



Proposed Industrial Development

Land off Bryn Lane, Wrexham

Industrial Estate

Ecology Report

Produced for:



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APPENDIX A

UKHab Map

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Proposed Development Layout

APPENDIX B

Site Photographs

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1 INTRODUCTION

1.1 The Scheme

- 1.1.1 Etive Ecology was commissioned by Hydro Aluminium Ltd to undertake a suite of ecological surveys on Plots 1A and 1B off Bryn Lane, Wrexham Industrial Estate. The application site is centred on National Grid Reference SJ 3903 5015.
- 1.1.2 The site has previously been subject to a Preliminary Ecological Appraisal (Etive Ecology Ltd, July 2021) and Plot 1B has previously been subject to a GCN Development License (67880:OTH:EPS:2015). An application for planning permission to develop both plots as light industrial units with associated infrastructure was submitted in 2023 (P/2023/0230). Following feedback from the Wrexham County Ecologist, further survey work was deemed necessary in order to further inform the application.
- 1.1.3 This report provides the results of an updated baseline habitat survey and a series of GCN surveys, water vole surveys and butterfly transects that were undertaken. A revised site layout has been prepared in response to the latest ecological findings, and further mitigation is detailed within this document.

1.2 Scope of this Report

- 1.2.1 This report updates and builds on the baseline information already provided in the 2021 PEA Report. The scope of further surveys has been specified by the Wrexham County Ecologist following a conversation on 31st October 2023. Wrexham's ecologist indicated that the site has previously been known to support grizzled skipper and dingy skipper butterflies (Section 7 listed), and that local records indicate the presence of GCN and water vole in the area which may be supported by habitats on site.
- 1.2.2 A repeat of the baseline habitat survey for all land within the revised red line application site was therefore undertaken, along with presence/absence surveys for GCN and water voles. A series of butterfly transects was also undertaken, comprising 6 visits during the peak summer season.
- 1.2.3 The findings of these surveys have been used to feed into the proposed layout for the development of the site. According to Chapter 6 of Planning Policy Wales, a step-wise approach to development must be taken to ensure that biodiversity is considered throughout the design process. The mitigation hierarchy is to avoid, minimise, mitigate and compensate impacts. A revised site layout is provided as **Figure 4** of this report.

2 METHODOLOGY

2.1 UKHab Survey

- 2.1.1 The updated baseline habitat survey was undertaken by experienced field ecologist Russell Grey on 20th June 2024. The weather conditions were 17°C, dry, 3mph south-westerly breeze and 20% cloud cover.
- 2.1.2 The survey effort comprised a walkover of the site to identify all habitats in accordance with the UKHab classification and to map their extent (**Figure 1**). A species list for each habitat was taken to support the classification and condition assessment.
- 2.1.3 An assessment of the potential for the site habitats to support legally protected and/or notable species of fauna was also undertaken. Any evidence of any such species found on site was also recorded.

2.2 Butterfly Transects

- 2.2.1 Butterfly transects were undertaken on the following dates in 2024:
- 29th May; 15°C, dry, Beaufort Scale (BS) 5 and 40% cloud cover
 - 6th June; 15°C, dry, BS 4 and 40% cloud cover
 - 12th June; 14°C, dry, BS 2 and 0% cloud cover
 - 20th June; 17°C, dry, BS 1 and 20% cloud cover
 - 25th June; 21°C, dry, BS 3 and 10% cloud cover
 - 4th July; 16°C, dry, BS 5 and 40% cloud cover
- 2.2.2 The survey effort comprised a walked transect of the site, as shown on **Figures 2a-2f**. The surveyor followed the guidance provided by the UK Butterfly Monitoring Scheme for transects. Transects were timed to correspond to the core flight season for dingy and grizzled skipper, generally taken to be June. Survey visits were made between the hours of 1000 and 1700 and during suitable weather conditions; warm (13-17°C), bright (>60% sunshine), dry and not more than a gentle breeze (5 on Beaufort Scale).
- 2.2.3 During each survey visit, all of the target butterflies encountered were recorded. Wherever possible, other species of butterfly encountered were also recorded.

