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Grange Farm

On behalf of Green Switch Developments Ltd.

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Ecological Appraisal

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1 SUMMARY

1.1.1 This report presents an Ecological Appraisal of land at the Grange Farm, Sutton St. James in Norfolk on behalf of Green Switch Developments Ltd. The survey was commissioned in relation to the proposed installation of ground mounted photovoltaic panels on the site.

1.1.2 The aims of the study were to assess the conservation value of the survey area; the likely presence of rare or protected and notable species, and to identify any features, habitats or species which would constitute potential constraints to the development. Mitigation and enhancement measures are also discussed where relevant.

1.1.3 The Ecological Appraisal comprises two elements: an Extended Phase 1 habitat survey and a desk-based study.

1.1.4 An Extended Phase I habitat survey is an initial site walk-over that determines the baseline habitat of the study area, outlining the potential ecological value and significance of habitats for protected and notable flora and fauna. This was conducted on 23rd June 2013 by Avian Ecology Ltd., and followed JNCC (2003) guidelines.

1.1.5 A desk-based study was undertaken in order to identify any nearby sites designated for nature conservation and potential features of nature conservation interest in the wider area. The desk study also identified any known records of protected and / or notable species within the vicinity of the application site. An overview of the relevant legislative framework is presented.

1.1.6 The survey covered the two arable fields (planted with wheat) where the development is proposed, collectively referred to as the application site. The fields comprised arable land of low ecological value. The application site is exposed with surrounding vegetation consisting of low hedges, and further arable land (wheat and oilseed rape). The application site is also partly bordered by a network of ditches.

1.1.7 The application site does not form part of any statutory or non-statutory designated sites. No statutory or non-statutory designated sites within 5km and 2km respectively of the application site were identified during the desk study.

1.1.8 The potential for impacts on a range of species including terrestrial mammals and birds are considered. Overall impacts are considered to be low. With appropriate mitigation and sensitive design measures, it is considered that impacts on protected and notable species can be avoided.

1.1.9 Standard pollution prevention measures are recommended to protect boundary ditches from increased runoff and sedimentation during construction and operational phases.

1.1.10 Habitat enhancement measures are proposed such as the development and management of structured grassland and planting of new native hedgerows which would likely provide a net biodiversity gain at a local level.

2 INTRODUCTION

2.1 BACKGROUND

2.1.1 Avian Ecology Ltd. was commissioned by Green Switch Developments Ltd. to undertake an Ecological Appraisal of land at the Grange Farm, Sutton St. James in Norfolk. The survey was commissioned in relation to the installation of ground mounted photovoltaic panels on the site, sufficient to generate up to 10MW of solar electricity that will feed in to the electricity grid. To the perimeter of the development there will be a line of security fencing. The proposed development lies at grid reference .

2.1.2 The objectives of the study were to:

- Provide baseline information on the current habitats and ecological features both on-site and in the immediate surrounding area;
- Identify the presence or potential presence of any protected species or habitats and provide an appraisal of any potential effects the proposed Project may have on these;
- Identify the proximity of any sites designated for nature conservation interest and provide an appraisal of any potential effects the proposed Project may have on these.
- Provide recommendations for further survey work and / or mitigation measures, if required and present opportunities for habitat enhancement.

2.1.3 The study comprised a field survey, in combination with a desk based review of existing data and available online resources.

2.2 SITE DESCRIPTION

2.2.1 The application site is located in a rural setting of Sutton St. James and located between Wisbech and Spalding in Norfolk. The immediate landscape surrounding the application site is dominated by low lying arable farmland surrounding by a network of drainage ditches.

2.3 LEGISLATIVE FRAMEWORK

1.1.1. Wildlife, biodiversity and ecological networks are referred to in the National Planning Policy Framework (NPPF) 2012, Section 11 'Conserving and enhancing the natural environment'. The NPPF states that the planning system should contribute to and enhance the natural and local environment by recognising the wider benefits of ecosystem services, minimising impacts on biodiversity and providing net gains in biodiversity where possible. The establishment of coherent ecological networks that are more resilient to current and future pressures is identified as an important means to achieve this.

