

Land to the West of Faraday Road and East of Alchemy Way

NW1 IOS 3 UNIT TRUST

Ecological Assessment

Report Ref: 12592.EcoAs.vf1

Version	Created By	Reviewed By	Approved By	Date
vf	Vanessa Tang	Rob Whitlock	Vince Smith	26/09/2025
Vf1	Jonathan Endersby and James Chittock	Vince Smith	Vince Smith	26/03/2026

This report has been prepared by the following:

Jonathan Endersby BSc (Hons)
Assistant Ecologist

James Chittock BSc (Hons) ACIEEM
Senior Ecologist

This report has been reviewed and approved by the following:

Rob Whitlock BSc (Hons), MRes, MCIEEM
Associate Director

Vince Smith MSc, MCIEEM
Director

COPYRIGHT

The copyright of this document remains with Ecology Solutions. The contents of this document therefore must not be copied or reproduced in whole or in part for any purpose without the written consent of Ecology Solutions.

PROTECTED SPECIES

This report contains sensitive information relating to protected species. The information contained herein should not be disseminated without the prior consent of Ecology Solutions.

Contents

1. Introduction	1
2. Survey Methodology	3
3. Ecological Features	8
4. Wildlife use of the Site	12
5. Ecological Evaluation	20
6. Planning Policy Context	33
7. Summary and Conclusions	37

Plans

PLAN ECO1	Site Location and Ecological Designations
PLAN ECO2	Ecological Features
PLAN ECO3	Reptile Refugia Distribution
PLAN ECO4	Waterbodies Surveyed for Great Crested Newt eDNA

Photographs

PHOTOGRAPH 1	Willow scrub
PHOTOGRAPH 2	Artificial unvegetated unsealed surface in front of pylon
PHOTOGRAPH 3	Arrhenatherum neutral grassland
PHOTOGRAPH 4	Modified grassland
PHOTOGRAPH 5	Off-Site Ditch (D1)
PHOTOGRAPH 6	Bat potential tree (Off-Site)

Appendices

APPENDIX 1	National Vegetation Classification Survey Report (Cheshire Ecology)
APPENDIX 2	SureScreen Scientifics Great Crested Newt eDNA Report [1950/1998-2025]
APPENDIX 3	SureScreen Scientifics Great Crested Newt eDNA Report [2817-2025]
APPENDIX 4	Bat Boxes
APPENDIX 5	Bird Boxes

1. Introduction

1.1. Site Background and Proposals

- 1.1.1. Ecology Solutions was originally commissioned by NW1 IOS 3 Unit Trust, in May 2025 to produce an Ecological Assessment of a parcel of Land to the West of Faraday Road and East of Alchemy Way, Knowsley Industrial Park, Kirkby, Knowsley, hereafter known as 'the site'.
- 1.1.2. Updates to the Ecological Assessment were made in March 2026 to reflect changes to the red line boundary, landscaping and include the results of a recent survey to check location and status of an off-site ditch to the south.
- 1.1.3. In addition, the Ecological Assessment was updated to reflect the habitat degradation rule:

Confirmation whether there has been any loss or degradation of onsite habitats resulting from activities carried out:

a) On or after 30 January 2020 not in accordance with a planning permission; or

b) On or after 25 August 2023 in accordance with a planning permission.

- 1.1.4. Therefore, to align with the habitat degradation rule, historical habitat data from Phlorum's Preliminary Ecological Appraisal (PEA)¹ in 2024 and Satellite Imagery were used where necessary.
- 1.1.5. The site, as well as the wider area to the east, was previously assessed by Phlorum Limited in June 2024 where further survey work for Invertebrates, National Vegetation Classification (NVC), reptiles and Great Crested Newts *Triturus cristatus* was recommended. Phlorum's assessment was based on a wider site area; however, the new red line boundary has since been reduced with the Proposed Development now focusing on the western side. Preceding this, the immediate site to the east was appraised in 2023 by WSP². Details of previous survey work is referred to in this Ecological Assessment where necessary.
- 1.1.6. The Proposed Development is for open storage (Class B8), provision of new hardstanding, and all other associated works.

1.2. Site Characteristics

- 1.2.1. The site is approximately 1.09ha in size and is situated in Knowsley Industrial Park, Liverpool. The site is industrial in character comprising areas of grassland, scrub and areas of disturbed land.

¹ Phlorum Limited (June 2024) Knowsley Industrial Estate, Liverpool. *Preliminary Ecological Appraisal*. Ref: 13000.PEA.V1

² WSP (2023) Phase 1 Validation Update: Land off Faraday Road.

- 1.2.2. The site has been subject to frequent levels of disturbance between 2005 and 2025 (Google Earth) due to the adjacent development to the east, now currently a car park for Amazon. Historically, the site was an agricultural field evidenced in late 19th Century Ordnance Survey maps.
- 1.2.3. The site is bounded to the north, east and south by commercial properties, while Otis Meadow Local Wildlife Site (LWS); a habitat associated with damp and dry scrubby grassland, borders the site's western boundary. The A580 dual carriageway is approximately 250m south of the site boundary.

1.3. **Ecological Assessment**

- 1.3.1. This document assesses the ecological interest of the site. The importance of the habitats within the site is evaluated with due consideration given to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)³.
- 1.3.2. Where necessary, mitigation measures are recommended to safeguard any significant existing ecological interest within the site and, where appropriate, potential enhancement measures are put forward and reference made to both national and local biodiversity priorities.

³ CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3 – Updated September 2024. Chartered Institute of Ecology and Environmental Management, Winchester.

2. Survey Methodology

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the site and the surrounding area, Ecology Solutions contacted BioBank Merseyside, the Local Environmental Records Centre for North Merseyside, for protected species records and recognised statutory and non-statutory designated sites.

2.2.2. The data search area included a 2km radius centred on the site for protected species records. A wider 5km radius centred on the site for information on nationally and internationally designated sites.

2.2.3. Further information on designated sites from a wider search area was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)⁴ database, which uses information held by Natural England and other organisations.

2.2.4. This information is reproduced where appropriate on Plan ECO1.

Limitations

2.2.5. Some records from the desk study returned unidentified records. BioBank data search returned unspecified bat species which have been referred to in this report where appropriate.

2.3. Habitat Survey

2.3.1. The western part of the site was previously surveyed by Phlorum Limited in May 2024 based on UK Habitat Classification (UKHab)⁵ methodology as recommended by Natural England where the habitat types present are identified and mapped, together with an assessment of the species composition in each habitat.

2.3.2. UKHab is a comprehensive system for mapping and recording habitats, designed to provide a simple and robust approach to survey and monitoring, and replaces the Phase 1 survey methods. UKHab comprises of a principal hierarchy ranging from level 1 (ecosystems) to level 5 (defined habitats including Annex 1 habitats) when classifying habitats. For this survey, all primary habitats were recorded to level 4 minimum. Secondary habitats are also used to provide further information on a main primary habitat where appropriate.

2.3.3. A follow-up National Vegetation Classification (NVC) survey was undertaken, a to assess which specific plant communities/species were present. The survey

⁴ <https://www.magic.gov.uk>

⁵ UKHab Ltd (2023) *UK Habitat Classification Version 2.0* (at <https://ukhab.org>)

was completed by Dr Martin Page MCIEEM of Cheshire Ecology on the 13th May 2025. Further details of the NVC results are detailed in Appendix 1 with the results referenced hereafter where appropriate.

2.3.4. The other neutral grassland (NG2) was appraised based on the PEA report findings by Phlorum Limited. Habitat conditions were assumed a worst-case scenario, where appropriate, due to the Phlorum Limited Report not including a habitat condition assessment. The Arboricultural Impact Assessment by SEED⁶ was also referenced to ascertain age and height of trees where necessary.

2.3.5. An updated site check was carried out in February 2026 by Alice Desborough BSc (Hons) Ecologist to confirm the status and condition of the off-site ditch to the south.

2.4. Faunal Survey

2.4.1. Obvious faunal activity recorded during the site survey, such as birds or mammals observed visually or by call, was recorded. Specific attention was paid to any potential use of the site by protected species, priority species or other notable species.

2.4.2. In addition to general observations of faunal activity, specific surveys were undertaken to assess suitability for Badgers *Meles meles*, reptiles and Great Crested Newts.

Badgers

2.4.3. The site and immediate vicinity was subject to a Badger survey by Senior Field Surveyor, Gavin O'Seachnasaigh BSc (Hons), in September 2025. An updated check was completed in February 2026 by Alice Desborough BSc (Hons) Ecologist.

2.4.4. The surveys comprised two main elements: firstly, searching thoroughly for evidence of Badger setts. If any setts were encountered, each sett entrance was noted and plotted, even if the entrance appeared disused. The following information was recorded where present:

- i) The number and location of well used or very active entrances if present; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.
- ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance.
- iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used

⁶ SEED (March 2026) Land West of Faraday Road & East of Alchemy Way. *Arboricultural Impact Assessment*. Ref: 2136-AIA-V1-B.

without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be, together with the remains of the spoil heap.

- 2.4.5. Secondly, any evidence of Badger activity such as well-worn paths, run-throughs, snagged hair, footprints, latrines and foraging signs was sought and if present recorded so as to build up a picture of the use of the site by Badgers.

Bats

Ground-level Tree Assessment (GLTA)

- 2.4.6. All trees within the site were assessed for their potential to support roosting bats in September 2025 by Senior Field Surveyor, Gavin O'Seachnasaigh and again in February 2026. This was done from the ground using binoculars to visually search for any Potential Roost Features (PRFs). Features typically favoured by bats, or evidence of past use by bats were searched for, including:

- Obvious holes, e.g. rot holes and old Woodpecker holes;
- Dark staining on a tree below a hole;
- Tiny scratch marks around a hole from bats' claws;
- Cavities, splits and / or loose bark from broken or fallen branches, lightning strikes etc.; and
- Very dense covering of mature Ivy *Hedera helix* over the trunk.

- 2.4.7. Any trees of suitability were categorised as having high, moderate, low, or negligible suitability for roosting bats, in accordance with the Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (2023)⁷.

- 2.4.8. A PRF with PRF-I suitability is considered to only be suitable for individual bats or very small numbers of bats, either due to the limited size of the feature or lack of suitable surrounding habitats. PRF-M suitability is when it is considered that the PRF is suitable for multiple bats and may therefore be used by a maternity colony.

- 2.4.9. In addition, the site was appraised for its suitability for both foraging and commuting bats during the initial survey.

- 2.4.10. Field surveys were undertaken with regard to best practice guidelines issued by CIEEM (2023⁸), the Joint Nature Conservation Committee (2012⁹) and the Bat Conservation Trust (2023).

⁷ Collins, J. (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 4th Edition. The Bat Conservation Trust, London.

⁸ Reason, P.F. and Wray, S. (2023) *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Chartered Institute of Ecology and Environmental Management (CIEEM)

⁹ Mitchell-Jones, A.J. and McLeish, A.P. (Eds.) (2012). *Bat Workers' Manual*. 4th edition. Joint Nature Conservation Committee, Peterborough.

Reptiles

- 2.4.11. Specific surveys for reptiles were carried out between June and September 2025. The methodology utilised was principally derived from guidance given in Froglife Advice Sheet 10¹⁰, the Herpetofauna Workers' Manual¹¹, the Herpetofauna Groups of Britain and Ireland's (HGBI) advisory note¹² and Natural England's Standing Advice for Reptiles¹³.
- 2.4.12. Areas of suitable habitat were surveyed for the presence of reptiles using artificial refugia ("roofing felt"). These refugia provide shelter and heat up more quickly than the surroundings in the morning and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and raise their body temperature which allow them to forage earlier and later in the day. A total of 35 0.5m x 0.5m roofing felt mats were deployed across the site and wider survey area.
- 2.4.13. To determine presence / absence, the tins are checked for reptile activity over seven visits at appropriate times of the day (avoiding the middle of the day when the ambient air temperature is at its highest) in accordance with Natural England guidance. Optimum weather conditions for reptile surveying are temperatures between 10°C and 18°C, intermittent or hazy sunshine and little or no wind.
- 2.4.14. All surveys to date were completed by experienced ecologists following species guidelines and survey protocols.

Great Crested Newts

eDNA Survey

- 2.4.15. To determine the presence / absence of Great Crested Newts in nearby waterbodies within 500m of the site, not separated by a dispersal barrier, eDNA testing was undertaken in April and May 2025, where access could be obtained.
- 2.4.16. While residing within a waterbody, Great Crested Newts deposit traces of DNA which can be detected through sampling the pond water and undergoing analysis within the laboratory. Pond samples can be collected between 15 April and 30 June inclusive.
- 2.4.17. Water samples of any given waterbody are taken in 20 separate locations, with a focus on areas of high suitability for Great Crested Newts. The samples are then pooled together into a self-supporting Whirl-pak Bag.
- 2.4.18. Once the pooled samples have been mixed thoroughly, 15ml of water is removed and transferred into an ethanol filled test tube. This is repeated a

¹⁰ Froglife (1999) *Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

¹¹ Gent, T and Gibson, S. (2003). *Herpetofauna Workers' Manual*. JNCC, Peterborough.

¹² Herpetofauna Groups of Britain and Ireland (HGBI). (1998). *Evaluating Local Mitigation / Translocation Programmes: Maintaining Best Practice and Lawful Standards*.

¹³ Natural England (2011). Standing Advice for Reptiles.
http://www.naturalengland.org.uk/Images/Reptile%20feb11_tcm6-21712.pdf

further five times leaving six test tubes that contain a mix of the sampled water and ethanol. These are then immediately sent to a laboratory to undergo analysis.

- 2.4.19. Within the laboratory the samples are pooled together and tested via real time PCR (or q-PCR) in order to amplify select parts of the DNA allowing it to be detected and measured. A result of presence or absence is returned by the laboratory. Please note a negative result is not definitive confirmation of the absence of Great Crested Newts, it only provides a snapshot of data at the time of survey. If present (indicating presence of the species) no measure of the population size is obtained through this survey method.

Limitations

- 2.4.20. Four ponds (within public and private land) were identified within 500m of the site boundary. However, only one pond (P1) was accessible located to the north of the site. For the remaining ponds, it was not possible to determine landownership to conduct eDNA surveys despite contact with neighbouring site owners of adjacent businesses. Other supporting information was sought, including previous ecology reports, to further aid in the suitability assessment for this species group.

3. Ecological Features

3.1. The findings of the NVC survey in June 2025 were translated into UKHab (see Appendix 1) from Phlorums' report have been replicated below where necessary. The habitats are illustrated in Plan ECO2:

- Willow scrub;
- Artificial unvegetated, sealed surface;
- Other neutral grassland;
- Modified grassland;
- Mixed scrub;
- Ditch; and
- Developed Land; Sealed Surface.

3.3. Willow Scrub (UKHab code f3b)

3.3.1. The southern part of the site (WS) holds the western edge of a band of Willow scrub (see Photograph 1), the remainder of which stretches to the eastern end of the wider area outside the site boundary.

3.3.2. The dominant species in this area are Grey Willow *Salix cinerea*, Osier *Salix viminalis* and Downy Birch *Betula pubescens*. The understorey comprises Creeping Bent and Rough Stalked Meadow Grass *Poa trivialis*, with smaller quantities of Marsh Bird's Foot Trefoil *Lotus uliginosus*, Common Fleabane *Pulicaria dysenterica*, Bush Vetch *Vicia cracca*, Common Nettle *Urtica dioica* and Wild Angelica *Angelica sylvestris*.

3.3.3. Other species recorded include Hedge Bindweed *Calystegia sepium*, Common Knapweed *Centaurea nigra*, Fireweed *Chamerion angustifolium*, Creeping Thistle *Cirsium arvense*, Scotch Broom *Cytisus scoparius*, Red Fescue *Festuca rubra*, Hogweed *Heracleum sphondylium*, Yorkshire Fog *Holcus lanatus*, Rough Meadow-grass *Poa trivialis*, Goldenrod *Solidago virgaurea*, Perennial Sow-thistle *Sonchus arvensis*, Rowan *Sorbus aucuparia* and Tufted Vetch *Vicia cracca*.

3.3.4. The Willow scrub has been subject to previous disturbance as result of development activities to the north, limiting the scrub's maturity and structure.

