C.B.E. Consulting

Extended Phase 1 Habitat Survey
Land at Crease Drove
Crowland
South Holland
NGR TF23599 09695

Survey by
Christopher Barker CEnv ACIEEM

smas worksafe consultant www.smasltd.com as recognised by SSIP SAFETY SCHEMES IN PROCUREMENT	Report prepared by: C Barker	Date Issued: 23 December 2016
		Report Version: Version 1
	Reviewed by: KLB	*C B E Consulting* Highbank, 5 Grantham Road, Navenby Lincoln. LN5 0JJ. Telephone (01522) 810086. www.cbeconsulting.co.uk
	Report ref: P1225/ 1216/01	

Phase 1 Habitat Survey and Ecological Appraisal, Land at Crease Drove, Crowland, Lincolnshire.

Contents

Part 1: Site Details
1. Introduction
    1.1 Site Description and Location
    1.2 Objective of the report

Part 2: Methodology and Survey Results
2. Appraisal Methodology
    2.1 Baseline Study
    2.2 Habitats present on the site
    2.3 Protected Species Appraisal
    2.4 Consultations

3. Survey Findings
    3.1 Habitat Classifications and Target Notes with Photographs
    3.2 Evidence of Protected Species
    3.3 Ecological Constraints and Opportunities

Part 3: Ecological Appraisal
4. Impact of any development of the site
    4.1 Scale of redevelopment proposed
    4.2 Biodiversity impact on the site
    4.3 Impact of the proposal on Protected Species

5. Conclusions and Recommendations

Appendices
Appendix 1 – Indicative Species List
Appendix 2 – Records from Greater Lincolnshire Nature Partnership

Figures
Figure 1 – Site Location Plan
Figure 2 – Contextual Aerial Photograph
Figure 3 – Site Habitat Plan

Non-Technical Summary

The site surveyed comprises a rectangular parcel of arable land lying between residential housing and commercial buildings at Crease Drove, Crowland, South Holland centred at NGR TF23599 09695. An inspection of the site was completed on 26th October 2016.

The defined survey area is clearly defined by established boundaries. On the north side of the field is a shallow drainage ditch adjacent to a road and residential gardens. On the east side is Crease Drove leading to the commercial properties to the south. The south boundary of the field is also defined by a drainage ditch which has recently been dredged and cleared of vegetation. On the west side is a deeper, steeper sided drainage ditch which has also been dredged and cleared of vegetation quite recently. The site area is on the south western edge of the village of Crowland facing open agricultural land and a commercial area.

The survey area comprises an arable field with shallow margins and an area of rough grassland that shows signs of recent disturbance with colonised soil bunds and uneven ground. The arable field is very open and exposed with no significant cover around the boundaries except for the shrubs and trees within the adjacent residential gardens on the north western boundary. The field is level with no significant features.

The records obtained from the Greater Lincolnshire Nature Partnership confirm the presence of reptiles such as Common Lizard, Slow Worm and Grass Snake and a range of UKBAP and Schedule 1/9 listed bird species in the area around Crowland. There are also records of Water Vole, Otter and Badger associated with land within 1km. There are no statutory sites within the 1km search area. There are two Local Wildlife Sites within the 1km search area

The field area adjacent to Crease Drove was cultivated at the time of the inspection having recently been harvested and awaiting a new crop. The field is open, level and featureless. The cultivation margin extends very close to the field margins leaving only 1m or less of margin occupied by grassland and common agricultural weeds. At the time of the survey the field was devoid of any vegetation.

The western boundary of the field contains a shallow raised bank which is colonised by ruderals and perennials and a steeply sided drain. The drainage channel appears to have been dredged and cleared quite recently and it is assumed the shallow bank on the edge of the field is a result of the arising from this activity. There was a slow shallow flow of water at the time of the survey in October which is unsurprising given the previous days there had been quite heavy rain. The base of the drainage ditch was generally bare but some minor aquatic vegetation was beginning to recolonise. An inspection of the banks could not find any indication of burrows indicating the presence of Water Vole and no evidence of any other field signs of Vole or Otter were noted during the inspection.

On the eastern boundary of the field adjacent to Crease Drove is a small patch of disturbed ground within which there is a hard standing track, a small area of concrete pad and some vegetated soil mounds alongside an area of coarse grassland that is uneven with ruts and other signs of disturbance present. There is a single semi-mature Goat Willow of small stature adjacent to the road in this location. The vegetation is well-established although one or two areas of bare ground are still present. There was no evidence of any unusual or rare species present but the inspection was completed outside of the optimum survey season for many plants.