1.1.2. In addition to the above planning guidance, certain plants, animals and wild birds receive legal protection under the Wildlife and Countryside Act 1981 (as amended). This emphasises that, regardless of any planning policy or guidelines, certain species are legally protected and any type of development that would injure, kill, ill-treat,

intentionally damage or destroy any protected species or place of shelter would be a criminal act. The Act was further strengthened in 2000 by the introduction of the Countryside and Rights of Way (CRoW) Act 2000.

1.1.3. Species of European Importance receive additional protection under the Conservation of Habitats and Species Regulations 2010 as amended (The 'Habitats Regulations') and others receive protection through specific legislation (e.g. the Protection of Badgers Act, 1992).

1.1.4. Any development which may have an impact upon the integrity of a statutory designated site for nature conservation purposes is also subject to the provisions of the Wildlife and Countryside Act 1981 (as amended) and the Habitats and Species Regulations 2010 (as amended). Under Regulation 21 of the latter, an Appropriate Assessment may be required in order for a Competent Authority to determine the significance of this impact, both from the proposed scheme and in combination with any other schemes.

1.1.5. Councils also have a statutory obligation under the Natural Environment and Rural Communities (NERC) Act 2006 to make material consideration to biodiversity conservation in the determination of all types of planning applications. Planners therefore require relevant information from wildlife surveys in order to assess the effects on biodiversity of a proposed development.

1.1.6. The 'UK Post-2010 Biodiversity Framework' succeeds the UK Biodiversity Action Plan (UK BAP) and 'Conserving Biodiversity – the UK Approach'. In October 2010, 192 governments and the European Union came together in Nagoya, Aichi Province, Japan, to reach an agreement to take action to halt global declines in biodiversity. The resulting Strategic Plan for Biodiversity 2011-2020, with 5 strategic goals and 20 new global 'Aichi' targets, sets a new global vision and direction.

1.1.7. In response to this, the Environment Departments of all four governments in the UK will work together through the Four Countries Biodiversity Group. Together they have agreed, and Ministers have signed, a framework of priorities for UK-level work to meet the requirements of the Convention on Biological Diversity. Published in July 2012, the 'UK Post-2010 Biodiversity Framework' covers the period from 2011 to 2020 and is designed to identify the activities needed to galvanise and complement country strategies, in pursuit of the Aichi targets. The country strategy for England is currently laid out in 'Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services' (Defra, 2011).

1.1.8. Although the UK BAP partnership no longer operates, many of the tools developed under the UK BAP remain of use, for example, background information about the lists of priority habitats and species. The lists of priority species and habitats agreed under the UK BAP still form the basis of much biodiversity work in the countries and are therefore also considered within this assessment but in the context of the objectives of the Biodiversity Framework.

1.1.9. BAPs identify habitats and species of nature conservation priority on the UK (UK BAP) and Local (LBAP) scale. Most BAP priority habitats and species have Habitat Action Plans (HAP) and Species Action Plans (SAP) covering them and there are also "grouped action plans" for groups of related species with similar conservation

requirements. The relevant local BAP scheme for the proposed development Lincolnshire Biodiversity Action Plan 2011-2020.

1.1.10. With legal responsibilities and planning implications it is therefore important that any ecological assessment of a proposed development site addresses the possibility of protected species being present within or around the site, along with any potential impacts of the proposed scheme on statutory designated sites.

1.1.11. Without such an assessment, a developer is unable to demonstrate due diligence in its responsibilities, with reference to both the legal protection and the possible information required in support of the planning application. It would, however, be unreasonable for an ecological assessment to survey for every protected species. Any such assessment should therefore be based upon the results of a habitat survey and the associated possibility or likelihood of protected species being present.

1.1.12. This study therefore seeks to establish the potential for protected species on the site and the potential effects of the proposed Project on these species and statutory sites designated for nature conservation purposes.

3 METHODOLOGY

3.1 DESK STUDY

3.1.1 The desk study identified statutorily designated sites of nature conservation interest through a review of the Multi Agency Geographic Information for the Countryside (MAGIC) and Natural England (NE) websites.

