

Method Statements for Great Crested Newt, bats, European Badger and European Otter

Proposed development of a solar PV array at
Williams Farm, Wrexham, Wales.

Prepared for: Solar Ventures Limited

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Report title:	Method Statements for Great Crested Newt, bats, European Badger and European Otter: Development of a solar PV array at Williams Farm, Wrexham, Wales.
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Date checked:	15 th October 02015
Version number and issue date:	Version 1.2, 15 th October 02015

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1.0 Instruction and limitations

The Magnificent Science Company Limited were instructed by Solar Ventures Limited to produce method statements for Great Crested Newt, European Badger, European Otter and bats in support of a planning application for the development of a solar PV array at Williams Farm, Wrexham, Wrexham County, Wales.

These method statements are a response to a specific instruction for a specific end use, specific site layout with regard to habitat as present at the time of the site visit and proposed development. They are prepared for the sole use of Solar Ventures Limited and their planning consultant, XL Planning Limited.

For the avoidance of doubt, any duty of care to any other end users or third parties is specifically excluded. If a period of one year passes prior to commencing site operations, further survey work may be required to ensure compliance with the statutory legal responsibility of the developers. These method statements will require a re-write in the case of any change of boundaries, plans, location of amenity areas or buildings, planting schemes, changes of use of the wider area or buildings and/or end use to ensure its fitness for purpose.

The plan submitted to us by the client that was used for the ecological assessment and management plan was entitled 'Site layout: Installation of a 5.5 MW solar farm for Solar Ventures Ltd @ Williams Farm, Wrexham, LL13 9XS' [file name 'SITE LAYOUT (1-1250 on A0)'].

Assignment of these method statements without the written consent of The Magnificent Science Company Limited is forbidden. An assignment can be easily arranged but will require a re-write in the case of any change of boundaries, plans, location of amenity areas or buildings, changes of use of the wider area or buildings and/or end use to ensure its fitness for purpose, for which a small fee is levied. Please contact The Magnificent Science Company Limited for assignments at projectmanager@magnificentscience.com.

These method statements are available in alternative formats on request including electronic PDF formatted for screen readers, large print and audio MP3.

2.0 Introduction and site description

The site at Williams Farm, Wrexham, North Wales is approximately 4.75km to the south-east of the centre of the town of Wrexham, and 2.65km from the outskirts of the urban boundary, at national grid reference SJ 38041 48342. It is situated within an industrial estate area, to the south of the main Wrexham Industrial Estate. Industrial units flank an approximate 180 degree

circumference of the site from the north-north-east to the west-south-west; with a smaller industrial unit to the south of the site. The surrounding landscape is low-lying/flat grazed grassland of improved and semi-improved character, with some arable fields and woodlands.

The development site itself is approximately 12.3 hectares in area and comprises predominately sheep-grazed semi-improved neutral grassland, with small areas of semi-natural broadleaved woodland and large standard trees. The River Clywedog runs west to east through the north-western area of the site and is a tributary of the River Dee. The boundaries of the site comprise post-and-wire fencing, with some intact native species-rich hedgerows along the north-eastern perimeter, as well as a section of the southern boundary and species-poor hedgerows on the remaining boundaries; both hedgerow types contain large trees. Within the site the hedgerows are defunct and species-poor.

The topography of the site slopes down to the River Clywedog with the lower fields acting as a floodplain. There is good connectivity from the site to patches of local ancient semi-natural broadleaved woodland, as well as a conifer plantation. Connectivity to the wider landscape is mainly via the river, fringed with mature broadleaved woodland along sections of its bank, running west to east on site. The river on the site follows a natural meandering course only channelled through a small section under a bridge at the far eastern end of site. The site has large standard trees in the fields, as well as in the hedgerows and boundaries which connect to the adjacent land (including woodland and scrub).

The original Phase 1 habitat survey map with boundaries is presented in Figure 1; Figure 2 presents the site layout map for the proposed development.

