



Botley West Solar Farm

Environmental Statement

Volume 3

Appendix 9.13: Biodiversity Net Gain Statement

November 2024

PINS Ref: EN010147

Document Ref: EN010147/APP/6.5

Revision P0

APFP Regulation 5(2)(a); Planning Act 2008; and Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulation

Biodiversity Net Gain Statement for Botley West Solar Farm

Prepared for PVDP on behalf of RPS

by

Wychwood Biodiversity

7th November 2024



Introduction

This Appendix of the Environmental Statement (ES) has been prepared by RPS on behalf of Photovolt Development Partners GmbH. (PVDP) for the Applicant, SolarFive Ltd. (SolarFive).

The purpose of this technical report is to present the methodology and results of the Biodiversity Net Gain Assessment for the Project. The results of this report have been used to inform Chapter 9: Ecology and Nature Conservation of the ES.

Project site

The Project site comprises a landscape of arable fields divided by a mature hedgerow network. In order to inform the assessment of effects on ecology receptors, the Project site has been subjected to the following biodiversity surveys reported in the following appendices of this ES:

- Appendix 9.2 Phase 1 Habitat Survey
- Appendix 9.3 Hedgerow Surveys
- Appendix 9.4 Bat Surveys
- Appendix 9.5 Great Crested Newt Surveys
- Appendix 9.6 Invertebrate Surveys
- Appendix 9.7 Reptile Surveys
- Appendix 9.8 Badger Surveys (CONFIDENTIAL)
- Appendix 9.9 Breeding Bird Surveys
- Appendix 9.10 Wintering Bird Surveys
- Appendix 9.11 Dormice Surveys
- Appendix 9.12 Arable Weed Surveys
- Appendix 9.15 Veteran Tree Surveys

Relevant legislation

The Environment Act 2021 included provisions applying certain BNG requirements to the Nationally Significant Infrastructure Projects (NSIP) regime. At >500MW, the Botley West Project is categorised as an NSIP. A BNG requirement is proposed to be imposed on NSIP projects from November 2025, with the level of requirement detailed within a BNG statement(s) presently expected to be set at a minimum of 10%.

The consultation¹ sets out that projects which have been accepted for Examination prior to the November 2025 date would not be required to deliver that minimum BNG target but could choose to do so voluntarily. In this context, and noting the position remains subject to further confirmation from Government, whilst there is no legal requirement for the Project to deliver BNG, the design has been developed such that the extent of net gain possible has been maximised within the parameters of the Project.

¹ The [Consultation on Biodiversity Net Gain Regulations and Implementation; Consultation outcome Government response and summary of responses. Updated 21 February 2023 \(defra.gov.uk\)](#).

BNG Methodology

BNG approach

The approach to BNG adopted with respect to the Project is in accordance with British Standards: BS 8683 - Process for Designing and Implementing Biodiversity Net Gain (BSI 2021) and BNG Guidance (Gov.uk 2024).

All calculations for BNG have been undertaken using the Statutory Biodiversity Metric (known as the Defra Metric) and associated technical guidance notes (Natural England, 2023). This enables a comparison of the biodiversity units present on site prior to development, and the post-development units to be created once the Project is complete.

The Defra Metric uses the UK Habitat Classification System (UKHab, 2023) for each habitat present and assigns a distinctiveness score to each, depending on the rarity of the habitat. Users are required to then assign an ecological condition to each habitat parcel, using the criteria provided in the Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology (GOV.UK, 2024).

The Defra Metric then calculates a habitat unit score based on these factors with those of higher distinctiveness and better ecological condition scoring highest.

The post-development calculations incorporate scaling factors that account for the difficulty of creating a habitat and the time required to establish it, ensuring these elements are reflected in the final score. The metric also accounts for planting taking place in advance of impacts occurring (resulting in a higher score) and when such planting is delayed (decreasing it).

Terrestrial habitat survey

Habitats within the area were initially recorded using Phase 1 Habitat Survey methodology (JNCC 2010) as reported in **Appendix 9.2 Phase 1 Habitat Survey**.

These were then converted to the UKHab classification using the translation guidance in the Defra Metric.

Post-development plans

The calculation of the post-development habitat areas is based on the indicative masterplan design at the time of submission. For full details please refer to Chapter 6 Project Description and Figures 2.1 – 2.3 in Volume 2 of the ES.

Calculation of habitat areas and lengths

Areas and lengths of habitat were calculated from ArcGIS based on the baseline habitat surveys and post development plans. Areas were calculated from a GIS database and then converted to hectares at an accuracy of 0.001 ha. The rounding of habitat areas to this accuracy means that the before and after area calculations do not match exactly.

The BNG Assessment has considered the area of land within the three Project site areas (the Northern Site Area, the Central Site Area and the Southern Site Area). It does not consider the cable route corridors between the sites as these are either within arable land or the highway network. Since both of these habitats can readily be restored post-construction and the period of construction is less than two years, as per the BNG Guidelines (Gov.uk 2024), no BNG assessment has been completed for the cable route corridors. This position was also agreed with Natural England during pre-submission consultation.

Strategic significance

The BNG metric includes a Strategic Significance multiplier for both the baseline and post development habitat creation and enhancement.

Strategic Significance has been assigned based on two variables:

- If the habitat is located within the Oxfordshire Nature Recovery Network (ONRN, shown on Figure 1), it is assigned a value of '*Formally identified in local strategy*'; and
- If the habitat is not located within a CTA for Oxfordshire, it is assigned a value of 'Area/compensation not in local strategy/no local strategy'.

The category 'Location ecologically desirable but not in local strategy' is usually reserved for habitat that is in a strategically significant location (i.e. along a water course or through within habitat attached to one) but not formally identified. In the case of this development, the category was not used, as all habitats were judged to fall into one of the two categories shown above.

The ONRN includes Conservation Target Areas (CTAs). In all, nine CTAs fall within 2km of the proposed development (Table 1), of which four overlap with the Project site, highlighted in Table 1.

Table 1. Biodiversity Opportunity Areas within 2km of the proposed development

BOA Name	Landscape type	Area (Ha)	BAP targets
Glyme & Dorn Valleys CTA*	Wooded pasture valleys & slopes	2,496	Limestone grassland, lowland meadow, fen, swamp & reedbed, parkland, lowland mixed deciduous woodland, rivers management & restoration.
Lower Cherwell Valley CTA	River meadows	609	Lowland meadow, Floodplain grazing marsh, lowland fen, reedbed, rivers management & restoration.
Oxford Meadows and Farmoor CTA*	River meadows	1,653	Lowland meadows, floodplain grazing marsh, fen / swamp, ponds, arable field margins, hedgerows, reedbeds management & restoration.
Thames & Cherwell at Oxford CTA	River meadows	660	Lowland meadows, fen / swamp, reedbed, river management & restoration.
Wytham Hill CTA*	Wooded hills	903	Lowland mixed deciduous woodland, limestone grassland, lowland fens, lowland meadow, wood pasture & parkland, floodplain grazing marsh management & restoration.
Wychwood & Lower Evenlode CTA	Wooded farmland, settled ancient pastures	4,765	Lowland mixed deciduous woodland, limestone grassland, parkland, lowland heath and dry acid grassland, hedgerows, arable field margins, ponds, traditional orchards management & restoration.
Blenheim & Ditchley Parks CTA	Wooded estateland	2,651	Parkland, wood pasture, lowland mixed deciduous woodland, arable field margins management & restoration.
Oxford Heights West CTA*	Wooded estateland	3,297	Lowland heath and dry acid grassland, fen, lowland mixed deciduous woodland, lowland meadows, lowland calcareous grassland, arable field margins management & restoration.

Upper Thames CTA	Flat riverside land	2,284	Lowland meadows, floodplain grazing marsh, reedbeds management & restoration.
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* CTA within Project site.

Advance or delay in habitat creation

In order to account for both advance planting (i.e. that occurring in advance of development impacts) and any delay in habitat creation between impacts occurring and planting taking place, the BNG metric includes the advance/delay multiplier.

No advance planting has been identified at this stage. As such, this component of the metric is set to '0' for all habitats.

Baseline Conditions

Baseline conditions are classified as the existing habitats present on the site prior to development. This includes the area of each baseline habitat type, along with their condition and strategic significance, where applicable.

Habitat and hedgerow baseline

While the majority of the site comprises arable farmland, the two key ecology habitat features that occur within the site are the hedgerow network (comprising some 70km of both species rich and species poor native hedgerow) and the River Evenlode Corridor. Currently, this corridor comprises almost exclusively further intensively-managed arable fields within the active floodplain of the river.

Outside of the Site but very close to it are a number of blocks of ancient woodland and other water courses including the River Glyne and River Cherwell. The River Thames and associated floodplain meadows are also close to the Site. The various river systems both within and around the Site form a contiguous habitat corridor through the landscape.

Full details of the habitats present within the Project site are set out in Appendix 9.2 Phase 1 Habitat Survey. Figure 2 shows the areas impacted by the Project (i.e. those areas where a change in habitat would occur).

The completed Statutory Biodiversity Metric Tool is provided, appended to the end of this document.

Below is a breakdown of each habitat type per area and then the total length of each hedgerow type rounded to two decimal places. The total area within the BNG study area is 1,298.80Ha and the total length of hedgerows is 72.96km.

Cropland

- Cereal crops: 1,146.64Ha (comprising the largest proportion of the site)
- Arable field margins tussocky: 3.66Ha
- Arable field margins game bird mix: 1.2Ha

Grassland

- Modified grassland: 124.35Ha
- Other neutral grassland covers 3.64Ha

Woodland and forest

- Other woodland; broadleaved: 10.11Ha
- Other coniferous woodland: 0.33Ha
- Lowland mixed deciduous woodland: 0.02Ha

Heathland and scrub

- Mixed scrub: 1.99Ha

Ponds and lakes

- Ponds (non-priority habitat): 0.02Ha

Sparingly vegetated land

- Ruderal/ephemeral: 3.03Ha

Urban

- Developed land; sealed surface: 2.94Ha
- Bare ground: 0.87Ha

The baseline habitats score for the BNG study area is **2,734.37** habitat units.

Hedgerows

Overall, there are 72.96km of hedgerow across the site. These are categorised into habitats as follows:

- Native hedgerows: 33.95km
- Native hedgerows with trees: 6.75km
- Non-native and ornamental: 0.31km
- Species-rich native hedgerow: 24.21km
- Species-rich native hedgerow with trees: 7.74km

The baseline hedgerows score for the BNG study area is **589.56** hedgerow units.

Habitat and hedgerow creation and enhancement plan

Overall objectives

The landscape for the Project has been designed to ensure an overall enhancement for biodiversity and to ensure that any impacts as a result of the Project are fully mitigated.

The biodiversity objectives are to protect, manage, enhance and monitor the nature conservation value of the site, creating a biodiversity rich environment – in line with the aims of the Oxfordshire Nature Recovery Network (ONRN). All biodiversity objectives are listed in Section 8 of the Outline Landscape and Ecology Management Plan (oLEMP) (Doc Ref EN010147/APP/7.6.3), including the provision of designated Biodiversity Enhancement Areas, which are areas designed for ecology and have low human intervention.

The management of the site shall seek to balance the Sites operational objectives within the existing vegetation and context of the locality. It will lead to the retention, enhancement and management of the existing hedgerows and trees; particularly strengthening and maintaining hedgerow boundaries. The management aims will ensure longevity of new tree and hedge planting, and the establishment of grasslands, woodlands and most notably a landscape-scale wetland corridor along the River Evenlode.

