Kintore Hydrogen Plant
Preliminary Ecological Appraisal

October 2023

CONTROL SHEET

Client:	C/O William Summerlin for Statera Energy Limited
Project Title:	Kintore Hydrogen Plant
Report Title:	Preliminary Ecological Appraisal
Document number:	13628
Project number:	376782

Issue Record

Issue	Status	Author	Reviewer	Approver	Issue Date
1	Final	JEP	GN	GN	31/08/2023
2	Final V2	JEP	GN	GN	14/09/2023
3	Final V3	JEP	GN	GN	04/10/2023
4	Final V4	JEP	GN	GN	06/10/2023

EnviroCentre Limited Office Locations:

Glasgow **Edinburgh** **Inverness** **Banchory**

Registered Office: Craighall Business Park 8 Eagle Street Glasgow G4 9XA
Tel 0141 341 5040 info@envirocentre.co.uk www.envirocentre.co.uk

EnviroCentre Limited is registered in Scotland under no. SC161777.

VAT no. GB 348 6770 57.

EXECUTIVE SUMMARY

EnviroCentre Ltd. was commissioned by William Summerlin on behalf of Statera Energy Ltd. to conduct a Preliminary Ecological Appraisal (PEA) of a site south of Kintore, Aberdeenshire, to inform development of an electrolysis plant.

Four areas of Long-established plantation origin (LEPO) on the Ancient Woodland Inventory (AWI) are and four blocks of native woodland survey of Scotland (NWSS) are present within the site.

24 UKHab primary habitat types are present within the site inclusive of Annex 1 priority habitat rivers, Scottish Biodiversity List (SBL) lowland acid grassland, wet woodland, lowland mixed deciduous woodland, native pine woodlands, lowland fens, purple moor-grass and rush pastures and arable field margins. Regional important other neutral grassland, *Deschampsia* neutral grassland, *Holcus-juncus* neutral grassland, modified grassland, other broadleaved woodland, other coniferous woodland, scrub, mixed scrub, rivers and burns, other standing water (ponds), buildings and built linear features (railways). Site important temporary grass and clover leys and cereal crops. Lesser butterfly orchid were also recorded and are SBL priority plants.

Potential ground water dependent terrestrial ecosystems (GWDTEs) were identified within and adjacent to the site including lowland fens, holcus-juncus neutral grassland, Deschampsia neutral grassland, purple moor-grass and rush pasture and wet woodland.

During the survey, invasive non-native species (INNS) were identified within and adjacent to the site including giant hogweed, Japanese knotweed, Himalayan balsam, white butterbur, monkey flower and American mink (footprints). Update surveys to determine the spread and distribution of INNS should be undertaken and a management plan produced for their eradication.

The following protected and notable species were identified during the survey, including:

- Buildings offering low-moderate potential for roosting bats, woodland and trees offering low – high suitability for roosting bats and habitats assessed as offering high suitability for commuting bats were identified within and adjacent to the site.
- One otter couch and two otter lay-ups were identified during the survey along the River Don.
- Pine marten scat was identified west of the site boundary.
- A potential squirrel drey was identified in woodland north of the central region of the site.
- Field signs of badger were identified during the survey.
- High-quality reptile refugia was present throughout the site.
- A Barn Owl roost was identified in a tree on site, a raptor nest was identified within woodland adjacent to the site and Sand Martin nests were present on the bank of the River Don.
- Suitable habitat exists for water vole, hedgehog, brown hare, amphibians, fish, freshwater pearl mussels and invertebrates.

Further surveys for woodlands/ trees, potential GWDTEs, bats, otter, water vole, red squirrel, pine marten, badger, reptiles, birds (general and Barn Owl), invertebrates, fish, freshwater pearl mussels are advised. It is advised that a valid ecological baseline dataset should be maintained for all species.

It is advised all Annex 1, SBL and regional important habitats are prioritised for retention, as well as any trees with Potential Roost Features, the ruin building with low suitability for bats, otter rest sites, badger setts (specifically main features), red squirrel dreys, Barn Owl roost, raptor nest and Sand Martin nests.

Broad avoidance, mitigation and compensation strategies are suggested to avoid and minimise and compensate for predicted potential impacts based on current site knowledge.

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1 INTRODUCTION

1.1 Terms of Reference

EnviroCentre Ltd. was commissioned by William Summerlin on behalf of Statera Energy Ltd. to conduct a Preliminary Ecological Appraisal (PEA) of a site south of Kintore, Aberdeenshire.

The 'site' is defined as the area demarcated by the red line boundary as shown in Appendix A. The 'survey area' constitutes the area of the 'site' plus appropriate buffers.

The results and recommendations in this document relate to the site boundary as provided by the client at the time of the survey. No detailed development design has been provided by the client as the PEA survey is to be used to help towards this.

1.2 Background

A PEA survey of the central region of the site was previously undertaken in 2022 by EnviroCentre[1], prior to the new (current) larger site boundary being selected.

Winter breeding bird surveys were also undertaken of the central region of the site previously in 2022-2023 by EnviroCentre.

An updated site boundary was provided by the client in July, with a new access route included, therefore this additional area was surveyed in July and results included in this report.

1.3 Scope of Report

The aim of the study is to provide a baseline ecological evaluation of the site to inform any future development plans. The objectives were as follows:

- Update the project desk study to gather previously recorded biological data relating to the site and extended survey area;
- Categorise and map the broad habitats present on the site;
- Search for field evidence of a range of protected or notable species which may frequent the survey area;
- Identify suitable habitat for protected or notable species in the survey area;
- Evaluate the habitats and species applicable to site against geographic levels of importance;
- Appraise the potential impacts to habitats and species should no avoidance, mitigation or compensation be applied within the proposed project;
- Make recommendations for any further survey to inform the proposed project and/or species licensing requirements.
- Suggest broad measures to avoid, minimise and compensate for the predicted negative ecological effects associated with the proposed project; and
- Suggest opportunities offered by the proposed development to deliver biodiversity gain.

[1] ECRPT 10271 Kintore, Aberdeenshire - PEA - Final

1.4 Site Description

The site is located south of Kintore, centred at National Grid reference: NJ 78276 14343, 91m above sea level. The site consists of a mosaic of agricultural land, grassland, scrub, trees, heathland, woodland, residential cottage, ruined building and horse steading. The site also includes parts of several watercourses including the River Don, Park Burn, Dewsford Burn, Tuach Burn and Silver Burn and a pond in the central region.

The site comprises three main areas and a series of thin corridors between and to the south of the three main areas. The site is bounded to the north by the B977, the Harthills plantation and agricultural fields, to the east by the River Don, and to the south and west by agricultural fields. The site is crossed by the B977 in the west and the A96 and the Rushlach in the east.

In the wider landscape, a mostly industrial area is found east of the site, the town of Kintore to the northeast and with the remaining surrounding landscape being dominated by woodland, pastures and agricultural land. Kintore Hydrogen Plant is located north west of the site, approximately 340m from the nearest site boundary.

1.5 Project Description

The main elements of the development are the electrolysis plant, located west of Kintore 400 kV substation; a short underground electrical connection into the substation; an underground hydrogen export pipeline to a connection point on the existing high-pressure natural gas pipeline west of the A96; and underground water intake and discharge pipelines to the River Don. At the River Don, there will be intake and outfall structures on the south bank and a pumping station.

1.6 Legislation, Policy and Guidance

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- The Nature Conservation (Scotland) Act 2004;
- The Wildlife and Natural Environment (Scotland) Act 2011 (WANE);
- The Protection of Badgers Act 1992;
- National Planning Framework 4;
- Scottish Biodiversity Strategy to 2045;
- The British Standard for Biodiversity;
- The Aberdeenshire Local Development Plan 2023[2]; and
- North East Scotland Biodiversity Action Plan (NESBiP)[3].

A summary of protected species legislation is provided in Appendix B.

1.7 Report Usage

The information and recommendations contained within this report have been prepared in the specific context stated above and should not be utilised in any other context without prior written permission from EnviroCentre Limited.

[2] Available at: https://online.aberdeenshire.gov.uk/ldpmedia/LDP2021/AberdeenshireLocalDevelopmentPlan2023IntroductionAndPolicies.pdf
[3] Available at: https://www.nesbiodiversity.org.uk/

If this report is to be submitted for regulatory approval more than 12 months following the report date, it is recommended that it is referred to EnviroCentre Limited for review to ensure that any relevant changes in data, best practice, guidance or legislation in the intervening period are integrated into an updated version of the report.

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2 METHOD

2.1 Desk Study

Prior to field work being undertaken, a desk study of the site and surrounds was undertaken in May 2023. The following sources were checked:

- A review of North East Scotland Biological Records Centre (NESBReC) for data up to 2km of the site obtained in 2022, including:
  - Notable or protected species records;
  - Invasive non-native species (INNS);
  - Ancient woodland; and
  - Sites of Importance for Nature Conservation (SINCs)
- NatureScot Sitelink[4] for information on:
  - Special Protection Areas (SPA), Special Areas of Conservation (SAC), Sites of Special Scientific Interest (SSSI) and Ramsar sites up to 5km of the Site (including possible/proposed sites); and
  - National Nature Reserves (NNR) and Local Nature Reserves (LNR) up to 2km of the Site;
- Scotland's Environment[5] website to locate ancient or native woodland up to 1km from the site;
- The Scottish Biodiversity List (SBL) for Priority Habitats and Species[6];
- The North East Scotland Local Biodiversity Partnership[3] for Local Priority Habitats and Species; and
- Aerial imagery from Google Earth[7] and ESRI[8].

2.2 Field Survey

The surveys were conducted on the 30th May, 1st June and 25th July by Senior Consultant Jennifer Paterson and Consultant Ecologist Scott Fraser, who are both members of the Chartered Institute of Ecology and Environmental Management (CIEEM), and Graduate Ecologist Antonia Stewart. The surveys were designed using the guidelines endorsed by NatureScot and CIEEM[9]. The surveys focussed on plants and habitats on the site and those faunal species that are most likely to be found in the habitats which make up the landscape in and around the site. The weather conditions on the days of surveys were warm, dry and sunny. The average air temperatures during the surveys ranged 12-17°C.

Table 2.1 provides an overview of the area surveyed for specific habitats, species and species groups. Detailed methods regarding habitat and species surveys are provided.

[4] NatureScot. (2022). *Sitelink*. [Online] Available at: https://sitelink.nature.scot/map (Accessed May 2023)
[5] Scotland's environment. (No Date). Scotland's Environment Map. [Online] Available at: https://www.environment.gov.scot/
[6] Joint Nature Conservation Committee (JNCC). (2007). UK Biodiversity Action Plan (UKBAP) Priority Habitats & Species. [Online]. Available at: https://hub.jncc.gov.uk/assets/98fb6dab-13ae-470d-884b-7816afce42d4 (Accessed May 2023)
[7] Available at: https://www.google.com/earth/ (Accessed May 2023)
[8] Available at: https://www.esri.com/en-us/home (Accessed May 2023)
[9] CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal*. 2nd edition. available at: https://cieem.net/wp-content/uploads/2019/02/Guidelines-for-Preliminary-Ecological-Appraisal-Jan2018-1.pdf (Accessed May 2023)

Table 2-1: Survey Areas

Habitat/Species/Species Group	Survey Area (where accessible)
Habitats	Site
Groundwater Dependent Terrestrial Ecosystems (GWDTE)	Site + consideration of a 250m buffer
Invasive Non-Native Species (INNS)	Site + 50m buffer
Bats (*Chroptera spp.*)	Site + 50m buffer
Otter (*Lutra lutra*)	Site + watercourses up to a 250m buffer
Water Vole (*Arvicola amphibius*)	Site + watercourses up to a 250m buffer
Pine Marten (*Martes martes*)	Site + 100m buffer
Red Squirrel (*Sciurus vulgaris*)	Site + 50m buffer
Badger (*Meles meles*)	Site + 100m buffer
West European Hedgehog (Erinaceus europaeus)	Site + 50m buffer
Brown Hare (*Lepus europaeus*)	Site + 50m buffer
Reptiles	Site + 50m buffer
Amphibians	Site + 50m buffer
Birds	Site + 50m buffer
Invertebrates	Site
Fish Habitat Assessment (specifically Salmonids)	Site + watercourses up to a 250m buffer
Freshwater Pearl Mussel (*Margaritifera margaritifera*)	Site + watercourses up to a 250m buffer

2.2.1 UKHAB Survey

A UK Habitat Classification (UKHab) Survey was carried out in accordance with the user manual[10]. UKHab is a hierarchical system for rapidly recording and classifying habitat via satellite imagery and field survey. The system comprises 5 levels of Primary Habitats which include ecosystems, broad habitats, priority habitats and Annex I habitats, along with non-hierarchical secondary codes which provide information on the environment, management and origin of Primary Habitats. The secondary codes are also used to map habitat mosaics and identify notable species features. The information collected is used to identify ecologically sensitive features and recommend mitigation and enhancement measures in connection with a proposed development.

The surveyors utilised the UKHab Professional edition with a Minimum Mapping Unit (MMU) of 25m^2 and aimed to categorise habitats to level 5. Where the level 5 habitat could not be determined or is not reflective of the habitat type due to a lack of indicative species, habitats were categorised to level 4 or the broader level 3 habitat.

The information is used to identify ecologically sensitive features/habitats, inform relevant species surveys and, aid in the recommendation of mitigation and enhancement measures in connection with a proposed development.

Where applicable, alterations to UKHab symbology on maps may occur where relevant for clarity.

2.2.2 Groundwater Dependent Terrestrial Ecosystems

The Functional Wetland Typology (FWT) was used to aid identification of wetland habitats that may derive their water from groundwater and surface water. This information is useful in identifying if and where further surveys are required to identify the presence and potential sensitivity of GWDTEs. To help assess ground water dependency, observations of local topography, underlying geology, and features such as springs, diffuse ground water emergence and floristic indicators of base enrichment were made.

[10] Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020) The UK Habitat Classification User Manual Version 1.1 Available at: https://ukhab.org/ (Accessed June 2023)

2.2.3 Invasive Non-Native Species

The survey included recording the presence of any invasive non-native species (INNS) found on site, including but not limited to the following:

- Japanese knotweed (*Reynoutria japonica*);
- Giant hogweed (*Heracleum mantegazzianum*); and
- Himalayan balsam (*Impatiens glandulifera*).

2.2.4 Bats

An assessment was undertaken in accordance with the criteria set out by the Bat Conservation Trust (BCT)[11]. The suitability of roosting, commuting and foraging habitat was classified according to the criteria in Table 2-2 below.

Table 2-2: Suitability Classification of Roosting, Commuting and Foraging Habitats for Bats

Suitability	Roosting Features	Foraging and Commuting Habitats
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edges. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. The site is close to and connected to known roosts.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due their size, shelter, protection, conditions and/or surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis; or A tree of sufficient size and age to contain potential roost features but with none seen from the ground; or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or a patch of scrub.

[11] Collins, J.(ed.) (2016). *Bat Surveys for professional Ecologists: Good Practice Guidelines, 3rd edition*. Bat Conservation Trust

Suitability	Roosting Features	Foraging and Commuting Habitats
Negligible	A structure or a tree with negligible features likely to be used by roosting bats.	Negligible habitat features likely to be used by foraging or commuting bats.

Potential Roosting Features (PRFs) in trees and structures are listed in Table 2-3 below.

Table 2-3: PRFs in Trees and Structures Frequently Use by Bats for Roosting

PRFs in trees frequently used as bat roosts	Access points in structures frequently used as bat roosts	Frequently used roosting locations in structures
Hollows and cavities from woodpecker, rot and knot holes	Gaps in windowsills and window panes	Top of chimney breasts, gable ends and dividing walls
Hazard beams and other vertical or horizontal cracks and splits in stems or branches	Underneath peeling paintwork or lifted rendering	All beams and roof beams (ridge, hip etc.)
Partially detached plated bark	Behind hanging tiles, weatherboarding, eaves, soffit boxes, fascias and lead flashing	Junction of timber joints, mortise and tenon joints
Cankers, included bark and compression forks with potential cavities	Under tiles and slates	Behind purlins
Partially detached ivy with stem diameters in excess of 50mm	Gaps in brickwork and stonework	Between tiles/slates and the roof lining
Bat or bird boxes	Gaps in rendering behind gutters	Under flat roof materials

2.2.5 Otter

The otter survey followed best practice guidelines[12], and aimed to identify suitable otter habitat and field signs, including:

- Spraints (otter faeces/droppings used as territorial signposts. Often located in prominent positions and can be placed on deliberate piles of soil or sand). Three categories are used for describing otter spraint: Dried fragmented (Df); Dried intact (Di); and Not fully dry (Nd);
- Footprints;
- Feeding remains (can often be a useful indication of otter presence);
- Paths/slides (otter can often leave a distinctive path from and into the watercourse);
- Holts (underground shelter) are generally found:
    - Within trees roots at the edge of the bank of a river;
    - Within hollowed out trees;
    - In naturally formed holes in the river banks that can be easily extended;
    - Or preferably in ready-made holes created by other large mammals such as badger setts, rabbit burrows or outlet pipes; and
- Couches/lay-ups (couches or lay-ups are places for lying up above ground are usually located near a watercourse, between rocks or boulders, under dense vegetation).

In order to assess their importance, the status of otter resting sites was assigned from Low to High according to Table 2-4 below[13].

[12] Chanin, P. (2003). *Monitoring the Otter Lutra Lutra. Conserving Natura 2000 Rivers, Monitoring Series (No. 10).* Peterborough: EN, CCW, EA, SEPA, SNH & SNIFFER.
[13] Bassett, S., & Wynn, J. (2010). *Otters in Scotland: How Vulnerable Are They to Disturbance?* CIEEM In Practice, (70), 19–22.

Table 2-4: Status of Otter Resting Sites

Resting Site Status	Definition
Low	Feature with limited evidence of otter activity – low number of spraints, not all age classes present. Insufficient seclusion to be a breeding site or key resting site, unlikely to have links to the key otter requirements. Most likely to provide a temporary 'stop off' for otters when moving through their territory. Loss/disturbance of such a feature is unlikely to be significant in terms of the individual or population.
Moderate	Feature containing sprainting with a range of age classes, but not in significant quantities. Availability may be limited by season, tides or flow. Unlikely to be suitable as a breeding/natal site but will be a key resting site and may be linked to other important features within the territory. The impact arising from a loss or disturbance of such a feature will be determined by the availability of more suitable or well used sites within the otter's territory.
High	Feature has a high level of otter activity, including an abundance of sprainting of all age classes, large spraint mounds, well used grooming hollows, paths and slides. Affords a high degree of cover and is linked to key features such as fresh water and abundance of prey. May be suitable as a breeding area (spraints may be absent from natal holts). The site is usually available at all times of year and at high and low tide/flow. The loss/ disturbance of such as feature will often be considered significant in terms of the individual or population.

