



ETIVE **ECOLOGY** Ltd

Proposed Solar Farm

Cefn Park, Wrexham

**Great Crested Newt Mitigation
Strategy**

Produced for:



October 2022

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Quality Assessment Record

Report Version	Written by	Date	Reviewed by	Date
1.0	Wendy O’Neil	12 th April 2022	Russell Grey	3 rd May 2022
2.0	Russell Grey	24 th May 2022	Maddy Warriner	24 th May 2022
3.0	Russell Grey	13 October 2022	Maddy Warriner	14 October 2022

1 INTRODUCTION

1.1 The Scheme

- 1.1.1 Etive Ecology Ltd. was commissioned by Corylus Planning and Environmental Ltd to prepare a Great Crested Newt (GCN) Mitigation Strategy (MS) for a proposed solar farm Cefn Park, Wrexham. This GCN MS has been produced to support a planning application where a Preliminary Ecological Appraisal (PEA) and an Ecological Impact Assessment (EclA) have been undertaken. The proposed development Site is centred on National Grid Reference SJ 36826 48636
- 1.1.2 The proposed scheme is to develop the Site into a solar farm. The proposed solar park footprint is ~12.6ha in size and is located within arable habitat. Full details of the proposed scheme are given in the submitted planning application.

1.2 Previous Study

- 1.2.1 The following amphibian records were provided as part of the desk study undertaken to inform the PEA. A large number of GCN records were returned within 2km of the Site.

Table 1.2.1 Amphibian Records within 2km of the Site

Species	Scientific name	Records	Distance from Site
Smooth newt	<i>Lissotriton vulgaris</i>	324	498-1.9 km
Common toad	<i>Bufo bufo</i>	41	514-1.9 km
Great crested newt	<i>Triturus cristatus</i>	800	119-1.9 km
Palmate newt	<i>Lissotriton helveticus</i>	12	857-1.9 km
Common frog	<i>Rana temporaria</i>	76	514-1.9 km

1.3 Scope of this Report

- 1.3.1 The report provides a summary of the status of GCN on and adjacent to the Site, based on the guidance found in the *Great Crested Newt Mitigation Guidelines* (English Nature, 2001).
- 1.3.2 An impact assessment is provided in **Section 3**, identifying the likely impacts posed to GCN by the scheme and the magnitude of these impacts. Details of the proposed scheme are presented, and key risk areas and activities are identified.
- 1.3.3 **Section 4** presents the GCN mitigation strategy. The mitigation measures proposed follow the GCN Mitigation Guidelines and aim to avoid any harm to GCN, to minimise disturbance to GCN and to ensure there is no long-term impact on the Favourable Conservation Status (FCS) of the species as a result of the proposed scheme.
- 1.3.4 A short section on the 'three tests' is provided in **Section 5**. This provides a summary of the key issues which is given to assist the LPA in determining whether the scheme satisfactorily passes these tests.

2 GCN STATUS

2.1 Extended Phase 1 Habitat Survey

- 2.1.1 An Extended Phase 1 Habitat Survey was undertaken by Corylus Planning and Environmental Limited on 5th August 2021 and an update survey was undertaken by Russell Grey (MCIEEM, CEnv, BSc) and Wendy O'Neill (BSc) of Etive Ecology Ltd on 15th November 2021. The survey method follows the habitat assessment and classification procedure outlined by the Handbook for Phase 1 Habitat Survey (JNCC, 2010), whereby all habitats are identified, described and mapped using a standard classification.
- 2.1.2 The survey established that no ponds were present within the site boundary or within 250m of the red-line boundary. The suitable terrestrial habitat for GCN within the Site was limited to the boundaries and field margins. There were six ponds identified within 500m of the site, all with direct habitat connectivity. Local records also confirmed a high number of GCN records within the Wrexham Industrial Estate (WIE) area and within 2km from the Site. The Phase 1 Habitat Map is presented as Plate 2.1.1 below and the EclA Report is provided as part of the planning submission.
- 2.1.2 It is concluded that GCN are likely present within the development footprint.

Plate 2.1.1 Extended Phase 1 Habitat Map



2.2 HSI & eDNA Surveys

2.2.1 A total of eight potentially suitable water bodies (all ponds) were identified within the Study Area (Plate 2.2.1) and were assessed for their potential to support great crested newt using the Habitat Suitability Index (HSI) in accordance with standard methodology (Oldham et al., 2000). The assessments were undertaken during June 2020.

