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**Legacy Substation – Battery Storage Facility**  
on behalf of Pelagic Energy  
Full Great Crested Newt Mitigation Strategy



| Document Control |            |                                             |                               |                                     |
|------------------|------------|---------------------------------------------|-------------------------------|-------------------------------------|
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**CONTENTS**

**1 INTRODUCTION .....5**

1.1 Background.....5

1.2 Management Period .....6

1.3 Responsibilities & Tenure .....6

1.4 Legislation and Policy.....6

1.5 Baseline Information.....7

**2 POTENTIAL IMPACTS AND LICENCE REQUIREMENTS.....8**

2.1 Impacts .....8

2.2 Licence Requirements.....8

**3 MITIGATION STRATEGY.....9**

3.1 Rationale and Approach.....9

3.2 Capture and Exclusion Under licence .....9

3.3 Supervision, Monitoring and Biosecurity .....10

3.4 Habitat Compensation and Enhancement Measures .....11

3.5 Ongoing Habitat Management.....13

**4 MONITORING AND REVIEW .....14**

**5 POST CONSTRCUTION MONITORING & RECORD DISSEMINATION. 15**

5.1 Habitat Monitoring .....15

5.2 Great Crested Newt Monitoring .....15

**6 REMEDIAL ACTIONS .....16**

**7 TIMING AND SEQUENCING OF ACTIVITIES .....17**

**8     TIMETABLE FOR MANAGEMENT, MAINTENANCE AND MONITORING**  
..... **18**

**FIGURES.....22**

# 1 INTRODUCTION

## 1.1 Background

- 1.1.1 This document has been prepared in relation to the proposed Battery Storage Facility (BSF) at Legacy Substation (the 'Proposed Development'). It should be read in conjunction with the Ecological Assessment Report (Avian Ecology, May 2021) which contains relevant Figures and Photographs.
- 1.1.2 Permission for the Proposed Development (Ref: P/2021/0441) has been granted subject to conditions. The objective of this report is to provide adequate information in relation to great crested newt (GCN) *Triturus cristatus* mitigation, to enable the discharge of Condition 6 of the permission. Condition 6 is provided below.

*No development shall commence until a GCN Mitigation Strategy has been submitted to and approved in writing by the determining authority. The GCN Mitigation Strategy should:*

- *Build upon the principles outlined in the ecological report (reference Maginn, U. (2021). Outline Great Crested Newt Mitigation Strategy. Avian Ecology. Unpublished);*
- *Submission of further details and associated plans concerning GCN avoidance and mitigation measures including, but not limited to: fence design, specifications and locations; considerations of access issues (including PROW if applicable); monitoring and maintenance requirements; and supervised removal. Submission to include proposed timescales and reporting requirements;*
- *Submission of a long term site management (not less than 25 years) that includes defined aims and objectives; habitat management prescriptions; contingency measures if fish or invasive non-native species (INNS) are detected; proposals that are capable of being implemented in the event of failure to undertake or to appropriately undertake identified or contingency actions; site liaison and wardening; licensing requirements for undertaking habitat management and surveillance; current and any proposed changes to tenure of the compensation area; tenure of the compensation to be approved by the LPA in consultation with NRW; persons or bodies responsible for undertaking management and surveillance together with required skills and competencies; reporting requirements; and proposed dates for updating or revising the management plan;*
- *Submission of measures designed to prevent the accidental capture/killing of newts (amphibians) during operational (and decommissioning) phases of the scheme (ie post construction). This is essentially the installation and maintenance of an amphibian friendly surface water management system that does not include gully pots (or other similar features);*
- *Details of timing, phasing and duration of construction activities and conservation measures;*
- *Timetable for implementation demonstrating that works are aligned with the proposed development;*
- *Ecological Compliance Audit, including key performance indicators;*
- *Persons responsible for implementing the works; and,*
- *Post construction monitoring and record dissemination for a period of not less than 25 years. All ponds to be added to the Wales Great Crested Newt Monitoring Scheme, (see <https://www.cofnod.org.uk/LinkInfo?ID=7> with individuals/bodies being identified as being responsible for monitoring and reporting works. Methodology shall include annual [or biennial] abundance counts and Habitat Suitability Index (HSI) assessments. Each water body shall be individually numbered on site. In respect of biennial surveillance, frequency of monitoring visits shall be increased in the event of fish and or aquatic invasive non-native species are detected.*

*The Conservation Plan shall be carried out in accordance with the approved details*

- 1.1.3 This GCN Mitigation Strategy details the measures that will be implemented for the protection of GCN during construction, and for habitat management and enhancement and does not infer the granting of a European Protected Species Mitigation (EPSM) Licence from Natural Resources Wales (NRW). Any subsequent licence application would draw heavily on the contents of this document and include as a minimum the measures contained herein.
- 1.1.4 The strategy and any subsequent licence application include measures to safeguard both individuals, and the favourable conservation status of the local population of this species in accordance with the Habitats Regulations 2017 (as amended), Wildlife and Countryside Act 1981 (as amended) and Policy EC6 of the Wrexham Unitary Development Plan.