3.3.5. A pair of young multi-stemmed Willow sp. are also present in the northeast corner of the site (G3) achieving the same habitat condition as WS.

3.4. Artificial Unvegetated, Sealed Surface (UKHab code u1c)

3.4.1. This is an area to the west of the new car park. The original topsoil appears to have been removed and replaced with less fertile subsoil (see Photograph 2). There is very little vegetation other than isolated plants of Creeping Bent *Agrostis stolonifera* and Creeping Buttercup *Ranunculus repens*.

3.4.2. The site also includes evidence of fly-tipping mainly consisting of garden waste. Ground Elder *Aegopodium podagraria* and Large Yellow Loosestrife *Lysimachia*

punctata dominate these areas, the former a non-native species listed under the non-native species secretariat¹⁴.

3.4.3. The habitat is homogenous in nature with no varied habitat structure.

3.5. Other Neutral Grassland (UKHab code g3c5)

3.5.1. Most of the northern part of the site (NG1) is covered by False Oat-grass *Arrhenatherum elatius* (see Photograph 3).

3.5.2. Other plant species recorded less frequently include Common Bent *Agrostis capillaris*, Creeping Bent, Rough-stalked Feather Moss *Brachythecium rutabulum*, Hedge Bindweed, Creeping Thistle *Cirsium arvense*, Cocksfoot *Dactylis glomerata*, Common Couch *Elymus repens*, Field Horsetail *Equisetum arvense*, Red Fescue, Hogweed, Yorkshire Fog, Meadow Vetchling *Lathyrus pratensis*, Ribwort Plantain *Plantago lanceolata*, Smooth Meadow-grass *Poa pratensis*, Silverweed *Poterium anserina*, Creeping Cinquefoil *Potentilla reptans*, Common Fleabane, Oak saplings *Quercus robur*, Bramble *Rubus fruticosus*, Common Sorrel *Rumex acetosa*, Curled Dock *Rumex crispus*, Tall Fescue *Festuca arundinacea*, Goldenrod, Dandelion *Taraxacum officinale*, Meadow Salsify *Tragopogon pratensis* and Vetch sp., *Vicia*.

3.5.3. The grassland (NG1) resembles a semi-natural habitat with a tussocky sward. The habitat, however, contains areas of scrub which overtime will encroach, outcompeting the grassland species.

3.5.1. Another section of other neutral grassland (NG2) was degraded as part of development works associated with the adjacent planning permission (Ref: 23/00064/FUL).

3.5.2. Phlorum's report as well as Google Earth was used to assess its habitat condition. Phlorum's report recorded >7 species per m² with scattered bare ground and scrub patches. The grass coverage was recorded at 75% with the following flowering species: False Oat Grass, Ragged Robin, Northern Marsh-orchid *Dactylorhiza purpurella*, Fleabane sp., Field Horsetail, Oil seed rape *Brassica napus*, Ground Elder *Aegopodium podagraria*, Rosebay Willowherb *Chamerion angustifolium*, Mullein sp., Beach rose *Rosa rugosa*, Birds-foot trefoil *Lotus corniculatus*, Common Nettle *Urtica dioica* and Creeping Buttercup *Ranunculus repens*.

3.6. Modified Grassland (UKHab code g4)

3.6.1. A small area of species rich grassland is located in the southwestern corner of the site (see Photograph 4). Aerial photography shows that this area was greatly impacted by the previous construction work, with regularly used tracks crossing the site. The regular disturbance resulted in soil displacement and created waterlogged conditions.

¹⁴ <https://www.nonnativespecies.org/non-native-species/information-portal/view/66>

3.6.2. The NVC survey identified the vegetation as an example of the SD17a *Potentilla anserina*-*Carex nigra* plant community, which is characteristic of dune slacks and other seasonally inundated sites.

3.6.3. The grassland includes the following plant species Creeping Bent, Red Fescue, Yorkshire Fog, Spotted Medick *Medicago arabica*, Yellow Sweet Clover *Melilotus officinalis*, Ribwort Plantain, Selfheal *Prunella vulgaris*, Creeping Buttercup, Bramble, Grey Willow, White Clover *Trifolium repens*, Pointed Spear-moss *Calliergonella cuspidate*, Silverweed, Bird's-foot Trefoil, Yellow-wort *Blackstoniana perfoliate*, Wild Angelica, Ragged Robin *Lychnis flos-cuculi*, Common Fleabane, Compact Rush *Juncus conglomeratus* and Jointed Rush *Juncus articulatus*.

3.7. **Mixed Scrub (UKHab code h3h)**

3.7.1. A small stand of young, low quality group of Silver Birch *Betula pendula* and Willow sp. trees (G1) are present in southwestern corner of the site.

3.7.2. An area of mixed scrub (G2) is present along the northern end of the western boundary of the site.

3.7.3. Species recorded include Sycamore *Acer pseudoplatanus*, Pedunculate Oak, Goat Willow, Hawthorn *Crataegus monogyna*, Cherry *Prunus avium* and Silver Birch.

3.8. **Ditch (UKHab code r1e)**

3.8.1. An off-site drainage ditch (D1) runs southeast of the current site boundary (see Photograph 5) and is overshadowed by an off-site line of trees to the south and Willow scrub along its entire length.

3.8.2. Ditch D1 has visible signs of disturbance from a review of historic online photography, particularly towards the northeast side, with signs of tracks cutting through it likely resulting in the ditch being subject to surface runoff during the construction phase of the adjacent development. Ditch D1 was re-assessed in February 2026 following an extended period of heavy rain. Located approximately 11m south of the current site boundary, the ditch contained less than 50cm depth of water and was also considered to be in a 'Poor' habitat condition.

3.9. **Developed Land; Sealed Surface (UKHab code u1b)**

3.9.1. Existing access road leading in from Alchemy Way to the southwestern corner of the site.

3.10. **Background Records**

3.10.1. Two species listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) were identified in the BioBank search: Bluebell *Hyacinthoides non-scripta* and Yellow Bird's-nest *Monotropa hypopitys*. The closest record was attributed to Bluebell located 1km northeast of the site in 2019, with the species most recently recorded in 2021.

- 3.10.2. Three species listed under Section 41 of the NERC Act 2006 were recorded: Cornflower *Centaurea cyanus*, Marsh Stitchwort *Stellaria palustris*, and Yellow Bird's-nest. The most recent and closest record is Cornflower, located 1.3km west of the site in 2021.
- 3.10.3. Six Red List plant species were returned: Corn Marigold *Glebionis segetum*, Corn Spurrey *Spergula arvensis*, Field Woundwort *Stachys arvensis*, Large-flowered Hemp-nettle *Galeopsis speciosa*, Marsh Stitchwort, and Yellow Bird's-nest. The nearest is Corn Spurrey, recorded 1km northeast in 2015. The most recent records 2022 are for Corn Marigold and Field Woundwort, both found 1.6km southeast in a recreation park.
- 3.10.4. Four notable species listed under the UK and Local Biodiversity Action Plans (BAP) were returned: Bluebell, Cornflower, Marsh Stitchwort, and Yellow Bird's-nest.

Invasive Non-native Species (INNS)

- 3.10.5. The data search returned ten species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). These species are Three-cornered Garlic *Allium triquetrum*, Water Fern *Azolla filiculoides*, Himalayan Cotoneaster *Cotoneaster simonsii*, Japanese Knotweed *Fallopia japonica*, Floating Pennywort *Hydrocotyle ranunculoides*, Himalayan Balsam *Impatiens glandulifera*, Yellow Archangel *Lamium galeobdolon* subsp. *argentatum*, Virginia-creeper *Parthenocissus quinquefolia*, Rhododendron *Rhododendron ponticum*, and Japanese Rose *Rosa rugosa*. The Himalayan Cotoneaster is the closest to site being 300m southwest within the industrial park in 2015. The most recent and closest recording of these species was in 2022 for the Rhododendron 800m northeast of site.
- 3.10.6. Japanese Knotweed and Japanese Rose were previously recorded in a fenced off area within the northern boundary of the site as mentioned in the Phlorum PEA. However, no reports of both species were recorded during 2025 surveys. The data search showed three observations of Japanese Knotweed within the 2km search radius between 2019 and 2022. Two records for Japanese Rose were returned dating to 2021 and is outside of the 2km search radius of the site.

4. Wildlife use of the Site

- 4.1. General observations were made during the surveys of any faunal use of the site, with specific attention paid to the potential presence of protected, priority, or otherwise notable species. Specific surveys have been completed regarding reptiles and Great Crested Newts.

4.2. Badgers

- 4.2.1. There was no evidence of Badger activity or setts on the site during the time of the September and February surveys. The habitats could provide potential dispersal opportunities along the treelines and grassland for any locally present urban Badgers, albeit relatively limited given the overall habitat size and previous disturbance history. Furthermore, there was an absence of local records in the wider area. Despite the low suitability for the species within the site, there remains a possibility that urban dwelling Badgers may utilise the land. Therefore, their presence cannot be fully eliminated.

Background Records

- 4.2.2. There were no records for Badger returned from the BioBank data search within the 2km radius of site. The most recent and only record dates from 2022 from a location approximately 47km south of the site and is considered negligible for this development due to the massive distance.

4.3. Bats

- 4.3.1. The site was previously assessed as 'Low' suitability for foraging and commuting bats in the previous PEA report and, as such, it is considered that the site could be utilised by light-tolerant bat species, but the site is not considered to be of importance to local bat species.
- 4.3.2. Foraging and dispersal suitability is considered reduced due to the following factors. The site was noted during NVC survey as being heavily damaged in the past by the adjacent development to the north, where habitats have been altered or removed completely, reducing their value and extent. The site is also located in a heavily active industrial area with lighting and noise from the north and south likely creating light spill onto tree lines and ditch reducing suitability. In addition, corridors to off-site habitats particularly to the south are in the vicinity of active businesses and busy roads (A580) likely impacting suitability.
- 4.3.3. Off-site habitats in the wider area are considered to provide greater suitability with less disturbance and greater foraging and commuting opportunities. Knowsley Brooke, a Local Wildlife Site (LWS), 3km southwest of site may offer such opportunities for bat species; however, there are no wildlife connections or treelines from the site boundary to this watercourse, or to the woodland and wetland habitats approximately 1km north and east of site, due to the site being bordered by a large industrial site from all sides and the dual carriage way that acts as a barrier to any suitable habitats to the south.

GLTA

- 4.3.4. No on-site bat potential trees were noted on-site during the surveys. One off-site tree was recorded during the GLTA survey with a south-facing tear-out (see Photograph 6) to the southeast. The tree is categorised as a PRF-I considered to provide low roost suitability owing to its location facing a heavily industrial development with suspected light spill. No further surveys are required.

Background Records

- 4.3.5. The BioBank data search returned twenty-three occurrences of bat records from the last 10 years. Species include unspecified bat sp., Daubenton's Bat *Myotis daubentonii*, Noctule *Nyctalus noctula*, Common Pipistrelle *Pipistrellus pipistrellus*, and Soprano Pipistrelle *Pipistrellus pygmaeus*. The closest record to site is from an unspecified bat species 200m north from site exhibiting feeding behaviour in 2017. The most recent record relates to Common Pipistrelle recorded in 2022 800m southeast from site inside a small woodland situated beside a main road.
- 4.3.6. There are no granted Natural England European Protected Species (EPS) licenses for bats present within a 2.5km radius of site. The closest is one license 2.7km westward of site for Common Pipistrelle in 2010 which allowed for the destruction of a resting place.

4.4. Hedgehogs

- 4.4.1. No evidence of Hedgehog *Erinaceus europaeus* was recorded on-site during the site visits. While no evidence was recorded during surveys, it is considered that the grassland, Willow scrub, and the off-site habitats to the east and west could offer localised foraging and refuge opportunities and as such the occasional use by this species cannot be eliminated.

Background Records

- 4.4.2. There were 21 records of Hedgehog that returned from the data search. The closest and most recent record pertains to an observation approximately 500m northwest of site dated in 2022.

4.5. Water Voles

- 4.5.1. The site is considered to hold negligible suitability for Water Vole *Arvicola amphibius* due to a lack of permanent water, connectivity to wider watercourses (the off-site ditch is considered to be drainage in function), previous disturbance works in 2020 affecting eastern section of ditch, and negligible aquatic vegetation restricting feeding opportunities.
- 4.5.2. The nearest suitable waterbody, approximately 500m south, is situated across an active main road and is surrounded by industrial buildings, therefore, lacks connections with the site and commuting opportunities are severely restricted. Furthermore, the potential for Water Voles was discounted in the Land off Faraday Road Phase 1 Validation Update desk study.

Background Records

- 4.5.3. One record of Water Vole was returned located in a woodland strip bordering the motorway 1.7km south of site in 2015.

4.6. Otters

- 4.6.1. For the same reasons described for Water Vole above, the presence of Otter *Lutra lutra* was not considered further in this assessment.

Background Records

- 4.6.2. No records of Otter were returned by the BioBank data search.

4.7. Other Mammals

- 4.7.1. Due to the habitats present, it is considered that small and large common mammal species could be present such as Fox *Vulpes vulpes* and Rabbit *Oryctolagus cuniculus*. One Field Mouse *Apodemus sylvaticus* was recorded under a reptile refugia on the 23rd June 2025.
- 4.7.2. Although it is considered unlikely any notable species would be utilising the site with the previous disturbance of the site from development.

Background Records

- 4.7.3. One record relating to Red Squirrel *Sciurus vulgaris* listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) was returned by the data search. The Red Squirrel record relates to a location 1.4km southeast of site along the boundary between residential housing and a small woodland in 2017.
- 4.7.4. Other mammal species returned from the data search include Brown Hare *Lepus europaeus* and Grey Squirrel *Sciurus carolinensis*. The four Brown Hare records were beyond the 2km search radius, while six records for Grey Squirrel were within the radius. The closest record for Grey Squirrel pertains to an observation in 2015 roughly 1km northeast of site, and the most recent was dated in 2020 approximately 1.5km southeast of site.

4.8. Birds

- 4.8.1. The site's grassland and scrub habitats offer suitable foraging and nesting opportunities for local bird species.
- 4.8.2. A group of Pheasants *Phasianus colchicus* were recorded during the reptile survey on the 24th July 2025.

Background Records

- 4.8.3. The data search returned records of ten bird species protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). These species include Kingfisher *Alcedo atthis*, Bar-headed Goose *Anser indicus*, Black Tern *Chlidonias niger*, Long-tailed Duck *Clangula hyemalis*, Peregrine *Falco peregrinus*, Brambling *Fringilla montifringilla*, Black-tailed Godwit *Limosa limosa*, Red Kite

Milvus milvus, Redwing *Turdus iliacus*, and Barn Owl *Tyto alba*. The closest record belongs to Barn Owl located 300m north of site in 2017. The most recent record is related to four species: Kingfisher, Redwing, Brambling and Fieldfare in 2021. These species records are 3km southeast of site associated with a large waterbody in Knowsley Park.

