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BIODIVERSITY NET GAIN PLAN
Wells Farm, Cuffley

January 2024

BMD.23.0062.RPE.802.B. Biodiversity Net Gain Plan

DOCUMENT HISTORY

Project Number: 23.0062		Document Reference: BMD.23.0062.RPE.802.B.Biodiversity Net Gain Plan			
Revision	Purpose of Issue	Originated	Technical Reviewed	Approved	Date
-	PLANNING	JW/LT	JW	JP	27/11/2023
A	PLANNING	JW/LT	JW	JP	05/01/2024
B	PLANNING	JW/LT	JW	JP	08/01/2024

Declaration of compliance with professional code of ethics or conduct
The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bonafide opinions.

Every reasonable attempt has been made to comply with the relevant best practice guidelines and BS42020:2013 (Biodiversity: Code of practice for planning and development).

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EXECUTIVE SUMMARY

CLIENT	King & Co
CONSULTANT	Bradley Murphy Design Ltd.

SITE

Location	Wells Farm, Cuffley, Hertfordshire
National Grid Reference	Approx. centre: TL 30000201
Over-view	The Site is approximately 0.6 ha in total. The Site is composed of a number of buildings and areas of hardstanding, with off-site ponds, improved grassland, semi-improved grassland field parcels and hedgerows. The surrounding landscape is dominated by agricultural fields, connected to the Site via hedgerows with trees. The Hertford Loop railway line runs north-south to the east of the Site.
Landscape context	The Site is situated off the B156, Northaw Road East, approximately 750 m southwest of the village Cuffley, Hertfordshire. The Site's immediate surroundings are typical of the area comprised of an agricultural landscape connected through hedgerows with trees. The wider landscape is comprised of a mixed agricultural matrix with interspersed woodland, corridors of trees and hedgerows. There are multiple urban areas within the wider surroundings, with Cuffley village to the northeast and the town Potters bar to the west.

DEVELOPMENT & PLANNING BACKGROUND

Proposed works	The proposed development is for the demolition of existing buildings and the erection of 14 dwellings with associated landscaping.
Planning stage	Full Planning Application

ECOLOGICAL BACKGROUND

General	Several assessments of the Site have been undertaken from 2020-2021 including: An Eco Constraints Review (BMD 2020), a Preliminary Ecological Appraisal (Babec, March 2021), a reptile survey (Jones & Sons Environmental, June 2021), a great crested newt survey (Jones & Sons Environmental, September 2021), an interim bat report (Jones & Sons Environmental, July 2021) and a bat report (Jones & Sons Environmental, August 2021). An Ecological Verification Report was also undertaken in September 2023 by BMD, reference: BMD.23.0062.RPE.TN.801

ASSESSMENT

Objectives	To provide baseline data pertaining to potential biodiversity net gain as a result of the current development proposals for the Site.
Approach	Quantitative Biodiversity Net Gain Assessment using The Statutory Biodiversity Metric.
Date	January 2024.

RESULTS & CONCLUSIONS

Quantitative (predicted Biodiversity Net Gain)	A positive habitat biodiversity unit change of 26.35% is anticipated based on the current creation proposals associated with ponds, grassland and individual trees. The outcome results also indicate a predicted positive change in hedgerow unit change of 281.17%.
Qualitative	In addition to this quantitative assessment a number of qualitative gains are also considered to be achievable.

RECOMMENDATIONS

Opportunities for enhancement include the use of native and wildlife friendly species within any soft landscaping and the installation of bird, bat and invertebrate boxes.

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1. INTRODUCTION

1.1 Background Information

1.1.1 Bradley Murphy Design Ltd. (BMD) was commissioned King & Co in August 2023 to undertake an Ecological Verification of their site: Wells Farm, Cuffley – hereafter referred to as 'the Site'. The Site is approximately centred on national grid reference: TL 30000201. A plan depicting the Site's location is provided in the Appendix.

1.1.2 The following assessments were completed in January 2024:

- A quantitative assessment of predicted biodiversity net gain post-development compared with a 'no development' situation using a biodiversity impact matrix has been completed (current document); and,
- A qualitative assessment of net gain associated with new habitat creation and provision of other enhancements such as species features.

1.1.3 This report accompanies and presents the results of the biodiversity impact calculation (provided in the Appendix) undertaken at the Site to demonstrate net gain of biodiversity as a result of the proposals, hereafter referred to as the 'Scheme'.

1.2 Proposed Development

1.2.1 The proposed development is for the demolition of the existing buildings on Site and the erection of 14 dwellings with associated landscaping, in respect of Planning Application Reference: 6/2020/3451/MAJ.

1.3 Site Context

Historic Context

1.3.1 Readily available historic aerial imagery and maps indicate that the Site has largely remained in its current state with the surrounding landscape largely being used for agricultural purposes since at least the early 20th century. The surrounding landscape has also remained largely unchanged with the same agricultural matrix interspersed by woodland blocks. The exception is urban expansion associated with the village, Cuffley, occupying land that was previously used for agricultural purposes in the late 19th Century.

Present Context

1.3.2 The Site is an approximately 0.6 ha parcel of land, composed of various buildings and areas of hardstanding, with offsite ponds, species-poor semi-improved grassland parcels, improved grassland and hedgerows.

1.3.3 The Site is situated off the B156, Northaw Road East, approximately 750 m southwest of the village Cuffley, Hertfordshire. The Site's immediate surroundings is comprised of agricultural fields of which are connected via hedgerows with trees. The wider landscape is composed of

mixed farmland interspersed by woodland blocks, corridors of trees and hedgerows. Urban areas are located to the northeast and west forming the village of Cuffley and the town Potters bar, respectively. The Hertford Loop railway line runs north south to the east of the Site. It is considered that the Site occupies a rural zone with scattered urban areas within the wider landscape that defines its local ecology.

1.4 Ecological Context

1.4.1 BMD undertook an Ecological Verification Assessment in August 2023. The full results of the assessment can be found within Ref: BMD.23.0062.RPE.TN. 801.A.Verification Assessment

1.4.2 A number of previous ecological surveys and assessments for the Site or adjacent land have been conducted from 2020-2021, including:

- Eco Constraints Review, BMD (2020)
- Preliminary Ecological Appraisal, Babec (March 2021)
- Reptile Survey, Jones & Sons Environmental – (June 2021)
- Great Crested Newt Survey, Jones & Sons Environmental (September 2021)
- Interim Bat Report, Jones & Sons Environmental (July 2021)
- Bat Report, Jones & Sons Environmental (August 2021)

2. BIODIVERSITY NET GAIN

2.1 Biodiversity Net Gain

2.1.1 Biodiversity Net Gain is defined as:

- "Development that leaves biodiversity in a better state than before, and an approach where developers work with local governments, wildlife groups, landowners and other stakeholders in order to support their priorities for nature conservation". (Baker et al., 2019)

2.1.2 Previously, various percentage targets are used across the country and in schemes such as BREEAM, it is noted that there is no consistent agreed target percentage gain at either national or local level. However, as of November 2021, The Environment Act 2021 states under Schedule 14 that provision are to be made *"for biodiversity gain to be a condition of planning permission in England."* (HM Government 2021). Proposals indicate a minimum 10% net gain will become mandate by early 2024.

