management, responding to the results of monitoring (described above) will be required after the initiation of the conservation grazing regime to facilitate a positive result. GBC to work with monitoring results and conservation grazier to determine any changes in grazing regime necessary through the BNG Plan period.

B.5 Bracken and Scrub

Management or Monitoring Prescription	Management Objectives or Monitoring Aim	Specific Prescription	Timing	Other Considerations
Bracken control	To limit further bracken encroachment and encourage reversion of bracken area to acid grassland	Annual cutting/rolling or flailing of bracken and subsequent removal of litter. First year includes casting of acid grassland seed mix.	Annually for first 10 years of this BNG Plan. First year two cuts ideally in May/June and again in August/September. Subsequent years single cut/roll/flail each year. Acid grassland seed casting to be completed in autumn of first year.	Note overlap with breeding bird season – pre- treatment ECOW check required. Any adjustments to timing to be agreed with GBC.
Scrub Monitoring and Control – green land	To limit scrub encroachment in “green lane” and to make sure proposed Parkland trees are not swamped by scrub	Rubbish removal and scrub bashing within green lane to maintain open grassland. Monitoring of scrub extent during the ongoing ecological monitoring through the Plan period. Scrub extent not to exceed 20% of grassland area.	Once every five years for scrub removal. Monitoring in years 1, 3, 7 and every 5 years after that for the life of the Plan.	Scrub control/removal should be undertaken outside the bird nesting season, and dormouse active period preferentially before sap rises within plants (i.e. November to January inclusive).
Scrub Monitoring and Control – parkland trees	To enable natural scrub regeneration that doesn’t swamp the planted parkland trees	Clearance of scrub from around parkland trees to enable establishment. Monitoring of scrub extent and diversity during the ongoing ecological monitoring through the Plan period. 1m radius at base of tree to be kept free of scrub. Aiming for variety in scrub rather than dominance by 1 species.	Once every 3 years Monitoring in years 1, 3, 7 and every 5 years after that for the life of the Plan.	Should be undertaken outside the bird nesting season, and dormouse active period preferentially before sap rises within plants (i.e. November to January inclusive).

B.6 Pond

Management or Monitoring Prescription	Management Objectives or Monitoring Aim	Specific Prescription	Timing	Other Considerations
Litter Removal	To maximise the amenity value for users of the SANG and ensure their safety and security	Litter and fly-tipped material will be removed.	Four times a year (minimum), prior to each cut (see below)	-
De-silting works (or other works which require mechanical excavation of the pond base or slopes)	To maintain appropriate range of water depth within the pond to support open water and conditions suitable for macrophyte growth	Monitoring to be included as part of Ecological Monitoring of Habitats.	Monitoring undertaken in years 1, 3, 7 and every 5 years after that.	Any remedial actions required to be discussed and agreed with GBC, also taking account of protected species issues.
Monitoring of over-shading vegetation	Maintain direct sunlight access to the pond	Monitoring to be included as part of Ecological Monitoring of Habitats. Check that direct sunlight access to the pond is maintained	Monitoring undertaken in years 1, 3, 7 and every 5 years after that.	Any remedial actions required to be discussed and agreed with GBC, also taking account of protected species issues.
Monitoring of marginal vegetation	To maintain health mix of open water and marginal planting	Monitoring to be included as part of Ecological Monitoring of Habitats. Marginal and emergent vegetation development to be encouraged through removal of over-shading trees as part of initial works for the BNG Plan (see Section 5). Monitoring to determine emergent vegetation establishment and extent. As a minimum 40% of the water's surface is to remain clear.	Monitoring undertaken in years 1, 3, 7 and every 5 years after that.	Any remedial actions required to be discussed and agreed with GBC, also taking account of protected species issues. To be effective in removing marginal and emergent vegetation, and to prevent rapid regrowth, plant removal must include removal of the roots. Hand digging with spades is advisable in small areas

Appendix C Tyting Farm BNG Costings

(Tabs 1 and 2 of Excel Sheet named: Appendix C&D_Tyting Farm BNG Plan_ Costings and GBC Funding Model Projections_Oct22.xls)

