Kintore Hydrogen Plant
Potential Roost Feature Survey

December 2023

CONTROL SHEET

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EXECUTIVE SUMMARY

EnviroCentre Ltd. were commissioned by Kintore Hydrogen Limited to undertake Potential Roost Feature (PRFs) on trees within the site known as Kintore Hydrogen Plant, in land south of Kintore. The surveys were required to inform development of a Hydrogen electrolysis plant. The aim of the survey was to inform future development works in regards to ecological constraints pertaining to bats.

A Preliminary Ecological Appraisal was undertaken in May 2023 of the whole site boundary by EnviroCentre, where areas of woodland and individual trees were highlighted as requiring detailed surveys to identify PRFs and whether these required any additional works (elevated inspections).

The detailed inspection was undertaken on the 8th August 2023 and 10th October where a total of 36 trees were considered to offer suitability for roosting bats, with 7 trees identified as containing high suitability for roosting bats, 17 trees considered to offer moderate suitability for roosting bats and 12 trees considered to offer low suitability for roosting bats following detailed PRF inspections. No evidence of roosting bats was identified during the survey.

The site and surrounding area contain several features such as woodland, scattered trees, treelines, open water and riparian habitats, which are suitable for a variety of commuting and foraging bat species. The surrounding properties are also likely to offer suitable roosting opportunities.

It is considered that although the trees surveyed did not contain roosting bats at the time of survey, the low and moderate suitable trees have potential to provide suitable roosting resource for a small number of individual bats, and in time, the features present may develop to become more suitable for larger numbers of bats, whilst the high suitability features have potential to currently support larger numbers of bats.

If removal or management of the high or moderate PRF trees is required, further study perhaps including elevated inspection should be undertaken prior to works commencing to confirm the presence/ absence of bat roosts and inform any licensing requirements in advance of their removal.

Regular (annual) surveys should be undertaken to maintain ecological baseline and to ascertain if there has been any change to the status of PRFs within the trees and if bats are present/ absent to inform the need for any licensing or additional mitigation that may be required. More regular surveys (or once each season) may be required prior to works commencing on any trees to be felled/ removed with suitability to host roosting bats.

No bat roosts have been identified and therefore a **protected species licence is not required**.

Mitigation is recommended to ensure the trees remain a viable option for roosting bats in the future and to avoid disturbing any bats which may take up residence:

- A Species Protection Plan for bats should be devised for the site.
- The trees with PRFs should be retained and protected during construction according to the measures set out in British Standard BS5837: Trees in relation to Design, Demolition and Construction – Recommendations (BSI: 2012), where possible.
- All staff on site should be made aware of the possible presence of bats within the trees and surrounding areas via a toolbox talk or site induction material provided by a suitably qualified ecologist.
- During construction works, it is recommended that retained trees and woodland habitats are not subject to artificial illumination. These habitats may be of value to foraging and commuting bats present in the locale. Lights used during construction should be fitted with shades to prevent light spillage outside the working area.

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Appendices

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1 INTRODUCTION

1.1 Terms of Reference

EnviroCentre Ltd. were commissioned by Kintore Hydrogen Limited to undertake Potential Roost Feature (PRFs) on trees within the site known as Kintore Hydrogen Plant, in land south of Kintore. The surveys were required to inform development of a Hydrogen electrolysis plant.

The site boundary is detailed in Appendix A.

1.2 Background

A Preliminary Ecological Appraisal (PEA) was undertaken in May 2023 of the whole site boundary by EnviroCentre, where areas of woodland and individual trees were highlighted as requiring detailed surveys to identify PRFs and whether these required any additional works (elevated inspections).

1.3 Scope of Report

The aim of the survey was to inform future development works in regards to ecological constraints pertaining to bats. The main objectives were as follows:

- Confirm the suitability status of the trees for roosting bats;
- Determine the presence or absence of roosting bats in Potential Roost Features (PRFs); and
- Identify the need for a species protection plan and any licensing requirements.