2.2.6 Water Vole

The water vole survey was undertaken in conjunction with the otter survey and covered the same area. The survey consisted of assessing the habitat suitability of the site[14] whilst undertaking a survey for field evidence following standard survey guidelines[15].

Factors that influence the suitability of habitat for water voles include:

- Positive: The presence of riparian vegetation along the banks and in the water.
- Positive: A steep bank on a watercourse reducing the risk of burrow inundation.
- Positive: Slow-flowing, relatively deep (over 1m) watercourses.
- Negative: The presence of rocky or otherwise impenetrable substrates.
- Negative: Over-shading by trees.
- Negative: Fast flowing or shallow water, and flashy watercourses.
- Negative: The presence of American mink.

Field evidence of water vole includes:

- Faeces: 8-12 mm long, 4-5 mm wide; cylindrical and blunt ended pellets; colour variable with food type. Most droppings left in latrines near the nest, at range boundaries and at water entry points;
- Latrine sites: concentrations of faeces, often with fresh droppings on top of old ones;
- Runways: often 5-9 cm broad and multi-branched; usually within 2m of water's edge and often forming tunnels through vegetation; leading to water's edge or burrows;
- Burrows: 4-8 cm diameter, wider than high; eroded entrances then contract down to typical size; entrances located at water's edge; however some entrances can be up to 3m from the water; no spoil heaps;
- Nests: size and shape of a rugby ball, often in base of rushes, sedges or reeds;

[14] Strachan, Rob & Moorhouse, Tom. (2006). *Water Vole Conservation Handbook, Second Edition*.
[15] Dean, M., Strachan R. Gow, D. & Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds: Fiona Mathews and Paul Chanin. The Mammal Society, London.

- Feeding stations: located along runways, or at platforms along water's edge; usually a pile of cut/chewed vegetation in sections approximately 10cm long; vegetation ends show marks of two large incisors. Piles of chopped grass, sedge or rush stems, rush pith and leaves;
- Lawns: short, grazed vegetation around land entrances, often used during nursing periods;
- Footprints: difficult to tell from rat; adult hind foot 26-34 mm (heel to claw); stride 120mm (smaller than rat); occur at water's edge and lead into vegetation; and
- Sound: characteristic 'plop' when a vole enters the water.

Emphasis was placed on locating latrine sites, as they are the most useful sign for recording purposes. They indicate whether there is definite presence of water voles at a site.

2.2.7 Pine Marten

An appraisal of the site including the recording of passive field signs was conducted for pine marten in reference to standard guidance[16]. The survey included a search for scats (e.g. on prominent features such as tree stumps, dead logs or stones), footprints and identification of any potential den sites (elevated tree cavities and between rocks or crags) as well as the presence of scats on paths, rides and track ways through woodland or rock habitats.

The appraisal included any identification of likely prey resources, which include small mammals, birds and invertebrates, and commuting opportunities.

It should be noted that in areas where pine marten populations are sparse and territorial defence is relatively unimportant, searches for signs (incl. scats) may fail to detect presence simply because the animals are less likely to deposit scats as territory markers; in such situation most scats are deposited at den sites and in foraging areas.

2.2.8 Red Squirrel

A survey was undertaken based on best practice guidance[17] which involves a search of suitable habitat (primarily coniferous woodland) for two distinct signs of squirrel activity. It should be noted that neither of these methods accurately distinguishes between red or grey squirrels (*Sciurus carolinensis*).

- Drey count – dreys are the nests made by both species of squirrel in trees. Dreys are distinguishable from birds' nests as they are normally 50cm in diameter and 30cm deep, comprise a ball shape and are usually densely constructed. The dreys are normally located close to the main stem of the tree at a height of 3m or more; and
- Feeding evidence – where cone producing trees (conifers) are evident evidence of squirrel feeding is searched for. Although the two species of squirrel cannot be distinguished from feeding remains, the manner in which squirrels break open seeds and nuts, which are then left on the forest floor, is diagnostic.

2.2.9 Badger

A badger survey was undertaken in suitable and accessible habitat, with reference to the methodology described by Scottish Badgers[18] and NatureScot[1920], which aimed to identify the following field evidence:

[16] Birks, J. (2012) Pine marten. In: Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. (2012). *UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation*. The Mammal Society, Southampton
[17] Gurnell, J., Lurz, P., McDonald, R. & Pepper, H. (2009) *Practical Techniques for surveying and monitoring squirrels. Forestry Commission Practice Note 11.*

- Setts (any structure or place, which displays signs indicating current use by badger/located within an active badger territory, as defined by NatureScot guidance[21]);
- Day beds (above ground area where badgers sleep, characterised by flattened vegetation or bundles of grass);
- Dung pits (single faeces deposit placed in a small excavation);
- Latrines (collection of faecal deposits often used by badger clans to mark home range boundaries);
- Foraging signs such as diggings or snuffle holes (badgers use their snout to turn over vegetation or soft soil to forage for bulbs and invertebrates);
- Paths (network of paths generally linking setts to foraging habitat);
- Breach points (gaps in fences or crossing points over roads);
- Scratching posts (marks on tree trunks/ fallen trees where badgers have left claw marks);
- Guard hair; and
- Footprints.

Setts were categorised as follows as per Scottish Badgers guidance[22]:

- **Main sett**: numerous entrances, large spoil heaps, active and with well used paths. One per social group;
- **Annexe setts**: numerous entrances, generally located within 150m of the main sett, with well used paths connecting to the main sett. Not continuously active;
- **Subsidiary setts**: variable number of entrances not connected to other setts by obvious paths. Usually located <50m from main sett. Not continuously active; and
- **Outlier setts**: one or two entrances, often with little or no spoil heap. No defined paths connecting to other setts and used sporadically. May be occupied by fox or rabbit when not in use by badgers. Badger use can be recognised by a characteristic D-shaped tunnel (not actual entrance hole) which is at least 25cm in diameter.

To help determine if a sett is in current use, the entrances were classified according to their degree of usage as per Scottish Badger guidance:

- **Well Used (WU):** clear of debris and vegetation, sides worn smooth but not necessarily excavated recently.
- **Partially Used (PU):** not in regular use and has debris (i.e. twigs and leaves in entrance). Can be used but after only a minimum amount of clearance.
- **Disused (D):** not in use for some time. Can be partially blocked and could not be used without considerable effort. If disused for some time there is only an overgrown spoil heap and a depression in the ground where the hole used to be. Rabbits and foxes may take over part of a sett and keep disused entrances open.

[18] Scottish Badgers: Surveying for Badgers – Good Practice Guidelines. Version 1: 2018. Available from: https://www.scottishbadgers.org.uk/userfiles/file/planning_guidelines/Surveying-for-Badgers-Good-Practice-Guidelines_V1.pdf (Accessed June 2023)
[19] NatureScot: Licensing Guidance. Available from: https://www.nature.scot/sites/default/files/2018-10/Guidance%20-%20Licensing%20-%20Badgers%20-%20What%20is%20a%20Badger%20sett_.pdf (Accessed June 2023)
[20] NatureScot: Protected Species Advice for Developers – Badger. Available from: https://www.nature.scot/species-planning-advice-badger_ (Accessed June 2023)
[21] NatureScot definition of current use: "*There is no case law to clarify what signs of current use means. For the purpose of this guidance, and in the absence of such case law, we consider that the presence of field signs such as bedding, fresh spoil heaps, signs of recent digging, hair, latrines, or footprints in or around the potential sett or evidence of badgers entering or exiting the structure or place in question would indicate current use of the structure / place by a badger.*"
[22] Scottish Badgers: Surveying for Badgers – Good Practice Guidelines. Version 1: 2018. Available from: https://www.scottishbadgers.org.uk/userfiles/file/planning_guidelines/Surveying-for-Badgers-Good-Practice-Guidelines_V1.pdf (Accessed May 2023)

Badger foraging habitat was classified on a primary and secondary basis as per best practice guidance[23]. An assessment of the distribution of primary and secondary habitat (defined below) within the survey area was undertaken:

- Primary foraging habitat: short grazed or mown grassland, improved or unimproved, golf course habitat and broadleaved woodland (> 80% broadleaves); and
- Secondary foraging habitat: arable, rough grassland (not grazed by domestic stock or mown), scrub and mixed woodland.

2.2.10 West European Hedgehog

The suitability of the habitats for hedgehog was assessed according to guidance[24]. Suitable habitats include:

- Grazed pastureland separated into small fields by hedgerows;
- Deciduous woodland copses (oak, beech);
- Overgrown verges or margins; and
- Suburban gardens, woodpiles or parklands.

2.2.11 Brown Hare

Guidance[25] was used to identify direct evidence of brown hare and to assess the suitability of the habitat for brown hare as follows:

- Direct sightings;
- Suitable habitat: lowland, mixed arable, hayfields and pasture land with hedgerows and field margins;
- Forms (resting places): typically beside a tuft of grass or rushes or a shallow scrape in soil, on a gentle slope with a good view ahead; and
- Droppings: hard round or slightly flattened pellets, about 1cm across, usually straw to mid brown coloured, scattered in small quantities or singular.

2.2.12 Reptiles

An assessment of the suitability of the habitats for reptiles was undertaken in accordance with the criteria set out by Amphibian and Reptile Conservation[26]. This takes into account habitat type, basking and foraging opportunities, and linkages to other areas of potential reptile habitat. The quality of the reptile habitat was assessed using the following criteria:

- High – Suitable vegetation cover offering foraging opportunities, basking sites and a variety of refugia. Good linkages with other areas of reptile habitat. For example semi-improved grassland with areas of dense continuous scrub.

[23] The Highland Council. Best Practice Guidance – Model badger Protection Plan (BPP)– Badger foraging habitats (2006). Available from: https://www.highland.gov.uk/downloads/file/2635/badger_best_practice_guidance_badger_protection_plans_september_2006 (Accessed May 2023)
[24] Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. (2012). *UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation.* The Mammal Society, Southampton
[25] Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. (2012). *UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation*. The Mammal Society, Southampton
[26] Edgar, P., Foster, J. and Baker, J. (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth

- Moderate – Some suitable vegetation cover offering foraging opportunities, basking sites and refugia. Limited linkages to other areas of suitable reptile habitat. For example dense continuous scrub surrounded by short improved grassland.
- Low – Unsuitable vegetation cover with no linkages to other areas of suitable reptile habitat. For example dense mature conifer plantation, closely mown amenity grassland.

In addition, direct sightings of reptiles, and features that offer suitable hibernation refugia (e.g. dry stone walls, vegetated stone piles containing cavities etc.) were recorded.

2.2.13 Amphibians

Guidance[27,28] was used to record any direct evidence of amphibians and to appraise the suitability of the site's habitats for amphibians as follows:

- Direct sightings of toads, frogs and newts (including spawn, tadpoles and adults);
- Suitable aquatic habitat: medium (10 – 100m^2) or large (> 100m^2) ponds, on or within 500m of the site; and
- Suitable terrestrial habitat: lightly grazed pasture, scrub, open woodland, gardens and moors.

2.2.14 Birds

Habitats within the survey area were assessed for their suitability to support breeding and over wintering birds. Observations of birds were noted during the survey.

2.2.15 Invertebrate

Habitats within the site were assessed for their suitability to support invertebrate. Observations of invertebrate were noted during the survey.

2.2.16 Fish

A general habitat suitability survey was made of the watercourses associated with the site and their suitability to host fish species (specifically salmonids) and other relevant species including lamprey and eel[29]. Any obstacles to migration were also identified during the survey.

2.2.17 Freshwater Pearl Mussel

A general habitat suitability survey was made of the watercourses associated with the site and their substrate types within the survey reaches, by walking along the bank. The aim was to identify specific areas that were most likely to harbour mussels using information on their habitat preferences from previous studies and experience[30] [31]. Habitat preferences of freshwater pearl mussel include:

- Coarse sand and gravel beds of fast-flowing, non-calcareous streams and rivers; and
- Dependent on the presence of trout or salmon to complete their life cycle.

[27] McInerny, C. & Minting, P. (2016) *The Amphibians and Reptiles of Scotland.*
[28] Beebee TJC, Griffiths RA (2000) *Amphibians and reptiles*. HarperCollins, vol 270. New Naturalist, London
[29] https://www.sepa.org.uk/media/131098/hydropower_annexb.pdf
[30] https://www.energyisles.co.uk/site/assets/files/1495/eiar_-_volume_5_-_appendix_7_5_-_fwpm_survey.pdf
[31] https://sac.jncc.gov.uk/species/S1029/

2.3 Constraints

2.3.1 Desk Study

Desk studies are limited by the reliability of third-party information and the geographical availability of biological and/or ecological records and data. This emphasises the need to collate up-to-date, site-specific data based on field surveys by experienced surveyors. The absence of a species from biological records cannot be taken to represent actual absence. Species distribution patterns should be interpreted with caution as they may reflect survey/reporting effort rather than actual distribution.

2.3.2 Field Survey

Residential properties and commercial premises within the survey area, were not directly accessible due to private landownership. However, due to the survey results this was not considered to have impacted the findings.

Herds of cows with calves were present in some of the fields within and adjacent to the site, which constrained direct access to this area. However, due to the survey findings, this was not considered to have impacted the survey results.

Cows (young bullocks) were present within a block of woodland adjacent to the central region of the site which constrained access to this area. This may have impacted survey findings specifically in relation to bats and badgers, due to the survey results. However, a precautionary approach will be undertaken for this area in the mitigation via substantial buffer zones.

Areas of dense scrub in the north of the site constrained access. However, due to the survey findings, this was not considered to have impacted the survey results.

2.4 Evaluation of Ecological Features

European, national and local governments and specialist organisations have together identified a large number of sites, habitats and species that provide the key focus for biodiversity conservation in the UK and Ireland, supported by policy and legislation. These provide an objective starting point for identifying the important ecological features that need to be considered. A geographical level of importance, as described in Appendices C and D has been assigned to the designated sites, habitats and species identified on the site and in the survey area. Where a feature is important at more than one level in the table, its overriding importance is that of the highest level. Usually only the highest level of legal protection is listed.

3 BASELINE ECOLOGICAL CONDITIONS

3.1 Designated Sites

3.1.1 Statutory Designated Sites

No statutory designated sites are present within the site boundary.

Loch of Skene SSSI[32], RAMSAR[33] and SPA[34] is located approximately 5km south of site. The designated features of this area refer to the presence of wintering wildfowl populations, namely greylag goose (*Anser anser*), pink-footed goose (*Anser brachyrhynchus*), common gull (*Larus canus*) and goldeneye (*Bucephala clangula*).

3.1.2 Non-Statutory Designated Sites

No non-statutory designated sites were found within the site boundary; however, a proposed site was identified within 2km from the site.

Rollo Mire, a proposed nature conservation site, is located 1.7km northeast of the site via the Tuach burn of which the Rollomire burn is a tributary of, as well as treelines and woodland habitat to the north of the site.

3.1.3 Ancient and Native Woodland

There are four areas of ancient woodland classified as Long-established plantation origin (LEPO) on the Ancient Woodland Inventory (AWI) within the site and an additional area (LEPO) directly adjacent to the boundary. A number of blocks of woodland on the AWI are located within a 1km radius of the site as detailed in Figure 3-1.

[32] Loch of Skene SSSI designation available at: https://apps.snh.gov.uk/sitelink-api/v1/sites/1038/documents/1 (Accessed May 2023)
[33] Loch of Skene RAMSAR designation available at: https://apps.snh.gov.uk/sitelink-api/v1/sites/8442/documents/20 (Accessed May 2023)
[34] Loch of Skene SPA available at: https://apps.snh.gov.uk/sitelink-api/v1/sites/8536/documents/16 (Accessed May 2023)

Figure 3-1: Ancient woodland within the site and adjacent

Four blocks of woodland classified as native woodland on the native woodland survey of Scotland (NWSS) are present within the site and an additional five blocks of woodland are present adjacent to the boundary. A number of blocks of woodland on the NWSS are located within a 1km radius of the site as detailed in Figure 3-2.

Figure 3-2: Native woodland within and adjacent to the site

Native and Ancient/long-established woodland is a habitat of principal importance for biodiversity[35] and is therefore considered to be of national importance.

3.2 Habitats

The UKHAB map can be found in Appendix E and Photographic record of habitats in Appendix F. Invasive Non-Native Species (INNS) map in Appendix G and Photographic record of INNS in Appendix F.

24 UKHab primary habitat types and one boundary feature are present within the site, as summarised in Table 3-1:

Table 3-1: On-site habitats

Habitat Type	Habitat	Primary Code	Secondary Codes
Grassland	Lowland acid grassland	g1a	10 – Scattered scrub 200 – Tree
	Other neutral grassland	g3c	
	Deschampsia neutral grassland	g3c7	
	Holcus-juncus neutral grassland	g3c8	
	Holcus-juncus neutral	g3c8 / g1d	127 – Sward type

[35] Joint Nature Conservation Committee (JNCC). (2007). UK Biodiversity Action Plan (UKBAP) Priority Habitats & Species. [online] Available from: https://hub.jncc.gov.uk/assets/98fb6dab-13ae-470d-884b-7816afce42d4 (Accessed May 2023)

Habitat Type	Habitat	Primary Code	Secondary Codes
	grassland / Other lowland acid grassland		mosaic
	Modified grassland	g4	10 – Scattered scrub 101 – Cattle grazed 102 – Sheep grazed 114 Dry stone wall 200 – Tree
Woodland	Wet woodland	w1d	30 – Semi-natural woodland 524 – Invasive non-native species
	Lowland mixed deciduous woodland	w1f	204 - Veteran tree 101 – Cattle grazed
	Other broadleaved woodland	w1g	33 – Line of trees
	Native pine woodlands	w2a	
	Other coniferous woodland	w2c	
Heathland & Shrub	Gorse scrub	h3e	
	Gorse scrub / Other lowland acid grassland	h3e / g1d	
	Mixed scrub	h3h	
Wetland	Lowland fens	f2a	
	Purple moor-grass and rush pastures	f2b	
Arable & Horticulture	Arable field margins	c1a	10 – Scattered scrub
	Temporary grass and clover leys	c1b	50 - Ditch 114 Dry stone wall 612 – Fence
	Cereal crops	c1c	114 Dry stone wall 612 - Fence
Rivers and Lakes	Rivers (priority habitat)	r2a	
	Other rivers and streams	r2b	
	Other standing water	r1g	
Urban	Buildings	u1b5	818 – Residential building 825 – Ruined building
	Built linear features	u1e	800 - Road 802 – Railway 803 - Railside

3.2.1 Lowland Acid Grassland

Lowland acid grassland was present in the north of the western region of the site (Page 2, App E) and comprised dominant wavy hair grass (*Deschampsia flexuosa*), fescue (*Festuca sp*.), frequent lesser stitchwort (*Stellaria gramminea*) and heath bedstraw (*Galium saxatile*), occasional common heather (*Calluna vulgaris*), sweet vernal grass (*Anthoxanthum odoratum*) and cocksfoot (*Dactylis glomerata*).