3.1.2 Biological data was requested from Greater Lincolnshire Ecological Record Centre (LERC).

3.1.3 The following minimum data search parameters were used (NBIS data searches centred on the approximate centre point of the application site):

- All statutory designated sites within a 5km radius;
- Non-statutorily designated sites within a 2km radius;
- Records for all protected, notable or BAP species within a 2km radius.

3.1.4 Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area.

3.1.5 The following key reference documents were utilised:

- Natural England Technical Information Note TIN101 (2011). *Solar Parks:* maximising *environmental benefits.* Joint Agencies Interim Guidance.
- RSPB (2011). *Solar power RSPB Briefing, March 2011.* RSPB UK.
- Greater Lincolnshire Nature Partnership (accessed via http://www.glnp.org.uk/on 15th July 2013).

3.2 FIELD SURVEYS

3.2.1 The field survey was undertaken on 23rd June 2013 by Mr Stuart Elsom ACIEEM. The extent of the survey area is detailed in **Figure 1**.

Extended Phase I Habitat Survey

3.2.2 The methodology employed was based-upon that outlined in the '*Handbook for Phase 1 Habitat Survey'* (JNCC, 2003) whereby all habitats within the study area are mapped and described using a series of 'target notes' (TN) to provide an overview of the site. This habitat survey method was extended through the additional recording of specific features indicating the presence, or likely presence, of protected species such as bats, birds, badger and water vole and other species of conservation significance.

3.2.3 This survey does not constitute a full protected species survey but enables experienced ecologists to obtain an understanding of the site such that it is possible either:

- To confirm the conservation significance of the site and assess the potential for impacts on habitats/species likely to represent a material consideration in planning terms; or
- To establish the scope and extent of any additional specialist ecological surveys that will be required before such confirmation can be made.

3.2.4 The survey area comprised the fields where the solar development will be sited and is hereafter referred to as the application site.

3.3 SURVEY LIMITATIONS

3.3.1 Habitats and features of interest outside the site boundary were observed and recorded from within the site boundary or from public access areas, using binoculars where necessary. Therefore, habitats outside of this were not subject to a full habitat survey, although broad habitat types were recorded.

3.3.2 No other survey limitations were experienced.

4 RESULTS

4.1 DESK STUDY

Statutory Designated Sites

4.1.1 No statutory designated sites were identified within a 5km radius of the application site.

Non-Statutory Designated Sites

4.1.2 No non-statutory designated sites were identified within a 2km radius of the application site.

Protected and Notable Species

4.1.3 LERC provided records for protected and notable species within 2km of the approximate centre of the application site.

Birds

4.1.4 A number of the bird records were returned as part of the LERC dataset. Birds of Conservation Concern (2009) red and amber list, Wildlife and Countryside Act (1981) Schedule 1 (as amended), priority species listed under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006 and the UK Biodiversity Action Plan (UKLBAP) are summarised in Table 4.1.

Species		**Status**
Common swift	Apus apus	BoCC Amber,
Marsh harrier	Circus aeruginosus	BoCC Amber, WCA Sch. 1
Reed bunting	*Emberiza schoeniclus*	BoCC Amber, Sect.41, UKBAP
Yellow Wagtail	*Motacilla flava*	BoCC Red
House Sparrow	*Passer domesticus*	BoCC Red, Sect.41, UKBAP
Turtle Dove	*Streptopelia turtur*	BoCC Red, Sect.41, UKBAP

Table 4.1: Bird species records returned by LERC within 2km of the application site with level of protection and conservation status (WCA Sch1 = Schedule 1 of the Wildlife and Countryside Act 198 (as amended), UKBAP = UK Biodiversity Action Plan and BoCC Red BoCC Amber = Birds of Conservation Concern Red and Amber listed species.

4.1.5 The above species are included within general Action Plans for farmland and urban birds under the Lincolnshire Biodiversity Action Plan 2011-2020 (3rd edition).

Bats

4.1.6 The dataset provided by LERC included records of at least three species of bat within 2km of the site. Records are summarised in Table 4.2 below.

Species		**Comments**
Common pipistrelle	*Pipistrellus pipistrellus*	Single record in 2011.
Soprano pipistrelle	*Pipistrellus pygmaeus*	Single record in 2011.