Conclusions

The area surveyed contains arable land and a small parcel of disturbed waste ground. Overall diversity is quite limited due to the current and historic uses of this land and there is no evidence of any significant plants, plant communities or habitat present.

The site area is contained by surrounding roads, houses, commercial buildings and open arable land. These surrounding land uses partially isolate the site to some degree. It is considered likely that development of the site area surveyed could be carried out in a manner that does not have any significant impact on local biodiversity provided suitable measures are included to maintain and protect the drainage channels around the boundaries of the survey area. From the evidence of the Phase 1 Habitat Survey it does not appear that there would be any loss of significant habitat areas or fragmentation of any such habitats within the locality by isolating these as a result of development.

The survey completed in October 2016 did not find any physical evidence of protected species on the site. There are no biological records indicating the site or the immediate surrounds are of significant importance to any protected species and no additional surveys for protected species have been recommended.

Christopher Barker ACIEEM CEnv

Part 1: Site Details

1. Introduction

1.1 Site Description and Location

The site surveyed comprises a rectangular parcel of arable land lying between residential housing and commercial buildings at Crease Drove, Crowland, South Holland centred at NGR TF23599 09695. The location of the site is shown on the plan within **Figure 1** and an aerial photograph has been provided within **Figure 2** to place the site in context.

Figure 1: Site location. Copyright Ordnance Survey Mapping 2016

The site area is being considered for residential development. The Applicant has requested an ecological survey of the entire site area to determine whether there is anything of ecological value or any evidence of protected species present. An inspection of the site was completed on 26th October 2016. A photographic record of key areas is included alongside target notes within the report and an indicative species list is included within **Appendix 1.**

The defined survey area is clearly defined by established boundaries. On the north side of the field is a shallow drainage ditch adjacent to a road and residential gardens. On the east side is Crease Drove leading to the commercial properties to the south. The south boundary of the field is also defined by a drainage ditch which has recently been dredged and cleared of vegetation. On the west side is a deeper, steeper sided drainage ditch which has also been dredged and cleared of vegetation quite recently.

The site area is on the south western edge of the village of Crowland facing open agricultural land and a commercial area. The character of the site surveyed and the surrounding area can be seen in **Figure 2** below.

Figure 2: Site Contextual Aerial Photograph Image Copyright Microsoft Mapping 2016

1.2 Objective of the Report

This report is an extended Phase 1 Habitat Survey and ecological appraisal of the area identified in yellow within the aerial photograph above. The objective of the ecological appraisal is to identify the habitat(s) present on, and surrounding, the site area being assessed. Any development of the site will require planning approval and this report has been prepared to provide information as part of any future planning application process. To this end the report is required to comply with the recommendations and principles set out in the National Planning Policy Framework, March 2012 (NPPF). The report contains Biological Records and has been prepared to meet the standard required by BS42020 (British Standard for Biodiversity and Development).

The NPPF superseded PPS9 (Planning Policy Statement 9) in March 2012 and sets out the Government's objectives for planning in regard to the protection of habitats and biodiversity. The planning objectives in relation to biodiversity and the natural environment are stated within paragraph 109 of the NPPF and are as follows:

"The planning system should contribute to and enhance the natural and local environment by:
● protecting and enhancing valued landscapes, geological conservation interests and soils;
● 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;"

Within the NPPF the planning policy context requires that:

"*Planning policies and decisions should be based on up to date information about the natural environment and other characteristics of the area including …… an assessment of existing and potential components of ecological networks. A sustainability appraisal which*

meets the requirements of the European Directive on strategic environmental assessment should be an integral part of the plan preparation process, and should consider all the likely significant effects on the environment, economic and social factors". NPPF Paragraph 165

This ecological appraisal provides information on the existing ecological and biodiversity value of the land on the site and also reports any evidence of protected species or significant habitats present. It has been provided to provide information to the Planning Authority in order to help meet the requirements of the NPPF and enable the Authority to assess the site area in accordance with the Code of Practice within BS42020 and guidelines issued by CIEEM in 2012. The report also identifies any habitats or species present that require more detailed surveys prior to any improvements being undertaken.