2.3 GCN Surveys

- 2.3.1 The GCN surveys were undertaken on the following dates in 2024:
- 25th March; 7°C, dry, Beaufort Scale (BS) 2 and 100% cloud cover
 - 15th April; 8°C, dry, BS 3 and 60% cloud cover
 - 29th April; 5°C, dry, BS 1 and 20% cloud cover
 - 7th May; 15°C, dry, BS 2 and 40% cloud cover
- 2.3.2 The survey effort comprised egg-searching, netting and torching on each survey visit.
- 2.3.3 The applicant owns a single pond – that located within the northern part of the red line application site boundary (**Figure 3**). No access could be reasonably obtained to any other ponds <250m of the site.

2.3.4 All surveys were undertaken by GCN-licensed surveyor Russell Grey (S094695/1).

2.4 Water Vole Survey

2.4.1 The water vole survey was undertaken on 10th September, by Russell Grey.

2.4.2 There is a single open drain on site which was included within the survey effort. A section of ditch to the north of the site was also inspected from publicly accessible land. The open ditch/pond to the east does not fall within the land ownership of the applicant and could not therefore be included in the survey effort.

2.5 Assessment of Ecological Value

2.5.1 The value and sensitivity of the site for butterflies and semi-improved grassland was determined based on the guidance given in *Guidelines on Ecological Impact Assessment* (CIEEM, 2019). Individual ecological receptors (habitats and species that could be affected by the development) were assigned levels of importance for nature conservation in one of the following categories:

- International
- UK
- National
- County
- District;
- Local, or
- within the immediate zone of influence or site only.

2.5.2 For a given receptor, determination of value includes consideration of the size, secondary or supporting value/function, conservation status and quality of the species or feature.

2.6 Limitations

2.6.1 Access was permitted to all land within the proposed application site, as this is owned by the applicant. Access beyond the site boundary was restricted but much of the adjacent land was at least visible to the surveyor to assess habitat type and protected species potential.

2.6.2 The timing of the habitat survey was within the core/optimal period for vegetation surveys. The majority of species were well-established and in flower, meaning that accurate and reliable identification of all habitats types was possible.

2.6.3 The butterfly surveys were timed to match the core/optimal flight period for the target species. This was agreed with the Wrexham County Ecologist to be the month of June. Surveys were scheduled to comprise weekly visit over a six-week spell, overing May, June and July. Weather conditions during this period were mixed and unsettled at times but visits were scheduled to coincide with the most suitable weather each week.

2.6.4 Due to the composition of the habitats on site – primarily dense scrub – some parts of the site were inaccessible and impenetrable. This limits the assessment for protected species within those areas, including the coverage of butterfly transects.

3 RESULTS

3.1 UKHab Survey

- 3.1.1 The proposed development site is located on the eastern side of Bryn Lane, which marks the eastern side of the Wrexham Industrial Estate (WIE). The site is sandwiched between Bryn Lane to the west and an existing industrial site to the east, with an access road and amenity grassland to the north and a storage yard (caravans) to the south. The site comprises an area of raised ground to the north that has become naturalised by scrub, ruderals and self-seeded broadleaved trees, and lower ground levels to the south where previous development has partially started. In the wider context, the site is surrounded by industrial sites with associated landscaping and corridors of semi-natural habitat in between. There are numerous ponds across WIE and there is open farmland approximately 100m to the northeast of the site.
- 3.1.2 The habitat arrangement on site, as well as all notable features, are described in the Target Notes below.