The River Evenlode Corridor will be restored to a mosaic of Floodplain Meadow to comprise a matrix of grasslands and wetland features to provide enhanced habitat for a range of species including bats, birds and invertebrates. The area will be restored through a comprehensive restoration plan, based on the principles set out in the oLEMP. The ultimate goal of the Corridor will be to manage it in such a manner that it contributes significantly to the increase in floodplain habitat within Oxfordshire and, in time, be of at least Local Wildlife Site quality.

The connectivity between the Site and surrounding woodlands will be enhanced through the provision of over 26.5km of new hedgerow. In particular, these will provide links in the Northern Site Area between Tackley Wood and the Blenheim Estate, the Central Site Area between the Blenheim Estate and Bladon and Burleigh Woods and the various woodlands in the Southern Site Area including the SSSI at Wytham.

Areas of former arable land around the Site that are to be protected to preserve the underground archaeology will be managed as meadow grassland to provide wildlife nodes within the Site. These will be managed to provide a continuity of habitat for breeding and wintering birds.

In addition to the strategic enhancements, the grassland management within and around the solar arrays will be subject to a new conservation grazing regime. These areas will be seeded to a modified grassland habitat type, once established these areas will be grazed (primarily by sheep).

In summary, the habitat creation and enhancement plan will include the following key elements:

- Circa 100ha of new Floodplain mosaic habitats along the River Evenlode Corridor;
- At least 26.5km of new species rich hedgerow;
- Over 25km of enhanced hedgerows
- Circa 5ha of new native woodland creation;
- Wildflower grasslands to be managed for wintering and breeding birds;
- Tussocky grasslands alongside hedgerows. Hedgerow buffers will range from 5m to 25m, depending on whether such features are important bat flight lines;
- Flood attenuation features to north of Cassington;
- Additional mixed scrub habitats alongside hedgerows; and
- A range of grasslands within the solar arrays to be managed for conservation value.

Habitat and hedgerow condition targets

Newly created or enhanced habitats would be required to meet a target condition that is considered achievable within the establishment and management plan. Tracking the condition progress of each habitat throughout the lifetime of the solar farm will be a key component to the overall biodiversity monitoring strategy. Each developing habitat must satisfy the relevant condition assessment criteria outlined in '*Condition Assessment Criteria for Created and Enhanced Habitats.*'

Habitat and hedgerow creation

Habitat Creation involves establishing entirely new habitats in an area where they did not previously exist. This process may include activities such as planting native vegetation, sowing new grasslands, or excavating wetland features, such as ponds. The goal is to increase the overall habitat availability, diversity, and connectivity.

The completed Statutory Biodiversity Metric Tool is provided, appended to the end of this document.

Below is a breakdown of the habitat types to be created per area, in accordance with the UKHab classification:

Cropland

- Cereal crops: 0.14Ha

Grassland

- Other neutral grassland: 160.52Ha
- Floodplain wetland mosaic and CFGM: 101.38Ha
- Modified grassland: 950.64Ha

Woodland and forest

- Other woodland; broadleaved: 4.69Ha

Heathland and scrub

- Mixed scrub: 2.71Ha

Urban

- Developed land; sealed surface: 4.57Ha
- Bare ground or artificial, unvegetated, unsealed surface: 30.59Ha

The habitat units delivered for creating habitat within the BNG study area is **4,688.32** habitat units.

Hedgerows

Below is a breakdown of the hedgerow types to be created per length, in accordance with the UKHab classification:

- Native species rich hedgerow: 30.73km

The hedgerow units for created hedgerows within the BNG study area is 239.87 hedgerow units.

Habitat and hedgerow enhancement

Habitat enhancement involves improving the condition of existing habitats or converting them into habitats of higher distinctiveness. This can include activities such as adjusting management practices, increasing native plant diversity, removing invasive species, or enhancing soil health.

For habitats, a total of 26.09Ha of poor condition modified grassland is to be enhanced to 12.34Ha of moderate condition modified grassland and 13.75Ha of good condition other neutral grassland.

The habitat units delivered for enhancing habitats within the BNG study area (Figure 1) is **156.74** habitat units. Figure 1 shows the new areas of habitat to be enhanced throughout the site, in map format.

For hedgerows, a total of 30.73km of native hedgerows is to be enhanced from poor or moderate condition to good condition.

The hedgerow units for enhanced hedgerows within the BNG study area is **167.21** hedgerow units. Figure 1 shows the new areas of hedgerows to be enhanced throughout the site, in map format.

The completed Statutory Biodiversity Metric Tool is provided, appended to the end of this document.

Modified grassland - Target condition: Good

To achieve modified grassland – good condition, the habitat is required to pass 6 or 7 of the below criteria including passing essential criterion A.

- **Criterion A:** There are 6-8 vascular plant species per m² present, including at least 2 forbs (these may include those listed in Footnote 1).
- Note - this criterion is essential for achieving Moderate or Good condition.
- **Criterion B:** Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.
- **Criterion C:** Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus agg.* may be present).
Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.
- **Criterion D:** Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.
- **Criterion E:** Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).
- **Criterion F:** Cover of bracken *Pteridium aquilinum* is less than 20%.
- **Criterion G:** There is an absence of invasive non-native plant species³ (as listed on Schedule 9 of WCA4).

Modified grassland - Target condition: Moderate

To achieve modified grassland – moderate condition, the habitat is required to pass 4 or 5 of the above criteria including passing essential criterion A.

Modified grassland - Target condition: Poor

To achieve modified grassland – poor condition, the habitat is required to pass 3 or less of the above criteria.

Floodplain wetland mosaic and CFGM - Target condition: Good

To achieve modified grassland – good condition, the habitat is required to pass 5 or 6 of the below core criteria, including criterion A and additional criterion J.

- **Criterion A:** The water table is at, or near the surface throughout the year - this could be open water or saturation of soil at the surface. There is no artificial drainage, unless specifically to maintain water levels as specified above.
Note - this criterion is essential for achieving Good condition.
- **Criterion B:** The parcel represents a good example of its specific habitat type - the appearance and composition of the vegetation closely matches its UKHab description, with vascular and non-vascular characteristic indicator species consistently present.
- **Criterion C:** The water supplies (groundwater, surface water and or rainwater) to the wetland are of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.

- **Criterion D:** Cover of scrub and scattered trees are less than 10%.
- **Criterion E:** Cover of bare ground is less than 5%.
- **Criterion F:** There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA3) and species indicative of suboptimal condition⁴ make up less than 5% of ground cover.
- **Criterion J:** All ditches recorded within the habitat achieve Good condition as assessed using the Ditch condition sheet below.

Ditches – Target condition: Good

To achieve ditches – good condition, the habitat is required to pass all 8 of the below criteria.

- **Criterion A:** The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.
- **Criterion B:** A range of emergent, submerged and floating-leaved plants are present. As a guide >10 species of emergent, floating or submerged plants present in a 20 m ditch length.
- **Criterion C:** There is less than 10% cover of filamentous algae and or duckweed *Lemna spp.* (these are signs of eutrophication).
- **Criterion D:** A fringe of aquatic marginal vegetation is present along more than 75% of the ditch.
- **Criterion E:** Physical damage is evident along less than 5% of the ditch, with examples of damage including: excessive poaching, damage from machinery use or storage, or any other damaging management activities.
- **Criterion F:** Sufficient water levels are maintained - as a guide a minimum summer depth of approximately 50 cm in minor ditches and 1 m in main drains.
- **Criterion G:** Less than 10% of the ditch is heavily shaded.
- **Criterion H:** There is an absence of non-native plant and animal species.

Mixed scrub - Target condition: Good

To achieve mixed scrub – good condition, the habitat is required to pass all 5 of the below criteria.

- **Criterion A:** The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range).
 - At least 80% of scrub is native.
 - There are at least three native woody species,
 - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens*, which can be up to 100% cover).
- **Criterion B:** Seedlings, saplings, young shrubs and mature (or ancient or veteran) shrubs are all present.
- **Criterion C:** There is an absence of invasive non-native plant species⁴ (as listed on Schedule 9 of WCA5) and species indicative of suboptimal condition make up less than 5% of ground cover.
- **Criterion D:** The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.
- **Criterion E:** There are clearings, glades or rides present within the scrub, providing sheltered edges.

Ponds (non-priority habitat) - Target condition: Good

For woodland ponds to achieve good condition, all 7 of the below core criteria must be passed. For non-woodland ponds to achieve good condition, all 7 of the core criteria and the additional 2 criteria must be passed.

Core Criteria - applicable to all ponds (woodland and non-woodland):

- **Criterion A:** The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock
- **Criterion B:** There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10 m from the pond edge for its entire perimeter.
- **Criterion C:** Less than 10% of the water surface is covered with duckweed *Lemna spp.* or filamentous algae.
- **Criterion D:** The pond is not artificially connected to other waterbodies, such as agricultural ditches or artificial pipework.
- **Criterion E:** Pond water levels can fluctuate naturally throughout the year. No obvious artificial dams, pumps or pipework.
- **Criterion F:** There is an absence of listed non-native plant and animal species.
- **Criterion G:** The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.
- *Additional Criteria - must be assessed for all non-woodland ponds:*
- **Criterion H:** Emergent, submerged or floating plants (excluding duckweed) cover at least 50% of the pond area which is less than 3 m deep.
- **Criterion I:** The pond surface is no more than 50% shaded by adjacent trees and scrub.

Ponds (non-priority habitat) - Target condition: Moderate

For woodland ponds to achieve moderate condition, 5-6 of the above 7 core criteria must be passed. For non-woodland ponds to achieve moderate condition, 6-8 of the 9 criteria above must be passed.

Other broadleaved woodland - Target condition: Moderate

To achieve Other broadleaved woodland – moderate condition, the habitat must be assessed to reach a total score of 26 to 32 on the woodland condition assessment table (Table 2).

Table 2. woodland condition assessment table

Hedgerows (all) – Target condition: Good

To achieve hedgerows – good condition, the habitat must not fail more than two of the below criteria (e.g., A1 & C2), and must not fail more than one of the functional group criteria (e.g., failing both A1 and A2 would not achieve Good condition),

- **Criterion A1:** Height >1.5 m average along length
"The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height)."
- **Criterion A2:** Width >1.5 m average along length
"The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn *Prunus spinosa* suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice)."
- **Criterion B1:** Gap - hedge base
Gap between ground and base of canopy <0.5 m for >90% of length "This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook)."
- **Criterion B2:** Gap - hedge canopy continuity
"Gaps make up <10% of total length; and No canopy gaps >5 m" "This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate)."
- **Criterion C1:** Undisturbed ground and perennial vegetation
">1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length:· Measured from outer edge of hedgerow; and· Is present on one side of the hedgerow (at least)."
"This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches."
- **Criterion C2:** Nutrient-enriched perennial vegetation
Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground. The indicator species used are nettles *Urtica* spp., cleavers *Galium aparine* and docks *Rumex* spp. Their presence, either singly or together, does not exceed the 20% cover threshold.
- **Criterion D1:** Invasive and neophyte species
>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA3) and recently introduced species. Recently

introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website⁴, as well as the BSBI website⁵ where the 'Online Atlas of the British and Irish Flora'⁶ contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website.

– **Criterion D2:** Current damage

>90% of the hedgerow or undisturbed ground is free of damage caused by human activities. "This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting)."

Additional group - applicable to hedgerows with trees only

– **Criterion E1:** Tree class

There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient⁸), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow. This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.