1.4 Legislation

Bats are a European Protected Species (EPS) listed in the EC Directive (92/43) The Conservation of Natural Habitats and of Wild Flora and Fauna (the “Habitats Directive”), which is transposed into Scottish law through the Conservation (Natural Habitats &c.) Regulations 1994 (the “Habitat ns”) 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; and
- 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, if a bat isn't present in a summer roost in winter months the roost is still protected by law.

1.5 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.

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 METHODS

Disclaimer: All guidance listed in the methods deployed was current at the time of field survey. These methods will be carried through to any further EcIA works to remain consistent.

2.1 Elevated Tree Inspections

The detailed inspection was undertaken on the 8th August and 10th October 2023 by Doug Blease, Ecologist (Associate Director) and a licenced bat worker (NatureScot licence: 132875) who is experienced in searching for bat roosts in trees and a certified tree climber applying methods in accordance with Arboricultural Association/FASTCo Guide to Good Climbing Practice. Supported by Senior Consultant Ecologist Jennifer Paterson, an experienced and competent bat ecologist.

Features in trees, that bats could potentially utilise to roost and that were highlighted during the PEA undertaken in May 2023, were identified from ground level with the aid of close- focus binoculars and then investigated via digital endoscope and climbed to inspect further where necessary, to confirm suitability as listed in Table 1; and record any field evidence of bats as listed in Table 2.

Table 1: Suitability Classification of Roosting Features for Bats

Suitability	Trees
High	A tree with one of more potential roost features 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
Moderate	A tree with one or more potential roost features that could be used by bats due to their size, shelter, protection, conditions and/or surrounding habitat but unlikely to support a roost of high conservation status
Low	A tree of sufficient size and age to contain PRFs but with none seen from the ground; or offering features with only limited roosting potential
Negligible	A tree with negligible features which is unlikely to be used by bats

Table 2: Potential Bat Roost Features in Trees

PRFs in trees frequently used as roosts	Signs indicating possible use by bats
Hollows and cavities from woodpecker, rot and knot holes	Tiny scratches around PRF
Hazard beams and other vertical or horizontal cracks and splits in stems or branches	Staining around PRF
Partially detached plated bark	Bat droppings in or around PRF
Cankers, included bark and compression forks with potential cavities	Audible squeaking at dusk or during warm weather
Partially detached ivy with stem diameters in excess of 50mm	Flies around PRF
Bat or bird boxes	Smoothing of surfaces around cavity

2.2 Constraints

Some of the trees within woodland adjacent to the site in an area proposed for the Hydrogen pipeline and gas grid connection did not undergo any elevated inspections due to accessibility issues (presence of cattle), however these areas have been afforded 30m buffers which the client has agreed will not be developed within, thus negating the need for any further surveys of those trees.

3 RESULTS AND SITE ASSESSSMENT

Refer to Appendix A: Trees with PRFs Plan for tree locations and areas where 30m buffers or areas to avoid will/ should be implemented.

3.1 Results

A total of 36 trees were considered to offer suitability for roosting bats, with 7 trees identified as containing high suitability for roosting bats, 17 trees considered to offer moderate suitability for roosting bats and 12 trees considered to offer low suitability for roosting bats following detailed PRF inspections.

3.2 Assessment

The site and surrounding area contain several features such as woodland, scattered trees, treelines, open water and riparian habitats, which are suitable for a variety of commuting and foraging bat species. The surrounding properties are also likely to offer suitable roosting opportunities.

No evidence of roosting bats was identified during the survey. However suitable roosting habitats are available to bats in the locale via the trees with PRFs on and adjacent to the site.

It is considered that although the trees surveyed did not contain roosting bats at the time of survey, the low and moderate suitable trees have potential to provide suitable roosting resource for a small number of individual bats, and in time, the features present may develop to become more suitable for larger numbers of bats, whilst the high suitability features have potential to currently support larger numbers of bats.