Target Number	Target Note	Ecological Receptors / Potential
1	Site access off Bryn Lane, comprising a herras panel fence and large concrete blocks as security. The area is bare ground and stone chippings.	
2	Development footprint of previous scheme on Plot 1B. The area comprised levelled ground that has been prepared for development and comprises artificial unvegetated, unsealed surface (stone chippings).	
3	Levelled ground immediately surrounding the stone-chippings, comprised of a fine stone substrate which has become sparsely colonised by occasional pioneer species including mosses, rushes and dock, classified as bare ground .	
4	Dense/continuous scrub comprised of blackthorn and bramble, with young self-seeded willow.	Nesting Birds
5	Rough and tussocky neutral grassland wrapping around the southern edge of the previously developed land. Species include cocksfoot, broadleaved dock and soft rush. Classified as other neutral grassland .	
6	Hard-standing covering the southeast corner of the site. A former newt fence runs across this area, secured to the chain-link boundary fence and with sand-bags to form a seal with the ground.	
7	Block of semi-natural broadleaved woodland , comprising a number of mature crack willows, semi-mature silver birch and an under-storey of elder, hawthorn and bramble. The former newt fence runs through this woodland block.	Habitat of Principal Importance. Nesting Birds Roosting Bats GCN
8	Rough and tussocky neutral grassland wrapping around the northern edge of the previously developed land. There is a steep slope from the developed area up to the original ground level, upon which is a heras panel fence and the newt	

Target Number	Target Note	Ecological Receptors / Potential
	fence. Species include cocksfoot, false oat-grass and creeping thistle. Classified as other neutral grassland .	
9	Line of broadleaved trees (mature poplars) along the western edge of the site, bordering Bryn Lane. Beneath the trees is a block of dense/continuous scrub dominated by bramble but classified as mixed scrub .	Nesting Birds Roosting Bats GCN
10	Dense/continuous scrub that has encroached and colonised an area of grassland from 2021. Scrub now extends from the pond at the northern end of the site all the way south to near the northern edge of Plot 1B. At its northern end, the scrub comprises semi-mature hawthorn to a height of 3m, with dog rose and bramble forming a dense under-storey. However, the scrub is bramble and dog rose dominated towards the southern end, with only young hawthorn and blackthorn stems. [REDACTED]	Nesting Birds GCN [REDACTED]
11	Standing water (Pond 1) on the northern edge of Plot 1A. The pond is 20 x 5m in footprint, surrounded by scrub to the south and mature trees to the north, with common reed and soft rush in the margins. The pond appears to be fed by surface water runoff from the site and other surrounding land.	Nesting Birds GCN
12	Mature broadleaved trees (poplars) on a strip of amenity grassland edging the access road to the industrial unit adjacent to the east of the site. [REDACTED]	GCN
13	Tall ruderal vegetation covering an area of previous grassland immediately north of Plot 1B. The sward is dominated by creeping thistle and occasional broadleaved dock and rosebay willowherb.	GCN
14	Concrete lined surface water collection point, approximately 8m x 2m. Classified as standing water .	GCN Water voles
15	Semi-natural broadleaved woodland dominated by young blackthorn, hawthorn, oak and willow. The young trees form a dense and closed canopy, resulting in a minimal ground flora.	Nesting Birds GCN
16	Caravan storage yard adjacent to the south of Plot 1B.	
17	Woodland, scrub and amenity grassland habitats adjacent to the southeast of Plot 1B, managed for	Nesting Birds Roosting Bats GCN

Target Number	Target Note	Ecological Receptors / Potential
	their amenity value by the adjacent landowner/occupier.	
18	Standing water (Pond 3) located 20m to the east of Plot 1B and within the grounds of the adjacent industrial unit. The pond was not accessible but from aerial imagery it appears to be surrounded by amenity grassland and managed primarily for its amenity value.	Nesting Birds GCN
19	Standing water (Pond 2) located adjacent to the northeast of the site. The pond is elongated and narrow in shape, extending 50m or more with a width of 2-3m. The pond is edged by woodland to the west and open marginal vegetation to the east. The pond appears to be fed by surface water runoff from the site and other surrounding land.	Nesting Birds Roosting Bats [REDACTED]
20	Land adjacent to the north of the site and the access road, comprising modified grassland.	Nesting Birds GCN [REDACTED]
21	Surface water collection point leading to a ditch flowing alongside Bryn Lane to the north.	Nesting Birds GCN Water Voles
22	A mosaic of grassland, scrub and woodland, with a number of ponds, forming an integral element of the WIE WS for GCN.	Nesting Birds GCN