2.1.3 In England, biodiversity net gain (BNG) is becoming mandatory under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021). This is anticipated to happen in January 2024.

2.1.4 Developers must deliver a biodiversity net gain of 10%. This means a development will result in more or better quality natural habitat than there was before development.

2.2 National Planning Policy Framework 2023 (NPPF)

2.2.1 The NPPF places strong emphasis on achieving net gain in all developments (not just 'no net loss') through the planning systems purpose of achieving sustainable development (HM Government 2023). The NPPF notes three overarching objectives to achieve sustainable development and opportunities to be taken to secure net gain in each. The environmental objective relates to biodiversity:

- "to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy" (HM Government 2023).

2.2.2 As set out in 'Section 5. Conserving and enhancing the natural Environment' of the Framework:

- "development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate" (HM Government 2021b, paragraph 180(d)).

2.3 Biodiversity Net Gain Good Practice

2.3.1 In 2016 (Baker, 2016) a set of Good Practice Biodiversity Net Gain Principles were defined and underpin the current best practice guidance for development (Baker *et al.,* 2019). These principles are:

- Principle 1: Apply the mitigation hierarchy;
- Principle 2: Avoid losing biodiversity that cannot be offset elsewhere;
- Principle 3: Be conclusive and equitable;
- Principle 4: Address risk;
- Principle 5: Make a measurable net gain contribution;
- Principle 6: Achieve the best outcomes for biodiversity;
- Principle 7: Be additional;
- Principle 8: Create a net gain legacy; Okay great
- Principle 9: Optimise sustainability; and
- Principle 10: Be transparent.

3. APPROACH

3.1 Overview

3.1.1 This assessment is being completed in accordance with the Good Practice Biodiversity Net Gain Principles set out in Section 4.

3.1.2 Details of the approach used to determine the baseline biodiversity conditions at the Site and predicted biodiversity net gain of the Site are documented below.

3.1.3 The Site was subject to a verification walkover during August 2023. This included a review of the current condition of the habitats on Site.

3.1.4 This biodiversity net gain assessment uses the Statutory Biodiversity Metric in line with best practice.

3.2 Biodiversity

3.2.1 The quantitative assessment for this biodiversity gain plan uses the Statutory Biodiversity Metric to provide a transparent and replicable numeric value of biodiversity before and after enhancement. The metric only considers habitats and does not take protected and notable species into account.

3.2.2 The values take a number of habitat attributes into consideration, these are displayed below within Table 3.2. These habitat attributes are either pre-populated by the Statutory Biodiversity Metric parameters or determined by information available on the pre-development baseline habitats or the post-development predicted habitats and professional judgement.

Table 3.2 The Statutory Biodiversity Metric habitat attributes and pre-populated status

Habitat Attribute	Pre-populated Status
Area or length	Determined by available information and professional judgement
Distinctiveness	Distinctiveness is a measure based on the type of habitat and its distinguishing features. Professional survey is required to determine habitat type. The biodiversity metric tool automatically assigns distinctiveness category to selected habitats.
Condition	Determined by available information and professional judgement using the metric condition assessments
Strategic significance	Determined by available information and professional judgement
Time to target condition	Determined by metric parameters
Difficulty to create/restore	Determined by metric parameters

3.2.3 An overview of the Statutory Biodiversity Metric principles, rules and key components are described in the following sections.

3.3 Area Habitats, Linear Features & Point Features

3.3.1 Area habitats such as 'Wet woodland' are measured in hectares within the Statutory Biodiversity Metric, while linear features such as 'Native hedgerow' are measured in kilometres. The only point features included in the metric are trees, e.g. 'Rural tree', these are measured in hectares based on their tree canopy, calculated using the 'Tree helper' tool of the Statutory Biodiversity Metric.

3.3.2 Linear features are divided into 'Hedgerows' and 'Watercourses' and are dealt with separately in the metric. Hedgerows are included within this biodiversity net gain assessment of the Site. However, watercourses have been omitted from this assessment of the Site due to the requirement of the River Condition Assessment methodology. In compliance with the Environment Act 2021 biodiversity net gain mandate as of early 2024, this methodology is now a requirement of the Statutory Biodiversity Metric to properly assess the condition of these features. For watercourses of the Site to be included within a biodiversity net gain assessment, a full River Condition Assessment of all watercourses within the Site will need to be instructed and would be undertaken by a qualified river assessor to meet the strict methodology requirements.

3.3.3 The area of a watercourse may be recorded in the area module as the category 'watercourse footprint'. There are no biodiversity units associated with this category and all biodiversity units generated by watercourses are reported within the watercourse tab.

3.3.4 Point features such as 'Urban tree' are allocated size categories which are then summed and calculated as a canopy area in hectares. Table 3.3 displays these size classes and area equivalents below, further information can be found within the Statutory Biodiversity Metric User Guide Draft (Department for Environment, Food and Rural Affairs, 2023). The biodiversity metric uses set values to represent the area of trees depending on their diameter at breast height. This value is a representation of canopy biomass, and is based on the root protection area formula, derived from BS 5837:2012. The metric will:

- Account for each individual tree within a group or block of trees;
- Record the habitat underneath the tree canopy separately;
- Not reduce any area generated by the tree helper;
- Not deduct the area of individual trees from other habitats; and
- Make clear in the user comments how many trees contribute towards the total area.

3.3.5 'Individual tree' area is not added onto the total site area, as these point features are treated as a secondary layer that sits above the total site area on the ground. However, the biodiversity value provided by the 'Individual tree' area is added onto the total site biodiversity value.

Table 3.3 Tree size classes and area equivalents (DEFRA, 2023)

Size	Diameter at Breast Height (cm)	Metric area Equivalent (ha)
Small	7-30	0.0041
Medium	31-60	0.0163

Size	Diameter at Breast Height (cm)	Metric area Equivalent (ha)
Large	60-90	0.0366
Very large	90	0.0765

3.4 Habitat Distinctiveness

3.4.1 Habitat distinctiveness is allocated as one of five possible categories, these categories are automated within the Statutory Biodiversity Metric. Table 3.4 below displays the distinctiveness categories, scores and criteria, further information can be found within the Statutory Biodiversity Metric User Guide Draft (Department for Environment, Food and Rural Affairs, 2023).

Table 3.4 The Statutory Biodiversity Metric distinctiveness categories, scores and criteria (DEFRA 2023).

