



Land South of Burgh Road,
Aylsham

Preliminary Ecological Appraisal

Prepared by
CSA Environmental

on behalf of
Kier Living Ltd

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CONTENTS	Page
Executive Summary	1
1.0 Introduction	2
2.0 Legislation, Planning Policy & Standing Advice	3
Legislation	3
National Planning Policy	3
Local Planning Policy	3
Standing Advice	3
3.0 Methods	4
Desk Study	4
Field Survey	4
Evaluation and Assessment	6
4.0 Baseline Ecological Conditions	7
Nature Conservation Designations	7
Habitats and Flora	8
Fauna	11
5.0 Discussion	16
Ecological Constraints	Error! Bookmark not defined.
Opportunities for Ecological Enhancement	18
6.0 Conclusions	Error! Bookmark not defined.
7.0 References	20

Appendices

Appendix A: Habitats Plan & Photosheet

Appendix B: Legislation, Planning Policy and Standing Advice

Appendix C: Desk Study Information

Appendix D: Habitats & Flora Species List

EXECUTIVE SUMMARY

The Site, located to the South of Burgh Road, Aylsham, is being promoted through the Local Plan for residential development.

CSA Environmental was instructed by Kier Living Ltd to undertake a Preliminary Ecological Appraisal (PEA) of the Site to identify ecological constraints to development, inform recommendations for design, highlight opportunities for ecological enhancement and determine the need for any additional investigation/survey work necessary.

As part of this PEA, a desk study and extended Phase 1 Habitat survey of the Site were undertaken in November 2016. The Site comprises a single arable field bound by narrow field margins and short sections of species-poor hedgerows and scrub. A line of semi-mature/mature trees is present along the eastern Site boundary and to the west of Aegel House.

No overriding constraints to development have been identified.

Where provision of sufficient on-site public open space is incorporated into the development, no significant adverse impacts are predicted in respect of nature conservation designations in the local area.

Hedgerows and mature/semi-mature trees should be retained and protected within the development where practicable. In particular, given their intrinsic ecological importance, H3 along the eastern Site boundary and the mature/semi-mature trees to the west of Aegel House and elsewhere within the Site should be retained and protected.

Precautionary working methods have been set out with respect to roosting bats, nesting birds and reptiles. A sensitive lighting scheme has been recommended to maintain dark corridors for wildlife within the Site and a precautionary pre-construction badger survey has been recommended.

The development of the Site would enable a range of ecological enhancement measures to be delivered as part of the scheme for the benefit of local wildlife.

1.0 INTRODUCTION

- 1.1 This report has been prepared by CSA Environmental on behalf of Kier Living Ltd. It sets out the findings of a Preliminary Ecological Appraisal (PEA) of Land south of Burgh Road, Aylsham (hereafter referred to as 'the Site').
- 1.2 The scope of this appraisal has been determined with due consideration for best-practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2015; 2016), and to the *Biodiversity: Code of practice for planning and development* (BS 42020:2013) published by the British Standards Institution (2013).
- 1.3 The Site occupies an area of c. 8.7ha and is located around central grid reference TG 2002 2651, on the eastern edge of Aylsham, approximately 17km north of Norwich. The Site comprises an arable field bound by hedgerows (see Habitats Plan in Appendix A).
- 1.4 The Site is being promoted through the Local Plan for residential development.
- 1.5 A desk study and extended Phase 1 Habitat survey were undertaken for the Site, the findings of which are presented herein.
- 1.6 This PEA aims to:
 - Identify any ecological constraints to development of the Site.
 - To inform design decisions.
 - Identify further ecological surveys necessary to inform a full Ecological Impact Assessment (EclA) of the Site.
 - Highlight opportunities for ecological enhancement.
- 1.7 As set out in CIEEM guidelines (2016) a PEA is typically only suitable for planning where there are no overriding ecological constraints relating to the project. This is the case with regard to this project and, as such, it is considered that a PEA would provide sufficient information upon which the Local Planning Authority to make planning decisions.

2.0 LEGISLATION, PLANNING POLICY & STANDING ADVICE

Legislation

- 2.1 Legislation relating to wildlife and biodiversity of particular relevance to this PEA includes:
- The Conservation of Habitats and Species Regulations 2010 (as amended)
 - The Wildlife and Countryside Act 1981 (as amended)
 - The Natural Environment and Rural Communities (NERC) Act 2006
 - The Protection of Badgers Act 1992
- 2.2 This above legislation has been addressed, as appropriate, in the production of this report. Further information on the above legislation is provided in Appendix B.