3.1.3 The southern half of the application site is comprised of the previously cleared development footprint surrounded by embanked earth to the north and rough grassland and hard-standing to the south. The former development footprint now supports young self-seeded specimens of scattered birch, buddleia and willow. The northern half of the site was previously mapped as grassland in 2021 but is now almost entirely covered by continuous bramble and dog rose scrub to a height of 1-1.5m. The young woodland to the east remains intact and the line of mature poplars to the north and west also remain from the 2021 survey. The GCN fence around the southern part of the site is no longer in a suitable condition to prevent GCN dispersal onto the site.

3.2 Protected / Notable Species

3.2.1 The location of the site is known to support GCN and land immediately to the west of Bryn Lane is a particularly important breeding site for the species. It is also noted that the southern half of the site was previously cleared under a GCN Licence (67880:OTH:EPS:2015). The pond in the northern half of the site is considered to be potentially suitable to support GCN as it is a semi-permanent feature, with moderate water quality and presence of aquatic macrophytes. Other ponds within close proximity to the site also offer suitable breeding habitat, but could not be accessed as the time of survey in 2024. The terrestrial habitat on the northern half of the site is ideally suited to support GCN. The southern half of the site is of lesser value to the species but is still likely to facilitate dispersal. GCN are considered to be likely present within the application site boundary.

3.2.2



- 3.2.3 There are numerous semi-mature poplars along the western and northern site boundaries, each with Low Bat Roost Potential (BRP) as a result of ivy cover and/or small numbers of potential roost features (holes/cracks/splits). The woodland adjacent to the southeast of the site also contains a number of semi-mature crack willows with a small number of PRFs and therefore Low BRP. There are no buildings or structures present within the site boundary with the potential to support roosting bats. The site is of likely moderate value to foraging/commuting bats as a result of the mixed tree, scrub and sparse vegetation cover. **Roosting/foraging/commuting bats are likely present within the application site.**
- 3.2.4 The site is likely to supports numerous pairs of nesting birds during the breeding season, within the trees, scrub, ruderals and woodland habitats. The sparsely vegetated ground in the southern half of the site may also support ground nesting birds, although none have ever been encountered during survey work to date. **Nesting birds are likely to be present within the site boundary.**
- 3.2.5 The habitat composition of the northern half of the site is potentially suitable to support reptiles, although the loss of grassland area since 2021 means a declining suitability. The southern half of the site has been cleared and previously trapped out, meaning the presence of reptiles would have been excluded, although the fence no longer provides an exclusion barrier. The surrounding land use of industrial and busy roads further reduces the likelihood of reptiles being present. **Reptiles are considered to be likely absent from the application site.**
- 3.2.6 There are no main watercourses within the site boundary and none within 200m. However, there is a network of ditches and drains shown on the OS plan within 100m to the west, as well as a ditch that runs northwards into open countryside. There is a single concrete drainage structure in the northwest corner of the site, appearing to take surface water drainage and directing it into the ditch to the north. The terrestrial habitats within the site boundary are of low value to otter as they lack connectivity and are in close proximity to existing industrial units and busy roads – major sources of disturbance. **Otter and water vole are both considered to be likely absent from the application site boundary.**
- 3.2.7 The site has the potential to support hedgehogs and an assemblage of invertebrates including the locally recorded grizzled and dingy skippers.
- 3.2.8 No invasive non-native species as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were found to be present on site. However, buddleia was recorded on the southern half of the site and is recognised as an INNS in Wales.

3.3 Butterfly Transects

- 3.3.1 A summary of the survey findings is shown in the table below. All survey findings are also

mapped per survey visit in Figure 2a-2f.