Species		Comments
Pipistrelle species	*Pipistrellus* spp.	Six records from Sutton St James including three roost records from 2006, 2008 and 2011. Roost records appear to relate to the same roost location.
Brown long-eared	*Plecotus auritus*	Four records from Sutton St James including one roost record from 2011.
Unidentified bat	*Chiroptera*	A total of 41 records form Sutton St James, Gedney and Holbeach. Two records listed roost records in Sutton St James from 2006.

Table 4.2: LERC bat records returned within 2km of the site.

4.1.7 Soprano pipistrelle and brown long-eared bat are listed as priority species under Section 41 (England) of the NERC Act 2006 and UKBAP. All bat species are covered under Action Plans for bats under the Lincolnshire Biodiversity Action Plan 2011-2020 (3rd edition).

Badgers

4.1.8 No records were returned with the LERC dataset.

Otter & Water Vole

4.1.9 No records were returned with the LERC dataset.

Amphibians & Reptiles

4.1.10 LERC provided a record of a common frog *Rana temporaria*. No other records relating to amphibian species were provided.

Invertebrates

4.1.11 LERC provided records for two moth species, shaded broad-bar *Scotopteryx chenopodiata* and cinnabar *Tyria jacobaea*. The shaded broad-bar and cinnabar moths are listed as priority species under Section 41 (England) of the NERC Act 2006.

4.2 FIELD SURVEY

4.2.1 A Phase I habitat map is presented in **Figure 1**. A summary of habitats and species considered pertinent to the Project is presented below. Information on the legal implications of the presence of such habitats and/or species is discussed in Section 5 where appropriate, along with an assessment of possible impacts on these features.

Habitats

4.2.2 The application site occupies two arable fields, the southern field is approximately 10.5ha and the northern field approximately 9.5ha. Both fields were planted with wheat at the time of survey. The application site is exposed with no cover provided; the surrounding landscape comprises further arable fields planted with a mix of

wheat *Tritcum* spp., oilseed rape *Brassica napus* and Brussel sprouts *Brassica oleracea*.

4.2.3 The southern field is bordered to the west and south by a 2m wide ditch; the ditch to the west was dry and dominated by common nettle *Urtica dioica*, dock *Rumex sp.*, grasses included perennial rye-grass *Lolium perenne*, Yorkshire fog *Holcus lanatus* and cock's foot *Dactylis glomerata*. The southern ditch section contained relatively high water levels. Between this ditch and the field edge there was a game cover strip of approximately 4m. The vegetation was similar to that of the western ditch section but also included arrowhead *Sagittaria latifolia,* hogweed *Heracleum sphondylium* and other umbels *Umbelliferae* spp.

4.2.4 The northern field was bordered to the east by oil seed rape and to the north by a local access road. The ditch separating the two fields was approximately 4m wide with a channel width of approximately 1.5m. This section of ditch contained a moderate level of water.

4.2.5 On the approach to the application sites were 10+ mature trees north of the access track, including larch *Larix* spp., willow *Salix* spp. and poplar *Populus* spp.

4.2.6 The habitats within the application site were classified as of low ecological value, with the field boundaries and ditches considered to offer greater value to wildlife.

4.2.7 Table 4.4 details the main habitat types within the application site boundary.

JNCC Habitat Code	Habitat Name	Area (20 ha)	% cover of study area
J1.1	Arable	20 ha	100 %

Table 4.4: Main habitat types identified within the survey area.

4.2.8 Table 4.5 details target notes from the field survey, and should be viewed in conjunction with Figure 1.

Target Note Number	Comment
1	Round holes in vertical earth bank with slight overhang of vegetation above. Although the right size for water vole, no other signs (e.g. feeding lawns, footprints, chewed vegetation, or droppings of the right size and shape) were observed that would indicate presence.
2	Again, similar to TN1, bare earth vertical banks but with more obvious overhanging vegetation. Also, as with TN1, no other signs to confirm presence of water vole.

Table 4.6: Target notes

Protected Species

4.2.9 The application site and adjacent land is potentially suitable for a range of protected species and the wider area offers foraging and roosting opportunities for bats and birds, as described below.