National Planning Policy

- 2.3 The National Planning Policy Framework (NPPF) (Department for Communities and Local Government, 2012) sets out the government planning policies for England and how they should be applied. Chapter 11: Conserving and Enhancing the Natural Environment, is of particular relevance to this report as it relates to ecology and biodiversity. Further details are provided in Appendix B.
- 2.4 The Government Circular 06/2005, which is referred to by the NPPF, provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their effects within the planning system.

Local Planning Policy

- 2.5 A number of local planning policies relate to ecology, biodiversity and/or nature conservation. These are summarised in Table B.1 of Appendix B. These policies have been addressed, as appropriate, in the production of this report.

Standing Advice

- 2.6 Natural England Standing Advice (Natural England, 2014) regarding protected species aims to support local authorities and forms a material consideration in determining applications, in the same way as any individual response received from Natural England following consultation. Standing advice has therefore been given due consideration, alongside other detailed guidance documents, in the production of this report.

3.0 METHODS

Desk Study

- 3.1 The Multi-Agency Geographic Information for the Countryside (MAGIC, 2013) online database was interrogated in November 2016 to identify:
 - Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites within 10km of the Site.
 - Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR) within 3km of the Site.
 - Other relevant data e.g. Ancient Woodland Inventory.
- 3.2 Norfolk Biodiversity Information Service (NBIS) was contacted for details of any non-statutory designations and records of protected/notable habitats and species. This information was requested for an area encompassing the Site and adjacent land within c. 2km of its central grid reference.
- 3.3 The ecology report (The Ecology Consultancy, 2012) for the adjacent land at Aegel House was also reviewed.
- 3.4 In accordance with guidelines (English Nature, 2001), a desktop search was undertaken to identify ponds within 500m of the Site which may have potential to support breeding great crested newts, using Ordnance Survey mapping, the MAGIC database and aerial photography.
- 3.5 All relevant desk study data are presented in Appendix C.

Field Survey

Extended Phase 1 Habitat Survey

- 3.6 An extended Phase 1 habitat survey was carried out in fine and dry weather conditions on 17 November 2016 by Michelle Bullock MCIEEM, encompassing the Site and immediately adjacent habitats that could be viewed.
- 3.7 Phase 1 Habitat survey (JNCC, 1990) is a method of classification and mapping wildlife habitats in Great Britain. It was originally intended to provide "...relatively rapidly, a record of semi-natural vegetation and wildlife habitat over large areas of the countryside". Phase 1 Habitat Survey methodology has been widely 'extended' beyond its original purpose to allow the capture of information at an intermediate level between Phase 1 and Phase 2 Habitat surveys. For clarity, the standard Phase 1 Habitat survey methodology has been 'extended' in this report to include the following:
 - More detailed floral species lists for each identified habitat

- Descriptions of habitat structure, the evidence of management and a broad assessment of habitat condition
 - Mapping of additional habitat types (e.g. hardstanding)
 - Identification of Priority Habitats under Section 41 of the NERC Act
 - Identification of Habitats Directive Annex I habitat types
 - Evidence of, or potential for, European Protected Species (EPS) including bats, great crested newt, dormouse and otter
 - Evidence of, or potential for, other protected species (including birds, reptiles, water vole, badger and certain invertebrates)
 - Evidence of, or potential for, other notable species (including S41 Priority Species as well as notable, rare, protected or controlled plants and invertebrates)
- 3.8 Results of the extended Phase 1 Habitat survey are presented on the Habitats Plan in Appendix A and in Table D.1 of Appendix D, which includes a list of floral species recorded in each habitat.

Preliminary Ground-level Roost Assessment

- 3.9 The aim of this survey is to determine the actual or potential presence of bats and the need for further survey and/or mitigation. The method described below has been followed with due consideration of the current guidelines (Collins, 2016).
- 3.10 A detailed inspection of the exterior of trees at the Site from ground level was undertaken on 17 November 2016 by Michelle Bullock MCIEEM to (1) identify Potential Roost Features (PRFs) and (2) locate any evidence of bats such as live or dead specimens, bat droppings, urine splashes, fur-oil staining, feeding remains (moth wings) and/or squeaking noises. The inspections were carried out systematically and consistently around all parts of the tree, from all angles and from both close to the trunk and further away. Equipment used included a ladder, high-powered torches and close-focusing binoculars, as appropriate.
- 3.11 *Limitations* – There were no limitations to the survey.

Assessment

- 3.12 Following the inspection, each tree was assigned one of the following categories in respect of its suitability to support roosting bats:
- *Negligible*: no obvious PRFs.
 - *Low*: A tree of sufficient size and age to contain PRFs but none seen from the ground or features seen only with very limited roost potential.
 - *Moderate* – a 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.
 - *High* – a 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.

- 3.13 The category to which each tree is assigned determines the need for further targeted surveys to confirm the presence/likely absence of roosting bats.

