

# The Old Water Tower, Cockernhoe

## BNG

### Report for Mr and Mrs Gallagher

| Author  | Rosie McLaughlin BSc (Hons) MSc MCIEEM  |                                        |            |       |
|---------|-----------------------------------------|----------------------------------------|------------|-------|
| Version | Checked by                              | Approved by                            | Date       | Type  |
| V1.0    | Orlando Campbell BSc (Hons) FdSc MCIEEM | Rosie McLaughlin BSc (Hons) MSc MCIEEM | 23/05/2025 | Final |

# Contents

|                                                      |    |
|------------------------------------------------------|----|
| Contents .....                                       | 2  |
| Summary of Key Findings .....                        | 3  |
| 1 Introduction .....                                 | 4  |
| 2 Planning Policy .....                              | 6  |
| 3 Methodology .....                                  | 8  |
| 4 Baseline conditions and on-site compensation ..... | 10 |
| 5 Discussion and Recommendations .....               | 12 |
| References .....                                     | 17 |
| Appendix 1 : Figures .....                           | 18 |

## LIABILITY

Hawthorn Ecology has prepared this report for the sole use of the commissioning party in accordance with the agreement under which our services were performed. No warranty, express or implied, is made as to the advice in this report or any other service provided by us. This report may not be relied upon by any other party without the prior written permission of Hawthorn Ecology. The content of this report is, at least in part, based upon information provided by others and on the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from any third party has not been independently verified by Hawthorn Ecology, unless otherwise stated in the report.

## COPYRIGHT

© This report is the copyright of Hawthorn Ecology. Any unauthorised reproduction or usage by any person is prohibited.

## Summary of Key Findings

Hawthorn Ecology was commissioned by Mr and Mrs Gallagher in February 2025, to produce a Biodiversity Net Gain (BNG) Assessment to accompany a planning application for development at The Old Water Tower, Mangrove Road, Cockernhoe, LU2 8QD (henceforth referred to as 'the site'). The main findings are as follows:

- The site comprised a residential property, with associated hardstanding, outbuildings, garden, and modified grassland.
- The site is not subject to any statutory or non-statutory nature conservation designations. There are no designated sites within 2km of the site. Habitats of Principal Importance are located within 2km of the site (the closest being woodpasture and parkland located approximately 0.3km away). Due to the small scale of the development, it is considered unlikely that these sites/habitats will be affected.
- The current biodiversity value of the site was calculated as 0.58 habitat area units and 0.62 linear units.
- Proposals include the construction of two residential properties on site with associated outbuildings, hardstanding and gardens. The biodiversity value of the proposed development was calculated as 0.54 habitat area units and 0.86 linear units.
- Overall, across the planned development there is a net loss of 0.05 habitat area units and a gain of 0.24 linear units, resulting in a net percentage change of -7.86% for habitat area units and +38.91% for linear units.
- The replacement habitats on site do not meet the trading rules of BNG as a 10% gain has not been reached. Therefore, in order to achieve the required 10% gain in biodiversity, and to meet the requirements of the Biodiversity Net Gain principals off-site compensation or the purchase of credits is required. At least 0.10 habitat units will need to be provided. The habitat area units will need to be from a habitat of medium distinctiveness or above in order to meet the trading rules of Biodiversity Net Gain principals
- Recommendations for site management are detailed in Section 5 of this report.

# 1 Introduction

## BACKGROUND TO COMMISSION

- 1.1 Hawthorn Ecology was commissioned by Mr and Mrs Gallagher in February 2025 to produce a Biodiversity Net Gain (BNG) Assessment, to demonstrate the change in biodiversity value of the site as a result of the proposed development at The Old Water Tower, Mangrove Road, Cockernhoe, LU2 8QD. This assessment provides specialist advice on how the proposed works will impact biodiversity, including identification of opportunities for net gain.

## SCOPE OF REPORT

- 1.2 This report has been written to assess the potential impact of the proposed development on biodiversity, and whether the proposed plans will meet the target of a net gain for biodiversity. In line with current best practice (Natural England, 2023), this is specifically in relation to the habitats present.
- 1.3 This assessment has been completed in line with the established mitigation hierarchy (as set out in BS42020:2013 (British Standard Institute, 2013) and CIEEM, 2019), whereby impacts are first avoided, then mitigated or reduced and, as a last resort, compensated for.
- 1.4 Recommendations for creating new habitats on site to meet the target for biodiversity net gain are provided where required. Net gains are those that are additional to measures required to mitigate for identified impacts.