4 FURTHER SURVEY, LICENSING AND MITIGATION

4.1 Further Survey and Licensing

If removal or management of the high or moderate PRF trees is required, an elevated inspection should be undertaken prior to felling commencing to confirm the presence/ absence of bat roosts and inform any licensing requirements in advance of their removal.

The results of this survey are considered to be valid for a period of 12 months. Regular (annual) surveys should be undertaken to maintain ecological baseline and to ascertain if there has been any change to the status of PRFs within the trees and if bats are present/ absent to inform the need for any licensing or additional mitigation that may be required. More regular surveys (or once each season) may be required prior to works commencing on any trees to be felled/ removed with suitability to host roosting bats.

If removal or management of the trees which could not be climbed is required, further study including an elevated inspection if appropriate, should be undertaken to confirm the presence/absence of bat roosts and inform any licensing requirements in advance of works.

No bat roosts have been identified and therefore a **protected species licence is currently not required**.

4.2 Mitigation

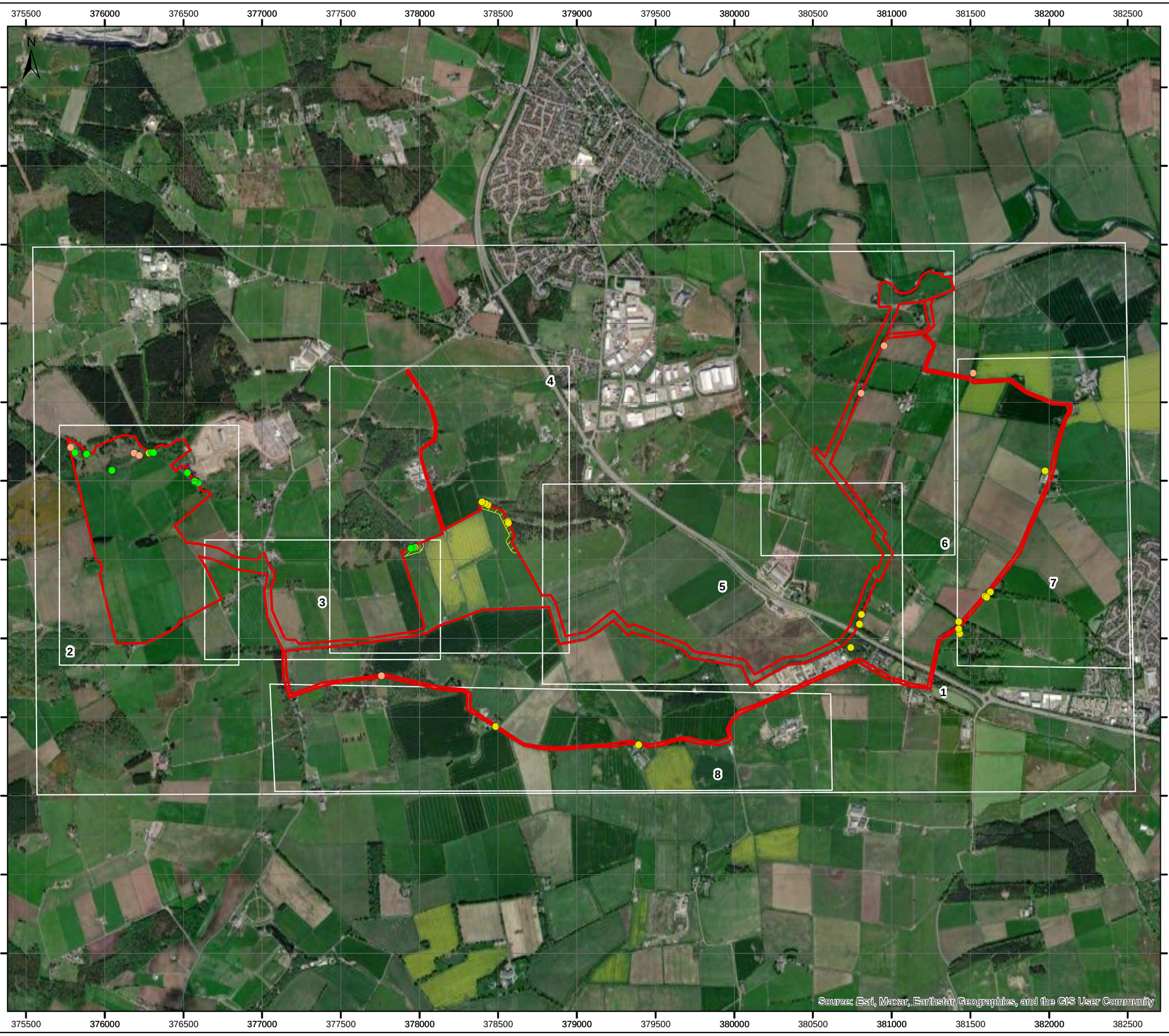
It is considered that although the trees surveyed do not currently contain bat roosts, they have potential to provide suitable roosting resource for a small number of individual bats, and in time, the features present may develop to become more suitable for larger numbers of bats. The mitigation outlined below is recommended to ensure the trees remain a viable option for roosting bats in the future and to avoid disturbing any bats which may take up residence.

