EXTENDED PHASE 1 HABITAT SURVEY

DEEPING POULTRY FARM, MAIN ROAD, DEEPING ST NICHOLAS, SPALDING
for
DV VENTURES LTD

(November 2016)
(Contract number 081)

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PROJECT DATA

Site Address	Deeping Poultry Farm, Main Road, Deeping St Nicholas, Spalding PE11 3BW
Project Proposed	Addition of six poultry rearing units
Boundary as Specified by Client	Yes
Site Area (Ha)	Approximately 8 ha
Central Ordnance Survey Grid Reference	TF 22962 16689
Survey Date	07 November 2016
Date Report Issued	11 November 2016
Report Version	Version 1

SUMMARY

The site is part of a farm located in Lincolnshire approximately 5 km south of Spalding Market Town. It is mainly surrounded by open arable land and includes ten existing poultry rearing units. The site is to be developed with the addition of six more poultry rearing units.
The site and its immediate surroundings were surveyed for their ecological interest through a desk study and Extended Phase 1 Habitat Survey.
Habitats on the site include existing buildings, short ephemeral/perennial vegetation, an attenuation pond, grassland, arable land, tall herb, a dry ditch and a hedgerow. There are no other ponds on or within 250m of the site.
The survey revealed that the site as a whole is not of sufficient ecological value to warrant whole-scale protection from development. The site's habitats which will be affected by works are common and widespread and are considered to be of low intrinsic biodiversity value. It is recommended that no further ecological surveys are required.
Recommendations which will reduce the risk of harm to any wildlife in the lead up to construction on the site and during the development itself are provided.

INTRODUCTION

This report has been prepared by Craig Emms and Linda Barnett who were contracted by DV Ventures Ltd to undertake an Extended Phase 1 Habitat Survey of land on Deeping Poultry Farm, Deeping St Nicholas, Spalding, hereafter referred to as 'the site'. The area considered by this assessment includes the land within the red line boundary as well as adjacent areas of land where relevant.

DV Ventures Ltd intends to submit a planning application for six additional poultry rearing units. The purpose of the survey was to identify any ecological constraints to and opportunities for the development in order to inform master planning, so that any ecological effects can be avoided or minimised wherever possible.

The survey and ecological assessment of the site follows the approach set out in guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2015).

PLANNING POLICY AND LEGISLATION

The regulatory context of this survey and report includes the Wildlife & Countryside Act (1981), as amended including by the Countryside and Rights of Way Act (2000), The Conservation of Habitats and Species Regulations (2010) and subsequent amendments, the Habitats Directive (1992), the Birds Directive (2009), the Berne Convention (1982), Bonn Convention (1985), Natural Environment and Rural Communities (NERC) Act (2006) and the Convention on Biological Diversity (1992).

Please note that there is complex and strict legislation protecting many species and habitats in the United Kingdom. For European Protected Species (including bats, great crested newt, dormouse and otter) there is no longer a clear defence against harm being caused as an incidental result of an otherwise lawful operation. If you are in any doubt about the status of species or habitats on your site, please be sure to contact us before undertaking any site work.

METHODOLOGY – DESK STUDY

A public records search was not commissioned as a part of this survey.

A search for ponds and other water bodies within 250m, and sites with statutory protected site

designations within a 2 km radius of the development was conducted using online Ordnance Survey maps, Google Maps and MAGIC (Multi-Agency Geographic Information for the Countryside - www.magic.gov.uk).

METHODOLOGY – FIELD SURVEY

The Extended Phase 1 Habitat Survey was undertaken by appropriately licenced, qualified and experienced personnel during November 2016. It followed the methodology contained in the Handbook for Phase 1 Habitat Survey (JNCC, 2010) and the current guidance on survey methods from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2012).

The site was surveyed by walking over it at a uniform pace, making a note of habitats and species present or their field signs (including European Protected Species). The habitats were also assessed for their potential importance for such species.

The relative suitability of all accessible ponds for great crested newts on and up to 250m from the site was assessed following the Habitat Suitability Index (HSI) methodology (ARG UK, 2010), and the relative value of the terrestrial habitats within the sites boundaries for amphibians and reptiles was noted, although a detailed assessment was not undertaken.

All of the trees in the hedgerow on the site were assessed visually from ground level for possible bat roosting features, including:

- Rot holes
- Old woodpecker holes
- Loose bark
- Cankers
- Tension cracks and splits
- Shattered 'snag' ends
- Signs of internal decay (e.g. fungal fruits, hyphae, exudation)
- Inclusions
- Elongated tight forks
- 'Unusual' growth forms
- Bat boxes on or near the tree
- Thick growths of ivy

There are several buildings on the site: poultry rearing units, a site office and a residential property (within the applicant's ownership). A thorough inspection of the exterior of these buildings was undertaken for any field signs of bats (such as droppings, urine stains, feeding

remains, oil staining or scratch marks), or evidence of potential bat roosting features (such as access points, loose claddings, cavities and hollows).

