



R & D Ecology

Preliminary Ecological Appraisal (PEA)

Drumchapel

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Prepared For:

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Contents

1. Executive Summary	4
2. Introduction	5
Background	5
Site Description	5
Scope of the Assessment.....	5
Statement of Authority	6
3. Legislation, Policy and Guidance	7
Legislation and Policy	7
Guidance Documents	8
4. Methodology	10
Study Areas.....	10
Desk Study.....	10
Field Survey	11
Limitations.....	13
5. Baseline Conditions	14
Designated Sites	14
Habitats	17
Species.....	24
6. Conclusion and Recommendations	28
Designated Sites	28
Habitats	28
Species.....	29
7. Appendices.....	32
Appendix A – Maps.....	32
Appendix B – Biological Records.....	32
Appendix C – Site Photographs	32

1. EXECUTIVE SUMMARY

- 1.1. A Preliminary Ecological Appraisal (PEA) has been undertaken for the proposed development at lands near Concho Road, East Dumbartonshire. The aims of this report are to provide a current baseline of the Application Site, identify any actual or potential habitat and species constraints pertinent to the Development, and outline recommendations for avoidance, mitigation, compensation (where necessary) and enhancement for ecology.
- 1.2. All surveys and assessments have been undertaken with the relevant best practice guidance, including guidance set out by the Chartered Institute of Ecology and Environmental Management (CIEEM).
- 1.3. The Proposed Development does not lie within or adjacent to any statutory designated environmental sites. Within 15km of the Application Site there are four Natura 2000 designated sites; one SAC and three SPAs. Within 5km of the Application Site there are twelve other environmental designated sites; seven SSSIs, one Ramsar, three LNRs and one CP.
- 1.4. An extended phase 1 habitat survey was undertaken on 21st June 2023, which identified eleven habitat types within the survey area. Habitats include (but not limited to) B2.2 Semi-improved neutral grassland, B4 Improved grassland, A1.1.1 Semi-natural broad-leaved woodland, B5 Marshy grassland, A2.1 Continuous scrub, A2.2 Scattered scrub, A3.1 Scattered broadleaved trees and G2 Running water.
- 1.5. During the site visit, the habitats were assessed for their potential to support protected and notable species present within the local area.
- 1.6. From the current survey findings and the information collected during the desk-based assessment, it is considered that with the implementation of the recommended measures outlined within this report, no significant negative impacts will occur for protected or notable habitats/species.
- 1.7. The creation of drystone walls, log piles and/or bug box/hotels and implementation of wildlife boxes including bird and bat boxes within the woodland area would lead to a biodiversity gain.

2. INTRODUCTION

BACKGROUND

- 2.1. R & D Ecology Ltd. have been appointed by GPC 013 Ltd (the “Applicant”) to undertake a Preliminary Ecological Appraisal (PEA) for a proposed battery storage development (the “Proposed Development”) on lands near Concho Road, East Dumbartonshire, G81 5QS (the “Application Site”).

SITE DESCRIPTION

- 2.2. The site comprises of agricultural grass fields with woodland and scrub, with the adjacent landscape also comprising of similar habitats. Waterways are present to the east, west and south of the Site Boundary, which provides hydrological connectivity with the wider landscape.

SCOPE OF THE ASSESSMENT

- 2.3. Preliminary Ecological Appraisal (PEA) is the term used to describe a rapid assessment of the ecological features present, or potentially present, within a site and its surrounding area (the zone(s) of influence in relation to a specific project.
- 2.4. The key objectives of a PEA are to:
- identify the likely ecological constraints associated with a project;
 - identify any mitigation measures likely to be required;
 - identify any additional surveys that may be required to inform an Ecological Impact Assessment (EclA); and
 - identify the opportunities offered by a project to deliver ecological enhancement.

STATEMENT OF AUTHORITY

- 2.5. Dawn Thompson is an experienced ecologist with over sixteen years of experience in ecological surveys and assessments and holds a BSc (Hons) in Environmental Biology. Dawn is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), and the Association of Environmental Clerks of Works (AECOW). Dawn has experience in undertaking and managing a range of surveys including badger, otter, ornithological, and other protected/notable species. Dawn also has also undertaken various assessments including Ecological Impacts Assessments, Natura Impact Assessments / Appropriate Assessments, extended phase 1 habitat, for a large number of projects. These numerous projects include a variety of developments such as renewables, residential, mixed-use, utility, roads and flood prevention schemes. Dawn is experienced in Geographical Information Systems (GIS) and regularly uses QGIS to produce maps for reports and surveying. Dawn is also a qualified tree climber for undertaking aerial preliminary roost assessments within trees.
- 2.6. Rhys Newell has over six years ecological surveying experience, including red squirrel, badger, otter, beaver, breeding birds, bats and phase 1 habitat surveys. Rhys is an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Projects that Rhys has worked on include a flood prevention scheme, renewables, residential and commercial developments. Rhys has experience of Geographical Information Systems (GIS) and regularly uses QGIS to produce maps for reports and surveying and has completed a course in advanced thermal imaging techniques. Rhys is a qualified tree climber for undertaking aerial preliminary roost assessments within trees.
- 2.7. Helen Crossley has a BSc (Hons) in Botany and is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Helen has varied experience in ecology and environmental management gained from working for an environmental consultancy and her own company. This has involved conducting; botanical surveys including: Phase 1 habitat, National Vegetation Classification (NVC), condition assessments and vascular plant surveys; protected species surveys: bat, badger, great crested newt, otter, water vole and red squirrel; herbivore impact assessment surveys and working as an Ecological Clerk of Works (ECoW). Report production includes; survey reports for extended Phase 1 and NVC, Ecological Impact Assessments (EClA), habitat management plans and feasibility studies. Helen has experience of various Geographical Information Systems (GIS) and regularly uses QGIS to produce maps for reports and surveying.

3. LEGISLATION, POLICY AND GUIDANCE

LEGISLATION AND POLICY

3.1. This ecological assessment has been undertaken with regard appropriate legislation:

- Wildlife and Countryside Act 1981¹
- The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2019²
- Invasive Non-native Species (EU Exit) Scotland (Amendment etc.) Regulations³
- Nature Conservation (Scotland) Act 2004⁴
- Environment Act 1995⁵
- Conservation of Badgers Act 1992 (as amended)⁶
- Nature Conservation (Scotland) Act 2004⁷;
- The Wildlife and Natural Environment (Scotland) Act 2011⁸;
- The Water Environment and Water Services (Scotland) Act 2003⁹ (as amended) (WEWS);
- Land Use Strategy for Scotland (2011)¹⁰
- National Planning Framework 4¹¹; and
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017¹².

