

PHASE 2 SPECIES SURVEY REPORT

Maes Mawr Solar Farm



ECO1096
2
July 2022

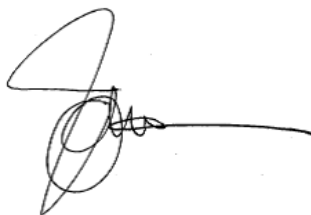
REPORT

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1 INTRODUCTION

1.1 Purpose and Scope of this Report

- 1.1.1 RPS was commissioned by Elgin Energy to undertake Phase 2 species surveys for the proposed solar park development at Maes Mawr, Rhondda Cynon Taff, South Wales.
- 1.1.2 The surveys were undertaken following recommendations within the Preliminary Ecological Appraisal (PEA) of the site (RPS, 2019).
- 1.1.3 This report presents the findings of the following surveys carried out:
- Habitat Suitability Index (HSI) assessment of ponds P1 and P3 - 2021
 - Environmental DNA survey of P1 and P3 for great crested newts - 2021
 - Water vole survey 2021 and 2022
 - Otter survey 2021

1.2 Study Area

Site Description

- 1.2.1 The site is located on farmland centred approximately on the Ordnance Survey grid reference ST102858.
- 1.2.2 The site largely comprises semi-improved and marshy grassland bounded by hedgerows and field ditches. Streams are present along the field boundaries at the north and south of the site and three ponds are present within the fields. An unnamed single-lane road runs north-south through the middle of site.
- 1.2.3 Areas of broadleaved woodland adjoin the site to the north and east. The Church Village bypass (A473) is located to the north-west of the site. The site adjoins pasture fields to the south.
- 1.2.4 The site is situated within a larger area of farmland bounded by the A473 to the west and a mainline railway line to the east. Church Village is located beyond the A473 to the west of the site. The River Taff is located 300m east of the site between the railway line and Treforest industrial estate. An operational solar park is located to the south-east of the site.

1.3 Legislation

Great Crested Newt

- 1.3.1 Great Crested Newts *Triturus cristatus* are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (and as amended), which affords the species protection under Section 9. The species is also listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017. In combination, this makes it an offence to:
- intentionally kill, injure or take (capture etc.) a great crested newt;
 - possess a great crested newt; or,
 - intentionally or recklessly damage, destroy, obstruct access to any structure or place used by Great Crested Newt for shelter or protection, or disturb any animal occupying such a structure or place; and sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative) or advertise for buying or selling such things.

- 1.3.2 Great Crested Newts are also listed on the UKBAP as a Priority Species, and on Section 7 of the Environment (Wales) Act 2016 which lists species considered to be of key significance to sustain and improve biodiversity in Wales.

Water Vole and Otter

- 1.3.3 Water voles and otters, and their breeding/sheltering places, are protected under the Wildlife and Countryside Act 1981 (as amended). Under this legislation, water voles and otter are protected against:
- intentional killing, capture or injury;
 - intentional or reckless destruction of a shelter/structure that a water vole is occupying and
 - intentional or reckless disturbance, obstruction, damage or destruction to their burrows or places of shelter (places of shelter includes burrow systems/networks and nests within or nearby burrows, usually within dense vegetation).
- 1.3.4 Otters have additional legal protection, being listed as a European Protected Species (EPS) under Conservation of Habitats and Species Regulations 2017. In addition to the above, this also makes it an offence to:
- damage or destroy a breeding site or resting place of such an animal (note that this does not need to be deliberate or reckless to constitute an offence);
 - deliberately or recklessly disturb an otter while it is rearing or otherwise caring for its young;
 - disturb an otter in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species; or,
 - disturb an otter in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.
- 1.3.5 Otter and water vole are also listed on the UKBAP as a Priority Species and on Section 7 of the Environment (Wales) Act 2016.

2 METHODS

2.1 Great Crested Newt Survey

2.1.1 The HSI and environmental DNA (eDNA) surveys were undertaken by Georgia Kelly and Stephen Devereaux. Georgia is the named accredited agent on the NRW GCN survey licence S089673-1 and has over 7 years' experience in GCN surveys. Stephen is a competent GCN surveyor with three years' experience of undertaking traditional surveys and eDNA surveys.