Part 2: Methodology and Survey Results

2. Appraisal Methodology

2.1 Baseline Study

Within NPPF Paragraph 7 it states that; "*There are three dimensions to sustainable development: economic, social and environmental." The environmental role includes "contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity…*."

The biodiversity of a site area and the potential presence of protected species are factors relevant to all developments irrespective of the size scale and will apply to any development on the site being assessed. Available information on the baseline ecology of the site and the presence of protected species within the locality has been obtained from the Greater Lincolnshire Nature Partnership and reviewed. An indicative species list of plants found on the site is provided in **Appendix 1** and the records obtained are provided as **Appendix 2**.

These data sources have been reviewed and the character and nature conservation value of habitats and species assessed. The aims of this appraisal of information are:

- To characterize all the existing available information regarding habitats and species that may be present at the site and provide up to date information about the environmental characteristics of the site area;
- To identify any habitats potentially present of nature conservation value in terms of local, regional and national context and within the context of local, regional and national policy; and,
- To identify any areas of ecological interest in order to either a) make recommendations to minimize the potential impact of any site works, or b) identify the need for a further survey work.

Following the appraisal of the available information, a site inspection has taken place to obtain specific site data at the site.

2.2 Habitats

The site was surveyed during a bright sunny afternoon on 26th October 2016 using the extended Phase 1 Habitat Assessment methodology as adopted by Natural England (Joint Nature Conservation Committee 1993) and in accordance with the Guidelines for Preliminary Ecological Appraisal (2012) issued by the Institute of Ecology and Environmental Management (IEEM) and BS42020 (British Standard for Biodiversity and Development). The survey required a systematic walkover of the site to classify the habitat types present. A habitat base map and target notes have been prepared and included as **Figure 3** within section 3 of this report.

2.3 Protected Species

During the survey of the site, observations and identification or signs of any species protected under the Conservation (Natural Habitats &c) Regulations 2010 (incorporating regulations previously contained within Part 1 of the Wildlife and Countryside Act 1981) were noted.

The survey area comprises an arable field with shallow margins and an area of rough grassland that shows signs of recent disturbance with colonised soil bunds and uneven ground. The arable field is very open and exposed with no significant cover around the boundaries except for the shrubs and trees within the adjacent residential gardens on the north western boundary. The field is level with no significant features.

The records obtained from the Greater Lincolnshire Nature Partnership confirm the presence of reptiles such as Common Lizard, Slow Worm and Grass Snake and a range of UKBAP and Schedule 1/9 listed bird species in the area around Crowland. There are also records of Water Vole, Otter and Badger associated with land within 1km.

A methodical inspection was carried out to look for any evidence of protected species using the site and to identify any habitats with potential to provide significant shelter or foraging opportunities for these. The survey was carried out by Christopher Barker, an experienced ecological consultant and Chartered Environmentalist holding Class Licenses issued by Natural England.

2.4 Consultations

A review of the available data obtained from the Greater Lincolnshire Nature Partnership confirms that the site is not a statutory or non-statutory site. There are no statutory sites within the 1km search area. There are two Local Wildlife Sites within the 1km search area summarised below

Site	**Description**	**Distance and Direction**
LWS New River	A 16km water course running from the south west past the western edge of Crowland. It is supported by areas of wet diverse grassland.	0.41km north west
LWS Crowland Wash Lake	A flooded drain and associated ponds supporting a varied aquatic flora running west from New River.	0.85km north west

A review of the data for protected species has identified a number of significant records relating to the immediate vicinity of the site. A selection of the most applicable records in relation to the site are summarised below. **Appendix 2** contain a full and more detailed list.

Species	No. of records	Time period
Barn Owl, *Tyto alba*	17	1998 - 2013
Corn Bunting, *Emberiza calandra*	3	2002 - 2010
Cuckoo, *Cuculus canorus*	2	2002 - 2006
Fieldfare, *Turdus pilaris*	44	2004 - 2015
Hen Harrier, *Circus cyaneus*	1	2003
Hobby, *Falco subbuteo*	2	2002
Kingfisher, *Alcedo atthis*	1	2013
Marsh Harrier, *Circus aeruginosus*	6	2005 – 2015
Red Kite, *Milvus milvus*	1	2013
Wall, *Lasiommata megera*	1	1993
Dot Moth, *Melanchra persicariae*	2	1991 – 1995
Mouse Moth, *Amphipyra tragopoginis*	1	1995
Common Lizard, *Zootoca vivipara*	1	1989