Table 3 in Appendix 2 provides a more detailed explanation of the bat roost assessment criteria.

LIMITATIONS

It should be noted that a single visit to a site will inevitably miss species not visible on the date of survey by reason of seasonality, mobility, habits or chance, and that the month of November is outside the optimal survey period for many taxa of nature conservation interest in this part of the United Kingdom.

This ecological survey may not be sufficient on its own for planning application purposes where notable habitats/species are present or potentially present, especially regarding European Protected Species.

BASELINE ECOLOGICAL CONDITIONS – DESIGNATED SITES

A search using information from MAGIC revealed that there are no known sites with statutory protected site designations within a 2 km radius of the development site. The closest designated site is Cowbit Wash Site of Special Scientific Interest (SSSI) which has been designated for its geological interest. It is located approximately 2.3 km to the north-east of the development. This is considered sufficiently distant for it not to be directly or indirectly affected by the development proposals.

BASELINE ECOLOGICAL CONDITIONS - HABITATS

GENERAL DESCRIPTION

The site (central OS Grid Ref: TF 22962 16689) is part of a farm and is approximately 8 ha in extent. It is situated within a predominately agricultural landscape approximately 1.55 km north-east of Deeping St Nicholas village and 2.7 km south-west of Cowbit village. For the most part the site is surrounded by arable land. Habitats on the site include existing buildings, short ephemeral/perennial vegetation, an attenuation pond, grassland, arable land, tall herb, a dry ditch and a hedgerow. There are no other ponds on or within 250m of the site. There are already ten poultry rearing units, their associated infrastructure and a residential property on the site.

HABITAT DESCRIPTIONS

A list of all plant species recorded during this survey, their scientific names and where relevant their DAFOR scale of abundance is presented in Table 1 (Appendix 1).

Existing Buildings: There are ten poultry rearing units, a site office and a residential property present on site (see Figure 1 and Plates 4 and 5). The poultry units are modern structures with corrugated metal roofs, tightly-fitting metal barge boards, and either concrete and timber-cladded walls or corrugated metal walls, which are assessed to have negligible potential to hold bat roosts. The site office (Target Note 2 and Plate 8) and the residential property (Target Note 1 and Plates 6 and 7) are modern single-storey brick-built structures with pitched tiled roofs. These are also assessed to have negligible potential to hold bat roosts.

Arable Land: This habitat covers the entire southern half of the site where the new poultry units will be erected (see Figure 1 and Plates 15 and 16). It consists of recently harvested maize. Plant species recorded in this habitat include common chickweed, common field speedwell, field pansy, creeping buttercup, creeping thistle, spear thistle, scentless mayweed and common orache. Several patches of orange peel fungus *Aleuria aurantia* were growing on the exposed soil. This is a widespread and occasional to common fungi species in the UK.

Short Ephemeral/Perennial Vegetation: This habitat occurs on large earth bunds located in the northern and eastern margins of the existing poultry units (see Figure 1 and Plate 12). The plant species recorded in this habitat include annual meadow grass, broad-leaved willowherb, teasel, creeping thistle, spear thistle, dandelion, common chickweed, cleavers, groundsel, creeping buttercup, bristly oxtongue, common nettle, small nettle, greater plantain, red dead-nettle, shepherd's purse, charlock, sun spurge, perennial sow-thistle and common liverwort.

Amenity Grassland: This habitat is found in the western and southern borders of the existing poultry units, as well as between most of the poultry units (see Figure 1 and Plates 10 and 11). Plant species recorded in this habitat include perennial rye-grass, annual meadow grass, dandelion, white clover, broad-leaved dock, teasel, groundsel, creeping buttercup, creeping thistle, spear thistle, common ragwort, white dead-nettle, red dead-nettle, yarrow, bristly oxtongue, common nettle, greater plantain, and wavy bittercress. Most of the taller species are present on the edges of the grassland as a result of encroachment from the tall ruderal herbs growing just off site.

Tall Ruderal Herb: This habitat occurs as a narrow strip on the slope of the large earth bund located on the eastern periphery of the existing poultry units as well as in small strips and patches throughout the site (too small to map) and along the banks of the dry ditch bisecting the site north of the area of arable land (see Figure 1 and Plate 13). Plant species recorded in this habitat include false oat-grass, cock's-foot, common couch, broad-leaved willowherb, great willowherb, common nettle, bristly oxtongue, broad-leaved dock, creeping buttercup, creeping thistle, spear thistle, common mallow, cleavers and common feather-moss. Small stands of common reed and greater reedmace were present along the ditch which was largely dry at the time of the survey.