– **Criterion E2:** Tree health

At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity. This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.

Hedgerows (all) – Target condition: Good

To achieve hedgerows – moderate condition, the habitat must not fail more than four of the above criteria and it must not fail both attributes in more than one functional group (e.g., failing both A1 and A2, and B1 and B2, would not achieve moderate condition).

Biodiversity Net Gain calculation

The total area of broad habitat types lost and gained as a result of the Project are provided in Table 3 together with the value of these habitats based on the Defra metric.

The area of habitat impacted by the Project had a before development score of 2,734.37 habitat units. Post-development, the same area scores 4,943.63 units, a net gain of 2,209.26 units or 80.80%.

The completed Statutory Biodiversity Metric Tool is provided, appended to the end of this document.

Table 3. BNG results headline summary

On-site baseline	<i>Habitat units</i>	2734.37		
	<i>Hedgerow units</i>	589.56		
	<i>Watercourse units</i>	0.00		
On-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	4943.63		
	<i>Hedgerow units</i>	931.10		
	<i>Watercourse units</i>	0.00		
On-site net change (units & percentage)	<i>Habitat units</i>	2209.26		80.80%
	<i>Hedgerow units</i>	341.54		57.93%
	<i>Watercourse units</i>	0.00		0.00%

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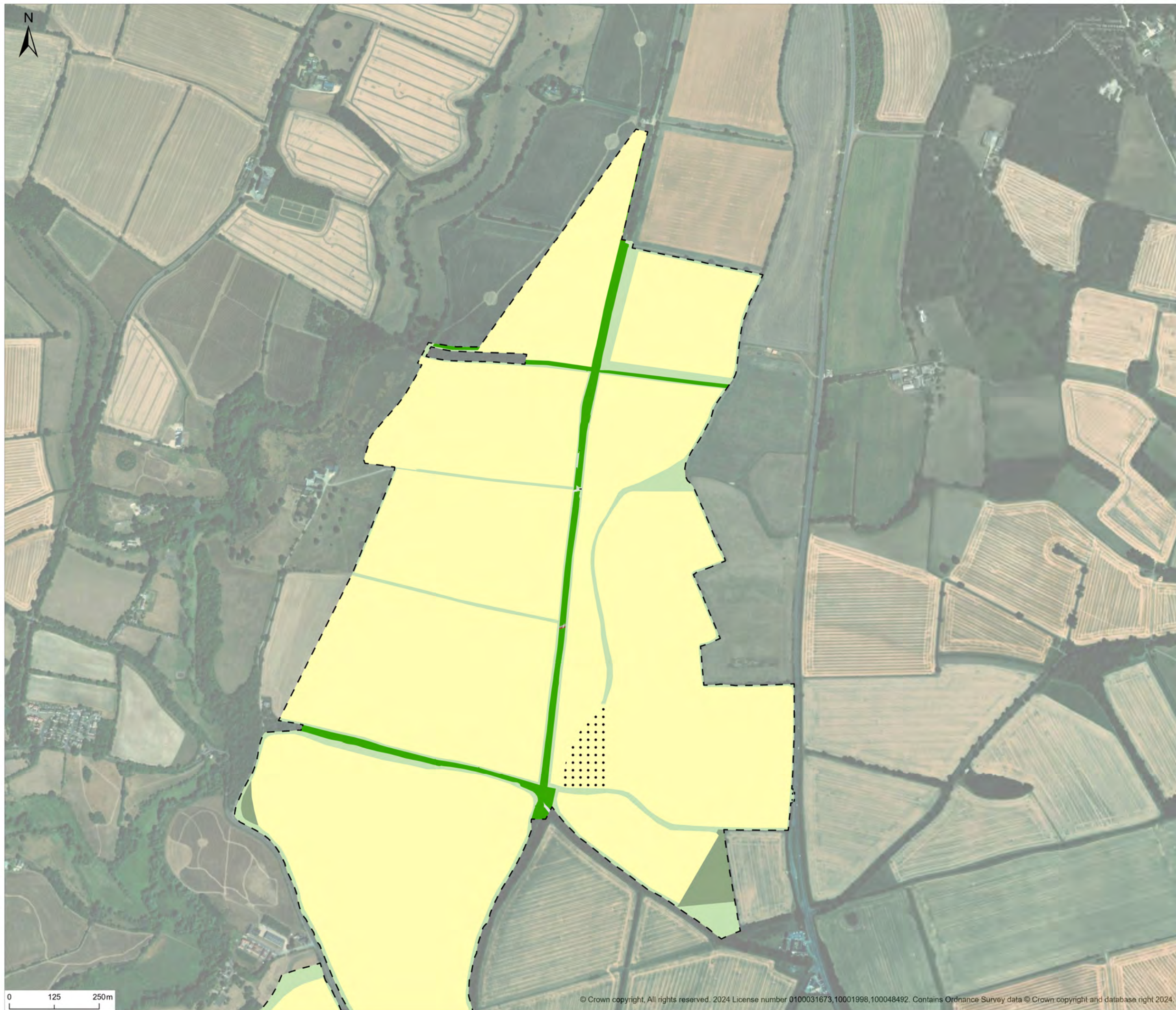
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Figures**Figure 1 Map displaying all baseline habitats impacted by the project**



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Legend

- BNG study area
- Cropland - Arable field margins game bird mix - Condition Assessment N/A
- Cropland - Arable field margins tussocky - Condition Assessment N/A
- Cropland - Cereal crops - Condition Assessment N/A
- Grassland - Modified grassland - Moderate
- Grassland - Modified grassland - Poor
- Grassland - Other neutral grassland - Poor
- Heathland and shrub - Mixed scrub - Moderate
- Lakes - Ponds (non-priority habitat) - Poor
- Sparsely vegetated land - Ruderal/ephemeral - Moderate
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Rev	Description	By	CB	Date
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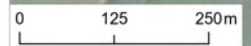