Distinctiveness	Score	Criteria
Very High	8	- *"Priority Habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act that are highly threatened, internationally scarce and require conservation action.* - *Small amount of remaining habitat with a high proportion unprotected by designation.* - *Endangered or Critical European red list habitats."*
High	6	- *"Priority Habitats as defined in Section 41 of the NERC Act requiring conservation action.* - *Remaining Priority Habitats not in very high distinctiveness band & other red list habitats."*
Medium	4	- *"Semi-natural habitats not classed as a Priority Habitat but with significant wildlife benefit e.g., mixed scrub.* - *One Priority Habitat (arable field margins)."*
Low	2	- *"Habitat of low biodiversity value e.g. temporary grass and clover ley.* - *Agricultural and Urban land of lower biodiversity value."*
Very Low (hedgerow)	1	- *"Little or no biodiversity value."*
Very Low (area & watercourse)	0	- *"Little or no biodiversity value."*

3.5 Habitat Condition

3.5.1 Habitat condition is allocated as one of seven possible categories. These categories are determined by information available on the pre-development baseline habitats or the post-development predicted habitats. Professional judgement is used to interpret the information available and applied when using the habitat condition assessment sheets when assessing whether a habitat meets or fails condition criteria set out by the Statutory Biodiversity Metric.

3.5.2 These condition criteria are specific to each habitat type, further information can be found within the Statutory Biodiversity Metric User Guide Draft and accompanying condition sheets (Department for Environment, Food and Rural Affairs, 2023). Where the same habitat types occur within the Site but have different condition categories, they have been assessed separately within the metric. Table 3.5 below displays the condition categories and scores.

Table 3.5 The Statutory Biodiversity Metric condition categories and scores (DEFRA, 2023)

Condition	Score
Good	3
Fairly Good	2.5
Moderate	2
Fairly Poor	1.5
Poor	1
Condition Assessment N/A	1
N/A - Other	0

3.6 Irreplaceable Habitats & Very High Distinctiveness Habitats

3.6.1 Irreplaceable habitats are defined as:

- "Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen." *(NPPF, 2019)*

3.6.2 Due to the nature of irreplaceable habitats, their biodiversity value cannot be quantified and therefore these habitats are dealt with separately within the Statutory Biodiversity Metric. Irreplaceable habitats (as provided for in secondary legislation for BNG) do not have a BNG requirement as they are too valuable to be compensated for. As such, any losses to irreplaceable habitats cannot be calculated by the biodiversity metric tool and they are removed from the baseline. An inventory of these habitats is compiled within the 'Irreplaceable Habitats' tab of the metric, where bespoke compensation agreed with the relevant consenting body is detailed. However, it should be noted that any impact on an irreplaceable habitat is strongly advised against, as bespoke compensation will only be agreed upon in exceptional circumstances.

3.6.3 Very high distinctiveness habitats (VHDH) are defined as:

- "VHDH are highly threatened, internationally scarce habitats which require conservation action. Impacts to these habitats should be avoided in line with planning policy." (DEFRA, 2023).
- These habitats were described in further detail within the previous BNG guidance and include:
    - "Priority Habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act that are highly threatened, internationally scarce and require conservation action, for example blanket bog.
    - Small amount of remaining habitat with a high proportion unprotected by designation.
    - Critically Endangered European Red List habitats." (Panks et al. 2023c).

3.6.4 Similarly to irreplaceable habitats, the very high distinctiveness nature of these habitats is difficult to quantity and therefore these habitats also require bespoke compensation within the Statutory Metric Biodiversity Metric. VHDH are included within the main 'Baseline, Enhancement &

Creation' tabs of the metric. Impact on or creation of these habitats will require comprehensive compensation or justification to satisfy the relevant consenting body.

3.6.5 Refer to The Biodiversity Metric 4.0 User Guide – Technical Annex 2 (Panks *et al.* 2023c) for a full list of VHDH.

3.7 Metric Principles & Rules

3.7.1 The Statutory Biodiversity Metric may be used to carry out assessments of biodiversity net gain and inform plans and decision making if the metric principles and rules are adhered to. Table 3.5 below lists the principles and rules of the Statutory Biodiversity Metric. Further details of these principles and rules can be found within the Statutory Biodiversity Metric User Guide (DEFRA, 2023).

Table 3.5 The Statutory Biodiversity Metric principles and rules (DEFRA, 2023)

Principles	
1	"The metric assessment should be completed by a competent person."
2	"The use of this biodiversity metric does not override existing biodiversity protections, statutory obligations, policy requirements, ecological mitigation hierarchy or any other requirements. This includes consenting or licensing processes, for example woodlands."
3	"This biodiversity metric should be used in accordance with established good practice guidance and professional codes."
4	"This biodiversity metric is not a complex or comprehensive ecological model and is not a substitute for expert ecological advice."
5	"Biodiversity units are a proxy for biodiversity and should be treated as relative values."
6	"This biodiversity metric is designed to inform decisions in conjunction with locally relevant evidence, expert input, or guidance."
7	"Habitat interventions need to be realistic and deliverable within a relevant project timeframe."
8	"Created and enhanced habitats should be, where practical and reasonable, local to any impact and deliver strategically important outcomes for nature conservation."
9	*"The metric does not enforce a minimum habitat size ratio for compensation of losses. However, proposals should aim to:* *• maintain habitat extent (supporting more, bigger, better and more joined up ecological networks) and* *• ensure that proposed or retained habitat parcels are of sufficient size for ecological function."*
Rules	
1	*"The trading rules of this biodiversity metric must be followed."*
2	*"Biodiversity unit outputs, for each type of unit, must not be summed, traded, or converted between types. The requirement to deliver at least a 10% net gain applies to each type of unit."*
3	*"To accurately apply the biodiversity metric formula, you must use the biodiversity metric calculation tool or small sites biodiversity metric tool (SSM) for small sites. The tools remove the need for a user to manually calculate the change in biodiversity value. The tool will summarise the results of the calculation and inform a user whether the biodiversity net gain objective has been met."*
4	*"In exceptional ecological circumstances, deviation from this biodiversity metric methodology may be permitted by the relevant planning authority."*

3.8 Pre-development baseline habitats

3.8.1 The baseline habitat data from which net biodiversity change is calculated using the Phase 1 Habitat Survey completed by Babec in 2021 (Babec, 2021) and the Phase 1 verification walkover completed by BMD in August 2023 (BMD.23.0062.RPE.TN.801.A.Verification Report) and is provided in the Appendix: Plans. The Phase 1 Habitat Survey was conducted by BMD to industry standard at the time (JNCC, 2010).

3.9 Predicted post-development habitat

3.9.1 The Statutory Biodiversity Metric requires the following information to inform the predicted post-development development habitats.