## **1.2 Management Period**

- 1.2.1 This GCN Mitigation Strategy details the mitigation and enhancements to be undertaken with regards to GCN in relation to the construction of the Proposed Development and long-term monitoring and management to be undertaken for the benefit of GCN for a period of no less than 25 years, following completion of the BSF.

## **1.3 Responsibilities & Tenure**

- 1.3.1 The implementation of this GCN Mitigation Strategy and the associated habitat enhancement and creation will be the responsibility of the Site Developer (HD639LEG Ltd), the Site Manager (TBC) and their appointed contractors under the direction of a suitably qualified (GCN licensed) and experienced ecologist, as required.
- 1.3.2 The proposed habitat enhancements will be delivered off-Site but within land owned by National Grid, and leased to Pelagic Energy (The applicant). Pelagic Energy (or an appointed contractor or specialist conservation body) will be responsible for the maintenance of any mitigation for a period of no less than 25 years, following construction of the development. This responsibility will transfer to any subsequent site owner in the event of a change in ownership during the 25-year period.
- 1.3.3 The appointed contractor will require the necessary experience and certificate of competence to undertake landscape and ecological management operations on Site. The management organisation will ensure that management complies with this GCN Mitigation Strategy and conditions of any EPSM licence issued in relation to the Proposed Development. The management organisation is also responsible for complying with the provisions of the Health and Safety at Work Act and will ultimately be responsible for the health and safety of any habitat features created and will review health and safety as part of their regular inspections.
- 1.3.4 Should there be changes to the tenure of the land where compensation habitat are to be provided, this will be first approved by Wrexham Borough Council in consultation with NRW.

## **1.4 Legislation and Policy**

- 1.4.1 GCN are European Protected Species (EPS) and they and their habitat are fully protected under the Wildlife & Countryside Act 1981 (as amended) and the Habitats and Species Regulations 2017 (as amended). The combined legislation makes it illegal to:
- intentionally or deliberately capture, kill or injure a GCN;
  - intentionally or recklessly damage, destroy or obstruct access to any place used for shelter and protection including resting and breeding places, whether occupied or not;

- deliberately, intentionally or recklessly disturb a GCN when in a place of shelter;
- possess a GCN, or any part of it, unless acquired lawfully;
- sell, barter, exchange or transport or offer for sale GCN or parts of them.

1.4.2 Anyone carrying out activities which may affect EPS must consider the presence of EPS, their breeding sites and resting places.

## 1.5 Baseline Information

- 1.5.1 The Site occupies an area of land within the National Grid Legacy Substation, which is also designated as a Local Wildlife Site (LWS). The Johnstown Newt Sites SAC and the constituent Stryt Las a'r Hafod SSSI are located 2.03km south-east of the Site and are designated for their amphibian interests, including GCN. No other statutory designated sites for GCN are located within 10km of the Site.
- 1.5.2 The Site comprises neutral semi-improved grassland with areas of willow *Salix* sp. scrub at the western boundary. The grassland is relatively diverse, damp in places but much drier towards the east and north. This has developed as secondary grassland on an area previously subject to earthworks during the construction of the substation, when earthworks and soil movement along with bund creation took place. There appears to have been limited management of this grassland in recent years, with scrub encroachment across the grassland.
- 1.5.3 Immediately adjacent, to the north, east and west, are further areas of scrub and grassland, leading on to broad-leaved plantation woodland which covers the bund slopes. To the south of the Site there is the main Substation, comprising structures, hardstanding and bare ground.
- 1.5.4 A large bund forms the north, east and west boundaries of the Legacy Substation, the lower slopes of which is grassland and scrub, leading in to young/semi-mature broad-leaved plantation woodland which has colonised the bund slopes. The woodland contains frequent young self-seeded trees and supports a limited ground flora, with species present predominantly mosses, bramble *Rubus fruticosus*, and ivy *Hedera helix*.
- 1.5.5 The south facing inner slope of the bund and lower-lying land adjacent to the Substation, including the land within and surrounding the Site, consist of a mosaic of scrub and unmanaged grassland. The scrub is predominantly hawthorn *Crataegus monogyna* with some willow *Salix* sp., seedling birch and ash, dog rose *Rosa canina* and bramble. In some areas, particularly to the east, this mosaic includes tall ruderal species such as nettle *Urtica dioica* and willowherb *Chamerion angustifolium*. There is also a small area of partly bare ground with ephemeral/short perennial vegetation.
- 1.5.6 A pond (P1) is present on land to the east of the Site as shown on **Figure 2**. This pond is approximately 10m by 10m in size, containing a variety of marginal species including purple loosestrife *Lythrum salicaria*, bulrush *Typha latifolia*, bryophytes as well as occasional willow scrub and a small amount of New Zealand pygmyweed *Crassula helmsii* (a non-native invasive aquatic species listed under Schedule 9 of the Wildlife and Countryside Act 1981, as amended).
- 1.5.7 Another pond (P2) is present approximately 250m south of the Site (**Figure 2**). This was approximately 3m by 10m and associated species include bramble and willow scrub. This pond contained minimal amounts of water (less than 5cm) in September 2019 and was completely dry when surveyed in May 2020, appearing completely silted up and filled with leaf litter and plant debris.