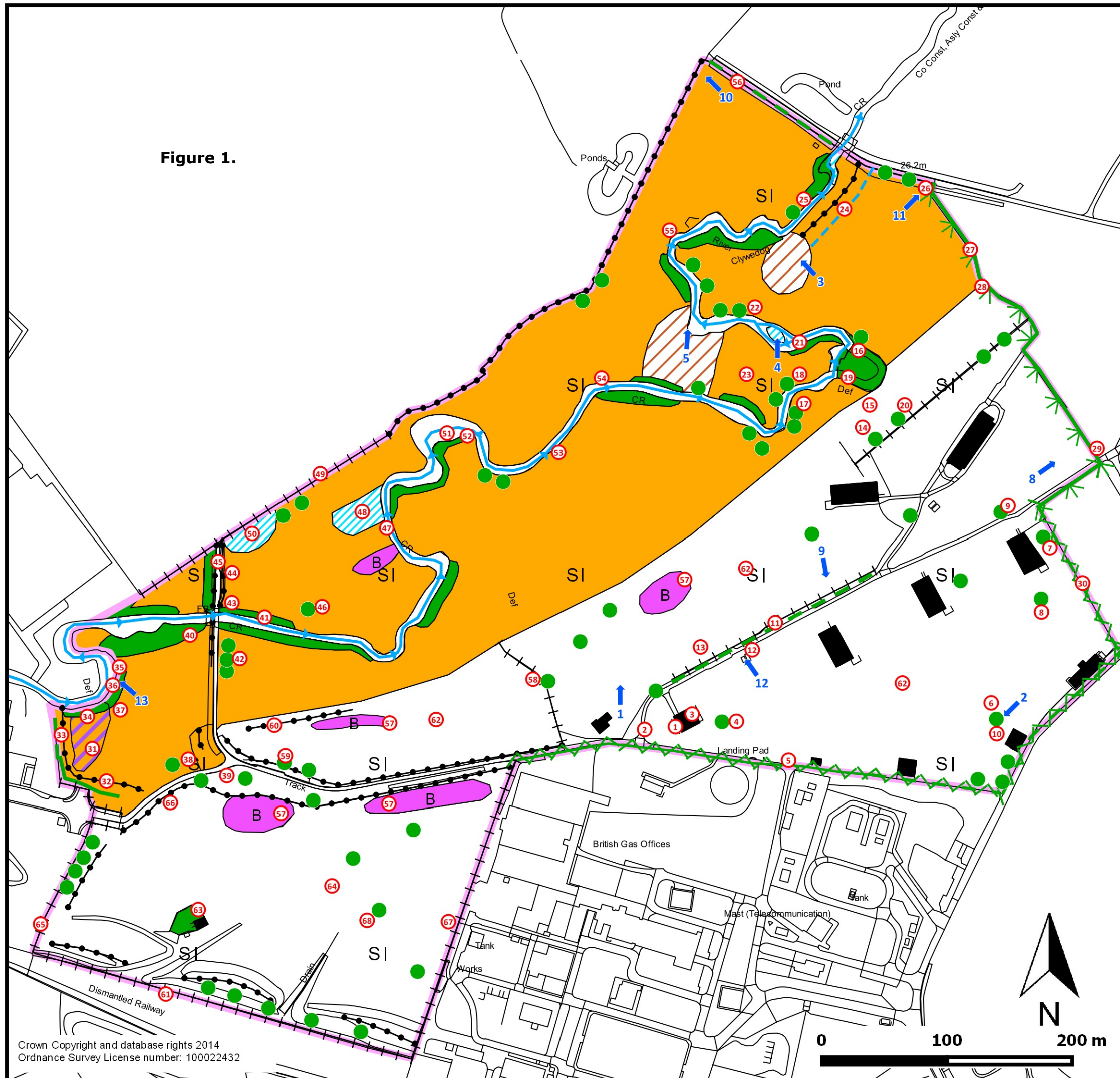
3.0 Method Statements

The method statements given below for Great Crested Newt, bats, European Badger and European Otter all follow the same layout. Firstly a summary is given of the results of the extended Phase 1 habitat survey; methods are then outlined for the protection of the species concerned during the groundworks/enabling works phase of the development and then the construction phase.