Survey Scope

2.1.2 Aerial imagery and the results of the Phase 1 walkover survey were used to identify ponds within 500m of the site which may support GCN and from which if present GCN may use the onsite habitat.

2.1.3 Ponds P1 and P3 are located within the site and have suitable habitat for GCN. These ponds were included within the HSI and eDNA survey.

2.1.4 The following ponds located within 500m of the site these were not included within the HSI and eDNA surveys:

- Pond P2 is a small area of open water which had a shallow water depth and lacked aquatic vegetation during the Phase 1 walkover survey in winter 2019. The feature was dry in June 2021.
- A small pond located 25m north of the site at the farm buildings, which had a water depth of less than 0.2m during the Phase 1 walkover survey and was dry in June 2021.
- Small shallow pools within woodland to the east of the site, which are considered unsuitable for GCN based on their shallow water depth.
- A garden pond located 175m to the east of the site within a residential property, a woodland pond located 250m north of the site, and a pond within the operational solar park 160m to the south-east of the site. Access permission to the ponds was not granted. A previous survey of one of the ponds undertaken in 2014 found GCN to be likely absent from the pond (Avian Ecology Ltd, 2014).
- Three ponds located 340m north, 360m west and 390m west of the site boundary. The ponds were not included in the survey due to their distance from the site and barriers between the site and ponds making movements of GCN between the habitats unlikely.
- Three ponds located 300m, 460m and 456m to west of the site were excluded because of their distance from the site and the nature of the solar park development which will retain habitats beneath the solar panels

HSI Assessment

2.1.5 The HSI assessment was carried out on Ponds P1 and P3 during a site walkover on 23rd April 2021. The HSI assessment methodology used followed that prepared by the Kent Amphibian and Reptile Group (ARGUK 2010) and is based on the original HSI methodology (Oldham et al, 2000).

2.1.6 Following the HSI methodology, each pond is scored for 10 parameters that are known to have a significant impact on the likelihood of great crested newts utilising a water body. These parameters are:

- **Geographic location:** scored based on regions defined in the methodology relating to likelihood of GCN presence based on their known distribution in Britain.
- **Pond size (m²):** estimated from field observations

- **Pond permanence:** score based on the estimated no of years in 10 that the pond is dry
- **Water quality** - estimated from field observations – e.g. clarity, aquatic invertebrate species, algae and other signs of eutrophication, or obvious pollution such as oil, refuse etc)
- **Shade:** scored based on the percentage of the pond perimeter which is shaded.
- **Waterfowl:** scored based on no of waterfowl per 1000m².
- **Fish:** scored based on field observation of presence / absence, density and fish species.
- **Pond Density:** scored based on the no of ponds within 1km of the pond being assessed.
- **Terrestrial Habitat:** scored based on the extent of suitable terrestrial habitat for GCN with 1km of the pond.
- **Macrophyte cover:** scored based on the percentage of the pond surface covered by aquatic plants.

2.1.7 For each pond, each parameter is ascribed a score between 0.01 and 1 with the scores used to calculate the overall HSI for the pond. The HSI score can range from 0.01 (completely unsuitable) to 1 (optimally suitable). The HSI is then compared against a range of values to give a qualitative assessment of the suitability of the water body to support GCN ranging as shown in Table 2-1

Table 2-1. HSI assessment ratings (from ARGUK, 2010).