Plate 2.2.1 Ponds Subject to HSI



2.2.2 Ponds, 4, 5, 6, 7 and 8 achieved a score indicative of potential breeding suitability as shown by the HSI scores in Table 2.2.1 below. All five of these ponds were then subject to eDNA surveys.

Table 2.2.1 HSI Results

Pond	Criteria										HSI
	1	2	3	4	5	6	7	8	9	10	
1	1	0.8	0.5	0.33	0.2	0.67	1	0.95	0.67	0.4	0.58
2	1	0.8	0.5	0.33	0.2	0.67	1	0.95	0.67	0.4	0.58
3	RECENTLY IN-FILLED										
4	1	0.6	0.5	0.67	1	0.67	1	0.95	0.33	0.8	0.71
5	1	0.2	0.5	0.67	1	1	1	0.95	0.33	0.9	0.67
6	1	0.8	0.9	0.67	0.8	0.67	0.33	0.95	0.33	0.5	0.65
7	1	0.8	0.9	0.67	0.8	0.67	0.33	0.95	0.67	0.5	0.70
8	1	0.8	1	0.33	0.2	1	1	0.95	0.67	0.3	0.66

- 2.2.3 Water samples were collected by Etive Ecology Limited from all suitable ponds within the Study Area on the 28th June 2020. Samples were sent to SureScreen Scientifics for eDNA analysis in accordance with the protocol stated in DEFRA WC10671.
- 2.2.4 The results returned from eDNA testing were positive for Pond 7 and negative for all other ponds.

2.3 GCN Status Summary

- 2.3.1 Based on the findings of the Extended Phase 1 Habitat survey of the site, the HSI and eDNA surveys of ponds within 500m, as well as consideration of the existing GCN records for the area, it is concluded that GCN are likely to be present within the immediate vicinity of the site. Given the information that has been gathered, and considering discussions with NRW's Senior Species Advisor, it is acknowledged that the local GCN population forms part of the Wrexham Industrial Estate (WIE) meta-population. This large meta-population is of National importance but is known to be in an unfavourable condition.
- 2.3.2 A precautionary approach has therefore been taken with regards to mitigating the potential impacts on GCN, given the National importance of the WIE GCN population. The GCN population likely to be affected by the scheme is therefore taken to be of a medium-size, with appropriate mitigation and compensation provided accordingly.

3 GCN IMPACT ASSESSMENT

3.1 The Proposed Scheme

3.1.1 The scheme will include the following components and activities:

- Develop Compartment 1 (West) and Compartment 2 (East) as solar panel compartments with separate access gates
- Install batteries and ancillary infrastructure.
- Install perimeter fencing around the solar park and associated infrastructure, with CCTV security.
- Remove 7m hedgerow from the south boundary to facilitate site access.
- Reduce the height of a section of hedgerow on the south boundary to 0.6m
- Enhance the existing eastern hedgerow by gap planting and create new woodland / scrub habitat, as per the proposed site layout.
- Create one hibernacula within each compartment
- Create a new pond in Compartment 2 and an adjacent soil bund.
- Convert existing arable land to the south of Compartment 1 into species-rich native grassland by over-sowing of a suitable seed mix.
- Manage the retained, enhanced and newly created habitats for the duration of the operational period (anticipated to be 40 years) with monitoring and Site wardening. A separate Habitat Management Plan will be prepared as part of the GCN License.

3.1.2 **Figure 1** shows the existing Site layout pre-development and highlights the anticipated impacts without mitigation, as described below. **Figure 2** shows the proposed mitigation measures required to ensure there is no direct harm posed to GCN during the construction phase of the scheme. **Figure 3** shows the footprint of the development and illustrates the enhancements and management measures to be delivered as part of the scheme (detailed in Section 4).

3.2 Short-term Impacts - Disturbance

3.2.1 Without mitigation, the construction of the scheme will result in immediate disturbance to the existing semi-natural habitats on Site, comprising arable, tall ruderal, scattered broadleaved trees, ditches and hedgerows. Any GCN present within these habitats will also be subject to disturbance and likely harm. These impacts would be significant at the local level given the assumed presence of GCN within the Site.

3.2.2 During the construction phase (c 16 weeks) there is a risk that GCN could be present on Site and therefore could be disturbed, injured or killed.