Rarely observed yarrow (*Achillea millefolium*) and springy turf-moss (*Rhytidiadelphus squarrosus*) were also present (Photo 1).

Scattered mature rowan (*Sorbus aucuparia*), Scot's pine (*Pinus sylvestris*) and scattered broom (*Cytisus scoparius*) were also present in this area.

Lowland acid grassland is a SBL priority habitat and are therefore of national (Scotland) importance.

3.2.2 Other Neutral Grassland

Other neutral grassland was identified within the east (Page 5, Appendix E), centre (Page 4, Appendix E) and west (Page 2 and 3, Appendix E) of the site and varied in species composition between locations, however in general the species assemblage was noted to have >8 species per m^2 and comprised of dominant Yorkshire fog (*Holcus lanatus*), cocksfoot, smooth meadow grass (*Poa pratensis*) and sheep's fescue (*Festuca ovina*), with abundant cow parsley (*Anthriscus sylvestris*), comfrey (*Symphytum officinale*) and foxglove (*Digitalis purpurea*). Frequent bush vetch (*Vicia sepium*), dandelion (*Taraxacum officinale*), ribwort plantain (*Plantago lanceolata*), mouse-ear chickweed (*Cerastium fontanum*) and goosegrass (*Galium aparine*) were present. Occasional rosebay willowherb (*Chamaenerion angustifolium*), nettle (*Urtica dioica*), red campion (*Silene dioica*), soft rush (*Juncus effusus*) and common knapweed (*Centaurea nigra*) were also present (Photo 2).

The area of other neutral grassland in the east also contained a mixture of ornamental species including daffodil (*Narcissus sp.*), hybrid bluebell (*Hyacinthoides × massartiana*), daisy sp. (*Asteraceae sp.*).

Scattered broom, gorse (*Ulex europaeus*), bramble (*Rubus fruticosus*) and young rowan and goat willow (*Salix caprea*).

Other neutral grassland falls within the important habitats within the NESBiP Grassland Statement and are therefore of regional importance.

3.2.3 *Deschampsia* Neutral Grassland

Deschampsia neutral grassland was present within the north of the west region of the site (Page 2, Appendix E) and comprised dominant tufted hair grass (*Deschampsia cespitosa*), with abundant creeping soft grass (*Holcus mollis*), common sorrel (*Rumex acetosa*), marsh thistle (*Cirsium palustre*) and soft rush (Photo 3).

Deschampsia neutral grassland falls within the important habitats within the NESBiP Grassland Statement and are therefore of regional importance.

3.2.4 *Holcus-Juncus* Neutral Grassland

A field in the west of the site (Page 2, Appendix E) comprised *holcus-juncus* neutral grassland habitat, with dominant Yorkshire fog and soft rush, frequent tufted hair grass, sharp flowered rush (*Juncus acutiflorus*), creeping buttercup (*Ranunculus repens*), marsh willowherb (*Epilobium palustre*) and cocksfoot were also present, with sweet vernal grass, sheep's sorrel (*Rumex acetosella*), marsh thistle, common hogweed, creeping thistle (*Cirsium arvense*) and nettle also noted. Rarely observed wavy bittercress (*Cardemine flexuosa*) was also identified (Photo 4).

Holcus-juncus neutral grassland falls within the important habitats within the NESBiP Grassland Statement and are therefore of regional importance.

3.2.5 Holcus-juncus / Other lowland acid grassland Mosaic

An area in the north west of the site comprises a mosaic of holcus-juncus and other lowland acid grassland, (Page 2, Appendix E) with dominant Yorkshire fog and soft rush, with abundant common bent (*Agrostis capillaris*), sweet vernal grass (*Anthoxanthum odoratum*), crested dogs tail (*Cynosurus cristatus*), common self-heal (*Prunella vulgaris*) and marsh thistle. Frequent bird's foot trefoil (*Lotus corniculatus*), clover (*Trifolium repens*), heath wood-rush (*Luzula multiflora con*), perennial rye grass (*Lolium perenne*) and autumn hawkbit (*Scorzoneroides autumnalis*). Occasional smooth meadow grass, ragwort (*Jacobaea vulgaris*), heath rush (*juncus squarossus's*), mat-grass (*Nardus stricta*), tufted hairgrass, sheep's sorrel were present alongside rarely observed sheep fescue and daisy (*Bells perennis*).

Other lowland acid grassland on site meets the description of the SBL priority habitat 'Lowland Dry Acid grassland' and are therefore this mosaic is of national (Scotland) importance.

3.2.6 Modified Grassland

Modified grassland was found in locations throughout the site and was used predominantly as pasture farmland which has been/ currently grazed by cattle and sheep. The species composition varied between fields (as detailed in the species list below), however in general the species assemblages noted for all fields was low (<9 species per m^2). The fields were dominated by or had a mix of either Yorkshire fog, perennial rye grass, cocksfoot, smooth meadow grass, meadow foxtail (*Alopecurus pratensis*), sweet vernal grass and timothy grass (*Phleum pratense*). Frequently observed were white clover, field buttercup (*Ranunculus arvensis*), broadleaved dock (*Rumex obtusifolius*), creeping thistle, yarrow, ragwort, daisy, germander (*Teucrium sp.*), ribwort plantain and meadowsweet (*Filipendula ulmaria*) were also identified as abundant (Photo 5).

An area of dense soft rush was present in the modified grassland field adjacent to the mosaic wetland habitat in the north west of the site (Page 2, Appendix E).

Scattered gorse and broom were present along field boundaries in some of the modified grassland fields.

Scattered trees ranging from young to mature were also present within some areas of modified grassland and include: lodgepole pine (*Pinus contorta*), ash (*Fraxinus excelsior*) and beech (*Fagus sylvatica*).

Dry stone dykes create the majority of the field boundaries where modified grassland is present, alongside metal post and wire fencing.

Modified grassland falls within the important habitats within the NESBiP Grassland Statement and are therefore of regional importance.

3.2.7 Wet woodland

Areas of wet woodland were present in the east and west of the site.

The area of wet woodland in the east of the site (Page , Appendix E), north of the railway line and along the tributary of the River Don was dominated by semi mature alder (*Alnus glutinosa*) with occasional downy birch (*Betula pubescens*), with the understory comprising of false oat grass (*Arrhenatherum elatius*), creeping soft grass, meadowsweet, soft rush, sharp flowered rush, tormentil

(*Potentilla erecta*), perforated st John's-wort (*Hypericum perforatum*), violet (*Viola*), brooklime (*Veronica beccabunga*), reed canary grass (*Phalaris arundinacea*), herb Robert (*Geranium robertianum*), marsh bedstraw (*Galium palustre*), common reed (*Phragmites australis*), reed sweet grass (*Glyceria maxima*), broadleaved dock, common hogweed (*Heracleum sphondylium*) and goosegrass. Monkey flower (*Erythranthe guttata*) was also present (Photo 6).

The wet woodland in the west of the site (Page 2, Appendix E) comprises dominant semi-mature to mature Scot's pine with a ground layer of field horsetail, sharp flowered rush, soft rush, *sphagnum palustre*, common haircap moss (*Polytrichum commune*) and sedges.

Wet woodlands are SBL priority habitats and therefore these habitats are considered to be of national (Scotland) importance.

3.2.8 Lowland Mixed Deciduous Woodland

The lowland deciduous woodland in central region of the site (Page 3 and 4, appendix E) consists of the ancient native birch woodland, containing frequent mature Scot's pine and semi-mature rowan. A copse of mature wild cherry (*Prunus avium*) is present in this area, with multiple trees in good condition, some displaying veteran characteristics.

The understory consists of a mosaic containing grassland and dry heath mosaic with a sward consisting of dominant heather (*Calluna vulgaris*), abundant devils' bit scabious (*Succisa pratensis*), tufted hair grass and sweet vernal grass and frequent broom, common chickweed (*Stellaria media*), sharp flowered rush, jointed rush (*Juncus articulatus*), glaucous sedge (*Carex flacca*), bilberry (*Vaccinium myrtillus*), and hairy mouse ear (*Cerastium fontanum*) (Photo 7).

Cattle were observed within the woodland grazing.

Lowland mixed deciduous woodland is an SBL priority habitat and belong to a LEPO, and therefore these habitats are considered to be of national (Scotland) importance.

3.2.9 Other Broadleaved Woodland

Other broadleaved woodland were present throughout the site mostly as linear features or thin strips of woodland.

One block in the east was likely previously planted as avenue trees along the existing farm access track or boundary, due to the linear nature of the trees, which has since expanded creating a wider block of trees (2-3 trees wide). The species comprise a mix of semi mature silver birch, ash, oak (*Quercus robur*), beech, sycamore (*Acer pseudoplatanus*) and rowan. Regenerating ash, sycamore and beech were also noted.

Four further treelines were present in the east (Page 6 and 7, Appendix E), with one comprising semi mature ash, one comprising mature ash and beech and two comprising semi-mature rowan, elm (*Ulmus procera*) and ash, with broom and gorse also present.

Three treelines were present in the central region of the site (Page 4 and 5, Appendix E), with two comprising semi-mature cherry, one comprising semi-mature sycamore and one comprising semi-mature ash (Photo 8).

Two treelines were present in the west of the site and both comprised young sycamore (Page 2, Appendix E).

A block of other broadleaved woodland comprising young-semi-mature silver birch was present in the north of the western region of the site, within a horse paddock (Page 2, Appendix E).

A block of other broadleaved woodland present in the north east of the western region of the site (Page 2, Appendix E) and spilt by an access track, and comprised of mature beech, semi-mature rowan, ash, sycamore and silver birch, with an understory comprising Yorkshire fog, cocksfoot, cow parsley, foxglove, bush vetch, goosegrass and red campion.

Other broadleaved woodland falls within the important habitats within the NESBiP Woodland Statement and are therefore of regional importance.

3.2.10 Native Pine Woodland

Within the north of the west of the site, blocks of native pine woodland were present (Page 2, Appendix E), comprising of dominant mature and semi-mature Scot's pine which had likely originated from self-seeding due to the non-uniform nature of the trees, with occasional mature rowan, beech, larch and silver birch also being present. The ground story comprised Yorkshire fog, broadleaved dock, nettle, goosegrass and climbing corydalis (*Ceratocapnos claviculata*), wood sorrel (*Oxalis acetosella*), chanterelle mushrooms (*Cantharellus cibarius*) and tufted hair grass (Photo 1).

Native pine woodlands are an SBL priority habitat and therefore these habitats are considered to be of national (Scotland) importance.

3.2.11 Other Coniferous Woodland

Two blocks of Sitka spruce (*Picea sitchensis*) plantation were present in the west of the site (Page 2, Appendix E) and comprise semi-mature trees, with a relatively bare understory due to the densely packed nature of the woodland blocks (Photo 9).

A section of other coniferous woodland was also present in the north of the western region of the site (Page 2, Appendix E), which has been planted and extends northwards into a larger woodland block and spans the north boundary and comprise Scot's pine, with frequent beech. This area of woodland is included within the NWSS as 'Upland Birch woodland', however it is likely the polygon for this required reshaping since the area was replanted with Scot's pine.

Other coniferous woodland falls within the important habitats within the NESBiP Woodland Statement and are therefore of regional importance.

3.2.12 Gorse Scrub

Areas of gorse scrub are present throughout the site and comprise dominant gorse (Photo 5).

Scrub falls within the important habitats within the NESBiP Woodland Statement and are therefore of regional importance.

3.2.13 Gorse Scrub / Other Lowland Acid Grassland Mosaic

A section of gorse scrub and other lowland acid grassland mosaic was present within the east of the site (Page 6, Appendix E) and comprised a mix of dense gorse scrub and the acid grassland comprising species including heath grass (*danthonia procumbens*), common bent, sweet vernal grass, tormentil, heath milkwort (*Polygala serpyllifolia*), Hawkbit sp. (*Asteraceae*), heath bedstraw, devils bit

scabious (*Succisa pratensis*), thyme leaved speedwell (*Veronica serpyllifolia*), harebell (*Campanula rotundifolia*), yarrow, sheep's sorrel and heather.

This habitat does not meet the criteria for SBL priority habitat lowland acid grassland. However, other lowland grassland and mixed scrub falls within the important habitats within the NESBiP Woodland and Grassland Statements and are therefore of regional importance.

3.2.14 Mixed Scrub

Areas of mixed scrub are present throughout the site and comprise no dominant species. The mixed scrub comprises a mix of broom, privet (*Ligustrum sp.*), with scattered sycamore and rowan (Photo 10).

Mixed scrub falls within the important habitats within the NESBiP Woodland Statement and are therefore of regional importance.

3.2.15 Lowland Fens

Lowland fen habitat was present in the north of the west area of the site (Page 2, Appendix E) and comprised dominant soft rush, compact rush (*Juncus conglomeratus*), cross-leaved heath (*Erica tatralix*), heather, sweet vernal grass, myrtle blueberry (*Vaccinium myrtillus*) and water pennyworts (*Hydrocotyle*). Abundant marsh thistle, marsh willowherb, sneezewort (*Achillea ptarmica*) sheep's sorrel, fen bedstraw (*Galium uliginosum*), lesser spearwort (*ranunculus flamula*), fen bedstraw (*galium uglinosum*), common valerian (*Valeriana officinalis*), Yorkshire fog, marsh ragwort (*Jacobaea aquatica*), *sphagnum fallax*, Heath spotted orchid (*Dactylorhiza maculata*), creeping forget-me-not (*myosotis secunda*), bogbean (*Menyanthes*), marsh cinquefoil (*Comarum palustre*), Lousewort (*Pedicularis*), water horse tail (*Equisetum fluviatile*) and ragged robin (*Silene flos-cuculi*) were observed. Frequent bog asphodel (*Narthecium ossifragum*) and young silver birch were observed and occasional wavy hair grass (*Avenulla flexuosa*) and bottle sedge (*Carex rostrata*). Rarely observed lesser butterfly orchid (*Platanthera bifolia*) and tufted cottongrass (*Eriophorum vaginatum*) was also recorded (Photo 11).

In the wetter areas, species including flea sedge (*Carex pulicaris*), carnation sedge (*Carex panicea*), heath grass, star sedge (*Carex echinata*), yellow sedge (*Carex flava*) and common sedge (*Carex nigra*) were present. This area also forms into small watercourse flowing down into the adjacent valley.

Lesser butterfly orchid are SBL priority plants. Tufted cotton grass is considered an indicator of deep peat.

Lowland fens are an SBL priority habitat and therefore these habitats are considered to be of national (Scotland) importance.

3.2.16 Purple Moor-grass and Rush Pastures

Areas of purple moor-grass and rush pasture were present in the east (Page 2, Appendix E) and west (Page 6, Appendix E) of the site and comprise soft rush dominant habitat with abundant sharp flowered rush, occasional angelica, marsh thistle, marsh willowherb, marsh bedstraw, Greater birds foot trefoil (*Lotus pedunculatus*), Yorkshire fog and tufted hair grass (Photo 3).

Purple moor-grass and rush pastures are an SBL priority habitat and therefore these habitats are considered to be of national (Scotland) importance.

3.2.17 Arable field margins

Along the margins of arable fields in the central and eastern regions of the site, areas bordering the field boundaries had been left to grow with a sward dominated by a mix of tufted hair grass, common couch (*Elymus repens*), cocksfoot and Yorkshire fog, with creeping thistle, meadow foxtail, broadleaved dock, nettles, dandelion and cow parsley identified frequently. Short teasel (*Dipsacus pilosus*), meadowsweet, goosegrass, ragwort, common chickweed, meadow buttercup (*Ranunculus acris*) and foxglove were identified occasionally. Green alkanet (*Pentaglottis sempervirens*), cuckoo flower (*Cardamine pratensis*), soft rush and bitter vetch (*Lathyrus linifolius*) was rarely identified (Photo 8).

One section displayed damp underfoot conditions with vegetation consistent with mesic conditions such as reed canary grass was present in the central region of the site (Page 4, appendix E).

Scattered gorse and broom were present within some of the field margins.

Arable field margins are a SBL priority species and are therefore of national (Scotland) importance.

3.2.18 Temporary Grass and Clover Leys

Throughout the site a number of fields displayed temporary cover by grass and legume species.

The fields comprised a mix of recently sown and more mature sown legumes with dominant clover species (*Trifolium spp*) (Photo 2).

In the northeast of the site the grass cover was extensive with the sward consisting of dominant Timothy grass, perennial rye grass and meadow foxtail (*Alopecurus pratensis*). White goosefoot (*Chenopodium album*), pineapple weed (*Matricaria discoidea*), hairy mouse ear and ox eye daisy (*Leucanthemum vulgare*) were identified occasionally.

Dry stone dykes create the majority of the field boundaries where this habitat is present, alongside metal post and wire fencing.

Temporary grass and clover leys are likely to offer some foraging, sheltering and commuting provisions for wildlife and are therefore considered to be of site importance.

3.2.19 Cereal Crops

Throughout the site, a number of fields were in use for cereal crops or had been recently cut. A mixture of wheat (*Triticum*) and barley (*Hordeum vulgare*) (Photo 8).

Dry stone dykes create the majority of the field boundaries where this habitat is present, alongside metal post and wire fencing.

Cereal crops are likely to offer some foraging, sheltering and commuting provisions for wildlife and are therefore considered to be of site importance.

3.2.20 Rivers (Priority Habitat)

The River Don is present in the north east of the site (Page 6, Appendix E). The Don is Scotland's 6th largest river draining a catchment of 1312km^2 (Photo 12).

The section of the River Don in the site has steeply sloping banks which are highly vegetated on the right hand bank and more exposed on the left hand bank. A range of run, riffle, glide, pools and marginal habitats are present within this section.

The two tributaries of the River Don within the site were also steeply sloping and highly vegetated, with reed canary grass and bullrush present.

Rivers are Annex 1 priority habitats and are therefore of and are therefore of international importance.

3.2.21 Other Rivers and Streams

The Tuach burn, Silver burn, Dewsford burn and Park burn are present within the site.

The Tuach (Page 6, appendix E) and Park burns (Page 3 and 4, appendix E), flow east to west, appear to have been altered for field drainage and contain narrow steep heavily vegetated banks consistent with the arable field margin sward. In-channel contains occasional water-forget me not.

The Silver burn flows south to north and has been altered in the upper regions for field drainage (Page 6, appendix E). This burn contains narrow steep heavily vegetated banks in the upper reaches and flows through woodland in the lower reaches before joining the River Don.

The Dewsford Burn in the north west of the site (Page 2, appendix E) flows west to east through the area of wetland and is highly vegetated (Photo 13).

The flow in these burns was low during the surveys.

Rivers and burns are considered a falls within the important habitats within the NESBiP Westlands Habitat Statement and are therefore of regional importance.