- 4.8.4. The BioBank data search returned 135 records from 16 species protected under Section 41 of the NERC Act (as amended). Species include Skylark *Alauda arvensis*, Tree Pipit *Anthus trivialis*, Yellowhammer *Emberiza citrinella*, Reed Bunting *Emberiza schoeniclus*, Herring Gull *Larus argentatus*, Black-tailed Godwit, Linnet *Linaria cannabina*, Yellow Wagtail *Motacilla flava flavissima*, Curlew *Numenius Arquata*, House Sparrow *Passer domesticus*, Tree Sparrow *Passer montanus*, Dunnock *Prunella modularis*, Bullfinch *Pyrrhula pyrrhula*, Starling *Sturnus vulgaris*, Song Thrush *Turdus philomelos*, and Lapwing *Vanellus vanellus*. The Reed Bunting and Linnet records are the closest to site being approximately 200m north of site in 2017. The most recent and closest record is associated with Song Thrush located 900m northeast of site in 2022.
- 4.8.5. The data search returned 116 records across seventeen species which are designated under the Red List of Birds of Conservation Concern 5 (BoCC). These species include Skylark, Tree Pipit, Swift *Apus apus*, Long-tailed Duck *Clangula hyemalis*, House Martin *Delichon urbicum*, Yellowhammer, Herring Gull, Black-tailed Godwit, Linnet, Red Kite, Yellow Wagtail, House Sparrow, Tree Sparrow, Starling, Fieldfare, and Lapwing. The closest record is of Linnet located roughly 200m north of site in 2017. The most recent record is associated with Black-tailed Godwit, Herring Gull, House Martin, House Sparrow and Starling in 2022. Of these species, Herring Gull and Starling are the closest being about 1.6km southeast of site observed around residential buildings.
- 4.8.6. The data search returned 49 records across five species which are designated under the Amber List of Birds of Conservation Concern 5 (BoCC). These species refer to Reed Bunting, Dunnock, Bullfinch, Redwing, and Song Thrush. The closest record to site is the Reed Bunting 200m north of site in 2017. The most recent and closest record belongs to the Song Thrush found 900m northeast of site in 2022.
- 4.8.7. The data search returned 11 records across four species which are designated on the Birds Directive Annex-1. These species include Kingfisher, Black Tern *Chlidonia niger*, Peregrine, and Red Kite. The closest record to the site is Peregrine located approximately 300m south of site in 2015. The most recent record pertains to Kingfisher which was located 3km southeast of site in 2021.
- 4.8.8. There are 101 records across thirteen species returned from the BioBank data search designated under the Local Biodiversity Action Plan (LBAP) and Biodiversity Action Plan (BAP). These species relate to Skylark, Tree Pipit, Swift, House Martin, Yellowhammer, Reed Bunting, Yellow Wagtail, Curlew, House Sparrow, Tree Sparrow, Starling, Song Thrush, and Lapwing. The closest record to site is the Reed Bunting 200m north of site in 2017. The most recent observation belongs to the Song Thrush found 900m northeast of the site in 2022.

4.9. Reptiles

- 4.9.1. The site contains some suitable habitats in the form of dense scrub and grassland habitat features that may provide opportunities for the species with some connectivity to Otis Meadow LWS to the west. However, the site is located within a heavily industrial setting, thus, posing a significant barrier to the movement of reptiles to the north, south and east.
- 4.9.2. Seven presence / absence surveys for reptiles were completed in favourable conditions between 13th June 2025 and 5th September 2025. The results of the surveys confirmed no reptiles found on site. The results of the surveys undertaken are summarised in Table 4.1. Please refer to Plan ECO3 showing the distribution of reptile refugia.

Table 4.1. Reptile Survey conditions and Results (May and September 2025)

Date	Survey	Temperature (°C)	Cloud Cover (%)	Reptiles recorded
13.06.25	1	17	0	0
23.06.25	2	17	40	0
07.07.25	3	17	20	0
24.07.25	4	17	60	0
04.08.25	5	16	95	0
14.08.25	6	17	80	0
05.09.25	7	17	10	0

- 4.9.1. Due to the lack of reptiles found during the survey, it is considered unlikely that this group is present on this site.

Background Records

- 4.9.2. No records for any reptile species over the last 10 years were returned by the BioBank data searches.

4.10. Amphibians (Great Crested Newt)

- 4.10.1. The site was previously assessed as 'Low' suitability for breeding, foraging and commuting Great Crested Newts. One Common Toad *Bufo bufo* was recorded during the reptile survey on 24th July 2025.
- 4.10.2. There is limited terrestrial habitat for Great Crested Newts in the form of the neutral grassland habitat and Willow scrub with potential connectivity to the west; however, wider restrictions are present for dispersal to the north and south with neighbouring industrial buildings. The previous disturbance of the site also reduces the suitability for amphibians. There is a lack of suitable connective waterbodies to and from the ditches for the species, thus restricting any potential commuting opportunities. Additionally, D1 was noted as being dry in the summer months which greatly reduces its suitability, while a February 2026 revisit recorded D1 as being of 'Poor' condition and lacking aquatic vegetation. Since Great Crested Newts lay their eggs on submerged leafy vegetation, D1 is also considered unsuitable habitat for breeding.

- 4.10.3. A review of the site using aerial photography and MAGIC identified four ponds within 500m of the site's boundary (see Plan ECO4). Only one off-site pond, previously assessed as 'Poor' in a Habitat Suitability Index (HSI) undertaken by WSP in 2023, and the on-site ditch were subject to eDNA surveys. The remaining off-site ponds were not accessible.

eDNA Survey

- 4.10.4. Pond P1, previously referred to as TN3 in older reports, and off-site D1 were subject to eDNA testing on 26th April 2025 to determine the presence / absence of Great Crested Newts within these waterbodies.
- 4.10.5. Both surveyed waterbodies (D1 – see Appendix 2 and P1 – see Appendix 3) returned a negative eDNA result indicating a lack of Great Crested Newt evidence. However, a negative result is not absolute confirmation of the absence of Great Crested Newts, it only acts as a snapshot of the species presence at the time of DNA collection.
- 4.10.6. The other three ponds outside of the immediate site boundary were not subject to eDNA testing as access was not available.

Background Records

- 4.10.7. The BioBank data search returned fifty-one records across four species of amphibian. Between 2015 and 2020, there have been 18 records of Great Crested Newt with the closest and most recent record attributed to a location 1.3km southwest of site in 2015.
- 4.10.8. There were 23 records returned from the data search for Common Frog *Rana temporaria* between 2015 and 2022. The nearest record is just under 100m north of site in 2017, and the most recent record is located 900m northeast of site in 2022.
- 4.10.9. Only four records for Smooth Newt *Lissotriton vulagris* were returned from the data search in the year of 2017. Of these results, one record was located roughly 100m north of site.
- 4.10.10. Six records were returned for Common Toad from the data search between 2019 and 2021. The closest and most recent record is located roughly 1.7km south of site in 2021.
- 4.10.11. There were no granted Natural England EPS licence applications for Great Crested Newts located within 2km of the site. There were also no Great Crested Newt Class Survey Licence Returns within 2km of the site. The closest licence return is located 4.7km from site, dating from 2016.

4.11. Invertebrates

- 4.11.1. Given the presence of the grassland and scrub habitats supporting a range of common flowering species and nectar sources, the site likely supports an assemblage of common invertebrate species in both adult and larval forms.

- 4.11.2. A map review from the Buglife GIS Data Hub¹⁵ indicates that the site is situated within the 3km-wide B-Line insect pathways. B-Lines are designed to offer commuting for the country's pollinators and other wildlife to move freely, and it aims to connect wildflower-rich habitats across wider landscape. There are no Important Invertebrate Areas (IIAs) in the wider area, the closest IIA is situated more than 17km northwest of site.
- 4.11.3. A Cinnabar *Tyria jacobaeae*, a moth species listed under Section 41 of the Natural Environment Rural Communities (NERC) Act 2006 (as amended), was observed on 15 different occasions. It is noted in the data search 400m south of site; however, there was no Ragwort *Senecio jacobaea* observed during the NVC survey so unlikely to be over reliant on the site.
- 4.11.4. It was noted extant reports for the site advised on invertebrate surveys being undertaken. However, after consultation with Richard Wilson Ecology Ltd in February 2025, the previous disturbance of the site and periphery vegetation are likely to result in limited opportunities for invertebrates. Plus, the plant communities recorded on-site are not considered to have fully established due to past disturbance works (as described in paragraph 5.2.23). Therefore, no further surveys were considered for this species group.

Background Records

- 4.11.5. Between 2015 and 2022, there were 54 moth records across 17 species returned from the BioBank data listed under Section 41 of the NERC Act 2006 (as amended). These species include Green-brindled Crescent *Allophyes oxyacanthae*, Mouse Moth *Amphipyra tragopoginis*, Mottled Rustic *Caradrina Morpheus*, Latticed Heath *Chiasmia clathrate*, Sallow *Cirrhia icteritia*, Small Square-spot *Diarsia rubi*, Small Phoenix *Ecliptopera silaceata*, Dusky Thorn *Ennomos fuscantaria*, Ghost Moth *Hepialus humuli*, Rosy Rustic *Hydraecia micacea*, Large Wainscot *Rhizedra lutosa*, Shaded Broad-bar *Scotophteryx chenopodiata*, White Ermine *Spilosoma lubricipeda*, Buff Ermine *Spilosoma lutea*, Blood-vein *Timandra comae*, Cinnabar, and Dark-barred Twin-spotted Carpet *Xanthorhoe ferrugata*. The closest record belongs to the Cinnabar which is located approximately 400m south of site dating from 2019. There were two records of Blood-vein which were identified as the closest and most recent location to site, approximately 1.7km southwest in 2022.
- 4.11.6. Between 2019 and 2022, there were five records for a single species of *Polydrusus formosus* which is listed as a Notable-A (Nationally Rare) species returned from data search. The closest and most recent record of this beetle is 1.5km southeast of site in 2022. One species record returned from data search listed as Notable-B (Nationally Scarce) which is for Bulrush Veneer *Calamotropha paludella* located 2.1km west of site in 2022. For a species to be defined as Notable-A, it must be found in 15 or fewer hectads (10km x 10km square), whereas for Notable-B, it must be found between 16-30 hectads.

¹⁵ Buglife GIS Data Hub. gis-data-hub-buglife.opendata.arcgis.com

- 4.11.7. No species records were returned from the data search under the designation Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

5. Ecological Evaluation

5.1. The Principles of Ecological Evaluation

- 5.1.1. The guidelines for ecological evaluation produced by CIEEM propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.
- 5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe¹⁶. These are broadly used across the United Kingdom to rank sites so priorities for nature conservation can be attained. For example, current Sites of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.
- 5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.
- 5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.
- 5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with a comparatively poor species diversity, common in the south of England, may be of importance at its northern limits, say in the border country.
- 5.1.6. In addition, habitats of local importance are often highlighted within a BAP. The Knowsley BAP has been considered as part of this assessment and is referenced where relevant.
- 5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the international level.
- 5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

5.2. Habitat Evaluation

Designated Sites

- 5.2.1. **Statutory Sites.** The site does not fall within and is not adjacent to any statutory designated sites (see Plan ECO1).
- 5.2.2. There are no SSSIs within 5km of the site. The closest SSSI, Stanley Bank Meadow, is located approximately 10km east of the site. The site contains

¹⁶ Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of Biological Sites of National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

extensive areas of damp unimproved neutral grassland, as well as a variety of habitats including Alder woodland, dissected by more acidic soil orientated valleys supporting a range of localised botanical interest such as Bristle club-rush *Isolepis setacea*.

- 5.2.3. The closest statutory site is Acornfield Plantation, a Local Nature Reserve (LNR), located approximately 1km northwest of site roughly 12ha in size. The site includes a mature broadleaved woodland dominated by Birch *Betula* sp., Oak, and Sycamore. The centre of the site includes a lowland basin mire dominated by Sphagnum moss and Soft Rush. Other notable habitats include a pond, stream, drainage channels, acidic and neutral grasslands, Bracken *Pteridium aquilinum* and Rhododendron thickets.
- 5.2.4. Further southwest from site. approximately 3km away is Croxeth Park LNR, a 86ha woodland and grassland site that partially encompasses the southern and western half of a residential area. The site is made up of several woodlands with some additional agricultural land. A variety of bird, aquatic vegetation, and dragonflies rely on the land's woodland, grassland and pond habitats.
- 5.2.5. There are no ecological pathways present on site relating to any other statutory sites. There are no other connective pathways such as watercourses and tree lines to other statutory sites.
- 5.2.6. Owing to the intervening distance, it is considered unlikely that any direct impact would occur as a result of the site's development. Whilst the risk is low, indirect impacts, such as dust pollution, could occur in the absence of a Construction Environmental Management Plan (CEMP). As such, it is recommended that a CEMP is provided to guide any development of the site, setting out the appropriate government advice with regards to pollution control in order to mitigate any low risk of this impacting the nearby LNRs.
- 5.2.7. **Non-statutory Sites.** Otis Meadow LWS is a mixed dry and damp scrubby grassland. It is roughly 2.5ha and is directly adjacent to the west of the site. The damp and dry grassland with developing scrub within Otis Meadow LWS is considered to be an unusual habitat within the Knowsley Industrial Park and is therefore classified as 'Good Quality Semi-Improved Grassland (Non-priority) (England)' on the MAGIC database.
- 5.2.8. Both aforementioned sites, Acornfield Plantation LNR and Croxteth Park LNR are also designated as LWS due to the habitats which attract a wide range of notable fauna and flora species.
- 5.2.9. The second nearest LWS is Kraft Operation Land slightly further southwest than Otis Meadow LWS at roughly 600m from site. It is a wetland habitat with good species diversity, with dry grassland supporting one regionally important and five locally rare plant species, adding to its ecological interest of the site.
- 5.2.10. Knowsley Brook LWS roughly 700m south of site flows into the River Alt to the west. It is approximately 3ha in size and offers good aquatic habitat suitability for Water Voles.

- 5.2.11. Moss Plantation and Brown Birches LWS is roughly 1km northeast of the site. The LWS is approximately 19ha in size comprising coniferous plantation on peat soil with an abundance of Rhododendron and relict raised bog vegetation.
- 5.2.12. Approximately 1.5km north of site is Charley Wood LWS, an 8ha woodland dominated by broadleaved trees on acid peat soils. There is a large variety in trees and shrub cover with glade habitats. Planted Rhododendron thrive and its habitats encourage an abundance of insect species. Trailing St John's-wort *Hypericum humidusum*, a regionally important species was observed in the area.
- 5.2.13. Howard's Pit LWS approximately 1.6km southwest from site is a 2ha mature broadleaved woodland containing ponds and drainage sites. The single species dominant swamp and grasslands are ecologically notable habitats with a population of English Bluebell *Hyacinthoides non-scripta*, protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended).
- 5.2.14. Meakin's Pit LWS lies approximately 1.9km south of site and consists of a 2ha planted woodland dominated by Scot's Pine and broadleaved trees. At least 90% of the plant species present are native. A combination of Schedule 8 species under the Wildlife and Countryside Act 1981 (as amended) and regionally important species has led to the site being designated as a 'Site of Biological Interest'.
- 5.2.15. Ecological pathways present on site are only related to the Otis Meadow LWS based on proximity immediately next to the site which will require mitigation measures to avoid any potential adverse effects on this site during construction and post-development. There are no other connective pathways such as watercourses (no connections to Knowsley Brook LWS) and tree lines to other priority habitats.
- 5.2.16. Owing to the proximity of Otis Meadow LWS identified above, it is recommended that a CEMP be prepared to protect the LWS. The main points of control will need to be:
- Dust management to stop dust and other emissions affecting the LWS;
 - Surface water management and spoil response, to prevent surface water drainage issues and pollution impacting the LWS;
 - Light management to prevent construction phase light impacting the LWS; and
 - Noise management to prevent noise and or vibration impacts on the LWS.

Habitats

- 5.2.17. It is important to note the site has been subject to varying levels of past disturbance attributed to construction works for the adjacent northern development, resulting in habitats being largely fragmented or damaged with large areas of bare ground and garden waste/fly tipping.

- 5.2.18. The neutral grassland habitat is the only parcel of semi-natural habitat remaining and is expected to be succeeded by Hawthorn or Blackthorn *Prunus spinosa* scrub if no future management is applied.
- 5.2.19. On the MAGIC database, the majority of site is designated as Open Mosaic Habitat on Previously Developed Land (OMHPDL), a priority BAP habitat. Additionally, the western side of site is "Good quality semi-improved grassland [Non-Priority]". It is important to note that these classifications are based on desk study information; National Land Use Database of Previously Developed Land (withdrawn as of 23rd February), English Nature Lowland Grassland Inventory 1994 and aerial photography.
- 5.2.20. In addition, it is considered the site doesn't achieve the full criteria list (passes 4 / 5 criteria) for OMHPDL as summarised below. All five criteria must be met in order for OMHPDL to be considered present.
1. The site is greater than 0.25 ha in size. **(Pass – the site measures 1.01 hectares in size).**
 2. Known history of disturbance, with evidence of soil and industrial waste being removed/deposited on site. **(Pass – the site has been subject to varying levels of disturbance owing to previous site works fragmenting and damaging habitats).**
 3. The site contains early successional plant communities consisting mainly stress-tolerant species. Early successional communities are composed of one of the following: annuals, mosses/liverworts, lichens, ruderals, inundation species, open grassland, flower-rich grassland and heathland. **(Pass – the site supports open grassland, flower-rich grassland, inundation, mosses and ruderals).**
 4. Contains unvegetated, loose bare substrate, and pools may be present. **(Pass – bare ground and waterlogged conditions present on site).**
 5. The site shows spatial variation within 0.25ha., forming a mosaic of >1 early successional communities as summarised in criterion three plus bare substrate. **(Fail – there is no more than one plant community within 0.25ha).**
- 5.2.21. The lack of plant community variation within 0.25ha means the site does not qualify for OMHPDL. Reasons being are the habitats on site (except the other neutral grassland) have no coefficients because the vegetation has been severely damaged in the past or species poor in composition. Furthermore, the frequent disturbance of the site, especially within the past five years, has not resulted in plant variations on a small scale nor time for plant communities to fully establish.
- 5.2.1. The Local Planning Authorities adopted planning policy framework confirms any tree removal will need to be replaced on a 2:1 basis. The landscape strategy will create new habitats including native shrub planting, three species-rich native hedgerows, native trees and wildflower grassland. Areas of mixed scrub to the

northwest will be retained alongside enhancement of existing Willow scrub along the southern site boundary.