Species	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Dingy Skipper						
Grizzled Skipper						
Small Heath	X			X	X	X
Meadow Brown	X	X	X	X	X	
Common Blue	X	X	X	X		
Ringlet	X	X	X	X	X	X
Gatekeeper	X	X		X	X	X
Peacock	X	X	X			
Small Skipper	X	X	X			
Red Admiral			X			

3.3.2 In summary, none of the target species; dingy skipper or grizzled skipper were identified on site during any of the site surveys in 2024. Small heath was the only Section 7 listed species of butterfly recorded on site during the 2024 survey effort.

3.3.3 It is understood that both grizzled skipper and dingy skipper have been recorded locally to the site, including from 2023. Dingy skipper occur in a wide range of open sunny habitats, including waste ground. Grizzled skipper occur in woodland rides, unimproved grassland and recently abandoned industrial sites. The application site is comprised of continuous dense scrub in the northern half and partially developed land in the south. Given the absence of any findings in 2024 and the presence of sub-optimal habitats for the target species, they are considered to be absent at present from the application site. However, there is a relative abundance of other more common/widespread butterfly species on site, resulting in the site being considered to be of significance/value at the Local Scale for butterflies.

3.4 GCN Surveys

3.4.1 A summary of the survey findings for the one pond on site is shown in the table below. A map to show the surveyed ponds is presented as Figure 3. The second 'pond' shown as having been surveyed on Figure 3 is a concrete lined structure, which was also subject to torch survey but no amphibians were encountered.

Survey	Egg Search	Torchlight	Netting
1	-	1 x male GCN	1 x female smooth
2	-	1 x male GCN 1 x female GCN	-
3	-	1 x female GCN	1 x female smooth
4	-	1 x male GCN	-
Peak Counts	-	2 x GCN	1 x female smooth

3.4.2 In summary, the on-site pond is found to support a small population of GCN. No eggs could be found during the survey effort, but the presence of both male and females indicates potential breeding activity.

3.4.3 The pond is suitable to support the species but could be significantly improved through careful and targeted action; both initial enhancements and on-going management. Shade could be reduced, pond depth could be enhanced and woody detritus within the pond could be

removed. The terrestrial habitat within the application site offers excellent habitat for the species by providing undisturbed and continuous vegetation cover with good structure and an abundance of opportunities for sheltering and over-wintering.

3.5 Water Vole Survey

3.5.1 The following aquatic features on or adjacent to the application site were inspected and surveyed for evidence of water voles:

- The on-site pond.
- The on-site concrete lined structure.
- The off-site concrete lined structure to the north.
- The ditch adjacent to the north.

3.5.2 The on-site pond has very shallow margins and variable water levels throughout the year. Aquatic and marginal vegetation was patchy and lacked any rushes, sedges or reeds that would normally provide foraging for water voles. The pond is also isolated from any more suitable aquatic features. No evidence of any water vole activity could be found and the species is considered to be absent from the pond.

3.5.3 The on-site concrete lined drainage structure comprises >1m tall vertical concrete sides and appears to take surface water runoff from adjacent roads. The structure was holding water throughout the various survey visits and supports frequent bullrush vegetation. The water depth is unknown. It is likely that the structure is hydrologically linked to the ditch to the north but via a submerged culvert. No evidence of any water vole activity could be found when surveying from the top of the structure and using binoculars to inspect the bases of vegetation. Water vole are considered to be absent from the structure.

3.5.4 The off-site concrete lined structure comprises >1m tall vertical concrete sides and appears to take water from the on-site structure via a buried culvert. The structure is shaded by an adjacent ash tree but no marginal, emergent or aquatic vegetation was visible. No evidence of any water vole activity could be found when surveying from the top of the structure and water voles are considered to be absent.

3.5.5 The ditch flowing alongside Bryn lane to the north of the site is heavily shaded throughout its length by scrub and young trees. The ditch banks are primarily exposed earth with patches of ruderals and there was no marginal or aquatic vegetation present. As a result the ditch was considered to be unsuitable to support water voles. No evidence of any water vole activity could be found along either bank of the ditch and water voles are considered to be absent.