HSI Score	Rating
<0.50	Poor
0.50 – 0.59	Below Average
0.60 – 0.69	Average
0.70 – 0.79	Good
>0.80	Excellent

Environmental DNA Survey

- 2.1.8 Water samples were collected separately from Ponds P1 and P3 which were subsequently analysed for traces of GCN DNA. For each pond the water samples were collected following the survey methodology set out in the DEFRA project WC1067 (Biggs et al, 2014).
- 2.1.9 Both surveyors are trained in the systematic sampling technique required for obtaining uncontaminated water samples for DNA analysis.
- 2.1.10 The entire margin of both Pond 1 and P3 were accessible. Twenty samples were taken from each pond following the standard collection method using a sterile collection kit provided by the laboratory. The samples are then stored in a cool and shaded conditions before being sent for laboratory analysis.
- 2.1.11 The laboratory testing includes an extraction process where all the samples from one pond are pooled together to acquire as much eDNA as possible. The pooled sample is tested via real time polymerase chain reaction (or q-PCR) to amplify part of mitochondrial DNA specific to GCN. The primers used in this process are specific to GCN to ensuring the DNA from other species is not amplified.
- 2.1.12 Testing of the pooled sample is replicated twelve times to ensure results are accurate. A positive result relates to one or more of the twelve replicates contain GCN DNA.

2.2 Water Vole Survey

- 2.2.1 Three survey visits were undertaken on 10th June 2021, 9th August 2021 and 18th May 2022. The surveys covered all areas of habitat suitable for water vole within the proposed development. This included: ponds P1 and P3, the adjoining ditches, watercourses and the marshy grassland surrounding ponds P1 and P3.
- 2.2.2 The surveyors walked along the top of the banksides of the ditches/watercourse, the perimeter of the ponds and the island on pond P1 to check for water vole signs. A boat was used to provide access to the steep banksides on pond P1 and its island. Searches were additionally made in the marshy grassland surrounding ponds P1 and P3.
- 2.2.3 The search covered all potential signs of water vole activity including:
- **Burrows** – within the bank face above and below the water level and on the bank top.
 - **Feeding stations** – piles of vegetation often with droppings too, where water voles have been feeding.
 - **Droppings** – individual and small piles of droppings, often found along runways in mud and vegetation.
 - **Latrines** - larger compacted piles of old and decomposing to fresh droppings where they have been continually used which mark water vole territory boundaries.
 - **Runways** – distinct paths in bankside vegetation and in mud alongside the water course caused by frequent and repeated use.
 - **Footprints** – these may be visible on soft mud particularly along the edge of the water and beneath overhanging vegetation.
- 2.2.4 The suitability of the habitat for water voles was assessed. The level of bankside and in-channel vegetation was noted, along with the level of shading, and steepness and substrate of the banks.
- 2.2.5 Where safe access into the channel was not possible, the survey was conducted from the bank top and the suitability of the habitat for water voles in the inaccessible section was noted.
- 2.2.6 The survey visits were conducted during mild weather conditions, moderate wind (<5mph) and no heavy rain.

2.3 Otter Survey

- 2.3.1 The otter survey was conducted alongside the water vole survey on 10th June and 9th August 2021.
- 2.3.2 The survey covered the central watercourse which is of sufficient size to be used by otter and the adjoining habitats.
- 2.3.3 The surveyors walked along top of the banksides of the smaller ditches/watercourses and the perimeter of the ponds and pond 1 island. The pond P1 island was accessed via the wooden bridge. The watercourse was surveyed from the banksides and from within the channel.
- 2.3.4 The search covered all potential field signs of otter including:
- **Spraints** - otter droppings often deposited at key features to indicate territories, such as elevated points in or beside the water course (rocks, logs, large tufts of vegetation) and regularly used entry exit points in the water.
 - **Footprints** - left in soft ground and very distinctive to otter.
 - **Feeding remains** - prey items such as fish remains or amphibian skins which are often distinctive to otter feeding behaviour.

- **Paths / runways** - paths associated with ditch crossings or entry exit points into bankside vegetation or the water.

- 2.3.5 Searches were made for features with the potential to be used as a holt including any large holes (or tunnels) in the banksides, cavities beneath the root-plates of large trees, cavities in boulders, and man-made structures such as disused drainage pipes. The survey also looked for potential above-ground resting sites (couches) which can sometimes consist of no more than an area of flattened grass or earth.
- 2.3.6 During the survey the overall suitability of the bankside vegetation and adjacent habitats to be used as couches or holts was also assessed.

2.4 Survey Limitations

General Survey Limitations

- 2.4.1 No significant limitations were encountered during any of the surveys. It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment.