- 5.2.2. The off-site ditch will be retained in-situ and protected from any adverse effects during the operational phase of development such as surface run-off.

Biodiversity Net Gain

- 5.2.3. The site's contribution to Biodiversity Net Gain has been assessed¹⁷ according to the latest site proposal plan and is expected to result in a net loss of -84.64% for habitats (a -5.33 units decrease) but no net loss for hedgerow units.

- 5.2.4. In order to ensure that the trading rules and 10% net gain biodiversity is achieved, off-site habitat unit credits will be purchased. At the time of writing, discussions are ongoing with Biodiversity Units UK Ltd to secure a suitable offsite provider ideally from the same NCA and LPA and/or from adjoining NCA or LPA where appropriate.

Invasive Non-native Species (INNS)

- 5.2.5. Japanese Knotweed was previously recorded off-site to the east and Japanese Rose within the area of other neutral grassland within the site, during the ecological survey in May 2024, whereas the NVC survey conducted in June 2025 and subsequent reptile and site checks returned with neither species present on site.
- 5.2.6. If in the event INNS are identified within or immediately adjacent to the site during the demolition and construction works, INNS will be treated with caution and will be removed (with suitable barriers installed where necessary) and disposed at appropriate licensed waste facilities.

5.3. Faunal Evaluation

Badgers

- 5.3.1. **Legislation.** The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status.
- 5.3.2. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a Badger sett an offence. A sett is defined as "any structure or place, which displays signs indicating current use, by a Badger". 'Current use' is defined by Natural England as any use within the preceding 12 months.

¹⁷ Ecology Solutions (March 2026) Land to the West of Faraday Road and East of Alchemy Way. *Biodiversity Net Gain Report*. Ref: 12592.BNGReport.vf3.

- 5.3.3. In addition, the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting 'cruel ill treatment' of a Badger.
- 5.3.4. Local Authorities are therefore obliged to consult Natural England over any application that is likely to adversely affect Badgers.
- 5.3.5. Any work that disturbs Badgers is illegal without a licence granted by Natural England. Unlike the general conservation legislation, the Badgers Act 1992 makes specific provision for the granting of licences for development purposes, including for the destruction of setts.
- 5.3.6. Guidance produced by Natural England in 2002, and subsequently amended, developed guidelines on the types of activity that it considers should be licensed within certain distances of sett entrances. Any work on-site must be completed in accordance with that guidance.
- 5.3.7. **Site Usage.** No active Badger setts or field signs were recorded on the site during the September survey. A lack of nearby background records for this species contribute to the unlikelihood of Badger being present on site. However, owing to the dynamic nature of this species it cannot be ruled out that this species may become present on site at a later date.
- 5.3.8. **Mitigation and Enhancements.** It is recommended that a Badger sett check is carried out prior to the commencement of any future development as a precaution to ensure that no new setts have been excavated since the surveys.
- 5.3.9. Given the potential for Badgers to be within the vicinity of the site and potentially entering the site during the construction phase, a number of precautionary measures should be put in place throughout the construction phase of the development. These will include:
- During the construction process all dug ground should be levelled and compacted wherever possible. This will prevent Badgers from attempting to excavate setts prior to completion of the works;
 - Planks should be left as ramps in any uncovered trenches to allow any Badger that may stray onto the site an escape route;
 - Any open trenches will be checked at the beginning of each day (to ensure that Badgers are not present) and at the end of each day (to ensure that the means of escape remain in place);
 - Tools and loose materials will be stored in an appropriate container to reduce the risk of Badgers accessing the site and injuring themselves;
 - Materials should be stored in a storage container in order to avoid the chance of Badgers coming onto site and potentially injuring themselves;
 - Fires and chemicals should not be used; and
 - Any open pipework greater than 150mm outside diameter should be capped off at the end of each working day.
- 5.3.10. Badgers are an especially mobile species that often extend existing setts and excavate new ones in areas of suitable habitat. New setts may be excavated

within the construction zone during the period between the survey work undertaken and the drafting of this report and the commencement of site clearance and construction works. Were construction to proceed directly, involving the use of heavy machinery, newly excavated setts or entrances may be adversely affected, leading to collapse of entrances and tunnels and possible Badger injury or mortality.

- 5.3.11. If any suspected Badger activity is observed during construction, works must cease immediately and the project's ecological consultancy should be contacted. Regular monitoring and professional ecological guidance are essential to address any issues promptly and legally.

Bats

- 5.3.12. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations"). These include provisions making it an offence to:

- Deliberately kill, injure or take (capture) bats;
- Deliberately disturb bats in such a way as to:-
- be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or
- affect significantly the local distribution or abundance of the species to which they belong;
- To damage or destroy any breeding or resting place used by bats; and
- Intentionally or recklessly obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).

- 5.3.13. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

- 5.3.14. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

- 5.3.15. In accordance with the Habitats Regulations the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:

1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
2. there must be no satisfactory alternative; and
3. the favourable conservation status of the species concerned must be maintained.

- 5.3.16. Licences can usually only be granted if the development is in receipt of full planning permission.

- 5.3.17. **Site Usage.** No on-site bat potential trees were noted during the GLTA survey.
- 5.3.18. One off-site tree was recorded with a south-facing tear-out along the southern site boundary categorised as a PRF-I considered to provide low roost suitability owing to its location facing a heavily industrial development with suspected light spill.
- 5.3.19. However, foraging and dispersal suitability is considered reduced due to the following factors. The site was noted during the NVC survey as being heavily damaged in the past by the adjacent development to the north, where habitats have been altered or removed completely reducing their value and extent. The site is also located in a heavily active industrial area with lighting and noise from the north and south likely creating light spill onto off-site vegetation reducing suitability. In addition, corridors to off-site habitats, particularly to the south, are in the vicinity of active businesses and busy roads (A580) likely impacting suitability.
- 5.3.20. With this in mind, no further surveys were scheduled in regard to this species group.
- 5.3.21. **Mitigation and Enhancements.** The Proposed Development shows removal of the neutral grassland, Willow scrub and urban habitats. Areas of mixed scrub to the northwest will be retained alongside enhancement of existing Willow scrub along the southern site boundary which will provide continued opportunities for locally foraging and commuting bat species.
- 5.3.22. The off-site tree is not anticipated to be removed. Nonetheless any proposed lighting along the southern and western site boundaries should be considerate of boundary vegetation and bat potential tree to ensure no adverse light spill and suitable lux levels (maximum 1 lux) are implemented.
- 5.3.23. Any development should adhere to the Bat Conservation Trust and Institute of Lighting Professionals (ILP) Guidance Note 08/23 Bats and Artificial Lighting at Night¹⁸ to limit light spill along the western boundary with Otis Meadow LWS. Any proposed luminaries for the site should aim to be directional, reducing any significant upward lighting on to adjacent habitats (with hoods where appropriate), incorporating time sensors for whereby lighting only triggers upon movement, and thus, will limit the level of lighting present on throughout the period in which bats are present. This will ensure that dark corridors for commuting and foraging bats remain post-development.
- 5.3.24. To provide additional roosting opportunities, bat boxes of varying designs should be considered, especially on retained trees within the wider study area to the east (see Appendix 4). Boxes such as Schwegler 1FF (preferably with a wooden rear), Schwegler 1FD and Schwegler 1FS could be mounted onto retained off-site trees where lighting is not prevalent.
- 5.3.25. Bat boxes should be positioned ideally 3-5 meters above the ground, to provide clear access and protection from predators. The box should be mounted on a

¹⁸ Bats Conservation Trust (2023) - Bats and Artificial Lighting at Night ILP Guidance Notes GN08/23

sheltered wall or pole, facing between southwards, and should have a clear flight path for bats to approach/leave. The boxes won't require cleaning. Any maintenance or replacement must only be carried out by a licenced ecologist.

Hedgehogs

5.3.26. **Legislation.** Hedgehog is a species of principal importance for the conservation of biodiversity under Section 41 (England) of the NERC Act 2006 (as amended).

5.3.27. The NERC Act 2006 requires the Secretary of State to:

... take such steps as appear... to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or... promote the taking by others of such steps.

5.3.28. **Site Usage.** While no evidence was recorded while undertaking site surveys in 2025, it is considered that the habitats including the grassland and scrub may provide opportunities for the foraging especially in denser areas of scrub where refuge areas may also be present. The presence of Hedgehogs cannot be ruled out.

5.3.29. **Mitigation and Enhancements.** Any clearance of hibernacula features such as log piles or ground-level vegetation should be completed outside the hibernation season (October to February inclusive) under the supervision of a Suitably Qualified Ecologist (SQE). Any vegetation clearance should be carried out in a systematic and controlled manner to allow Hedgehogs to disperse.

5.3.30. If in the event a Hedgehog is found during construction works, the Hedgehog should be carefully placed in a lidded box (with air holes and vegetation cover) and safely translocated to a vegetated area away from construction areas.

5.3.31. Any trenches or deep pits associated with construction that are left open overnight pose a significant risk to dispersing Hedgehogs, especially if the trench fills with water. If trenches cannot be covered overnight, a means of escape needs to be provided. This can be achieved by placing roughened planks or similar structures as ramps in the trenches to allow Hedgehogs and other small animals to climb out safely.

5.3.32. Retention and enhancement of Willow scrub to the south will ensure pathways are present post-development. Any new fencing on site could include Hedgehog gateways (13cm x 13cm) gaps at the base to facilitate passage of the species. This will allow for continued dispersal of Hedgehog across and site and between on-site and off-site habitats.

Other Mammals

5.3.33. **Legislation.** Common mammals receive protection under the Wild Mammals (Protection) Act 1996 making it an offence to crush or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

- 5.3.34. This also extends to the Animal Welfare Act 2006 making it an offence to cause unnecessary suffering or fail to meet the needs of vertebrates in the temporary control of man.
- 5.3.35. **Site Usage.** The site provides some limited suitable opportunities for small common mammal species, although it is unlikely any notable species would be reliably utilising the site considering the presence of past and present industrial disturbances.
- 5.3.36. **Mitigation and Enhancements.** General regard to mammals following standard practise to avoid unnecessary harm and distress when undertaking site clearance works. Any common mammals found, which are not in distress, will be encouraged to disperse to the wider area where suitable habitat is present outside of work zones (same methodology as Hedgehogs).
- 5.3.37. Retention and enhancement of Willow scrub to the south will ensure refuge, foraging and commuting opportunities remain post-development.

Birds

- 5.3.38. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, whilst Schedule 1 lists species that are protected by special penalties. All species of birds receive general protection whilst nesting.
- 5.3.39. **Site Usage.** Most of the vegetated portion of the site is made up of other neutral grassland, modified grassland, mixed scrub and Willow scrub which offers suitability for providing foraging and nesting opportunities for a range of common and widespread bird species.
- 5.3.40. **Mitigation and Enhancements.** In order to avoid impacts on nesting birds, and to avoid a potential offence under the Wildlife and Countryside Act 1981 (as amended), clearance of vegetation that is suitable for nesting birds should be undertaken outside of the nesting season (typically March to August inclusive) wherever possible. Where this cannot be achieved, a nest-check survey for birds should be undertaken by a SQE 24-48 hours prior to vegetation removal. If any nests are confirmed, works should cease immediately, with the nest safeguarded by a 5m buffer and left in situ until the young have fledged.
- 5.3.41. As additional enhancements, bird boxes are recommended to be integrated onto off-site retained trees, where appropriate, to support nest building and roosting opportunities. Boxes should target common and widespread bird species.
- 5.3.42. The variety of designs including the Vivara Pro Seville Woodstone, Schwegler 1B and 2H bird boxes will encourage nest building from a wider range of species (see Appendix 5). Bird boxes affixed to retained trees should be installed at between 3-5m from the ground free from obstacles in semi-shaded locations facing north.
- 5.3.43. Management of the Willow scrub should ensure no adverse encroachment occurs and that suitable feeding opportunities remain. The planting of new native trees, hedgerows, mixed scrub and wildflower grassland habitats will also

ensure new nesting and foraging opportunities are present for local bird species. The provision of plant species which are fruit and nut bearing will bolster foraging resources for the site for local bird species.

Reptiles

5.3.44. **Legislation.** All six British reptile species receive a degree of legislative protection that varies depending on their conservation importance.

5.3.45. Rare, endangered or declining species receive 'full protection' under the Wildlife and Countryside Act 1981 (as amended) as well as protection under the Conservation of Habitats and Species Regulations 2017 (as amended). Species that are fully protected are Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis*. These receive the following protection from:

- Killing, injuring and taking;
- Possession or control (of live or dead animals, their parts or derivatives);
- Damage to, destruction of and obstruction of access to any structure or place used for shelter or protection;
- Disturbance of any animal occupying such a structure or place; and
- Selling, offering for sale, possession or transport for purposes of sale (live or dead animal, part or derivative).

5.3.46. Owing to their abundance in Britain, Common Lizard, Slow Worm, Grass Snake and Adder *Vipera berus* are only 'partially protected' under the Wildlife and Countryside Act 1981 (as amended) and as such only receive protection from:

- Deliberate killing and injuring; and
- Being sold or other forms of trading.

5.3.47. Therefore, if reptiles are present within a site, a scheme of translocation can be implemented to avoid the offence of killing / injury.

5.3.48. **Site Usage.** Seven presence / absence reptile surveys were conducted between June and September 2025. These survey results returned no evidence or observations of reptiles. Combined with the lack of records returned by data search, it is considered unlikely this group would be present on site.

5.3.49. **Mitigation and Enhancements.** Retention of mixed scrub to the northwest and newly created wildflower grassland and mixed scrub will ensure continued opportunities for commuting.

5.3.50. In addition, the provision of log piles and hibernacula should be installed in semi-discreet locations on site providing new refuge and basking opportunities for reptiles.

Amphibians (Great Crested Newts)

5.3.51. **Legislation.** Great Crested Newts are subject to the same legislative protection and licensing provisions as bats (see above).

- 5.3.52. Other species of amphibian including the Common Toad, Common Frog, Palmate Newt *Lissotriton helveticus* and Smooth Newt are all afforded protection against sale only under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Common Toad are further protected under Section 41 of the NERC Act 2006 (as amended). Where significantly large populations of Common Toad are identified at a site, their presence could be deemed as a 'material consideration' by planning authorities in accordance with National Planning Policy Framework (NPPF) and their listing on the UKBAP and measures to protect them are recommended.
- 5.3.53. **Site Usage.** The site is considered to offer limited opportunities for Great Crested Newt and other amphibians owing to the industrial setting of the site and previous history of disturbance restricting. Local records of Great Crested Newts also occur beyond 500m of the site, beyond their normal dispersal range further exacerbated by the presence of industrial dispersal barriers.
- 5.3.54. Furthermore, negative eDNA results for Great Crested Newt presence were returned for the two waterbodies surveyed.
- 5.3.55. It is considered unlikely that Great Crested Newts are present on site.
- 5.3.56. **Mitigation and Enhancements.** New landscaping will provide new wildflower grassland and mixed scrub which will be sensitively managed for wildlife and provide refuge and connective habitat for any locally present amphibians. Off-site connectivity will remain allowing amphibians to traverse the site and wider landscape.
- 5.3.57. In addition, the provision of log piles and hibernacula should be installed in semi-discreet locations on site providing new refuge and basking opportunities for reptiles.