¹ Available at: <http://www.legislation.gov.uk/ukpga/1981/69>

² Available at: <https://www.legislation.gov.uk/ssi/2019/64/introduction/made>

³ Available at: <https://www.legislation.gov.uk/ssi/2020/473/contents/made>

⁴ Available at: <https://www.legislation.gov.uk/asp/2004/6/contents?text=nature%20conservation#match-1>

⁵ Available at: <https://www.legislation.gov.uk/ukpga/1995/25/contents?text=Environment%20Act%20#match-1>

⁶ Available at: <https://www.legislation.gov.uk/ukpga/1992/51/contents?text=badgers#match-1>

⁷ Available at: <http://www.legislation.gov.uk/asp/2004/6/contents>

⁸ Available at: <http://www.legislation.gov.uk/asp/2011/6/contents/enacted>

⁹ Available at: <http://www.legislation.gov.uk/asp/2003/3/contents>

¹⁰ Available at: <http://www.scotland.gov.uk/topics/environment/countryside/landusestrategy>

¹¹ National Planning Framework 4 - gov.scot (www.gov.scot)

¹² Available at: <http://www.legislation.gov.uk/ssi/2017/102/contents/made>

GUIDANCE DOCUMENTS

BS 42020:2013 Biodiversity¹³

- 3.2. The British Standards Institute has published *BS 42020:2013 Biodiversity. Code of Practice for Planning and Development* which offers a coherent methodology for biodiversity management. This document seeks to promote transparency and consistency in the quality and appropriateness of ecological information submitted with planning applications and applications for other regulatory approvals.
- 3.3. BS 42020:2013 cites CIEEM EclA Guidelines as the acknowledged reference on ecological impact assessment. These guidelines are consistent with the British Standard on Biodiversity, which provides recommendations on topics such as professional practice, proportionality, pre-application discussions, ecological surveys, adequacy of ecological information, reporting and monitoring.

CIEEM Guidelines

- 3.4. The Chartered Institute of Ecology and Environmental Management (CIEEM) have produced guidance on Preliminary Ecological Appraisal¹⁴ (PEA), and Ecological Report Writing¹⁵.
- 3.5. A Preliminary Ecological Appraisal (PEA) is the term used to describe a rapid assessment of the ecological features present, or potentially present, within a site and its surrounding area (the zone(s) of influence in relation to a specific project. A PEA normally comprises a desk study and an extended phase 1 habitat survey.

Other Guidelines / Documents

- Handbook for Phase 1 Habitat Survey¹⁶
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition)¹⁷;
- Legally protected species UK¹⁸
- Bat Roosts in Trees¹⁹
- Birds of Conservation Concern UK²⁰

¹³ BS 42020:2013 Biodiversity. Code of practice for planning and development

¹⁴ CIEEM (2017) Guidelines for Preliminary Ecological Appraisal.

¹⁵ CIEEM (2017) Guidelines for Ecological Report Writing

¹⁶ JNCC (2003) Handbook for Phase 1 Habitat Survey – a technique for environmental audit. JNCC, Peterborough

¹⁷ Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines¹⁷ (3rd edition). Bat Conservation Trust

¹⁸ <http://jncc.defra.gov.uk/page-3415>

¹⁹ BTHK (2018) Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals.

²⁰ http://www.rspb.org.uk/wildlife/birdguide/status_explained.aspx

- Monitoring the Otter *Lutra Lutra*²¹
- Surveying for Badgers – Good Practice Guidelines²²
- Surveying for Red Squirrels²³
- The Water Vole Mitigation Handbook²⁴
- Surveying for Pine Marten²⁵
- The Eurasian Beaver Handbook²⁶
- UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation ²⁷
- Developing with Nature Guidance²⁸

21 Chanin, P. (2003). Monitoring the Otter *Lutra Lutra*. Conserving Natura 2000 Rivers, Monitoring Series (No. 10).

22 Scottish Badgers (2018) Surveying for Badgers – Good Practice Guidelines

23 Gurnell J, et al (2009). Forestry Commission Practice Note 11. Forestry Commission, Edinburgh.

24 Dean, M., Strachan, R. Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series).

25 UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation (2012)

26 Campbell-Palmer et al. (2016) The Eurasian Beaver Handbook – Ecology and Management of Castor fiber

27 Wheeler et al. (2012) UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation

28 NatureScot (2023) Developing with Nature Guidance - Developing with Nature guidance | NatureScot

4. METHODOLOGY

STUDY AREAS

- 4.1. Various ecological study areas (ESA) have been assessed during different sections of this PEA for the Proposed Development, following standard best practice measures. Each study area is outlined within **Table 4-1** below.

Table 4-1: Study Areas

Zone of Influence	Distance from Application Site
Natura 2000 designated sites	15km
All other designated sites	5km
Biological Records	2km
Phase 1 Habitat Survey	Application Site
Species Scoping Survey	50m

- 4.2. The study areas are considered to be sufficient to cover the potential zone of influence (Zoi) of the Proposed Development.

DESK STUDY

- 4.3. A desk-based assessment was undertaken on 14th June 2023 to collate available ecological information for the Application Site and the surrounding area. This included a search of statutory designated sites within a 5km radius of the Proposed Development, including: Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs), National Nature Reserves (NNRs), RAMSAR Sites and Local Nature Reserves (LNRs). In addition, all Natura 2000 designates sites (SPAs and SACs) have been included within 15km of the Application Site. The descriptions of each of these sites was obtained utilising the NatureScot website²⁹.
- 4.4. National Biodiversity Network (NBN) Gateway website³⁰ was also searched for historical species records within 2km of the Proposed Development on 14th June 2023.

²⁹ NatureScot SiteLink. Available at: <https://sitelink.nature.scot/home>

³⁰ Available at: [Explore Your Area | NBN Atlas](#)

FIELD SURVEY

Phase 1 Habitat Survey

- 4.5. An extended phase 1 habitat survey was undertaken on the 21st June 2023 by Helen Crossley BSc (Hons) MCIEEM. This survey covered all land within the Application Site and wider land ownership (the ecological survey area). Survey work was carried out in accordance with the Joint Nature Conservation Committee (JNCC) guidelines in order to produce a phase 1 habitat map, which is contained within **Figure 3, Appendix A** of this document. Target notes have been used to highlight features of importance, and habitats too small to clearly demonstrate on the map.
- 4.6. This habitat classification method provides a standardised system to record and map semi-natural vegetation and other wildlife habitats to assess the potential importance for nature conservation.

Ground Water Dependant Terrestrial Ecosystems

- 4.7. The Functional Wetland Typology manual was reviewed to aid in the identification of wetland habitats which are reliant on ground water and surface water. Any wetland habitat observed within the ESA was assessed to determine whether it was a Ground Water Dependant Terrestrial Ecosystem (GWDTE).

Species Scoping Survey

- 4.8. The potential for supporting protected, rare or notable species within each of the habitats was noted.
- 4.9. In the context of this report, rare, protected, or otherwise notable species of flora or fauna were those considered to meet any of the following criteria:
- Species protected by UK or European legislation;
 - UK Post 2010 UK Biodiversity Framework priority species or Local Biodiversity Action Plan (LBAP) species;
 - Nationally rare or nationally scarce species;
 - Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red or Amber Lists).
- 4.10. The Wildlife and Countryside Act (1981) as amended, makes it an offence to release or allow to escape into the wild any animal, plant or micro-organism not ordinarily resident in the UK (as listed in Schedule 9 of the Act). Plant species listed in Schedule 9 were searched for during

the survey. Examples include species such as giant hogweed (*Heracleum mantegazzianum*), Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*).

- 4.11. **Table 4-2** below outlines the relevant habitat and field signs that indicate the presence of protected or notable species within the survey area.