Pond Accessibility

- 2.4.2 The island on pond P3 was not accessible during the survey. The island is small in size and has shallow, gently sloping banks which could be checked for signs of water vole from the bankside with the aid of binoculars.
- 2.4.3 The margins of ponds P1 and P3 and the watercourses were fully accessible. The island on pond P1 was accessed via a wooden bridge.
- 2.4.4 Large tussocks of soft rush are present on the island of pond P1, on the banksides of the adjoining ditch and in the fields surrounding ponds P1 and P3. Although the tussocks partially obscured visibility of the ground, extensive searches were made for signs of water vole. Access to areas with the highest potential to support water vole were largely unconstrained.
- 2.4.5 The minor access limitations are not thought to have affected the reliability of the survey results.

Accurate Lifespan of Ecological Data

- 2.4.6 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for up to two years, assuming no significant changes to the site conditions.

3 RESULTS

- 3.1.1 Locations of ponds and watercourses within and adjoining the site are shown on the Habitat Plan (Drawing ECO01916-001). Photographs are provided in Appendix C.

3.2 Great Crested Newts

Pond P1

- 3.2.1 Pond 1 (OS grid reference ST 099859) is a man-made pond on the edge of an extensive field of marshy grassland created within the last 5 years.
- 3.2.2 The pond consists of a 4-14m wide channel broadly triangular in shape enclosing part of the original field to form a central island. The pond is up to 100m in length and 42m in width. The open water covers an extent of 0.14ha.
- 3.2.3 The banks of the island are near vertical bare earth. The eastern bankside is approximately 1m higher than the western bankside, with the height of exposed banksides varying between 0.5-2m depending on water levels.
- 3.2.4 Tussocks of soft rush are the main cover at the top of the bank and across the island with small patches of bramble, common reed *Phragmites australis*, bulrush *Typha latifolia* and scattered willow saplings.
- 3.2.5 Although the length of pond edge is extensive there is a lack of submerged aquatic vegetation reflecting its recent origin and the steepness of the banks. Mallards use the pond with up to 20 individuals present during the surveys.

Pond P3

- 3.2.6 Pond P3 (OS grid reference ST 099856) is located in a field dominated by semi-improved grassland with large patches of marshy grassland.
- 3.2.7 The pond measures 15m by 12m with a central island measuring 6m by 2m. The pond has an estimated depth of less than 1m.
- 3.2.8 The banks on the perimeter of the pond are moderately steep and up to 0.5m in height. The island has shallow banksides up to 0.25m in height. The water is turbid, with an estimated depth of under 1m.
- 3.2.9 Young silver birch and hawthorn trees are present on the island. Brooklime *Veronica beccabunga*, water-crowfoot *Ranunculus* sp., floating sweet-grass *Glyceria fluitans* and broadleaved pondweed *Potamogeton natans* are present in the pond. Small numbers of mallards use the pond.
- 3.2.10 Aerial imagery indicates that this pond was deepened in the relatively recent past and historically has been a small area of marshy grassland. The ground around the pond and sections of the field have reverted to marshy grassland dominated by soft rush.

HSI Assessment

- 3.2.11 The Habitat Suitability Index assessment classified both ponds P1 and P2 as 'Average' with HSI scores of 0.62 and 0.67 respectively.
- 3.2.12 The full HSI parameter scores and calculations are given in Appendix A.

Environmental DNA Results

- 3.2.13 The eDNA results for both Pond P1 and Pond P3 were negative indicating that no GCN DNA was present in the samples and GCN are absent from the ponds.
- 3.2.14 The samples from both ponds passed checks for integrity, degradation and inhibition which inspect for factors which may lead to inconclusive or false results. The eDNA Laboratory Analysis Report is provided in Appendix B.

3.3 Water Vole

Habitat suitability

Pond P1 and Adjoining Habitat

- 3.3.1 Pond P1 is described above in section 3.1.1 – 3.1.5. The vertical bare earth banksides of the pond and island provide suitable locations for water vole burrows.
- 3.3.2 Grasses, soft rush and bramble are present along the banksides of the pond and ditch providing potential foraging resources for water vole. The soft rush dominated island and surrounding field provide further suitable foraging habitat.