## 2 POTENTIAL IMPACTS AND LICENCE REQUIREMENTS

### 2.1 Impacts

- 2.1.1 The Site lies within Legacy Substation LWS and the Proposed Development will result in direct land take (approximately 0.4ha) and permanent loss of terrestrial habitat comprising scattered scrub and species-rich grassland likely to be used by GCN for foraging and shelter. There will also be localised temporary disturbance and habitat loss, however once constructed, vegetation in these areas would be reinstated and would be available to GCN.
- 2.1.2 The Proposed Development is relatively small within the overall Substation and LWS. Habitat connectivity within the Legacy Substation and to terrestrial and aquatic habitat in the wider area will remain available outside the construction area, limiting the potential for adverse impacts on GCN movement, breeding and foraging opportunities.
- 2.1.3 Pond P1, confirmed as supporting GCN, will not be directly affected, but its proximity places it at some risk of indirect effects from construction due to surface water runoff and pollution, if not suitably controlled. Pond P2 is dry and overgrown and is not currently suitable for GCN; this pond also lies outside the Proposed Development area. No other waterbodies are affected by the proposal.
- 2.1.4 This process is briefly outlined below with approximate timescales for a 30-week construction programme (anticipated to be):
- Enabling Works: Initial site clearance, laying of permeable geotechnical membrane, such as Terram. The permeable hard surfacing and access track would then be built up on top of this membrane using hardcore aggregates (weeks 1-4);
  - Main Construction Phase: laying of support foundations and installation of the containers, which are pre-fabricated off-site and delivered as complete units; installation of the energy related components (e.g. transformers, inverters, switchgear etc), which would also arrive at the Site pre-fabricated (weeks 4-25);
  - Finishing Phase: Installation of fencing, completion of all electrical engineering connections and remedial landscaping works (weeks 25-30).
- 2.1.5 No additional surface water management or drainage is considered necessary as part of the Proposed Development (i.e. there will be no requirement for gully pots).

### 2.2 Licence Requirements

- 2.2.1 An assessment of potential impacts of the Proposed Development on GCN and the provision of this GCN Mitigation Strategy has been undertaken with reference to the NRW' *Template Method Statement to be used within a Great Crested Newt Development Licence Application*.
- 2.2.2 Anyone carrying out activities which may affect EPS must consider their presence, breeding sites and resting places. Based on the knowledge that GCN are likely to be present within the Site and the local area, construction activity and habitat loss associated with the development could result in an offence in the absence of mitigation and would therefore require a licence. The potential impacts (in the absence of mitigation) can be summarised as:

Short-term impacts: disturbance to terrestrial sheltering and foraging habitat and risk of killing and/or injuring GCN resulting from vegetation clearance works and construction activity.

Long-term impacts: loss of an area of potential foraging habitat and places of shelter and refuge resulting from removal of grassland/scrub vegetation.

Post-development impacts: no discernible impacts likely.

- 2.2.3 The predicted impacts are considered to be localised within the curtilage of the Legacy Substation, involving the loss of an area of good quality terrestrial habitat close to a confirmed GCN breeding pond.
- 2.2.4 A EPSM licence is likely to be required from NRW to allow the development to proceed lawfully.