Table 4-2: Indicative Habitats and Field Signs

Species	Indicative Habitat(s)	Field Signs
Bats	Roosts – trees, buildings, bridges, caves, etc. Foraging habitats – woodland, hedgerow, water bodies, parkland, grassland etc.	In or on potential roost sites: droppings stuck to walls, urine spotting in roof spaces, oil from fur staining round roost entrances, feeding remains (e.g. moth wings under a feeding perch).
Badger	Found in most rural and many urban habitats.	Excavations and tracks, sett entrances, latrines, hairs, well-worn paths, prints, scratch marks on trees.
Otter	Watercourses and adjacent habitats.	Holts, above ground resting places, prints, spraints, slide marks into watercourses, feeding signs (e.g. fish bones).
Beaver	Water courses and adjacent habitats.	Lodge, dam, feeding signs, felled trees, prints and trails.
Water vole	Water bodies/water courses.	Burrow entrances, prints, distinctive latrine areas, feeding signs (cropped 'grazing lawns' on water's edge).
Red squirrel	Woodland.	Dreys, feeding remains.
Pine marten	Woodland.	Dens, scats, footprints.
Reptiles	Rough grassland, log and rubble piles.	Shedded skins.
Great crested newt	Ponds within 500 m of suitable habitat within the Application Site. Suitable (terrestrial) habitat includes rough grassland, scrub and woodland, log and rubble piles and other debris, animal burrows.	No specific field signs.

Birds	Trees, hedgerows, woodland, grassland, scrub and buildings etc.	Nests, feathers, egg shells.
Freshwater pearl muscles	Waterways.	Suitable substrate.
Salmonids and other fish species	Waterways.	Suitable substrate.

LIMITATIONS

- 4.12. Results of the assessment undertaken are representative of the time that surveying was undertaken.
- 4.13. The absence of records returned during the data search does not necessarily indicate absence of a species/habitat from an area, but rather that these have not been recorded or are perhaps under-recorded within the search area.
- 4.14. An Extended Phase 1 habitat survey does not aim to produce a full botanical or faunal species list or provide a full protected species survey but, enables competent ecologists to ascertain an understanding of the ecology of the Application Site in order to:
- Broadly identify the nature conservation value of a site and preliminary assess the significance of any potential impacts on habitat/species recorded; and/or
 - Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of a site.
- 4.15. All surveys were undertaken in suitable weather conditions, during the appropriate survey seasons.
- 4.16. No other limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological value has been made.

5. BASELINE CONDITIONS

STATUTORY DESIGNATED SITES

- 5.1. The Proposed Development does not lie within or adjacent to any statutory designated environmental sites. Within 15km of the Application Site there are four Natura 2000 designated sites; one SAC and three SPAs. Within 5km of the Application Site there are twelve other environmental designated sites; seven SSSIs, one Ramsar, three LNRs and one CP.
- 5.2. Each of these sites are outlined in **Table 5-1** below and can be found in **Figure 2, Appendix A**. The site descriptions are derived from the original site citations available from NatureScot, and the Joint Nature Conservation Committee (JNCC).

Table 5-1 Designated Sites

Site Name	Qualifying/Notable Features	Distance and Direction	Connectivity
Manse Burn SSSI	<ul style="list-style-type: none"> Permian – Carboniferous Fish/Amphibia 	1.45km SE	No
Garscadden Wood LNR	<ul style="list-style-type: none"> Purple hairstreak butterfly Common woodland birds Roe deer Red fox Bluebell 	1.49km SE	No
Kilmardinny Loch LNR	<ul style="list-style-type: none"> Habitat mosaic (wet & dry woodland & grassland) 	3.24km E	No
Mugdock CP	<ul style="list-style-type: none"> Woodland 	3.28km NE	No
Craigallian Marshes SSSI	<ul style="list-style-type: none"> Flood-plain fen 	3.28km NE	No
Mugdock Wood SSSI	<ul style="list-style-type: none"> Beetle assemblage Lowland dry heath 	3.35km NE	No

Inner Clyde SPA	<ul style="list-style-type: none"> ▪ Redshank (<i>Tringa tetanus</i>), non-breeding 	3.84km SW	No
Inner Clyde Ramsar	<ul style="list-style-type: none"> ▪ Redshank (<i>Tringa tetanus</i>), non-breeding 	3.84km SW	No
Inner Clyde SSSI	<ul style="list-style-type: none"> ▪ Cormorant (<i>Phalacrocorax carbo</i>), non-breeding ▪ Eider (<i>Somateria mollissima</i>), non-breeding ▪ Goldeneye (<i>Bucephala clangula</i>), non-breeding ▪ Oystercatcher (<i>Haematopus ostralegus</i>), non-breeding ▪ Red-breasted merganser (<i>Mergus serrator</i>), non-breeding ▪ Red-throated diver (<i>Gavia stellata</i>), non-breeding ▪ Redshank (<i>Tringa tetanus</i>), non-breeding ▪ Salmarsh 	3.88km SW	Yes
Loch Humphrey Burn SSSI	<ul style="list-style-type: none"> ▪ Palaeozoic palaeobotany 	4.07km W	No
The Saltings LNR	<ul style="list-style-type: none"> ▪ Regenerated woodland and meadow, noted for its wetland habitats ▪ Orchids ▪ Common blue damselflies and common hawk dragonflies 	4.47km W	No

	<ul style="list-style-type: none"> ▪ Peacock and orange-tip butterflies ▪ Birds including cormorant, swan, grey heron, curlew and oystercatcher 		
Dumbrook Loch Meadows SSSI	<ul style="list-style-type: none"> ▪ Lowland neutral grassland 	4.52km NE	No
Dumbarton Muir SSSI	<ul style="list-style-type: none"> ▪ Upland habitat ▪ Raised bog 	4.64km NW	No
Black Cart SPA	<ul style="list-style-type: none"> ▪ Whooper swan (<i>Cygnus cygnus</i>), non-breeding 	6.04km SW	No
Endrick Water SAC	<ul style="list-style-type: none"> ▪ Atlantic salmon (<i>Salmo salar</i>) ▪ Brook lamprey (<i>Lampetra planeri</i>) ▪ River lamprey (<i>Lampetra fluviatilis</i>) 	10.68km N	No
Loch Lomond SPA	<ul style="list-style-type: none"> ▪ Capercaillie (<i>Tetrao urogallus</i>), breeding ▪ Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>), non-breeding 	14.55km NW	No

5.3. Where connectivity does not exist, there are no pathways for impacts. Therefore, only those designated sites with connectivity to the Application Site outlined above have been considered further in this assessment.

Non-Statutory Designated Sites

5.4. Within 1km of the Application Site there are three non-statutory designed sites; Wester Cochno Parkland LNCS, Edibarnet Woodland LNCS and Wester Cochno Burn LNCS. Please refer to Figure 4, Appendix A for locations of each LNCS.

- 5.5. Each of these designated sites falls within West Dumbartonshire Council. There are no non-statutory designed sites within the 1km study area present within East Dumbartonshire Council.