## SITE CONTEXT AND STATUS

- 1.5 The proposed development site is approximately 0.27 hectares (ha) in size and is centred on Ordnance Survey National Grid reference TL 12351 23705 and is located in the village of Cockernhoe in Hertfordshire. The area immediately surrounding the site comprises residential properties, and arable land. The location of site is shown in Appendix 1, Figure 1 and extent of site boundary is shown in Appendix 1, Figure 2.
- 1.6 The site comprised a residential property, with associated hardstanding, outbuildings, garden, and modified grassland.

## DEVELOPMENT PROPOSALS

- 1.7 The proposals include the construction of two residential properties on site. The proposed development will result in the loss of buildings and garden. The existing residential property and two trees will be retained.

## 2 Planning Policy

### NATIONAL PLANNING POLICY

- 2.1 The revised National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2023) requires local authorities to contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity. To protect and enhance biodiversity and geodiversity, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.
- 2.2 The Environment Bill was passed into law in November 2021, becoming the Environment Act 2021 (Environment Act, 2021). The Environment Act 2021 aims to halt the decline of nature by 2030, and mandates Biodiversity Net Gain for developments in England only. A gain of 10% became mandatory for major development on 12<sup>th</sup> February 2024 and for small sites from 2<sup>nd</sup> April 2024.
- 2.3 This section does not provide further detail on the Environment Act 2021 as secondary legislation, through which it will be implemented, has not been determined and it remains to be seen how and when the various elements will be enacted at a national and local level.

### LOCAL PLANNING POLICY

- 2.4 The following local planning policies from the North Herts Local Plan 2011-2031 (North Herts Council, 2022) have been considered during the BNG assessment.

#### Policy SP12: Green infrastructure, landscape and biodiversity

“We will accommodate significant growth during the plan period whilst ensuring the natural environment is protected and enhanced. We will:

- a) Protect, identify, manage and where possible enhance a strategic multi-functional network of green infrastructure;
- b) Consider and respect landscape character, scenic beauty and locally sensitive features, particularly in relation to the Chilterns Area of Outstanding Natural Beauty;
- c) Protect, enhance and manage designated sites in accordance with the following hierarchy of designations and features:

- Internationally designated sites
- Nationally designated sites
- Locally designated sites;
- Non-designated sites that include important habitats and species

d) Protect, enhance and manage biodiversity networks including wildlife corridors, ancient woodlands and hedgerows, wetland and riverine habitats, Local Geological Sites, protected species, priority species and habitats, and non-designated sites of ecological value and ensure measurable net gains for biodiversity; and

e) Protect other open spaces and support provision of new and improved open space.”

## 3 Methodology

### BIODIVERSITY NET GAIN CALCULATION

- 3.1 The Biodiversity Net Gain Assessment has been based on the Biodiversity Net Gain Good Practice Principals for development (Baker *et al.*, 2019), and Statutory Biodiversity Metric - User Guide (Defra, 2024b), and calculated using the Statutory Biodiversity Metric Calculation Tool (Defra, 2024a). Using this approach, the value of a site is quantified in Biodiversity Units, calculated based on extent and quality of the habitats present.
- 3.2 Habitat biodiversity unit scores are influenced by:
- distinctiveness - the rarity and importance of the habitat to biodiversity at a national scale;
  - condition - the quality of a habitat at a point in time based on management, disturbance and other environmental factors; and
  - strategic significance - whether the location of the development has been identified locally as significant for nature.
- 3.3 The distinctiveness is automatically scored within the Statutory Biodiversity Metric Calculation Tool (Defra, 2024a). Information on strategic significance is obtained through strategic documents for biodiversity such as supplementary planning documents, green infrastructure plans, nature recovery strategies, biodiversity opportunity areas, biodiversity action plans and local wildlife sites.
- 3.4 The factors listed above are attributed numerical scores and multiplied by the extent of the habitat in hectares (ha) (with the area obtained from mapping software QGIS) to calculate the Biodiversity Unit score for each habitat parcel.
- 3.5 Linear habitats, including hedgerows, are assessed separately to those that represent areas. Instead of area measures, these habitats are measured in length (metres). Measurements are obtained from QGIS. The number of units are calculated in the same way to habitats areas, multiplying the length by weighted scores for distinctiveness, condition, and strategic importance.
- 3.6 When calculating Biodiversity Units for proposed habitats, negative multipliers are also implemented to account for difficulty factors associated with habitat establishment, temporal delays and off-site risk. These are automatically scored within the Statutory Biodiversity Metric Calculation Tool (Defra, 2024a).