3.2.22 Other Standing Water

A pond is present in the central region of the site (Page 4, Appendix E) and comprises a duck island in the centre, with shooting butts on the south aspect. Habitat surrounding the pond is dominated by tufted hairgrass and soft rush, with in-pond vegetation consisting of duckweed (*Lemna minor*). An outflow into the Park Burn south of the pond is also present. The pond appeared to receive nutrient enrichment from the adjacent field with cows present (Photo 14).

Drainage ditches are also present throughout the site associated with arable fields. The majority of the drainage ditches are vegetated, with species including canary reed grass and duckweed being present. These ditches are considered likely to retain water for >4 months of the year due to the presence of low levels of water and aquatic vegetation identified during the survey.

Ditches are of site importance as the provide opportunities for biodiversity.

Ponds are SBL priority habitats, however this pond does not meet these criteria. Ponds fall within the NESBiP Wetlands Habitat Statement and therefore are considered of regional importance.

3.2.23 Buildings

A residential building and associated outbuilding were present in the central region of the site (Photo 15; Page 4, Appendix E).

A ruined building was present in the west of the site (Page 2, Appendix E).

Buildings fall within the NESBiP Built Environment Statement and therefore are considered of regional importance.

3.2.24 Built Linear Features

A number of tracks, roads and a railway line (Page 6, appendix E) were present within the site (Photo 7).

Roads are not considered to provide resources for wildlife and are considered to be of negligible value.

Railway embankments fall within the NESBiP Built Environment Statement and therefore are considered of regional importance.

3.2.25 Groundwater Dependent Terrestrial Ecosystems (GWDTE)

Potential GWDTEs were identified within and adjacent to the site. The lowland fen, holcus-juncus neutral grassland, Deschampsia neutral grassland, purple moor-grass and rush pasture and wet woodland (Page 2 and 6, appendix E).

3.2.26 Invasive and Non-native Species (INNS)

One record of Japanese knotweed was returned by NESBReC, within the site recorded in 1994. A number of records of INNS outside the site were also returned including Japanese knotweed, American skunk cabbage (*Lysichiton americanus*), giant hogweed and rhododendron (*Rhododendron ponticum*), predominantly to the north and south east of the site.

During the survey, the following INNS were identified within and adjacent to the site:

- Giant hogweed was recorded along the River Don, within the site and downstream of the site boundary. Giant hogweed was also present along the lower reaches of the downstream tributary of the River Don in the site.
- Japanese knotweed was recorded in the west of the site in the same location as was recorded in 1994, as well as along the south access/ drainage track (Photo 16).
- Himalayan balsam was recorded in the north east of the site within the area of potential wet woodland within the tributary of the River Don.
- White butterbur (*Petasites albus*) was recorded downstream of the site boundary along the River Don.
- Monkey flower, was recorded in the east of the site associated with wetter areas.

In addition, American mink (*Neovision vision)* footprints were recorded along the bank of the River Don during the survey.

INNS are of negative importance.

3.3 Faunal Species and Species Groups

Protected Species Survey Results Plan can be found in in Appendix H and Photographic record of protected species in Appendix I.

3.3.1 Disclaimer

Faunal species are transient and can move between favoured habitats regularly throughout and between years. This survey provides a snapshot of field signs present in the survey area in May - July 2023.

3.3.2 Bats

Seven records of unidentified pipistrelle bats, nine common pipistrelle (*Pipistrellus pipistrellus*) and thirteen soprano pipistrelle (*Pipistrellus pygmaeus*) were recorded between 2013- 2021. These sightings were predominantly in and around residential housing 2km to the north of the site in the town of Kintore, with 15 of these records being of roosts. One record of a brown long-eared bat was made foraging amongst residential housing in Kintore 2km north of the site in 2021.

Buildings
A cottage in the central region of the site (Building 1 on Page 4, Appendix H) and associated outbuilding (Building 2 on Parge 4, Appendix H) offer PRFs under slate roofs, gaps under lead/zinc flashing and under dormer windows (Photo 15). Therefore, both offer were considered to offer moderate potential for roosting bats, in reference to Table 2-2: *A structure with one or more potential roost sites that could be used by bats due their size, shelter, protection, conditions and/or surrounding habitat but unlikely to support a roost of high conservation status*. These buildings were considered to offer negligible hibernation potential for bats as the residential cottage building is currently inhabited and the associated outbuilding is actively used and therefore unlikely to provide the stable temperature and humidity conditions bats require.

A ruin building with no roof was present in the west of the site (Building 3 on Page 2, appendix H) which contained PRFs via gaps between stonework from loose mortar (Photo 17). This building was considered to offer low potential for roosting bats, in reference to Table 2-2: *A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis.* This ruin building is considered to offer low hibernation potential for bats due to the presence of gaps between the wooden lintels and stonework and in the stonework. These features may offer suitable shelter for individual pipistrelle bats.

Structures
A bridge associated with the Aberdeen-Inverness railway line and the overpass bridge over the A96 both lacked PRFs and were constructed of unsuitable materials for bats to utilise (metal and cement blocks) and therefore considered negligible for roosting bats in reference to Table 2-2: *A structure with negligible features likely to be used by roosting bats.*

A small, culverted road bridge was present under the B977, which was not considered suitable for roosting bats due to the lack of PRFs and highly vegetated nature at both ends and therefore assessed as negligible in reference to Table 2-2.

The bridge structures were all considered unsuitable for hibernating bats due to a lack of PRFs, accessibility constraints and lack of suitable materials of construction.

Trees
The woodland blocks, scattered trees and treelines within the site and adjacent contain multiple PRFs, via knot holes, stem and basal cavities, storm damage, cracks in boughs, woodpecker holes, hazard beams and tear outs (Photo 18). Therefore, the trees and woodland blocks were considered to offer low – high suitability for roosting bats, in reference to Table 2-2.

Habitats
The woodland, scattered tree, treeline habitat and buildings within the site offers suitable foraging, commuting and potential roosting resources for bats. In addition, the grassland, heathland, scrub, watercourses, pond in the central region of the site and wet areas of ground in the north west and east of the site provide additional commuting and foraging opportunities for bats. These habitats are well connected to other foraging, commuting and roosting resources within the locale. Residential housing in the locale may also provide additional resources for bats.

Therefore, the site was assessed as offering high suitability for commuting bats in line with Table 2-2: *Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edges.*

All UK bat species are European Protected Species (EPS) and are therefore of international importance.

3.3.3 Otter

Five records of otter were identified between 2013 – 2016, two records of roadkill on the A96 immediately to the east of the site, and two recorded feeding along the bank of the River Don 1.6km to the north of the site. The River Don and its catchment is known to host a strong otter population.

One otter couch and two otter lay-ups were identified along the bank of the River Don, within the site and downstream of the site boundary (Photo 19 and 20, respectively; Page 6, Appendix H). These features were considered to be of low status in reference to Table 2-4 due to a low number of spraints and not all age classes present. Otter footprints and spraints were also identified along the bank of the River Don within the site boundary.

The River Don and other watercourses, pond and wetland areas within the site and adjacent offer suitable in-channel and bankside vegetation for otter commuting, foraging and resting, as well as habitat suitable for holt creation.

The site also provides opportunities for foraging otter including fish, amphibians, small mammals and birds.

Otter are European Protected Species (EPS) and are therefore of international importance.

3.3.4 Water Vole

No previous records of water vole were identified within site. No field signs of water vole were discovered during the survey.

The River Don was not considered suitable for water vole due to the moderate flow speed as water vole are not strong swimmers. However, a number of smaller watercourses and drainage ditches within the site which were steep sided, heavily vegetated and relatively slow flowing within and

adjacent to the site offer suitable foraging, commuting and burrow creation habitat for water vole. These watercourses also help connect the site to suitable habitat further afield within the locale.

Water vole are protected under Schedule 5 of the Wildlife and Countryside Act (WCA) and are therefore considered to be of national (UK) importance.

3.3.5 Pine Marten

One pine marten was identified as roadkill from the A96 approximately 650m north of the site in 2015.

Pine marten scat was identified west of the site boundary during the survey on a forestry track (Photo 21; Page 2, Appendix H).

The coniferous and broadleaf woodland blocks within the site and surrounding the site were considered suitable for commuting and foraging pine marten and provide suitable habitat for denning.

Although open arable and grassland fields dominate the site, connective corridors along continuous treelines, rough grass, stone dykes and scrub field boundaries, which pine marten would likely be able to utilise for commuting. The woodlands are also connected to other woodland blocks further afield within the locale to the north, and west.

Pine marten are protected under Schedule 5 of the WCA and are therefore considered to be of national (UK) importance.

3.3.6 Red Squirrel

227 records of red squirrel were returned from NESBReC within a 2km radius of the site, between 2012 and 2021, predominantly associated with Kintore and the woodland surrounding the site.

A potential squirrel drey was identified in woodland north of the central region of the site (Page 4, Appendix H) during the survey, and within the a woodland strip to the east of the site in the northern region (Page 6, Appendix H), however no diagnostic field signs of squirrel were identified near the features or during the survey.

The woodland habitat within the site offers suitable red squirrel foraging and commuting resources, as well as providing suitable opportunities for drey creation. Arable and grassland fields comprise the dominant habitats within the site, however, connective corridors such as treelines, stone dykes and scrub field boundaries, may be utilised, however, these are considered suboptimal for red squirrel to commute along regularly.

The woodland in the site is well connected to further blocks of woodland west and north of the site.

Red squirrel are protected under Schedule 5 of the WCA and are therefore considered to be of national (UK) importance.

3.3.7 Badger

13 records of badger were identified between 2012-2021 within 1km of the site. 11 of these records were identified as roadkill, with one of these recorded within the site boundary in 2015.

Field signs of badger were identified during the survey. Refer to Confidential Annex in Appendix J for details.

The coniferous and broadleaved woodland, arable fields, treelines and scrub habitats provide linear features for sheltered commuting and offer habitat connectivity within the site and habitats in the wider landscape.

Primary and secondary foraging habitat is present across the survey area via arable fields, short grazed modified grassland, scrub and woodland habitats. The watercourses, pond and wetland areas would also provide a regular drinking water supply to badger.

Badgers are protected (for welfare reasons) under the Badger Protection Act 1992 as amended by the Wildlife and Natural Environment (Scotland) Act 2011, and so are of national (UK) importance.

3.3.8 West European Hedgehog

Between 2015- 2019 four records of hedgehog were identified, with one record of a hedgehog in a garden in Kintore and the remainder on the B994 roundabout to the northeast of the site as roadkill.

The on-site woodland, grassland, scrub and arable field margin habitats provide a mosaic habitat for foraging, resting and nesting opportunities for hedgehog. The continuous woodland, grasslands and field margins areas in the wider area provide additional foraging, commuting resting and hibernating opportunities for hedgehog.

Hedgehog are listed on the SBL and are therefore of national (Scotland) importance.

3.3.9 Brown Hare

No records of brown hare were returned from the desk study. A brown hare was sighted in the north east of the site during the survey.

The arable fields and margin habitats within the site and the surrounding woodland offer suitable foraging, commuting and resting habitat for brown hare to utilise. The fields are open and well connected to other arable and grassland fields and woodland in the locale providing a mosaic of habitats which brown hare have a preference for.

Brown hare are listed on the SBL and are therefore of national (Scotland) importance.

3.3.10 Reptiles

Two records of common lizard (*Zootoca vivipara*) were returned from the desk study on Gauch Hill 1km north of the site in 2008.

No reptiles were identified during the survey. However, high-quality reptile refugia was present throughout the site, via rock piles, stone piles, stone dykes, heathland, bog, grassland, which provide a range of basking resources as well as foraging and commuting habitat.

Common reptile species including slow-worm (*Anguis fragilis*), adder (*Vipera berus*) and common lizard are listed as priority species on the SBL and as such are considered of national importance.

3.3.11 Amphibians

No records of amphibians were returned from the desk study. No evidence of amphibians were recorded during the survey

The ponds, wetland and riparian habitat along the small burns and drainage ditches offer suitable habitat for amphibians to utilise and provide connective corridors to other habitats within the locale, with only the pond and wetland providing opportunities for breeding amphibians.

In addition, the grazed pasture, scrub, heathland and open woodland found throughout the site offers suitable terrestrial habitat for amphibians to utilise.

Common toad (*Bufo bufo*) are listed as priority species on the SBL and as such are considered of national importance, whilst common frog (*Rana temporaria*), smooth newt (*Lissotriton vulgaris*) and palmate newt (*Lissotriton helveticus*) are Protected in the UK under the Wildlife and Countryside Act, 1981 and are therefore of site importance.

3.3.12 Birds

The landscape including the site is known to contribute to the overwintering of geese in the North East of Scotland.

Other relevant bird species returned from the desk study, associated with the site include:

Table 3-2: Records of Birds from Desk Study

Species	Designation[36]
Barn Owl (*Tyto alba*)	BoCC - Green list[37]
Barnacle Goose (*Branta leucopsis*)	BoCC – Amber list[38]
Black-headed Gull (*Chroicocephalus ridibundus*)	BoCC – Amber list
Bullfinch (*Pyrrhula pyrrhula*)	BoCC – Amber list
Curlew (*Numenius arquata*)	BoCC – Red list[39]
Dunnock (*Prunella modularis*)	BoCC – Amber list
Golden Plover (*Pluvialis apricaria*)	BoCC – Green list
Goldeneye (*Bucephala clangula*)	BoCC – Red list
Green Sandpiper (*Tringa ochropus*)	BoCC – Amber list
Greylag Goose (*Answer anser*)	BoCC – Amber list
Herring Gull (*Larus argentatus*)	BoCC – Red list
Hooded Crow (*Corvus cornix*)	BoCC – Green list
House Sparrow (*Passer domesticus*)	BoCC – Red list
Kestrel (*Falco tinnunculus*)	BoCC – Amber list
Kingfisher (*Alcedo atthis*)	BoCC – Green list
Lapwing (*Vanellus vanellus*)	BoCC – Red list
Linnet (*Linaria cannabina*)	BoCC – Red list
Osprey (*Pandion haliaetus*)	BoCC – Amber list
Peregrine (*Falco peregrinus*)	BoCC – Green list
Pink-footed Goose (*Anser brachyrhynchus*)	BoCC – Amber list
Red Kite (*Milvus milvus*)	BoCC – Green list
Redshank (*Tringa totanus*)	BoCC – Amber list
Redwing (*Turdus iliacus*)	BoCC - Amber list
Short-eared Owl (*Asio flammeus*)	BoCC - Amber list
Siskin (*Spinus spinus*)	BoCC – Green list
Skylark (*Alauda arvensis*)	BoCC – Red list
Snipe (*Gallinago gallinago*)	BoCC – Amber list
Song Thrush (*Turdus philomelos*)	BoCC – Amber list
Swift (*Apus apus*)	BoCC – Red list

[36] Birds of Conservation Concern information available at: https://www.bto.org/sites/default/files/publications/bocc-5-a5-4pp-single-pages.pdf (Accessed April 2023)
[37] Green list criteria: naturally occurring species with self-sustaining populations meeting none of the criteria for BOCC Amber or Red list species.
[38] Amber-list criteria - Threatened in Europe, historical decline – recovery, moderate breeding population decline over 25 years/longer term, moderate non-breeding population decline over 25 years/longer term, moderate breeding range decline over 25 years/longer term, moderate non-breeding range decline over 25 years, breeding/non-breeding rarity, breeding/non-breeding localisation, breeding/non-breeding international importance.
[39] Red-list criteria - Globally threatened, historical decline in the breeding population, severe breeding population decline over 25 years/longer term, severe non-breeding population decline over 25 years/longer term, severe breeding range decline over 25 years/longer term, severe non-breeding range decline over 25 years.

Species	Designation[36]
Tree Sparrow (*Passer montanus*)	BoCC – Red list
Yellowhammer (*Emberiza citrinella*)	BoCC – Red list

Previous surveys undertaken on the site for wintering birds identified no geese species to be present. It was considered that bird flu may have had some impacts on the return of geese to this area.

Bird species encountered during the survey include:

Table 3-3: Bird Species Identified During Survey

Species	Designation
Magpie (*Pica pica*)	BoCC – Green list
Robin (*Erithacus rubecula*)	BoCC – Green list
Wren (*Troglodytes troglodytes*)	BoCC – Amber list
Woodpigeon (*Columba palumbus*)	BoCC – Amber list
Blackbird (*Turdus merula*)	BoCC – Green list
Buzzard (*Buteo buteo*)	BoCC – Green list
Goldfinch (*Carduelis carduelis*)	BoCC – Green list
Dunnock	BoCC – Amber list
Meadow pipit (*Anthus pratensis*)	BoCC – Amber list
Yellowhammer	BoCC – Red list
Snipe	BoCC – Amber list
Swallow (*Hirundo rustica*)	BoCC – Green list
Greenfinch (*Chloris chloris*)	BoCC – Red list
Herring Gull	BoCC – Red list
House Sparrow	BoCC – Red list
Hooded Crow	BoCC – Green list
Kestrel	BoCC – Amber list
Starling (*Sturnus vulgaris*)	BoCC -Red list
Great Spotted Woodpecker (*Dendrocopos major*)	BoCC – Green list
Pheasant (*Phasianus colchicus*)	Introduced
Black-headed Gull	BoCC – Amber list
Skylark	BoCC – Red list
Swift	BoCC – Red list

Suitable habitat for nesting, loafing and foraging birds is present within the woodland, scrub, agricultural fields and grassland habitats within the site.

A starling was observed nesting in a tree with a woodpecker hole in the north east of the site. A series of trees with woodpecker holes were identified throughout the site.

A Barn Owl nest was identified in a tree in the north west of the site. A large amount of droppings and pellets were identified below the cavity in the tree (Photo 22; Page 2, Appendix H).

A raptor nest was identified within the woodland in the north west of the site and a raptor prey spot was located 75m south east in the same woodland (Photo 23; Page 2, Appendix H).

Sand Martin (*Riparia riparia*) nests were present on the left hand bank of the River Don upstream of the site (Photo 24; Page 6, Appendix H).

Birds on the red list are of national importance, those on the amber list are of regional importance and green listed birds are of local importance in line with Birds of Conservation Concern.

All wild bird species are protected under the Wildlife and Countryside Act 1981.

3.3.13 Invertebrates

The site does not lie within any Important Invertebrate Areas. However, the site partially falls within a B-Line. B-Lines are a series of ‘insect pathways’ which are being restored to create a series of wildflower-rich habitat stepping stones, linking existing wildlife areas together to create a network

across the UK landscape and provide large areas of brand new habitat bees and butterflies as well as a range of other wildlife.