Wester Cochno Parkland LNCS

- 5.6. Interest features: Old trees and common wildlife
- 5.7. Species rarity: common and widespread species
- 5.8. Reason for selection: central connection between Edinbarnet Wood and Wester Cochno Burn, which together make viable area of woodland and associated agricultural habitats. Extremely accessible to local residents.

Edinbarnet Woodland LNCS

- 5.9. Interest features: common wildlife and old trees
- 5.10. Species rarity: common woodland species
- 5.11. Reason for selection: good for general wildlife, and accessible to residents

Wester Cochno Burn LNCS

- 5.12. Interest features: Woodland, old trees and common wildlife
- 5.13. Species rarity: common and widespread species
- 5.14. Reason for selection: good for general wildlife, and accessible to residents

HABITATS

- 5.15. An extended phase 1 habitat survey was undertaken on 21st June 2023, which identified eleven habitat types within the survey area, each of these are outlined below along with other relevant target notes. In addition, the phase 1 habitat map is shown within **Figure 3, Appendix A**.

5.16. Habitats present within the survey area are summarised within **Table 5-2** below.

Table 5-2 Summary of Habitats Recorded

Phase 1 Habitat	Habitat Area	Species Present	Other Observations
B2.2 Semi-improved neutral grassland	6, 8, 12, 17,19, 31	<p>Dominant species: Yorkshire fog, common bent, tufted hair-grass</p> <p>Other species: Broad-leaved dock, soft rush, field speedwell, creeping buttercup, common mouseear, common ragwort, pineappleweed, common sorrel.</p>	<p>Habitat structure: Grazed grass, very short. Grass dominated, area 6 has had muck spreading</p> <p>Animal associations: Amphibians, ground nesting birds</p> <p>Management practices: Fertiliser improvement</p>
	24	<p>Dominant species: Tufted hair-grass, soft rush</p> <p>Other species: Brooklime, sheeps sorrel, marsh thistle, lady’s smock, field horsetail, field woodrush, meadow sweet, ragged robin, common sedge, sharp flowered rush, devil’s bit scabious.</p>	<p>Habitat structure: Very wet area, with channels dominated by rushes, great variety if herbaceous plants</p> <p>Animal associations: Amphibians, ground nesting birds</p> <p>Management practices: None</p>
	3, 11, 18, 20, 28	<p>Dominant species: Tufted hair-grass, soft rush</p> <p>Other species:</p>	<p>Habitat structure: Wet area dominated by tufted hair-grass.</p>

		Creeping buttercup, Yorkshire fog, creeping thistle, broad-leaved dock, ribwort plantain, daisy, common nettle	<p>Animal associations: Cattle moving freely, ground nesting birds</p> <p>Management practices: None</p>
B4 Improved grassland		<p>Dominant species: Yorkshire fog, perennial rye grass, common bent, meadow foxtail, sweet vernal grass.</p> <p>Other species: Broad-leaved dock, creeping buttercup, field speedwell, common mouseear.</p>	<p>Habitat structure: Grass ley Animal associations: None</p> <p>Management practices: Has been partly cut</p>
A1.1.1 Semi-natural broad-leaved woodland	1, 5, 10	<p>Dominant species: Beech, sycamore, hawthorn, silver birch, common lime, ash, wych elm, sessile oak, rhododendron</p> <p>Other species: Holly, wild cherry, rowan, alder. Ground flora a mix of grasses herbs, fern and mosses. Greater knapweed, broad-leaved willowherb, common male fern, cow parsley, herb Robert, common hogweed, creeping thistle, Yorkshire fog, cocksfoot, meadow</p>	<p>Habitat structure: Trees generally young 10-20m tall, some natural regeneration of ash. Trees generally in good condition, very few old trees.</p> <p>Animal associations: Low roosting potential for bats, although good for feeding and commuting. Nesting birds, small mammals, deer.</p> <p>Management practices: None</p>

		<p>buttercup, daisy, ground elder, sweet vernal grass, raspberry, foxglove, dog violet, bramble.</p>	
	7, 26, 29	<p>Dominant species: Silver birch, sycamore</p> <p>Other species: Rowan, hawthorn, ash, Scots pine. Ground flora less diverse than other areas of woodland, mostly grasses. Common bent, Yorkshre fog, cocksfoot, foxglove.</p>	<p>Habitat structure: More open woodland, young trees 10-20m tall.</p> <p>Animal associations: Low bat roost potential, good for feeding and commuting bats. Nesting birds, small mammals and deer</p> <p>Management practices: None, cattle roam freely in area</p>
B5 Marshy grassland	2, 9, 13, 19	<p>Dominant species: Soft rush</p> <p>Other species: Tufted hair-grass, creeping thistle, Yorkshire fog, Creeping soft grass, marsh thistle, broadleaved dock, lady’s smock, common sedge, sharp flowered rush</p>	<p>Habitat structure: Wetter areas where there is no sign of grazing although lots of trampling by cattle.</p> <p>Animal associations: Amphibians, grazing cattle</p> <p>Management practices: None seen</p>
A2.1 Continuous scrub	14, 16, 21, 23, 25	<p>Dominant species: Gorse. Area 23 has more goat willow and hawthorn as the dominant species</p>	<p>Habitat structure: Scrub mostly of gorse but with the odd tree.</p>

		<p>Other species: Brambles, elderflower, goat willow, hawthorn, silver birch, field forget-me-not, meadow vetchling, broad-leaved willowherb, tormentil</p>	<p>Animal associations: Badger, nesting birds</p> <p>Management practices: None</p>
A2.2 Scattered scrub	15, 22, 27	<p>Dominant species: Gorse</p> <p>Other species: Creeping thistle, tufted hair-grass, soft rush, foxglove, common bent, Broad-leaved dock.</p>	<p>Habitat structure: Scattered gorse in semi-improved grassland</p> <p>Animal associations: Badger nesting birds</p> <p>Management practices: None, cattle moving freely.</p>
A3.1 Scattered broadleaved trees	30	<p>Dominant species: Silver birch</p> <p>Other species: Blueberry, Yorkshire fog, tormentil, marsh thistle, tufted hair-grass</p>	<p>Habitat structure: Scattered trees with a more heathy ground flora</p> <p>Animal associations: Badgers, possible feeding for bats, nesting birds, small mammals, reptiles, amphibians</p> <p>Management practices: None</p>
G2 Running water	Target Note 1	<p>Dominant species: No vegetation in channel</p>	<p>Habitat structure: 2-3m wide, up to 40cm deep, medium flow, bottom of sand gravel, cobbles</p>

			<p>boulders, banks varying up to 1m from horizontal to 90°. Banks with broad-leaved woodland and grassy understorey.</p> <p>Animal associations: Good commuting route for otters and possible resting places, potentially small fish, amphibians in wider area. Possible feeding and commuting route for bats.</p> <p>Management practices: None seen</p>
J2.5 Wall	Target Notes 2, 3 & 6	Please refer to the relevant Target Notes below	-
J2.2.2 Species-poor Defunct Hedge	Target Notes 4 & 5	Please refer to the relevant Target Notes below	-
J2.4 Fence	N/A	N/A	N/A