## **3 MITIGATION STRATEGY**

### **3.1 Rationale and Approach**

- 3.1.1 Taking into consideration the baseline conditions at the Site, combined with an understanding of GCN habitat preferences and likely dispersal behaviours, it is considered possible to protect individual GCN potentially present and ensure the favourable conservation status of the local population through an appropriate mitigation strategy enacted under licence from NRW.
- 3.1.2 The Proposed Development will be undertaken under a EPSM licence for GCN granted by NRW, including detailed mitigation measures and Method Statement to ensure the continued favourable conservation status of local population of the species. Compensation and enhancement proposals will aim to replace the habitats that are to be lost or, where a lesser area of habitat is provided, provide enhancements to increase the carrying capacity of habitats. Any net loss of terrestrial habitat will be justified in the EPSM licence application and proposed mitigation and/or compensation measures will be provided.
- 3.1.3 The licence will contain a detailed description of how impacts will be addressed to ensure no detriment to the maintenance of the population at a favourable conservation status. The main elements of the proposed approach will include:
  - capture and exclusion measures for construction area, under licence;
  - supervision, monitoring and biosecurity;
  - off-site habitat compensation measures; and,
  - 'newt friendly' design features.

### **3.2 Capture and Exclusion Under licence**

- 3.2.1 The construction area (including temporary works compound etc.) will be subject to the capture and exclusion of amphibians undertaken on receipt of a EPSM licence issued by NRW. Exclusion fencing (temporary amphibian fencing or TAF) will be installed around the area to be cleared, with pitfall traps installed along the internal wall of the fence at a minimum 10m intervals, carpet tiles will also be used to assist the efficiency of the capture process.
- 3.2.2 The final fencing and pitfall trapping design and layout would be as agreed with NRW as part of a EPSM licence Method Statement for the Proposed Development, however fencing would follow the Site

boundary as shown on **Figure 1**. Fencing and pitfall trap specifications would follow those outlined within Section 8.4.2 of the Great Crested Newt Mitigation Guidelines<sup>1</sup>.

- 3.2.3 Fencing would utilise polythene sheets, woven polypropylene and/ or black polythene DPC or similar such material and be installed by a specialist contractor under supervision by a suitably licenced and experienced ecologist. Prior to the installation of fencing a fingertip search for amphibians would be undertaken by the ecologist, prior to vegetation clearance if required.
- 3.2.4 Pitfall traps would be placed at intervals of 10m to ensure a minimum trapping density of 50 traps per ha. In addition, carpet tiles would also be placed at 10m intervals between the pitfall traps. A summary of the pitfall trap density is given in **Table 3.1** below.

**Table 3.1: Summary of pitfall trap density**

|                                |             |
|--------------------------------|-------------|
| <b>Length of fencing</b>       | 285m        |
| <b>Fenced area</b>             | 0.39ha      |
| <b>No. Traps (10m spacing)</b> | 28.5        |
| <b>Equivalent traps per ha</b> | 73 traps/ha |

- 3.2.5 Pitfall traps and carpet tiles will be searched on a daily basis (before 10am) with caught individuals relocated to an agreed receptor location as outlined in the final EPSM licence Method Statement granted by NRW, likely to be the nearby on-Site pond and adjacent terrestrial habitat outside the construction area which has confirmed GCN presence. The capture of amphibians will be recorded and a log maintained to provide accurate accounts for licence returns. The standard trapping effort for a small GCN population is likely to require approximately 30 days in suitable weather conditions (temperatures above 5°C), however capture effort will be discussed and agreed with NRW as part of the consultation process.
- 3.2.6 Once reasonable capture and exclusion effort has been exhausted and the development area is considered clear of amphibians, all pitfall traps and carpet tiles will be carefully removed (under the watch of the project ecologist) and the Site released for development. The perimeter exclusion fence will be maintained throughout the development or until such time it is no longer required to prevent amphibians moving back into working areas. Fences will be regularly checked while in place to ensure their integrity and to maintain them in good repair.

### **3.3 Supervision, Monitoring and Biosecurity**

- 3.3.1 Licensed works will be supervised by a licensed ecologist who will liaise as necessary with the client team and site contractors. Supervision and monitoring will be set out in detail in the EPSM licence Method Statement.
- 3.3.2 Site staff will be informed via tool box talks of the licensed measures in place to safeguard GCN, and alerted to the requirement to avoid defined exclusion zones outside the construction area, in particular around pond P1. Exclusion zones will be identified on Site with clear fencing and signage and monitored as necessary by the licensed ecologist.
- 3.3.3 Tools and vehicles have the potential to transfer pests and disease from site to site and therefore site staff will be required to comply with bio-security measures outlined within Appendix A of the Construction and Environment Management Plan (CEMP) whilst undertaking works on site.