Birds

4.2.10 The arable land, together with the boundary habitats, are likely to support a suite of breeding birds typical of farmland habitats in the region. The field survey recorded skylark *Alauda arvensis* (possibly 6 territories), reed bunting *Emberiza schoeniclus*, whitethroat *Sylvia communis* and sedge warbler *Acrocephalus schoenobaenus*. A little egret was flushed from the southern ditch section and a grey heron was observed overflying the application site. Meadow pipit *Anthus pratensis*, linnet *Carduelis cannabina* and yellowhammer *Emberiza citrinella* were heard calling from adjacent land.

Bats

4.2.11 Habitats within the application site boundary comprise predominantly arable land which offer limited opportunities for most foraging bats. The mature trees located to the north of the access track were considered to offer potential bat roost features (e.g. cavities, loose bark etc.) but the lack of connectivity with favourable habitat in the surrounding landscape would limit their potential. No evidence indicating the presence of a roost was observed from ground level observations.

Badgers

4.2.12 Please refer to confidential Badger Appendix.

Otter and Water Vole

4.2.13 The ditches to the boundary of the application site were considered to provide suitable habitat for water vole and two sections of ditch were found to support mammal burrows of a size that could potentially indicate water vole presence (target notes 1 & 2). No other field evidence was found that indicate the presence of this species.

4.2.14 The ditches and habitat within the application site lacked suitable cover to support otter holt sites. The ditches may be used by otter while commuting between more suitable habitats in the wider landscape.

Amphibians & Reptiles

4.2.15 The ditches were considered unlikely to offer suitable aquatic habitat for great crested newts and the arable land would offer sub-optimal terrestrial habitat for all amphibian species. The application site is likely to support more common amphibian species.

4.2.16 No evidence of reptiles was identified during the Survey. The site is exposed and lacks south facing slopes that are preferred by reptiles for basking. The only exception being the bank located along the ditch that separates the two fields. This section of bank generally provided a poor habitat structure for reptiles lacking dense vegetative cover.

Invertebrates

4.2.17 The arable fields offer limited potential for use by the invertebrate species such as the moth species identified during the desk study. The grassland margins provide greater opportunities for invertebrates and may provide suitable habitat for the cinnabar moth and shaded broad-bar moth.

5 DISCUSSION

5.1.1 Natural England Guidance TIN101 (Natural England, 2011) states '*like any type of development, solar parks have the potential to affect the landscape, natural habitats, soils and geological and archaeological features'*. TIN101 discusses the potential for damage as a result of operation or when the panels are being erected or decommissioned and highlights the potential for cumulative impacts to occur when parks are sited in close proximity. However, it also notes that a well located and designed park cannot only avoid negative environmental impacts but deliver a net gain for biodiversity as well as contributing positively towards low carbon energy production.

5.1.2 In view of the above, this section seeks to identify potential effects on protected and notable species. The proximity of statutory and non-statutory designated sites and potential effects on their qualifying interests is discussed. To this extent, recommendations are made for further survey work and mitigation, if required. Measures are proposed for the protection of on-site habitats throughout the construction phase of development.

5.1.3 This section also introduces opportunities for post-development habitat enhancement on the application site for the benefit of local biodiversity.

5.2 DESIGNATED SITES AND GENERAL HABITATS

5.2.1 Natural England guidance TIN101 (Natural England, 2011) highlights the potential for adverse impacts where a solar park is proposed on or adjacent to a designated site or near sites of high wildlife value. Any solar park close to a designated site or site of high wildlife value will need to demonstrate that the development would not compromise the objectives of the designation.

5.2.2 The application site does not form part of any statutory or non-statutory designated sites for nature conservation. No statutory or non-statutory designated sites were identified within 5km or 2km respectively of the application site. Subsequently no direct or indirect impacts on any statutory or non-statutory designated sites would be anticipated.

5.2.3 The development footprint comprises almost entirely of arable land that is generally considered to be of low value for wildlife. The grassland margin and ditches provide the greatest ecological value. The mature trees also provide some ecological interest. These features will not be directly affected by the proposed development and similarly the proposed development will not result in the severance of linkages between the application and the wider landscape. Trees should be protected during the construction phase of the development.