- Habitat type;
- Habitat area or length;
- Habitat condition;
- Irreplaceable habitat; and
- Strategic significance.

3.9.2 Plans depicting the post-enhancement retained, enhanced and created habitats of the Site are provided in the Appendix.

3.10 Methodology for drawing and measuring

3.10.1 Pre-development and post-development data has been imported to GIS software (ArcGIS Desktop 10.8 & ArcGIS Pro 3.1) to enable a direct comparison between each scenario and an accurate, replicable method of measuring. Measurements taken from the GIS have been input into the assumptions table and then into the Statutory Biodiversity Metric calculation tool that has been used for this assessment.

3.10.2 The full completed Statutory Biodiversity Metric Calculation Tool with supporting assessor comments is appended to this technical note.

3.11 Auditing biodiversity net gain as the development progresses

3.11.1 The specifics of the use of the Statutory Biodiversity Metric in auditing biodiversity net gain achievements, as the development progresses, is currently under refinement and will be developed further as part of the secondary legislation required for implementation of the Environment Act 2021.

3.11.2 The predicted post-development baseline will be calculated from the following data;

- Plans provided in the appendix.
- Detailed plans, drawings, documents and specifications submitted for planning.
- Construction issue plans, drawings, and specifications (if available).
- As built information (if available).

4. APPLICATION OF GOOD PRACTICE BIODIVERSITY NET GAIN PRINCIPLES

4.1.1 Throughout the progression and implementation of the Scheme, the Good Practice Biodiversity Net Gain Principles have been applied.

4.1.2 Table 4.1 demonstrates how each principle, listed in Section 1, has been applied since the ecological verification surveys were completed in 2023 and will be applied going forward.

Table 4.1 Application of the Good Practice Biodiversity Net Gain Principles

Principle	Application of the principles
Principle 1: Apply the mitigation hierarchy	High value habitats such as trees have been designed into the scheme to be retained. There is some loss of habitat areas such as standing water, however these habitats have been compensated accordingly.
Principle 2: Avoid losing biodiversity that cannot be offset elsewhere	A waterbody which comprised great crested newt has been implicated however it will be off set through compensatory ponds that will be provided outside of the redline, to be determined in due course through relevant mitigation licence.
Principle 3: Be inclusive and equitable	The Scheme will deliver Biodiversity Net Gain within the locality where biodiversity losses occur.
Principle 4: Address risk	The proposed auditing approach allows for risk to be assessed at appropriate intervals to ensure, as a minimum, the proposed future net gain will be achieved by the end of the development build-out period. Habitat creation risks are provided in the detail of the metric by default.
Principle 5: Make a measurable net gain contribution	Both quantitative and qualitative measures have been put in place to ensure that net gain is measurable. These are documented in this current report.
Principle 6: Achieve the best outcomes for biodiversity	A robust biodiversity baseline was completed in 2021 with a verification undertaken in 2023 following best practice guidelines. This has allowed informed decisions to be made in relation to incorporating biodiversity into the most recent development proposals. The most recent baseline conditions have informed detailed soft landscape design and composition that is appropriate for the local conditions.
Principle 7: Be additional	The newly created habitats within the Site will be reflective of the wider landscape and will provide higher value habitat in a previously low value/built up area.
Principle 8: Create a net gain legacy	The designs of the Scheme illustrate the landscape areas to be implemented within the Scheme which will be subject to ongoing management. This will help ensure a net gain legacy is achieved.
Principle 9: Optimise sustainability	The principles within the design vision will be carried through design stages to implementation on the ground, therefore promoting sustainability.
Principle 10: Be transparent.	The detailed results of the Biodiversity Net Gain assessment are provided with this report.

5. APPLICATION OF PROFESSIONAL JUDGEMENT

5.1 Pre-Development Habitats

5.1.1 Table 5.1 below summarise the professional judgements made in relation to the baseline condition of habitats pre-development based on the available survey and data. Where information is lacking or not detailed enough, judgements are made based on standard default conditions for typical habitat types.

5.1.2 For the purposes of The Statutory Biodiversity Metric, Phase 1 Habitat Types are converted into UK Hab habitat types, as informed by the conversion tool in the technical information tab within the metric. This applies to both baseline and created habitat type.

5.2 Post-Development Habitats

5.2.1 Table 5.2 below summarise the professional judgements made in relation to the predicted condition of created habitats. These judgements are based on the standard landscape types and aspirations for commensurate sites and are informed by a number of approved/verified.

5.2.2 No irreplaceable habitats were recorded within the baseline.

5.2.3 Should detailed landscape proposals differ significantly from those used in the current calculation, an updated biodiversity impact assessment will be required to ensure continued net gain of biodiversity.

5.3 Pre-Enhancement Habitats and Post-Enhancement Habitats Assumptions Tables

Table 5.1 Justification of condition and strategic significance of pre-development baseline habitats for the Site

Habitat Type	Justification	Condition	Strategic Significance
Buildings & hardstanding/developed land; sealed surface	Numerous farm buildings and associated hardstanding recorded within the Site.	N/A - Other	Area/compensation not in local strategy/no local strategy
Poor semi-improved neutral grassland	The majority of the Site comprises poor semi-improved grassland. This tussocky grassland is species-poor and dominated by Yorkshire-fog (*Holcus lanatus*) with frequent perennial ryegrass (*Lolium perenne*) and cock's-foot (*Dactylis glomerata*). The grassland incorporates few herbs, but species such as herb Robert (*Geranium robertianum*) and broadleaved plantain (*Plantago lanceolata*) were recorded. The habitat appears to have been regularly mown.	Poor	Area/compensation not in local strategy/no local strategy
Scattered scrub	Pockets of scattered scrub are present within the Site. The species present include bramble and juvenile hawthorn (*Crataegus monogyna*) with some blackthorn (*Prunus spinosa*) also present.	Poor	Area/compensation not in local strategy/no local strategy
Standing water	A pond is present within the Site.	Moderate	Area/compensation not in local strategy/no local strategy
Amenity grassland	There are areas of amenity grassland surrounding the main house and driveway within the survey area. This short-cropped grassland is dominated by perennial rye-grass (*Lolium perenne*). Other species recorded in this habitat include ground ivy (*Glechoma hederacea*) and daisy (*Bellis perennis*).	Poor	Area/compensation not in local strategy/no local strategy
Introduced shrub	There are several small areas of planted introduced shrubs within the survey area. Species noted included bell heather (*Erica cinerea*), firethorn (*Pyracantha coccinea*) and box (*Buxus sp.*).	N/A - Other	Area/compensation not in local strategy/no local strategy

Habitat Type	Justification	Condition	Strategic Significance
Tall ruderal	An area of tall ruderal vegetation is present in the south-western corner of the survey area. This area is dominated by common nettle (*Urtica dioica*) but other species are present including teasel (*Dipsacus fullonum*) and great willowherb (*Epilobium hirsutum*).	Poor	Area/compensation not in local strategy/no local strategy
Urban Tree	Across the Site there are eleven broadleaved trees, of which two are categorised as small trees and nine are categorised as medium trees, all of which are moderate condition. The tree conditions and sizes are based on the latest guidance for the metric (DEFRA, 2023).	Moderate	Area/compensation not in local strategy/no local strategy
Urban Tree	Across the Site there are two scattered mixed which are both categorised as small tress of moderate condition. The tree conditions and sizes are based on the latest guidance for the metric (DEFRA, 2023).	Moderate	Area/compensation not in local strategy/no local strategy
Notes [1] See the 'Assessor Comments' in the completed Statutory Metric with regard to identification of these habitats and rationale for conversions of JNCC Phase 1 Habitats into the UK Habitat Classification system.			