3.5.6 In summary, no evidence of water voles have been found in any of the aquatic features on site or adjacent to the site. The species considered to be absent from the application site and immediately adjacent or connected habitat.

4 DISCUSSION

4.1 Proposed Scheme

The Development

- 4.1.1 The proposed development is illustrated in **Figure 4**. This revised layout has been designed following the survey results reported herein. The design takes into account the following ecological considerations:
- The need to retain at least 40% of the site area to deliver a Net Benefit for Biodiversity.
 - The presence of GCN within the site boundary and the need to obtain a GCN Development License and preserve the Favourable Conservation Status of the species at the local scale.
 - The distribution of butterfly encounters around the existing habitat edges, indicating edge habitats as being of greatest value.
 - The potential presence of bats within existing mature trees and foraging/commuting bats across the site.
 - The existing habitats of value, including woodland, mature trees and patches of semi-improved grassland (albeit it often in poor condition or dominated by scrub/undesirable species).
- 4.1.2 The proposed layout also considers the practical requirements of the end-user post-development. Factors such as access, drainage, parking, the size of the yard, turning circles and the size of the warehouse facility itself. The existing topography and difference in levels between the north and south halves of the site. The proposed development is considered to be appropriate and proportionate for a variety of storage and distribution users.

4.2 Likely Impacts

Habitats

- 4.2.1 The application site covers an area of 24,681m². The proposed scheme will result in development of 11,804m², representing 47.8% of the site. The remaining 52.2% will be retained as existing habitat or used to create new habitat tailored to the ecological aims for the site (GCN, butterflies, etc). All retained/created habitats will be subject to a scheme of enhancement and long-term management.
- 4.2.2 It is worth considering the impacts of not developing this site. The existing habitats on site have evolved in the last three years to the point where grassland has been almost entirely replaced by dense/continuous scrub. Whilst scrub does have a value and supports an array of biodiversity, semi-improved or unimproved grassland is capable of supporting a greater diversity and is of particular importance to target species such as grizzled and dingy skipper. The development of the site would allow for targeted enhancement and safeguarding of habitats for these species, whereas resistance to suitable development will perpetuate the succession of habitats on site towards woodland.
- 4.2.3 The development of the site poses a risk of disturbance and degradation of the retained areas of habitat. Impacts are likely to arise during construction from the use of machinery, lay-down of materials and impacts from littering or dusting. Impacts are likely to arise during the operational phase as a result of human activities such as littering or trampling.

- 4.2.4 The scheme also poses a risk of inappropriate management of the retained/created habitats. Developed sites are often managed for their visual amenity or landscape value, resulting in heavily managed and manicured habitats, improved through nutrient enrichment or drainage. Any such management activities would degrade and simplify these habitats in terms of their biodiversity value. The scheme therefore provides an opportunity to establish a management regime that will enhance the value of the retained/created habitats.

Butterflies

- 4.2.5 The proposed scheme will result in the permanent loss of 47.8% of the area of semi-natural habitat available for butterflies on site. It is noted that the proposed scheme seeks to avoid the area where butterflies have been recorded most frequently and to create new grassland habitats and habitat edges where butterflies can flourish.
- 4.2.6 It is noted that much of the site is not ideally suited to support butterflies. There is a predominance of scrub and self-seeded trees in the northern half of the site, which have out-competing grassland species of greater value to butterflies as both food plants for young (larvae/caterpillars) and as nectar sources for adults. Therefore, the proposed scheme also poses the potential for grassland habitats to be reinstated and enhanced.

GCN

- 4.2.7 The proposed scheme poses a risk of harm to GCN that are currently present within the development footprint and/or working areas. Given the presence of GCN within the on-site pond and the presence of numerous ponds in adjacent land, it is expected that a number of GCN would be present within the application site.
- 4.2.8 Post development there would be a risk of degradation to the existing on-site pond through inappropriate management or human impacts such as littering or disturbance. There would also be a risk of harm posed by inappropriate surface water management design, which could entrap GCN and other amphibians. There would also be a risk of isolation and fragmentation with new access roads and areas of hard-standing preventing GCN from dispersing between nearby ponds.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Bats

- 4.2.11 The proposed scheme will not result in the loss of any trees that have bat roost potential but could pose disturbance to any such trees due to the proximity of works if not managed and protected appropriately.