Tyting Farm, Guildford Borough Council

Habitat Creation and Enhancement Item - Set-Up/Capital Costs	Unit	Quantity	Cost per unit	Total	Covered by SANG (included to provide comparison for non SANG sites)	Additional BNG Costs	Comment
A. Set-Up of Additional Site Infrastructure/Signage							
A.1 Provision of additional information for BNG elements for Interpretation Boards (SANG has own Interpretation Board Budget)	Nr	1	£3,500	£3,500.00	£2,500.00	£1,000.00	Provisional allowance pending full scope / requirements. Boards themselves covered by SANG costs.
B. Habitat Creation and Initial Habitat Management Set-Up							
B.1 Hedgerow planting two rows of whips at spaced 6 trees/shrubs per metre. Based on 0.13km (130m) of proposed native hedgerow planting (no trees). Whips planted assumed 6 plants per m based on double row planting	m	130	£36	£4,680.00	£1,404.00	£3,276.00	30% needed for SANG screening therefore covered by SANG Costings. 70% covered by BNG £6 per whip, including, rabbit guard and mulch
B.2 Hedgerow planting with trees. Based on 3.63km (3630m) of proposed hedgerows with trees. Whips planted assumed 6 plants per m based on double-row planting. Native bare-rooted tree planted every 30m.	m	3630	£38	£137,940.00	£41,382.00	£96,558.00	30% needed for SANG screening therefore covered by SANG Costings. 70% covered by BNG £6 per whip including rabbit guard and mulch (£36/m) plus assume 121 trees and price for range of sizes 20 x£100, 80 x £50 and 51 x whips at £2 with tree stake, tree guard (where required) and mulch £5/tree (£6102)
B.3 Woodland parkland planting based on low density wood pasture/parkland spacing plant 40 trees per ha (including tree, biodegradable guard, stake, mulching and planting costs) based on 0.89 ha of proposed parkland woodland	nr	1	£698	£698.00	£0.00	£698.00	Tree planting density allows for some failures – aiming for 25 trees per ha after 30 years. 35 trees for 0.89ha price for range of sizes 2x £100, 9x £50 trees and 24 x whips at £2 - £698
B.4 Scrub establishment. Allowing natural regeneration, based on 0.5 ha of proposed native scrub habitat to naturally regenerate around proposed woodland planting (Management accounted for in Management and Monitoring Costs)	nr	0	0	£0.00	£0.00	£0.00	Natural succession likely to result in scrub dominated by blackthorn. Proposal for woodland planting above to provide more diversity than would naturally occur in the short-term through natural succession.
B.5 0.7ha Orchard planting on grassland incl dense scrub removal, ground preparation (Remove rubbish (stones/cement blocks, till and seed with grassland mix), plant fruit trees at 5m spacing (Tree pits with appropriate soil material). Contractor team for 1 x week plus machinery and plant costs.	Nr	1	£6,440	£6,440.00	£4,830.00	£1,610.00	Does not allow for soil import but needs to be kept under review on preparation of orchard area
							Price £50 per tree inc planting based on mix of sizes of heritage stock trees. Allow 80 trees at even spacing (also incorporating remnant trees).
							Include additional labour cost for ground prep, machine and seeding/planting of trees £360/day x 4
							Prices per tree start at £21.95. Increase to average £50 per tree to include planting and range of sizes.
							Bare Root 1-2 year maidens start from £21.95, 3 to 5 year old half standards from £39.95 and 3-6 year plus standards from £49.95. Tap and seep hose costs £1000 Partly covered by SANG Provision - allow 75% SANG and 30% BNG.