The operational phase of the development is intended to run for 25 years. Measures and enhancements for biodiversity, along with habitat management for this operational phase, are given in *Habitat Management Plan: Proposed development of a solar PV array at Williams Farm, Wrexham, Wales* (The Magnificent Science Company Limited, 2015).

The decommissioning phase is planned to take place 25 years hence. Monitoring data collected during the operational phase (see the *Habitat*

Figure 1.



Crown Copyright and database rights 2014
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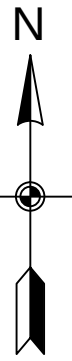
Key

- Semi-natural broad-leaved woodland
- Semi-improved neutral grassland
- SI Poor semi-improved grassland
- Marshy grassland
- B Basic flush
- Tall ruderal
- Inundation vegetation
- Marginal vegetation
- Buildings
- Native species-rich hedgerow
- Native species-rich hedgerow and trees
- Species-poor hedgerow
- Defunct hedgerow, native species-rich
- Defunct hedgerow, species-poor
- Running water
- Dry ditch
- Earth bank
- + Fence
- Standard trees (Parkland and scattered trees)
- Target notes
- ↑ Photograph number & direction
- Site boundary

Williams Farm Solar Farm
Phase 1 Habitat Map
Client: Solar Ventures Limited
Location: SJ 38153 48382
Mapped by: KD GIS mapping: FFM
Issued: 07.11.2014

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Figure 2.



KEY

- PROPERTY BOUNDARY
- PROPOSED DEVELOPMENT BOUNDARY
- PERIMETER FENCE
- PV PANELS
- DNO BUILDING
- CSS
- INVERTER

B	09.06.15	DEVELOPMENT BOUNDARY MODIFIED (SHT 01: J1)
A	17.04.15	BOUNDARY MODIFIED FOR ACCESS
REV	DATE	COMMENTS

WILLIAMS
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DRAWN BY M.MURPHY	
DATE 13/04/2015	
TITLE SITE LOCATION PLAN PROPOSED	

DRAWING NUMBER	WIL-20115-9010-01-010
SCALE 1:1250	@ A1 SHEET 01 OF 09 REV B

Management Plan (The Magnificent Company Limited, 2015)), plus any additional ecological surveys required, will be used to inform and steer the ecological mitigation measures necessary for the decommissioning process.

An Ecological Clerk of Works from the Magnificent Science Company Limited will oversee the mitigation measures as presented below in the method statements. Table 1 on page 14 at the end of section 3 outlines the measures required for all species concerned, giving a timetable for their implementation.

3.1 Great Crested Newt

No Great Crested Newts (*Triturus cristatus*) were recorded during the survey, although they were not specifically surveyed for. There were two records of Great Crested Newt, both recorded during the breeding season, at SJ381488 (just to the north of the site) in 2012 and at SJ375477 (to the south-west of the site) before 2007. A large population of Great Crested Newts (over 500) were translocated from the site of the proposed Wrexham prison to land north of the river, 'GCN Mitigation Land' (see Figure 3). The breeding pond lies between 200 – 250 metres from the development site (pers. comm.) and the wider landholding containing the proposed solar PV array lies close to the southern boundary of the 'GCN Mitigation Land' as outlined in blue on Figure 3.

The solar PV array development site therefore lies within an area of high Great Crested Newt density and although the grassland on site represents sub-optimal habitat, it is highly likely that it will be used for foraging, hibernating and dispersing newts. There are a number of rubble piles on site, as well as tree roots which could be used as hibernacula and refuges, as would the native species-rich hedgerow and trees along the eastern boundary of the site. The watercourse has both shallow, slow-running areas with pools, alongside the faster flowing main river. The river has vegetated islands, along with well-developed marginal and inundation vegetation; these areas provide opportunities for egg laying, particularly for amphibians. The deeper pools are suitable for mating displays during the breeding season.