3.3 Long-term Impacts – Site Modification

3.3.1 The proposed scheme will introduce grassland beneath the solar panels as a replacement for the existing arable habitat. The grassland would be grazed by sheep at the standard livestock density. Therefore, the long-term impact of Site modification will be neutral to GCN as improved grassland pasture is of similar value to GCN as the existing arable grassland.

3.4 Long-term Impacts – Site Loss

3.4.1 The proposed development will result in a small area of semi-natural habitat loss, where Site

access roads and battery storage units will be installed. These areas account for ~0.05ha of habitat loss.

3.5 Long Term Impacts - Fragmentation and Isolation

- 3.5.1 The Site would become temporarily fragmented during construction, with arable habitat subject to impacts from site vehicles and panel installation. However, long-term there would be no significant fragmentation impacts due to the site being reverted to its pre-development arrangement. Additionally, all security fences surrounding the solar panels will be permeable to GCN.

3.6 Post Development Interference Impacts

- 3.6.1 Post-construction, routine maintenance could disturb GCN by tasks such as hedgerow cutting and grassland management. However, maintenance tasks would normally be carried out over the winter period to avoid nesting bird impacts. The impact of any post-development interference is therefore considered to be negligible.

4 GCN MITIGATION STRATEGY

4.1 Capture and Exclusion

- 4.1.1 The GCN mitigation strategy is based upon the goal of excluding all GCN from the construction zone prior to the commencement of works. To achieve this, a line of perimeter fencing will be installed, according to best practise standards, around the working area as shown on **Figure 2**. Alternate pitfall traps and refugia will be installed every 10m along the inside of the fence line and will be used to capture GCN, and any other amphibian species, for a period of 30 consecutive days. Artificial refugia (carpet tiles or similar) will be laid in between pitfall traps and checked daily to improve trapping efficiency. Once the trapping period has been completed and no GCN are caught for a minimum of 5 consecutive days, the area will be deemed clear of GCN. Newt grids will be installed where Site access roads cross perimeter fencing areas. Retained boundary corridors will be protected during the construction phase to ensure continued use by GCN and other amphibians.
- 4.1.2 Once the construction zone has been cleared of GCN the perimeter fence will remain in situ for the duration of construction works.
- 4.1.3 All industry standard GCN trapping protocols as described in the GCN Mitigation Guidelines will be fully adhered to. These include the checking of traps by GCN licenced ecologists or accredited agents, trapping only during suitable weather conditions and ensuring that the traps are set-up to provide shelter for amphibians and a means of egress for small mammals.

4.2 Receptor Site

- 4.2.1 All amphibians caught during the trapping effort will be translocated into hedgerows and graded field margins immediately adjacent to the point of capture. There will be a corridor of land controlled by the applicant between the GCN fence and the red-line site boundary, which will be suitable to act as the receptor site. The GCN exclusion fencing will prevent returns to the Site until all construction works have been completed.

4.3 Enhancements, Monitoring, Management and Maintenance

- 4.3.1 **Figure 3** illustrates the proposed enhancement, management and monitoring measures associated with the scheme. These include:
- Compartment 1 (west); a small area of woodland planting in the west corner, seeding of a species-rich grassland mix within the compartment, demarcation of tree root protection zones around existing mature trees, the creation of a hibernacula and the planting of a woodland belt along the southern site boundary. The areas of arable between the solar panels and the southern boundary will also be converted from arable to species-rich grassland via over-seeding of a suitable seed mix and long-term management.
 - Compartment 2 (east); enhancing the eastern site boundary hedgerow through gap planting, seeding of a species-rich grassland mix within the compartment, creation of a new pond and associated soil bund, creation of a hibernacula and the demarcation of tree root protection zones.
 - South of Cefn Road; creation of an area of dense scrub just to the south of Cefn Road, to compensate for the loss of similar habitat to the footprint of the new substation.
 - Manage the retained, enhanced and newly created habitats for their biodiversity value over

the duration of the operational period of the solar park (anticipated to be 40 years) with monitoring and site wardening. Measures to be detailed within a HMP prepared for the GCN License.