Table 5.2 Justification of condition and strategic significance of post-development created & retained habitats for the Site

Habitat Type	Justification	Condition	Strategic Significance
Proposed			
Hardstanding/developed land; sealed surface	There is a large area of hardstanding that consists of a road, building access/car parking, patio/gravel area and footpaths.	N/A - Other	Area/compensation not in local strategy/no local strategy
Amenity grassland/modified grassland	Within the residential gardens of the Site there is areas of short mown amenity grassland. This is assumed to be poor condition given the lack of species diversity.	Poor	Area/compensation not in local strategy/no local strategy
Introduced shrub	Associated with the residential properties are introduced shrub bed areas. While this habitat will be wildlife focused where possible it is likely to comprise a number of non-native ornamental species. Invasive species will be avoided.	Condition Assessment N/A	Area/compensation not in local strategy/no local strategy
Other neutral grassland	To include pollen rich herbs, not pure grasses.	Moderate	Area/compensation not in local strategy/no local strategy
SUDS	This condition is considered to be good given these ponds will be designed to benefit wildlife with aquatic margins.	Good	Area/compensation not in local strategy/no local strategy
Urban tree	Across the Site there is sixteen small moderate trees to be planted within the development.	Moderate	Area/compensation not in local strategy/no local strategy
Retained			
Scattered mixed tree – rural tree	Across the Site there is one tree that is retained as a small moderate mixed tree.	Moderate	Area/compensation not in local

Habitat Type	Justification	Condition	Strategic Significance
			strategy/no local strategy
Scattered broadleaved – rural tree	Across the Site there are nine trees which are broadleaved trees that are retained as moderate trees. This includes one small sized tree and eight moderate sized trees.	Moderate	Area/compensation not in local strategy/no local strategy
Notes [1] See the 'Assessor Comments' in the completed Statutory Metric with regard to identification of these habitats and rationale for conversions of JNCC Phase 1 Habitats into the UK Habitat Classification system.			

6. RESULTS

6.1 Statutory Biodiversity Metric Results

6.1.1 The outcome of the biodiversity net gain assessment for area habitats is provided in Figure 6.1 and detailed in the supporting the Statutory Biodiversity Metric.

6.1.2 As demonstrated, a positive habitat biodiversity unit change of 26.35% is anticipated based on the current creation proposals associated with ponds, grassland and individual trees. The outcome results also indicate a predicted positive change in hedgerow unit change of 281.17%.

6.1.3 The assessment demonstrates the biodiversity net gain units that could be derived from the proposed creation at the Site is 0.53 habitat units.

6.1.4 There are no river features in the baseline habitats or creation/retained/enhanced proposals in this case.

6.2 Metric Results

6.2.1 Results of the metric are summarised in table 6.1-6.2 below. A full copy of the Metric in Excel format will be supplied separately for detailed reference if required. Please note that some habitats within the baseline are retained.

Table 6.1 Statutory Biodiversity Metric calculations – habitat baseline

Habitat	Area (ha)	Distinctiveness	Condition	Total Habitat Units
Developed land; sealed surface	0.2652	V.Low	N/A - Other	0.00
Ruderal/Ephemeral	0.1059	Low	Poor	0.02
Ponds (priority habitat)	0.1866	High	Moderate	0.02
Modified grassland	0.0058	Low	Poor	0.12
Introduced shrub	0.0122	Low	Condition Assessment N/A	0.01
Rural tree	0.1547	Medium	Moderate	1.24
Rural tree	0.0122	Medium	Moderate	0.10
Modified grassland	0.25732	Low	Poor	0.51
Total				2.02

Notes
[1] See the 'Retained column' in the completed Statutory Metric with regard to identification of some of the rural trees which are retained within the scheme.

Table 6.2 Statutory Biodiversity Metric calculations – habitat creation

Habitat	Area (ha)	Distinctiveness	Condition	Total Habitat Units
Developed land; sealed surface	0.32113	V.Low	N/A - Other	0.00
Other neutral grassland	0.1232	Medium	Moderate	0.82
Modified grassland	0.10268	Low	Poor	0.20
Sustainable drainage system	0.05578	Low	Good	0.19
Urban tree	0.0651	Medium	Moderate	0.20
Introduced shrub	0.01817	Low	Condition Assessment N/A	0.04
Total				1.44

6.3 Trading Rules

6.3.1 Trading rules are not strictly satisfied in regard to high and medium distinctiveness habitat which is in relation to the pond loss and trees within the Site. However, it is noted that the scheme as a whole does provide effective mitigation in the form of two new ponds (to replace high distinctiveness habitat) and tree planting (to replace medium distinctiveness habitat).

6.3.2 With regard to ponds, the loss of the GCN pond must (by consequence of standing advice) be compensated for through the creation of two ponds proposed offsite (within the wider ownership boundary) in an agreed receptor area, near to the retained pond in the west of the ownership land. The detail of the proposals is yet to be finalised but through the requirements of the GCN mitigation the loss of the small pond feature will be fully compensated for through provision of two new ponds as indicated in the supporting GCN report (2023, Jones & Sons). Once detailed designs are agreed through the required GCN licence the BNG assessment will be updated for this additional off-site provision. As such, the BNG assessment takes a cautious approach.

6.3.3 With regard to medium distinctiveness habitats, it is considered that with the additional tree planting proposed within the Site is beneficial and that this essentially mitigates the breach identified in this case.