B.6 Pond management/creation (remove sycamore/willow trees on northern side and create slope on northern side). Ecologist/Arboricultural consultant to agree tree removal. Contractor to remove trees and provide machine and operator for 2 no. days.	Days	2	£360	£720.00	£0.00	£720.00	Management of existing pond to provide shallow/sloping sides away from access area (to discourage dog access)
B.7 Bracken management – cutting, rolling or flailing of bracken year 1. Cut/roll/flail bracken at least twice in the first year (in May/June and again in July/August). Machine and operator for 4 days.	Days	4	£360	£1,440.00	£0.00	£1,440.00	Note overlap with breeding bird season – pre treatment ECOW check required
B.8 Overseeding with acid grassland mix bracken-treatment area (autumn) and acid grassland "hillock". 0.52ha	ha	0.52	2000	£1,040.00	£0.00	£1,040.00	To be carried out in autumn. May require breaking up/removal of bracken litter where not already removed following bracken management. Seed suppliers to be reputable wildflower mix suppliers of UK provenance (e.g. Brightseeds or Heritage Seeds) 5200 sqm. Allow £2000 per ha for seed mix.
B.9 Overseeding acid grassland seed mix distribution – staff and machinery hire (where required -probably hand casting only)	Day rate	1	£360	£360.00	£0.00	£360.00	To be carried out in autumn. May require breaking up/removal of bracken litter where not already removed following bracken management.
B10. High cut of grassland and remove arisings to field margins in valley bottom (suitable refuge for reptiles etc). Costs are Contractor Rate based on costs provided by GBC	Nr	1	£6,500	£6,500.00	£0.00	£6,500.00	Costed for contract to be let out for cut-and-collect. Based on costs provided by GBC. This is the highest possible cost for delivery of this element of the management. Alternative option would be to buy and manage machinery using GBC staff. Costs over time of plan would be more than covered by costs allowed for cut-and-collect contract.
B.11 Livestock GPS collars (secure) to support grazing regime (see management costs below). Costs for 25 collars, spares, chargers. (Year 1 cost)	Nr	1	£7,317	£7,317.00	£0.00	£7,317.00	To avoid need for additional fencing (permanent or temporary) incl avoiding need for electric fencing on SANG. Subscription plus collar replacement.
B11a Livestock GPS collar – software subscription year 1 costs for 25 collars	Nr	1	£1,225	£1,225.00	£0.00	£1,225.00	Software needed to programme and control GPS collars
B.12 Additional fencing to make eastern-most grassland fields stock-proof. £15/m including installation £70,000 for site - costs already allowed for SANG	Nr	1	£70,000	£70,000.00	£70,000.00	£0.00	Already allowed for in SANG costs.
B.13 Water troughs/bowser for water provision for stock in grazing areas	Nr	Item	£1,500	£1,500.00	£1,500.00	£0.00	Included in SANG Costs
B14. Grazing stock – conservation grazing – from mid summer through to winter/early spring. 8/9/10/11/12 = 5 months = 20 weeks Assume max 25 animal per week (Surrey Wildlife Trust Grazier Costs)	Nr	20	£300	£6,000.00	£0.00	£6,000.00	It has been assumed on a conservative basis that these costs should be covered by BNG because this is a charge for conservation grazing regimen which is not allowed for in the SANG management plan. This is cost for first year.
B.15 Grassland Topsoil Strip trial area, 2 x (5m x5m) test area set up in calcareous grassland area (NW fields and NE fields). Staff and machinery Hire	Day rate	1	£360	£360.00	£0.00	£360.00	Carry out prep in autumn prior to seeding (below)

B16. Seeding of topsoil strip (2 x) test area. Seed costs and staff costs for hand-distribution (1 day).	Nr	1	£400	£400.00	£0.00	£400.00	Assuming lowest amount of seed to purchase is 0.5kg (enough to cover 100sqm) @£40 plus day's labour for hand-casting in autumn. Seed suppliers to be reputable wildflower mix suppliers of UK provenance (e.g. Brightseeds or Heritage Seeds)
B17. Rhododendron/Cherry Laurel control in Acid woodland	Day	3	£460	£1,380.00	£0.00	£1,380.00	In addition to limited clearance by volunteers for SANG
B18. Japanese knotweed treatment - say rate incl herbicide and staff costs	Day	1	£460	£460.00	£460.00	£0.00	Covered by SANG costs
B19. Lowland calc grassland "green lane" – rubbish removal and scrub bashing from lower quarter; cut back hedgerows. Contractor and machinery hire 6 days	Day	6	£550	£3,300.00	£0.00	£3,300.00	Assume 6 days @£550/day work to take place in winter (outside breeding season and bearing in mind dormouse presence).
B20. Ecological Clerk of Works Support - as required - assume 7 days over first year	Day	7	£750	£5,250.00	£0.00	£5,250.00	
TOTAL				£255,260.00	£122,076.00	£138,434.00	
Total including contingency budget (10%)				£280,786.00	£134,283.60	£152,277.40	