- 4.3.2 The newly created grassland habitat beneath the new solar panels will be managed specifically for GCN by implementing a conservation grazing regime to ensure the suitable structure and composition of the grassland sward. Sheep will be grazed at a rate of 0.5 LSU/ha, (~3 sheep per ha) during June/July for a four-week period. The aim is to manage the grassland to a sward height of ~150mm during this period, before allowing it to re-grow again towards the late summer and early autumn, so that it offers excellent over-wintering habitat and connectivity. It would also be possible to carry out grassland management mechanically if required, with a single cut (and collection) to 150mm during the June/July period.
- 4.3.3 The retained and newly created habitats within the Site will be subject to a Habitat Management Plan (HMP) for the operational period of the Site (anticipation to be 40 years). A HMP will be prepared and submitted with the GCN License application but will include annual maintenance and management of the species-rich grassland, the new pond, the hibernaculum and the areas of enhancement planting. Management of these habitats and features is targeted at creating high quality breeding, foraging, dispersal and sheltering opportunities for GCN and other amphibians.
- 4.3.4 As part of the licencing requirements, there will be a schedule of monitoring to assess the efficacy of habitat enhancement and management works. In accordance with NRW's requirements, monitoring will extend for the operational life of the solar park, anticipated to be 40 years. The GCN pond will be monitored annually and terrestrial habitats will be assessed annually for the first three years post-development, and then every five years thereafter. Any necessary alterations to the management regime will be advised and reported appropriately.

4.4 Timing of Works

- 4.4.1 Table 4.4.1 below gives an indication of the likely programme of works for the GCN mitigation, construction and post-development monitoring.

Table 4.4.1 Outline Programme of Works

Year	Activity	Responsibility
Year 1	Apply for GCN License from NRW	GCN-licensed ecologist.
	Installation of GCN fencing and pitfall traps on Site, including creation of newt friendly vehicle access point with newt grids.	Suitably experienced GCN fencing contractor.
	Minimum of 30 days pitfall trapping. GCN License Report submitted to NRW.	GCN-licensed ecologist.
	Construction Phase. Habitat creation and landscaping within GCN fencing.	Principal Contractor. Suitable landscape contractor.
Year 2	Removal of GCN fencing under ecological supervision.	Suitably experienced GCN fencing contractor.
	GCN License Report submitted to NRW.	GCN-licensed ecologist.
Year 3	GCN Monitoring Surveys	GCN-licensed ecologist.
	Terrestrial Habitat monitoring	GCN-licensed ecologist.
	GCN Licence Report submitted to NRW.	GCN-licensed ecologist.

5 THE “THREE TESTS”

5.1 The NEED

- 5.1.1 In 2016, the UK signed the Paris Agreement, which is a global agreement between nations to reduce global warming, specifically to keep the increase in global temperature to below 2°C above pre-industrial levels and to pursue efforts to limit the increase to 1.5°C. The UK is committed to a target of net-zero carbon emissions by 2050. In Wales, the Environment Act has set a target of 70% of the country’s electricity consumption to be from renewable energy by 2030. Wrexham Borough Council declared a Climate Emergency in September 2019.
- 5.1.2 The applicant has secured a private wire to the Five Fords Water Treatment Works, operated by Dwr Cymru Welsh Water (DCWW). DCWW are one of the largest energy users in Wales and have recently announced plans to be carbon neutral by 2040. The proposed solar farm will make a significant contribution towards DCWW decarbonising their operations.
- 5.1.3 This development can therefore contribute to meeting the National Grid’s renewable energy needs of producing green electricity and reducing reliance on fossil fuels which produce harmful greenhouse gases. Solar Technology is a proven source of safe, locally produced and sustainable power.

5.2 No SUITABLE ALTERNATIVE

- 5.2.1 There is capacity within the National Grid network in the vicinity of the Site and the applicant has secured the use of an existing Point of Connection into the National Grid which has been the driving force behind the selection of this Site for a solar farm. Additionally, the applicant has also secured a private wire connection to the Five Fords WTW.
- 5.2.2 The “Do Nothing” scenario would pose no adverse impacts to GCN but would make no contribution to meeting the NEED for the creation of additional renewable energy production within an existing industrial setting.

5.3 No Impact on FAVOURABLE CONSERVATION STATUS

- 5.3.1 The proposed development has been identified as posing a potential risk of disturbing, injuring and killing GCN during construction and operational activities. However, as a result of the mitigation and compensation measures proposed herein, all GCN will be removed from the working area, thereby avoiding harm during the construction phase. New habitat will be created, including species-rich grassland, a new pond, two hibernacula and woodland/scrub, as well as hedgerow enhancements. These habitats will be managed in such a way that they will provide habitat of enhanced suitability for GCN and will be managed for the benefit of GCN.
- 5.3.2 These measures will ensure that there will be no loss of functionality for GCN post-development and will ensure no significant long-term impacts on the GCN population at the Site, Local or County level. The proposed monitoring should demonstrate this strategy to be successful in ensuring no medium to long-term impacts on the species. As a result of these measures there should be an improvement in the Favourable Conservation Status (FCS) of the local GCN population.