Invertebrates

- 5.3.58. **Site Usage.** It is expected that an assemblage of common invertebrate species utilises the on-site habitats. A map review from the Buglife GIS Data Hub indicates that the site is situated within the 3km-wide B-Line insect pathways indicating the wider locality provides suitability for notable species, further evidenced by local records from the Biobank data search.
- 5.3.59. The previous disturbance of the site and periphery vegetation are likely to result in limited opportunities for invertebrates. Plus, the plant communities recorded on-site aren't considered to have fully established due to past disturbance works (as described in paragraph 5.2.23). Therefore, no further surveys were considered for this species group.
- 5.3.60. **Mitigation and Enhancements.** The Proposed Development will retain the existing mixed scrub and enhance Willow scrub to the south. This would provide increased suitability and promote any locally present notable species to utilise the site.
- 5.3.61. The planting of new native hedgerows, native trees, mixed scrub and wildflower grassland will provide further foraging and refuge opportunities in line with the

B-Line invertebrate highway, which will in turn support other wildlife, for example, foraging bats.

- 5.3.62. Additional enhancements should be provided through the installation of insect nesting aids of varying models post-development. This would provide suitable refuge opportunities for solitary bees and butterflies. Log piles are also of benefit to saproxylic species.

6. Planning Policy Context

- 6.1. The planning policy framework that relates to nature conservation at the site, is issued at two main administrative levels: nationally through the NPPF and locally through the Knowsley Local Plan. The proposed development will be judged in relation to the policies contained within these documents that concern nature conservation.

6.2. National Policy

National Planning Policy Framework (February 2025)

- 6.2.1. Guidance on national policy for biodiversity is provided by the NPPF, published in March 2012, revised on 24 July 2018, 19 February 2019, 20 July 2021, in December 2024 and most recently in February 2025. It is noted that the NPPF continues to refer to further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system provided by Circular 06/05 (DEFRA / ODPM, 2005) accompanying the now-defunct Planning Policy Statement 9 (PPS9).
- 6.2.2. The key element of the NPPF is that there should be "a presumption in favour of sustainable development" (paragraphs 10 to 11). It is important to note that this presumption "does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site" (paragraph 195). 'Habitats site' has the same meaning as the term 'European site' as used in the Habitats Regulations 2017.
- 6.2.3. Hence the direction of Government policy is clear; that is, the presumption in favour of sustainable development is to apply in circumstances where there is potential for an effect on a European site, if it has been shown that there will be no adverse effect on that designated site as a result of the development in prospect.
- 6.2.4. A number of policies in the NPPF are comparable to those in PPS9, including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 193).
- 6.2.5. The NPPF also considers the strategic approach that Local Authorities should adopt with regard to the protection, maintenance and enhancement of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.
- 6.2.6. Paragraphs 192 to 194 of the NPPF comprise a number of principles that Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments; provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for; applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites; and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats – unless there are 'wholly exceptional reasons' (for

instance, infrastructure projects where the public benefit would clearly outweigh the loss or deterioration of habitat) and a suitable compensation strategy exists.

- 6.2.7. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

6.3. Local Policy

Knowsley Local Plan Core Strategy (adopted January 2016)

- 6.3.1. The Knowsley Local Plan, sets out the objectives and policies for new developments within Knowsley until the year 2028. Relevant policies from this document are detailed individually below.
- 6.3.2. **Policy SD1 Sustainable Development** states development proposals, when under consideration, should reflect an approach in favour of sustainable development contained in the NPPF. All parties involved must find solutions where possible that secure development that improves the environmental conditions in the area.
- 6.3.3. **Policy CS2 Development Principle 4** recognises the importance of protecting and enhancing environmental assets, environmental limits, and to promote quality of place by:
- a) Maintaining or enhancing the quantity and quality of biodiversity and habitats, including potential impacts on nationally and international important sites for biodiversity.
- 6.3.4. **Policy CS2 Development Principle 5** highlights the need for ensuring environmental protection through the phasing of new development and delivery of supporting infrastructure. Developments should support prudent and efficient management of natural and man-made resources and promote sustainable construction and efficiency in resource use.
- 6.3.5. **Policy CS8 Green Infrastructure** summarises how green infrastructure should be maximised within the borough and its surrounding areas managed to benefit the natural environment and safeguard landscape and vital ecosystem services. The policy promotes the effective movement of wildlife through a network of strategic green links, by protecting, maintaining and improving existing and new open spaces, water courses (including water quality) and biodiversity assets. In addition, the biodiversity of any given area will be further protected, enhanced and / or introduced into existing Green Infrastructure, through integration into the design of new development.
- 6.3.6. It includes working in partnership with other districts and relevant bodies at a landscape scale to minimise the impact of development upon Knowsley's existing biodiversity to sustain the protection afforded to internationally important sites and to provide adequate mitigation and / or compensate for Green Infrastructure loss or biodiversity loss, in circumstances where harm resulting from the development is otherwise unavoidable.

- 6.3.7. The Council's encouragement for Green Infrastructure is further supported by the national guidance¹⁹ which recognises the need to maintain and enhance the green and blue spaces. Such actions help to mitigate climate change, promote biodiversity and prevent flooding.
- 6.3.8. The key priorities for natural assets in the Liverpool City Region are to manage and enhance, and ensure there are no net loss of these assets. The Council will not support schemes where adverse effects on nationally or internationally important wildlife sites are foreseen, either alone or in combination with other projects and plants.
- 6.3.9. **Policy CS21 Greenspaces and Trees** This policy summarises how an appropriate quantity of diverse high quality greenspaces play an important role in the protection of the environment providing new opportunities for wildlife and people. The council will support the following implementations with regards to new greenspace:
- a) Greenspace protection;
 - b) Local Greenspace Standards;
 - c) Accessible and Quality Greenspaces; and
 - d) Enhancement of natural and semi-natural greenspace and tree protection.
- 6.3.10. **Policy CS24 Managing Flood Risk** focuses on comprehensive flood risk management, encompassing flood risk assessments, Sustainable Drainage Systems (SuDS), and considerations for climate change. Proposals should demonstrate measures to minimise flood risk and prioritise flood-resistant and resilient designs. The policy emphasises the importance of SuDS to ensure sites manage surface water runoff.
- Other Guidance – Liverpool City Region Combined Authority Local Nature Recovery Strategy (Draft version - April 2025)*
- 6.3.11. LNRs are a new spatial strategy for nature and are required by the Environment Act 2021, in recognition of the significant global decline in biodiversity and nature.
- 6.3.12. The purpose of the strategy is to locally-agree a shortlist of priorities (aims) and measures (practical actions) for nature's recovery and the wider environment, identify a shortlist of species requiring bespoke support, and to map where best to take action.

¹⁹ World Class Places: The Government's Strategy for Improving Quality of Place (DCLG, 2009), available online at <http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/planningandbuilding/pdf/1229344.pdf>

- 6.3.13. Although a draft version of the LCRCA LNRS was published for public consultation in April 2025, the final version is not expected to be published until Spring 2026.

6.4. **Environmental Act 2021**

- 6.4.1. The Act details a legal requirement for all developments to ensure that a minimum of 10% net gain in Biodiversity is delivered. As of 12th February 2024, Biodiversity Net Gain is a mandatory requirement for new developments and has been adopted as a regulation by the Secretary of State.

6.5. **Discussion**

- 6.5.1. The development of the site is not likely to have a significant adverse effect on designated sites in the locality. There is scope within the proposals to deliver the appropriate ecological mitigation and enhancements to support local wildlife and biodiversity. Following the recommendations and enhancements within this report, it is currently considered that development of the site would be in accordance with relevant planning policy at the national and local level.

7. Summary and Conclusions

- 7.1. Ecology Solutions was originally commissioned by NW1 IOS 3 Unit Trust, in May 2025 to produce an Ecological Assessment of a parcel of land within Knowsley Industrial Park, Liverpool, hereafter known as 'the site'.
- 7.2. Updates to the Ecological Assessment were made in March 2026 to reflect changes to the red line boundary, landscaping and include survey results of a recent survey to check location and status of an off-site ditch (D1) to the south. In addition, the Ecological Assessment was updated to reflect the habitat degradation rule.
- 7.3. The Proposed Development is for open storage (Class B8), provision of new hardstanding, and all other associated works.
- 7.4. An NVC survey by Chesire Ecology (on behalf of Ecology Solutions) was undertaken in June 2025. Ecology Solutions subsequently undertook reptile surveys and site checks between June and September 2025.
- 7.5. **Statutory Sites.** There are no statutory designated sites within or directly adjacent to the site boundary.
- 7.6. The closest statutory designated sites are Acornfield Plantation, situated 1km northwest of the site and Croxeth Park, located 3km southwest. Both have LNR and LWS status.
- 7.7. It is considered that there would be no direct impact on statutory sites in close proximity to the site and any potential indirect impacts can be mitigated through the adherence of a CEMP. No further impacts on statutory sites are expected if the site were to be developed.
- 7.8. **Non-statutory Sites.** Otis Park LWS is the closest non-statutory site to the development site as it is immediately adjacent to the western boundary. Acornfield Plantation and Croxeth Park are also designated as LWS.
- 7.9. A comprehensive CEMP shall be drafted and employed to safeguard ecology receptors, notably the adjacent Otis Meadow during site preparation and construction works on nearby statutory and non-statutory sites.
- 7.10. **Habitats.** It is important to note the site has been subject to varying levels of past disturbance attributed to construction works for the adjacent northern development, resulting in habitats being largely fragmented or damaged with large areas of bare ground and garden waste/fly tipping.
- 7.11. The lack of plant community variation within 0.25ha means the site does not qualify for OMHPDL.
- 7.12. The landscape strategy will create new habitats including native shrub planting, three species-rich native hedgerows, native trees and wildflower grassland. Areas of mixed scrub to the northwest will be retained alongside enhancement of existing Willow scrub along the southern site boundary.
- 7.13. **Invasive Non-Native Species.** If in the event INNS are identified within or immediately adjacent to the site during the demolition and construction works, INNS will be treated

with caution and will be removed (with suitable barriers installed where necessary) and disposed at appropriate licensed waste facilities.

- 7.14. **Badger.** No active Badger setts or field signs were recorded on the site during the surveys. A lack of nearby background records for this species contribute to the unlikelihood of Badger being present on site. However, owing to the dynamic nature of this species it cannot be ruled out that this species may become present on site at a later date.
- 7.15. It is recommended that a Badger sett check is carried out prior to the commencement of any future development as a precaution to ensure that no new setts have been excavated since the surveys.
- 7.16. **Bats.** Based on current proposal plans, the off-site tree is not anticipated to be removed. Nonetheless any proposed lighting along the southern boundary should be considerate of the off-site tree to ensure no adverse light spill and suitable lux levels (maximum 1 lux) are implemented.
- 7.17. Foraging and dispersal suitability is considered reduced due to the following factors. The site was noted during NVC survey as being heavily damaged in the past by the adjacent development to the north, where habitats have been altered or removed completely reducing their value and extent. The site is also located in a heavily active industrial area with lighting and noise from the north and south likely creating light spill onto tree lines and ditch reducing suitability. In addition, corridors to off-site habitats particularly to the south are in the vicinity of active businesses and busy roads (A580) likely impacting suitability. No further surveys were scheduled in regard to this species group.
- 7.18. Any development should adhere to the Bat Conservation Trust and Institute of Lighting Professionals (ILP) Guidance Note 08/23 Bats and Artificial Lighting at Night to limit light spill along the western boundary with Otis Meadow and onto the retained treelines and ditch.
- 7.19. To provide additional roosting opportunities on-site, bat boxes of varying designs should be considered, especially on off-site retained trees in the wider study area to the east. Bat boxes should be positioned ideally 3-5 meters above the ground, to provide clear access and protection from predators. The box should be mounted on a sheltered wall or pole, facing between southwards, and should have a clear flight path for bats to approach/leave.
- 7.20. **Hedgehog.** While no evidence was recorded while undertaking site surveys in 2025, it is considered that the habitats including the grassland and scrub may provide opportunities for the foraging especially in denser areas of scrub where refuge areas may also be present. The presence of Hedgehogs cannot be ruled out.
- 7.21. Retention of boundary habitats should be considered ensuring pathways are present post-development. Any new fencing on site could include Hedgehog gateways (13cm x 13cm) gaps at the base to facilitate passage of the species.
- 7.22. **Other Mammals.** The site provides some limited suitable opportunities for common mammal species, although it is unlikely any notable species would be reliably utilising the site considering the presence of past and present industrial disturbances.

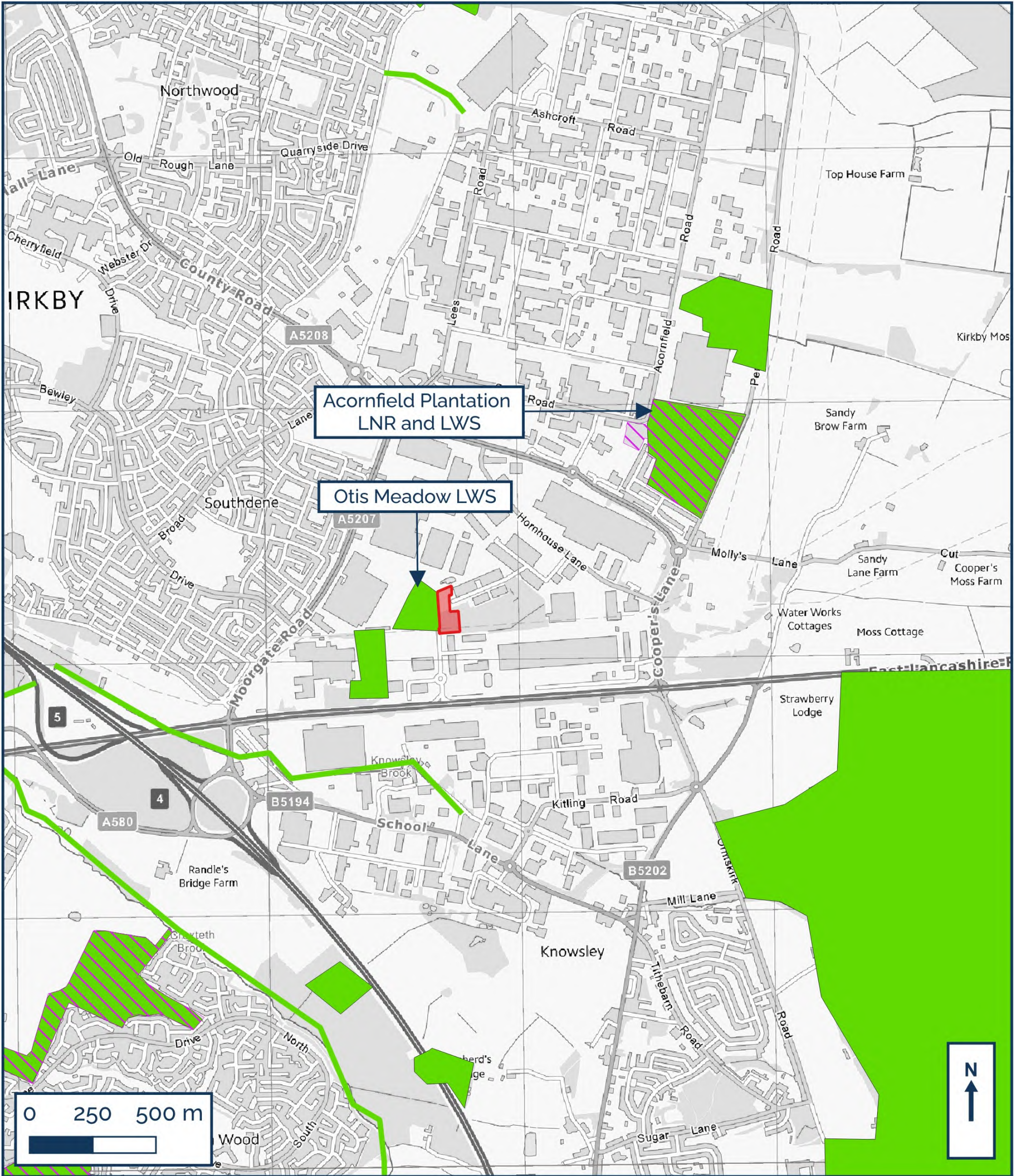
- 7.23. General regard to mammals following standard practise to avoid unnecessary harm and distress when undertaking site clearance works. Any common mammals found, which are not in distress, will be encouraged to disperse to the wider area where suitable habitat is present outside of work zones (same methodology as Hedgehogs).
- 7.24. **Birds.** Most of the site is made up of neutral grassland, mixed scrub and willow scrub which offers suitability for providing foraging and nesting opportunities for a range of common and widespread bird species.
- 7.25. To avoid impacts on nesting birds, and to avoid a potential offence under the Wildlife and Countryside Act 1981 (as amended), clearance of vegetation that is suitable for nesting birds should be undertaken outside of the nesting season (typically March to August inclusive) wherever possible. Where this cannot be achieved, a nest-check survey for birds should be undertaken by a SQE 24-48 hours prior to vegetation removal. If any nests are confirmed, works should cease immediately, with the nest safeguarded by a 5m buffer and left in situ until the young have fully fledged.
- 7.26. As additional enhancements, a variety of designs including the Vivara Pro Seville Woodstone, Schwegler 1B and 2H bird boxes will encourage nest building from a wider range of species (see Appendix 5). Bird boxes affixed to retained trees should be installed at between 3-5m from the ground free from obstacles in semi-shaded locations facing north.
- 7.27. **Reptiles.** Seven presence / absence reptile surveys were conducted between June and September 2025. These survey results returned no evidence or observations of reptiles. Combined with the lack of records returned by data search, it is considered unlikely this group would be present on site.
- 7.28. **Amphibians (Great Crested Newts).** The site is considered to offer limited opportunities for Great Crested Newt and other amphibians owing to the industrial setting of the site and previous history of disturbance restricting. Local records of Great Crested Newts also occur beyond 500m of the site, beyond their normal dispersal range further exacerbated by the presence of industrial dispersal barriers. Furthermore, negative eDNA results for Great Crested Newt presence were returned for the two waterbodies surveyed. It is considered unlikely that Great Crested Newts are present on site.
- 7.29. **Invertebrates.** The previous disturbance of the site and periphery vegetation are likely to result in limited opportunities for invertebrates. Plus, the plant communities recorded on-site aren't considered to have fully established due to past disturbance works (as described in paragraph 5.2.23). Therefore, no further surveys were considered for this species group.
- 7.30. The planting of new native hedgerows, native trees, mixed scrub and wildflower grassland will provide further foraging and refuge opportunities in line with the B-Line invertebrate highway, which will in turn support other wildlife, for example, foraging bats.
- 7.31. Additional enhancements should be provided through the installation of insect nesting aids of varying models post-development. This would provide suitable refuge opportunities for solitary bees and butterflies. Log piles are also of benefit to saproxylic species.