Tyting Farm, Guildford Borough Council

Habitat Creation and Enhancement	Unit	Quantity	Cost per unit	Total per year	Total for 30years	Comment
C. Ongoing Management and Monitoring Costs - 30 years - all assumed to be BNG Costs						All Costs additional to SANG.
C.1 Grassland - High cut of grassland and remove arisings to field margins in valley bottom (suitable refuge for reptiles etc).	Nr	1	£6,500.00	£6,500.00	£195,000.00	Costed for contract to be let out for cut-and-collect c. 30% fields cut each year. Based on costs provided by GBC. This is the highest possible cost for delivery of this element of the management. Alternative option would be to buy and manage machinery using GBC staff. Costs over time of plan would be more than covered by costs allowed for cut-and-collect contract. Yearly allowance provided in this Plan as conservative basis but Adaptive management plan will review Monitoring results to confirm if need to stop mowing and move to grazing only regime.
C.2 Ongoing maintenance of seep hose for Orchard up to first 10 years for orchard establishment (c.£150/yr); costs to replace hedgerow stock failures in first 5 years (assume up to 20% failure over 5 years) 20% of BNG hedgerow costs provided as total cost over 30 years.	Nr	1	£815.56	£815.56	£24,466.80	Costed as total over 30yrs (annual cost provided on that basis) but anticipated that total costs will be over first 5 years whilst orchard trees and hedgerow planting becomes established.
C.2a Ongoing traditional management of orchard						Accounted for in SANG costs.
C.3 Livestock GIS collars x 25, spares and parts replaced every 5 years	Nr	1	£975.60	£975.60	£29,268.00	To avoid need for additional fencing (permanent or temporary) incl avoiding need for electric fencing on SANG. Subscription plus collar replacement. Cost for 25 collars spares and chargers = £7,317. Assume replacement every 5-7 years = 4 sets with total cost divided over 30yrs.
C.4 Livestock GIS collars subscription for 25 collars	Nr	1	£1,225.00	£1,225.00	£36,750.00	Software needed to programme and control GPS collars - annual cost £1225
C.5 Grazing stock – conservation grazing – from mid summer through to winter/early spring.	Nr	1	£6,000.00	£6,000.00	£180,000.00	Grazing stock – conservation grazing – from mid summer through to winter/early spring. 8/9/10/11/12 = 5 months = 20 weeks. Assume max 25 animal per week (Surrey Wildlife Trust Grazier Costs). £6000/yr annual costs. It has been assumed on a conservative basis that these costs should be covered by BNG because this is a charge for conservation grazing regimen which is not allowed for in the SANG management plan.
C.6 Water troughs/bowser for water provision for stock	Nr	1	£1,500.00	£0.00	£0.00	Included in SANG costs
C.7 Signage (entrance and information), 1 number replaced every 8 years – biodiversity input to SANG information.	N/A	N/A	£0.00	£0.00	£0.00	Included in SANG costs
C.8 Selective felling of non-native species - Estimated costs divided over the 30yrs.	Day	1	£500.00	£500.00	£15,000.00	From acid woodland (SW area) and allow natural regen. Long-term approach