Intact Species-poor Hedge: There is a hedgerow consisting entirely of semi-mature Leyland cypress *Cupressus × leylandii* surrounding the garden of the residential property (see Figure 1 and Plate 14).

Attenuation Pond: There is one attenuation pond located in the north-east corner of the site (see Target Note 3 and Plate 9). This pond acts as a drainage sump for the site and the water (which was low at the time of survey due to a lack of rainfall) is slightly polluted from surface run-off. A Habitat Suitability Index (HSI) calculation for this pond classified it as 'poor' for great crested newts. The detailed results of the HSI are shown in Table 2 (Appendix 1).

Access Track: The project will use the existing access track from Littleworth Drove (A1175). This consists of hard core along its full length (see Plates 1, 2 and 3).

TARGET NOTES

Target Note 1: A residential property within the ownership of the applicant (see Bats below and Plates 6 and 7).

Target Note 2: The site office (see Bats below and Plate 8).

Target Note 3: An attenuation pond (see Great Crested Newts below and Plate 9).

BASELINE ECOLOGICAL CONDITIONS – SPECIES AND SPECIES GROUPS

PLANTS

Only widespread and common species were observed on the site. A list of all plant species recorded during this survey, their scientific names and where relevant their DAFOR scale of abundance can be found in Table 1 (Appendix 1).

MACRO-INVERTEBRATES

No invertebrates were observed on the site.

FISH

None observed. There are no aquatic habitats on site apart from the attenuation pond (Target Note 3).

GREAT CRESTED NEWT

No great crested newts were observed on or near to the site during the survey. An attenuation pond (Target Note 3 and Plate 9) was assessed as having a 'poor' suitability for newts (see Table 2 in Appendix 1). This pond is located approximately 160m from the southern part of

the site where the new poultry units are to be erected, and separated from it by the existing poultry units and large areas of hard standing and other unsuitable terrestrial habitats. No other ponds are located on or within 250m of the development (the closest known ponds are located approximately 1.2 km to the north-west and 1.8 km to the south-west of the development).

The tall ruderal herb habitat on site provides a suitable terrestrial foraging environment for great crested newts. However the habitats which cover the majority of the site (short ephemeral/perennial vegetation, amenity grassland, hard standing and buildings) are unsuitable for foraging newts. It is generally accepted that where suitable habitat is present the majority of a great crested newt population will use terrestrial habitats within 50m of the breeding pond (Jehle, 2000).

English Nature (Natural England's predecessor) published findings of a research report into great crested newt mitigation schemes (Cresswell and Whitworth, 2004) which states that:

"*The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within 50m of a breeding pond. It will also almost always be necessary to actively capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality. At distances greater than 200-250m, capture operations will hardly ever be appropriate."*

If there is a population of great crested newts at ponds beyond 250m of the site, it is highly unlikely that the proposed development's construction activities will have any impact on them. No further surveys are required.

The results of this survey indicate that appropriate avoidance measures and mitigation activities prior to the works commencing should be sufficient to ensure that no newts are disturbed, killed or injured during the development of the site. Details are given in the Recommendations section, including mitigation to reduce the risk of harm to any newts that may potentially use the site in the lead up to construction and for reasonable avoidance measures to be undertaken during construction.

NATTERJACK TOAD

This species is not present in this area.

OTHER AMPHIBIANS

No amphibians were observed on the site. There are no aquatic habitats on site apart from the attenuation pond (Target Note 3). However, the tall ruderal herb habitat present is suitable for foraging amphibians. Details of mitigation activities to reduce the risk of harm to any amphibians in the lead up to construction are given in the Recommendations section.

REPTILES

The banks of the dry ditch which bisects the site, the short ephemeral/perennial vegetation and tall ruderal herb are all suitable habitat for low numbers of common lizard *Zootoca vivipara* and slow worm *Anguis fragilis*. All British reptiles are protected from killing or injury (though their habitat is not specially protected) and this could occur as an incidental result of construction. During this survey the above habitats were searched for evidence or indication of reptiles and none were observed. The habitats are considered to be of limited value to reptiles due to the paucity of refugia and hibernacula. It is possible that some reptiles are present. However, it is considered unlikely that there is a significant population given the limitations of the habitats that are present. Grass snakes *Natrix natrix* may hunt within the site as part of a much wider home range.

Mitigation activities to reduce the risk of harm to any reptiles in the lead up to construction are given in the Recommendations section. After mitigation, significant impacts to reptiles are unlikely. No further surveys are required.

BIRDS

The arable land, tall ruderal herb and the hedge provide opportunities for birds to nest.

A typical range of birds commonly associated with the above habitats was recorded. These included two Red Listed species and one Amber Listed species. The red and amber lists refer to Birds of Conservation Concern (Eaton *et al*, 2015). Red Listed birds are of high conservation concern and Amber Listed birds are of medium conservation concern.