On-site baseline	*Habitat units*	2.02
	Hedgerow units	0.37
	Watercourse units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	2.55
	Hedgerow units	1.40
	Watercourse units	0.00
On-site net change (units & percentage)	*Habitat units*	0.53
	Hedgerow units	1.03
	Watercourse units	0.00
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	Watercourse units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	Watercourse units	0.00
Off-site net change (units & percentage)	*Habitat units*	0.00
	Hedgerow units	0.00
	Watercourse units	0.00
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.53
	Hedgerow units	1.03
	Watercourse units	0.00
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00
	Hedgerow units	0.00
	Watercourse units	0.00
Ensure bespoke compensation has been agreed where stated ⚠		
FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.53
	Hedgerow units	1.03
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	26.35%
	Hedgerow units	281.17%
	Watercourse units	0.00%
Trading rules satisfied?	No - Check Trading Summaries ▲	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit
Habitat units	10.00%	2.02	2.22	0.00
Hedgerow units	10.00%	0.37	0.40	0.00
Watercourse units	10.00%	0.00	0.00	0.00

Fig 6.1. Summary Biodiversity Net Gain Assessment – Habitats calculations for the Site (see supporting Statutory Biodiversity Metric for detailed results and further information).

7. REFERENCES AND BIBLIOGRAPHY

Babec Ltd (2021). Wells Farm Cuffley, Preliminary Ecological Appraisal

Baker, J (2016). Biodiversity Net Gain Good Practice Principles for Development

Baker, J., Hoskins, R., Butterworth, T. (2019). Biodiversity Net Gain. Good Practice Principles for Development. A Practical Guide. CIRA

BMD (2019) Ecological Constraints, Wells Farm, Cuffley. Hatton. *BMD.19.004.12.TN.003_A Eco Review* Bradley Murphy Design.

BMD. (2023). Ecological Verification, Wells Farm, Cuffley. Hatton. Bradley Murphy Design: BMD.23.0062.RPE.TN.801.A.Verification Report

British Standards Institute (BSI) (2013). BS42020 - Biodiversity Code of Practice for Planning and Development. BSI, London

British Standards Institute (BSI) (20202). BS8683 – Designing and Implementing Biodiversity Net Gain. BSI, London

CIEEM (2017). *Guidelines on Ecological Report Writing* (2nd ed). Winchester: CIEEM

Department for Environment, Food and Rural Affairs. (2023). The Statutory Biodiversity Metric User Guide (draft). November 2023.

Environment Bill summer policy statement: July 2019. https://www.gov.uk/government/publications/draft-environment-principles-and-governance-bill-2018/environment-bill-summer-policy-statement-july-2019 [Accessed 09/11/2023]

HM Government (1981). *Wildlife and Countryside Act 1981 (as amended).*

HM Government (2000). *Countryside and Rights of Way Act, 2000.*

HM Government (2005). *ODPM Circular 06/05 Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.*

HM Government (2017). The Conservation of Habitats and Species Regulations 2017, as amended.

HM Government (2021). *National Planning Policy Framework.* Department for Communities and Local Government.

HM Government (2021a). *Environment Act 2021*. (C30)

HM Government (2021b). *National Planning Policy Framework. Department for Communities and Local Government*. https://www.gov.uk/government/publications/national-planning-policy-framework--2 [Accessed 09/11/2023]

HM Government (2023). National Planning Policy Framework. Department for Communities and Local Government. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1182995/NPPF_Sept_23.pdf [Accessed 09/11/2023]

Jones and Sons Environmental Sciences Ltd. (2021). Bat Report, Wells Farm, Cuffley.

Jones and Sons Environmental Sciences Ltd. (2021) Great Crested Newt Report, Wells Farm, Cuffley.

Jones and Sons Environmental Sciences Ltd. (2021). Interim Summarised Bat Report, Wells Farm, Cuffley.

Jones and Sons Environmental Sciences Ltd. (2021). Reptile Report, Wells Farm, Cuffley

JNCC (2010). Handbook for Phase 1 habitat survey: a technique for environmental audit. Natural England.

Maddock, A (ed.) (2008a). UK Biodiversity Action Plan; Priority Habitat Descriptions: Ponds (Updated November 2016).

Maddock, A (ed.) (2008b). UK Biodiversity Action Plan; Priority Habitat Descriptions: Lowland Mixed Deciduous Woodland (Updated November 2016).

Maddock, A (ed.) (2008c). UK Biodiversity Action Plan; Priority Habitat Descriptions (Updated Dec 2011).

Panks, S. et al. (2023a). Biodiversity metric 4.0: Auditing and accounting for biodiversity – User Guide. Natural England.

Panks, S. et al. (2023b). Biodiversity metric 4.0 Auditing and accounting for biodiversity – Technical Supplement. Natural England.

Panks, S. et al. (2023c). The Biodiversity metric 4.0 – User Guide – Technical Annex 2. Natural England.

Treweek J. et al. (2009) Scoping study for the design and use of biodiversity offsets in an English Context

Treweek J., Butcher B., and Temple H. (2010) Biodiversity offsets: possible methods for measuring biodiversity losses and gains for use in the UK. CIEEM In Practice

UKHab Ltd. (2023). UK Habitat Classifications – Habitat Definitions V2.0. https://ukhab.org/ [Accessed 09/11/2023]

8. GLOSSARY

8.1 Scientific Terms and Acronyms

CIEEM Chartered Institute of Ecology and Environmental Management, the professional organisation and provider of professional codes of conduct for ecological consultancy.

NPPF National Planning Policy Framework.

Notable species A species which is listed as a UK Priority Species, carries an unfavourable conservation status (e.g. scarce, rare, threatened, Red-listed), is invasive or is otherwise worthy of note from an ecological perspective.

Protected species A species protected under specific UK or European legislation, including Habitats Directive, Wildlife and Countryside Act.

SAP Species Action Plan.

SSSI Site of Species Scientific Interest. Statutory designation of biological or geological importance.

UK Priority Habitat and species A habitat or species identified as a priority for conservation in accordance with Section 41 of the Natural Environment and Rural Communities Act (2006). Section 40 of the NERC Act 2006 places a duty on public authorities to have regard for the conservation objectives of these habitats / species (also known as Section 41 (S41) habitats/species).