Grass Snake, *Natrix natrix*	2	2003 – 2011
Slow-worm, *Anguis fragilis*	1	1989
Bats, Chiroptera	117	1965 - 2013
Brown Hare, *Lepus europaeus*	8	1977 - 2012
Brown Long-eared Bat, *Plecotus auritus*	5	1979 - 2005
Common Pipistrelle, *Pipistrellus pipistrellus sensu stricto*	7	2001 - 2012
Daubenton's Bat, *Myotis daubentonii*	1	1979
Natterer's Bat, *Myotis nattereri*	1	1994
Noctule Bat, *Nyctalus noctula*	1	1979
Pipistrelle, *Pipistrellus pipistrellus sensu lato*	10	1995 - 2005
Soprano Pipistrelle, *Pipistrellus pygmaeus*	4	2001 - 2012
Eurasian Badger, *Meles meles*	3	2008 - 2013
European Otter, *Lutra lutra*	2	2011 - 2012
European Water Vole, *Arvicola amphibius*	8	1977 - 2010
West European Hedgehog, *Erinaceus europaeus*	14	1977 - 2015

There are no records of Great Crested Newt (GCN) within the search area and the field area being surveyed contains no ponds. There are drainage ditches on two sides which seasonally contain water but these drains are periodically dredged and cleaned out and do not represent a habitat of potentially high value to amphibians within this area dominated as it is by open arable fields.

There are a small number of records for reptiles such as Grass Snake, Common Lizard and Slow Worm in the general area. The records for Slow Worm and Common Lizard are a considerable age and there have been no more recent sightings. The small number of records for Grass Snake relate to land to the north west of the site on the opposite side of Crowland where there is wet grassland and pasture more suitable to support this species. The arable land is unlikely to be a habitat of high potential value to reptiles but the drainage ditches could provide commuting routes through this area.

There are records of a range of bird species in the locality including Schedule 1 species such as Barn Owl, Red Kite, Hen Harrier, Kingfisher and Marsh Harrier and a range of UKBAP bird species birds are present in the locality. Records include species that would potentially utilise the arable land within the survey area such as Linnet, Yellowhammer and Corn Bunting. The mature broadleaved trees of significant stature with the adjacent gardens to the north of the arable field being surveyed could potentially provide nesting habitat for birds within the area to be developed.

There are a number records of roosting and foraging bats in the locality and a number of roost records within Crowland and local villages nearby. The linear waterways running to the west of Crowland and the River Welland further to the west linking to these will potentially be excellent linear foraging and commuting routes for bats through this landscape. There are no potential roost locations within the site as it contains no trees or structures of any kind.

There are no records of Badger setts in the vicinity of the site or within the site itself. There are records of badger nearer to the River Welland to the west of Crowland where there is pasture and some scattered woodland offering good habitat for this species. Considering the context of the site within the local landscape, close to houses and in an area of very open and exposed arable land, the potential for badger to be present is very low. There are records of Otter and Water Vole is the area but these are associated with the River Welland and other linear water features to the west of the site area. The drainage ditches near to the site boundaries are have below average potential to support these species due to the seasonal and limited volume of water within this.

There are only three invertebrate records for the area, particularly associated with the land to the south east of the site area. However, the survey area is not rich in biodiversity and

offers relatively limited nectar sources so the value of the site to invertebrates is only considered to be low.

A plan showing the location of the site and the areas of ecological interest within the locality is provided within **Appendix 2.**

3. Survey Findings

3.1 Habitat Classifications and Target Notes

Target Note: Arable Land
The field area adjacent to Crease Drove was cultivated at the time of the inspection having recently been harvested and awaiting a new crop. The field is open, level and featureless as can be seen in the photographs below. The cultivation margin extends very close to the field margins leaving only 1m or less of margin occupied by grassland, dominated in the main by perennial ryegrass (*Lolium perenne)* and Yorkshire Fog *(Holcus lanatus)* but with other forbs also present. This land occupying the majority of the area being considered for development is classed as JNCC J1.1 'Cultivated Arable Land'. At the time of the survey the field was devoid of any vegetation.