Bird species recorded during the survey included pheasant, red-legged partridge, wren, robin, kestrel, carrion crow, pied wagtail, meadow pipit, house sparrow, goldfinch and starling.

Red-listed Birds

Starling (a large flock of c150 birds feeding on the arable land in the south of the site and the surrounding arable land) and one house sparrow were recorded on the site. These are also Species of Principle Importance in England (see Appendix 3 for details).

Amber-listed Birds

A small flock of three meadow pipits was recorded on site (in the short ephemeral/perennial vegetation).

Active Nests Found

None were observed on the site (although the survey was undertaken out of the nesting season). It is likely that a number of common farmland and woodland birds breed each year in the site's tall ruderal herb, arable land and hedgerow.

BATS

The semi-mature Leyland cypress hedgerow on the site was considered to have negligible potential to support roosting bats as no bat roosting features were observed during the survey.

No bat field signs or potential bat roosting features were present on the existing buildings. The poultry rearing units are in good condition, with corrugated metal roofs with either concrete and timber-clad walls or corrugated metal walls, and close-fitting metal barge boards at the gable ends. The single-storey brick-built residential property (Target Note 1) and site office (Target Note 2) are also in good condition, with pitched tiled roofs showing no broken or slipped tiles, gaps or crevices, and soffits in good condition. Therefore all of the buildings were considered to have negligible potential to support roosting bats.

Bats are likely to forage within the site to some extent, especially along the hedgerow and the attenuation pond. However, these habitats are being retained *in situ* so the development is unlikely to have a significant impact on the local bat population, especially given that bats are highly mobile animals. No further surveys are necessary.

Nonetheless since a bat's movement across a landscape can be affected and possibly impaired by artificial light spillage certain aspects of the construction will require controls and constraints. These are described in the Constraints section to minimise such impacts.

OTTER
No otters or field signs of otters were observed. There are no aquatic habitats on site apart from the attenuation pond (Target Note 3). No further surveys are required.

WATER VOLE
No water voles or field signs of water voles were observed. There are no aquatic habitats on site apart from the attenuation pond (Target Note 3). No further surveys are required.

DORMICE
The hedgerow on the site is not suitable for dormice. It is also being retained within the project. No further surveys are required.

BADGERS
No badger setts were observed either on the site or within 50m of the site's perimeter (where access was possible). No mammal pathways, badger foraging signs or other field signs were recorded within the site. As no badger setts will be disturbed no further surveys are required.

OTHER MAMMALS
Brown hare (one sighted sheltering on one of the earth bunds), rabbits and mole are present on the site. Stoats, weasels, rats, mice and shrews probably use the habitats on site.

INVASIVE PLANTS (WILDLIFE & COUNTRYSIDE ACT ARTICLE 14, SCHEDULE 9)
There were none observed on the site.

WEEDS ACT NATIVES
Broad-leaved dock, common ragwort, creeping thistle and spear thistle were observed on site.

INVASIVE ANIMALS
Rabbits are present on the site.

SERIOUS PLANT DISEASES/PATHOGENS
None observed on the site.

ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

FEATURES THAT SHOULD BE RETAINED IF POSSIBLE
All of the habitats present, except for the arable land forming the southern part of the site should and will be retained *in situ*.

CONSTRAINTS
To comply with national planning policy framework paragraph 125, unnecessary negative impacts of new lighting at night should be avoided *e.g.* on plants, bats, invertebrates and astronomy. Possible negative impacts of new lighting on plants, bats, invertebrates and astronomy should also be minimised by keeping the hours when lighting is used as short as possible, avoiding light spillage by using directional down-lighting, reducing the brightness of necessary illumination and keeping light from shining on bat roost entries and mammal holes.

Ecological impacts during construction should also be minimised by generally avoiding unnecessary disturbance and pollution. If there are any steep-sided excavations created during construction, they should be covered/filled/provided with ramps to prevent any mammals becoming trapped.

OPPORTUNITIES
Native planting (preferably of local origin) should be used in all landscaping if possible. Where exotic ornamental species are planted, invasive species should always be avoided. Wildlife friendly species and varieties which provide food (seeds, berries, fruit and nectar) or shelter should be chosen.

In line with best practice and in order to comply with government policy on biodiversity protection and enhancement, habitats and features of ecological interest and wildlife value should generally be retained within the site. New wildlife habitats should be created in these areas that are appropriate to the site's context, e.g. through the use of log piles, "wild" corners and native planting.

RECOMMENDATIONS FOR MITIGATION AND FURTHER SURVEY

RECOMMENDATIONS

- To reduce the risk of harm to amphibians and reptiles in the lead up to construction on the site, the arable land covering the development footprint should be kept short through regular cutting or harvesting. This will decrease the amount of favourable habitat within the site and passively move any amphibians or reptiles into suitable habitat outside of the development footprint. If the land falls out of management before the commencement of construction on the site, consideration should be made for actively managing the above habitat to prevent it becoming more suitable for these species whilst fallow.