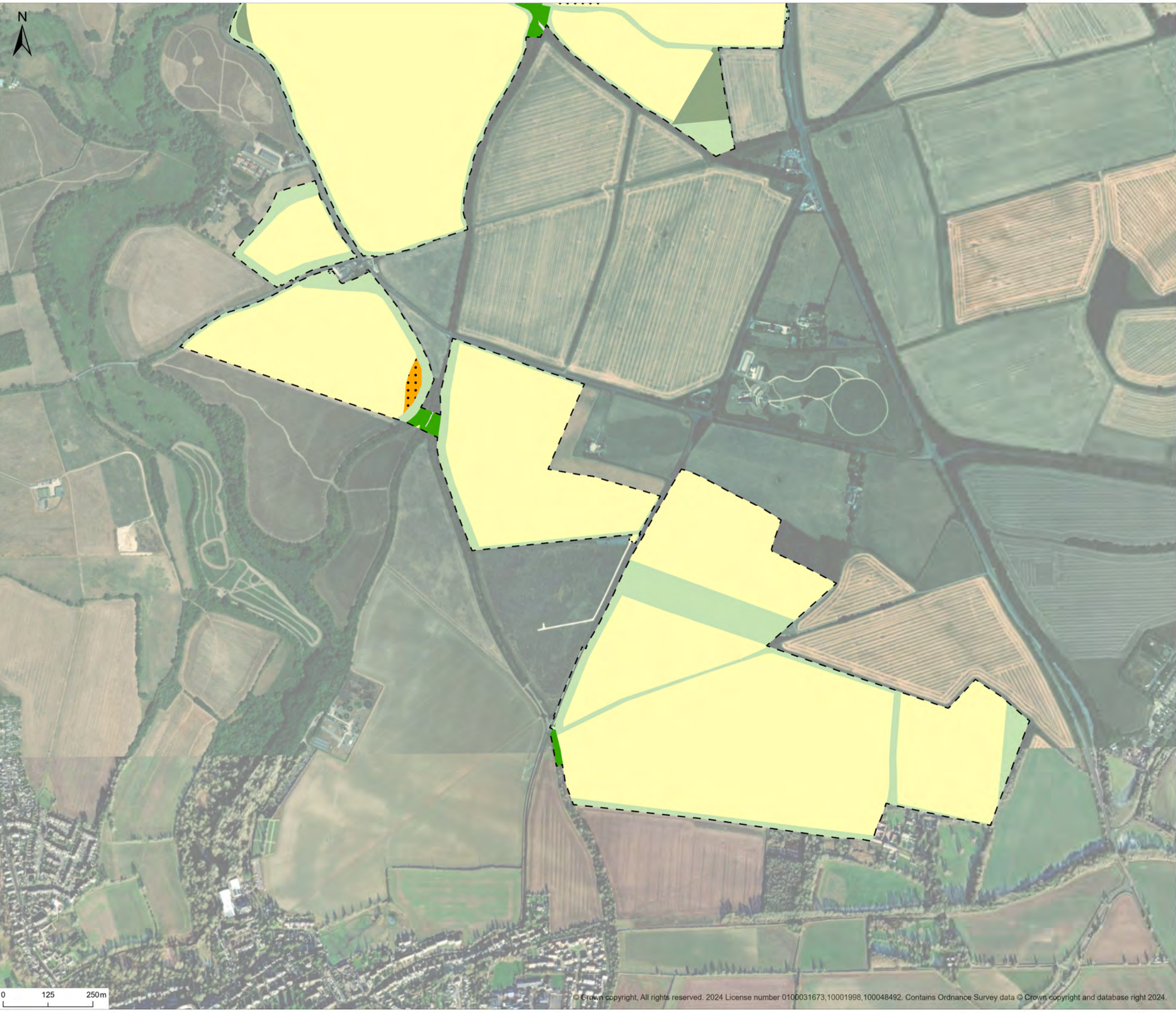


Client	PVDP		
Project	Botley West Solar Farm		
Title	Pre development habitats		
Status	Drawn By	PM/Checked By	
FINAL	AC	BJ	
Project Number	Scale @ A3	Date Created	
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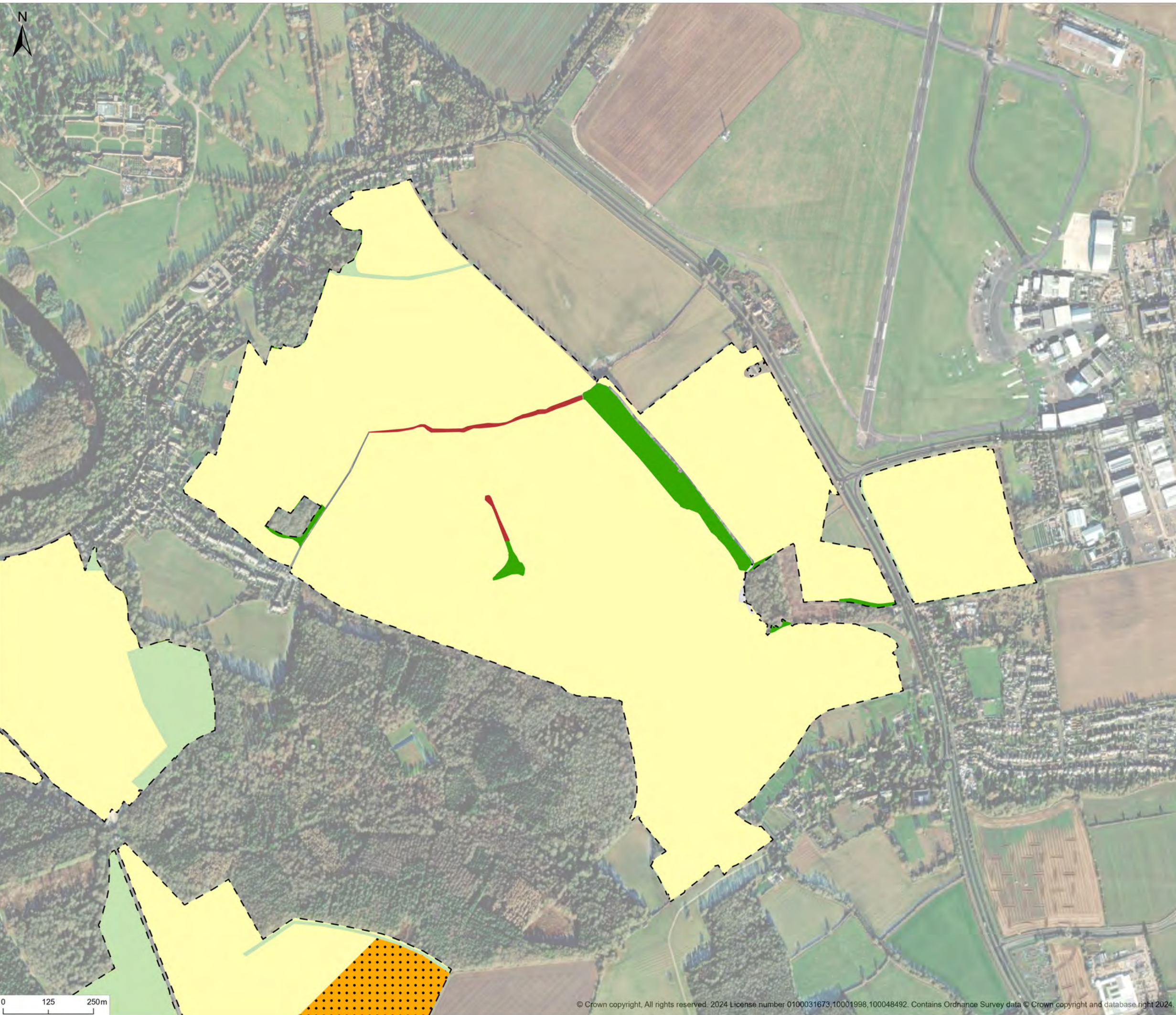
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Project Botley West Solar Farm

Title Pre development habitats

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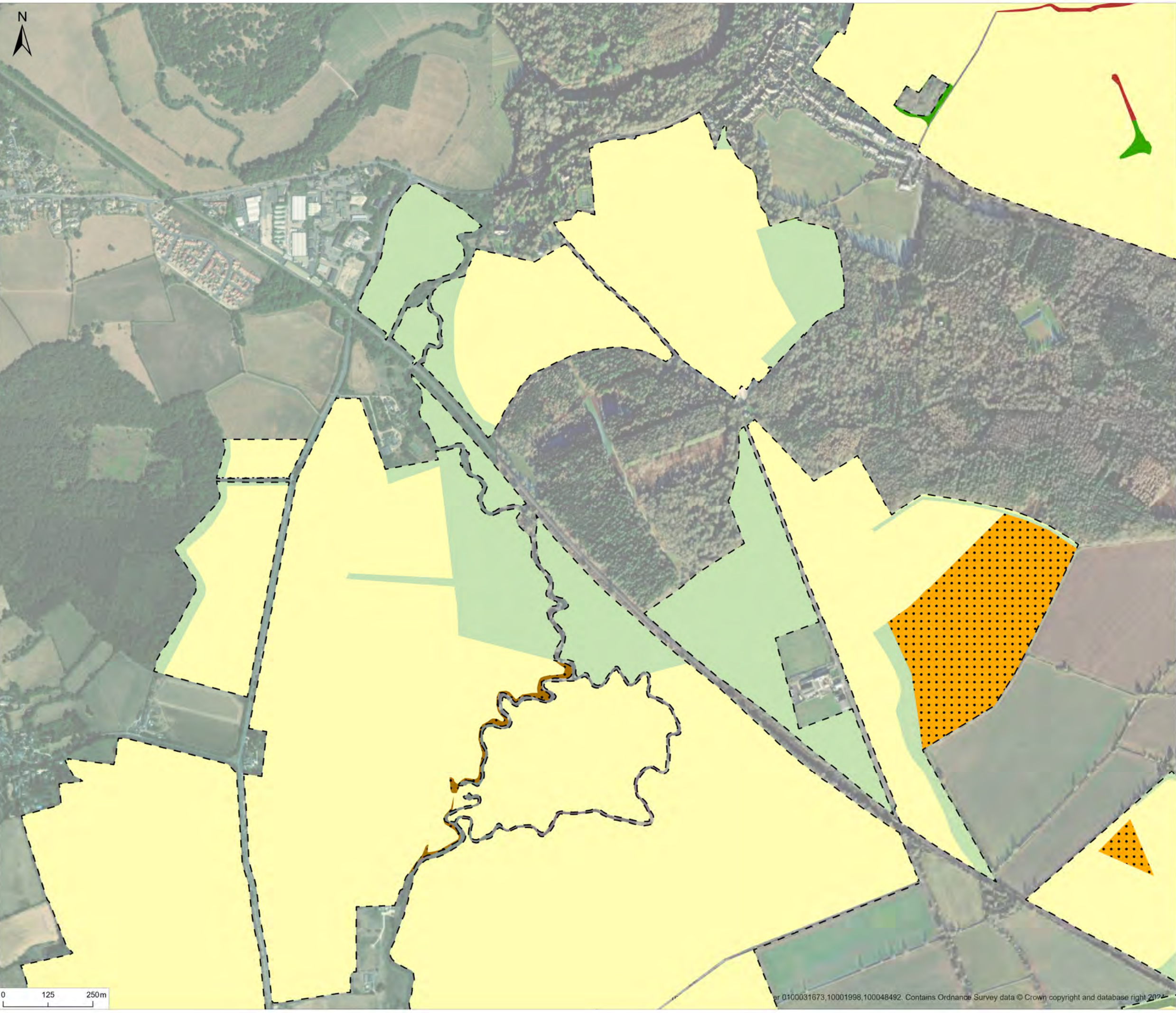
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Project Botley West Solar Farm

Title Pre development habitats

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Client PVDP
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















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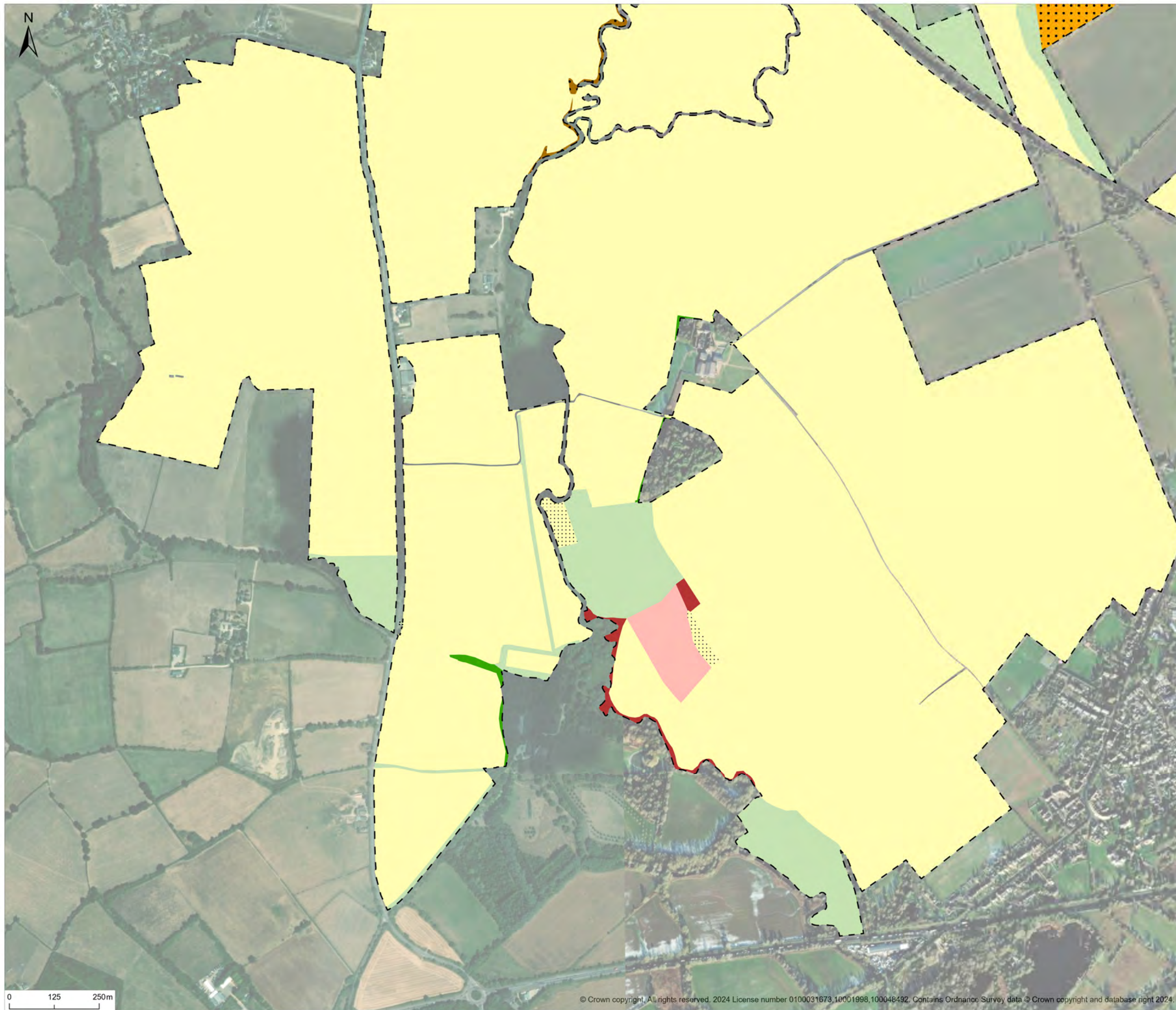