Target Note: Field Margins and Garden Boundaries
As can be seen below the thin field margins have been colonised by grasses and forbs. Species present within these thin marginal strips included perennial ryegrass (*Lolium perenne*), Yorkshire Fog (*Holcus lanatus*), cocksfoot (*Dactylis glomerata*), meadow grass *Poa* sp), yellow rocket (*Barbarea vulgaris*), curled dock (*Rumex crispus*), nettle (*Urtica dioica*) and buttercup (*Ranunculus repens*) with occasional ragwort (*Senecio jacobaea*), chickweed (*Stellaria media*), red field poppy (*Papaver rhoeas*), shining cranesbill (*Geranium lucidum*), cut leaved cranesbill (*Geranium dissectum*), speedwell (*Veronica agrestis*) bindweed (*Bilderdykia convolvulus*), ground ivy (*Glechoma hederacea*) and hogweed (*Heracleum sphondylium*). Species diversity appeared quite low and it is likely

that these marginal strips are occasionally impacted by herbicides applied to the arable land.

The garden boundaries were defined by fencing and some trimmed hedgerow. Along this boundary bramble has colonised and the nettle is in more significant thickets in places. A greater number of dock and hogweed are present but otherwise the species diversity is much the same as found around the other field margins with the addition of the occasional garden escapee. The small trees and hedgerows along the garden boundaries contained Goat Willow (*Salix caprea*), Hawthorn (*Crataegus monogyna*), Elder (*Sambucus nigra*), Apple (*Malus* sp), Pear (*Pyrus* sp), Blackthorn (*Prunus spinosa*), Barberry (*Berberis* sp), Rowan (*Sorbus acuparia*), Privet (*Ligustrum* sp) and Red Damson (*Prunus domestica purpurea*).

Target Note: Drainage Ditch and Grassland Bank
The western boundary of the field contains a shallow raised bank which is colonised by ruderals and perennials and a steeply sided drain as pictured below. The drainage channel appears to have been dredged and cleared quite recently and it is assumed the shallow bank on the edge of the field is a result of the arising from this activity.

There was a slow shallow flow of water at the time of the survey in October which is unsurprising given the previous days there had been quite heavy rain. The base of the drainage ditch was generally bare but some small patched of Water Mint (Mentha aquatica) were beginning to re-emerge presumably from root stock left in place during the dredging / clearing activity. The steep banks of the drain comprised short coarse grass dominated by Yorkshire Fog and were quite uniform. An inspection of the banks could not find any indication of burrows indicating the presence of Water Vole and no evidence of any other field signs of Vole or Otter were noted during the inspection.

The shallow bank formed at the top of the ditch on the edge of the arable field supported a limited range of flora including speedwell (*Veronica agrestis*), redshank (*Polygonum persicaria)*, dock (*Rumex obtusifolius* and *R.crispus)*, buttercup (Ranunculus repens), cow parsley (*Anthriscus sylvestris*), ragwort (*Senecio jacobaea*), dandelion (*Taraxacum officinale*) and Yorkshire Fog (*Holcus lanatus*) with occasional patches of nettle (Urtica dioica) and phragmities colonising.

Target Note: Ruderals and Rough Grassland
On the eastern boundary of the field adjacent to Crease Drove is a small patch of disturbed ground within which there is a hard standing track, a small area of concrete pad and some vegetated soil mounds alongside an area of coarse grassland that is uneven with ruts and other signs of disturbance present. There is a single semi-mature Goat Willow (*Salix caprea*) of small stature adjacent to the road in this location.

The vegetation is well-established although one or two areas of bare ground are still present. The grass is dominated by Yorkshire Fog (*Holcus lanatus*) with patches of perennial ryegrass (*Lolium perenne*) and even some Fescue (*Festuca* sp) present. Other species present include all of the species noted along the field margins with the addition of occasional mugwort (*Artemesia vulgaris*), sowthistle (*Sonchus asper*), plantain (*Plantago lanceolata*), cranesbill (*Geranium* sp) and willowherb (*Epilobium angustifolium*) commonly found in disturbed areas of waste ground such as this. There was no evidence of any unusual or rare species present but the inspection was completed outside of the optimum survey season for many plants.

It should be noted that whilst this small parcel of land does not contain any significant trees, it is noted within the South Holland District Council on line mapping system as being protected under a Tree Preservation Order.

Target Note: Broad leaved Trees
There are no significant trees within the survey area but there are two significant mature trees situated adjacent to the northern boundary of the field within the road verge of Monks Meadow. The table below provides details of the two trees.