FIGURE 1
IMPACTS

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Short Term Impacts

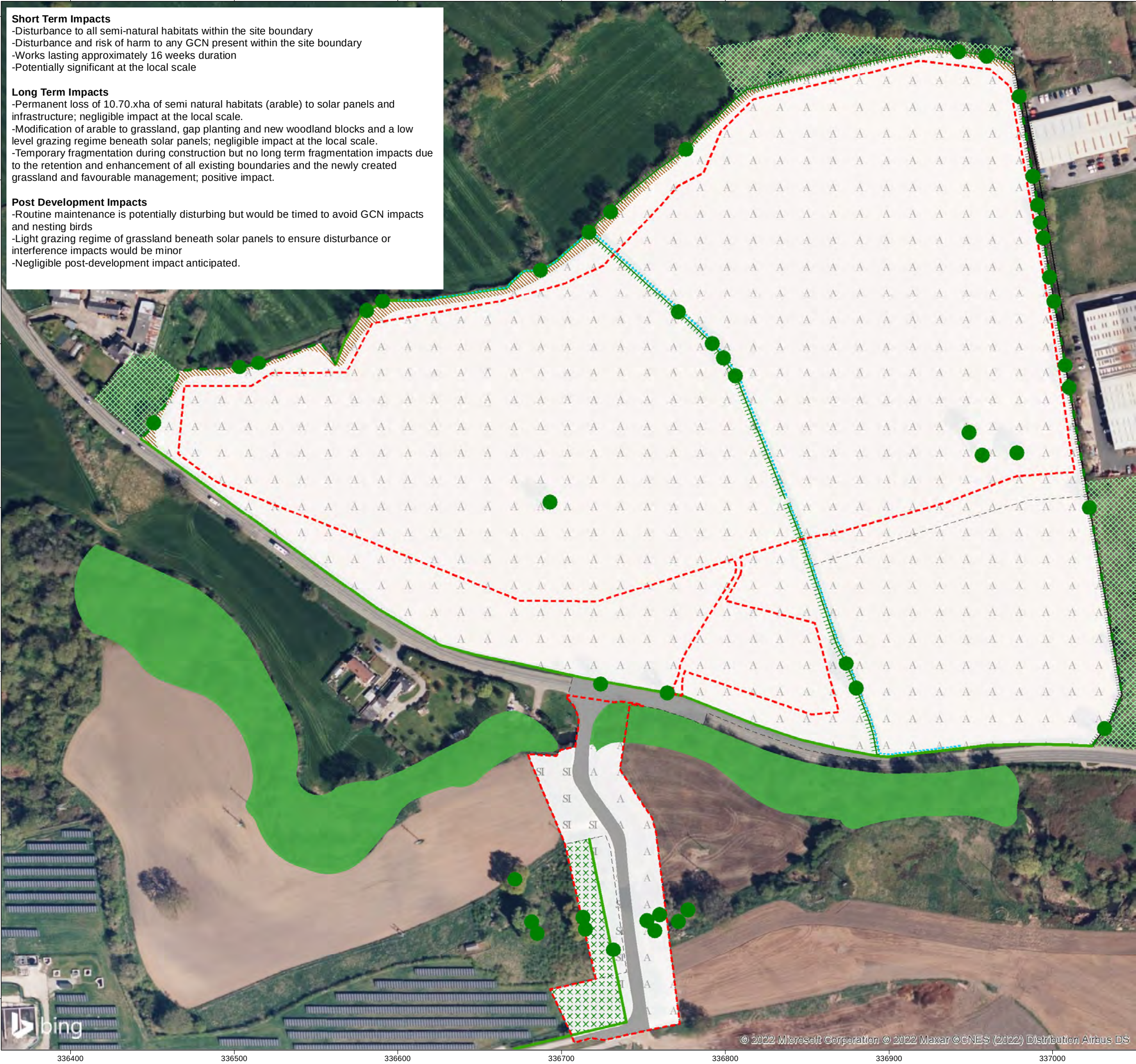
- Disturbance to all semi-natural habitats within the site boundary
- Disturbance and risk of harm to any GCN present within the site boundary
- Works lasting approximately 16 weeks duration
- Potentially significant at the local scale

Long Term Impacts

- Permanent loss of 10.70.xha of semi natural habitats (arable) to solar panels and infrastructure; negligible impact at the local scale.
- Modification of arable to grassland, gap planting and new woodland blocks and a low level grazing regime beneath solar panels; negligible impact at the local scale.
- Temporary fragmentation during construction but no long term fragmentation impacts due to the retention and enhancement of all existing boundaries and the newly created grassland and favourable management; positive impact.