Target Notes

5.17. Table 5-3 outlines target notes recorded during the extended phase 1 habitat survey.

Table 5-3 Summary Target Notes

Target Note	Description
1	<p>Habitat: Running water</p> <p>Dominant species: No vegetation in channel</p>

	<p>Habitat structure: 2-3m wide, up to 40cm deep, medium flow, bottom of sand gravel, cobbles boulders, banks varying up to 1m from horizontal to 90°. Banks with broad-leaved woodland and grassy understorey.</p> <p>Animal associations: Good commuting route for otters and possible resting places, potentially small fish, amphibians in wider area. Possible feeding and commuting route for bats.</p> <p>Management practices: None seen</p>
2	<p>Habitat: Wall</p> <p>Dominant species: Hawthorn, grasses including sweet vernal grass, creeping soft-grass, mosses <i>Polytrichum piliferum</i>, <i>Rhytidiadelphus loreus</i>, <i>Calliergonella cuspidata</i>, Polpody and lady fern.</p> <p>Other species: In the water channel: water forget-me-not, soft rush, marsh willowherb, common nettle, cleavers</p> <p>Habitat structure: Old wall covered in vegetation with line of hawthorn growing on top and a wet ditch running down one side.</p> <p>Animal associations: Potential shelter for reptiles and small mammals, wet ditch good for amphibians.</p> <p>Management practices: None</p>
3	<p>Habitat: Wall</p> <p>Dominant species: None</p> <p>Habitat structure: Old stone wall, in good repair</p> <p>Animal associations: Good for sheltering reptiles and small mammals</p> <p>Management practices: None</p>
4	<p>Habitat: Hedge</p> <p>Dominant species: Hawthorn</p> <p>Habitat structure: Old hedge formed by hawthorn along line of old wall.</p> <p>Animal associations: Nesting birds</p> <p>Management practices: None</p>
5	<p>Habitat: Hedge</p> <p>Dominant species: Hawthorn</p> <p>Habitat structure: Remnants of hedge, a few straggly hawthorn.</p> <p>Animal associations: None</p>

	Management practices: None
6	<p>Habitat: Wall with scattered trees</p> <p>Dominant species: Sycamore, beech, Scots pine</p> <p>Habitat structure: Old wall which is mostly overgrown with a line of scattered trees on top.</p> <p>Animal associations: Resting place for reptiles and small mammals.</p> <p>Management practices: None</p>

Ground Water Dependant Terrestrial Ecosystems (GWDTEs)

- 5.18. It is considered that from the baseline data collected during the habitat survey, and the site topography, the areas of B5 Marshy grassland are not GWDTEs, but are present due to surface waters shedding from adjacent land.

SPECIES

- 5.19. Please refer to **Table 7-1, Appendix B** for Summary of Biological Records.

Flora

Desk-based

- 5.20. Records of invasive non-native species (INNS) within the study area were returned by the data search.

Field survey

- 5.21. Rhododendron is a dominant species within the area of semi-natural broad-leaved woodland. No other INNS were recorded within the survey area during the recent ecological survey.

Invertebrates

Desk-based

- 5.22. A number of local biodiversity action plan priority invertebrate species within the wider area were returned by the desk-based study, including ringlet, small pearl-bordered fritillary and common blue butterfly.

Field survey

- 5.23. Although no notable invertebrate species were observed during the extended phase 1 habitat survey, the mosaic of habitats within the Site Boundary offer potential to support a variety of invertebrate species.

Amphibians & Reptiles

Desk-based

- 5.24. Records of common toad, common frog and palmate newt were returned during the data search. As reptiles and amphibians are often under-recorded, an absence of records does not confirm an absence of species within the local area.

Field survey

- 5.25. The mosaics of habitats including the semi-improved neutral grassland, marshy grassland, scattered trees with ground vegetation, water, wall and hedgerow offer suitable habitat to support a variety of herptile species.

Birds

Desk-based

- 5.26. Records of a variety of species associated with farmland, grassland and woodland were returned during the data search.

Field survey

- 5.27. Habitats within the survey area including grassland, scrub and woodland all offer potential to support nesting birds.

Mammals

Badger

Desk-based

- 5.28. No records of badger were returned during the data search.

Field survey

- 5.29. Although the woodland and grassland areas are suitable to support badgers; no evidence of badger activity was noted.

Otter

Desk-based

- 5.30. Records of otter within the local area were returned by the data search.

Field survey

- 5.31. The waterways to the east, west and south of the Site Boundary offer connectivity between the Site and the wider aquatic environment including lochs, ponds, burns and rivers. The grassland and woodland also offers suitable foraging habitat for this species.

Water Vole

Desk-based

- 5.32. Records of water vole were returned during the desk-based assessment.

Field survey

- 5.33. No evidence of water vole was noted within the survey area; however, the waterways and wet grassland offer potential to support this species.

Bats

Desk-based

- 5.34. No records of bats were returned within the study area. An absence of records does not confirm an absence of bat species within the local area, as these species are often under-recorded.

Field survey

- 5.35. The Site generally offer low potential for roosting bats; however, suitable foraging and commuting habitat is abundant within the Site and adjacent landscape.

Other Mammals

Desk-based

5.36. Records of pine marten, and hedgehog were returned during the desk-based assessment.

Field survey

5.37. No suitable den sites for pine marten were noted within the survey area.

5.38. The mosaic of grassland, hedgerow and woodland offer potential to support hedgehog.

6. CONCLUSION AND RECOMMENDATIONS

DESIGNATED SITES

Statutory

- 6.1. Of the 16 statutory environmental designated sites within the study areas, only one has connectivity with the Site Boundary; Inner Clyde SSSI (ornithological only).

Inner Clyde SSSI

- 6.2. Inner Clyde SSSI has a separation distance of approximately 3.88km from the Site Boundary, with red-throated diver being the only qualifying species likely to regularly commute 3.88km from the SSSI boundary. However, as the habitats within the Site Boundary are sub-optimal for this species, it is considered that red-throated diver will not be present onsite, and therefore not impacted by the Proposed Development.

Non-Statutory

- 6.3. The three LNCS adjacent to the Application Site have been designated for supporting local wildlife, including common flora and fauna species.
- 6.4. Measures have been outlined within this report to protect the local biodiversity during the construction and operational phases of the Proposed Development, which will also protect these LNCS and associated wildlife. These measures include pre-commencement ecological surveys to update the baseline data at the time of construction, to allow for additional appropriate mitigation measure to be implemented (if required).

HABITATS

- 6.5. It is recommended that the areas of woodland should be avoided during the design of the Proposed Development, and that appropriate root protection zones are implemented around the woodland (or trees) directly adjacent to the final design layout.
- 6.6. The improved grassland areas are of the lowest ecological value within the Site Boundary.

Any works within close proximity to the waterways within the Site Boundary should be protected during the construction phase, in accordance with best practice guidance, to prevent contamination of the aquatic environment.

SPECIES

Flora

- 6.7. Rhododendron is an invasive non-native species, and the removal of this species onsite encouraged. The disposal of the INNS plant material and contaminated soils should be undertaken appropriately in accordance with current legislation and best practice measures.
- 6.8. The removal of this species would open up the ground layer within the woodland, allowing for natural regeneration of native species, which would lead to a positive impact for local biodiversity.