The river, to some degree, acts as a natural barrier to any of the newt species on the north of the site due to the fast-flowing nature.

All construction work associated with the proposed development of the solar PV array will be carried out under a Great Crested Newt derogation licence, which will be applied for from Natural Resources Wales if planning permission is granted. A low impact on the local population of Great Crested Newts is predicted overall (using English Nature, 2001), with probable significant impact during the construction phase. This impact will however be significantly reduced by the exclusion of newts during the construction phase, combined with habitat enhancement across the whole development site and adjacent land set-aside for newts. This land will be managed for wildlife, particularly

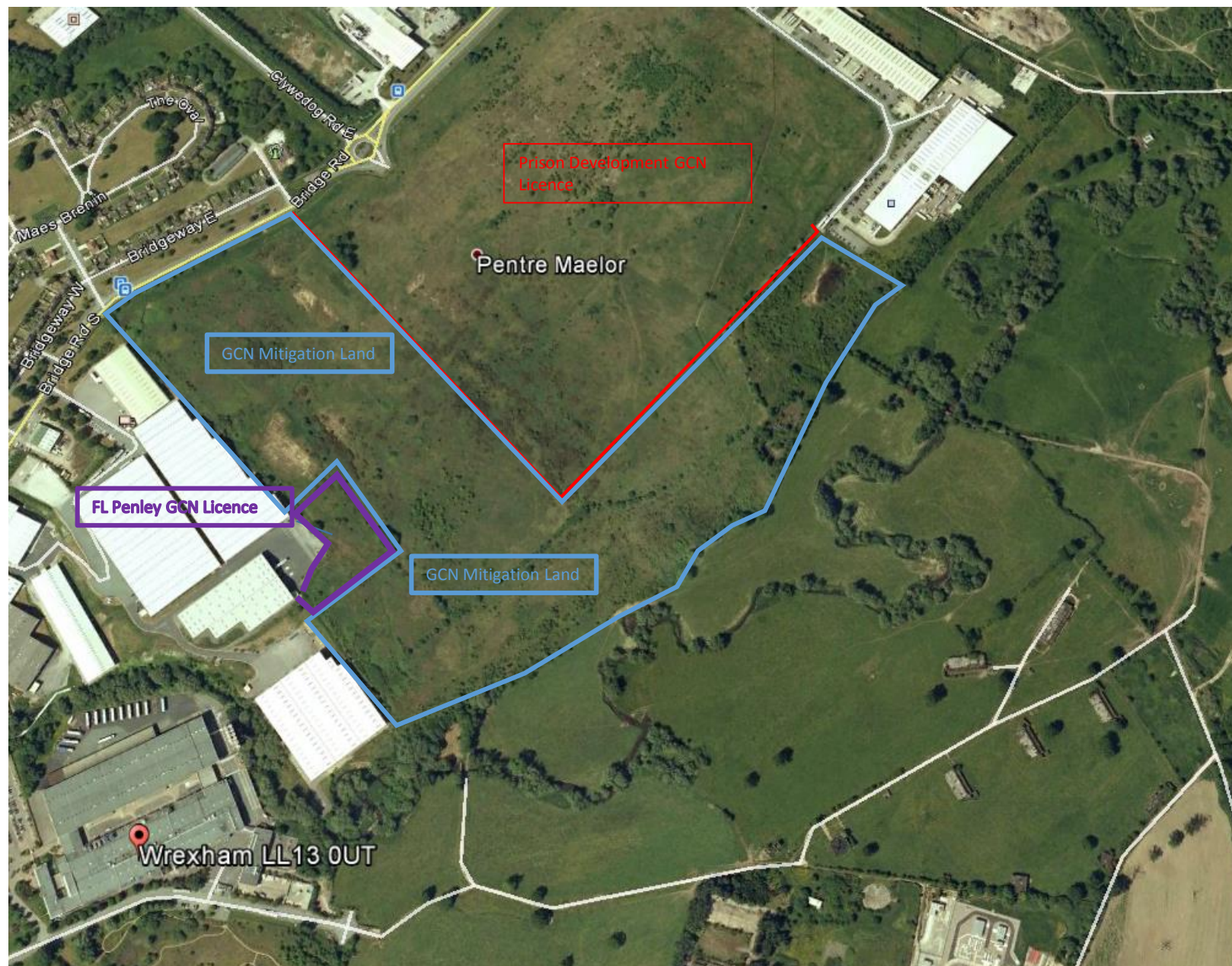


Figure 3.

All amphibians and reptiles have been translocated into the mitigation area . Both GCN (Great crested newts licences are still active .

newts, with monitoring being carried out over the lifespan of the solar PV array.

3.1.1 Groundworks/enabling phase

3.1.1.1 Creation of GCN Mitigation Area

The areas outside the development site but within the landholding (land shown within the blue line on Figure 2 but outside of the red area) will be managed for wildlife with Great Crested Newts (GCNs) in mind and will become the GCN Mitigation Area. The management of this area for GCNs will commence as soon as the derogation licence has been granted. Two ponds will be created within the GCN Mitigation Area, both within the floodplain area. The adjacent hedgerows will be managed appropriately and new refugia for herpetofauna will be created. Please refer to the accompanying *Habitat Management Plan* for further details concerning habitat management of this area, as well as for the site as a whole, along with their timings for implementation.

3.1.1.2 Capture and exclusion of GCN

The method of using drift fencing with pitfall traps will be used to capture GCNs within the development site, with their removal to the adjacent GCN Mitigation Area. One-way fencing will be used along the northern and eastern perimeter of the development site, allowing GCN to move into the GCN Mitigation Area, which is immediately adjacent, but not return. Total exclusion fencing with pitfall traps will be erected along the rest of the site perimeter. Lines of drift fencing, again with pitfall