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Client PVDP

Project Botley West Solar Farm

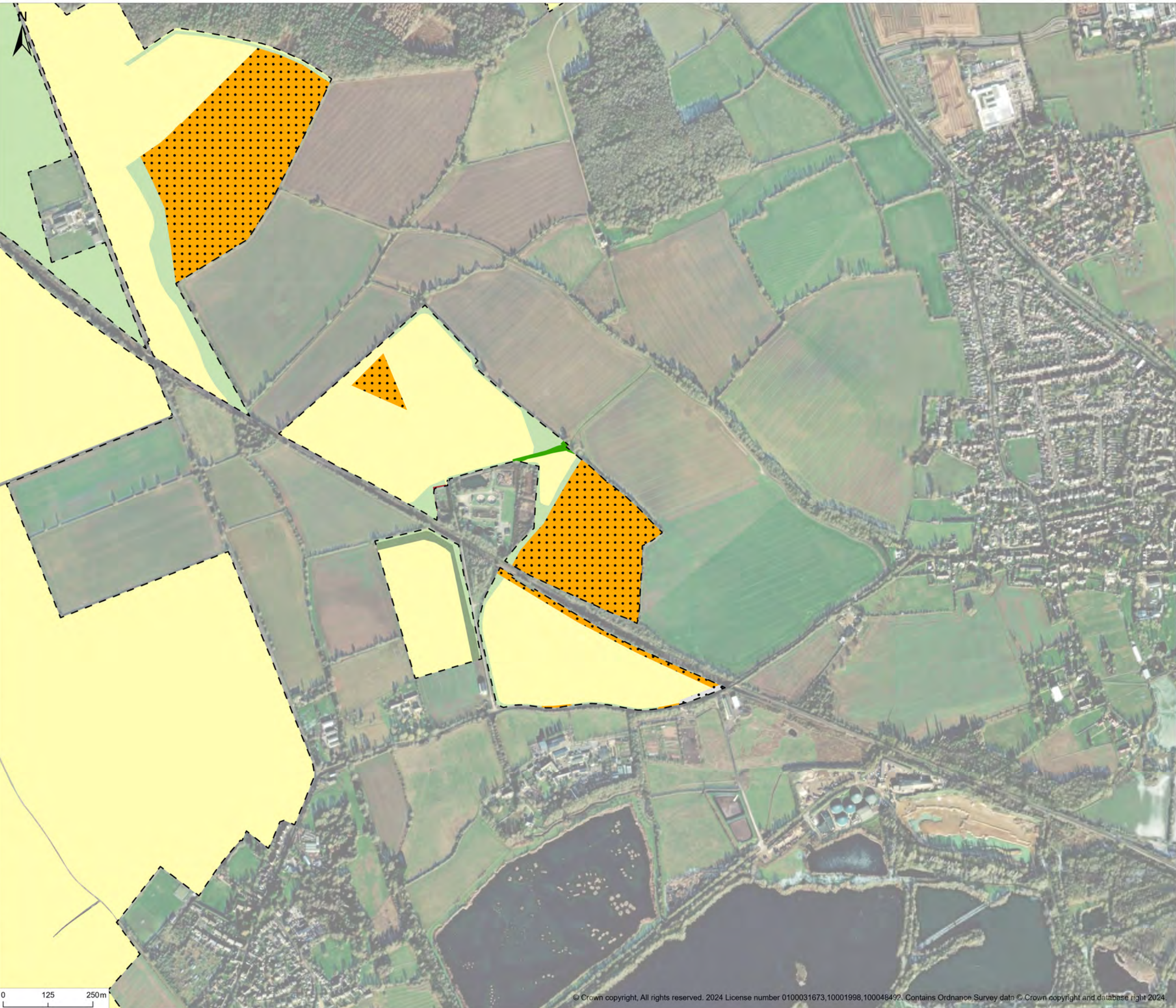
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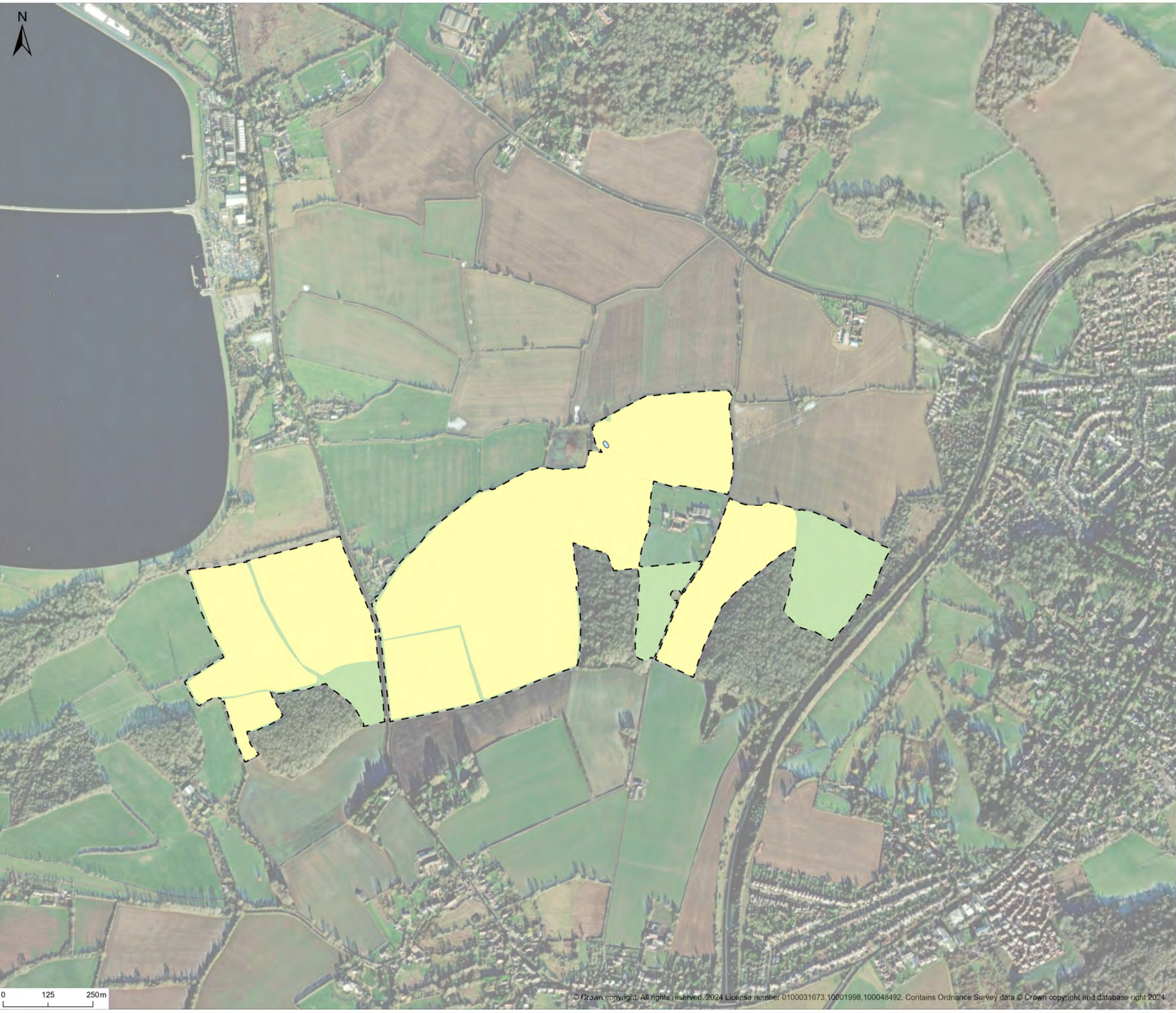
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Project Botley West Solar Farm

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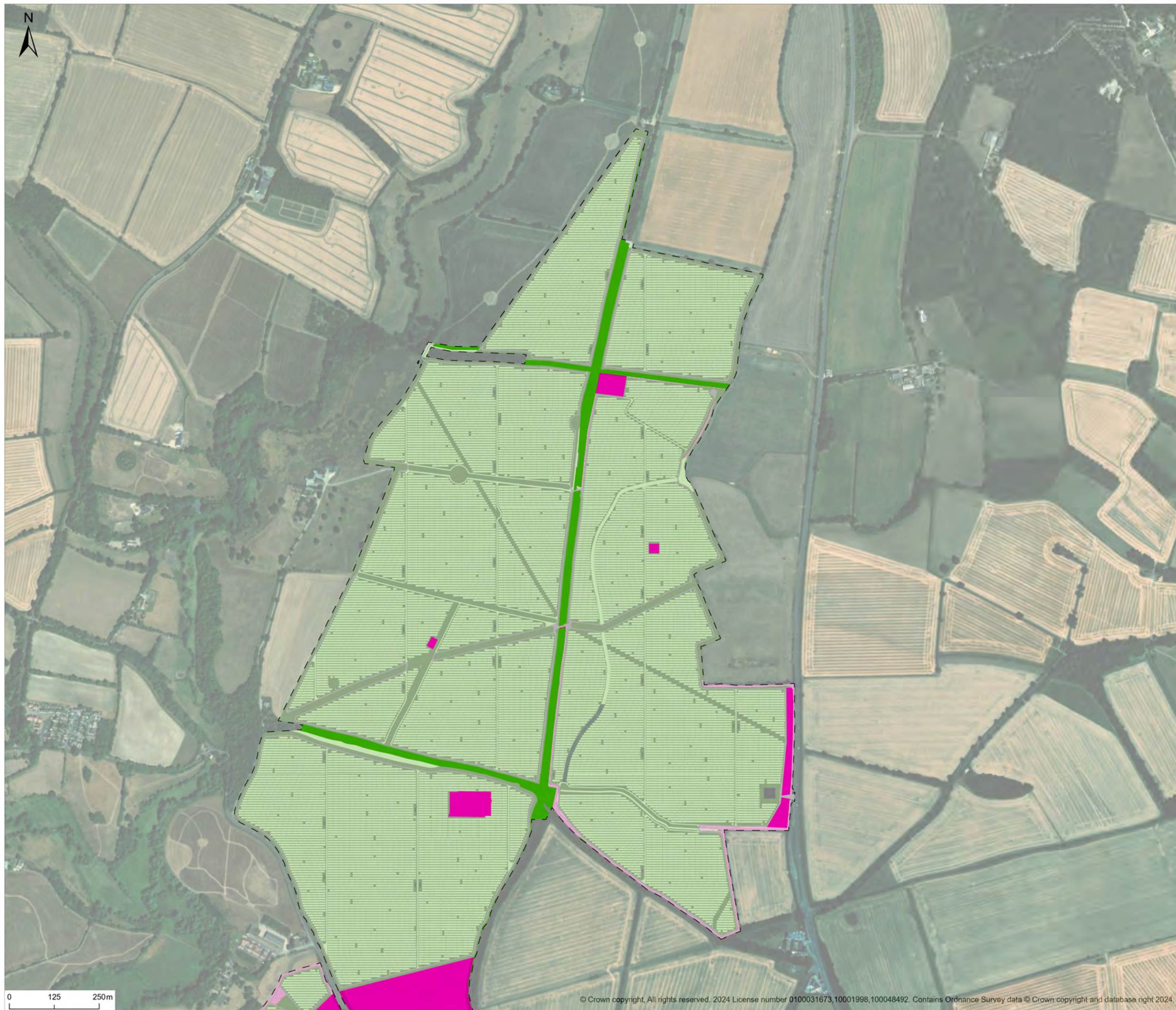
Project Botley West Solar Farm

Title Pre development habitats

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Figure 2 Map displaying all created habitats throughout the site.