The desk study returned records of invertebrates including, 12 moths and butterflies; dusky brocade (*Apamea remissa*),garden tiger (*Arctia caja*), ghost moth (*Hepialus humuli*), green-brindled crescent (*Allophyes oxyacanthae*), latticed heath (Chiasmia clathrata), rosy rustic (*Hydraecia micacea*), sallow (*Cirrhia icteritia*), small heath (*Coenonympha pamphilus*), small pearl-bordered fritillary (Boloria selene), small phoenix (*Ecliptopera silaceata*), small square-spot (*Diarsia rubi*), streak (*Chesias legatella*), and one stonefly; northern February red (*Brachyptera putata*).

A large range of butterflies, moths, bees, flies, spiders, snails, slugs, beetle, grasshoppers, ants and wasps were observed during the survey (with a large proportion associated with the wetland/ grassland area in the north west of the site), including white-tailed bumblebee (*Bombus lucorum*), common carder bee (*Bombus pascuorum*), orange-tip (*Anthocharis cardamines*), small tortoiseshell *(Aglais urticae*), yellowjacket (*Vespula vulgaris*), bluebottle Fly (*Calliphora vomitoria*) and peacock butterfly caterpillar (*Aglais io*).

The scrub, wetland, grassland, woodland, stone walls and stone piles, watercourse and arable habitats provide suitable habitat for basking, foraging and breeding invertebrates.

Invertebrates are important biodiversity indicators and are therefore of site importance.

3.3.14 Fish

The River Don in the north east of the site provides opportunities for foraging and spawning fish due to the presence of a mixture of bed substrate types (gravel, pebble, cobble, sand and boulders), undercut sections and marginal vegetation along banks, as well as the flow comprising a mix of run, riffle, still marginal, deep and shallow pools and glide. The River Don is known to host a good population of Atlantic salmon (*Salmo salar*) and sea trout (*Salmo trutta trutta*) and also brown trout (*Salmon trutta*). The two tributaries of the River Don in the site are highly vegetated and heavily modified and culverted at points, making these unsuitable for a number of fish species, however, minnows (*Phoxinus phoxinus*) were observed one of the tributaries.

The Park Burn, Tuach Burn, Dewsford Burn and Silver Burn provide opportunities for some fish species, however, would be unlikely to provide suitable habitat for salmonids due to the narrow nature and low flows observed during the survey, as well as large, culverted sections and lack of numerous gravel pockets.

The watercourses are considered to provide suitable habitat for European eel (*Anguilla anguilla*), lamprey (brook (*Lampetra planeri*), river (*Lampetra fluviatilis*) and sea (*Petromyzon marinus*) due to a range of habitats which these species require, being present. Sea lamprey, European eel and brook lamprey have all been recorded in the River Don.

Scottish Environmental Protection Agency (SEPA) obstacles to fish passage data show two barriers to fish passage on the Tuach Burn, which are considered passable during certain conditions. This may limit fish passage above these areas.

Atlantic salmon, sea trout, brown trout, brook lamprey, river lamprey, sea lamprey and eel are all listed as priority species on the SBL. Atlantic salmon and brook lamprey are both also listed on Annex II of the Habitats Directive. Therefore, all species aforementioned are of National (Scotland) importance.

3.3.15 Freshwater Pearl Mussel

No records of freshwater pearl mussel were returned from the desk study.

Suitable habitat within the River Don in the north east of the site and both upstream and downstream is likely present for freshwater pearl mussels, due to the presence of a mixture of bed substrate types (gravel, pebble, cobble, sand and boulders) and suitable habitat for salmonids (which are an important part of their lifecycle).

Freshwater pearl mussel are SBL species of national (Scotland) importance.

3.3.16 Other Observations

Roe deer (*Capreolus capreolus*) were observed within the west of the site in arable fields and within the wetland area.

4 POTENTIAL IMPACTS, FURTHER SURVEY AND LICENSING

4.1 Potential Impacts

It is understood that the development proposed will include measures for avoiding impacts, mitigation and compensation within future project design. The following impacts could reasonably be predicted should **no** avoidance, mitigation or compensation be included within design:

- Loss or fragmentation of habitat which may include SBL priority habitat lowland fen, purple moor-grass and rush pasture, wet woodland, native pine woodland, lowland acid grassland, mosaic of holcus-juncus and other lowland acid grassland, lowland mixed deciduous woodland and arable field margins if removed or altered (without mitigation or compensation) to facilitate the development.
- Loss or fragmentation of habitats which may include regionally important habitats other neutral grassland, Deschampsia neutral grassland, Holcus-juncus neutral grassland, modified grassland, other broadleaved woodland, other coniferous woodland, scrub, gorse scrub and other lowland acid grassland mosaic, mixed scrub, rivers and burns, ponds, buildings and railway embankments if removed or altered (without mitigation or compensation) to facilitate the development.
- Loss of SBL priority plant lesser butterfly orchid if removed or altered (without mitigation or compensation) to facilitate the development.
- Pollution of River Don which is an Annex 1 priority habitat, during works and operation.
- Loss of potential bat roosts if trees and buildings containing PRFs are removed.
- Potential destruction and disturbance of badger sett features.
- The death, injury or disturbance of badger, otter, water vole, pine marten, red squirrel, hedgehog, brown hare, amphibians and reptiles during site works and as a consequence of the development.
- The loss or fragmentation of foraging, nesting and commuting habitat for nesting birds (including barn owl and raptors),bats, badger, red squirrel, pine marten, otter, water vole, hedgehog, brown hare, reptiles and amphibians as a result of habitat removal/alteration.
- Potential for destruction of nests, and death or injury to chicks if site works commence during the nesting bird season (March to August inclusive).
- Permanent/temporary lighting may illuminate vegetated habitat on site or adjacent habitats causing disturbance to nocturnal or crepuscular species (i.e bats, badgers, otter and hedgehogs).
- Removal of suitable basking, pollinating, foraging, residing habitat for invertebrates as a result of the removal or alteration of grassland, scrub, stone walls and piles, woodland, arable fields, standing water and running water habitats.
- Further spread of INNS during construction works.

The following positive options may be available within the scope of the project:

- Opportunities to improve biodiversity within the site through retention, enhancement and management of key habitats (woodland, wetland and scrub) and offsite through habitat creation, plus a thoughtful scheme of landscaping aiming to increase habitat connectivity.
- New habitat creation within a focussed plan aiming to increase ecosystem services and provide resources for key fauna attributed to the site.
- Provide wildlife sheltering provisions through the development such as nest/roost boxes and natural features such as tree cavities and rock piles.

4.2 Additional Survey Work and Licensing

4.2.1 Habitats

Woodland and Trees
A tree and woodland survey in reference to BS5857:2012, to verify and gather tree data on individual trees and tree groups on site should be undertaken to determine any constraints to or impacts of the development on these features. The tree survey has been undertaken and will be reported in the EIA for the project.

4.2.2 GWDTEs

A National Vegetation Classification (NVC) survey will be conducted of the lowland fen, holcus-juncus neutral grassland, Deschampsia neutral grassland, purple moor-grass and rush pasture and wet woodland habitats identified during the PEA survey as potential Priority and/or Ground Water Dependent Terrestrial Ecosystems (GWDTEs). The NVC survey has been undertaken during the main flowering season June-August 2023 and will be reported in the EIA for the project.

4.2.3 INNS

A range of INNS were recorded on and adjacent to the site. Therefore, update surveys to determine the spread and distribution of INNS should be undertaken and a management plan produced for their eradication.

4.2.4 Protected Species

Bats
The cottage building and associated outbuilding in the central region of the site assessed as moderate suitability for roosting bats will potentially be removed/ demolished or disturbed to facilitate the development and therefore should undergo a detailed preliminary roost assessment and two bat activity surveys should be undertaken during May-September (bat activity season) to identify presence/absence of roosting bats. The bat activity surveys have been undertaken during the summer bat activity season and will be reported in the EIA for the project.

The ruin building should undergo a detailed inspection with the aid of an endoscope during May-September to identified presence/ absence of roosting bats. In addition, the ruin building should be inspected with an endoscope during the winter season (November-March) to search for any hibernating bats.

If any woodland/ trees with PRFs are required to be removed or undergo any arboricultural works to facilitate the development, an elevated inspection and/ or activity survey of the trees to confirm suitability and bat presence/absence as well as inform any requirement for a protected species licence and/or protection plan should be undertaken.

As the range of habitats within the site were assessed as high suitability for bats, transects surveys and static detector surveys should be undertaken to assess how bats utilise habitats on site and determine the impact of habitat removal on the local bat population. The transect surveys have been undertaken during the summer bat activity season and will be reported in the EIA for the project.

Where bats are identified and may be impacted by the development, a protection plan should be prepared detailing appropriate avoidance, mitigation and compensation measure for bats and where required a licence from NatureScot applied for.

Otter and Water Vole
As evidence of otter (couches, lay ups and spraints) and suitable habitat for water vole was identified during the survey and suitable habitat is present within the site via watercourses, ponds, drainage ditches and wetland, for both, a targeted survey for otter[40] and water vole[41] is recommended. The otter and water vole surveys have been undertaken and will be reported in the EIA for the project.

Where otter and water vole are identified and may be impacted by the development, a protection plan should be prepared detailing appropriate avoidance, mitigation and compensation measure for otter and water vole and where required a licence from NatureScot applied for.

Red Squirrel and Pine Marten
As a potential squirrel drey and pine marten scat was identified during the survey and suitable habitat is present within the site via coniferous plantation for both, a targeted survey for red squirrel and pine marten is recommended. The red squirrel and pine marten surveys have been undertaken and will be reported in the EIA for the project.

Where red squirrel and pine marten are identified and may be impacted by the development, a protection plan should be prepared, detailing appropriate avoidance, mitigation and compensation measure for red squirrel and pine marten and where required a licence from NatureScot applied for.

Badger
Further survey works are detailed within the Confidential Annex in Appendix J.

Reptiles
Due to the high-quality habitat identified throughout the site, a reptile survey should be undertaken in those areas of suitable habitat to determine presence/ absence of reptiles and species. Reptile surveys should be undertaken April-September[42]. The reptile surveys have been undertaken and will be reported in the EIA for the project.

Where reptiles are identified and may be impacted by the development, a reptile protection plan should be prepared, detailing appropriate avoidance, mitigation and compensation measures.

Birds
A detailed desk study to identify existing ecological information applicable to the site in regard to birds should be undertaken and a detailed species record of those bird species identified during site visits during the spring and summer of 2023 to determine species presence on site (as nesting territories fluctuate yearly).

Dependant on design, trees on site may require targeted Barn Owl surveys.

Invertebrates
As the site is within a B-Line and the wetland/ heath habitat in the north west was identified to host a large range of invertebrates, this area should be avoided if feasible (as per mitigation hierarchy). However, if this area is to be affected by the development, detailed invertebrate surveys should be undertaken in advance to determine the presence of any rare or priority species. Several survey visits

[40] https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20otter.pdf
[41] https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20water%20vole.pdf
[42] https://www.nature.scot/sites/default/files/2018-04/Guidance-Reptiles-Protected-species-advice-for-planners-adders-slow-worm-and-common-lizard.pdf

for invertebrates would likely be required due to the nature of the development and the major changes it would result in, as well as the complex and mosaic habitat type in that area (bog, swamp, heath, marshy grassland, woodland)[43].

Fish
A fish habitat assessment of up to 200m upstream and downstream of the proposed extraction point on the River Don and its immediate tributaries, as well as suitable sections of the Park Burn and Silver Burn (where safely accessible) to assess habitat suitability for common freshwater fish species, with particular emphasis on all freshwater life stages of salmonids and lamprey. Surveys should be undertaken in safe, low water, summer conditions.

Freshwater Pearl Mussel
A survey to identify presence/absence and suitable habitat conditions for freshwater pearl mussels at the proposed point of extraction in the River Don (spanning 500m downstream and 100m upstream) and its immediate tributaries, by a licenced freshwater pearl mussel surveyor[44]. Surveys should be undertaken in safe, low water, summer conditions.

West European Hedgehog, Brown hare, Amphibians
It is advised that a valid ecological baseline dataset should be maintained for all species aforementioned, as well as hedgehog, brown hare and amphibians via annual surveys, with pre-works checks by a suitably qualified ECoW to be undertaken at the construction stage.

4.2.5 Licensing

No species licences are required at this time, however this would be reviewed following further targeted survey works and detailed design.

[43] https://publications.naturalengland.org.uk/publication/36002
[44] https://www.webarchive.org.uk/wayback/archive/20220726134012/https://www.nature.scot/doc/freshwater-pearl-mussel-survey-protocol-use-site-specific-projects

5 AVOIDANCE, MITIGATION AND BIODIVERSITY GAINS

5.1 Design Avoidance and Mitigation

At this preliminary stage of design proposals it is suggested that the following habitats are prioritised for retention, where feasible:

- Rivers (priority habitat) – Annex 1
- Lowland acid grassland – SBL priority habitat
- Holcus-juncus neutral grassland – SBL priority habitat
- Wet woodland – SBL priority habitat
- Lowland mixed deciduous woodland – SBL priority habitat
- Lowland fens – SBL priority habitat
- Purple moor-grass and rush pastures – SBL priority habitat
- Arable field margins – SBL priority habitat
- Native pine woodlands – SBL priority habitat
- Deschampsia neutral grassland – Regional important habitat
- Gorse scrub – Regional important habitat
- Other rivers and streams – Regional important habitat
- Other standing water – Regional important habitat

At this preliminary stage of design proposals it is suggested that the following features are prioritised for retention, where feasible:

- Trees and woodland with PRFs
- Ruin building with low suitability for summer bats and winter hibernation
- Otter rest sites (couches and lay ups)
- Badger setts (specifically main features)
- Red squirrel dreys
- Barn Owl roost, raptor nest and Sand Martin nests

5.2 Construction Avoidance and Mitigation

The following broad strategies are suggested to avoid and minimise the current predicted negative ecological outcomes listed in section 5.1. These have not been informed by further survey information but can be used as a guide in the design or outline programme:

- Appoint a suitably qualified project Ecological Clerk of Works (ECoW) to oversee and advise on ecological constraints prior to and during construction phase.
- Include ecology as a chapter of a Construction Environment Management Plan (CEMP).
- Avoid/ protect/ minimise disturbance to SBL priority habitats and regionally important habitats through sensitive design and implementing protection during construction.
- When clearing vegetation to facilitate construction, only clear the area required and aim to retain some varied vegetation to provide habitat continuity during construction.
- All contractors should be made aware of the potential presence of protected species via induction material, and what to do in the event that a protected species is discovered on site.
- Species Protection Plans in place so that appropriate mitigation can be implemented prior to any construction commencing.
- Vegetation clearance should not be undertaken within the nesting bird season (March – August) whilst cognisance of any overwintering bird resources during winter months.

- If ponds are to be removed/modified to facilitate the development, this should be done during amphibian hibernation season (November to March inclusive). They should be checked prior to their removal for amphibians/ spawn and new ponds should be created prior to existing ponds being removed.
- Potential reptile habitat should not be removed during hibernation period (November to March inclusive) and only undertaken 2 hours after sunrise and 2 hours before sunset and during optimal conditions (11-18 degrees, no heavy rain).
- Any works regarding reptiles or habitat should be undertaken in accordance with ARGUK's Advice Note 10: Reptile survey and mitigation guidance for peatland habitats.
- Works adjacent to retained woodland, watercourses or dense vegetation should be limited to daylight hours to reduce disturbance of nocturnal species who may use these habitats.
- Any temporary lighting during construction and permanent lighting associated with the development must not illuminate woodlands/tree lines, watercourses or scrub as this can affect the foraging success for nocturnal protected species (bats, otter, badger etc.)
- Any excavations created during works should not be left open for mammals to become trapped. Appropriate covers should be fitted, or a shallow sloping edge/ temporary ramp provided at the end of every working day.
- Any temporary or permanent lighting should be designed to be 'wildlife friendly' and should not illuminate habitats including scattered trees, scrub, wetland, watercourses and woodland. Screening techniques, dark buffer zones, low- or high-pressure sodium lamps and 'warm white' lighting (LED <2700K) are recommended.
- Implement a 15mph speed restriction to avoid RTAs with protected species.
- Vegetated buffers (minimum 10m) between works and watercourses should be implemented to reduce risk of pollution to running water and reduce impacts to otter and fish.
- Implement an INNS management plan (inclusive of a good practice biosecurity plan).

5.3 Opportunities for Biodiversity Gain

The following opportunities for biodiversity gain should be considered and have been designed with reference to relevant planning guidance, plans and policies:

- Sensitive landscaping and planting regimes to augment retained habitat, with a wide range of native tree and shrub species of local provenance, including berry or nectar producing plants being planted. These will serve to increase and possibly connect existing woodlands to other habitats in the wider landscape, promote longevity of the tree and woodland features, as well as encourage good conditions for plants, invertebrates and, therefore a wider functioning ecosystem. This would comply with Aberdeenshire Council Supplementary Guidance (SG) Natural Environment2: Protection of the wider biodiversity and geodiversity C3[45].
- Create and manage diverse wildflower meadows and margins. Boundary features could be formed using native mixed hedging.
- Habitat connectivity across, around and beyond the site can exponentially increase the success of delivering on site and landscape scale biodiversity gains. The site's soil resource may contain a great deal of biological activity and as such including consideration for soils in landscaping may be beneficial. This would comply with Aberdeenshire Council Supplementary Guidance (SG) Natural Environment2: Protection of the wider biodiversity and geodiversity C3[45].
- Installing owl boxes into woodland habitats to increase overall nesting provisions.
- Bat and bird boxes can be affixed to trees within the retained woodland and trees and on any buildings to increase nesting/roosting provisions.

[45] https://www.aberdeenshire.gov.uk/media/11692/sgpolicies.pdf

- Installing owl boxes[46] into the woodland habitats to increase overall nesting provisions.
- The SBL has identified over 400 terrestrial invertebrate species in the UK as priorities for conservation action. Suitable enhancement measures include creating log piles and invertebrate mounds, as well as maintaining standing and buried deadwood and creation of hedgerows. These will also provide foraging and sheltering resources for hedgehog. In addition, invertebrate hotels and bee bricks could be installed in areas of hard standing and in buildings to provide additional resources for invertebrates. This would comply with the Aberdeenshire Council Pollinator Action Plan 2022 to 2027[47]
- Where fencing is required, installing hedgehog friendly fencing would help increase faunal movement and ecological connectivity within the site, as well with habitats within the locale. Artificial hedgehog boxes could also be incorporated into the grassland or woodland within the site.