- 3.7 The information provided by a site walkover by an experienced ecologist on 20<sup>th</sup> February 2025 has been used to inform the assessment for habitats present prior to the development, and information provided by the design team and client has been used to inform the assessment of habitats proposed.

#### ASSUMPTIONS AND LIMITATIONS

- 3.8 Habitats to be created on site are accounted for in the UK Habitat Classification System (UKHab Ltd 2023). Professional opinion has informed this process to ensure that the calculator presents a realistic picture pre and post development.

## 4 Baseline conditions

### EXISTING SITE

#### On-site habitats

- 4.1 The site is not deemed to have strategic significance due to the lack of inclusion of the area within any local policy maps relevant to biodiversity or ecological networks.
- 4.2 The site comprised developed land; sealed surface (UKHab code u1b), buildings (UKHab code u1b5), vegetated garden (UKHab secondary code 828), modified grassland (UKHab code g4), and hedgerow (UKHab code h2). These habitats are shown in Appendix 1, Figure 3.

#### Baseline Calculation

- 4.3 The biodiversity value of the habitats on site prior to construction (baseline) is shown in Table 4.1 and Table 4.2 below. Full details of the calculations can be found within the Statutory Biodiversity Metric Calculation Tool Spreadsheet (Hawthorn Ecology, 2025a).
- 4.4 Accordingly, the biodiversity value of the site prior to development has been calculated as 0.58 total habitat units and 0.62 linear units.

**Table 4.1.** Biodiversity unit score prior to development - area

| Habitat                                                      | Area (ha) | Condition | Strategic Significance     | Biodiversity Unit |
|--------------------------------------------------------------|-----------|-----------|----------------------------|-------------------|
| Urban – developed land; sealed surface (including buildings) | 0.1361    | N/A       | Area not in local strategy | 0.00              |
| Vegetated garden                                             | 0.1292    | N/A       | Area not in local strategy | 0.26              |
| Artificial unvegetated, unsealed surface                     | 0.0075    | Poor      | Area not in local strategy | 0.00              |
| Individual tree                                              | 0.0163    | Good      | Area not in local strategy | 0.20              |
| Individual tree                                              | 0.0163    | Moderate  | Area not in local strategy | 0.13              |
| <b>Total</b>                                                 |           |           |                            | <b>0.58</b>       |

**Table 4.2.** Biodiversity unit score prior to development - length

| Habitat                    | Length (km) | Condition | Strategic Significance     | Biodiversity Unit |
|----------------------------|-------------|-----------|----------------------------|-------------------|
| Native hedgerow with trees | 0.035       | Poor      | Area not in local strategy | 0.14              |
| Native hedgerow            | 0.120       | Moderate  | Area not in local strategy | 0.48              |
| <b>Total</b>               |             |           |                            | <b>0.62</b>       |

## ENSURING BIODIVERSITY NET GAIN THROUGH COMPENSATION

- 4.5 The current proposals, presented in the proposed site plan shown in Appendix 2, Figure 1, include the construction of two residential properties with associated hardstanding and landscaping.

### Post-development Calculation

- 4.6 A calculation has been provided to determine the biodiversity value for the proposed habitat areas at the site as shown in Tables 4.3 and 4.4 below. The majority of proposed habitats include developed land, buildings and vegetated garden with hedgerows. The proposed new trees within vegetated gardens have not been included within the post-development calculation, in accordance with the Statutory Metric User Guide (Defra, 2024b).
- 4.7 The biodiversity units provided on site by the created and retained habitat areas in the current landscaping plans is 0.54, and 0.86 for linear units. This calculation is shown in full in the Statutory Metric Calculation Tool spreadsheet (Hawthorn Ecology, 2025).
- 4.8 As such, the proposed development is predicted to result in a net loss of biodiversity of 0.05 habitat area units and gain of 0.24 linear units, resulting in a net percentage change of -7.86% area units and +38.91% linear units.