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<sup>1</sup> English Nature (2001) Great Crested Newt Mitigation Guidelines  
Legacy Substation Full GCN Mitigation Strategy

- 3.3.4 *Crassula helmsii* has been noted within P1. In addition, there is a risk to GCN and other amphibians through the spread of Chytrid fungus.
- 3.3.5 Any works in proximity to P1 or P2 will be undertaken in accordance with strict biosecurity procedures. This will include the use of a suitable disinfectant (e.g., Virkon) to clean all equipment and footwear prior to and following any activities in proximity to P1.
- 3.3.6 Should the use of funnel traps be required (e.g., as part of post-development monitoring), they will be used for one pond only, or thoroughly disinfected with a suitable disinfectant solution prior to re-use. All clothing and equipment used through the construction and monitoring phases of the Proposed Development will adhere to the Stop the Spread – Check, Clean, Dry procedure after each use. Any crassula removed from P1 will be placed at a distance of approximately 10m from the pond and allowed to compost naturally.
- 3.3.7 If any further invasive plant species are discovered on Site (such as Himalayan balsam *Impatiens glandulifera* or Japanese knotweed *Reynoutria japonica*), works in that location will cease and the project ecologist will be contacted immediately for specialist advice, in order to prevent the accidental spread of such species. The potential presence of invasive non-native species will be addressed as part of the induction tool box talk delivered to all site based operatives immediately prior to the commencement of site works.

### 3.4 Habitat Compensation and Enhancement Measures

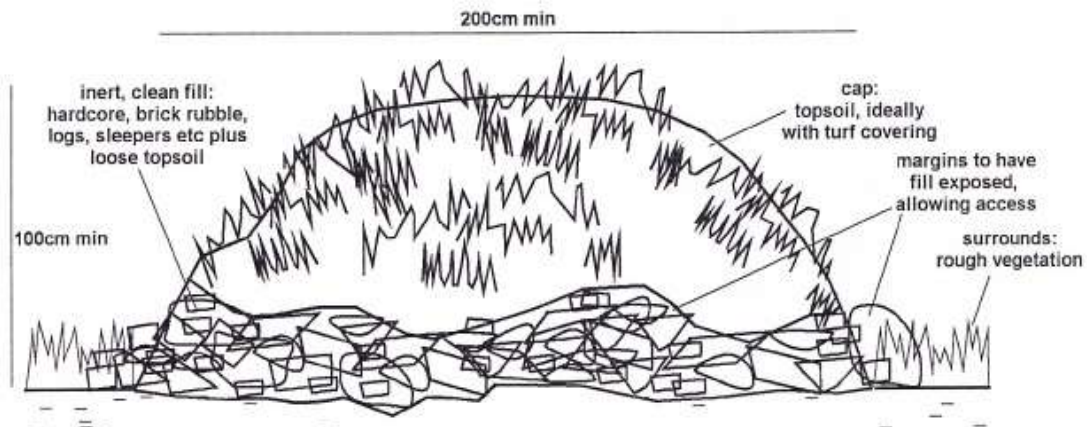
- 3.4.1 Mitigation for the Proposed Development addresses permanent terrestrial habitat loss potentially used by GCN, and the effects of temporary habitat disturbance during construction, as set out in the Ecological Assessment Report.
- 3.4.2 This will focus on the provision of enhanced habitats for GCN (and other wildlife) within the LWS. The GCN Mitigation Strategy will underpin any future licence application to NRW. As part of the licence application itself, a detailed Method Statement will set out measures for the protection of GCN during construction, and for habitat management and enhancement over the long term to maintain the favourable conservation status of GCN in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended).
- 3.4.3 Mitigation within the Legacy Substation will be achieved through targeted habitat enhancement and management, aimed at maintaining and enhancing habitats suitable for GCN (and other wildlife) within the LWS over the long term. Such measures will be agreed with National Grid as landowner, and are consistent with national Grid's own biodiversity objectives including driving biodiversity net gain and enhancing natural assets. Such measures will include:
- restoration of pond P2, which is currently dried out and unsuitable for GCN, to provide additional breeding and foraging habitat and strengthen habitat links to the local pond network;
  - Long term management of P1 and P2; and,
  - new hibernacula in proximity to ponds within the Legacy Substation.
- 3.4.4 Pond restoration and habitat enhancement will provide increased opportunities for GCN and other amphibian species within and around the Site, providing favourable breeding, refuge and foraging habitat and strengthening habitat linkages.
- 3.4.5 Due to the relatively limited scale of habitat loss and other impacts, along with the mitigation and enhancement that will be delivered, construction and operation of the BSF is not considered likely to detrimentally affect the status of local populations of GCN.

### **Restoration of Pond P2**

- 3.4.6 The pond will be re-profiled to provide a range of depths and will have an irregular shape. A shallow wetland shelf of less than 30cm will encourage a diversity of pond plants which in turn provides for invertebrates and egg laying substrate for newts. A bentonite liner will be used to provide a permanent waterbody, if required.
- 3.4.7 The pond re-profiling will be undertaken by a long-reach excavator (or similar), in order to undertake the works with the minimal amount of impact to immediately surrounding habitats as possible.
- 3.4.8 All works will be supervised and preceded by a fingertip search of habitats within and surrounding the dry pond (impact zone) by an Ecological Clerk of Works (ECoW). Contractors will be provided with a toolbox talk prior to works commencing. Works will be timed to minimise the potential for impacts, being undertaken in within the time-period when GCN are least likely to be present in ponds and when newt activity is at a minimum (November to February).