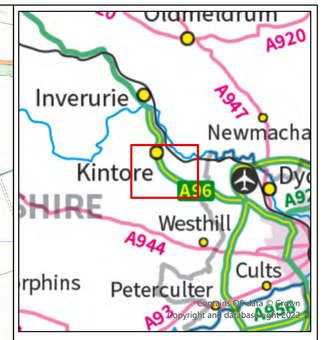
[46] https://www.nhbs.com/barn-owl-nest-box
[47] https://www.aberdeenshire.gov.uk/media/27229/pollinatoractionplan.pdf

APPENDICES

A SITE LOCATION PLAN

376000 378000 380000 382000

816000 814000 812000



Hydrogen Development Area

Gas Pipelines

- Udny Green to Aberdeen Gas (FM24)
- St Fergus to Aberdeen Gas (FM10)

Rev	Date	Rqst	Drwn	Chkd	Appd
R1	26.03.23	WS	PM	WS	
R2	27.03.23	WS	PM	WS	
R5	31.05.23	WS	PM	WS	
R5	09.06.23	WS	PM		

STATERA ENERGY - KINT0RE

HYDROGEN DEVELOPMENT AREA

B&P BLACKHALL & POWIS
Suite 11 | The Garment Factory | 10 Montrose Street | Glasgow | G1 1RE
Tel: +44 (0)141 433 7371 | www.blackhallpowis.com

Date: 09/06/2023 | Scale @ A1: 1:9,000

0 0.5 1 Kilometers

B SUMMARY OF RELEVANT LEGISLATION

European Protected Species – all bats & otter

European Protected Species (EPS) are protected under the Conservation (Natural Habitats &c.) Regulations 1994 (the "Habitat Regulations") as amended. Under this legislation it is an offence to deliberately or recklessly:

- capture, injure or kill such an animal;
- harass an animal or group of animals;
- disturb an animal while it is occupying a structure or place used for shelter or protection;
- disturb an animal while it is rearing or otherwise caring for its young;
- obstruct access to a breeding site or resting place, or otherwise deny an animal use of a breeding site or resting place;
- disturb an animal in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species;
- disturb an animal in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;
- disturb an animal while it is migrating or hibernating;
- possess, control, transport, sell or exchange specimens of any animal listed on Annex IV of the Habitats Directive. This applies to living or dead specimens and to their derivatives.

It is an offence of strict liability to damage or destroy a breeding site or resting place of such an animal. These sites and places are protected even when the animal isn't present. For example, great crested newt ponds are protected all of the time as long as it can be shown that the newts use the ponds some of the time.

A licence may be issued to permit the otherwise unlawful activities listed above if these three tests are satisfied:

- There must be a licensable purpose which includes 'preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;'
- There is 'no satisfactory alternative'; and
- The derogation (i.e. any permission/licence granted) is 'not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range'.

Red Squirrel, Pine Marten & Freshwater Pearl Mussel

Red squirrel, pine marten and freshwater pearl mussel are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Subject to certain exceptions, it is an offence to intentionally or recklessly:

- kill, injure or take (capture) an individual;
- damage, destroy or obstruct access to any structure or place which they use for shelter or protection;
- disturb an individual while it is occupying a structure or place which it uses for that purpose; or to
- possess or control, sell, offer for sale or possess or transport for the purpose of sale any live or dead animal or any derivative of such an animal.

Knowingly causing or permitting any of the above acts to be carried out is also an offence.

In some cases licences may be issued by NatureScot to enable certain otherwise illegal activities to take place for social, economic or environmental reasons (including development) as long as:

- the licensed activity will contribute to significant social, economic or environmental benefit;
- there is no satisfactory alternative; and
- there will be no significant negative impact on the conservation status of the species.

Water Vole

Water voles are partially protected under Schedule 5, Part 4 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to 'intentionally or recklessly':

- damage, destroy or obstruct access to any structure or place which a water vole uses for shelter or protection; or to
- disturb a water vole while it is occupying a structure or place which it uses for that purpose.

Knowingly causing or permitting any of the above acts to be carried out is also an offence.

In some cases licences may be issued by NatureScot to enable certain otherwise illegal activities to take place for social, economic or environmental reasons (including development) as long as:

- the licensed activity will contribute to significant social, economic or environmental benefit;
- there is no satisfactory alternative; and
- there will be no significant negative impact on the conservation status of the species.

Badger

Badgers are protected under the Protection of Badgers Act (1992) (as amended). Offences under the Act include:

- wilfully taking, injuring or killing a badger;
- cruelty to a badger;
- intentional or reckless interference with a badger sett;
- sale or possession of a badger; and
- marking or ringing of a badger.

Interfering with a badger sett includes:

- damaging or destroying a sett or any part of it;
- obstructing access to a sett;
- disturbing a badger while it is in a sett; and
- causing or allowing a dog to enter a badger sett.

Where an offence is committed the individual (as well as the body corporate, Scottish partnership or, as the case may be, unincorporated association) is guilty of the offence and is liable to be proceeded against and punished accordingly.

Licences can only permit someone to 'interfere' with a badger sett for the purpose of development. A licence cannot permit the removal, translocation or killing of badgers for the purpose of development.

Interference primarily means anything that might:

- disturb any badger in a sett; and
- damage or block the tunnels that radiate from a sett's entrances.

Licences aren't generally issued during the breeding season (30 November to 1 July). Activities that necessarily involve disturbance should be scheduled to take place outside of this period.

Hedgehog

Hedgehog are listed on Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) which prohibits trapping and killing by certain methods.

Brown Hare

Brown hares are partially protected under Schedule 5A of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to intentionally or recklessly kill, injure or take an individual within the closed season. The closed season for brown hare is 1 February to 30 September.

Birds

All wild bird species in the UK are protected under the Wildlife and Countryside Act 1981 (as amended), with species listed on Schedules A1, 1 and 1A afforded additional protection.

For any wild bird species, it is an offence to intentionally or recklessly:

- kill, injure or take a bird;
- take, damage, destroy or interfere with a nest of any bird while it is in use or being built;
- obstruct or prevent any bird from using its nest;
- take or destroy an egg of any bird;
- possess or control a living or dead wild bird; and
- possess or control an egg of a wild bird (or any such derivatives).

For any wild bird species listed on Schedule 1, it's an offence to disturb:

- any bird while it is building a nest;
- any bird while it is in, on, or near a nest containing eggs or young;
- any bird while lekking; and
- the dependent young of any bird.

For any wild bird species listed on Schedule 1A, it's an offence to intentionally or recklessly harass any bird.

For any wild bird species listed on Schedule A1, it's an offence to intentionally or recklessly take, damage, destroy or interfere at any time with a nest habitually used by any bird.

Licences cannot be issued for the purpose of development in relation to any of the above offences.

Common Lizard/Slow Worm/Adder

Common lizards/Slow worms/Adders are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under the legislation you are not permitted to intentionally or recklessly permit or cause the killing and injury of individuals.

Licences permitting otherwise unlawful acts in relation to the above are not available for development purposes.

Amphibians

The four widespread species of amphibian, the smooth and palmate newts, the common frog and common toad, are protected only by Section 9 (5) of the Wildlife and Countryside Act 1981. This section prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy.

Licences permitting otherwise unlawful acts in relation to the above are not available for development purposes.

Invasive Non-Native Species (Plants)

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant, or otherwise cause to grow, any plant in the wild at a location outside its native range.

'Native range' is defined in the 1981 Act as, "the locality to which the animal or plant of that type is indigenous, and does not refer to any locality to which that type of animal or plant has been imported (whether intentionally or otherwise) by any person."

The Scottish Governments Non-natives Code of Practice[48] defines 'in the wild'. Just about everywhere is wild except for:

- arable and horticultural land;
- improved pasture;
- settlements; and
- private and public gardens.

In exceptional circumstances it may be possible to obtain a licence from NatureScot to permit the above offence.

Note: The above information constitutes a summary only. Please refer to original legislation for full information.

[48] https://www.gov.scot/publications/non-native-species-code-practice/

C GEOGRAPHICAL LEVEL OF IMPORTANCE OF ECOLOGICAL FEATURES

Level of Importance	Sites	Habitats	Species
International	Designated, candidate or proposed Special Areas of Conservation, Special Protection Areas and Ramsar sites; UNESCO (Ecological) World Heritage Sites; UNESCO Biosphere Reserves; Biogenetic Reserves.	A viable area of habitat included in Annex I of the EC Habitats Directive; a habitat area that is critical for a part of the life cycle of an internationally important species.	A European Protected Species; an IUCN Red Data Book species that is globally Vulnerable, Endangered or Critically Endangered; a Category A internationally important bryophyte assemblage[49].
National (UK)	Sites of Special Scientific Interest/Areas of Special Scientific Interest; National Nature Reserves; Nature Conservation Review Sites; Marine Conservation Zones (UK offshore).	An area of habitat fulfilling the criteria for designation as an SSSI/ASSI or MCZ; a habitat area that is critical for a part of the life cycle of a nationally important species.	An IUCN Red Data Book species that is Vulnerable, Endangered or Critically Endangered in the UK; a species that is Rare in the UK (<15 10km grid squares); a Schedule 5[50] (animal) or Schedule 8 (plant) species included in the Wildlife and Countryside Act 1981; any species protected under national (UK) legislation where there is the potential for a breach of the legislation; a Category A nationally important bryophyte assemblage[51]; a species that is Vulnerable, Endangered or Critically Endangered in The Vascular Plant Red Data List for Great Britain[52].
National (Scotland)	National Parks; Marine Protected Areas; Marine Consultation Areas.	Habitats of principal importance for biodiversity in the relevant countries[53], including; Scottish Biodiversity List (SBL) Priority Habitats and Priority Marine	Species of principal importance for biodiversity in the relevant countries[55], including; SBL Priority Species and PMFs.

[49] Averis, A.B.G, Genney, D.R, Hodgetts, N.G, Rothero, G.P. & Bainbridge, I.P. 2012. Bryological assessment for hydroelectric schemes in the west highlands – 2nd edition. Scottish Natural Heritage Commissioned Report No. 449b
[50] https://www.legislation.gov.uk/ukpga/1981/69/schedule/5/enacted
[51] Averis, A.B.G, Genney, D.R, Hodgetts, N.G, Rothero, G.P. & Bainbridge, I.P. 2012. Bryological assessment for hydroelectric schemes in the west highlands – 2nd edition. Scottish Natural Heritage Commissioned Report No. 449b
[52] Cheffings, C.M. & Farrell, L. (eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005) *The Vascular Plant Red Data List for Great Britain. Species Status No. 7*. JNCC, Peterborough. Available at: https://hub.jncc.gov.uk/assets/cc1e96f8-b105-4dd0-bd87-4a4f60449907 (Accessed, November 2022)
[53] These are all the habitats that were identified as requiring action in the UK Biodiversity Action Plan and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework, including any additions.
[55] These are all the species that were identified as requiring action in the UKBAP and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework, including any additions.

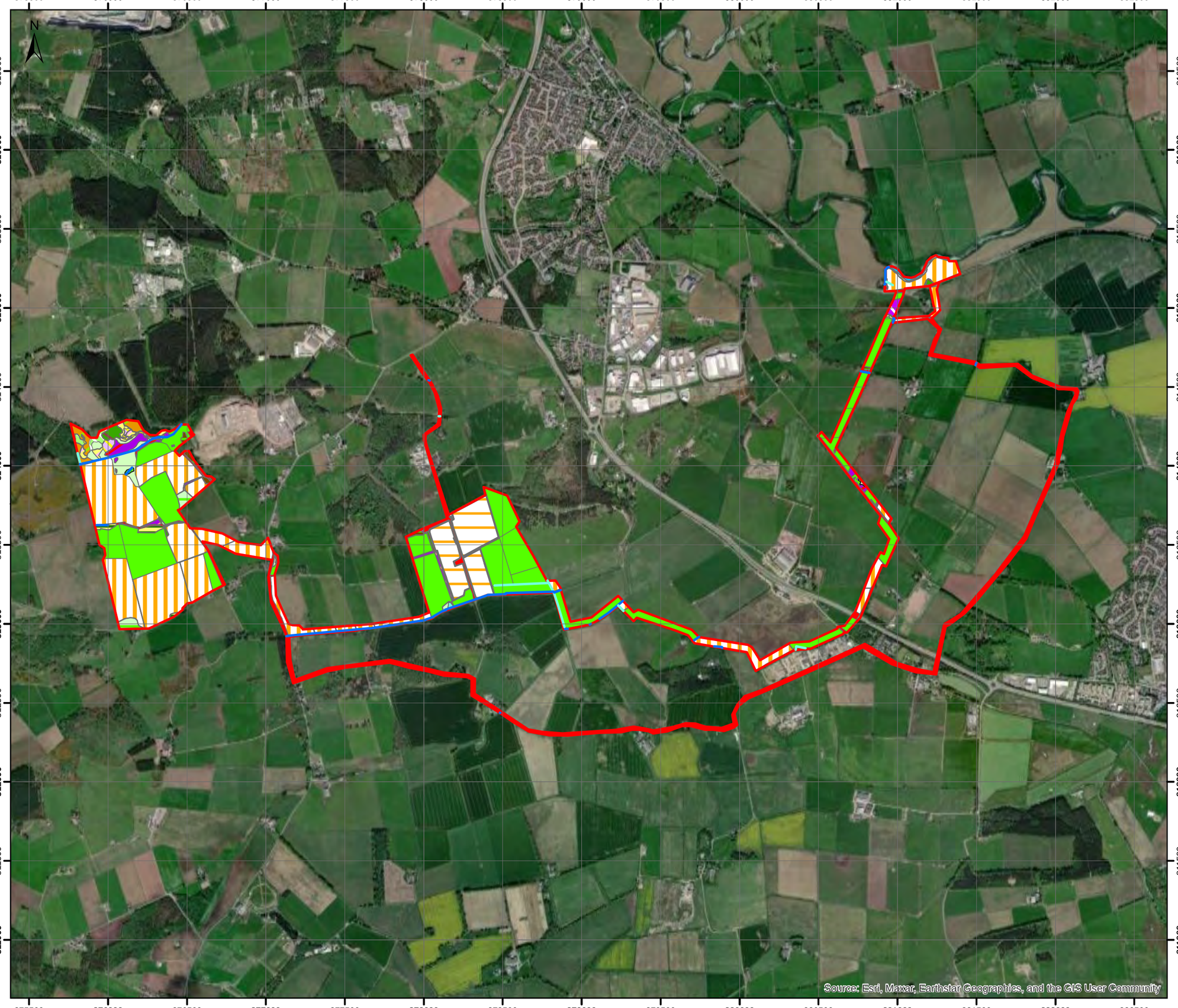
Level of Importance	Sites	Habitats	Species
		Features (PMFs)[54].	
Regional	Regional Parks.	Regional Local Biodiversity Action Plan habitats noted as requiring protection.	A species that is Nationally Scarce in the UK (present in 16-100 10km grid squares); a species that is included in the Regional LBAP; an assemblage of regionally scarce species.
County / Metropolitan	Woodland Trust Sites; Royal Society for the Protection of Birds Sites; Local Wildlife Sites.	County LBAP habitats noted as requiring protection; semi-natural, ancient woodland >0.25ha in extent.	A species that is included in the County LBAP; an assemblage of species that are scarce at the county level.
Local		Semi-natural, ancient woodland <0.25ha in extent; semi-natural habitats that are unique or important in the local area.	Species as defined by Local Authority lists (if available).
Site		Common and widespread habitats not covered above.	Common and widespread species not covered above.
Negative			An Invasive Non-Native Species (INNS) as defined by the GB Non-Native Species Secretariat (NNSS) and supported by the GB Invasive Non-native Species Strategy (2015); legally controlled species under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended by the relevant country legislation).

[54] In July 2014, Scottish Ministers adopted a list of 81 priority marine features (PMFs) – many of which are features characteristic of the Scottish marine environment. Most are on other conservation status lists so may be valued higher than this.

D GEOGRAPHICAL LEVEL OF IMPORTANCE OF ORNITHOLOGICAL FEATURES

Level of Importance	Assessment Criteria		
	Legal Protection	**Conservation Status**	**Population Size**
International	Any species within Annex 1 of the EU Birds Directive	Any species which is listed as Critically Endangered or Endangered on the IUCN Red List	Supporting greater than 1% of the EC population
National (UK)	Any species within Schedule 1 of the Wildlife and Countryside Act	Any species on the BoCC Red List	Supporting greater than 1% of the UK population
National (England)		Any species that is listed as Species of Principal Importance for Conservation; any species on the BoCC Red List	Supporting greater than 5% of the English population
National (Scotland)		Any species on the Scottish Biodiversity List	Supporting greater than 5% of the Scottish population
National (Ireland & Northern Ireland)		Any species on the Birds of Conservation Concern in Ireland 2014-19 (BoCCI)	Supporting greater than 5% of the Irish population
National (Wales)		Any species in the Section 7 list of Species of Principal Importance for Conservation; Any species considered to be in decline in The State of Birds in Wales 2011 (SBW)	Supporting greater than 5% of the Welsh population
Regional		Any species on the BoCC Amber List	Supporting greater than 0.5% of the UK population
County		Any species that is listed as a Priority Species in the LBAP	Supporting greater than 0.05% of the UK population
Local		BoCC Green List; or species with no conservation concern; common and widespread throughout the UK	Supporting less than 0.05% of the UK population

E UKHAB HABITATS PLAN



Legend

- Hydrogen Development Area
- c1a Arable field margins
- c1b Temporary grass and clover leys
- c1c Cereal crops
- f2 Purple moor-grass and rush pasture
- f2a Lowland fen
- g1a Lowland dry acid grassland
- g3c Other neutral grassland
- g4 Modified grassland
- g3c7 Deschampsia neutral grassland
- g3c8 Holcus-juncus neutral grassland
- g3c8 and g1d mosaic - Holcus-juncus neutral grassland and other loland neutral grassland
- h3e Gorse scrub
- h3e and g1d mosaic - Gorse scrub and other lowland neutral grassland
- h3h Mixed scrub
- r1g Other standing water
- r2a Rivers (priority habitat)
- r2b Other rivers and streams
- u1 Built-up areas and gardens
- u1b5 Buildings
- u1e Built linear features
- w1d Wet woodland
- w1f Lowland mixed deciduous woodland
- w1g Other woodland, broadleaved
- w2a Native pine woodlands
- w2c Other coniferous woodland