- 4.2.12 Post development, potential impacts on bats include daytime noise/disturbance and the installation of artificial lighting. The loss in area of habitat also poses an impact in terms of a loss of foraging value and potential commuting corridors.

Birds

- 4.2.13 The proposed scheme will result in the loss of habitat that is likely to support numerous pairs of nesting birds during the breeding season. Post development there will be a reduction in the area of habitat available on site for nesting and foraging birds.

Biodiversity

- 4.2.14 The proposed scheme has the potential to impact wider biodiversity value through direct harm or disturbance to species such as hedgehog, invertebrates or small mammals. The scheme will need to be implemented with due care and consideration of wider biodiversity interests, during design, construction and post-development management, in order to deliver a Net Benefit for Biodiversity.

4.3 Recommendations

Habitats

- 4.3.1 It is recommended that a detailed landscape plan be prepared for the site, based on the proposed site layout. All areas shown in green on the plan, representing 52.2% of the site area, will be made available for ecological enhancement. The landscape scheme will be tailored specifically for ecological enhancement, rather than its landscape / visual amenity value. The aim will be to create a species-rich grassland with patches of scrub towards the margins and mature trees around the site boundaries.
- 4.3.2 All retained habitats will be protected from construction impacts by protective fencing, including the area around Pond 1. A Construction Environmental Management Plan (CEMP) should be prepared to detail the measures required to be undertaken by all contractors on site, to protect the retained areas of habitat. The CEMP should include the fencing design/layout, material storage areas, traffic routes, measures to suppress dust/litter, pollution prevention measures and weekly litter picking. It may be necessary to record the implementation of this CEMP through an ecological auditing process.
- 4.3.3 All habitats retained, enhanced and created will be subject to a long-term Habitat Management Plan (HMP). This will commence immediately upon completion of development activities. Details of the HMP should be secured by way of a suitably worded planning condition but would include the following outline measures:
- Existing trees will be managed by way of an annual inspection and undertaking of any necessary works to retain good tree health, growth and form.
 - Annual management of scrub through strimming outside of the nesting bird season. Strimming should aim to maintain bramble and other scrub to not more than 20% of the total ecology area. The retained 20% should be rotated so that there is an age range to scrub vegetation.
 - The grassland will be cut frequently during Year 1 (and beyond if necessary) to reduce nutrient levels and allow wildflowers to establish. Once nutrient levels are under control there will be an annual cut in August to a sward height of 150mm. All cuttings will be

collected and removed from the grassland and used to replenish habitat piles/hibernacula. A second cut in late September may be required depending on site conditions.

- A permanent fence will be installed around the edge of the grassland to deter impacts from trampling or littering of the habitat during the operational life of the development. Fencing will be maintained as required.
- There will be an annual litter pick of the retained grassland, undertaken by the ecological contractor.
- Four hibernacula will be created on site to provide suitable sheltering and over-wintering opportunities for amphibians.
- All of these features will be subject to ecological monitoring, in Years 1, 2, 3, 5, 10, 15 and 25 post-development.

Butterflies

4.3.4 The proposed habitat arrangement of the site will comprise a mosaic of species-rich grassland and scrub pockets, to provide a range of conditions for a variety of butterflies to inhabit. The grassland will be seeded with a species-rich mix including specific species of value to target species (agrimony, creeping cinquefoil, wild strawberry and bird's-foot-trefoil).

4.3.5 The long-term management of the site will be determined by the approved HMP, but will include specific targets relating to species composition, edge habitats, grassland condition and presence/absence of target species. The long-term aim will be to achieve an unimproved grassland capable of supporting grizzled and dingy skipper.