Tree	Height	Trunk diameter	Crown Spread and Shape
Cultivated Maple *Acer palmatum* CUL	13m	770mm	N-8, S-7, E-6, W-5 Single trunk with 2m of clearance supporting a broad headed crown extending east at height.
Sycamore *Acer pseudoplatanus*	11m	375mm	N-5, S-4. E-5, W-4 Single trunk dividing into an upright crown suppressed on the west side.

Maple (left) and Sycamore (right) on Monks Meadow

Residential gardens
Maple and Sycamore
Steep sided dredged drainage channel
Shallow soil bund
Track and concrete
Waste ground
Shallow drain
Small Hawthorn
adjacent properties
ditch
Arable Field
footpath
MONKS MEADOW
verge
concrete track
grass
area of stockpiles
CREASE DROVE
Warehouse & Packing Station
Hedge Row
0
50
meters
N

3.2 Evidence of Protected Species

No indications of protected species were found within the site area.

Reptiles: The walkover survey of the field and field margins was completed on a grid pattern looking for evidence or indication of reptiles. No sightings or physical evidence of reptiles was seen during the initial survey which was completed within a sub-optimum season.

It is possible that there may be some reptiles within the boundary areas and occupying the waste ground adjacent to Crease Drove. However, no significant features offering refugia were noted during the survey and no basking reptiles were disturbed. The biological records for the area contain a very small number of sightings relating to land to the north west of Crowland where there is more suitable grassland habitat. There are no records within the site area or immediately adjacent land. Considering the size of the site, the uniform arable character of this and the relative isolation caused by the housing and commercial buildings on two sides and open arable land surrounding it, the potential for a significant population of reptiles to be present at the site is considered to be low. Further surveys for reptiles are not recommended.

Amphibians: There are no ponds or significant wetland area within the site area or in adjacent land (unless there are small amenity ponds within adjacent gardens too small to be seen from aerial view or to be shown on the Ordnance Survey).

The terrestrial habitat within the area surveyed comprises bare arable land recently cultivated which has negligible potential to support amphibians. It is considered very unlikely that the site area is of potentially high value to GCN and the potential for this species to be present within the site is considered to be very low. Further surveys for amphibians are not recommended.

Chiroptera: There are known to be a number of roosts within the local area identified within the biological records. The wider area surrounding the site is open arable land with few features but there are linear waterways and scattered woodland areas to the west of Crowland which will be suitable for foraging and commuting bats.

It is clear that there are no mature trees or structures present within the site that could offer potential roosting locations. Considering the open character of the site it is considered unlikely that it forms a significant part of any local commuting or foraging route for local bat populations in this area. Further assessment of bat activity on the site is unlikely to be required and further bat surveys are note recommended.

Birds: The local area supports a range of bird species including schedule 1 species. However during the inspection of the site it is clear the open and recently cultivated land did not provide any cover for ground nesting birds and little foraging opportunities. The immediate locality did not appear to be particularly rich in bird species, presumably due to the presence of housing and exposed nature of the surrounding land.

The small area of waste ground / grassland adjacent to Crease Drove could potentially provide habitat for nesting or foraging although this is a very small area which is presumably disturbed on a seasonal basis. There are short sections of hedgerow and areas of tall perennials along the boundaries of the adjacent residential gardens could potentially support nesting birds although this area is likely to be predated by local cats.

The potential presence of nests across the site area may increase once a crop is in place and the ground is sufficient vegetated although significant nesting activity is not anticipated, even along the boundary areas. No Schedule 1 bird species were seen during the site inspection.

Further surveys for nesting birds are unlikely to be required unless well-established vegetation is to be cleared during the nesting season. Any vegetation clearance carried out during the bird nesting season will need to be preceded by an inspection by an experienced ecologist as a precautionary measure.

Invertebrates: The area assessed does not appear to support a diverse range of flora and is not a location with a high density of nectar producing plants. The potential for a significant assemblage of invertebrates to be present is low. Further invertebrate surveys are not recommended.

Mammals: The inspection of the site area has not identified any field signs of larger mammals. There are no signs of any setts, latrines or snuffle holes within the site area surveyed. Further surveys for badgers are not recommended. Whilst there are records of Water vole in the area there are no water features on the site and the drainage ditch adjacent to the western boundary has recently been cleared of vegetation and there is no indication of any burrow entrances along the bank of this. The water flow appears shallow and is probably seasonal rather than permanent.

3.3 Ecological Constraints and Opportunities

At the present time the potential development of the site is still being considered but a conceptual development plan has been provided shown as Figure 4 below.