5.2.4 Consideration should be given to any potential for pollution run-off to occur during the construction and operational phases of the development with specific reference to the ditch system to the boundary of the application site. Standard pollution prevention measures should be employed during the construction phase of the development, following Environment Agency guidance. Consideration should be given to the construction of swales, in order to intercept overland surface water flows and reduce agricultural run-off potentially associated with site operation.

5.2.5 Habitat enhancement measures should be considered within the application site. Creating grassland habitats around the panels is likely to offer most benefits for plant and animal communities, as recommended in TIN101 (Natural England 2011). Where already present, this should be enhanced from its current improved status to ensure maximum wildlife benefits. Further planting of species-rich native hedgerows with scattered trees would provide enhanced nesting, roosting, foraging and commuting opportunities for a range of species including birds, bats, dormice and insects.

5.3 BIRDS

5.3.1 The potential operational effects of solar parks on birds are not well documented. NE guidance TIN101 (2011) mentions that some birds are likely to be affected by solar parks developed close to statutory sites designated for their ornithological value, due to the potential for loss of habitat and displacement to impact on qualifying interest species. In the absence of specific guidance or research into the effects of solar parks on birds, professional judgement has been applied.

5.3.2 There are no designated sites with ornithological interest features within 5km of the proposed development and therefore no impacts on qualifying species of a designated site are identified.

5.3.3 There is potential for birds to be displaced by the construction phase of the development. Land beneath the footprint of the development comprises agricultural land of limited value for most birds; however the application site and surrounding land are likely to support a range of farmland species. Whilst some level of displacement is likely to occur, the impacts are considered to be negligible, given the small scale of the development and the temporary nature of the associated disturbance. The construction period for solar developments is also considered to be shorter than conventional construction projects and therefore any impacts are expected to be minimised.

5.3.4 A potential impact of the solar park is the loss of habitat for ground nesting birds and the Extended Phase 1 habitat survey identified up to six breeding territories of skylark within the application site. Post development, ground nesting birds may still use grassland beneath the photovoltaic panels and through suitable management, the potential for long-term impacts is considered to be low.

5.3.5 As a precaution, it is recommended that construction (including ground works) and any associated vegetation removal should be undertaken outside of the bird breeding season (March-August inclusive) in order to avoid impacts on nesting birds and to ensure compliance with the provisions of the Birds Directive and the Wildlife and Countryside Act 1981 (as amended). If ground works and vegetation removal cannot

be avoided within this season, suitable nesting habitat should be hand-searched by a suitably experienced ecologist prior to works commencing.

5.3.6 Habitat enhancement with the planting of hedgerows, together with management on a 2-3 year rotation would result in an overall minor positive impact on local bird species.

5.4 BATS

5.4.1 Two possible mechanisms have been identified (Natural England, 2011) whereby operational solar parks may impact on bats;

- Loss of commuting and foraging habitat; and,
- Injury through interaction with solar panels, either through occasional collision as a result of bats attempting to drink from the panels, or collision into panels when they are vertically aligned and bats attempt to fly through them (Bjoern Siemers and Stefan Grief (2010)).

5.4.2 Natural England (2011) Guidance TIN101 states that there is some evidence from a laboratory-based study that bats can collide with solar panels, however further field-based research is required in order to comprehensively assess the likelihood of impacts.

5.4.3 The desk study returned records for common pipistrelle, soprano pipistrelle and brown long-eared bat within 2km of the application site. It is likely that more species are present in the vicinity of the application site.

5.4.4 The main habitats within the application site were classified as of low value for bats. No high potential roosts were identified within the application site, but some trees were identified with low roost potential. No trees will be removed as part of the proposed works and therefore impacts on these features is not expected from the short-duration, low intensity construction works.

5.4.5 Any habitat enhancement undertaken as part of the development will likely improve foraging and commuting opportunities at the application site for bats and result in a minor positive outcome for bats.