Invertebrates

- 6.9. It is recommended that the final design seeks to minimise the loss of semi-improved neutral grassland and wet grassland to retain habitat for a variety of invertebrate species. Retaining the woodland areas will also benefit invertebrate species onsite.
- 6.10. Creation of log piles and/or bug box/hotels onsite would be beneficial to invertebrate species.

Amphibians & Reptiles

- 6.11. Retaining woodland, drystone walls, and minimising loss of semi-improved neutral grassland and wet grassland would be beneficial for herptile species.
- 6.12. As the current sward height within the Site offers potential shelter for herptiles, appropriate cutting is important to prevent injury to these species.
- 6.13. For tall grass, a first cut should be undertaken to 25cm, and then a second cut down to 10cm (or required height). Cutting should work in a general direction towards the Site Boundary to allow for any individuals to be flushed towards the safety of this area.
- 6.14. Creation of drystone walls along the development boundary would also be beneficial for herptiles and other small animals.

Birds

- 6.15. Given the presence of nesting habitat within and directly adjacent to the Application Site, it is recommended that where works commence during the nesting season (March to August inclusive) a pre-commencement breeding bird check should be undertaken by a suitable experienced ecologist a maximum of 48-hours prior to works commencing (including site preparation works).

- 6.16. Installation of bird boxes within the woodland area or scattered trees would be beneficial to many bird species.

Mammals

Badger

- 6.17. From the current survey findings, it is considered that the Proposed Development is unlikely to impact upon this species. However, badger are highly mobile and can excavate setts in relatively short periods of time. As suitable habitat is present within the Site Boundary, pre-commencement badger surveys are recommended.

Otter

- 6.18. No signs of otter were observed during the field survey. However, the Site Boundary, and adjacent waterways may offer foraging habitat for otter commuting throughout the area. A pre-commencement otter survey is recommended.
- 6.19. The loss of grassland directly under the footprint of the Proposed Development is not considered significant loss to otter, as this is abundant in the local area.

Water Vole

- 6.20. From the current baseline data, it is anticipated that the Proposed Development will not impact upon this species.
- 6.21. Where the final development layout lies within 10m of waterways, a pre-commencement water vole survey is recommended.

Bats

- 6.22. It is recommended that the areas of woodland should be avoided during the design of the Proposed Development, which will retain suitable foraging and commuting habitat for bat species within the area.
- 6.23. The direct loss of habitat within the Site Boundary will not significantly impact bat species as this habitat is available in the wider landscape.
- 6.24. Installing bat boxes within the woodland areas would be beneficial to bat species due to the lack of roosting opportunities onsite.

Other Mammals

- 6.25. The current sward height within the Application Site offers potential shelter for hedgehog. If this area of grassland is left unmanaged prior to works commencing, maintaining a tall sward, appropriate cutting is important to prevent injury to this species.
- 6.26. For tall grass, a first cut should be undertaken to 25cm, and then a second cut down to 10cm (or required height). Cutting should work in a general direction towards the site boundaries to allow for any individuals to be flushed towards the safety of this area.

Biodiversity Enhancements

- 6.27. As detailed above, biodiversity enhancements that should be considered onsite include the creation of drystone walls, log piles and/or bug box/hotels and implementation of wildlife boxes including bird and bat boxes within the woodland area.

7. APPENDICES

APPENDIX A – MAPS

Figure 1 – Site Location Map

Figure 2 – Environmental Designations

Figure 3 – Habitat Map

Figure 4 – LNCS map

APPENDIX B – BIOLOGICAL RECORDS

APPENDIX C – SITE PHOTOGRAPHS

Land Near Concho Road Site Location Map Figure 1

Legend

 Site Boundary

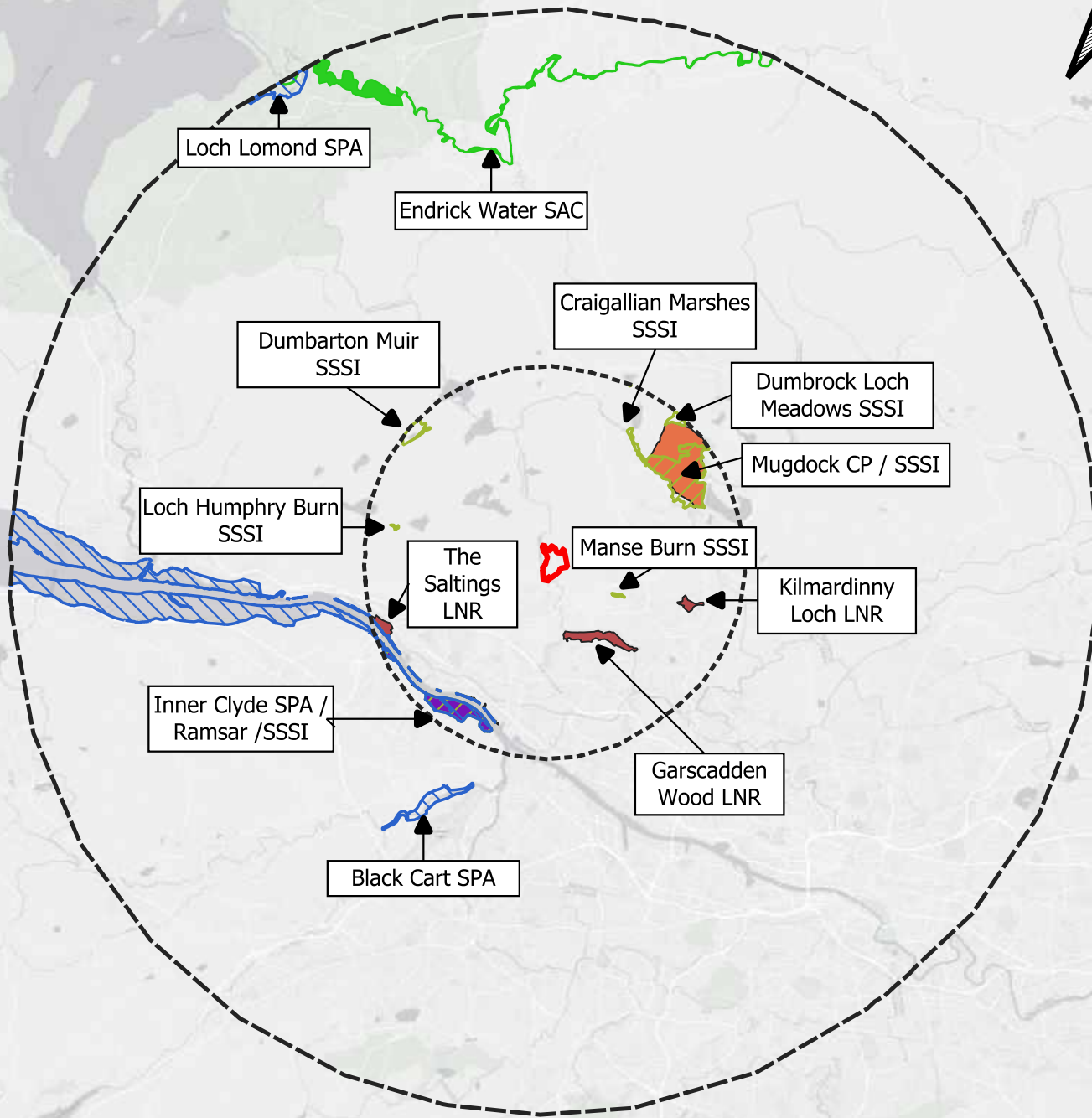


Drawing Number: 78/208/1/A
Date: 25.06.23
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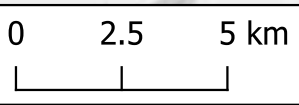