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Legend

-  BNG study area
-  Grassland - Floodplain wetland mosaic and CFGM - Good
-  Grassland - Modified grassland - Moderate
-  Enhanced - Grassland - Modified grassland - Moderate
-  Grassland - Other neutral grassland - Poor
-  Grassland - Other neutral grassland - Good
-  Enhanced - Grassland - Other neutral grassland - Good
-  Grassland - Other neutral grassland - Moderate
-  Enhanced - Grassland - Other neutral grassland - Moderate
-  Heathland and shrub - Mixed scrub - Moderate
-  Urban - Artificial unvegetated, unsealed surface - N/A - Other
-  Urban - Developed land; sealed surface - Condition Assessment N/A
-  Woodland and forest - Other woodland; broadleaved - Moderate
-  Woodland and forest - Lowland mixed deciduous woodland - Moderate
-  Woodland and forest - Other coniferous woodland - Moderate
-  Lakes - Ponds (non-priority habitat) - Poor
-  Hedgerow created
-  Hedgerow enhanced

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Title Post development habitats

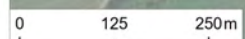
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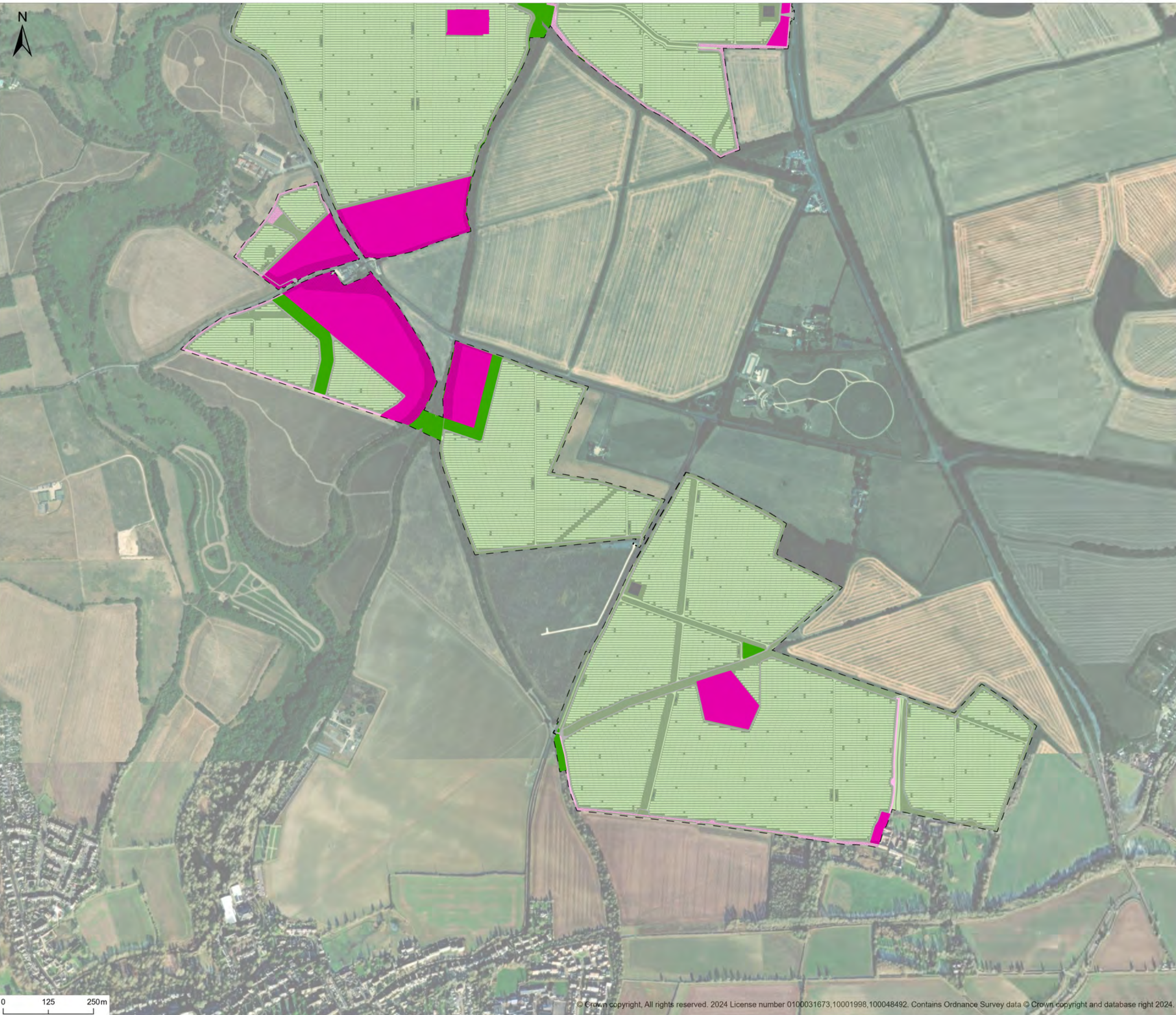
Project Number	Scale @ A3	Date Created
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 - Hedgerow created
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Rev	Description	By	CB	Date





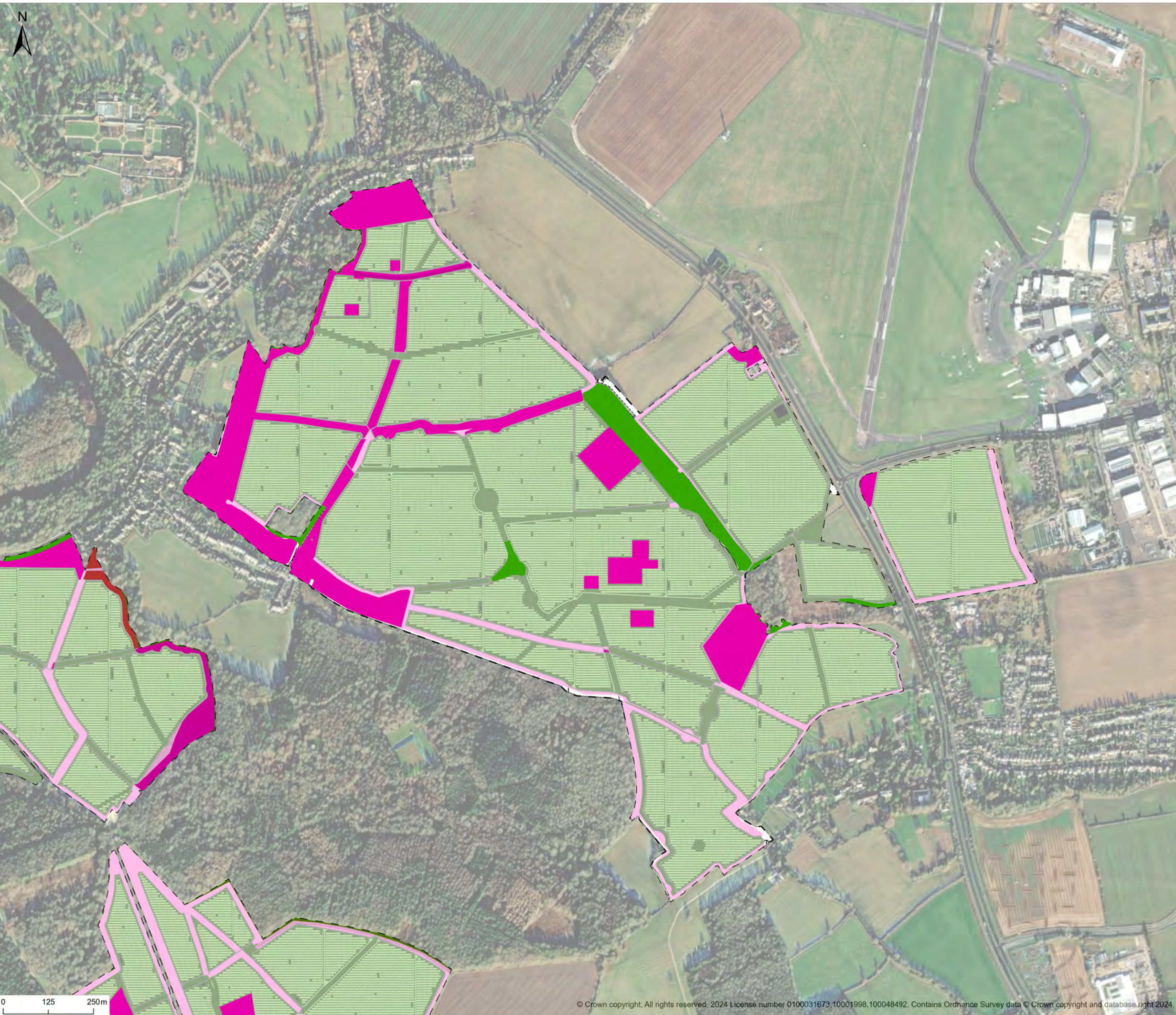
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Project **Botley West Solar Farm**