- A pre-clearance finger-tip search of the development footprint using a suitably qualified and experienced ecologist should be conducted immediately prior to site stripping and any vulnerable taxa removed to safety.

- It is possible that birds will be nesting in the arable land covering the actual development footprint on the site if it is allowed to become fallow. However, as a precaution, appropriate and pragmatic measures should be taken to avoid committing the offence of killing or injuring a wild bird or damaging or destroying an active nest; all birds, their nests and eggs are protected by the Wildlife & Countryside Act of 1981. This makes it an offence, with certain exceptions, to deliberately take, damage or destroy the nest of any wild bird while it is in use or being built. It is also illegal to take or destroy the egg of any wild bird.

- Any operations that may disturb nesting habitat, such as the clearance of the arable land, if fallow, should be conducted outside the bird nesting season. The bird nesting season is usually taken as March to the end of August inclusive in this part of Britain. If this is unavoidable, a pre-clearance inspection by a suitably experienced ornithologist will be required immediately prior to habitat removal to identify whether any nests are present, and ensure appropriate action is taken. If the latter approach is taken and nesting is encountered there is a risk of delay since an 'exclusion zone' may need to be set up around active nests until the young have fledged.

  FURTHER SURVEYS

  - No further ecological surveys are required at this site.

CONCLUSIONS

Providing the recommendations noted herein are fully implemented, there are no obvious ecological counter indications to the proposed project at this stage. The recommended ecological protection will provide assurance that there is No Net Loss to biodiversity and no unacceptable adverse impact on Ecosystem Services.

REFERENCES

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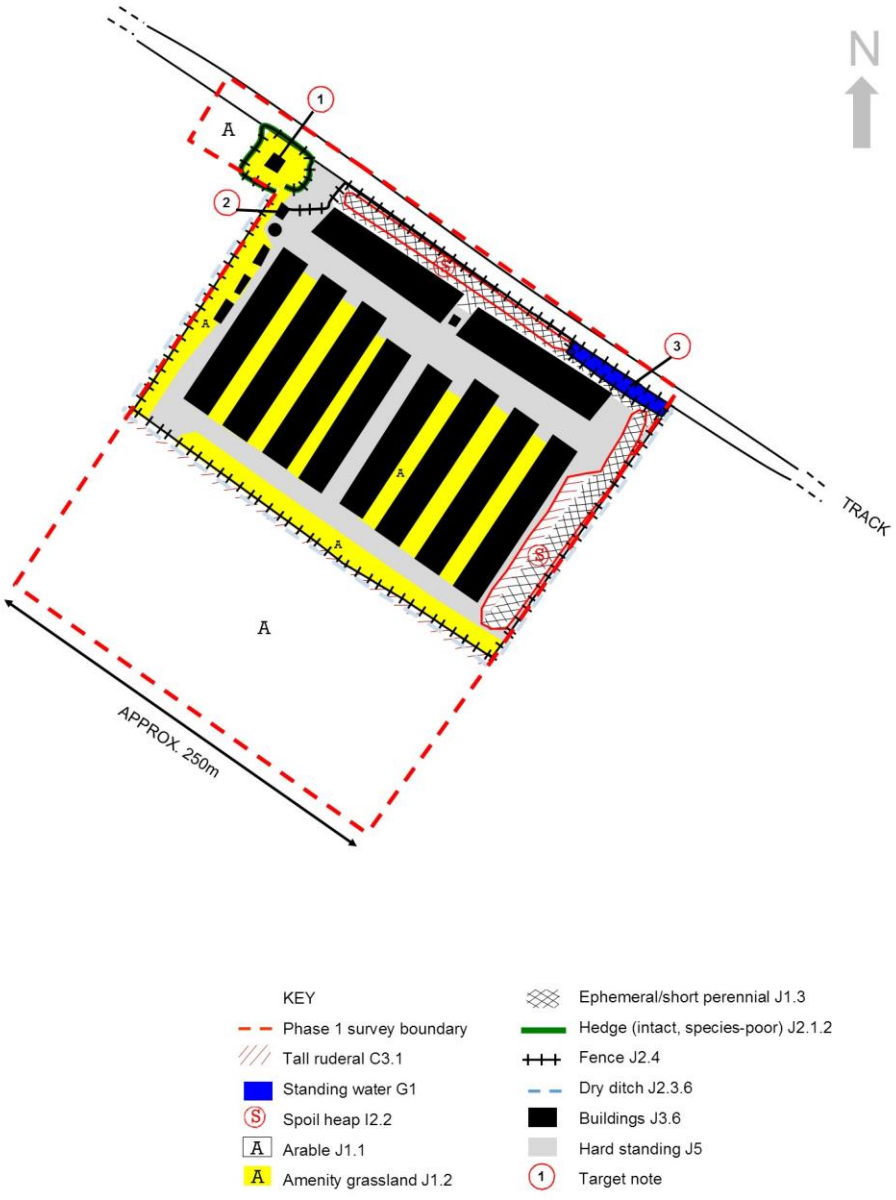
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FIGURES