traps, will be erected within the development site, dividing it into compartments and allowing for successive clearances of compartments. Within each compartment more drift fencing will be erected in lines (with pitfall traps). Particular attention will be paid to potential refugia on site, including the defunct hedge, trees and piles of rubble/dead wood. This fencing will be erected in late-February, and the pitfall traps will be placed every ten metres along their length, at a minimum trap density of 80 traps per hectare. Trapping will take place for a minimum of 60 (suitable) nights or until no newts have been trapped for a minimum of five (suitable) nights. The methodology outlined in the Great Crested Newt Mitigation Guidelines (English Nature, 2001) will be followed. All newts trapped will be placed within the GCN Mitigation Area as soon as possible after trapping.

All fencing will be checked daily, during the emptying of the pitfall traps, for holes and the bridging of it by vegetation, and appropriate remedial action taken.

Searches along the fence-lines using torches will be undertaken on some warm and wet nights to increase the newt capture rate.

Once the capture and exclusion programme has been completed, the internal fencing and all pitfall traps will be carefully removed, with any additional newts found taking refuge in gaps between the fences, traps and the ground being captured and transferred to the GCN Mitigation Area.

All of the above work, including the erection and removal of all fencing; the setting, emptying and removal of pitfall traps and the torchlight searches will be supervised by the GCN license holder.

3.1.1.3 Creation of Construction Exclusion Areas

No development work will be undertaken within 12 metres of the hedgerows and mature trees on site, as well as around the perimeter of the site. These areas will be protected during the groundworks and construction phases of the development, with stock fencing being utilised to create Construction Exclusion Zone (CEZs) once all Great Crested Newts have been removed from the development site. These CEZs will be in place prior to the commencement of any construction work and will remain in place until all construction work has been completed and all associated materials, machinery etc. have been removed from the site. No development work will be undertaken within the CEZs and no materials, machinery, chemicals etc. will be stored within these zones.