- A Species Protection Plan for bats should be devised for the site.
- The trees with PRFs should be retained and protected during construction according to the measures set out in British Standard BS5837: Trees in relation to Design, Demolition and Construction – Recommendations (BSI: 2012), where possible.
- All staff on site should be made aware of the possible presence of bats within the trees and surrounding areas via a toolbox talk or site induction material provided by a suitably qualified ecologist.
- Should any bats be seen flying during the daylight hours, throughout the construction period, an ecologist should be contacted immediately for advice.
- During construction works, it is recommended that retained trees and woodland habitats are not subject to artificial illumination. These habitats may be of value to foraging and commuting bats present in the locale. Lights used during construction should be fitted with shades to prevent light spillage outside the working area.
- Any permanent lighting should be designed to be ‘bat friendly’ and should not illuminate bat commuting, foraging and roosting habitats including water bodies, woodland, treelines and scattered trees. Screening techniques and dark buffer zones are advised to reduce the impact on these habitats. Low or high pressure sodium lamps instead of mercury and metal halide lamps are preferred for their UV filtering properties, reducing light spillage and pollution. ‘Warm white’ lighting also reduces impacts of lighting on bats: https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/.

- It is recommended that any vegetation planting should include a wide range of native species, including nectar producing plants which encourage invertebrates. The inclusion of linear vegetative features into the design would also help provide commuting habitat for a number of species.
- If any cavities are to be lost, they should be replaced using artificial bat roost and bird nest boxes within retained woodland on site. Durable bat boxes could be installed at >3m on maintained trees within the woodland, recommended products include: https://www.wildcare.co.uk/wildlife-nest-boxes/bat-boxes/woodstone-woodcrete.html, https://www.nestbox.co.uk/products/eco-bat-box; https://www.nestbox.co.uk/products/eco-bat-shelter
- The future development of the site may include, in its design and construction, purpose built and installed bat roost provision such as externally fitted bat boxes, bat bricks, or bat access slates on buildings in proximity to commuting corridors such as woodland edge habitat or riparian corridors. Further details can be sought here: http://www.bats.org.uk/pages/new_build.html.

APPENDICES

A TREES WITH PRFS



Legend

- Hydrogen Development Area
- 30m Buffer From Woodland
- Trees to be Avoided
- High
- Moderate
- Low

Do not scale this map

Client
Kintore Hydrogen Limited

Project
Kintore Hydrogen Plant

Title
Trees with PRFs

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Status
Final

Drawing No.	Revision	Date
376782-GIS011	-	30 Nov 2023
Drawn	**Checked**	**Approved**
JEP	JAS	JAS

Scale
1:23,000 @A3

0 115 230 460 690 Metres

Rev	Date	Amendment	Initials
-	-	-	-

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Scale
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0 30 60 120 180 Metres

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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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