- 7.32. It is considered that, with the adoption of the safeguards and enhancements detailed within this report, adverse effects can be avoided and adequately mitigated. The retention and enhancement of existing habitats will help to increase suitability for local wildlife. Overall, the site and any proposed development would be considered compliant with local and national planning policy.

Plans

PLAN ECO1

Site Location and Ecological Designations



KEY:

- SITE BOUNDARY
- LOCAL NATURE RESERVES (LNR)
- LOCAL WILDLIFE SITES (LWS)



Cokenach Estate,
Barkway, Royston
Hertfordshire, SG8 8DL
info@ecologysolutions.co.uk

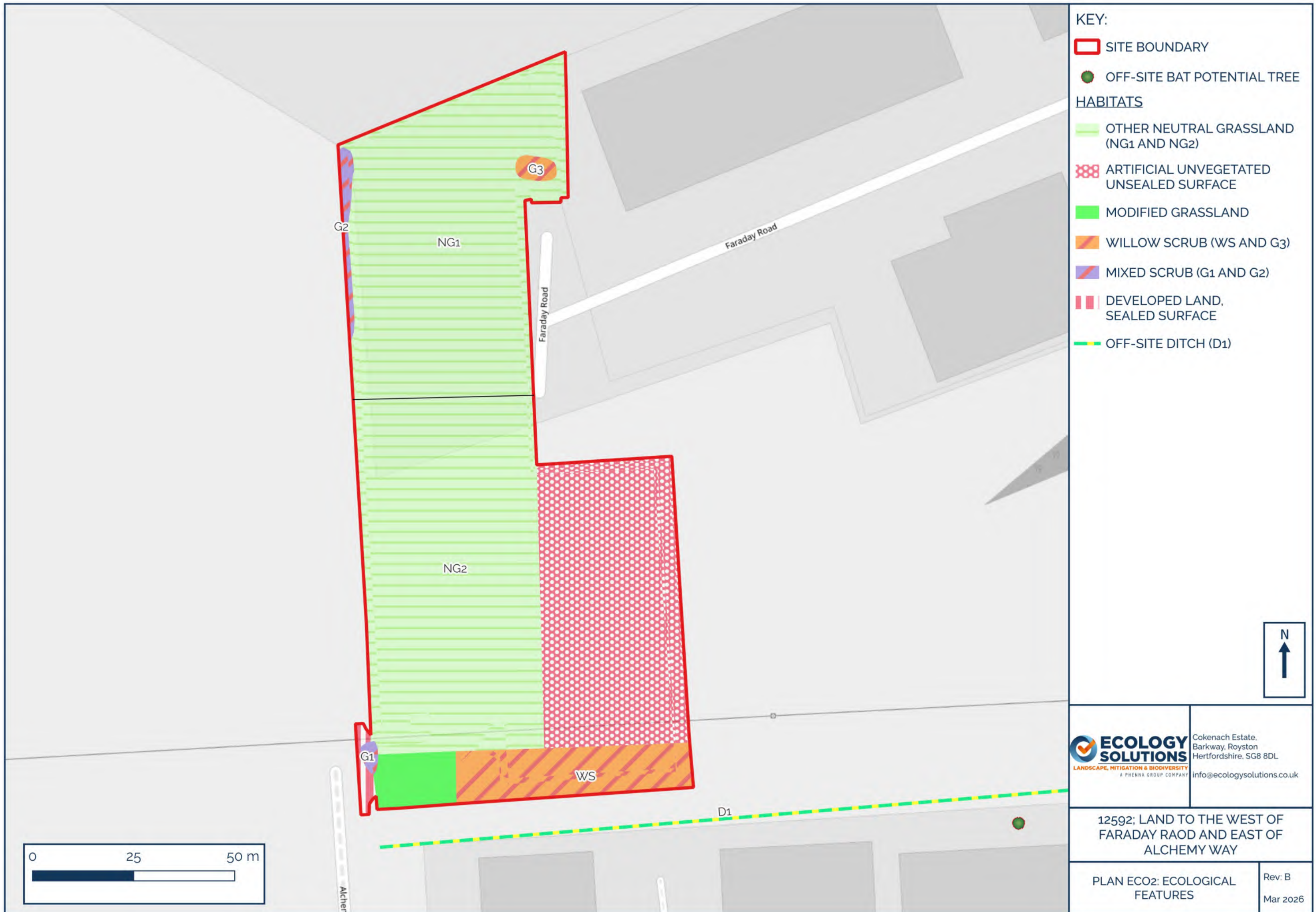
12592: LAND TO THE WEST OF FARADAY
ROAD AND EAST OF ALCHEMY WAY

PLAN ECO1: SITE LOCATION AND
ECOLOGICAL DESIGNATIONS

Rev: C
Mar 2026

PLAN ECO₂

Ecological Features



PLAN ECO₃

Reptile Refugia Distribution

Based upon the Ordnance Survey map with permission of the Controller of His Majesty's Stationery Office, © Crown Copyright. Ecology Solutions Ltd. Cokenach Estate, Parkway, Royston, Hertfordshire, SG8 8DL. 100044628

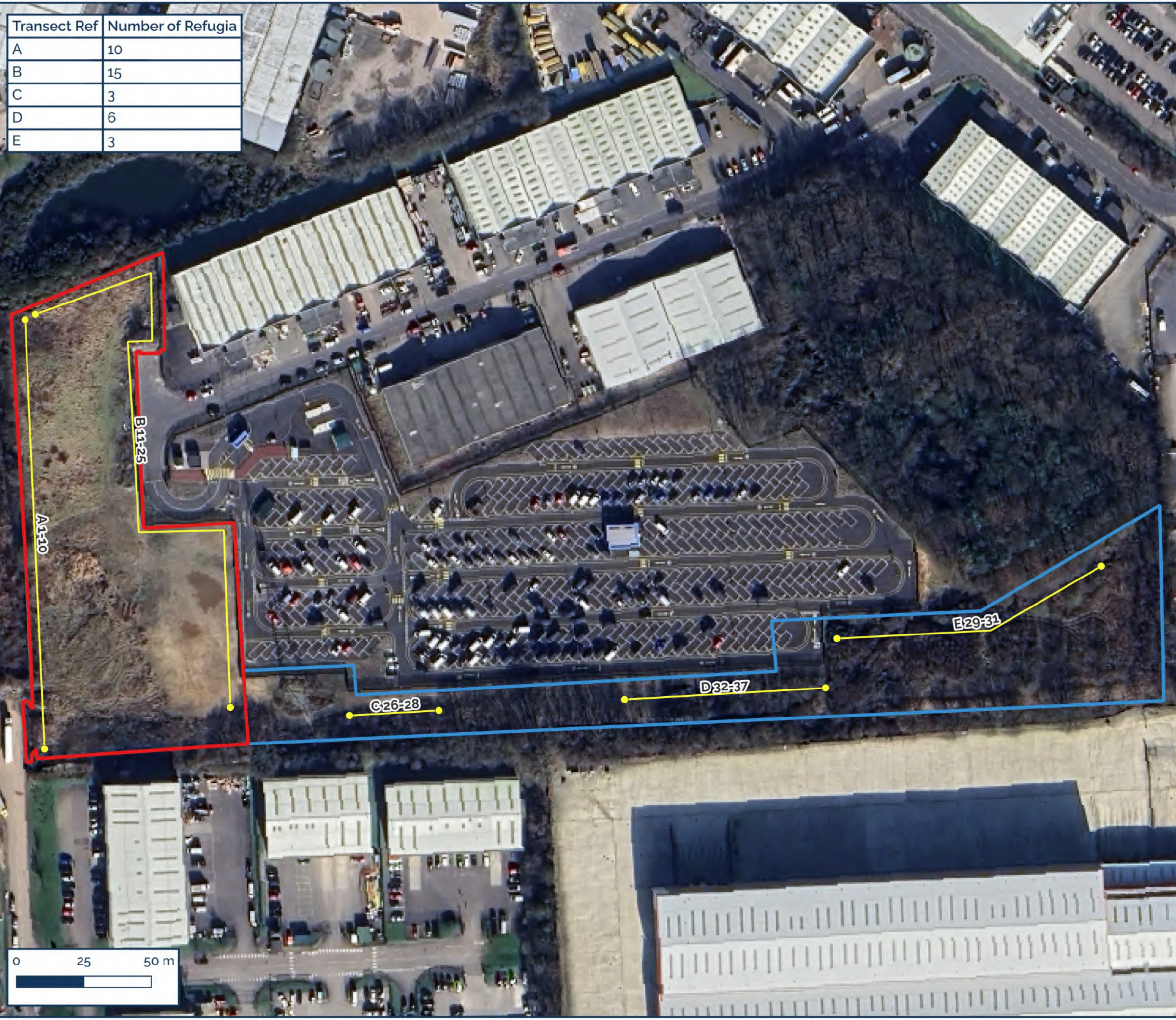
Transect Ref	Number of Refugia
A	10
B	15
C	3
D	6
E	3

KEY:

SITE BOUNDARY

WIDER STUDY AREA

REPTILE REFUGIA TRANSECTS



**ECOLOGY SOLUTIONS**
LANDSCAPE, MITIGATION & BIODIVERSITY
A PHENNA GROUP COMPANY

Cokenach Estate,
Parkway, Royston
Hertfordshire, SG8 8DL
info@ecologysolutions.co.uk

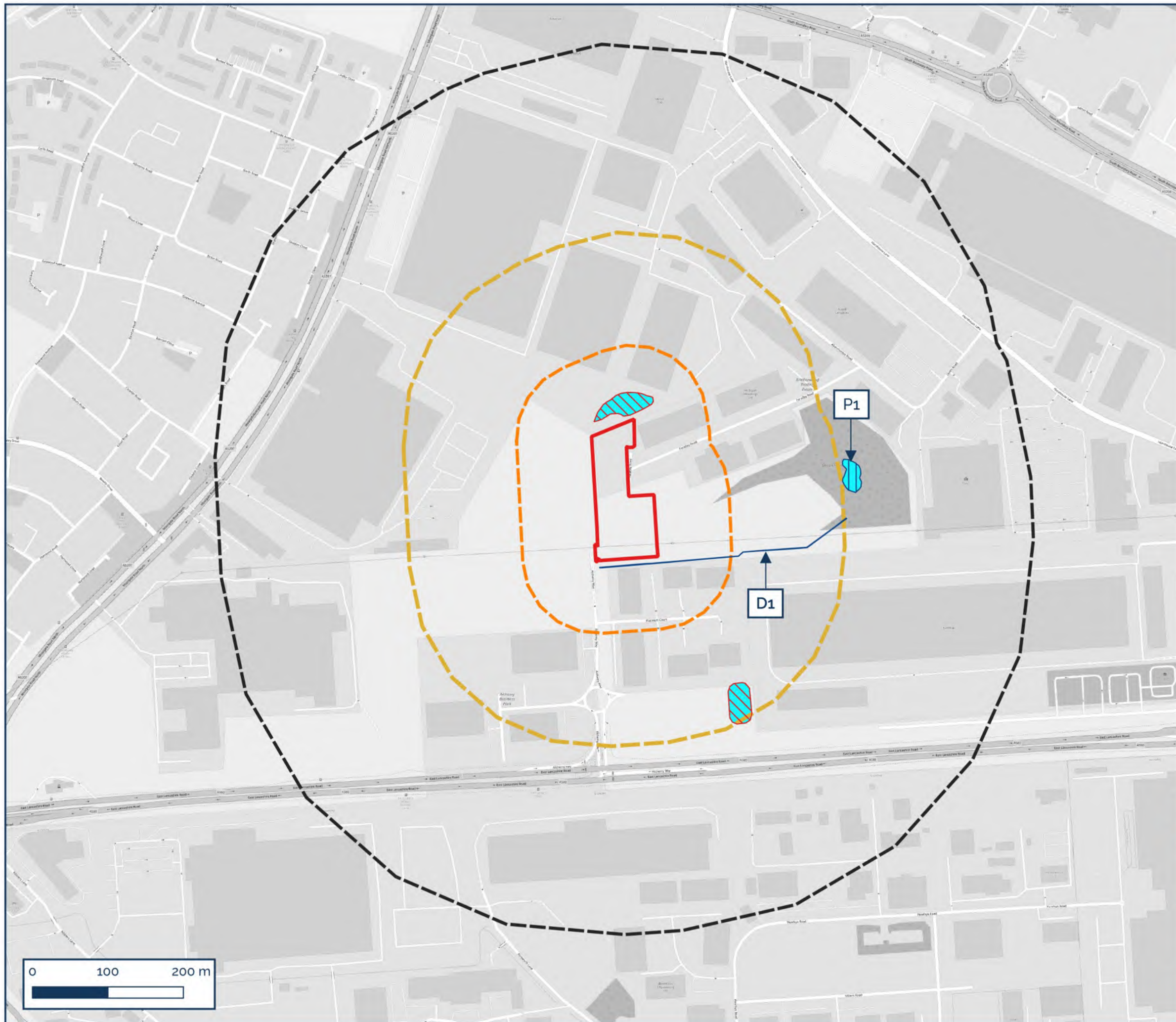
12592; LAND TO THE WEST OF FARADAY ROAD AND EAST OF ALCHEMY WAY

PLAN ECO3: REPTILE REFUGIA DISTRIBUTION

Rev: B
Mar 2026

PLAN ECO4

Waterbodies Surveyed for Great Crested Newt
eDNA



KEY:

- SITE BOUNDARY
- WATERBODIES
- NEGATIVE eDNA RESULTS
- NO ACCESS - NOT SURVEYED
- GREAT CRESTED NEWT DISPERSAL RANGES**
- 100M BUFFER
- 250M BUFFER
- 500M BUFFER

Refer to Appendices for further information on eDNA results.