FIGURE 1: SITE PLAN



PLATES OF THE SITE TAKEN ON 28th OCTOBER 2016



Plate 1: a view of the entrance to the site access track where it meets Littleworth Drove, taken from the south-east



Plate 2: a view of the access track to the south-east of the entrance, taken from the south-east



Plate 3: a view of the access track to the north of the site, taken from the north-west



Plate 4: a view of one of the existing poultry rearing units



Plate 5: a view of one of the existing poultry rearing units



Plate 6: a view of the residential property (Target Note 1), taken from the north-east



Plate 7: a view of the soffits of the residential property (Target Note 1), showing their good condition



Plate 8: a view of the site office (Target Note 2), taken from the south-east



Plate 9: a view of the attenuation pond (Target Note 3), taken from the north-west



Plate 10: a view of the amenity grassland on the western periphery of the site, taken from the north-east



Plate 11: a view of the amenity grassland between two of the poultry units, taken from the south



Plate 12: a view of the short ephemeral/perennial vegetation on top of the northern earth bund, taken from the south-east



Plate 13: a view of the narrow strip of tall ruderal herb on the slope of the eastern earth bund, taken from the south-west



Plate 14: a view of the garden of the residential property, showing the amenity grassland and the Leyland cypress hedge



Plate 15: a view of the arable land on the southern part of the site which is to be developed, taken from the south



Plate 16: a view of the arable land on the southern part of the site which is to be developed (beyond the post and rail fence), taken from the north-east

APPENDICES

APPENDIX 1 - SURVEY DATA

Table 1: Botanical Species List on 7th November 2016
Weather conditions: Cold and windy (6˚C).

Common Name	***Status***	**Scientific Name**	**Arable**	**Amenity grassland**	**Short ephemeral/Perennial**	**Tall ruderal herb**	**Hedgerows**
Annual Meadow-grass	Native species	*Poa annua*		F	R		
Bristly Oxtongue	Archaeophyte	*Helminthotheca echioides*		F	LF	O	
Broad-leaved Dock	Native species	*Rumex obtusifolius*		LF		LF	
Broad-leaved Willowherb	Native species	*Epilobium montanum*			LF	D	
Charlock	Archaeophyte	*Sinapis arvensis*			R		
Cleavers	Native species	*Galium aparine*			O	O	
Cock's-foot	Native species	*Dactylis glomerata*				A	
Common Chickweed	Native species	*Stellaria media*	X		O		
Common Couch	Native species	*Elymus repens*				A	
Common Feather-moss	Native species	*Eurhynchium praelongum*				O	
Common Field Speedwell	Neophyte	*Veronica persica*	X				
Common Liverwort	Native species	*Marchantia polymorpha*			LA		
Common Mallow	Archaeophyte	*Malva sylvestris*				R	
Common Nettle	Native species	*Urtica dioica*		R	R	O	
Common Orache	Native species	*Atriplex patula*	X				
Common Ragwort	Native species	*Senecio jacobaea*		R			
Common Reed	Native species	*Phragmites australis*				LA	
Creeping Buttercup	Native species	*Ranunculus repens*	X	O	LF	LF	
Creeping Thistle	Native species	*Cirsium arvense*	X	R	O	LF	
Dandelion	Apomictic (most species native, some Neophyte)	*Taraxacum officinale* agg.		O	R		
False Oat-grass	Native species	*Arrhenatherum elatius*				O	
Field Pansy	Archaeophyte	*Viola arvensis*	X				
Great Willowherb	Native species	*Epilobium hirsutum*				LF	
Greater Plantain	Native species	*Plantago major*		R	R		

Groundsel	Native species	*Senecio vulgaris*		R	A		
Leyland Cypress	Hybrid (Neophyte)	*Cupressus × leylandii*					X
Perennial Rye-grass	Native species	*Lolium perenne*		D		F	
Perennial Sow-thistle	Native species	*Sonchus arvensis*			R		
Red Dead-nettle	Archaeophyte	*Lamium purpureum*		R	LF		
Reedmace	Native species	*Typha latifolia*				LF	
Scentless Mayweed	Archaeophyte	*Tripleurospermum inodorum*	X				
Shepherd's Purse	Archaeophyte	*Capeslla bursa-pastoris*			LF		
Small Nettle	Archaeophyte	*Urtica urens*			R		
Spear Thistle	Native species	*Cirsium vulgare*	X	R	R	R	
Sun Spurge	Archaeophyte	*Euphorbia helioscopia*			R		
Teasel	Native species	*Dipsacus fullonum*		R	O		
Wavy Bittercress	Native species	*Cardamine flexuosa*		R			
White Clover	Native species	*Trifolium repens*		LF			
White Dead-nettle	Archaeophyte	*Lamium album*		R			
Yarrow	Native species	*Achillea millefolium*		LF			
Key to Arable/Hedgerow	X = present						
DAFOR scale	**D**ominant, **A**bundant, **F**requent, **O**ccasional, **R**are (**L** = locally)						