C.9 Survey and monitoring costs – ecologist monitoring of woodland, hedges, woodpasture and grassland (Yrs 1, 3, 7, 12, 17, 22, 27). Seven survey and reporting incidences @ £5,500 each	Nr	1	£1,283.00	£1,283.00	£38,500.00	Assessment against Condition Assessment sheets in Metric 3.1 (or as compatible with future versions) and Common Standards Monitoring (JNCC) for relevant habitat types. 2x survey visits (spring for woodland, summer for hedgerows and grassland) followed by reporting drawing together and reporting on results from botanical assessment and soil analysis with regards progress against targets and any adaptation requirements for Management Plan.
C.10 Monitoring costs - Soil parameters (years 3, 7, 12, 17, 22, 27) - 6 sessions.	Nr	6	£3,000.00	£600.00	£18,000.00	Assuming costs for soil sampling and lab costs - precautionary basis assuming will cover costs for site visit, lab costs and reporting, monitoring.
C.11 Bracken control – assume further rolling/flail/cut at least once each year for the next ten years. £360/day for two days for machine operator and driver = £720/year	Nr	1	£240.00	£240.00	£7,200.00	Bracken management – cutting, rolling or flailing of bracken once a year for 10 years. Cut/roll/flail bracken (in May/June). Costs divided over 30 years
C.12 Contractors (scrub management) to clear around parkland trees to enable establishment . Once every 3 years	Nr	1	£460.00	£460.00	£13,800.00	Once every 3 years - 3 days@ £460/day = £1380 x 10 sessions = £13800. Costs divided over 30 years.
C.13 Contractors (dangerous trees) - Nominal annual costs for tree management work	N/A	0	£0.00	£0.00	£0.00	Allowed for in SANG Costs
C.14 Contractors (hedge management- trimming back to encourage dense rather than leggy growth) - rotational hedge management biannual/ 5 yearly cut. Top up woodbark mulch and check tree stakes to planted trees (annually for first 5 years)	m	617.5	£5.00	£3,087.50	£92,625.00	£5/m for flailing, Assume rotational management from year 5 of plan for cut of c. quarter of the 5.67km hedgerows (1482m of hedgerow flailed in winter (whilst dormice in hibernation and to avoid bird breeding season) every 2 years - equates to 741m hedgerow per year from year 5 (over 25 years) equates to 617.5m/year over 30 years). This is generous allowance to allow for mulching and tree stake check given actual flailing requirements may not kick in until later in plan period, depending on growth of hedgerow planting completed in year 1 as part of set-up costs.
C.15 Contractors (hedge laying) – rotational hedge management assume 100 m /year	m	100	£18.00	£1,800.00	£54,000.00	£23/m for very mature £15/m for 15-25 year old £12/m newer hedges; GBC advise to budget £18/m
C.16 Ongoing scrub bashing/rubbish clearance of green lane calcareous grassland – 6 days once every 5 years. (x 6 sessions)	Nr	6	£3,300.00	£660.00	£19,800.00	Lowland calc grassland “green lane” – rubbish removal and scrub bashing from green lane to maintain grassland extent within lane.. Contractor and machinery hire 6 days per session @£550/day once every 5 years. £19,800 total cost over 30 years (6 sessions). Annual costs divided over 30 years.
C.17 Fence maintenance costs (for grazing stock)	N/A	N/A	£0.00	£0.00	£0.00	Covered by SANG Management budget
C.18 ECOW support assume average 5 days per year @£750/day	day	5	£750.00	£3,750.00	£112,500.00	For ad hoc on-site support by ecologist (e.g. for support on bracken clearance etc)
C.19 Staff time (GBC Officer time % of an officer including overheads, NI and pensions).	Nr	1	£15,000.00	£15,000.00	£450,000.00	Includes time for neighbour liaison and management of BNG delivery, including recording/involvement in off-setting discussions. Costs advised by GBC and assumes rest of GBC Officer time is covered by SANG.

NB Bins, gates and other physical item costs including litter management					£0.00	Covered by SANG Management.
TOTAL				£42,896.66	£1,286,909.80	
Contingency Budget (10%)				£47,186.33	£1,415,600.78	
Inflation Allowance						Guildford Borough Council's cost projection, taking account of inflation and anticipated income from investment is presented at Appendix D (Third and Fourth Tabs of this Excel Spreadsheet).

Appendix D Funding Model Projections (Provided by GBC)

(Tabs 3 and 4 of Excel Sheet named: Appendix C&D_Tyting Farm BNG Plan_ Costings and GBC Funding Model Projections_Oct22.xls)

GBC Funding Model Projections

GREEN BOOK MODEL:

Biodiversity Units (BU's) total available	170.34						
Minimum price per BU to cover costs	£ 7,435.90	Year	Interest	Endowment	Budget	Inflation	
Endowment	£ 1,266,631.21	2	3.5% interest	£ 1,153,356.19	£ 49,813.06	2%	
Initial Year 1 cost: set up and maintenance	£ 152,277.40	3	3.5% interest	£ 1,142,167.14	£ 50,809.32	2%	
Total 30 year costs no inflation	£ 1,415,600.78	4	3.5% interest	£ 1,129,555.35	£ 51,825.50	2%	
Average annual budget based on costs	£ 48,836.33	5	3.5% interest	£ 1,115,450.39	£ 52,862.01	2%	
Average annual year 2 with inflation	£ 49,813.06	6	3.5% interest	£ 1,099,778.97	£ 53,919.25	2%	
Inflation (Green Book)	2%	7	3.5% interest	£ 1,082,464.80	£ 54,997.64	2%	
Interest (Green Book)	3.50%	8	3.5% interest	£ 1,063,428.51	£ 56,097.59	2%	
		9	3.5% interest	£ 1,042,587.50	£ 57,219.54	2%	
		10	3.5% interest	£ 1,019,855.84	£ 58,363.94	2%	
		11	3.5% interest	£ 995,144.12	£ 59,531.21	2%	
		12	3.5% interest	£ 968,359.36	£ 60,721.84	2%	
		13	3.5% interest	£ 939,404.83	£ 61,936.27	2%	
		14	3.5% interest	£ 908,179.96	£ 63,175.00	2%	
		15	3.5% interest	£ 874,580.13	£ 64,438.50	2%	
		16	3.5% interest	£ 838,496.59	£ 65,727.27	2%	
		17	3.5% interest	£ 799,816.24	£ 67,041.82	2%	
		18	3.5% interest	£ 758,421.53	£ 68,382.65	2%	
		19	3.5% interest	£ 714,190.24	£ 69,750.31	2%	
		20	3.5% interest	£ 666,995.34	£ 71,145.31	2%	
		21	3.5% interest	£ 616,704.77	£ 72,568.22	2%	
		22	3.5% interest	£ 563,181.34	£ 74,019.58	2%	
		23	3.5% interest	£ 506,282.42	£ 75,499.97	2%	
		24	3.5% interest	£ 445,859.83	£ 77,009.97	2%	
		25	3.5% interest	£ 381,759.60	£ 78,550.17	2%	
		26	3.5% interest	£ 313,821.76	£ 80,121.18	2%	
		27	3.5% interest	£ 241,880.10	£ 81,723.60	2%	
		28	3.5% interest	£ 165,761.98	£ 83,358.07	2%	
		29	3.5% interest	£ 85,288.05	£ 85,025.23	2%	
		30	3.5% interest	£ 272.01	£ 86,725.74	2%	
		Total cost including inflation			£ 2,084,637.17		