Cokenach Estate,
Barkway, Royston
Hertfordshire, SG8 8DL
info@ecologysolutions.co.uk

12592: LAND TO THE WEST OF FARADAY ROAD AND EAST OF ALCHEMY WAY

PLAN ECO4: WATERBODIES
SURVEYED FOR GREAT CRESTED
NEWT eDNA

Rev: B
Mar 2026

Photographs

PHOTOGRAPH 1: Willow Scrub



PHOTOGRAPH 2: Artificial unvegetated unsealed surface in front of pylon



PHOTOGRAPH 3: *Arrhenatherum* neutral grassland



PHOTOGRAPH 4: Modified grassland



PHOTOGRAPH 5: Off-site Ditch



PHOTOGRAPH 6: Bat Potential Tree



Appendices

Appendix 1

National Vegetation Classification Survey Report (Cheshire Ecology)



**LAND OFF FARADAY ROAD
KNOWSLEY INDUSTRIAL ESTATE
NVC SURVEY**

Stapeley House
London Road
Stapeley
Nantwich
Cheshire
CW5 7JW

www.cheshireecology.com
01270 611125

EXECUTIVE SUMMARY

Ecology Solutions Ltd., has been commissioned to carry out a National Vegetation Classification (NVC) survey of a plot of land near Faraday Road, Knowsley Industrial Estate, Liverpool L33 7XN.

The site is bounded to the north by industrial units in Faraday Road, to the east by a Makro warehouse, to the south by Platinum Court and the Titan Building, and the west by an agricultural field. The site lies at an altitude of 30m AOD.

A National Vegetation Classification (NVC) Survey was carried out using the methodology outlined in Rodwell (2006). The survey was carried out by Dr Martin Page MCIEEM.

This has proved to be a difficult site to survey using the NVC methodology. One of the main requirements of this classification system is that the vegetation must be homogeneous, and the results will be invalid if this requirement is ignored. Unfortunately, the site has been badly damaged by earlier construction activities and most of the remaining vegetation is fragmentary or damaged.

The MG1 grassland is the only vegetation at the site that has remained relatively undamaged. The relevés have high coefficients of similarity. None of the other vegetation has similar coefficients, mainly because the vegetation has been altered in some way or is species poor.

The previous consultants recommended that the site should have an NVC survey. Unfortunately, the site isn't really suitable for this type of survey.

A site must satisfy a number of preconditions before an NVC survey can be carried out successfully.

- The site must be large enough to allow a sufficient number of relevés to be recorded that will characterise the site.
- The vegetation must be homogeneous.

The site does not satisfy these conditions and what remains has been damaged.

1	INTRODUCTION	5
2	METHODS.....	7
3	RESULTS	9
4	CONCLUSIONS.....	11
5	RECOMMENDATIONS.....	12
6	REFERENCES	13

APPENDICES

APPENDIX A: PHOTOGRAPHS.....	14
APPENDIX B: GLOSSARY OF TERMS	17
APPENDIX C: RELEVÉ DATA.....	19

PHOTOGRAPHS

Photograph 1: The site is covered by MG1 <i>Arrhenatherum elatius</i> false oat grassland.	14
Photograph 2: Large amounts of dotted loosestrife <i>Lysimachia punctata</i> and ground elder <i>Aegopodium podagraria</i> have been dumped at the site. Both of these are alien species (the latter is considered to be an archaeophyte).	14
Photograph 3: There is a small area of species rich grassland in the south west corner. This has occasional plants of yellowwort.	15
Photograph 4: The wet areas of the site are being colonised by grey willow and osier.	15
Photograph 5: The tussocky grassland is already being colonised by brambles and sloe.	16
Photograph 6: Pedunculate oak saplings are quite common.....	16

FIGURES AND PLANS

Figure 1: Site location.

1 INTRODUCTION

- 1.1.1 Ecology Solutions Ltd., has been commissioned to carry out a National Vegetation Classification (NVC) survey of a plot of land near Faraday Road, Knowsley Industrial Estate, Liverpool L33 7XN.
- 1.1.2 The site is bounded to the north by industrial units in Faraday Road, to the east by a Makro warehouse, to the south by Platinum Court and the Titan Building, and to the west by an agricultural field. The site lies at an altitude of 30m AOD.

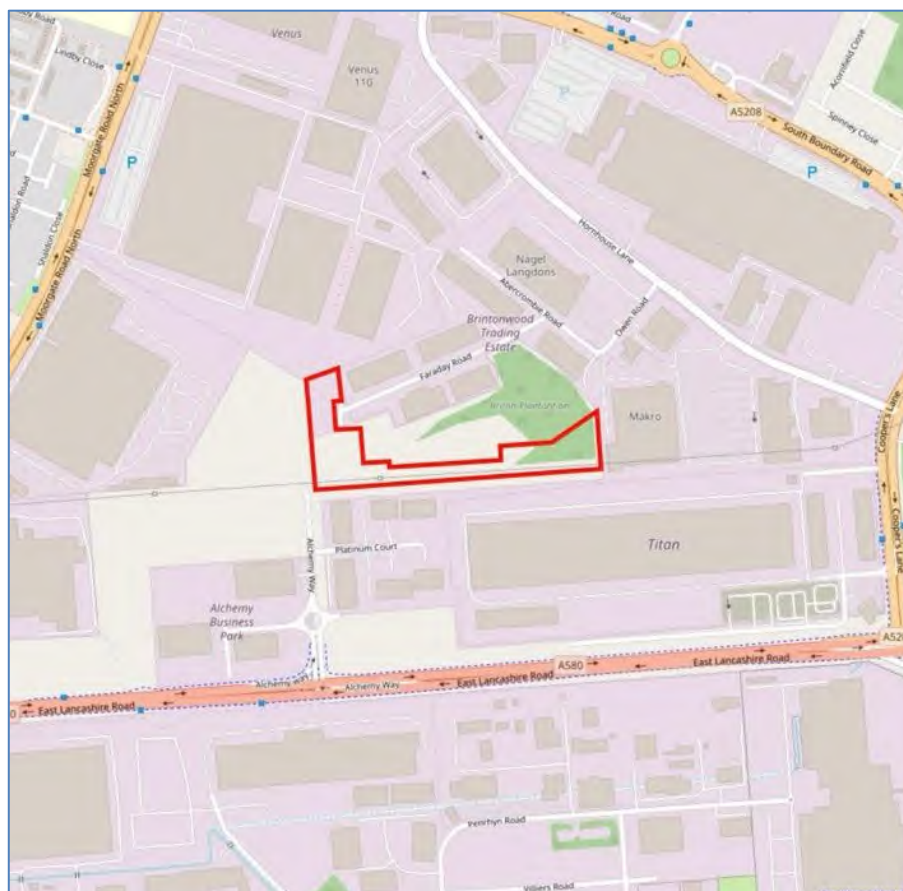


Fig 1: Site location

1.2 Context

- 1.2.1 Late 19th century 25-inch Ordnance Survey maps show that the site was originally an agricultural field, with a railway line crossing from north to south. There was a small ditch in the extreme north western corner and another running along the southern boundary. An area of woodland, known as 'Briton Plantation', lay to the east. The railway line has since been removed and a large area of car parking has been built to the north of the site.

- 1.2.2 Aerial photography shows that the site was badly disturbed when the adjacent car park was built. A well-used track can be seen between Alchemy Way and the car park and a large area to the west was heavily impacted.

2 METHODS

- 2.1.1 A National Vegetation Classification (NVC) Survey was carried out using the methodology outlined in Rodwell (2006). The survey was carried out by Dr Martin Page MCIEEM.
- 2.1.2 Martin studied the plant ecology of mesotrophic grasslands for his PhD and contributed data to the NVC. He was responsible for analysing the NVC's data from mesotrophic grasslands. Martin was a botanist with the 2007 Countryside Survey and has worked as a consultant ecologist for the last eighteen years.
- 2.1.3 The location of each relevé¹ was recorded using a Garmin GPSMAP 64SX. A ten figure Ordnance Survey grid reference was recorded for each relevé.
- 2.1.4 Locations were chosen to provide an overview of the vegetation at the site, with additional samples taken in areas with distinct vegetation. All samples were randomly selected within stands of vegetation. One of the guiding principles of phytosociology is that the vegetation in the relevé must be homogeneous. Heterogeneous samples are normally discarded.
- 2.1.5 The data was analysed using a combination of experience, the keys in Rodwell (1991a, 1991b, 1992, 1995 and 2000) and confirmed using the computer program TABLEFIT (Hill, 2011). TABLEFIT is a useful tool, but it must be used with caution. The software is a rather a blunt instrument and can allocate relevés to the incorrect plant community.
- 2.1.6 The total cover of each species was recorded using the Domin scale (Dahle and Hadac, 1941) and tabulated in a Microsoft Excel spreadsheet (see Appendix C). Species that were absent from within the relevé but present within the same stand of vegetation were recorded with a +. This information is not used in analysis but can be useful for allocating species-poor or heterogeneous samples.
- 2.1.7 Plant communities are normally defined by the fidelity of different species to each plant community (see below). Constancy classes can only be calculated where there are five or more relevés of the same plant community available. Where there are less than five relevés the constancy of species is shown as Arabic numerals, rather than Latin.

Constancy class	Fidelity to plant community
V	1-20%
IV	21-40%
III	41-60%
II	61-80%
I	81-100%

¹ The NVC uses the term relevé, rather than quadrat. The term is taken from the European School of Phytosociology. It provides a lot information than a quadrat.

- 2.1.8 The names of higher plants follow the Fourth Edition of the *New Flora of the British Isles* (Stace, 2019). The names of the NVC plant communities follow Rodwell (1991a, 1991b, 1992, 1995 and 2000). Bryophyte names follow Smith (2003) and Paton (1999).

2.2 Limitations

- 2.2.1 The site has been badly damaged by the development of the adjacent land. Much of the vegetation on the southern part of the site is heterogeneous and could not be surveyed using the NVC standard methodology (Rodwell, 2006).
- 2.2.2 The small area of swamp vegetation present at the site was below the Minimum Mapping Area specified for the UK Habitat Classification (UK Hab) methodology.

3 RESULTS

- 3.1.1 The following information will be used to complete the Statutory Metric, so we have listed the vegetation using the equivalent UK Hab methodology category.

f3b willow scrub

- 3.1.2 The southern part of the site is close to a ditch and the ground is quite wet. This part of the site has been colonised by grey willow *Salix cinerea* and osier *S. viminalis* scrub. The best match for this vegetation in the NVC is the W24 *Rubus fruticosus-Holcus lanatus* underscrub plant community. From, the perspective of the UK Habitat methodology, it is f3b willow scrub. Left to develop naturally it will probably develop into the W6 *Alnus glutinosa-Urtica dioica* plant community.
- 3.1.3 The dominant species in this area are currently grey willow, osier and downy birch *Betula pubescens*. The understorey has a lot of creeping bent *Agrostis stolonifera* and rough stalked meadow grass *Poa trivialis*, with smaller quantities of marsh bird's foot trefoil *Lotus uliginosus*, fleabane *Pulicaria dysenterica*, bush vetch *Vicia cracca*, nettle *Urtica dioica* and wild angelica *Angelica sylvestris*.

g3c5 Arrhenatherum elatius neutral grassland

- 3.1.4 Most of the western part of the site is covered by false oatgrass, which can be ascribed to the MG1a *Arrhenatherum elatius* false-oat grass plant community, *Festuca rubra* sub-community. This is the characteristic plant community of ungrazed grassland in the southern part of Britain. False oat grass (4) is prominent in the summer, but there are usually large amounts of cock's-foot *Dactylis glomerata* (2) and Yorkshire fog *Holcus lanatus* (3). The other constant species are red fescue *Festuca rubra* (4), hogweed *Heracleum sphondylium* (3), meadow vetchling *Lathyrus pratensis* (3) and creeping thistle *Cirsium arvense* (3).
- 3.1.5 The MG1 grassland community is widespread in mown habitats in the British Isles and will normally develop into W21 *Crataegus monogyna-Hedera helix* scrub if there no grazing. This type of grassland is common on roadside verges, in churchyards and on abandoned land earmarked for development. The grassland is usually dominated by tussock-forming grasses and has a thick litter layer. This is ideal for small mammals such as field voles and, as a result, this type of habitat is often frequented by barn owls *Tyto alba*.
- 3.1.6 This type of grassland is recognised in the UK Hab methodology as g3c5 *Arrhenatherum elatius* neutral grassland.

g4 modified grassland

- 3.1.7 This is a small area of more species rich grassland in the south-west corner of the site. Aerial photographs show that this area was greatly impacted by the previous construction work, when there was a regularly used track crossing

the site.

- 3.1.8 The regular disturbance presumably churned up the soil and contributed to it becoming waterlogged. This allowed silverweed *Poterium anserina* to colonise the land, a plant that is characteristic of wet and often disturbed grassland.
- 3.1.9 TABLEFIT has identified the vegetation as an example of the SD17a *Potentilla anserina-Carex nigra* plant community, which is characteristic of dune slacks and other seasonally inundated sites. The vegetation at Knowsley has small amounts of bird's foot trefoil *Lotus corniculatus* and yellow-wort *Blackstoniana perfoliata* growing in it. These species also occur in sand dune slacks.
- 3.1.10 The grassland includes several wetland plants such as wild angelica, ragged Robin *Lychnis flos-cuculi*, fleabane and compact rush *Juncus conglomeratus* and jointed rush *J. articulatus*.

u1c sparsely vegetated land

- 3.1.11 This is an area to the west of the new car park. The original top soil appears to have been removed and replaced with less fertile sub-soil. There is very little vegetation other than isolated plants of creeping bent *Agrostis stolonifera*.
- 3.1.12 This vegetation is an example of the OV28 *Agrostis stolonifera-Ranunculus repens* community in the NVC. It is a common and very impoverished plant community typically found on river banks and inundated arable fields. The only constant species are creeping bent and creeping buttercup.

u/1f Sparsely vegetation urban land

- 3.1.13 The site has experienced a lot of fly-tipping. This mainly consists of garden throw-outs, but the discarded material can still damage the local environment by competing with the native flora. There is a lot of ground elder *Aegopodium podagraria*. This plant is a very persistent garden weed, which is extremely difficult to eradicate once it has become established. It is not included on Schedule 9 of the Wildlife and Countryside Act 1980, but we recommend that it is removed.
- 3.1.14 This type of vegetation cannot be allocated to an NVC plant community, because that classification system only describes native vegetation. *Lysimachia punctata* is an introduced ornamental plant, widely grown in domestic gardens, and the ground elder doesn't occur with any consistency in natural plant communities. It is considered to be an archaeophyte².

² An alien species that was introduced in 'ancient' times.

4 CONCLUSIONS

- 4.1.1 The previous consultants recommended that the site should have an NVC survey. Unfortunately, the site isn't really suitable for this type of survey.
- 4.1.2 A site must satisfy a number of preconditions before an NVC survey can be carried out successfully.
- The site must be large enough to allow a sufficient number of relevés to be recorded that will characterise the site.
 - The vegetation must be homogeneous.
- 4.1.3 The site does not satisfy these conditions and what remains has been damaged.
- 4.1.4 Old Ordnance Survey maps show that the site was originally part of a much larger field. It is possible that this may have had some botanical interest in the as is shown by the presence of northern marsh orchid *Dactylorhiza purpurella*.

4.2 Comparison of the NVC and UK Hab methodologies

- 4.2.1 The results of this study are interesting because it shows the difference between the UK Hab methodology and the NVC. Using the UK Hab methodology, the vegetation in the southern part of the site is willow scrub, but with the NVC the best match is bramble scrub. This is because the UK Hab methodology classes the vegetation upon dominance and the NVC uses constancy (fidelity) to a specific plant community.
- 4.2.2 Another issue is that the remaining samples of vegetation are too small to satisfy the UK Hab's Minimum Mapping Unit (MMU) requirement (In Touch Geospatial Services, 2023). This is usually a square of 5mx5m.