APPENDICES

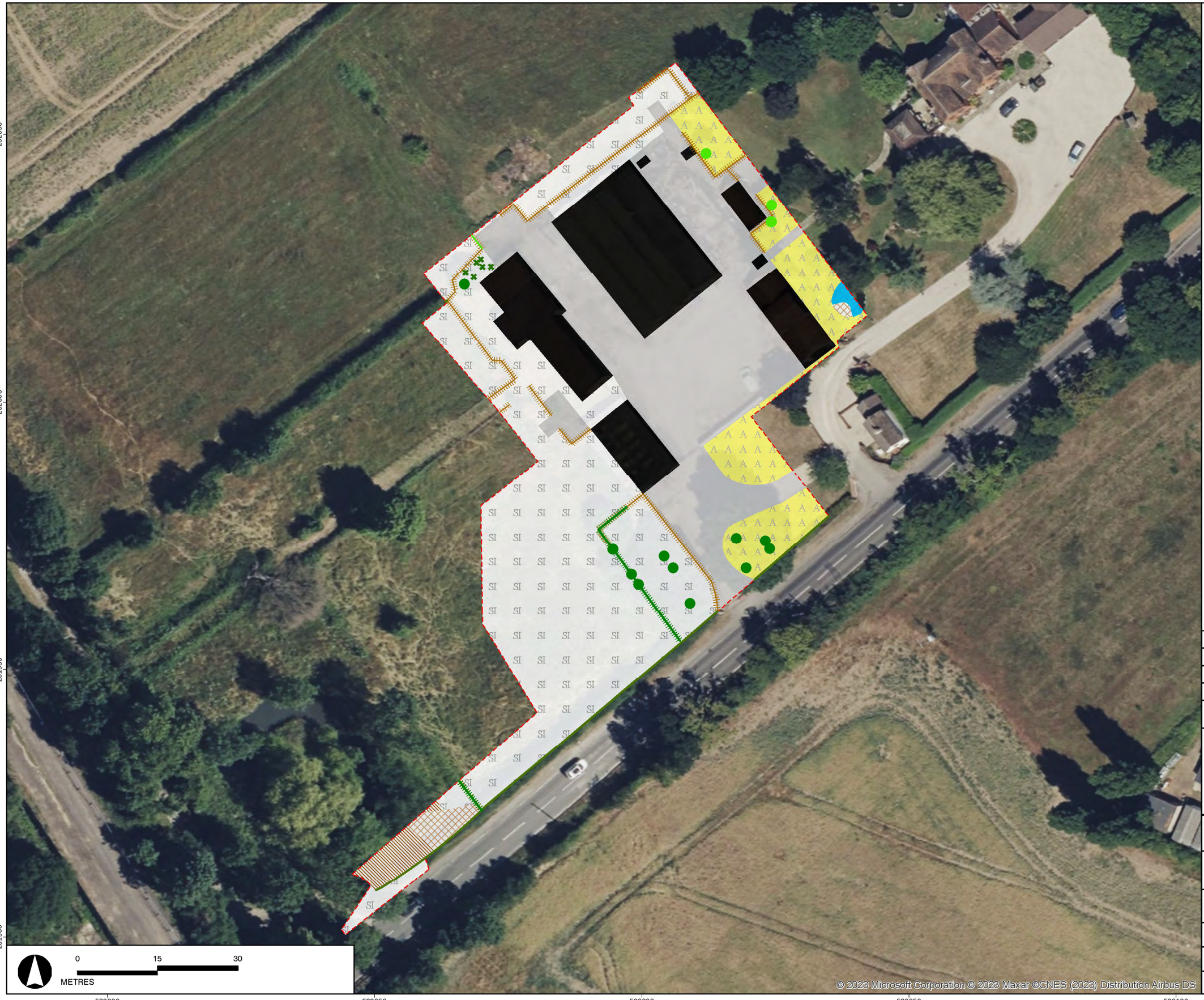
PLANS & SUPPORTING FIGURES

BMD.23.0062.DRE.901- Phase 1 Habitat Survey Plan (2023)

BMD.23.0062.DRE.902 - Post-development Habitats Plan (2023)

BMD.23.0062 – The Statutory Biodiversity Metric Calculation Tool – Wells Farm (2024)

1718-p1-001_proposed site plan-p1-001-a (2023)



Development extent (6,209.6m²)

Pre - Development Habitat Description

- Tall ruderal (85.4m²)
- SI Poor semi-improved grassland (2,573.2m²)
- Standing water (16.1m²)
- Amenity grassland (603.4m²)
- Introduced shurb (66.9m²)
- Building (1,106.2m²)
- Hardstanding (1,758.4m²)
- Intact species-poor hedgerow (101.2m)
- Species-poor hedgerow with trees (39.5m)
- Defunct species-poor hedgerow (3.2m)
- Fence (204.3m)
- Scattered broadleaved tree (11)
- Scattered mixed tree (3)
- Scattered scrub

Rev	Description	
--	--	--

Purpose of Issue
PLANNING

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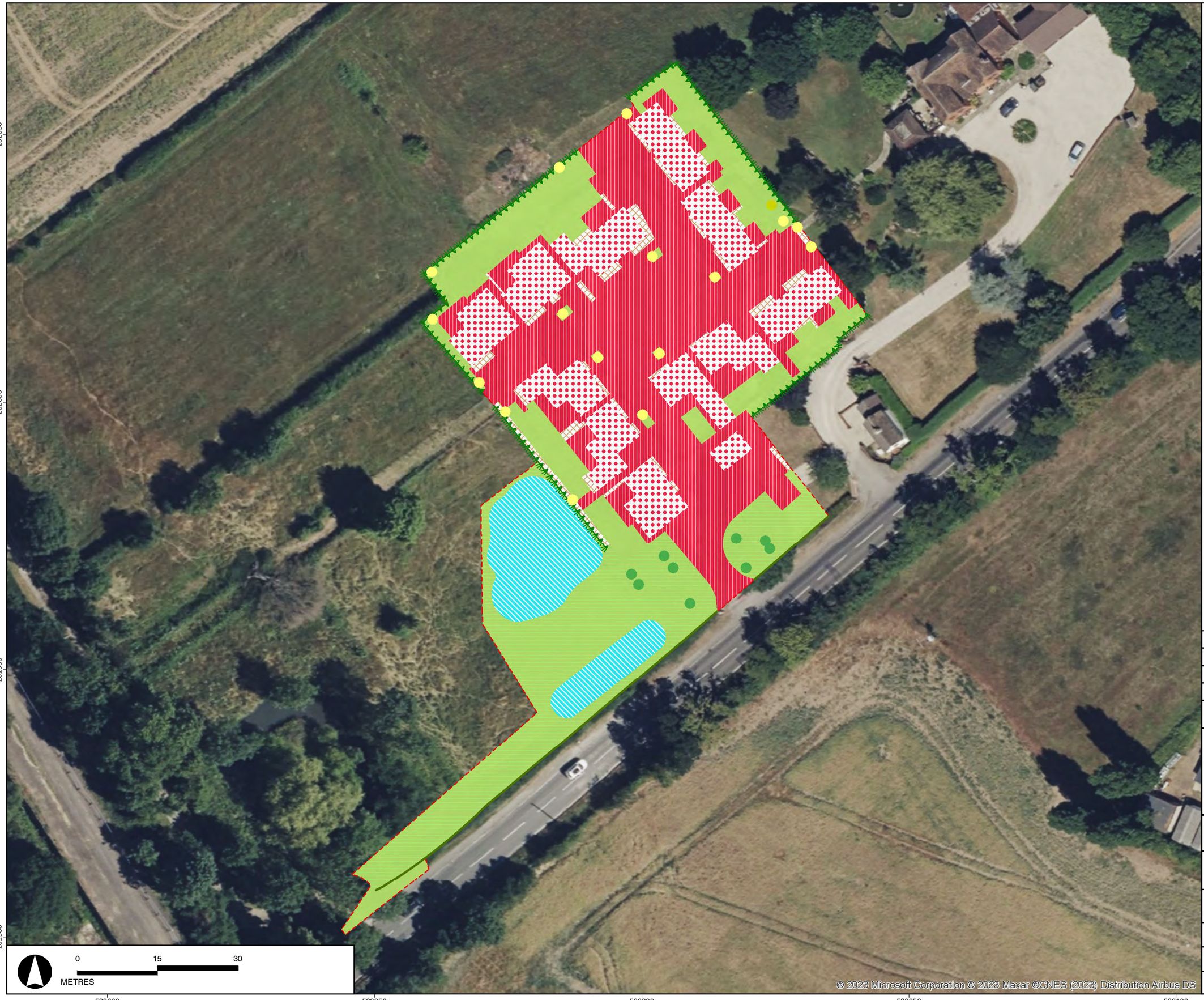
Client
KING&CO