GBC Funding Model Projections

CONSERVATIVE MODEL:

Biodiversity Units (BU's) total available	170.34						
Minimum price per BU to cover costs	£ 10,860.00	Year	Interest	Endowment	Budget	Inflation	
Endowment	£ 1,849,892.40	2	2.5% interest	£ 1,740,055.38	£ 53,719.96	10%	
Initial Year 1 cost: set up and maintenance	£ 152,277.40	3	2.5% interest	£ 1,728,493.80	£ 59,091.96	10%	
Average annual budget based on costs	£ 48,836.33	4	2.5% interest	£ 1,711,136.88	£ 65,001.16	10%	
Average annual year 2 with inflation	£ 53,719.96	5	2.5% interest	£ 1,687,289.12	£ 71,501.27	10%	
Inflation 10% initially	2%	6	2.5% interest	£ 1,656,182.55	£ 72,931.30	2%	
Inflation (Green Book 2% and 10% initially)	2%	7	2.5% interest	£ 1,622,832.53	£ 74,389.92	2%	
Interest (Green Book)	2.50%	8	2.5% interest	£ 1,587,153.68	£ 75,877.72	2%	
Total 30 year costs no inflation	£ 1,415,600.78	9	2.5% interest	£ 1,549,057.85	£ 77,395.27	2%	
		10	2.5% interest	£ 1,508,454.14	£ 78,943.18	2%	
		11	2.5% interest	£ 1,465,248.74	£ 80,522.04	2%	
		12	2.5% interest	£ 1,419,344.86	£ 82,132.48	2%	
		13	2.5% interest	£ 1,370,642.69	£ 83,775.13	2%	
		14	2.5% interest	£ 1,319,039.24	£ 85,450.64	2%	
		15	2.5% interest	£ 1,264,428.32	£ 87,159.65	2%	
		16	2.5% interest	£ 1,206,700.38	£ 88,902.84	2%	
		17	2.5% interest	£ 1,145,742.48	£ 90,680.90	2%	
		18	2.5% interest	£ 1,081,438.12	£ 92,494.52	2%	
		19	2.5% interest	£ 1,013,667.19	£ 94,344.41	2%	
		20	2.5% interest	£ 942,305.85	£ 96,231.30	2%	
		21	2.5% interest	£ 867,226.42	£ 98,155.92	2%	
		22	2.5% interest	£ 788,297.26	£ 100,119.04	2%	
		23	2.5% interest	£ 705,382.67	£ 102,121.42	2%	
		24	2.5% interest	£ 618,342.78	£ 104,163.85	2%	
		25	2.5% interest	£ 527,033.41	£ 106,247.13	2%	
		26	2.5% interest	£ 431,305.94	£ 108,372.07	2%	
		27	2.5% interest	£ 331,007.21	£ 110,539.51	2%	
		28	2.5% interest	£ 225,979.40	£ 112,750.30	2%	
		29	2.5% interest	£ 116,059.82	£ 115,005.31	2%	
		30	2.5% interest	£ 1,080.88	£ 117,305.41	2%	
		Total cost including inflation			£ 2,737,603.02		