Title **Post development habitats**

Status FINAL	Drawn By AC	PM/Checked By BJ
Project Number NP12426	Scale @ A3 1:10,000	Date Created NOV 2024
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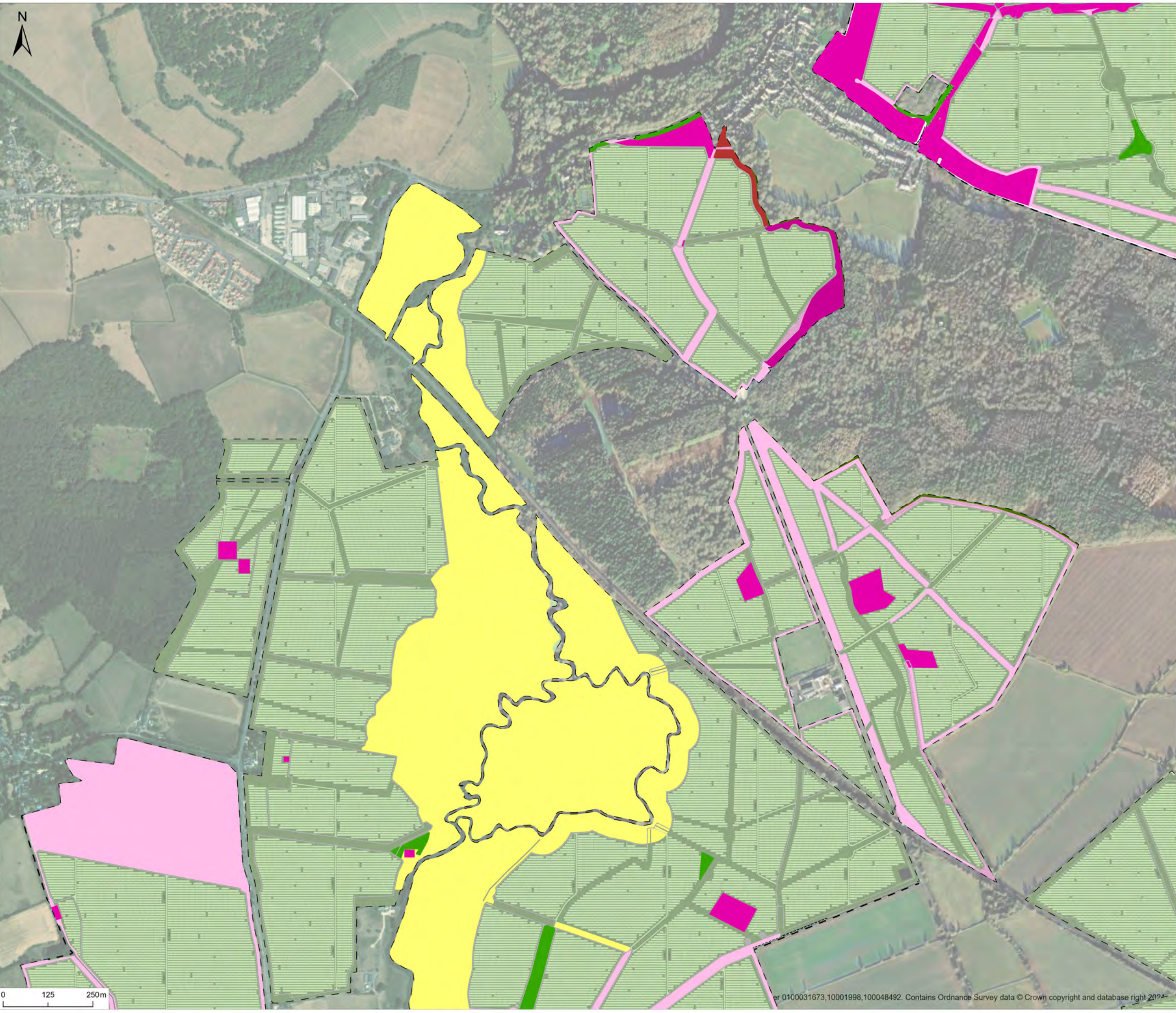
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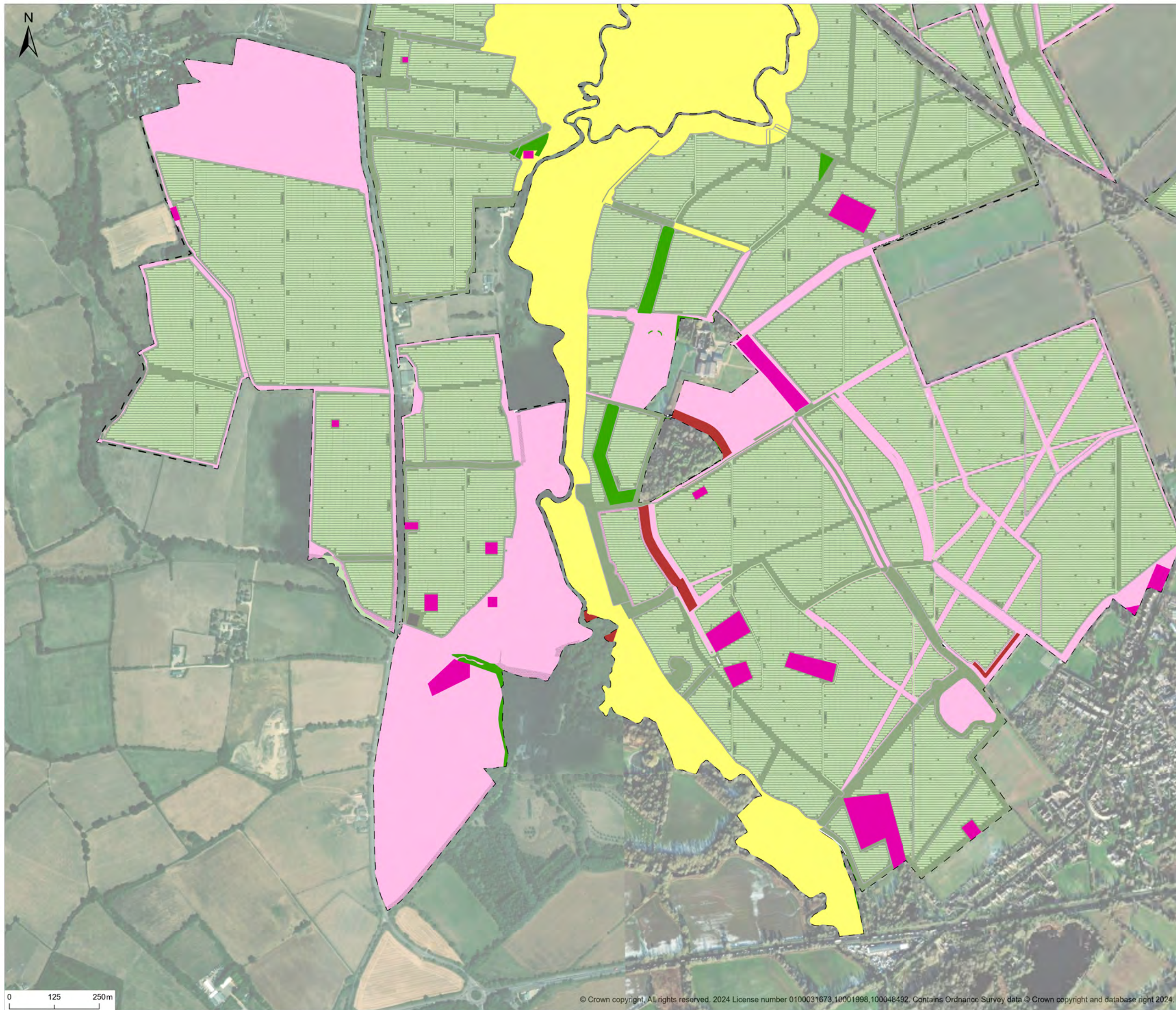
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Title **Post development habitats**

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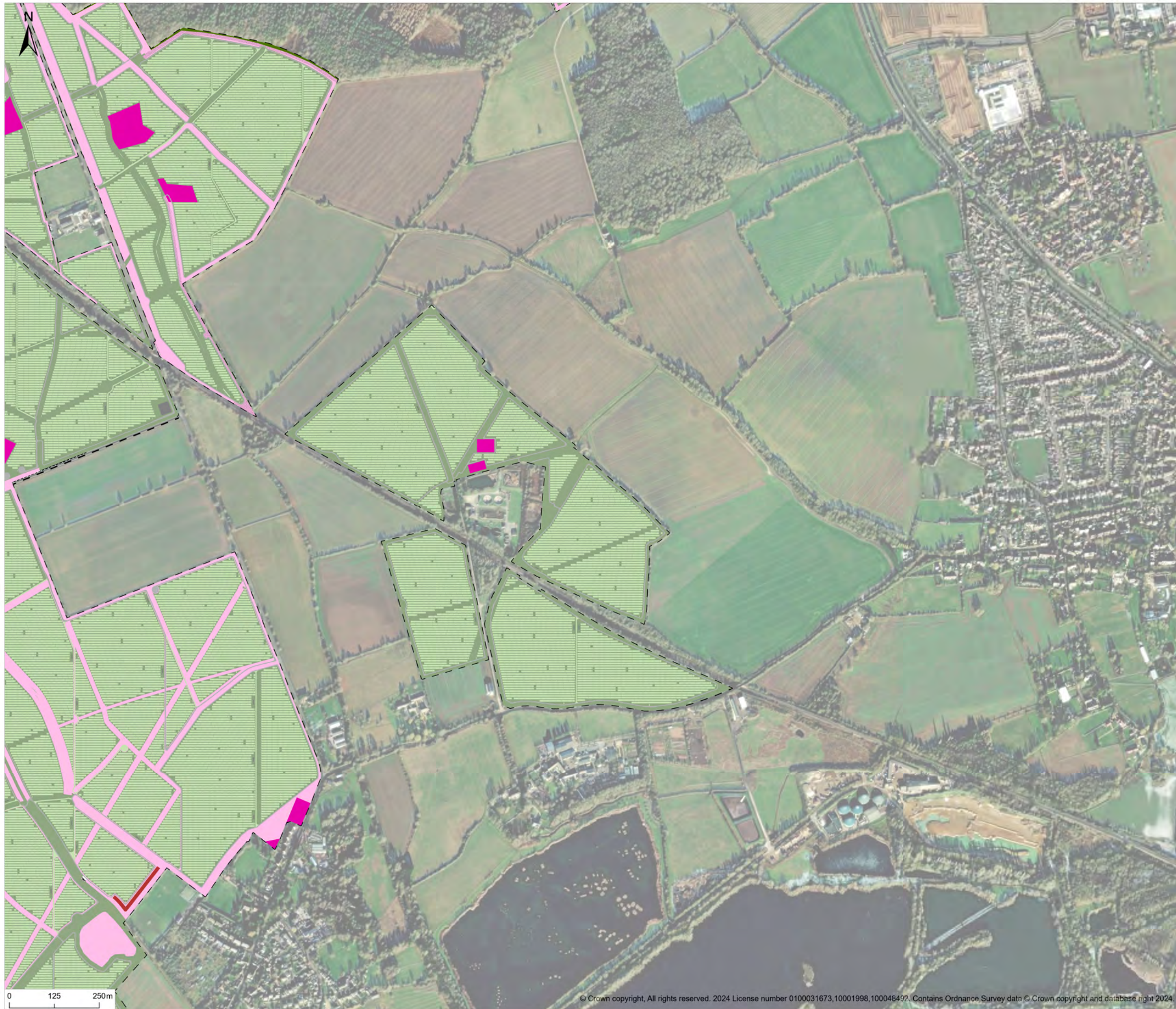
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 - Woodland and forest - Lowland mixed deciduous woodland - Moderate
 - Woodland and forest - Other coniferous woodland - Moderate
 - Lakes - Ponds (non-priority habitat) - Poor
 - Hedgerow created
 - Hedgerow enhanced

Rev	Description	By	CB	Date



PHOTOVOLT
DEVELOPMENT PARTNERS



RPS
A TETRA TECH COMPANY

Client **PVDP**

Project **Botley West Solar Farm**

Title **Post development habitats**

Status	Drawn By	PM/Checked By
FINAL	AC	BJ
Project Number	Scale @ A3	Date Created
NP12426	1:10,000	NOV 2024
Figure Number		Rev
1.6		01

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Notes

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2. If received electronically it is the recipient's responsibility to print to correct scale. Only written dimensions should be used.

Legend

- BNG study area
- Grassland - Floodplain wetland mosaic and CFGM - Good
- Grassland - Modified grassland - Moderate
- Enhanced - Grassland - Modified grassland - Moderate
- Grassland - Modified grassland - Poor
- Grassland - Other neutral grassland - Good
- Enhanced - Grassland - Other neutral grassland - Good
- Grassland - Other neutral grassland - Moderate
- Enhanced - Grassland - Other neutral grassland - Moderate
- Heathland and shrub - Mixed scrub - Moderate
- Urban - Artificial unvegetated, unsealed surface - N/A - Other
- Urban - Developed land; sealed surface - Condition Assessment N/A
- Woodland and forest - Other woodland; broadleaved - Moderate
- Woodland and forest - Lowland mixed deciduous woodland - Moderate
- Woodland and forest - Other coniferous woodland - Moderate
- Lakes - Ponds (non-priority habitat) - Poor
- Hedgerow created
- Hedgerow enhanced

Rev	Description	By	CB	Date



Client	PVDP		
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1.7		01	

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0 125 250m

Botley West Statutory Biodiversity Metric

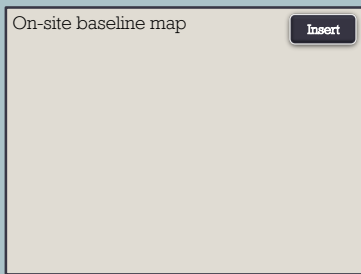
The Statutory Biodiversity Metric

Start page

Project details			
Planning authority:			
Project name:	Botley West Solar Farm		
Applicant:	Photovolt Development Partners GmbH, on behalf of SolarFive Ltd.		
Application type:			
Planning application reference:			
Completed by:	Wychwood Biodiversity		
Date of metric completion:	10 November 2024		
Reviewer:	RPS Consulting Services Ltd		
Calculation iteration:			
Planning authority reviewer:			
Date of planning authority review:			
Target % net gain:	10%		
Irreplaceable habitat present at baseline:	No ✓		
Total site area - including irreplaceable habitat area (hectares):	1886.80	Irreplaceable habitat site area (hectares):	0.00
Total off-site area - including irreplaceable habitat area (hectares):	N/A	Irreplaceable habitat area off-site (hectares):	N/A

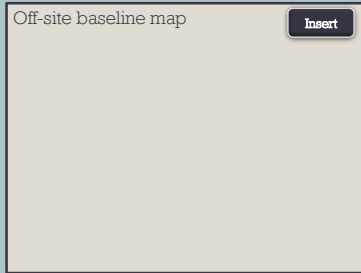
Cell style conventions	
	Attention required
	Input error/rules and principles not met
	Use of this cell is not appropriate
	Enter data
	Automatic lookup
	Result