Figure 4 – Conceptual Development Plan

Constraints:
No significant ecological constraints have been identified within the area surveyed being considered for development.

However, it would be prudent to considering incorporating the following into any scheme:

1. A 5m buffer zone between any development / construction and the drainage channels along the western and southern boundaries of the site;
2. A 5m buffer zone along the northern boundary adjacent to the gardens and Monks Meadow in order to protect the trees and shrubs established along these perimeter areas.

Opportunities:
The relative isolation of the site in an areas of residential housing, commercial buildings and surrounding arable land limits the potential for significant enhancement. However, within any proposed development of the site area the following measures to enhance biodiversity should be considered:

1. The landscaping for the site area shown within the conceptual development plan should comprise native tree and shrub species wherever possible.
2. The creation of a wetland area / soakaway within the development area to attenuate and control surface water provide the opportunity to create habitat for invertebrates which in turn should attract other wildlife such as bats and birds. This area should be enhanced by planting native marginal plants.
3. Enhancing the potential for the site area to be used by species that can gain access such as roosting bats and nesting birds should be considered. The erection of a range of bat and bird boxes should be considered where this is appropriate and the boxes will not be disturbed.

Part 3: Initial Ecological Appraisal

4. Impact of Proposed Site Development

Within the NPPF 2012, guidance on the provision or retention of biodiversity within any proposed areas for development and measures to ensure the safeguarding of protected species are provided. Once the findings of the surveys completed on the site have been considered a more detailed final conceptual development scheme will be prepared.

4.1 Impact of the Proposals on Site Biodiversity

The level of biodiversity within the site being assessed must be a consideration in determining the *'impact on biodiversity'* that may arise from any development on the site. Within the NPPF Paragraphs 114 and 117 state that:

"Local planning authorities should..... set out a strategic approach...., planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure; (114) and,

"...minimise impacts on biodiversity and geodiversity by promoting the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity….; (117)

The site is not situated close to either of the Local Wildlife Sites identified within Section 2.4 of this report and the character of the site is very different to that within these ecologically diverse areas. There are no significant direct links between the site and these

areas although the drainage channel adjacent to the western boundary will presumably link to these linear water features in due course. The development of this parcel of arable land on the south western margin of Crowland will not impact the LWS identified or affect the sustainability of these.

The area surveyed contains arable land and a small parcel of disturbed waste ground. Overall diversity is quite limited due to the current and historic uses of this land and there is no evidence of any significant plants, plant communities or habitat present.

The site area is contained by surrounding roads, houses, commercial buildings and open arable land. These surrounding land uses partially isolate the site to some degree. It is considered likely that development of the site area surveyed could be carried out in a manner that does not have any significant impact on local biodiversity provided suitable measures are included to maintain and protect the drainage channels around the boundaries of the survey area. From the evidence of the Phase 1 Habitat Survey it does not appear that there would be any loss of significant habitat areas or fragmentation of any such habitats within the locality by isolating these as a result of development.

4.2 Impact of the Proposals on Protected Species

The requirements of Part IV of ODPM / Defra Circular 06/2005 in regard to the protection of certain species are still applicable under the new NPPF. The presence of protected species at the site must be taken into consideration. NPPF March 2012 paragraph 119 makes the following provision in relation to the presence of protected species on, or making use of, a site proposed for any development:

"The presumption in favour of sustainable development (paragraph 14) does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined."

The survey completed in October 2016 did not find any physical evidence of protected species on the site. There are no biological records indicating the site or the immediate surrounds are of significant importance to any protected species and no additional surveys for protected species have been recommended.

5. Conclusions and Recommendations

The site assessed is a roughly rectangular shaped parcel of arable land with a small parcel of waste ground on the eastern side adjacent to Crease Drove, Crowland situated on the south western edge of the village.

After inspecting the site it is concluded that:

A) The area inspected contains land of low ecological value being almost entirely occupied by intensively managed and recently cultivated arable land. There is no indication of any rare or important habitats being present on this land or in the immediate vicinity.
B) There is no indication that development of part or all of the land surveyed would result in the loss of or compromise the sustainability of any area of significant biodiversity.
C) No physical evidence of any protected species was found within the site area and there are no records of significant protected species activity in the vicinity.

Christopher Barker CEnv ACIEEM

REFERENCES

National Planning Policy Framework 2012. Department for Communities and Local Government. HMSO

JNCC (2010). *Handbook for Phase 1 habitat survey: a technique for environmental audit (revised reprint*). JNCC: Peterborough.