**Table 4.3.** Biodiversity unit score post-development based on current landscape plans<sup>1</sup> - area

| Habitat                                                                           | Area (ha) | Targeted condition | Strategic Significance     | Biodiversity Unit |
|-----------------------------------------------------------------------------------|-----------|--------------------|----------------------------|-------------------|
| Urban – developed land; sealed surface including buildings (retained and created) | 0.1633    | N/A                | Area not in local strategy | 0.00              |
| Vegetated garden (retained and created)                                           | 0.1101    | N/A                | Area not in local strategy | 0.21              |
| Retained tree                                                                     | 0.0163    | Good               | Area not in local strategy | 0.20              |
| Retained tree                                                                     | 0.0163    | Moderate           | Area not in local strategy | 0.13              |
| <b>Total</b>                                                                      |           |                    |                            | <b>0.54</b>       |

<sup>1</sup> Where Biodiversity Units do not add up to the exact total score, this is due to a rounding artifact and how urban trees are included within the total score. Scores presented here are the same as presented in the calculator

**Table 4.4.** Biodiversity unit score post-development based on current landscape plans<sup>2</sup> - length

| Habitat                               | Length (km) | Targeted condition | Strategic Significance     | Biodiversity Unit |
|---------------------------------------|-------------|--------------------|----------------------------|-------------------|
| Native hedgerow with trees (retained) | 0.035       | Poor               | Area not in local strategy | 0.14              |
| Native hedgerow (retained)            | 0.120       | Moderate           | Area not in local strategy | 0.48              |
| Native hedgerow (created)             | 0.125       | Poor               | Area not in local strategy | 0.24              |
| <b>Total</b>                          |             |                    |                            | <b>0.86</b>       |

---

<sup>2</sup> Where Biodiversity Units do not add up to the exact total score, this is due to a rounding artifact and how urban trees are included within the total score. Scores presented here are the same as presented in the calculator

## 5 Discussion and Recommendations

### OFF-SITE COMPENSATION/PURCHASE OF CREDITS

- 5.1 In order to achieve the required 10% gain in biodiversity, and to meet the requirements of the Biodiversity Net Gain principals off-site compensation or the purchase of credits is required. At least 0.10 habitat units will need to be provided. The habitat area units will need to be from a habitat of medium distinctiveness or above in order to meet the trading rules of Biodiversity Net Gain principals.

### ON-SITE COMPENSATION

- 5.2 The below elements should be included within the final landscaping design to ensure the proposed habitats reach their target condition score.

### OUTLINE MANAGEMENT REQUIREMENTS

#### Native hedgerow

- 5.3 The targeted condition for the proposed hedgerows is poor and therefore do not need to meet certain criteria.

#### Good Horticultural Practice

- 5.4 It is recommended that sustainable horticultural practices are employed to minimise off-site ecological impacts. These include:
- all native plant material should be sourced from suppliers who have adopted Flora Locale's (2012) Code of Practice for collectors, growers and suppliers of native flora;
  - avoidance of the use of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended);
  - the use of peat-free composts and soil conditioners to reduce the loss of important peat bogs;
  - feeding of plants using organic based fertilisers and improving the soil structure by incorporating organic material, preferably composted municipal waste;
  - the use of drought tolerant plants and mulches to reduce evaporation and the amount of mains water needed for horticulture; and

- minimising the use of pesticides (herbicides, insecticides, and fungicides) to prevent cumulative fatal effects to animals via the food chain. Where use is unavoidable, non-residual chemicals should be applied.

## References

Baker, J., Hoskin, R. and Butterworth, T. (2019) Biodiversity Net Gain Good Practice Principles for Development. CIRIA, London

British Standards Institution (2013) Biodiversity. Code of practice for planning and development: 42020. BSI, London.