Do not scale this map

Client
Statera Energy

Project
Kintore Hydrogen Plant

Title
UKHab Map
Page 1 of 8

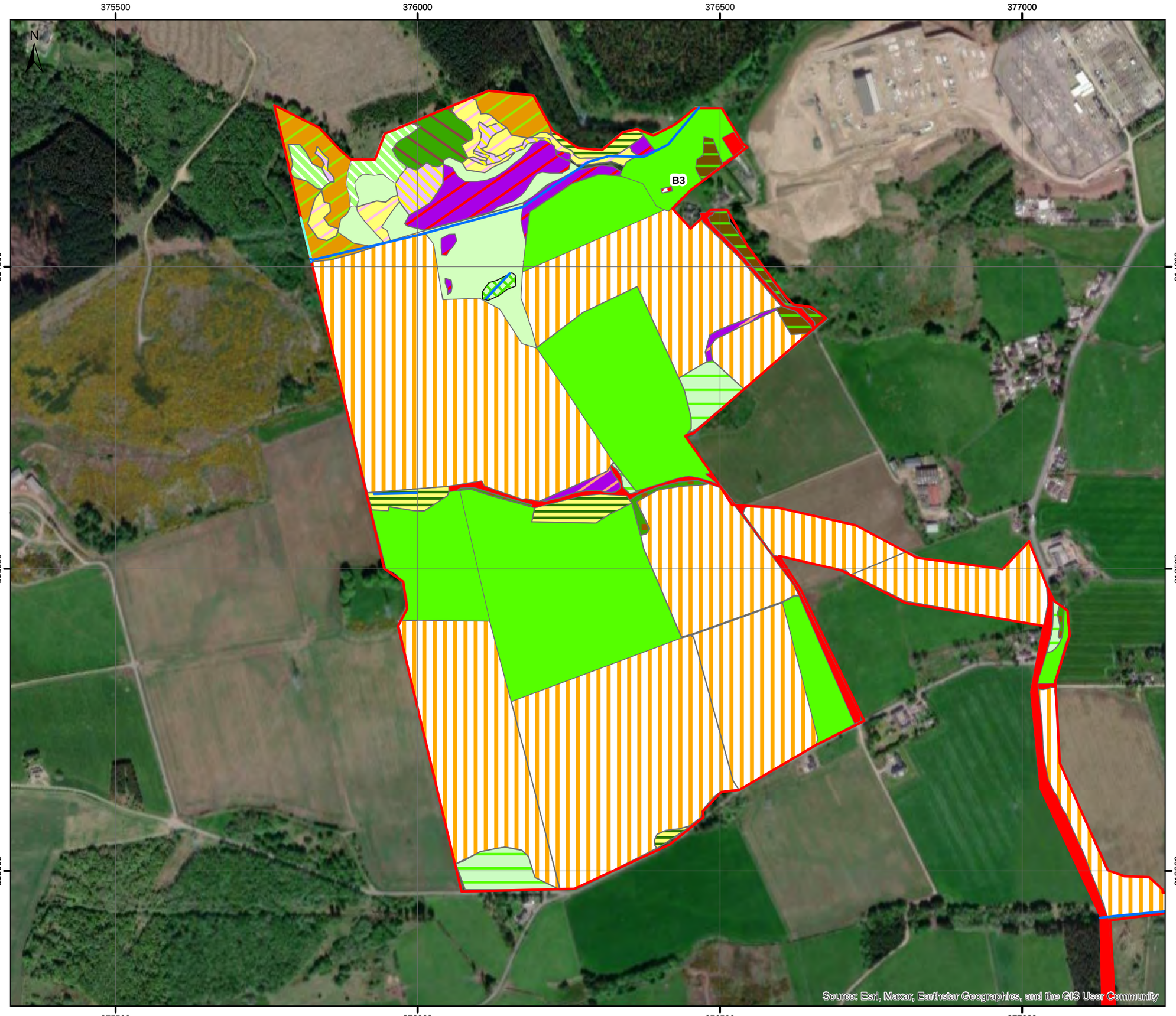
Status
Final

Drawing No.	Revision	Date
376782-GIS001	B	16 June 2023
Drawn	**Checked**	**Approved**
JEP	JAS	JAS

Scale
1:23,000 @A3
0 115 230 460 690 Metres

Rev	Date	Amendment	Initials
A	28/08/23	Updated boundary and habitats	JAS
B	11/09/23	Buildings Labelled	JAS

envirocentre
8 Eagle Street, Craighall Business Park, Glasgow, G4 9XA.
T: 0141 341 5040 E: info@envirocentre.co.uk
W: www.envirocentre.co.uk



Legend

- Hydrogen Development Area
- c1a Arable field margins
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- g3c7 Deschampsia neutral grassland
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- h3h Mixed scrub
- r1g Other standing water
- r2a Rivers (priority habitat)
- r2b Other rivers and streams
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Do not scale this map

Client
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Project
Kintore Hydrogen Plant

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Page 2 of 8

Status
Final

Drawing No.	Revision	Date
376782-GIS001	B	16 June 2023
Drawn	**Checked**	**Approved**
JEP	JAS	JAS

Scale
1:6,000 @A3
0 30 60 120 180 Metres

Rev	Date	Amendment	Initials
A	28/08/23	Updated boundary and habitats	JAS
B	11/09/23	Buildings Labelled	JAS

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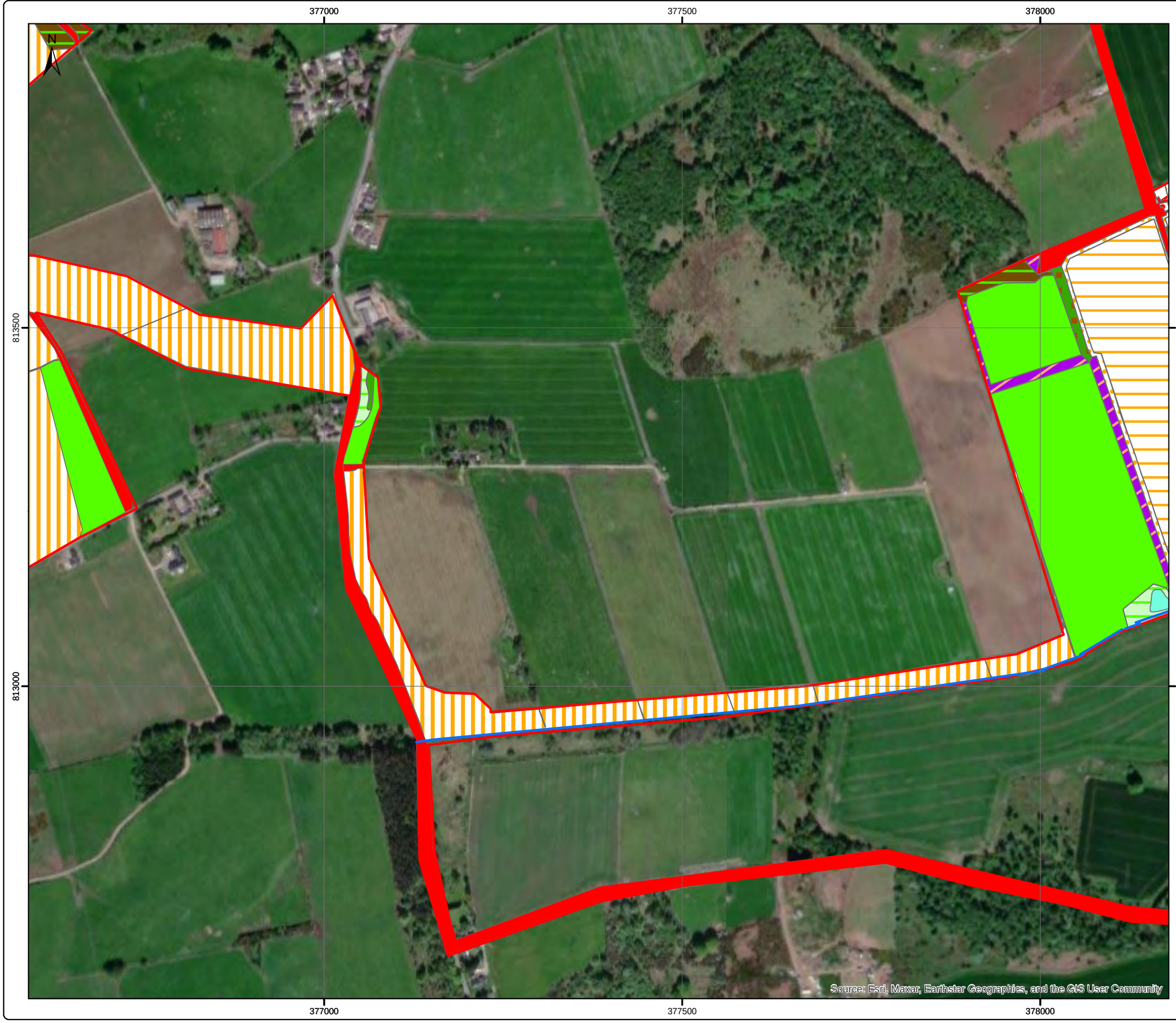

Legend

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- c1a Arable field margins
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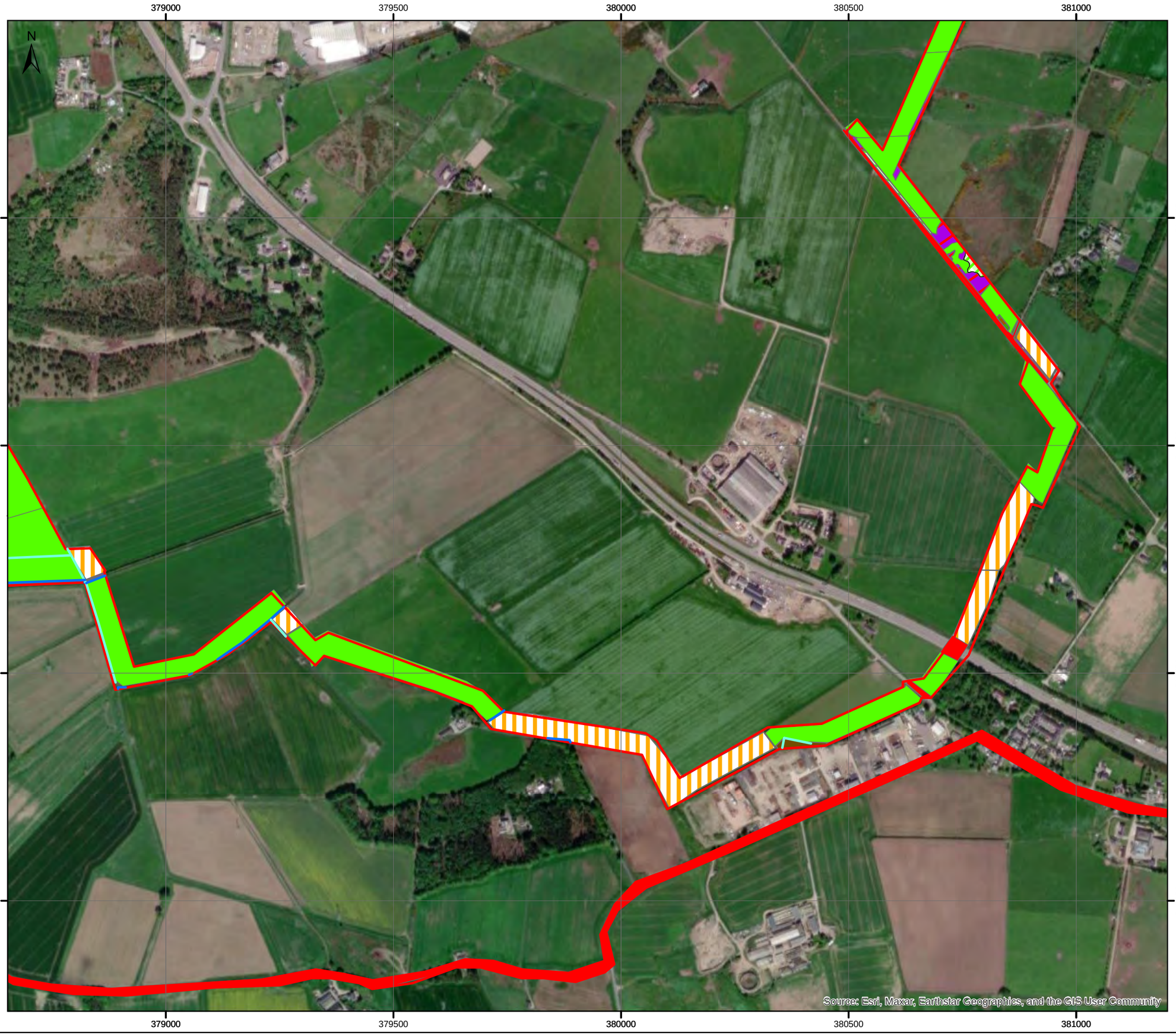

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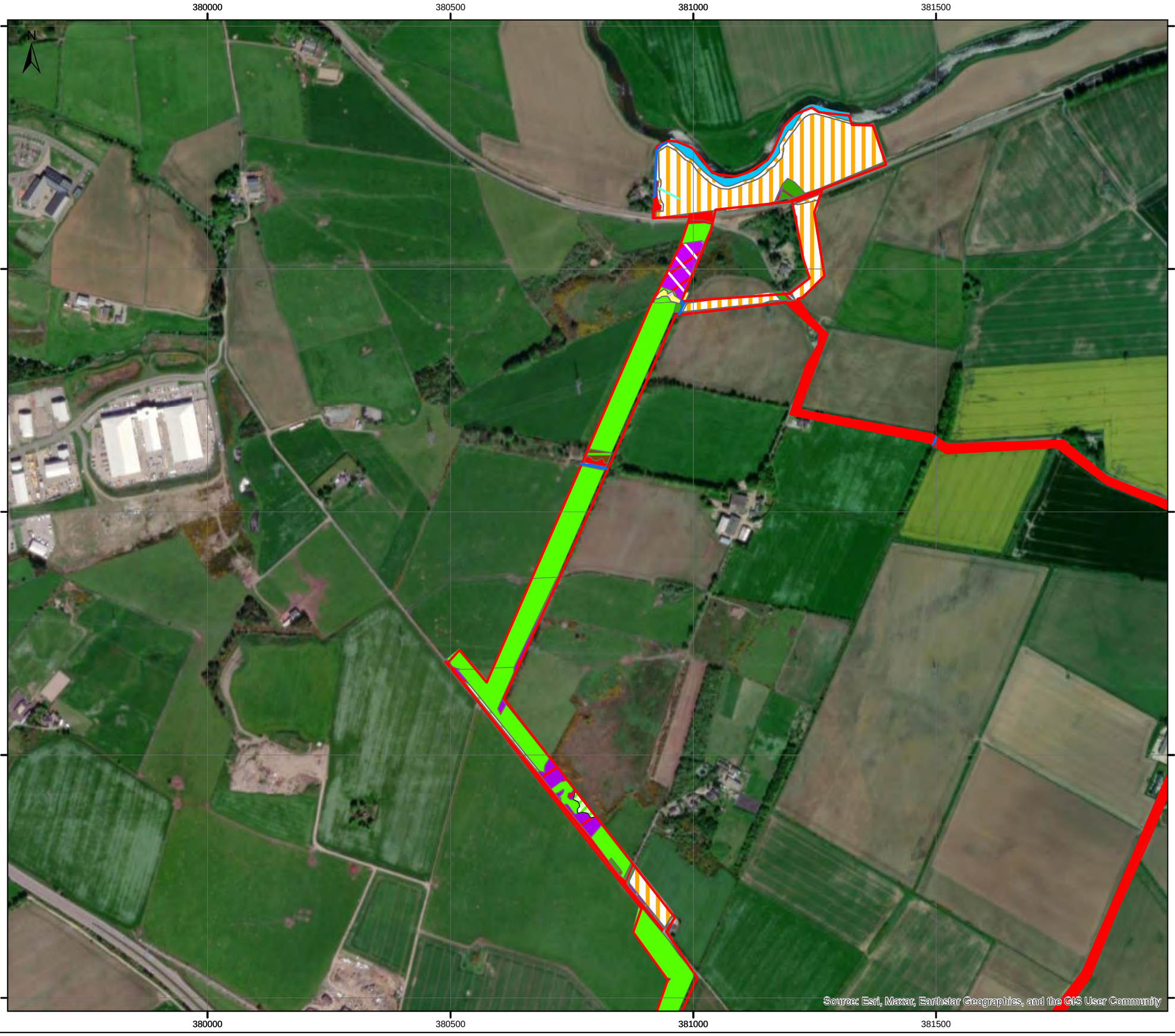

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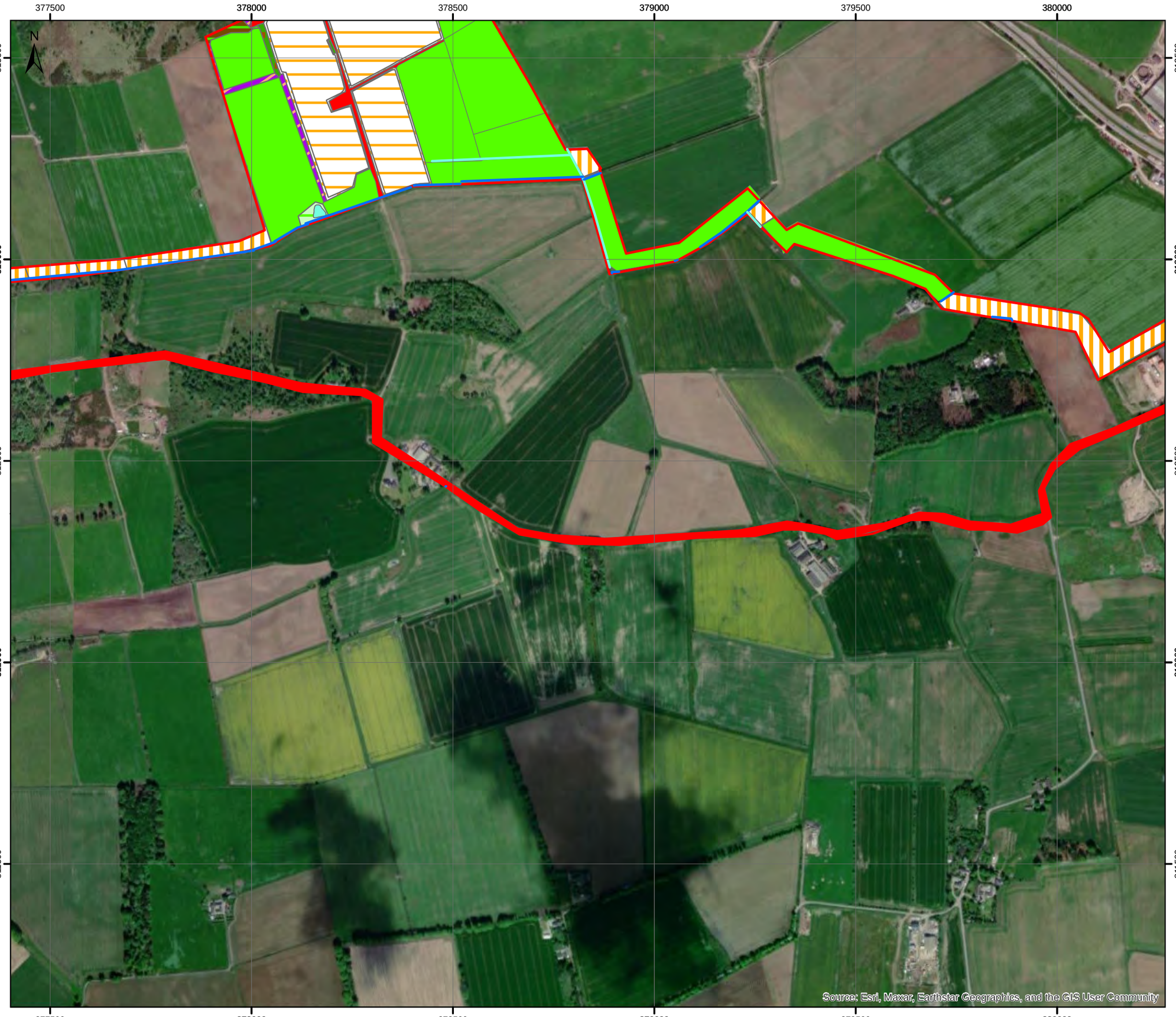