### **Hibernacula Construction**

- 3.4.9 Habitat creation and compensation specifically for amphibians but also benefiting other wildlife will also include the creation of four artificial hibernacula which will also be constructed within the LWS; these will provide safe refuge for amphibian (and other) species. These will follow the standard design as detailed in the *Great Crested Newt Mitigation Guidelines* (English nature 2001) and reproduced in **Diagram 1**.



**Diagram 1 Hibernacula design taken from the *Great Crested Newt Mitigation Guidelines* (English Nature 2001).**



***Photo 1 – Example of a hibernacula created based on the Great Crested Newt Mitigation Guidelines (English Nature 2001).***

- 3.4.10 The hibernacula will be set within grassland/marginal vegetation or woodland edge near to ponds to provide extra shelter. Each will comprise a mound of brick / stone rubble, boulders and logs capped with topsoil and turf (see Photo 1). Margins will be left exposed allowing amphibians to access the feature.
- 3.4.11 The development is not considered to result in barriers to dispersal for GCN.

### **3.5 Ongoing Habitat Management**

#### ***Pond Management***

- 3.5.1 P1 and P2 will be subject to annual routine management to maintain open water habitat with marginal vegetation.
- 3.5.2 Overly vigorous plant species may need to be cut back or removed from the pond. Management of aquatic vegetation should be undertaken annually (little and often) with vegetation thinned rather than removed. The pond should be managed to retain at least 35% to 60% of the surface as open water. Removed vegetation should be hand sorted to ensure no animals are caught up in the vegetation and left at the pond edge for at least 24 hours before it is removed from Site.
- 3.5.3 Herbicides should not be used within close proximity to ponds.
- 3.5.4 If fish are found to be present, appropriate remedial actions should be taken to remove fish from the pond (see Section 6).
- 3.5.5 Should water levels within the deepest area of the pond fall below half a metre, de-silting will be required (see Section 6)
- 3.5.6 Pond management work should be carried out from autumn through winter, typically 01<sup>st</sup> November to 31<sup>st</sup> January, when GCN are unlikely to be present in ponds.

- 3.5.7 Pond management work is designed to improve the breeding site and therefore there is little risk of damage or destruction occurring, as the features will be enhanced. Where work is carried out with sensible precautions, then the risk of deliberate killing, injuring or disturbing GCN and other wildlife can be greatly minimised. However, where significant management works are proposed (e.g., de-silting) or works are required outside the late autumn / winter period, it is advised that Wrexham Borough Council and / or NRW be contacted prior to any such works commencing.

### ***Hibernacula Management***

- 3.5.8 Monitoring of the hibernacula will be undertaken every two years (between July - September) following creation and will be repaired or built-up as and when required prior to the winter hibernation / dormancy period (typically November to February inclusive). Management will also include checking for and the removal of any barriers that may hinder GCN movements.
- 3.5.9 Cut material from vegetation management may be retained on Site and piled up in suitable locations or added to hibernacula to provide refuge for GCN and other species.
- 3.5.10 A licence from NRW or the presence of a licensed ecologist may be required, if hibernacula are required to be dismantled or moved for any reason. NRW and Wrexham Borough Council should be contacted prior to any such works commencing.

## **4 MONITORING AND REVIEW**

- 4.1.1 Monitoring will form part of the licence requirements from NRW and will include both surveys for GCN and checks on habitat mitigation and management. Habitat monitoring will involve an inspection of the restored P2 to ensure it is holding water and vegetation is establishing, regular monitoring of P1 as well as inspections of hibernacula and any other features to ensure that they are being managed as required. The results of the monitoring will be used to inform licence returns and any future changes in management to achieve the mitigation objectives. Management measures will be amended, if necessary, based on the monitoring recommendations.

## 5 POST CONSTRUCTION MONITORING & RECORD DISSEMINATION

### 5.1 Habitat Monitoring

- 5.1.1 The development of the biodiversity interest will be monitored over time; this will involve an annual walkover survey (between April and June), to inspect the pond, grassland and other ecological enhancement features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest. The results of these monitoring surveys will be used to inform future changes in management (for example amendments may be made to the timing or frequency of grass cuts or additional vegetation management in and around the pond to maintain open water).
- 5.1.2 Monitoring reports produced by the management organisation will be presented to Wrexham Borough Council in years 1, 3, 5 and then at 5-year intervals following completion of the development for no less than 25 years, unless otherwise agreed with Wrexham Borough Council. The monitoring reports will be submitted to Wrexham Borough Council by 30<sup>th</sup> November and will include a description of habitat condition of ponds and hibernacula, detail of management works undertaken and any remedial actions that are considered necessary to ensure the habitats are being managed effectively for GCN and other wildlife.
- 5.1.3 The key performance indicators against which the success of monitoring and management practices will be reviewed are summarised in Table 5.1.