CIEEM (2019). Biodiversity Net Gain, Good practice principles for development. Chartered Institute of Ecology and Environmental Management, Winchester.

Defra (2024a) Statutory Biodiversity Metric Calculation Tool. Available at: <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

Defra (2024b). Statutory Biodiversity Metric - Draft User Guide. Technical Supplement. Available at: <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

Hawthorn Ecology (2025) *The Water Tower Cockernhoe Statutory Biodiversity Metric Calculation Tool*. Unpublished metric.

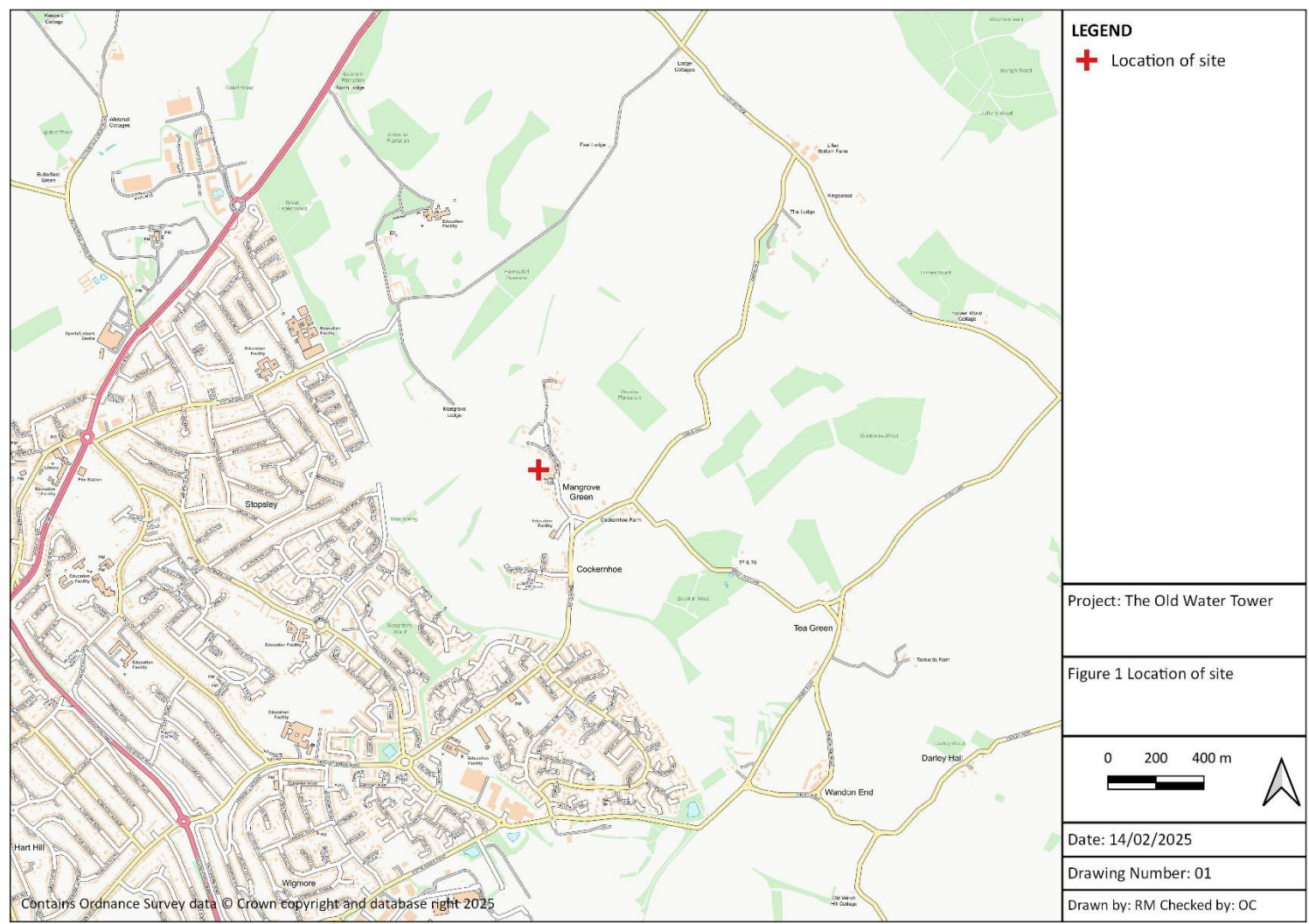
Ministry of Housing, Communities & Local Government (2023) National Planning Policy Framework. MHCLG. London. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