Pond P3 and Adjoining Habitat

- 3.3.3 Pond P3 is described above in section 3.1.6 - 3.1.10. The moderately steep banksides providing suitable habitat for burrows.
- 3.3.4 A range of potential water vole food plants are present along the banksides of the pond and ditch. The grassland and large patches of soft rush in the surrounding field provide further suitable foraging habitat.

Watercourse

- 3.3.5 The central watercourse is a shallow, slow-flowing stream with a maximum depth of 0.3m and a channel width of 1m within the site (Plates 3 and 4, Appendix C). The steep banksides are up to 1.5m in height providing suitable habitat for burrows.
- 3.3.6 A range of plant species are present along some sections of the banks and the adjoining grassland has the potential to provide foraging habitat for water vole.

Field Signs

- 3.3.7 No definitive signs of water vole were found during the survey. The survey findings are described below and mapped on the Water Vole Survey Results Plan (Drawing ECO01916-002).

Natural hollows

- 3.3.8 Multiple small hollows (short blind tunnels) are present in the banksides of P1 and the adjoining wet ditch. Approximately 30 hollows are present in total, the majority of which are located on the steeper southern and eastern sides of the pond. The hollows are typically 4-6cm wide at the entrance after which they taper, extending up to 8cm into the bank. The pond and ditch banksides are vertical, comprising a clay-based soil and lacking vegetation.
- 3.3.9 Due to their shallow depth and wide entrances, none of the hollows provided a suitable area of shelter for water vole. It is possible the hollows have formed naturally over time by erosion of smaller crevices.

Field vole signs

- 3.3.10 Several patches of small vole droppings and narrow runs characteristic of field vole are present within the marshy grassland within the fields where P1 and P3 are located.

Feeding remains

- 3.3.11 Frequent patches of rushes which had been gnawed at a 45° angle are present in the marshy grassland around P1 and P3.
- 3.3.12 Water vole feeding remains typically have a 45° angle however this can also be created by other species. The majority of the rush stems have been cut to a short length indicative of field/bank vole activity.

3.4 Otter**Habitat Suitability****Watercourses**

- 3.4.1 The central watercourse is a shallow stream with steep 2-3m high banksides. Scrub and trees at the top of the banksides provide some shelter, however areas of dense cover are very limited in extent and there were no clear mammal paths associated with them.
- 3.2 There are few flat sections present at the base of the banksides, beneath the exposed root plate of a mature tree and at the top of the bank. These flat sections are largely exposed and would be sub-optimal habitat for laying-up spots.
- 3.3 The other watercourses in and adjoining the site are shallow and lack potential areas of cover for otter.

Ponds and Ditches

- 3.4 The ponds and ditches within the site are small in size and lack areas of dense vegetation cover which would provide suitable habitat for couches or holts.
- 3.5 The ponds do not have extensive areas of open water and the water depths will be shallow. These types of pond would not be expected to support significant fish populations which could attract foraging otters.

Field Signs

- 3.4.1 No signs of otter activity were recorded within or alongside the watercourses, ditches or ponds.

4 DISCUSSION

Great Crested Newt

- 4.1.1 The eDNA analysis concluded that GCN are absent from both potentially suitable ponds located within the site (Pond P1 and P3). Other waterbodies within the site are unsuitable for great crested newt. It is therefore concluded that GCN are not breeding within the site.
- 4.1.2 The hedgerow bases and taller areas of grassland would provide cover and potential foraging habitat. Gaps between tree and shrub roots, larger rocks and logs provide potential hibernacula. If present in ponds in the wider area, there is a low likelihood of individual GCN utilising on-site terrestrial habitats.
- 4.1.3 The proposed development of the site as a solar park will retain much of the habitat within the site. Precautionary measures should be employed when clearing areas of taller grassland and where necessary sections of hedgerows to protect wildlife including reptiles and GCN from harm if present.