British Standard 42020 – British Standard for Biodiversity: Code of Practice for planning and development. British Standards Institute 2013.

The Conservation (Natural Habitats &c.) Regulations 1994: Statutory Instrument 1994 No 2716. OPSI. HMSO.

English Nature (2004). *Guidelines for Developers*. English Nature, Peterborough

Stace, C (2005) Field Flora of the British Isles. Cambridge University Press.

Trees of Britain and Northern Europe. A Mitchell. Collins 1998

Trees and Bushes of Britain and Europe. O Polunin. Paladin Press 1998.

Grasses, Sedges, Rushes and Ferns of Britain and Northern Europe. Field Guide. Collins 1987.

Wild Flowers of Britain. R Phillips. Pan Books. 1990.

Cheffings, C.M. & Farrell, L. (Eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. 2005. *The Vascular Plant Red Data List for Great Britain*. *Species Status* **7**: 1-116. Joint Nature Conservation Committee, Peterborough.

Bat Surveys: Good Practice Guidelines 2012. Bat Conservation Trust, London.

Froglife. 1999. Reptile Survey. *An Introduction to Planning, Conduction and Interpreting Surveys for Snake and Lizard Conservation.* Froglife Advice Sheet 10. Froglife.

Gent, A.H. and Gibson, S.D., eds. 1998 *Herpetofauna Workers' Manual*. Peterborough, Joint Nature Conservation Committee.

Guidelines for Preliminary Ecological Appraisal (2012). Institute of Ecology and Environmental Management (IEEM)

Web references

MAGIC: Designated area data downloaded from URL http://www.magic.gov.uk.html

National Biodiversity Network: Protected species data downloaded from URL http://data.nbn.org/interactive/map

Appendix 1 – Plant Species List

Tree and Shrub Species		***Ground Flora and Perennial Species***
Apple (*Malus domestica*) Barberry (*Berberis* sp), Blackthorn (*Prunus spinosa*) Cherry (*Prunus avium*) Currant *(Ribes sp),* Dog Rose (*Rosa canina*) Elder (*Sambucus nigra*) Goat Willow *(Salix caprea*), Hawthorn (*Crataegus monogyna*) Ivy (*Hedera helix)* Pear (*Pyrus* sp), Privet (*Ligustrum* sp) Red Damson (*Prunus domestica purpurea*). Red Robin (Photinia sp), Rowan *(Sorbus acuparia).* Sycamore (*Acer pseudoplatanus*)		Bindweed (*Bilderdykia convolvulus*), Bramble *(Rubus fruiticosa)* Buttercup *(Ranunculus repens),* Chickweed *(Stellaria media).* Cocksfoot *(Dactylis glomerata)* Couch *(Elymus repens),* Cow Parsley *(Anthriscus sylvestris)* Cranesbill (*Geranium* sp) Creeping Thistle *(Cirsium arvense),* Curled Dock (*Rumex crispus*), Cut Leaved Cranesbill (*Geranium dissectum*), Dandelion *(Taraxacum sp),* Dock *(Rumex obtusifolius),* Fescue *(Festuca rubra),* Field Poppy (*Papaver rhoeas*), Ground Ivy (*Glechoma hederacea*) Hogweed *(Heracleum sphondylium)* Mayweed *(Chamomilla suaveolens),* Meadow grass (*Poa* sp), Milfoil *(Achillea millefolium)* Mugwort (*Artemesia vulgaris*), Nettle *(Urtica dioica),* Perennial Ryegrass *(Lolium perenne)* Plantain *(Plantago lanceolata)* Ragwort *(Senecio jacobaea)* Redshank *(Polygonum persicaria)* Shining Cranesbill (*Geranium lucidum*), Speedwell *(Veronica agrestis),* Sowthistle *(Sonchus asper),* Thistle *(Cirsium arvense),* Water Mint (*Mentha aquatica)* Willowherb *(Epilobium angustifolium)* Yellow Rocket *(Barbarea vulgaris),* Yorkshire Fog *(Holcus lanatus)*

This list of plant species found within the survey area or immediately adjacent to it is not presented as a comprehensive botanical survey of the species present within the site area but provided to give an indication of the species making up the habitat areas identified.

Appendix 2 – Biological Records from GLNP

Provided as separate appendix