**Table 5.1 - Key performance indicators to assess management**

| Habitat Feature | Condition Indicator                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | Good                                                                                                                                                                                                                                                                                                                                      | Poor - with typical rectification actions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Pond            | <ul style="list-style-type: none"> <li>Pond establishing/established well, with marginal and aquatic vegetation present and water permanently present (season fluctuations in levels are acceptable).</li> <li>Appropriate balance of open water (at least 35% and 60% open water), aquatic and margin cover/shade maintained.</li> </ul> | <ul style="list-style-type: none"> <li>Pond dry or failing to hold sufficient water.<br/><i>Design rectification required – e.g., bentonite liner.</i></li> <li>Aquatic and marginal vegetation not present and colonisation not occurring<br/><i>Planting required.</i></li> <li>Excessive shrub encroachment (margins) or over-growth of aquatic vegetation and loss of open water.<br/><i>Vegetation management required to maintain proportion of cover at optimum levels for GCN and other aquatic species.</i></li> </ul> |
| Hibernacula     | <ul style="list-style-type: none"> <li>Constructed hibernacula in place with no evidence of collapse or loss of covering material.</li> </ul>                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Hibernacula showing signs of collapse and / or loss of covering material<br/><i>Add further covering material such as turves / logs / inert rubble in line with design specification.</i></li> </ul>                                                                                                                                                                                                                                                                                     |

### 5.2 Great Crested Newt Monitoring

- 5.2.1 P1 and P2 will also be added to the Wales GCN Monitoring Scheme with biennial abundance counts and Habitat Suitability Index (HSI) Assessments undertaken, and results entered through Cofnod Online Recording Scheme (ORS). Monitoring will commence the first year following completion of the development and then undertaken every second year for a period not less than 25 years.

- 5.2.2 The abundance counts and HSI surveys will be undertaken by GCN licensed surveyors either as part of the management agreement (as set out in Section 1.3) or by a licensed ecologist appointed separately by the landowner.
- 5.2.3 The abundance counts will comprise three torch light surveys between mid-March and mid-June with at least one survey undertaken between mid-April and mid-May. Egg searches will also be undertaken to confirm use as a breeding site for GCN.

## **6 REMEDIAL ACTIONS**

- 6.1.1 Any remedial actions required (e.g., the removal of any introduced fish from the pond, desilting etc.) will be undertaken with appropriate safeguards in place. The appointed management company should first consult with Wrexham Borough Council and NRW prior to undertaking any such remedial actions.
- 6.1.2 GCN newt larvae and their eggs are vulnerable to predation by fish introduced accidentally or deliberately. The introduction of fish can be a significant cause of decline in GCN populations; therefore, should fish be found present within the pond as part of post construction monitoring, removal of fish may be required. There are several measures which could be employed including netting or drain down of the pond which may be effective on a small pond but the proposed methods must be agreed with NRW and relevant permissions obtained.
- 6.1.3 Following any fish removal or control activities, survey work will be required to assess the effectiveness of the measures and response of the GCN at the pond.
- 6.1.4 If an invasive non-native invasive species (INNS) is recorded within P1, P2 or around any of the created hibernacula, remedial actions will be required to control and where possible eradicate the INNS. Faunal species will be controlled in a similar manner as proposed for fish. Plant species will be selectively treated using an appropriate method, such as extraction and removal from Site (as a controlled waste) or through treatment using an approved herbicides (herbicides should not be used near the pond). A contractor that specialising in the management of INNS, with the required certifications, should be commissioned to advise on and undertake treatment works.
- 6.1.5 Should water levels within the deepest area of P1 or P2 fall below half a metre, de-silting will be required. Where de-silting works require the use of a long-armed excavator, entry and access to the pond should be limited to one point or section of bank (avoiding hibernacula and potential places of shelter).

## 7 TIMING AND SEQUENCING OF ACTIVITIES

7.1.1 **Table 7.1** presents the sequence of activities associated with the construction and proposed delivery of the GCN mitigation.