Post Development Impacts

- Routine maintenance is potentially disturbing but would be timed to avoid GCN impacts and nesting birds
- Light grazing regime of grassland beneath solar panels to ensure disturbance or interference impacts would be minor
- Negligible post-development impact anticipated.



Survey Information

	Development extent / impacted area (11.78ha)
	Application boundary

Phase 1 Habitat Survey

	Broadleaved woodland
	Scrub
	Scattered scrub
	Poor semi-improved grassland
	Tall ruderal
	Arable
	Hardstanding
	Species poor hedgerow
	Species poor hedgerow defunct
	Species poor hedgerow with trees
	Dry ditch
	Fence
	Scattered tree

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01020406080

Metres

PROJECT TITLE

CEFN PARK

DRAWING TITLE

Figure 1 : Impacts

VER	DATE	REMARKS	Drawn	Checked
1.2	20/05/22	Habitat Map	MP	WO

DRAWING NUMBER:

ETIVEECOLOGY/CefnPark/GCN/Impacts

SCALE	1:2,300	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
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FIGURE 2
MITIGATION STRATEGY

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Mitigation Strategy

- All GCN fencing will meet the industry standard described in the GCN Mitigation Guidelines.
- All pitfall traps will be set-up with suitable egress for small mammals and shelter for amphibians.
- Traps and refugia will be checked daily (before 9am) for 30 days during suitable weather conditions by a suitably licensed ecologist.
- Once trapping effort is complete, all drift fencing will be removed to allow construction works to commence.
- GCN Exclusion Fence will be left in-situ until all development activities have been completed. The fence will only be removed outside of the hibernation period and under ecological supervision.



Survey Information	
	Development extent / impacted area (10.70ha)
Mitigation Measures	
	GCN Fence
	Carpet tile (142)
	Pitfall trap (137)
	Access point with newt grid (8)

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N

0 10 20 40 60 80
Metres

PROJECT TITLE

CEFN PARK

DRAWING TITLE

Figure 2: Mitigation Measures During Construction of the Scheme

VER	DATE	REMARKS	Drawn	Checked
1.2	20/05/22	Mitigation	MP	WO

DRAWING NUMBER:

ETIVEECOLOGY/CefnPark/GCN/Mitigation

SCALE	1:2,300	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
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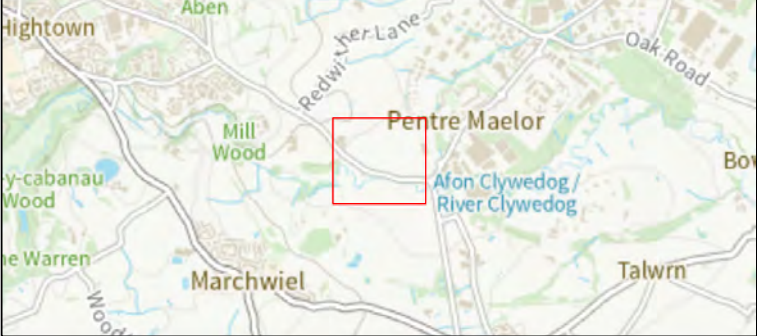
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FIGURE 3

ENHANCEMENTS, MANAGEMENT & MONITORING

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Site Information	
	Application boundary
Proposed Habitats	
	Newly planted woodland
	Wildlife enhancement area
	Scrub
	Grassland
	Array over grassland
	Pond
	Soil bund
	Arable
	Building and hardstanding
	Hedgrow - retained
	Hedgerow - to be gapped up
	Dry ditch
	Fence
H	Hibernacula

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N

01020406080

Metres

PROJECT TITLE

CEFN PARK

DRAWING TITLE

Figure 3 - Post Development Management and Maintenance

VER	DATE	REMARKS	Drawn	Checked
1.2	20/05/22	Development	MP	WO

DRAWING NUMBER:

ETIVEECOLOGY/CefnPark/GCN/Proposal

SCALE	1:2,300	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
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