Project
WELLS FARM, CUFFLEY

Drawing Title
PHASE 1 HABITAT MAP

Drawn	Checked	Approved	Date
MP	JW	JP	27/11/2023
Job No.	**Scale**	**Sheet Size**	**Revision**
23.0062	1:650	A3	*D*

Drawing Number
BMD.23.0062.DRE.901



Development extent (6,209.6m²)

Post - Development Habitat Description

- g3c - Other neutral grassland (1,232.0m²)
- g4 - Modified grassland (1,026.8m²)
- u1b - Developed land; sealed surface (2,106.2m²)
- u1b5 - Buildings (1,105.1m²)
- 847 - Introduced shrub (181.7m²)
- 848 - Sustainable drainage system (557.8m²)
- Native species rich hedgerow (178.7m)
- Intact species-poor hedgerow (100.9m)
- Scattered broadleaved tree, retained (9)
- Scattered mixed tree, retained (1)
- Proposed feature tree (16)

Rev	Description	
--	--	--

Purpose of Issue
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WELLS FARM, CUFFLEY

Drawing Title
PROPOSED HABITAT MAP

Drawn	Checked	Approved	Date
MP	JW	JP	27/11/2023
Job No.	**Scale**	**Sheet Size**	**Revision**
23.0062	1:650	A3	*E*

Drawing Number
BMD.23.0062.DRE.902

Proposed woody mixed species indigenous hedge planting along boundary line interspersed with feature trees - to restore field boundaries to the north and east as required

Proposed woody mixed species indigenous hedge planting along boundary line interspersed with feature trees - to restore field boundaries to the north and east as required

Indigenous hedge planting to site boundaries

Existing buildings to be demolished, shown dashed

Existing hedge reinforced with indigenous planting

Existing buildings to be demolished, shown dashed

H01 3b5p
H02 3b5p
H03 3b5p
H04 3b5p
H05 3b5p
H06 4b7p
H07 2b4p
H08 2b4p
H09 2b4p
H10 2b4p
H11 2b4p
H12 2b4p
H13 3b5p
H14 3b5p

proposed drainage basin

proposed swale

existing trees retained

existing trees retained

Indigenous hedge planting to site boundaries

Existing hedge reinforced with indigenous planting

Existing hedge reinforced with indigenous planting

NOTES

CONSULTANTS
- Refer to highways consultant's drawings for details
- Refer to landscape consultant's drawings for details
- Landscaping layout is indicative only

AREAS
- Refer to area schedule

N

Rev	Notes	dd.mm.yy	By	Auth
A	Red line boundary revised	01.10.23	TA	JC

0 5m 10m 15m 20m 25m 50m

KING & CO
PROPERTY DEVELOPMENT & INVESTMENT
EST. 1920
Marquis House, 68 Great North Road, Hatfield, AL9 5ER
www.kingandcompany.co.uk

Date: Nov 2020
Drawn by:
Checked by:
Scale @A1: 1:500
Scale @A3: 1:1000
CAD File No:

WELLS FARM
Northaw Road East
Cuffley
PROPOSED SITE PLAN

1718 .. .. P1-001

A
Revision

A. METADATA AND LIMITATIONS

A.1 Metadata

Factor	Detail
Data	Biodiversity Net Gain Calculations
Reason for collection	To provide an audit of the predicted biodiversity net gain score for the Site using the Statutory Biodiversity Metric for the proposed development at Wells Farm, Cuffley
Location	Wells Farm, Cuffley Approx. centre: TL 30000201
Date	January 2024
Method of collection	See Section 2
Assessment completed by	Jonathan Wood MCIEEM
Assessment calculator used	The Statutory Biodiversity Metric (Natural England)
GIS software	ArcGIS Desktop 10.8 & ArcGIS Pro 3.1
AutoCAD software	N/A

A.2 Limitations review

Consideration	Comment
Survey & data	
Personal competence, i.e. qualifications, training, skills, understanding, experience	All assessment works were undertaken by or directly supervised by personnel experienced in biodiversity net gain assessments. Jonathan Wood BSc (Hons) MCIEEM has over 9 years' experience in ecological consultancy, including experience of performing and coordinating the assessments undertaken. James Patmore CEcol CEnv MCIEEM James has over 21 years of professional experience of ecological and biodiversity surveys and assessments. This has included developing monitoring mechanisms for a range of habitats, assessing impacts of development on biodiversity, undertaking biodiversity net gain calculations for both small sites and large-scale schemes and writing enhancement and mitigation strategies. Attended a number of training courses/conferences on biodiversity net gain delivered by specialist consultants, Natural England and CIEEM. Mark Parnell MRes BSc GIS mapping and area measurements were drawn and calculated by Mark Parnell. Mark has worked as a GIS specialist for more than 14 years, including work for DEFRA.
Resources (equipment and/or personnel)	Appropriate resources and suitably qualified personnel were used.
Time spent surveying	NA
Data (e.g. arising from incomplete or inappropriate surveys)	The data collected was sufficient for the purpose of the works.
Lack of statistical robustness and higher uncertainties	Appropriate statistical analysis of data was applied during this assessment. All uncertainties have been fully acknowledged and duly taken into consideration.
Old and out of date data	All data used is up to date from 2023.
Timing or seasonal constraints and suboptimal survey periods	N/A
Partial use of and/or departures from good practice guidelines	All assessments accorded with the relevant best practice guidelines.
Site conditions & other factors	
Adverse weather conditions	N/A
Restricted access to site or part of site	N/A
Unrealistic deadlines	No restrictions on survey data collected or analysed to date are as a result or unrealistic deadlines.
Unproven or untested measures for mitigation and compensation	N/A
Evaluation of conservation value and impacts	The evaluation of the conservation value of habitats within the site and impacts of the development, are based on the most appropriate baseline information available.