GCN

4.3.6 A GCN Development Licence will need to be obtained in order for the scheme to be constructed. The licence will include the following broad mitigation strategy:

- Retain, enhance and protect the existing on-site pond during construction works. This will mitigate short-term impacts on breeding.
- Install GCN exclusion fencing around the required working area/development footprint prior to the start of any development works on site.
- Undertake a minimum 30 days of pitfall trapping to capture and translocate all GCN and any other amphibians (or reptiles) from the site. The Receptor Site is likely to be retained on-site pond and surrounding terrestrial habitat.
- Facilitate site access through the fence after the completion of trapping. Retain the perimeter exclusion fence in a good condition for the duration of construction works.
- Either install a permanent GCN barrier around the development or implement a sensitive surface water drainage system that does not risk entrapment of GCN and other amphibians.
- Design features to provide continued habitat connectivity across the site from east-west and north-south for GCN. Underpasses beneath access roads are likely to be required to enable this.
- Design a suitable landscape scheme that includes habitats of high value to GCN (grassland, scrub, woodland) and specific features for sheltering amphibians (4 x hibernacula).

- Implement long-term habitat management as outlined above. This is to be contracted to a specialist ecological contractor with demonstrable experience in undertaking such works.
- Undertake long-term monitoring of the retained pond and all habitat within the red-line boundary, with predetermined targets and contingency measures.

4.3.7 The above bullets will be further expanded and detailed within the GCN Licence application.

4.3.8 The GCN license will be linked to the ownership of the site. In the event of the site being sold, the license would be transferred to the new owner. The licensee will be solely responsible for the implementation of the GCN License requirements, including habitat management, monitoring and maintenance.

[REDACTED]

[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED].

Bats

4.3.11 Existing mature and semi-mature trees will be protected with a suitable fence offset outside of the tree root protection area for the duration of construction works. This will not only protect tree roots from damage but will also protect any bat roosts from disturbance during construction activities.

4.3.12 A total of 6 x woodcrete bat boxes (Schwegler 2F, 2FN or similar) will be installed on retained trees within the application site boundary and retained for the duration of the HMP.

4.3.13 A Lighting Plan will be prepared to show the locations and types of all artificial lighting proposed for installation with the scheme. The Lighting Plan will pay due attention to the BCT/ILP Guidance "*Bats and Artificial Lighting in the UK*" and will be subject to approval from the LPA.

Birds

4.3.14 All vegetation should be cleared outside of the nesting bird season, to avoid harm/disturbance to any active nests. Where this is not possible, vegetation must be checked by a suitably experience ecologist prior to clearance. Only when nesting birds are confirmed to be absent can clearance works commence.

4.3.15 A total of 6 x woodcrete bird boxes (Schwegler 1B or similar) will be installed on retained trees within the application site boundary and retained for the duration of the HMP.

Monitoring

- 4.3.16 Monitoring details will be written into the HMP but is likely to be undertaken in Years 1, 2, 3, 5, 10 and every five years thereafter, by a suitably experienced ecologist. A monitoring report will be issued to Wrexham County Ecologist, using a format to be specified within the HMP.
- 4.3.17 Monitoring will assess habitats (extent, condition, species-richness, etc), GCN (presence/absence, population size) and butterfly assemblage (species, counts, etc).

5 CONCLUSION

5.1 Etive Ecology Limited was commissioned by...

Appendix A - Figures

1. UKHab Map
2. Butterfly Transects Results
3. GCN Survey Ponds
4. Proposed Site Layout

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Figure 2a; Butterfly Transect 1



Figure 2b; Butterfly Transect 2



Figure 2c; Butterfly Transect 3



Figure 2d; Butterfly Transect 4



Figure 2e; Butterfly Transect 5



Figure 2f; Butterfly Transect 6





Appendix B – Site Photographs

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Target Note 2



Target Note 3



Target Note 7



Target Note 10



Target Note 11



Target Note 12



Target Note 14



Target Note 21