Note 1: the above status refers to (Preston *et al*, 2002): native species – a species present in Britain as the result of only natural processes, with no human intervention; archaeophyte – a species that was introduced in 'ancient' times (i.e. before 1500), but is now considered to be fully naturalised; neophyte – a species that was introduced in 'recent' times (i.e. after 1500); apomictic – a species that produces viable seed without fertilisation, these germinating into seedlings that are identical to the parent. These often have large numbers of 'micro-species' and no attempt has been made to identify these; hybrid – a result of mixing, through sexual reproduction, of two different species.

Note 2: the above vegetation coverage descriptions make reference to the DAFOR scale (Dominant, Abundant, Frequent, Occasional or Rare); this scale describes the coverage in the area being studied and is not a reference to the national status of the species in question (i.e. a 'rare' attribute above refers to the species being uncommon on the proposed development site, not that it is of national conservation value).

Habitat Suitability Index

An HSI is a numerical score where 0 indicates unsuitable habitat and 1 represents optimal habitats. The HSI for the great crested newt incorporates ten suitability indices, all of which are factors believed to affect this species.

Categorisation of HSI Scores taken from: ARG UK advice note 5 (Amphibian and Reptile Groups of the United Kingdom, 2010):

HSI		Pond Suitability
<0.5	=	poor
0.5 – 0.59	=	below average
0.6 – 0.69	=	average
0.7 – 0.79	=	good
>0.8	=	excellent

Table 2: Habitat Suitability Index of the features of the attenuation pond at TF 23144 16763 at Deeping Poultry Farm, Main Road, Deeping St Nicholas, Spalding PE11 3BW

HSI Factor	Pond Score	Notes
SI 1 – Location	1	Within Zone A, optimal location.
SI 2 – Pond area	0.2	Pond area approx. 80 m^2, measured when full.
SI 3 – Pond drying	0.9	Pond probably never dries.
SI 4 – Water quality	0.33	Low invertebrate diversity.
SI 5 – Shade (to 1m from edge)	1	No shade.
SI 6 – Fowl	0.01	Severe waterfowl impact.
SI 7 – Fish	1	No evidence of fish present.
SI8 – Ponds	0.1	No ponds present with 1 km.
SI9 – Terrestrial habitat	0.67	Habitat with poor structure.
SI10 - Macrophytes	0.33	5% cover.
HSI	**0.40**	

NOTE: $HSI = (SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$

Therefore, the attenuation pond is classified at the following level of pond suitability for great crested newts: poor (HSI score = 0.40)

APPENDIX 2 – BAT ROOST ASSESSMENTS

Table 3: Bat Roost Assessment Criteria.

Suitability	Description of Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain Potential Roost Features (PRFs) but none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream or lone tree (not in a parkland situation) or a patch of scrub, but isolated, *i.e.* not very well connected to the surrounding landscape by another habitat.
Moderate	A structure or tree with one or more PRFs that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but unlikely to support a roost of high conservation status (with respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected with the wider landscape that could be used by bats for commuting such as lines of trees, scrub, grassland or water or linked back gardens.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, tree-lined watercourses, grazed parkland, hedgerows, lines of trees, broad-leaved woodland and woodland edge. Site is close to and connected to known roosts.

Note: Adapted from Collins, 2016.

APPENDIX 3 - RELEVANT LEGISLATION AND POLICY

LEGISLATION

The Natural Environment & Rural Communities (NERC) Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

COMMON REPTILES

In Britain there are four relatively widespread native species of reptile: the adder; grass snake; common lizard and slow worm. These species are protected via part of Section 9(1) of the Wildlife & Countryside Act 1981 (as amended) against:

- Intentional killing and injuring;
- Selling, offering or exposing for sale.

Two other species of reptile: the sand lizard and smooth snake are 'European Protected Species'. It is illegal to injure, kill, disturb, capture, keep or sell them, or to damage or destroy the habitats in which they live.

NESTING BIRDS

All wild bird nests are protected under The Wildlife and Countryside Act 1981 (as amended), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting.