On-site baseline map Insert



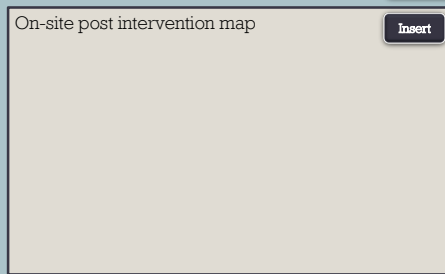
On-site baseline map reference number

Off-site baseline map Insert



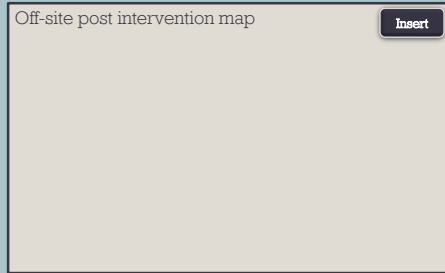
Off-site baseline map reference number

On-site post intervention map Insert



On-site post-intervention map reference number

Off-site post intervention map Insert



Off-site post-intervention reference number

Main menu

Results

View all

Reset view

The Statutory Biodiversity Metric

Auditing and accounting for biodiversity

Calculation Tool

Version 1.0.3

[Open Tool](#)



The Statutory Biodiversity Metric Main menu

Key

- Area habitats
- Hedgerows and lines of trees
- Watercourses

Start page Technical data Results

Tree helper

Tree size	Number of trees and area (ha) for each condition state					
	Poor	Area	Moderate	Area	Good	Area
Small		0.0000		0.0000		0.0000
Medium		0.0000		0.0000		0.0000
Large		0.0000		0.0000		0.0000
Very large		0.0000		0.0000		0.0000
Total	0	0.0000	0	0.0000	0	0.0000



On-site baseline

- A-1 On-site Area Habitat Baseline
- B-1 On-site Hedge Baseline
- C-1 On-site Watercourse Baseline

On-site post development

- A-2 On-site Area Habitat Creation
- A-3 On-site Area Habitat Enhancement
- B-2 On-site Hedge Creation
- B-3 On-site Hedge Enhancement
- C-2 On-site Watercourse Creation
- C-3 On-site Watercourse Enhancement

Off-site baseline

- D-1 Off-site Area Habitat Baseline
- E-1 Off-site Hedge Baseline
- F-1 Off-site Watercourse Baseline

Off-site post development

- D-2 Off-site Area Habitat Creation
- D-3 Off-site Area Habitat Enhancement
- E-2 Off-site Hedge Creation
- E-3 Off-site Hedge Enhancement
- F-2 Off-site Watercourse Creation
- F-3 Off-site Watercourse Enhancement

Unit Shortfall by Year/Module	
Year	Unit Shortfall
A1	0.00
A2	0.00
A3	0.00
A4	0.00
A5	0.00
H	0.00
W	0.00

*The spatial risk multiplier has been applied to all unit shortfall values.

The Statutory Biodiversity Metric Results

[Return to start
page](#)

[Headline results](#)

[Detailed results](#)

[Habitat trading
summaries](#)

[Off-site
summary](#)

[Irreplaceable
habitats summary](#)

[Unit shortfall
summary](#)

Botley West Solar Farm

Headline Results

Return to results menu

Scroll down for final results ▲

On-site baseline	Habitat units	2734.37	
	Hedgerow units	589.56	
	Watercourse units	0.00	
On-site post-intervention <small>(Including habitat retention, creation & enhancement)</small>	Habitat units	4943.63	
	Hedgerow units	931.10	
	Watercourse units	0.00	
On-site net change <small>(units & percentage)</small>	Habitat units	2209.26	80.80%
	Hedgerow units	341.54	57.93%
	Watercourse units	0.00	0.00%

Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention <small>(Including habitat retention, creation & enhancement)</small>	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change <small>(units & percentage)</small>	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%

Combined net unit change <small>(Including all on-site & off-site habitat retention, creation & enhancement)</small>	Habitat units	2209.26	
	Hedgerow units	341.54	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	

FINAL RESULTS

Total net unit change	Habitat units	2209.26	
	Hedgerow units	341.54	

(Including all on-site & off-site habitat retention, creation & enhancement)	<i>Watercourse units</i>	0.00
--	--------------------------	------

<p style="text-align: center;">Total net % change</p> <p>(Including all on-site & off-site habitat retention, creation & enhancement)</p>	<i>Habitat units</i>	80.80%
	<i>Hedgerow units</i>	57.93%
	<i>Watercourse units</i>	0.00%

Trading rules satisfied?	Yes ✓
---------------------------------	-------

Unit Type	Target	Baseline Units	Units Required	Unit Deficit
<i>Habitat units</i>	10.00%	2734.37	3007.81	0.00
<i>Hedgerow units</i>	10.00%	589.56	648.51	0.00
<i>Watercourse units</i>	10.00%	0.00	0.00	0.00

No additional area habitat units required to meet target ✓
 No additional hedgerow units required to meet target ✓
 No additional watercourse units required to meet target ✓

Intangible hard structures - Amortized leasehold of hard structures	Intangible hard structures	0.00	0.00	0.00
Plant and equipment - Other non-ferrous scrap	Plant and equip	0.00	0.00	0.00
		376.54	0.00	376.54

Return to results menu

Trading summary area habitats

Trading summary watercourses

Trading Summary

Distinctiveness Group	Trading Rule	Trading Satisfied?
Very High	Same habitat required =	Yes ✓
High	Like for like or better	Yes ✓
Medium	Same distinctiveness or better habitat required	Yes ✓
Low	Same distinctiveness or better habitat required	Yes ✓
Very Low	Same distinctiveness or better habitat required	Yes ✓

Very High Distinctiveness

Habitat group	On-site unit change	Off-site unit change	Project wide unit change
Species-rich native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00
	0.00	0.00	0.00

Very High Distinctiveness Summary

Very High Distinctiveness Units available to offset lower distinctiveness deficit	0.00
Remaining losses: Like for like not satisfied	0.00

High Distinctiveness

Habitat group	On-site unit change	Off-site unit change	Project wide unit change
Species-rich native hedgerow with trees	9.41	0.00	9.41 ✓
Species-rich native hedgerow - associated with bank or ditch	0.00	0.00	0.00
Native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00
	9.41	0.00	9.41

High Distinctiveness Summary

High Distinctiveness Units available to offset lower distinctiveness deficit	9.41	✓
High Distinctiveness losses to be offset by trading	0.00	
High Distinctiveness surplus units minus any high distinctiveness deficit	0.00	

Medium Distinctiveness

Habitat group	On-site unit change	Off-site unit change	Project wide unit change
Species-rich native hedgerow	279.83	0.00	279.83 ✓
Native hedgerow - associated with bank or ditch	0.00	0.00	0.00
Native hedgerow with trees	19.06	0.00	19.06 ✓
Ecologically valuable low of trees	0.00	0.00	0.00
Ecologically valuable low of trees - associated with bank or ditch	0.00	0.00	0.00
	298.89	0.00	298.89

Medium Distinctiveness Summary

Units available from highest distinctiveness habitats	0.41	✓
Medium Distinctiveness net change in units	298.89	✓
Cumulative availability of units	304.70	✓

Low Distinctiveness

Habitat group	On-site unit change	Off-site unit change	Project wide unit change
Native hedgerow	38.84	0.00	38.84 ✓
Low of trees	0.00	0.00	0.00
Low of trees - associated with bank or ditch	0.00	0.00	0.00
	38.84	0.00	38.84

Low Distinctiveness Summary

Low Distinctiveness net change in units	38.84	✓
Cumulative availability of units	343.54	✓

Very Low Distinctiveness

Habitat group	On-site unit change	Off-site unit change	Project wide unit change
Non-native and ornamental hedgerow	0.00	0.00	0.00
	0.00	0.00	0.00

Very Low Distinctiveness Summary

Very Low Distinctiveness net change in units	0.00	
Cumulative availability of units	343.54	✓



	Target	Reserve Units	Required Units	Unit Point
Area Habitat	18.00%	8759.87	8007.81	0.00
Highwater	18.00%	8759.87	8759.87	0.00
Watercourse	18.00%	0.00	0.00	0.00

Year	Unit Required by Use	Unit Available (per year credit banking)
A1	0.00	0.00
A2	0.00	0.00
A3	0.00	0.00
A4	0.00	0.00
A5	0.00	0.00
A6	0.00	0.00

Year	Habitat	Habitat Group	Unit Change	Losses in Year
A1	Wetland - Open water/ emergent	Wetland	0.00	0.00
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
A4	Wetland - Open water/ emergent	Wetland	0.00	0.00
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	A2	Wetland - Open water/ emergent	Wetland	
Wetland - Open water/ emergent		Wetland	0.00	
Wetland - Open water/ emergent		Wetland	0.00	
Wetland - Open water/ emergent		Wetland	0.00	
Wetland - Open water/ emergent		Wetland	0.00	
Wetland - Open water/ emergent		Wetland	0.00	
Wetland - Open water/ emergent		Wetland	0.00	
Wetland - Open water/ emergent		Wetland	0.00	
Wetland - Open water/ emergent		Wetland	0.00	
Wetland - Open water/ emergent		Wetland	0.00	
A3	Wetland - Open water/ emergent	Wetland	0.00	0.00
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
	Wetland - Open water/ emergent	Wetland	0.00	
A5	Wetland - Open water/ emergent	Wetland	0.00	0.00
	Wetland - Open water/ emergent	Wetland	0.00	

Rule 1	Higher surplus is used to offset loss of medium disturbance of the same broad habitat category.
Rule 2	Remaining higher surplus is used to offset the loss of the most expensive medium credit tier of A4.
Rule 3	Remaining higher surplus is used to offset the loss of the second most expensive medium credit tier of A2.
Rule 4	Remaining higher surplus is used to offset the loss of the third most expensive medium credit tier A2.
Rule 5	Remaining higher surplus is used to offset losses from low disturbance habitats.

Habitat Group	Very High & High Disturbance Surplus Availability		Medium Disturbance Losses		Rule 1	Rule 2	Rule 3	Rule 4	Final Losses in Year
	Unit Units Available in Broad Habitat Group	Habitat Group	Losses Requiring Offset	Remaining Available After Rule 1	Remaining Available After Rule 2	Remaining Available After Rule 3	Remaining Available After Rule 4		
A1	Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wetland	300.00	0.00	300.00	0.00	0.00	0.00	0.00	
	Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
A2	Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
A4	Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Available Surplus Available					300.00	300.00	300.00	300.00	

Year	Net Unit Change for Low Disturbance Habitat	Total Unit Change for Low Disturbance Habitat Following Other Item Higher Disturbance Habitat	Units Remaining Available After Rule 5	Final Losses in Year
A1	300.00	1410.00	1000.00	0.00

Habitat Group	Losses	Final Losses
A1	0.00	0.00
A2	0.00	0.00
A3	0.00	0.00
A4	0.00	0.00
A5	0.00	0.00

Habitat Group	Losses	Final Losses
A1	0.00	0.00
A2	0.00	0.00
A3	0.00	0.00
A4	0.00	0.00
A5	0.00	0.00

Version	Changes made	Date released
Version 1.0.0	Initial statutory version	29th November 2023
Version 1.0.1	Amended to fix an error in the irreplaceable habitats dropdown and minor changes to the working of the tool such as ensuring the rows auto populate correctly and cells adjust their height so error messages can be read	15th December 2023
Version 1.0.2	Updated to correct some labelling errors, minor formula errors and expand width of columns	12th February 2024
Version 1.0.3	Minor formatting errors corrected to ensure text is visible and flags appear correctly, version history sheet added.	23rd July 2024