UK Government (2021). *Environment Act*. Available at: <https://bills.parliament.uk/bills/2593/publications>

UKHab Ltd (2023). The UK Habitat Classification. Available at: [www.ukhab.org](http://www.ukhab.org)

## Appendix 1 : Figures

Figure 1: Location of site



**Figure 2:** Extent of site boundary

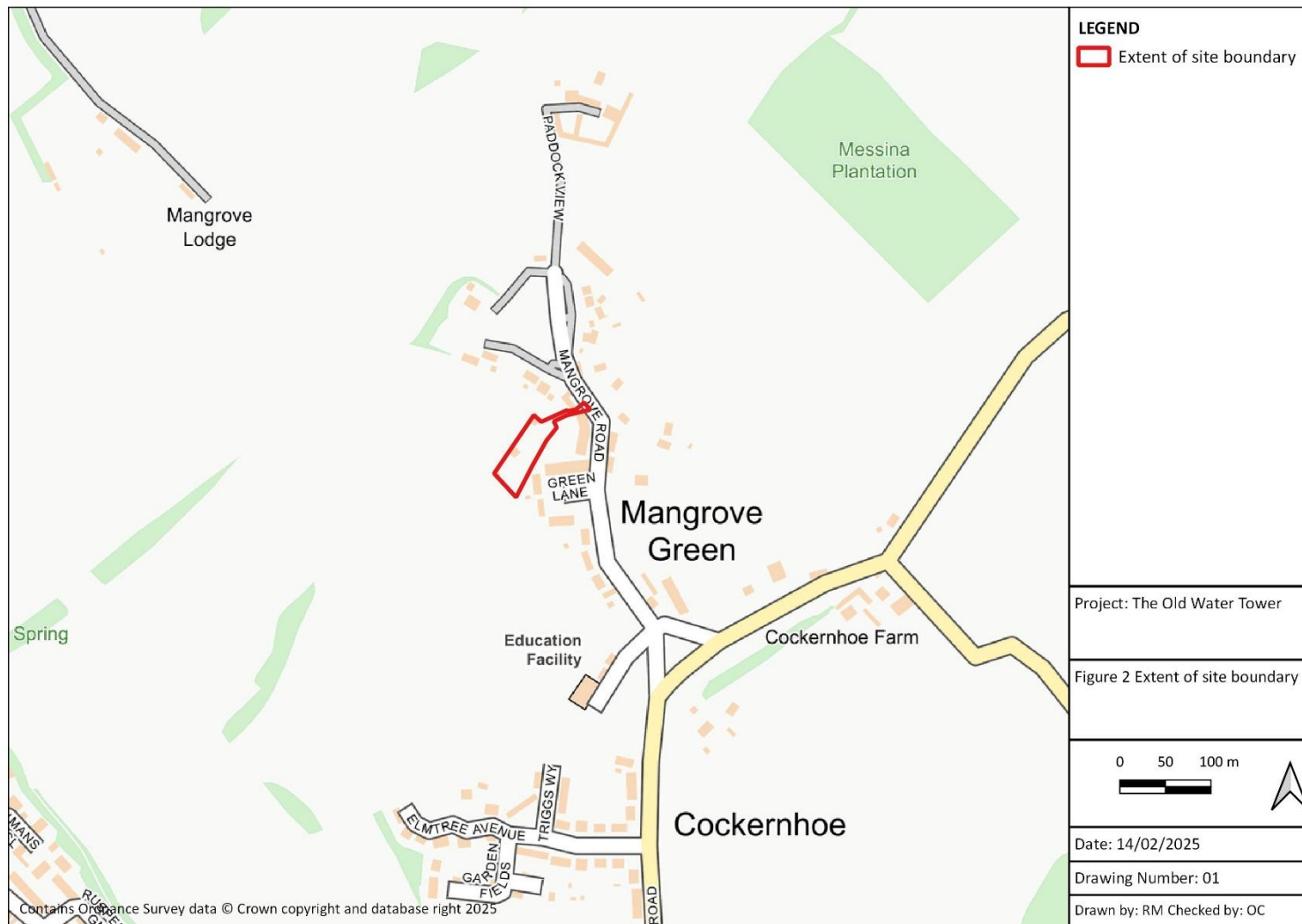
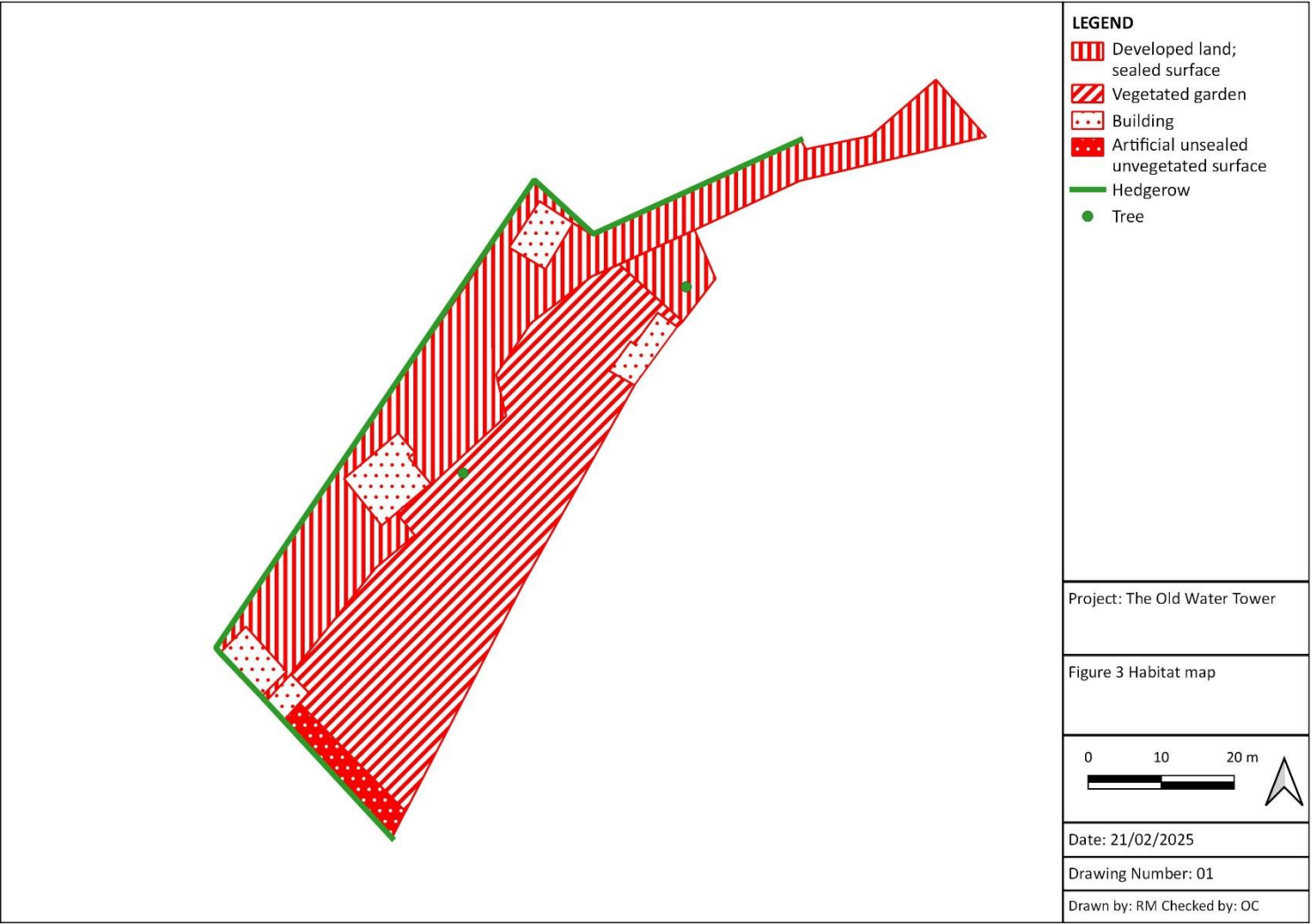
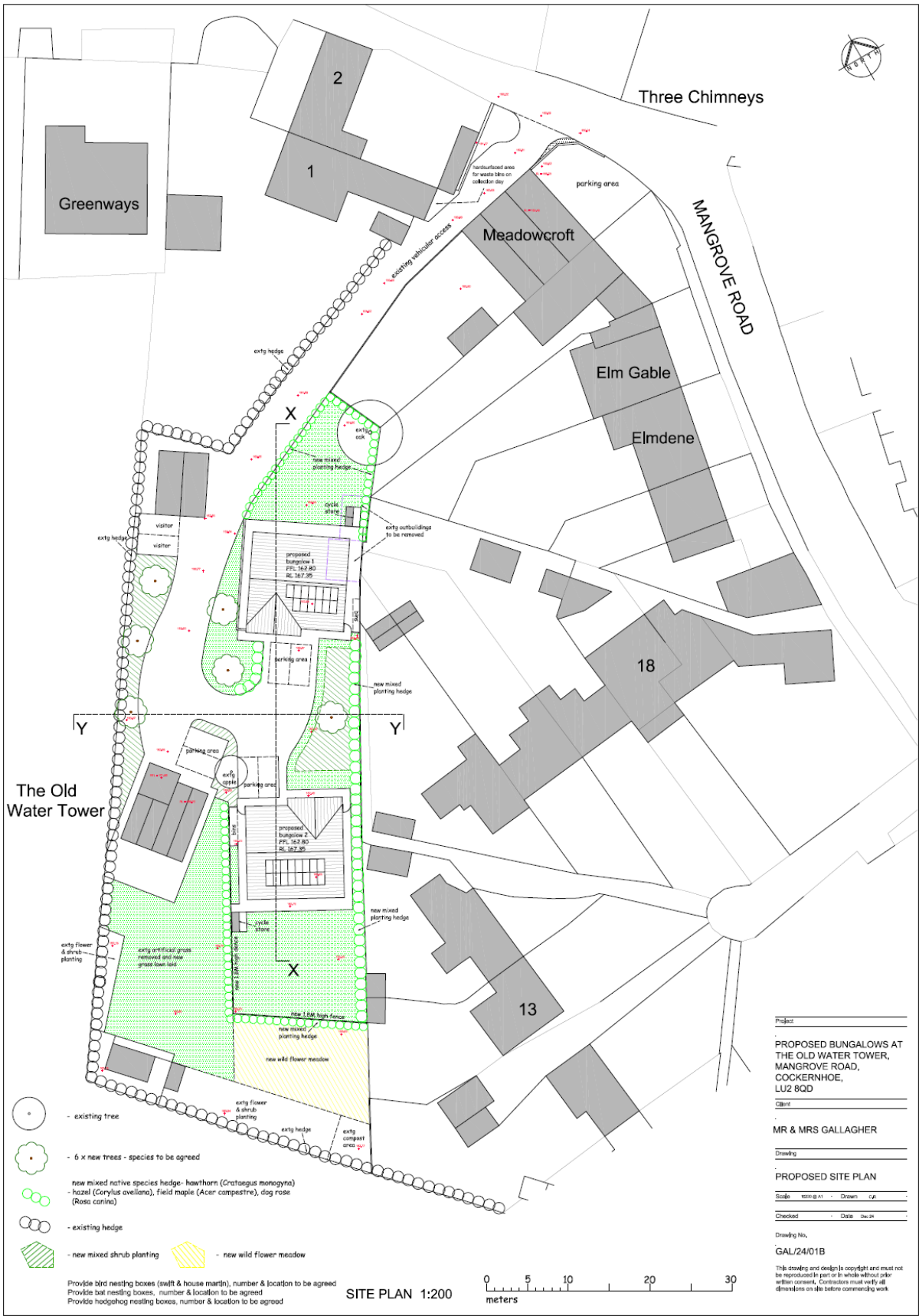


Figure 3: Habitat map



## Appendix 2 : Proposed development plans

Figure 1 : Proposed site plan<sup>3</sup>



<sup>3</sup> Although the above plan shows the artificial grass will be replaced with lawn, this is not the case

Figure 2 : Proposed habitat map