5.5 BADGERS

5.5.1 Refer to Confidential Badger Appendix.

5.6 AMPHIBIANS

5.6.1 The ditches to the boundary and the arable land within the development footprint were considered to offer poor habitat for amphibian species, the ditches were considered particularly poor in relation to great crested newt as this species prefers areas of open water. Consequently, impacts upon amphibian species are considered highly unlikely to occur.

5.6.2 As a precaution, it is recommended that Reasonable Avoidance Measures (RAMs) are implemented during the construction phase. These should include hand searching grassland areas immediately prior to works commencing, covering excavations

overnight, providing a means of escape from any excavations and ensuring that any fencing does not pose a barrier to amphibian movements. In the unlikely event that great crested newts are found within the working areas, then works must stop immediately and a suitably licenced ecologist be consulted for further advice.

5.7 OTTER AND WATER VOLE

5.7.1 The boundary ditches are unlikely to support otter although it is possible otter may visit them on an occasional basis

5.7.2 The Extended Phase 1 Survey identified suitable habitat for water vole in the boundary ditches and although holes in the ditch embankment were identified, no other evidence to suggest they could be attributed to water vole was found.

5.7.3 The ditches are located outside the application boundary, at least 10m away at the nearest point. No works are anticipated to directly affect the watercourses but standard pollution prevention measures should be employed during the construction phase to ensure no indirect impacts.

5.8 REPTILES

5.8.1 The application site comprising arable land does not form high quality terrestrial habitat for reptiles. Grassland margins and the banks of ditches may provide potential habitats that could be used by small numbers of reptile species. Since these habitats will remain intact, impacts on reptile species are considered unlikely. However, as a precautionary approach, a watching brief by site workers should be maintained and if a reptile species is encountered, an ecologist should be informed.

5.9 INVERTEBRATES

5.9.1 Grassland habitats to the margins of the application site are likely to support a range of invertebrate species including butterfly and moth species. It is not expected that the development would adversely impact upon invertebrates. If enhancement of the habitats to the margins of the application site and around the solar panels is undertaken including the seeding with a wildflower grassland mix, the development is likely to result in a net gain for invertebrates.

5.10 OTHER NOTABLE SPECIES

5.10.1 No other species are considered pertinent in relation to the proposed development.

5.11 SUMMARY – ECOLOGY PRIORITY MATRIX

	Status / Legal Protection	Potential for Impacts	Recommended Further Survey Effort	Recommended Mitigation / Enhancement Measures	Likely Residual Impact
Designated Sites	n/a	Unlikely	n/a	n/a	None
General Habitat	n/a	Negligible	n/a	Protection of trees; pollution prevention; grassland and hedgerow planting / creation.	Neutral/ minor positive
Birds	WCA 1981	Unlikely	Nest searches if vegetation works are proposed during breeding/nesting season (March to August inclusive).	Vegetation clearance to avoid breeding season (March to August inclusive). Habitat enhancement measures.	Neutral / minor positive
Bats	WCA 1981, Habitat Regs. 2010	Unlikely	Precautionary inspection for bat roost potential by competent / experienced arborist if removal of trees is required.	Protection of trees to safeguard potential roost sites and maintain foraging and commuting opportunities. Grassland and hedgerow planting/creation.	Neutral / minor positive
Badger	Protection of Badgers Act 1992	See Badger Appendix			
Otter	WCA 1981, Habitat Regs. 2010	Unlikely	n/a	n/a	Neutral
Water Vole	WCA 1981, Habitat Regs. 2010	Possible	n/a	Maintain a buffer of at least 8m from the top of ditch banks.	Neutral
Amphibians	WCA 1981	Unlikely	n/a	Grassland and hedgerow planting/creation.	Minor positive
Invertebrates	WCA 1981, &/or Habitat Regs. 2010	Unlikely	n/a	Grassland creation to benefit invertebrates.	Minor positive

Ecology Priority Matrix Key

Status

SSSI- Site of Species Scientific Interest

LWS – Local Wildlife Site

Legal Protection

WCA 1981 - Wildlife and Countryside Act 1981

Habitat Regs. 2010 - The Conservation of Habitats and Species Regulations 2010

6 REFERENCES

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Figure 1: Phase 1 Habitat Survey Map



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