GREAT CRESTED NEWTS

The great crested newt is a 'European Protected Species' and is listed on both Annex II and IV of the EC Habitats Directive. The Directive is transposed into UK law through the Conservation of Habitats and Species Regulations 2010. They are also protected by the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to great crested newts and their breeding ponds and terrestrial habitat, making it an offence to:

- Deliberately capture, injure or kill a great crested newt;
- Intentionally or recklessly disturb a great crested newt in a structure or place that they use for shelter or protection or deliberately disturb a group of a great crested newts;
- Damage or destroy a great crested newt resting place/shelter (even if they are not occupying it at the time);
- Possess or advertise/sell/exchange a great crested newt (dead or alive) or any part of a great crested newt (including eggs and all life-stages);
- Intentionally or recklessly obstruct access to a great crested newt resting place/shelter.

BATS

All species of bat in Britain are 'European Protected Species' and are protected under the Conservation of Habitats and Species Regulations 2010, and the Wildlife and Countryside Act 1981, as amended by the Countryside & Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to bats and their habitats, making it an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat;
- Intentionally or recklessly obstruct access to a bat roost.

BADGERS

Badgers are protected in the UK under the Protection of Badgers Act (1992), making it an offence to:

- Kill, injure or take a badger;
- Intentionally or recklessly interfere with a badger sett.

Sett interference includes damaging, destroying or obstructing access to a sett and disturbing badgers while they occupy a sett.

POLICY

NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (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, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Other key principles of the NPPF relating to biodiversity are:

- The conservation of International and National statutorily designated sites;
- Protection of ancient woodland and veteran trees;
- The creation, protection, enhancement and management of networks of biodiversity and green infrastructure;
- The preservation, restoration and recreation of priority habitats and ecological networks;

- The recovery of priority species populations.

HABITATS AND SPECIES OF PRINCIPAL IMPORTANCE
The NERC Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in Wales. The list replaces the UK Biodiversity Action Pans (UK BAP) and has been drawn up in consultation with Natural Resources Wales, as required by the Act.

The S42 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of NERC Act, to have regard to the conservation of biodiversity in Wales, when carrying out their normal functions.

HABITATS OF PRINCIPAL IMPORTANCE
Habitats of principal importance (HPI) are included on the S42 list. These are all the habitats in Wales that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

SPECIES OF PRINCIPAL IMPORTANCE
Species of principal importance (SPI) included on the S42 list. These are the species found in Wales which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. An SPI of relevance to this site is bullfinch.

QUALITY ASSURANCE

This report format is designed to comply with statutory authority (*e.g.* Natural England, Natural Resources Wales and Scottish Natural Heritage) and the Chartered Institute of Ecology and Environmental Management relevant standing advice. Further studies may be required where there is evidence of protected species or if other notable ecological factors are found.

Craig Emms MSc, MCIEEM
Linda Barnett BSc (Hons), PhD, MCIEEM
Craig and Linda are professional ecologists with 65 years of combined practical experience in nature conservation, wildlife research and management and ecological consultancy, gained from working in the UK and overseas. Craig has a MSc. in Ecosystems Analysis and Governance and Linda has a PhD in Genetics. Together they have carried out original academic research on a broad range of wildlife; insects, amphibians, reptiles, birds and mammals (including bats), and published the results as scientific papers in a number of international peer-reviewed journals. Linda co-authored the Species Action Plans for Britain's eight most endangered butterflies while working for Butterfly Conservation, and has supervised students in research projects on hazel dormouse, great crested newts and moths whilst she was co-ordinating and lecturing on a Masters course in Analytical Biology at the University of Warwick. Linda and Craig are skilled and practiced field ecologists, especially with regard to wildlife and countryside management. They are licenced by Natural England as bat and great crested newt surveyors and bat roost visitors/handlers and have an extensive and broad experience of a great variety of field surveys including mammals (otter, badger, water vole and bat), birds, reptiles, amphibians, dragonflies, butterflies and moths. Craig has also been the named ecologist and clerk of works on many European Protected Species mitigation and compensation (development) licences and badger disturbance licences.

Please be aware that ecological reports generally have a limited period of currency. Many statutory authorities now regard one year as the maximum time that should elapse before a report will need to be updated. Where a European Protected Species licence is to be applied for once planning permission has been granted, a walk-over of the site should be carried out within three months of an application being submitted to check that the habitats have not changed significantly since the survey was carried out.

Any information relating to legal matters, designs, specifications, advice, suggestions, or comments written or verbal in this report is provided in good faith and for consideration only, and does not purport in any way to give any advice on or interpretation of the law whatsoever. Professional legal advice should always be sought.

Note. *Whilst all due and reasonable care is taken in the preparation of reports, Craig Emms and Linda Barnett accept no responsibility whatsoever for any consequences of the release of this report to third parties. Please be aware that site surveys inevitably miss species not apparent on the date of visit(s) by reason of seasonality, mobility, habits or chance. Results are indicative and given in good faith but they are not a guarantee of presence or absence of any particular taxa.*