The lower half of the CEZ fencing will be made from Temporary Newt Exclusion fencing (see section 3.1.1.2 above for more details).

The construction and erection of this fencing will be overseen by the Ecological Clerk of Works.

3.1.1.4 Training of site personnel

All staff working on site will be made aware that the local area supports populations of Great Crested Newts, as well as other amphibians and reptiles, during the initial site induction and regular tool box talks. All contractors will be made aware of how to identify this species. To aid identification, a poster with photographs will be used during tool box talks and pinned on a site notice board. It is important to inform workers that newts are harmless and the best option if encountered is simply to leave the animal alone and inform the Ecological Clerk of Works, so that it can be moved to the GCN Mitigation Area by a suitably licenced ecologist.

As a matter of general good ecological practice, an understanding of amphibians and the undertaking of sympathetic working practices will reduce the likelihood of an encounter with and harm to them.

Sympathetic working practices include:

- Avoiding creating potential refuges; amphibians will utilise stacked

materials such as wood, stone, boards or metal sheets as refuges. Keep the site tidy and stored materials off the ground – for example on pallets where possible.

- Should it be necessary to store materials such as topsoil on site then the stockpile should be smoothed to prevent access by amphibians into potential cavities.

3.1.2 Construction phase

3.2.2.1 Checking of mitigation measures

The mitigation and compensation measures put in place during the groundworks / enabling works phase will be checked as follows:

- 1) the maintenance and management of the GCN Mitigation Area;
- 2) the checking and maintenance of the temporary newt exclusion fencing around the perimeter of the site.

3.2.2.2 Continued training of site personnel

All staff working on site will continue to be made aware of Great Crested Newts during their initial site induction and regular tool box talks. All contractors will be made aware of how to identify this species and informed that if a newt is encountered they leave the animal alone and inform the Ecological Clerk of Works, so that it can be moved to the GCN Mitigation Area by a suitably licensed ecologist. All procedures outlined in section 3.1.1.4 above will continue to be adhered to.

3.2.2.3 Removal of temporary newt exclusion fencing

The temporary newt exclusion fencing will be removed once all construction work has been completed and all materials, machinery etc. associated with construction have been removed from site. The removal of this fencing will allow the site to be used by Great Crested Newts once the ground has been recolonised by vegetation.

3.2 Bats

During the survey a number of potential bat roosting sites were noted. These include the mature trees in the grassland fields and the broadleaved woodland along the river. Some of the trees were of higher potential for bats as they had cavities and/or had large amounts of Ivy (*Hedera helix*) for bats to shelter in and to roost.

Some of the buildings also had bat roosting potential. The enclosed buildings provide a dark, cool, damp environment with a constant temperature suitable for hibernating bats. The roofs are flat with no voids and are not tiled or lined

so are not suitable for the crevice-liking species of bats. Attached to one of the buildings are drains with concrete chambers (see target note 12 on the original Phase 1 habitat map – Figure 1). These have potential to provide hibernation opportunities for bats depending on the material inside for perching and the environmental conditions. Signs of bats were looked for during the extended Phase 1 habitat survey although none were seen (not all areas were inspected). The large amount of debris on the floors made it difficult to detect droppings. Two of the buildings are closed with small entrance holes and have roosting opportunities inside where brickwork has deteriorated and lost its mortar, thus providing suitable cavities.

The broadleaved woodland, hedgerows, mature trees and grassland on site, along with scrub on adjacent land, provide suitable commuting corridors and foraging opportunities for bats. The river and its associated riparian habitats to the north of the site have high potential for invertebrate prey for foraging bats. As mentioned above there is potential for some species of bat to roost in the mature and semi-mature trees on site (ivy-clad, lifted bark and crevices). The hedgerows are linked to a much larger woodland complex to the south of the site, as well as connecting to other hedgerows and watercourses in the surrounding landscape. It is highly likely that bats will be using this site for foraging and possibly for roosting including during winter hibernation.