**Table 7.1: Pre, mid and post development works (other than monitoring/ maintenance)**

| Activity                                    | Timings                                                                                       | Comments                                                                                |
|---------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Creation of hibernacula/ refugia            | Post-construction                                                                             |                                                                                         |
| Installation of exclusion and drift fencing | Immediately prior to commencement of exclusion                                                | Post grant of licence.                                                                  |
| Pitfall trapping and exclusion of GCN       | February to October (dependant on suitable conditions (i.e, evening temperatures above 5°C.)) | Minimum of 30 days, ceasing only after 5 'clear' nights.                                |
| Removal of drift fencing                    | -                                                                                             | Following completion of trapping and exclusion efforts.                                 |
| Construction of Scheme                      | -                                                                                             | Following completion of trapping and exclusion efforts. Approximately 30-week schedule. |
| Removal of exclusion fencing (TAF)          | Avoiding winter hibernation period (November to February)                                     | Following completion of construction works.                                             |
| Pond restoration of P2                      | November to February                                                                          | To be undertaken in the first suitable period post-construction                         |
| Scrub clearance around ponds (if required)  | September to February                                                                         | To avoid nesting bird season                                                            |

## 8 TIMETABLE FOR MANAGEMENT, MAINTENANCE AND MONITORING

### KEY

|                                                                                   |                                                                                        |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|  | No works programmed                                                                    |
|  | Management works can be undertaken but not the preferred period                        |
|  | Recommended period for undertaking management works                                    |
|  | Works only required if conditions / monitoring demonstrate that management is required |

| Management & Maintenance                                                                                                                                                                                                 | Years 1 -25 following completion of the residential development (minimum management period unless otherwise agreed with the Wrexham Borough Council) |     |     |     |     |     |     |     |      |     |     |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
|                                                                                                                                                                                                                          | Jan                                                                                                                                                  | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
| General Management and Maintenance – litter picking from both terrestrial and aquatic habitats (leaving soft pliable debris within the pond between March & June inclusive) and repairs to fences and gates as required. | *                                                                                                                                                    | *   | *   | *   | *   | *   | *   | *   | *    | *   | *   | *   |
| Pond - Annual routine management and removal of overly vigorous or invasive plant species                                                                                                                                | *                                                                                                                                                    |     |     |     |     |     |     |     |      |     | *   | *   |
| Pond - De-silting (only if required)                                                                                                                                                                                     | *                                                                                                                                                    |     |     |     |     |     |     |     |      |     | *   | *   |
| Pond – Cut back encroaching scrub on a phased basis in particular where overshadowing ponds.                                                                                                                             | *                                                                                                                                                    | *   |     |     |     |     |     |     | *    | *   | *   | *   |
| Hibernacula – No set maintenance programme. Repaired or built up as and when required, prior to the winter dormancy / hibernation period (taking account of relevant wildlife legislation)                               |                                                                                                                                                      |     | *   | *   | *   | *   | *   | *   | *    | *   |     |     |

| Monitoring                                                                                                                                                                                                                                                                         | Years 1 -25 following completion of the residential development (minimum management period unless otherwise agreed with the Wrexham Borough Council) |     |     |     |     |     |     |     |      |     |     |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
|                                                                                                                                                                                                                                                                                    | Jan                                                                                                                                                  | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
| Annual checks of the pond and other ecological enhancement features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest.                                                                                                           |                                                                                                                                                      |     |     | *   | *   | *   |     |     |      |     |     |     |
| Biannual population monitoring. The pond will also be added to the Wales GCN Monitoring Scheme with biennial abundance counts and Habitat Suitability Index (HSI) Assessments undertaken and results entered through Cofods Online Recording Scheme (ORS).                         |                                                                                                                                                      |     |     | *   | *   | *   |     |     |      |     |     |     |
| Monitoring reports will be presented to Wrexham Borough Council (by 30 <sup>th</sup> November) in years 1, 3, 5 and then at 5-year intervals following completion of the residential development for not less than 25 years, unless otherwise agreed with Wrexham Borough Council. |                                                                                                                                                      |     |     |     |     |     |     |     |      |     | *   |     |

| Activity                                                                                                                                                          | Year following construction |   |   |   |   |                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---|---|---|---|---------------------------------------|
|                                                                                                                                                                   | 1                           | 2 | 3 | 4 | 5 | 6-25                                  |
| Population monitoring at P1 and P2                                                                                                                                | X                           |   | X |   | X | Biennially (i.e., years 7, 9, 11 etc) |
| Checks of the pond and other ecological enhancement features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest. | X                           | X | X | X | X | Yearly                                |
| Habitat Management/ Site Maintenance (as required following above checks)                                                                                         | X                           | X | X | X | X | Yearly                                |
| Submission of Monitoring Reports                                                                                                                                  | X                           |   | X |   | X | 5-yearly (i.e., years 10, 15, 20 etc) |

## FIGURES

FIGURE 1: SITE LOCATION PLAN



FIGURE 2: POND LOCATION PLAN