Water Vole

- 4.1.4 While the ponds P1 and P3 and watercourse W2 provide suitable habitat for water vole no signs of activity such as droppings, latrines, runs or food piles were found during systematic searches in spring and late summer. Based on the absence of signs of water vole it is concluded that this species are absent from the site.
- 4.1.5 A large population of field vole/bank vole is present within the areas of marshy grassland adjoining the ponds.

Otter

- 4.1.6 The on-site watercourses are, at best, sub-optimal for otter, but with populations of this species increasing there is potential for them to use the habitat.
- 4.1.7 Upstream sections of watercourses can have value as features along which otters move through a landscape. The watercourses are too shallow to support significant prey populations and lack dense cover to conceal laying up places or holts.
- 4.1.8 With no signs of otter present along the watercourses it is concluded that the habitat does not currently form part of an active territory.
- 4.1.9 The watercourse along with adjoining trees and scrub will be retained within the proposed development. The development will remain unlit.
- 4.1.10 During the construction phase of the proposed development a suitable buffer should be implemented around the watercourse. Best practice guidance should be followed to protect the watercourse from potential pollution.

REFERENCES

ARG UK (2010). ARG UK Advice Note 5 – Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom.

Avian Ecology Ltd (2014). Maes Bach Solar Farm – Ecological Appraisal.

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

English Nature (2001). *Great crested newt mitigation guidelines*. English Nature, Peterborough (Natural England).

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155.



DRAWINGS

Drawing 1

Habitat Plan

Drawing 2

**Water Vole Survey Results
Plan**



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- Legend**
- - - Proposed cable route
 - Acid grassland - semi-improved
 - Bare ground
 - Broadleaved woodland - semi-natural
 - Himalayan balsam
 - Marsh/marshy grassland - soft rush dominated
 - Marsh/marshy grassland - purple moor grass
 - Other
 - Scrub - dense/continuous
 - Standing water
 - Tall ruderal
 - Broadleaved scattered trees
 - Hedge with trees - native species-rich
 - Hedge with trees - species-poor
 - Intact native species-rich hedge
 - Intact species-poor hedge
 - Defunct species-poor hedge
 - Running water
 - Wet ditch
 - Mammal push-through
 - Scattered scrub
 - Target note