All the existing hedgerows on site, including both the site boundary hedges and those forming internal boundaries are to be retained. This includes all the mature and semi-mature trees on site. The buildings are also being retained.

3.2.1 Groundworks/enabling phase

As mentioned in section 3.1.1.3 no development work will be undertaken within 12 metres of the hedgerows and mature trees on site, as well as around the perimeter of the site. These areas will be protected during the groundworks/enabling works and construction phases, with stock fencing being utilised to create Construction Exclusion Zone (CEZs). These CEZs will be in place prior to the commencement of any construction work and will remain in place until all construction work has been completed and all associated materials, machinery etc. have been removed from the site. No development work will be undertaken within the CEZs and no materials, machinery, chemicals etc. will be stored within these zones.

Any bat roosts in the mature trees, along with hedgerows forming flight lines and feeding corridors will be protected within these CEZs.

There will be no lighting on site during any phase of the work. If any emergency lighting is required it will be kept to a minimum and be directional, with no light falling on the hedges, trees or the semi-improved grassland surrounding the development site.

3.2.2 Construction phase

The Ecological Clerk of Works will oversee and check the maintenance of the CEZs, as well as any site lighting.

3.3 European Badger

No European Badger (*Meles meles*) setts were recorded on site during the extended Phase 1 habitat survey. However badger feeding signs were recorded along the north-eastern boundary just south of the River Clywedog, where there were two possible entrance points in the fence /hedgerow identified (see target note 26 on Figure 1 above). A badger path runs along the field from the disused railway footpath and a latrine was found near the feeding remains used by badgers to mark the edge of their territory on the boundary of the site.

A badger sett was identified nearby (approximately ten metres from the boundary fence located on adjacent land, and approximately 240 metres away from the nearest solar PV arrays). The sett is far enough away on stable ground to not be affected by the proposed development. However it is important to not obstruct their access to foraging and paths, and there should not be a loss of foraging land.

3.3.1 Groundworks/enabling works phase

Immediately prior to any groundworks and the enabling works phase commencing, re-survey of badger activity will be undertaken on the site. This is primarily to identify any new setts or areas of badger activity within the site. This re-survey will be undertaken by a suitably qualified ecologist.

As there are no areas of dense scrub or woodland on site that are due to be removed to make way for the development, any new setts found are likely to be along the existing field boundaries within the hedgerows. As mentioned above, these areas are protected within the CEZs and therefore the closing and destruction of a badger sett is very unlikely.

In the event that a badger sett is found on site, and within ten metres of the proposed development works, the appropriate licence would be obtained from Natural Resources Wales.

All fencing, whether temporary or permanent, will allow badgers as well as other mammals to pass through. This will be achieved by ensuring a gap of at least 200 mm between the bottom of the fencing and ground level. Ideally this gap should be left along the entire length of the fencing; if not, then a gap of this depth will be left at regular intervals of a maximum of every 50 metres along the fence. Gaps will be left where any badger paths cross the fence line.

An Ecological Clerk of Works will oversee and check the implementation of the CEZs.

3.3.2 Construction phase

To minimise any impacts on European Badger (along with other mammals including West European Hedgehog (*Erinaceus europaeus*) and Red Fox (*Vulpes vulpes*)) during the construction phase, no open trenches will be left at night to prevent animals becoming trapped. If trenches are to be left open then slopes with gradients of no more than 45° will be created at a maximum of 20 metre intervals leading from the base of the trench to the ground above (at 90° to the trench itself). The Ecological Clerk of Works will check any trenching.

The Ecological Clerk of Works will oversee and check the maintenance of the CEZ.