Land Near Concho Road Environmental Designations Figure 2



Legend

-  Site Boundary
-  5km buffer
-  15km buffer
-  SPA to 15km
-  SAC to 15km
-  SSSI to 5km
-  Ramsar to 5km
-  LNR to 5km
-  CP to 5km
















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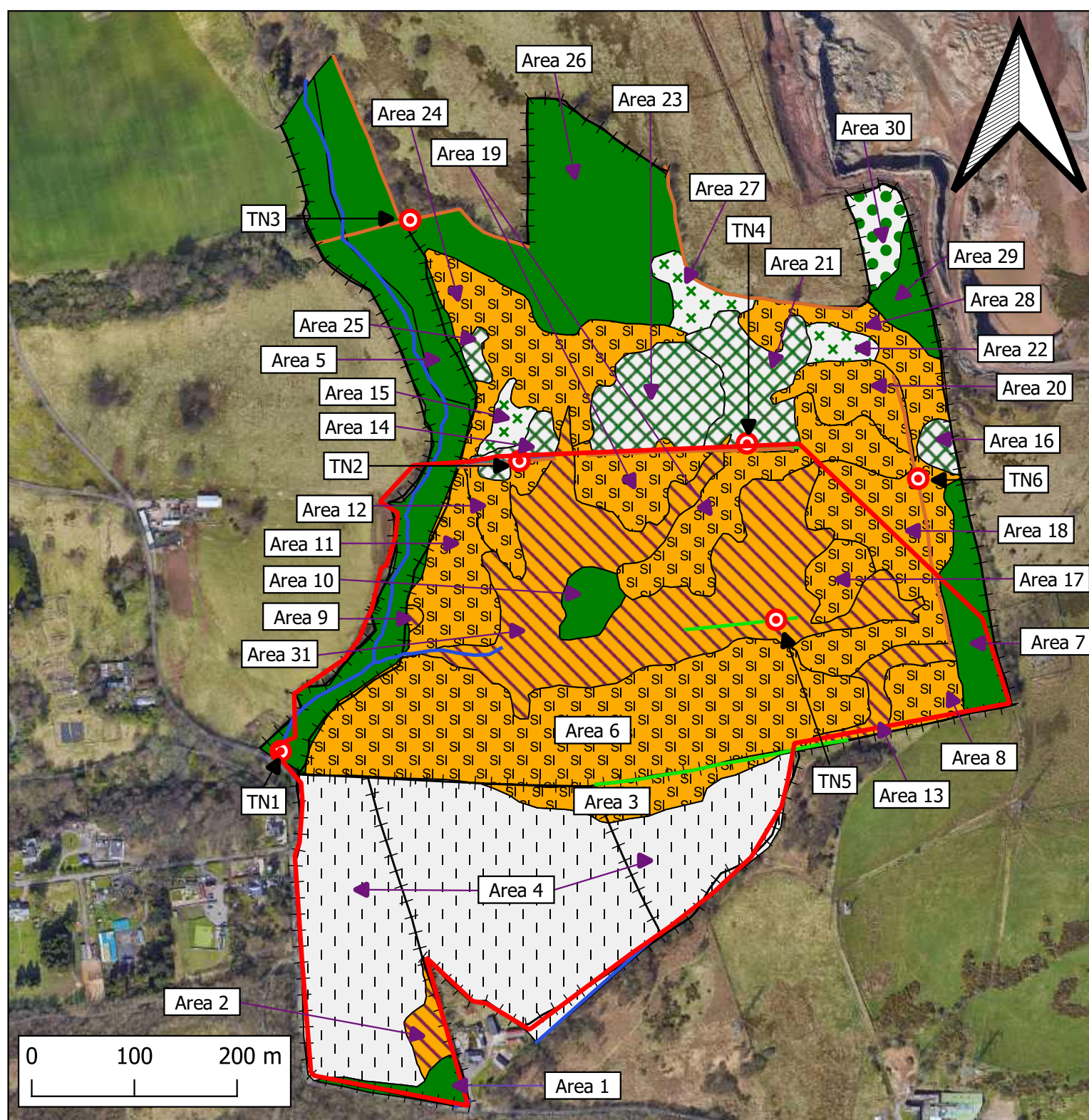
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Land Near Concho Road Phase 1 Habitat Map Figure 3

Legend

-  Site boundary
-  TN locations
-  A1.1.1 - Semi-natural broadleaved woodland
-  A2.1 - Dense scrub
-  A2.2 - Scattered scrub
-  A3.1 - Broadleaved scattered trees
-  B2.2 - Semi-improved neutral grassland
-  B4 - Improved grassland
-  B5 - Marshy grassland
-  G2 - Running water
-  J2.2.2 - Species-poor native defunct hedge
-  J2.4 - Fence
-  J2.5 - Wall