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Kintore Hydrogen Plant

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UKHab Map
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Status
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Rev	Date	Amendment	Initials
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F HABITATS PHOTOGRAPHS

Photo 1: Lowland acid grassland and native pine woodland in the north of the western region of the site

Photo 2: Other neutral grassland in the forefront and temporary grass clover and leys fields beyond, in the south of the western region of the site

Photo 3: Deschampsia neutral grassland in the forefront, with purple moor-grass and rush pasture beyond, in the north of the western region of the site

Photo 4: Holcus-juncus neutral grassland in the western region of the site

Photo 5: Modified grassland and dense gorse scrub in the east of the site

Photo 6: Wet woodland in the north of the eastern region of the site

Photo 7: Lowland mixed deciduous woodland and built linear features (track) in the eastern region of the site

Photo 8: Other broadleaved woodland (line of trees), arable field margins and cereal crops in the central region of the site

Photo 9: Other coniferous woodland in the western region of the site

Photo 10: Mixed scrub in the central region of the site

Photo 11: Lowland fen in the north of the western region of the site

Photo 12: The River Don (Rivers (priority habitat)) in the north of the site

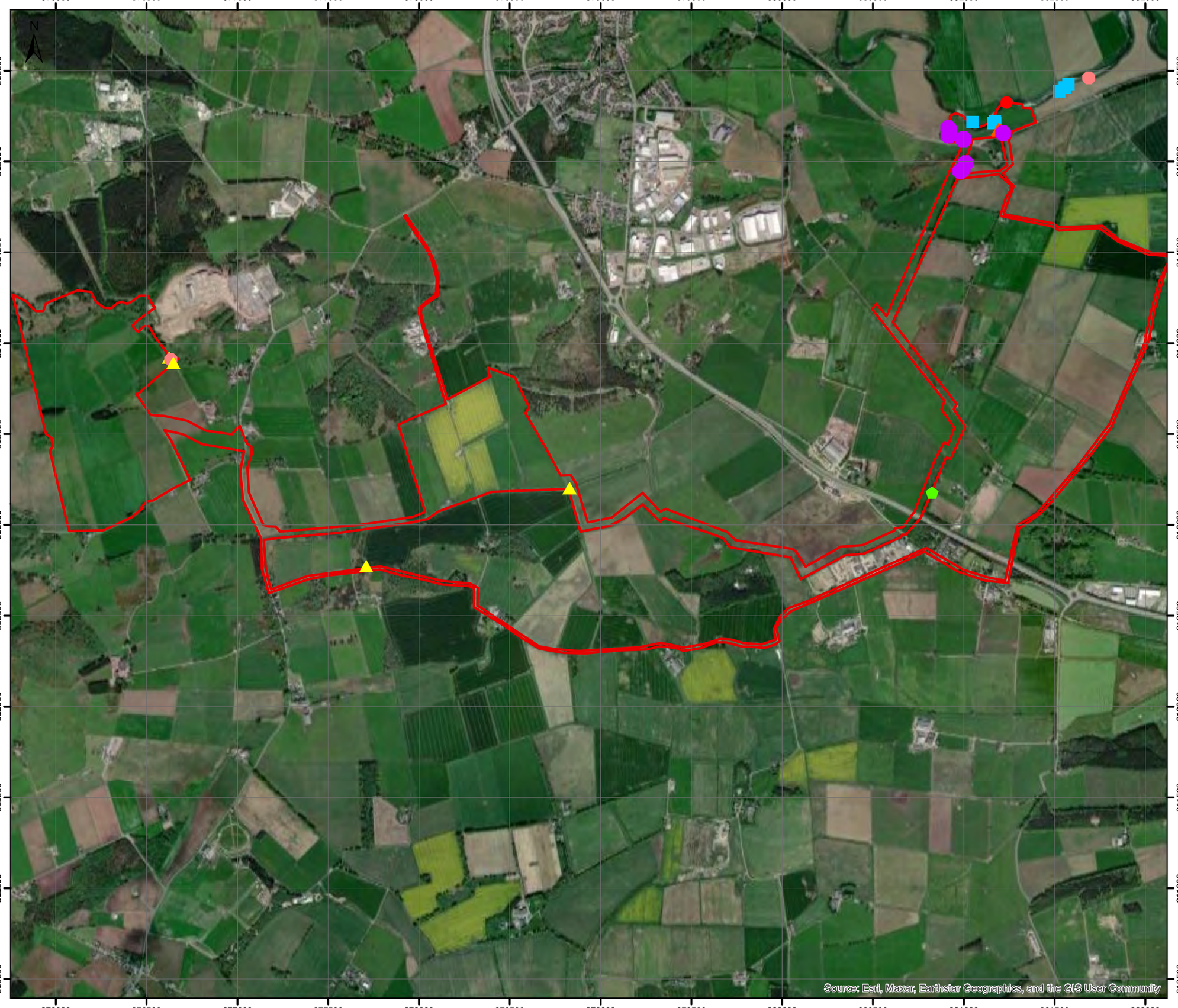
Photo 13: Dewsford Burn (other rivers and streams) along the south boundary of the central region of the site

Photo 14: Other standing water in the central region of the site

Photo 15: Buildings within the central region of the site

Photo 16: Japanese knotweed in the west of the site

G INNS PLAN



Legend

- Hydrogen Development Area
- American Mink
- Giant Hogweed
- Himalayan Balsam
- Japanese Knotweed
- Monkey Flower
- Monkey Puzzle Tree
- White Butterbur

Do not scale this map

Client
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Project
Kintore Hydrogen Plant

Title
INNS Plan

Status
Final

Drawing No.	Revision	Date
376782-GIS003	A	16 June 2023
Drawn	**Checked**	**Approved**
JEP	JAS	JAS

Scale
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Rev	Date	Amendment	Initials
A	24/08/23	Updated Site Boundary and INNS Data	JAS

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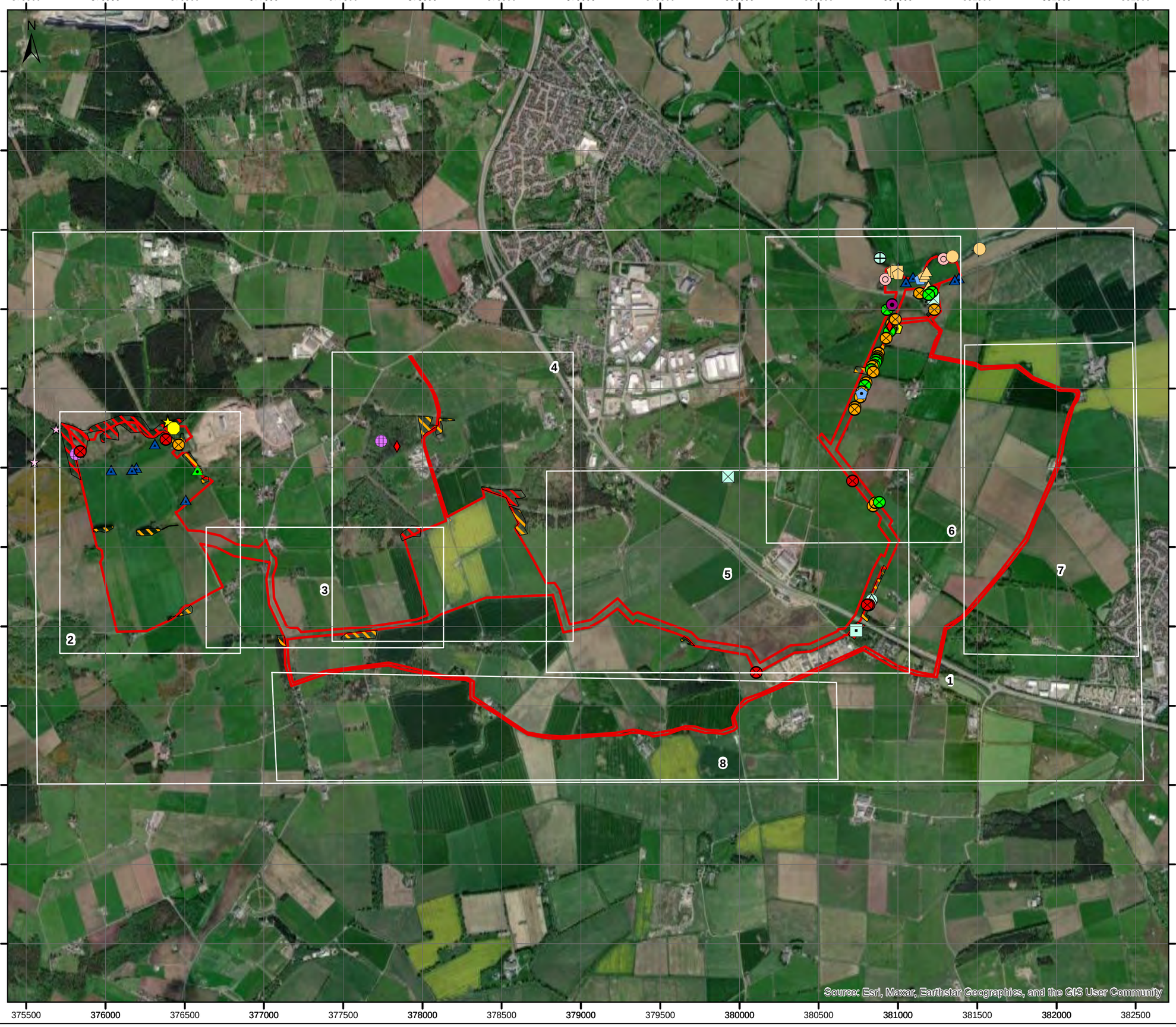
H FAUNAL SPECIES RESULTS PLAN



Legend

- Hydrogen Development Area
- Buildings with PRFs - Low/Moderate
- Woodland with PRFs - High
- Woodland with PRFs - Moderate
- Brown Hare Sighting
- Hedgehog Refugia
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Do not scale this map

Client
Statera Energy

Project
Kintore Hydrogen Plant

Title
Protected and Noteable Species Survey Results
Page 1 of 8

Status
Final

Drawing No.	Revision	Date
376782-GIS002	A	16 June 2023
Drawn	**Checked**	**Approved**
JEP	JAS	JAS

Scale
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Rev	Date	Amendment	Initials
A	23/08/23	Updated Boundary	JAS

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Status
Final

Drawing No.	Revision	Date
376782-GIS002	A	16 June 2023
Drawn	**Checked**	**Approved**
JEP	JAS	JAS

Scale
1:9,000 @A3
0 45 90 180 270 Metres

Rev	Date	Amendment	Initials
A	23/08/23	Updated Boundary	JAS

envirocentre
8 Eagle Street, Craighall Business Park, Glasgow, G4 9XA.
T: 0141 341 5040 E: info@envirocentre.co.uk
W: www.envirocentre.co.uk

I FAUNAL SPECIES PHOTOGRAPHS

Photo 17: Ruin building with PRFs in north of western region of the site

Photo 18: Tree with PRFs in the west of the site

Photo 19: Otter couch on the River Don

Photo 20: Otter layup on the River Don

Photo 21: Otter spraint on the River Don near otter couch

Photo 22: Pine marten scat

Photo 23: Barn owl roost in tree in the north of the western region of the site

Photo 24: Raptor nest in the coniferous woodland in the north of the western region of the site

Photo 25: Raptor prey spot in the coniferous woodland in the north of the western region of the site

Photo 26: Sand martin nests on the bank of the River Don, upstream of the site

J CONFIDENTIAL BADGER ANNEX

Confidential ANNEX 1

All information/photographic record in regard to badger within Annex 1 should remain private and confidential.

1.1 Remit

Envirocentre Limited were commissioned by William Summerlin on behalf of Statera Energy Ltd. to undertake a Preliminary Ecological Appraisal (PEA) for a proposed development at a site at Kintore, Aberdeenshire. The aim of the survey was to provide baseline information on the ecology present on site.

Full survey methods for badger are detailed in the Methods section of the Ecological Constraints Survey[1] report. Standard survey methods for badger include a 100m buffer.

1.2 Results

1.2.1 Desk Study

The NESBReC data search identified four records of Eurasian badger (*Meles meles*) between 2015 and 2020 returned. Two of these records comprise a main badger sett located approximately 450m north and 800m northeast of site.

1.2.2 Preliminary Ecological Appraisal Survey

A total of 23 sett features were identified during the survey, consisting of three main setts, four annexe setts, four subsidiary setts, nine outlier setts and three disused outliers. The setts are described in the table 1 below:

Table 1: Badger Setts

Sett status	Grid Reference	Location and orientation to the site	Number of entrances and observations
Main 1 (M1)	NJ 76199 14094 - NJ 76175 14049	In the west of the site extending north to south along a steeply sloping arable field boundary, within gorse	25 entrances (15 WU, 6 PU and 4 DU), guard hairs, large latrines and paths present
Main 2 (M2)	NJ 76498 13787 – NJ 76488 13781	In the west of the site, within an area of grassland and scrub	11 entrances (10 WU and 1 PU), guard hairs, latrines and paths present
Main 3 (M3)	NJ 76036 13619 - NJ 75992 13623	In the west of the site within a coniferous block of woodland	17 entrances (10 PU and 7 DU), guard hairs, latrines and paths present

[1] EnviroCentre Limited. (2023). Kintore, Aberdeenshire: PEA. Ref: ECRep13628. EnviroCentre Limited, Banchory.

Sett status	Grid Reference	Location and orientation to the site	Number of entrances and observations
Annexe 1 (A1)	NJ 76176 14040 - NJ 76172 14002	In the west of the site south of the main sett and extending into the arable field south east of the main sett	Eight entrances (all WU), guard hair, paths and latrines
Annexe 2 (A2)	NJ 76518 13789	In the west of the site, within an area of grassland and scrub	Six entrances (all WU), spoil heaps, paths and guard hairs
Annexe 3 (A3)	NJ 75927 13605	In the west of the site within a coniferous block of woodland	Six entrances (all WU), spoil heaps, latrines, paths and guard hairs
Annexe 4 (A4)	NJ 80828 13190	In the east of the site within a block of lowland deciduous woodland	Two entrances (WU), guard hairs and large stones in spoil
Subsidiary 1 (S1)	NJ 76558 13767	In the west of the site, within an area of grassland and scrub, adjacent to a field boundary	Three entrances (all PU), partially vegetated over, with digging and paths leading to and from these features
Subsidiary 2 (S2)	NJ 76033 13605	In the west of the site within a block of coniferous woodland	Four entrances (WU), with large spoil heaps and latrines
Subsidiary 3 (S3)	NJ 76505 13078	In a small block of woodland south of the site in the west	Nine D-shaped entrances (7 WU and 2 PU), with guard hairs, latrines and paths
Subsidiary 4 (S4)	NJ 75841 14101	Under a mature rowan in the north of the west region of the site	Four (WU) entrances with guard hairs
Outlier 1 (O1)	NJ 75791 13953	Within broadleaved woodland adjacent to the west boundary of the site, in the western region of the site	Two D-shaped entrances (1 WU, 1 PU) with guard hair and large stones in spoil
Outlier 2 (O2)	NJ 75913 13643	Adjacent to the field boundary in the west of the site, north of coniferous woodland block	One entrance (WU) with guard hair, large stones in spoil and claw marks
Outlier 3 (O3)	NJ 75943 13524	Within a field west of the site near broadleaved trees	One entrance (WU) with guard hair, large stones in spoil and claw marks
Outlier 4 (O4)	NJ 77507 12955	On the banktop of the Park Burn, south of the site boundary in the central region	One entrance (WU) with guard hair, large stones in spoil and paths
Outlier 5 (O5)	NJ 80885 13918	Within dense scrub, 100m north of site boundary in the east of the site	One entrance (WU) with guard hair and large stones in spoil

Sett status	Grid Reference	Location and orientation to the site	Number of entrances and observations
Outlier 6 (O6)	NJ 78271 14229	Within bracken and extending into a field, in the central region of the site, 170m east of the site boundary	Two D-shaped entrances (WU) with guard hairs, large spoil heaps and paths
Outlier 7 (O7)	NJ 77604 13691	In the east of the site within a block of lowland deciduous woodland	Two D-shaped entrances containing spoil heaps, with a guard hair identified
Outlier 8 (O8)	NJ 80730 14376	In the east of the site within a block of lowland deciduous woodland	One D-shaped entrance (PU) with large stones in spoil heap and path leading to breach point in fence
Outlier 9 (O9)	NJ 76456 13777	In the west of the site, within an area of grassland and scrub	One D-shapes entrance (WU) under a stone and containing guard hair
Disused 1 (D1)	NJ 76414 13054	In a remnant block of woodland in the west of the site, along the south boundary of the site	One disused D-shaped entrance, highly vegetated and no signs of recent use
Disused 2 (D2)	NJ 76426 13068	In a remnant block of woodland in the west of the site, along the south boundary of the site	One disused D-shaped entrance, highly vegetated and no signs of recent use
Disused 3 (D3)	NJ 76218 13603	In coniferous woodland block in western region of the site	One disused D-shaped entrance, highly vegetated

A number of badger latrines were present throughout the site, predominantly in the west of the site, with dung also present in the central region of the site.

Badger breach points were observed in the east and west of the site in fences, with guard hair caught in the wiring.

Badger foraging and paths were present throughout the site, again highly concentrated in the west.

A badger skull was also present in the north west of the site.

Photo 1: Badger latrine

Photo 2: Badger breach point

Photo 3: Badger path

Photo 4: Badger skull

1.3 Assessment

High badger activity is associated with the site, specifically in the west and therefore it is possible that other sett features could be created on site prior to development works commencing.

Sett creation is dynamic and often changing with badger re-establishing or changing territories due to various factors. It is assessed that this dynamism is likely to continue in the short to medium term.

1.4 Further Survey and Licensing

The development design should seek to maintain main setts and a minimum 20m buffer should be implemented around each main sett to avoid any disturbance to badgers or sett features.

A badger Protection Plan should be produced for the site.

Annual updates for badger should be undertaken to maintain a valid baseline in relation to the site.

A pre-works targeted badger survey, to assess the activity of badgers present within the site and surrounding environment should be undertaken prior to works commencing on site.

Where possible the woodland and scrub habitats should be retained and therefore no requirement for removal of setts or working within proximity.

BADGER SURVEY RESULTS PLAN

Provided in a separate confidential annex