3.4 European Otter

There is suitable habitat for European Otter (*Lutra lutra*) along the river and its bank to the north of the development site. The river follows a naturally meandering course proving suitable habitat for travelling and foraging, as well as for their holts. The otter is a mobile, wide-ranging species (on land and water) requiring large territories. A number of otter activity locations along the river were identified, including an otter slide along the river bank at the far western end of the side and a spraint near to the bridge in the north-west corner (see target notes 36, 43 and 54 on the original Phase 1 map – Figure 1). Otter prints and slides were noted near the deeper, slower sections of the river where there were also lots of branches piled on the side of the banks. A possible holt was recorded along the river within its central section (see target note 47).

The river and associated riparian habitats, including the semi-improved neutral grassland within the floodplain, lie outside of the development site, to the north and so no development will take place within this floodplain area.

3.4.1 Groundworks/enabling phase

CEZ fencing along the northern boundary of the site will prevent machinery going into the floodplain area, as well as preventing materials and chemicals etc. being stored there.

A silt fence will be erected along the break of slope forming the northern edge of the development area, with the aim of minimising runoff from the land into the river. This silt fencing will be placed in conjunction with the CEZ fencing and that erected to exclude Great Crested Newts. The Ecological Clerk of Works will oversee the erection and maintenance of the silt fencing.

The on-site development team should be made aware of pollution prevention measures. These are contained within the *Pollution control* document produced by Solar Ventures Limited (Solar Ventures Ltd, 2015).

3.4.2 Construction phase

The Ecological Clerk of Works will oversee and check the maintenance of the CEZ fencing and the silt fencing along the site's northern boundary.

Sarah Board BSc (Hons) MSc MCIEEM

Ecologist

pp.



Peter McCann-Downes BSc (Hons) ACSM

Director

For The Magnificent Science Company Limited, October 02015

Table 1. Protective measures and their timings.

Protective (mitigation) measure	Requirements	
	Groundworks/enabling works (spring 2016)	Construction phase (late spring / summer 2016)
1. Great Crested Newt (GCN) derogation licence	1. Obtain GCN derogation licence from Natural Resources Wales. 2. Act upon mitigation and compensation measures.	1. Enact mitigation and compensation measures.
2. GCN Mitigation Area	1. Create GCN Mitigation Area, with associated ponds and habitat management.	1. Maintain and manage. ECoW¹ to check.
3. GCN capture and exclusion	1. Erect drift fencing, along with associated pitfall traps. 2. Follow methodology for capturing newts, ensuring required effort is carried out to remove all newts. 3. Transfer captured newts to GCN Mitigation Area as soon as possible. 4. Carefully remove internal drift fencing and all pitfall traps.	1. Maintain and check perimeter temporary newt exclusion fencing. ECoW¹ to check. 2. Removal of temporary newt exclusion fencing once all construction works have been completed.
4. Construction Exclusion Zones (CEZs)	1. Creation of CEZs around the perimeter of the site, all hedgerows and trees, at a minimum distance of 12 metres, using fencing. 2. ECoW¹ to oversee and check.	1. ECoW¹ to oversee maintenance of CEZs.
5. Site lighting	1. ECoW¹ to check no lighting on site and if any is introduced that it is minimal and directional.	1. ECoW¹ to check no lighting on site and if any is introduced that it is minimal and directional.
6. Re-survey of badger	1. A suitably qualified ecologist/ ECoW¹ to	N/a

Table 1. Protective measures and their timings.

activity	undertake re-survey and act upon results.	
7. No open trenches at night.	1. ECoW ¹ to check weekly.	1. ECoW ¹ to check weekly.
8. Pollution prevention measures.	1. Silt fencing erected along northern site boundary. 2. ECoW ¹ to check silt fencing.	1. ECoW ¹ to check silt fencing remains in place and is functionally sound.
9. Training of site personnel	1. ECoW ¹ to be involved in site induction and toolbox talks to make all staff/workers aware of biodiversity and the importance / identification of GCN.	1. Continued involvement of ECoW ¹ in site induction and toolbox talks to make all staff/workers aware of biodiversity and the importance/identification of GCN.

Key:

¹ ECoW – Ecological Clerk of Works

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