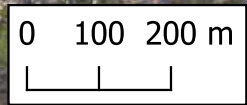
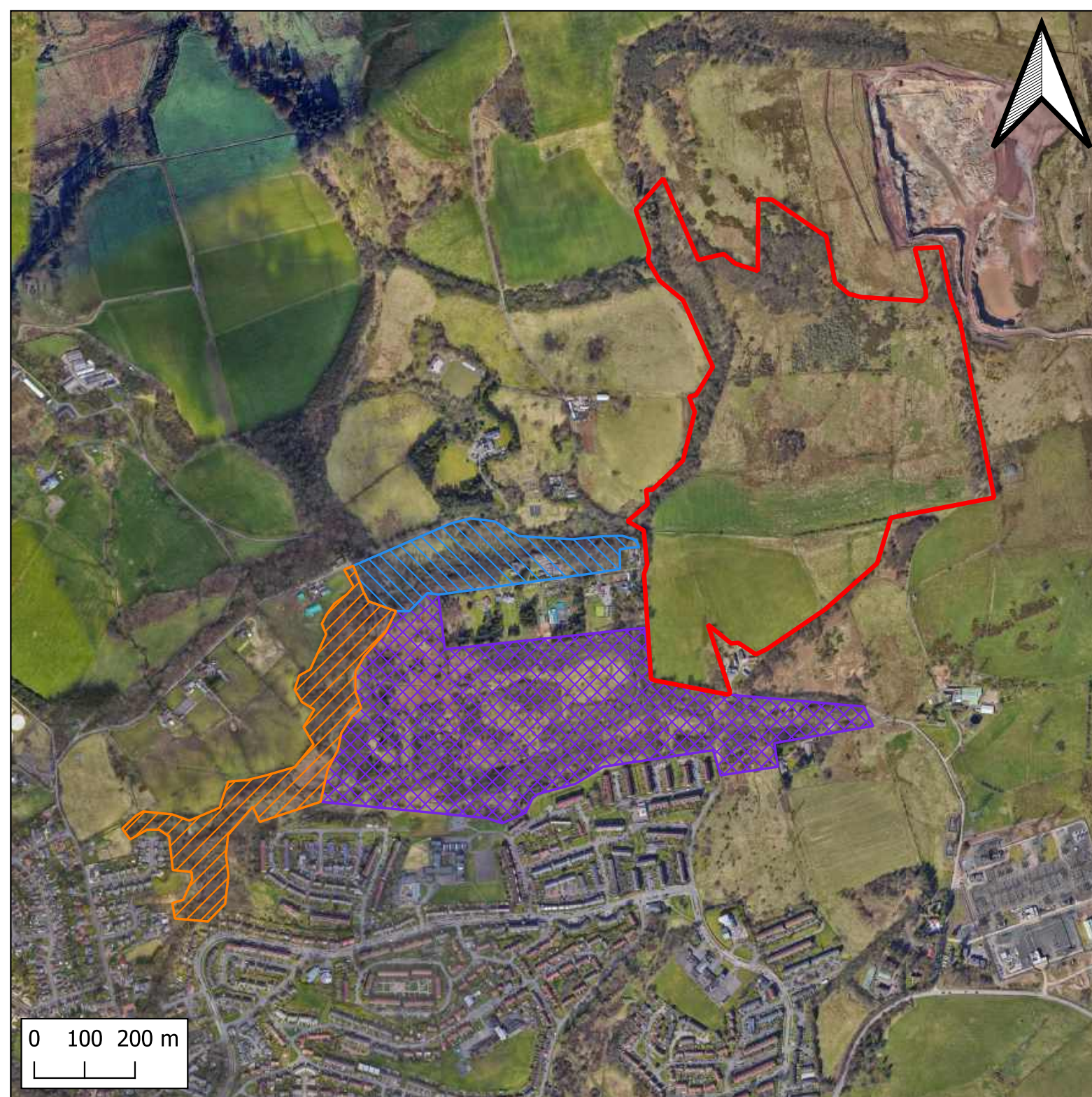
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 Date: 10.07.23
 Created By: DT

Land Near Concho Road Local Nature Conservation Sites

Figure 4

Legend

-  Site Boundary
-  Edinbarnet Woodland LNCS
-  Wester Cochno Burn LNCS
-  Wester Cochno Parkland LNCS



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APPENDIX B – BIOLOGICAL RECORDS

Table 7-1: Summary of Biological Records

Species	Records of Species within Study Area	Potential for Species within Proposed Development	Evidence of Species Observed within the ESA
Mammals			
European water vole <i>Arvicola amphibius</i>	Yes	Yes	No
Beaver <i>Castor fiber</i>	No	No	No
Hedgehog <i>Erinaceus europaeus</i>	Yes	Yes	No
Wild cat <i>Felis silvestrus</i>	No	No	No
Brown hare <i>Lepus europaeus</i>	No	Yes	No
Otter <i>Lutra Lutra</i>	Yes	Yes	No
Pine marten <i>Martes martes</i>	Yes	No	No
Common pipistrelle <i>Pipistrellus pipistrellus</i>	No	Yes	No
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	No	Yes	No
Daubenton's bat <i>Myotis daubentonii</i>	No	Yes	No
Brown long-eared bat <i>Plecotus auritus</i>	No	Yes	No
Red squirrel <i>Sciurus vulgaris</i>	No	Yes	No
Grey squirrel <i>Sciurus carolinensis</i>	Yes	Yes	No
Amphibians			
Common toad <i>Bufo bufo</i>	Yes	Yes	No
Common frog <i>Rana temporaria</i>	Yes	Yes	No
Palmate Newt <i>Lissotriton helveticus</i>	Yes	Yes	No
Smooth newt <i>Lissotriton vulgaris</i>	No	Yes	No

Preliminary Ecological Appraisal

Great crested Newt <i>Triturus cristatus</i>	No	Yes	No
Reptiles			
Common lizard <i>Zootoca vivipara</i>	No	Yes	No
Slowworm <i>Anguis fragilis</i>	No	Yes	No
Adder <i>Vipera berus</i>	No	Yes	No
Grass snake <i>Natrix helvetica</i>	No	Yes	No
Birds			
Redpoll <i>Acanthis flammea</i>	Yes	Yes	No
Skylark <i>Alauda arvensis</i>	Yes	Yes	No
Greylag goose <i>Anser anser</i>	Yes	Yes	No
Pink-footed goose <i>Anser brachyrhynchus</i>	Yes	Yes	No
Meadow pipit <i>Anthus pratensis</i>	Yes	Yes	No
Tree pipit <i>Anthus trivialis</i>	Yes	Yes	No
Swift <i>Apus apus</i>	Yes	Yes	No
Yellowhammer <i>Emberiza citrinella</i>	Yes	Yes	No
Swallow <i>Hirundo rustica</i>	Yes	Yes	No
Linnet <i>Linaria cannabina</i>	Yes	Yes	No
Curlew <i>Numenius arquata</i>	Yes	Yes	No
House sparrow <i>Passer domesticus</i>	Yes	Yes	No
Tree sparrow <i>Passer montanus</i>	Yes	Yes	No
Grey partridge <i>Perdix perdix</i>	Yes	Yes	No
Starling <i>Sturnus vulgaris</i>	Yes	Yes	No
Song thrush <i>Turdus philomelos</i>	Yes	Yes	No
Mistle thrush <i>Turdus viscivorus</i>	Yes	Yes	No
Lapwing <i>Vanellus vanellus</i>	Yes	Yes	No
Invertebrates			

Preliminary Ecological Appraisal

Early bumblebee <i>Bombus pratorum</i>	Yes	Yes	No
Common blue <i>Polymmatu<i>s</i> icarus</i>	Yes	Yes	No
Green hairstreak <i>Callophrus rubi</i>	No	Yes	No
Small pearl-bordered fritillary <i>Boloria selene</i>	Yes	Yes	No
Ringlet <i>Aphantopus hyperantus</i>	Yes	Yes	No
Flora			
Round-leaved sundew <i>Drosera rotundifolia</i>	Yes	Yes	No
Giant hogweed <i>Heracleum sphondylium</i>	Yes	Yes	No
Bluebell <i>Hyacinthoides non-scripta</i>	Yes	Yes	No
Himalayan balsam <i>Impatiens glandulifera</i>	Yes	Yes	No

APPENDIX C – SITE PHOTOGRAPHS

Photograph 1: Target Note 1



Photograph 2: Target Note 2



Photograph 3: Target Note 4



Photograph 4: Target Note 5



Photograph 5: Target Note 6



Photograph 6: Area 19



Photograph 7: Area 19



Photograph 8: Area 4



Photograph 9: Area 4



Photograph 10: Area 5



Photograph 11: Area 5



Photograph 12: Area 26



Photograph 13: Area 7



Photograph 14: Area 14



Photograph 15: Area 14



Photograph 16: Area 25



Photograph 17: Area 30



Photograph 18: Area 6



Photograph 19: Area 24



Photograph 20: Area 24



Photograph 21: Area 20