4.3 Results of the NVC survey

- 4.3.1 This has proved to be a difficult site to survey using the NVC methodology. One of the main requirements of this classification system is that the vegetation must be homogeneous, and the results will be invalid if this requirement is ignored. Unfortunately, the site has been badly damaged by earlier construction activities and most of the remaining vegetation is fragmentary or damaged.
- 4.3.2 The NVC survey methodology is extremely useful if it is applied correctly. It allows the vegetation at the site to be compared with other examples from around the British Isles and its relative value to be assessed by decision makers, such as local authorities.
- 4.3.3 The MG1 *Arrhenatherum elatius* grassland is the only vegetation at the site that has remained relatively undamaged. The relevés have high coefficients of similarity. None of the other vegetation has similar coefficients, mainly because the vegetation has been altered in some way or is species poor.

5 RECOMMENDATIONS

- 5.1.1 A large proportion of the site has been disturbed by machinery and there are large areas of bare ground. The only significant area of remaining semi-natural vegetation is the MG1 *Arrhenatherum elatius* grassland. This is a widespread plant community, and many better examples exist. The remaining area is too small to manage in the correct way and it will soon be succeeded by hawthorn or blackthorn scrub.
- 5.1.2 The site has a large number of garden throw-outs, such as dotted loosestrife *Lysimachia punctata*. This is an attractive alien perennial with large panicles of bright yellow flowers. Large amounts of ground elder *Aegopodium podagraria* have also be dumped at the site. This is a very persistent and invasive weed. It is a native plant and very difficult to eradicate if it is introduced to a garden.
- 5.1.3 Dotted loosestrife is not invasive, but the ground elder is a serious and pernicious weed. It should be treated as hazardous waste and disposed of in a licensed landfill site.

6 REFERENCES

- Averis, A., Averis, B., Birks, J., Horsfield, D., Thompson, D. & Yeo, M. (2004). *An Illustrated Guide to British Upland Vegetation*. Peterborough, Joint Nature Conservation Committee (JNCC).
- Dahl, E. and Hadac, E. (1941) Strandgesellschaften der Insel Ostoy in Oslofjord. Eine pflanzensoziologische Studie. *Nytt Magasin for Naturvidenskapene B*, 82, 251-312.
- Department for Communities and Local Government, (2012). *The National Planning Policy Framework*.
- Hill, M.O. (2011). TABLEFIT. Version 1.1.
- In Touch Geospatial Services (2023). <https://intouchgeospatial.com/wp-content/uploads/2023/09/biodiversity-net-gain-and-gis-a-practical-guide.pdf>
- Paton, J. A. (1999). *The Liverwort Flora of the British Isles*. Harley Books.
- Poore, M. E. D. (1955). The Use of Phytosociological Methods in Ecological Investigations: I. The Braun-Blanquet System. *The Journal of Ecology*, Vol. 43, 1, pp. 226-244.
- Rackham, O. (1986). *The History of the Countryside*. Weidenfeld and Nicolson.
- Rodwell, J. S. (1991a). *British Plant Communities. Volume 1: Woodlands and scrub*. Cambridge University Press.
- Rodwell, J. S. (1991b). *British Plant Communities. Volume 2: Mires and heaths*. Cambridge University Press.
- Rodwell, J. S. (1992). *British Plant Communities. Volume 3: Grasslands and Montane Communities*. Cambridge University Press.
- Rodwell, J. S. (1995). *British Plant Communities. Volume 4: Aquatic communities, swamps and tall-herb fens*. Cambridge University Press.
- Rodwell, J. S. (2006). *British Plant Communities. Volume 5: Maritime communities and vegetation of open habitats*. Cambridge University Press.
- Rodwell, J. S. (2006). *National Vegetation Classification: User's Handbook*. JNCC, Cambridge.
- Smith, A. J. E. (2003). *The Moss Flora of Britain and Ireland*. Second Edition. Cambridge University Press.
- Stace, C. (2019). *New Flora of the British Isles*. Fourth Edition. C&M Floristics.

APPENDIX A: PHOTOGRAPHS



Photograph 1: The site is covered by MG1 *Arrhenatherum elatius* false oat grassland.



Photograph 2: Large amounts of dotted loosestrife *Lysimachia punctata* and ground elder *Aegopodium podagraria* have been dumped at the site. Both of these are alien species (the latter is considered to be an archaeophyte).



Photograph 3: There is a small area of species rich grassland in the south west corner. This has occasional plants of yellowwort.



Photograph 4: The wet areas of the site are being colonised by grey willow and osier.



Photograph 5: The tussocky grassland is already being colonised by brambles and sloe.



Photograph 6: Pedunculate oak saplings are quite common.

APPENDIX B: GLOSSARY OF TERMS

Character species	Species that show fidelity to a particular association.
Constancy Class	This is an indication of frequency of a species with the community. The Roman numeral I = 1-20%, II = 21-40%, III = 41-60%, IV = 61-80% and V = 81-100%.
Differential species	Species that can be used to differentiate between different associations.
Eutrophication	This is the enrichment of soil by agricultural chemicals or by the seepage of organic manure. Nettles (<i>Urtica dioica</i>) are a good indicator of eutrophication.
Flood-plain mire	An area of vegetation beside a stream or river. The ground is often flooded and may or may not have a peat layer. The vegetation can be very species-rich.
Grassland	A grass-dominated plant community that is maintained by grazing, cutting or burning.
Marshy grassland	This covers a very wide range of plant communities. The ground is usually permanently water and can be dominated by rushes. Some sites can be very species rich and support orchids and rare plants.
Mesotrophic	Of intermediate nutrient status.
Neutral Grassland	Neutral grasslands are defined as “Agricultural grasslands (and related mown or grazed communities) developed on mesotrophic to eutrophic soils where neither nutrient deficiency, nor soil toxicity problems occur. The management that they receive and the water regime throughout the year determine these plant communities.”
NVC	The Nature Conservancy Council established the National Vegetation Classification project in August 1975. Its remit was to undertake a phytosociological classification of natural, semi-natural and artificial habitats in Great Britain (but excluding Northern Ireland). NVC surveys are sometimes referred to as ‘Phase Two Surveys’.
Pasture	Pasture is ‘neutral grassland’ that is permanently used for grazing animals. The name pasture is derived from the Latin word <i>pastura</i> . In medieval times the majority of pasture was on higher ground, while the meadows were in the valleys.
Quadrat	A defined plot of vegetation usually marked out with a square or rectangular grid.

Relevé	A picture of the vegetation; usually composed of a species list from a quadrat of defined area and a description of the physical features of the stand of vegetation.
Ruderal	These are plants of waste ground. The word is derived from the Latin <i>rudera</i> , the plural of <i>rudus</i> , meaning 'rubble'.
Stand	An area of homogeneous vegetation.
Sedge swamp	A sedge-dominated area that is often covered with water for parts of the year. Sedge swamp is often very species-poor.

APPENDIX C: RELEVÉ DATA

	1	2	3	4	5	6
Grid reference	SJ42709 97234	SJ42725 97277	SJ42699 97228	SJ42702 97234	SJ 42909 97139	SJ 42698 97117
NVC Community	MG1a	MG1a	MG1a	MG1	W24a	SD17a
Height of layers	100cm.	100cm/5mm	100cm.	100cm.	5m/80cm	60cm/5mm.
Precentage cover	85	90	95	100	100	100
Plot size	2mx2m	2mx2m	2mx2m	2mx2m	4mx4m	2mx2m

<i>Agrostis capillaris</i>	4					
<i>Agrostis stolonifera</i>				8	4	4
<i>Angelica sylvestris</i>					1	
<i>Arrhenatherum elatius</i>	7	8	7	5		
<i>Betula pubescens</i>					5	
<i>Blackstoniana perfoliata</i>						1
<i>Brachythecium rutabulum</i>		2				
<i>Calystegia sepium</i>		2			2	
<i>Centaurea nigra</i>					1	
<i>Chamerion angustifolium</i>					2	
<i>Cirsium arvense</i>		3	2	2	2	
<i>Cytisus scoparius</i>					1	
<i>Dactylis glomerata</i>		2		1		
<i>Elytrygia repens</i>			4	2		
<i>Equisetum arvense</i>	1			1		
<i>Festuca rubra</i>	4	4	4	4	3	5
<i>Heracleum sphondylium</i>	4		2	2	1	
<i>Holcus lanatus</i>	6	4	5		4	7
<i>Juncus articulatus</i>						2
<i>Juncus conglomeratus</i>						1
<i>Juncus inlexus</i>						+

<i>Lathyrus pratensis</i>	2					
<i>Lathyrus pratensis</i>		1	3	3		
Litter	5	5	4	6		
<i>Lotus corniculatus</i>						6
<i>Lotus uliginosus</i>					2	
<i>Lychnis flos-cuculi</i>						2
<i>Medicago arabica</i>						2
<i>Melilotus officinalis</i>						1
<i>Plantago lanceolata</i>		1				2
<i>Poa pratensis</i>				1		
<i>Poa trivialis</i>					4	
<i>Potentilla anserina</i>				1		
<i>Potentilla reptans</i>		2				
<i>Prunella vulgaris</i>						1
<i>Pulicaria dysenterica</i>				4	2	2
<i>Quercus robur</i> (sdg)	1		+			
<i>Ranunculus repens</i>						1
<i>Rubus fruticosus</i>		5				+
<i>Rumex acetosa</i>				1		
<i>Rumex crispus</i>				1		
<i>Salix cinerea</i>					5	4
<i>Salix viminalis</i>					6	
<i>Schedonorus arundinaceus</i>		4				
Soil	4					
<i>Solidago virgaurea</i>			5		2	
<i>Sonchus arvensis</i>					1	
<i>Sorbus aucuparia</i>					1	
<i>Taraxacum officinale</i>	+					
<i>Tragopogon pratensis</i>		1				

<i>Trifolium repens</i>						3
<i>Urtica dioica</i>					3	
<i>Vicia</i>	1					
<i>Vicia cracca</i>					2	
<i>Brachythecium rutabulum</i>		2				
<i>Calliergonella cuspidata</i>						4

UK Hab

g3c5

g3c5

g3c5

g3c5

h3j

g3c6

TABLEFIT results	MG1a 79	MG1a 84	MG1a 82	MG1a 62	W24a 53	SD17b 43
	MG 1 70	MG1 82	MG1a 76	MG1 55	W24 51	SD17a 49
	W24b 66	W24b 67	UV25 62	MG 52	W6 36	SD17 37
	MG1c 56	W24 67	MG1c 60	W24b 43	W2 35	MG11 37
	MG1e 52	MG1c 62	W24a 57	MG9b 42	W6c 33	M2b 37

MG1a *Arrhenatherum elatius Festuca rubra* sub community

W24a *Rubus fruticosus-Holcus lanatus* underscrub (possibly W6 *Alnus glutinosa-Urtica dioica* woodland)

SD17b *Potentilla anserina-Carex nigra* dune-slack community!

Appendix 2

Surescreen Scientifics Great Crested Newt
eDNA Report [1950/1998-2025]

Folio No: 1950-2025
Purchase Order: PO 12597
Contact: Ecology Solutions Ltd
Issue Date: 30.05.2025
Received Date: 30.05.2025

GCN Report

Technical Report



SureScreen Scientifics

Folio No: 1950-2025
Purchase Order: PO 12597
Contact: Ecology Solutions Ltd
Issue Date: 30.05.2025
Received Date: 30.05.2025

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN25 5096	Knowsley Industrial Estate	53.46881. -2.86031	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Amy Bermudez

Approved by: Jennifer Higginbottom

Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check:

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation Check:

Pass/Fail. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

Inhibition Check:

Pass/Fail. The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result:

Presence of GCN eDNA (Positive/Negative/Inconclusive)

Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.



Folio No: 1998-2025
Purchase Order: PO 12597
Contact: Ecology Solutions Ltd
Issue Date: 02.06.2025
Received Date: 02.06.2025

GCN Report

Technical Report



SureScreen Scientifics

Folio No: 1998-2025
Purchase Order: PO 12597
Contact: Ecology Solutions Ltd
Issue Date: 02.06.2025
Received Date: 02.06.2025

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN25 5085	Knowsley Industrial Estate	53.46881, -2.86031	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Amy Bermudez

Approved by: Lauryn Jewkes



Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check:

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation Check:

Pass/Fail. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

Inhibition Check:

Pass/Fail. The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result:

Presence of GCN eDNA (Positive/Negative/Inconclusive)

Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.



Appendix 3

Surescreen Scientifics Great Crested Newt
eDNA Report [2817-2025]

Folio No: 2817-2025
Purchase Order: PO12592
Contact: Ecology Solutions Ltd
Issue Date: 24.06.2025
Received Date: 24.06.2025

GCN Report

Technical Report



SureScreen Scientifics

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus* , inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN25 5082	Knowlsey Industrial Estate	53.46839, -2.85952	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Lauryn Jewkes

Approved by: Lauryn Jewkes



Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check:

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation Check:

Pass/Fail. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

Inhibition Check:

Pass/Fail. The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result:

Presence of GCN eDNA (Positive/Negative/Inconclusive)

Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.



Appendix 4

Bat Boxes

Bat Boxes

Schwegler bat boxes are made from woodcrete and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot- and predator-proof and extremely long lasting.

Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminium nails.

Schwegler 1FD Triple Front Panel Bat Box

The cylindrical shape makes this bat suitable for attaching to the sides of trees. It has a domed roof and two grooved internal wooden panels, and its entrance hole is ideally suited for smaller species such as Common Pipistrelle, Soprano Pipistrelle, Nathusius Pipistrelle, and Daubenton's Bat.

The front panel can be removed for inspection and cleaning.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Height: 360mm
Diameter: 160mm
Weight: 4.8kg



Schwegler 1FS Colony Bat Box

This bat box has a very large internal triple corrugated wooden boarded space that allows large colonies of bats to congregate. This makes it popular with large colonies of bats in summer, particularly for Common Pipistrelle, Soprano Pipistrelle, Nathusius Pipistrelle, and Noctule.

The front panel can be removed for inspection and cleaning.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Height: 440mm
Diameter: 280mm
Weight: 10kg

Bat Boxes

Schwegler bat boxes are made from woodcrete and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot- and predator-proof and extremely long lasting.

Schwegler 1FF Flat Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings, though it is also suitable to be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule Bats.

This practical and cost-effective box is maintenance-free and, if necessary, the front panel can be swung open for inspection.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Height: 430mm

Width: 270mm Depth: 140mm Weight: 9kg



Appendix 5

Bird Boxes

Bird Boxes

These attractive nestboxes are manufactured from WoodStone which is a mix of concrete and FSC certified wood fibres. Unlike a traditional wooden nest box, these boxes will not rot away or deteriorate and are guaranteed for 10 years. This robust material safeguards against attacks from predators such as woodpeckers, cats and squirrels, whilst also providing a well insulated interior with a more consistent internal temperature than an ordinary wooden box. This is especially important during the breeding season and ensures that young birds have a greater chance of survival.

Vivara Pro Seville Woodstone Open Nest Box 32mm

These open nest boxes are suitable for Wrens, Robins, Wagtails, Song Thrushes and Blackbirds, and they are available in brown, grey or green to complement the setting the box is installed in.

Woodcrete (Concrete and wood fibres)

Entrance hole diameter: 32mm

Height: 305mm

Width: 210mm

Depth: 120mm

Weight: 6kg



Vivara Pro Seville Woodstone Open Nest Box 28mm

The smaller hole is ideal for Tree Sparrows, House Sparrows, a variety of Tit species, and many other similarly sized local bird species, and are available in both brown, grey or green.

Woodcrete (Concrete and wood fibres)

Entrance hole diameter: 28mm

Height: 305mm

Width: 240mm

Depth: 120mm

Weight: 6kg



Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.



1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch, nailed to the trunk of a tree with a 'tree-friendly' aluminium nail or hung on walls.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts for example.

2H Bird Box

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.





info@ecologysolutions.co.uk | www.ecologysolutions.co.uk

Farncombe House | Farncombe | Broadway | Worcestershire | WR12 7LJ

Cokenach Estate | Barkway | Royston | Hertfordshire | SG8 8DL