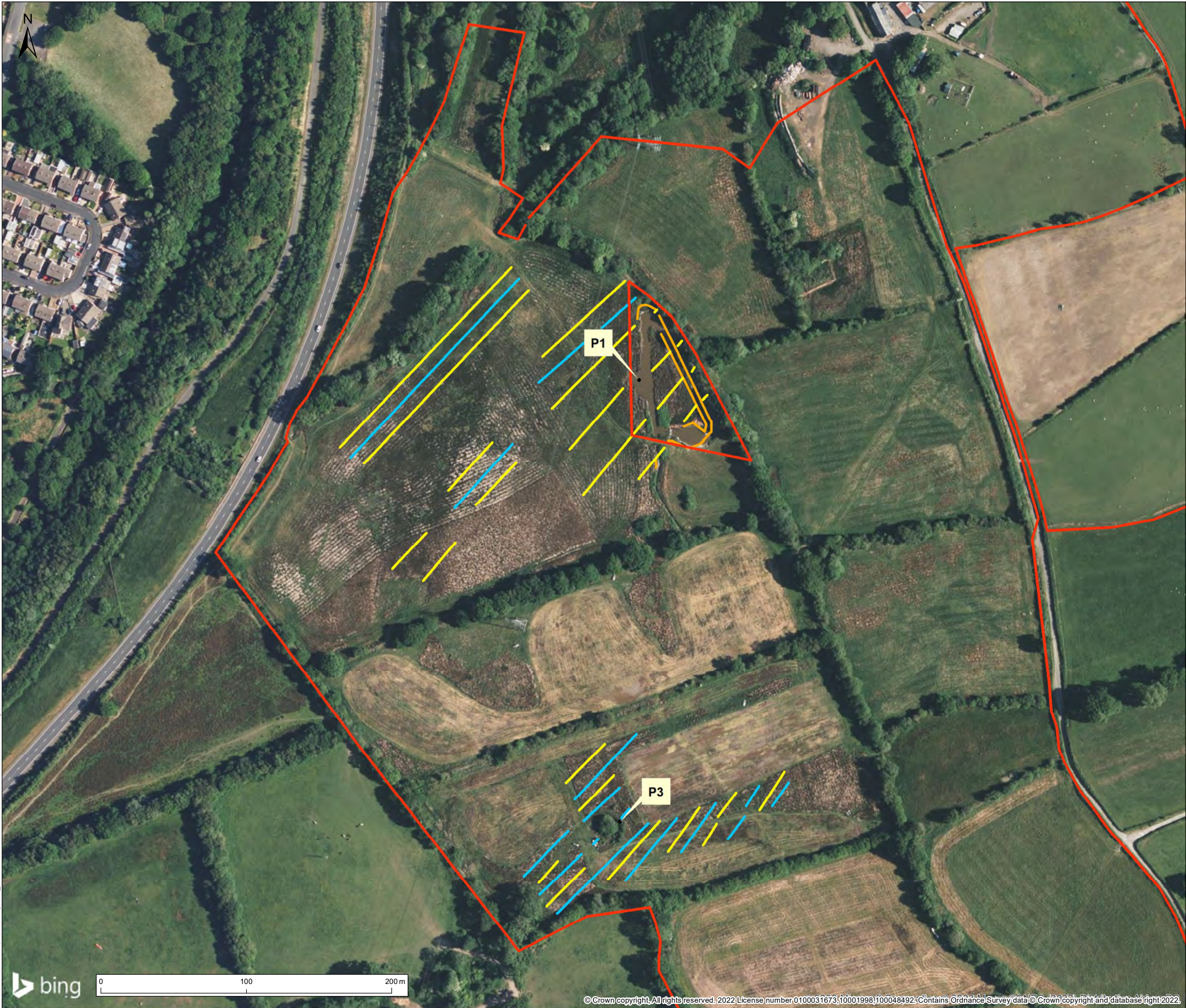
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Client **Elgin Energy**
 Project **Maes Mawr**
 Title **Phase 1 Habitats Map**

Status **ISSUE** Drawn By **PV** PM/Checked By **GK**
 Project Number **ECO01096** Scale @ A3 **1:5,000** Date Created **JUL 2022**
 Figure Number **ECO01096-0002-03** Rev **A**
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- Legend**
- Site boundary
 - Bankside hollows
 - Rushes gnawed at a 45 angle
 - Field / bank vole droppings

Pond references: P1 and P3

Rev	Description	By	CB	Date

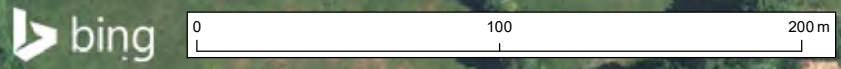
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Client **Elgin Energy**
 Project **Maes Mawr**
 Title **Water vole survey results plan**

Status	Drawn By	PM/Checked By
ISSUE	KAG	GK
Project Number	Scale @ A3	Date Created
ECO01096	1:2,500	JUL 2022
Figure Number		Rev
2		-

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APPENDICES

Habitat Suitability Index (HSI) Assessment Scores

SI No.	SI Description.	Pond P1	Pond P3
1	Geographic location	1.00	1.00
2	Pond area	0.9	0.4
3	Pond permanence	0.9	1.00
4	Water quality	0.67	0.33
5	Shade	1.00	1.00
6	Waterfowl effect	0.67	0.67
7	Fish presence	0.33	1.00
8	Pond Density	0.80	0.80
9	Terrestrial habitat	0.67	1.00
10	Macrophyte cover	0.30	0.5
Overall HSI Score		0.62	0.67
Pond suitability		Average	Average

Appendix B

eDNA Survey Laboratory Report

Appendix C
Site Photographs

REPORT



Plate 1: Pond 1 (eastern side)



Plate 2: Pond 3



Plate 3: Central Watercourse



Plate 4: Central Watercourse

REPORT