Limitations

- 3.14 The botanical descriptions within this report are based on a survey undertaken outside of the optimal period for botanical surveying, when some plant species may not be visible above ground. Whilst this is unlikely to compromise the objective of broadly categorising the habitat types present, it is possible that some species could be missed.

Evaluation and Assessment

- 3.15 The evaluation and assessment of ecological features is beyond the scope of this PEA and has therefore not been undertaken. Formal evaluation and assessment of any identified important ecological features should be undertaken as part of either a full EclA, or receptor-specific survey and assessment in accordance with the published CIEEM methodology (CIEEM, 2016).

4.0 BASELINE ECOLOGICAL CONDITIONS

Nature Conservation Designations

Statutory

- 4.1 There are no statutory designations covering any part of the Site.
- 4.2 A single internationally important statutory designation, namely Norfolk Valley Fens Special Area of Conservation (SAC), is present within 10km of the Site.
- 4.3 There are no nationally or locally important statutory designations present within 3km of the Site.
- 4.4 These statutory designations are described in Table 1 below.

Table 1. Statutory and Non-Statutory Designations within Data Search Radii

Site Name & Designation	Distance & Direction from Survey Area	Brief Description of Designated Site
Internationally Important Designations within 10km		
Norfolk Valley Fens SAC	c. 4.6km south-west	A composite designation, primarily designated for the presence of rare spring fed alkaline fens which support a rich floral assemblage, in addition to strong populations of narrow-mouthed whorl snail <i>Vertigo angustior</i> and Desmoulin's whorl snail <i>Vertigo moulinsiana</i> . Also supports a diverse range of other Annex I habitats including; northern atlantic wet heaths, European dry heaths, semi-natural dry grasslands and scrubland facies on calcareous substrates, <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils, calcareous fens and alluvial forest.
Non-statutory Designations within 2km		
Marriott's Way CWS	c. 0.3km west	A disused railway line comprising cuttings and embankments. The citation covers 35km from Hellesdon to Aylsham. Trees and scrub form the dominant vegetation type. The soil type is largely acidic.
Burgh Hall Woods & Plantation CWS	c. 1.1km north-east	Comprises several differing woodland habitats. Dominated by broadleaved woodland.
Weavers' Way CWS	c. 1.7km north-east	A disused railway line comprising semi-improved neutral and acid grassland and scattered scrub.
Lodge Farm Meadows CWS	c. 1.3km north	Comprises grazed semi-improved neutral grassland adjacent to the

		western bank of the River Bure. Also comprises a hedge which runs along a shallow ditch and an area of alder carr.
Holly's Grove CWS	c. 1.5km north	Broadleaved plantation adjacent to the River Bure.
Pond Wood CWS	c. 1.3km north-west	Broadleaved woodland supporting some boggy areas, a pond and a steep-sided drain.
The Mermaid CWS	c. 1.8km south-west	A long continuous wildlife corridor that connects to two other CWS's to the west. Comprises a stream and adjacent habitats including trees, scrub and species-rich marshy grassland.

Non-Statutory

4.5 Seven non-statutory designations are present within 2km of the Site.

4.6 These non-statutory designations are described in Table 1 above.

Ancient Woodland

4.7 There are no Ancient Woodland sites covering any part of the Site or within 2km of the Site.

Habitats and Flora

Notable Flora Records

4.8 The NBIS have provided a single record for a single notable plant species from within the search area, namely scots pine *Pinus sylvestris*. This species is of no relevance to the Site as it is not native to the area. In addition, NBIS have provided 19 records of four non-native invasive plants listed on Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended), namely Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandulifera*, floating pennywort *Hydrocotyle ranunculoides* and giant hogweed *Heracleum mantegazzianum*. None of these species were recorded at the Site at the time of survey.

Habitats

4.9 The following habitats were recorded on-site and classified in line with current Phase 1 habitat species guidance (JNCC, 1990), as illustrated in Appendix A. Detailed species lists for each habitat are provided in Appendix D.

Arable

4.10 The Site is dominated by a single arable field sown with a wheat crop *Triticum* sp. The crop had been relatively recently sown at the time of survey and therefore comprised very few common weeds. The field margins are relatively narrow (c. 1-2m wide) and species-poor, being

dominated by common grasses and ruderal species. The sward height was relatively short at the time of survey.

- 4.11 "Arable field margins" and "cereal field margins" are a section 41 habitat of principle importance and a Norfolk BAP habitat, respectively. However, the field margins present at the Site are unlikely to meet the criteria for either of these categories as they are narrow and not managed specifically to provide benefits to wildlife

Hedgerows

- 4.12 There are seven hedgerows present within/adjacent to the Site, labelled H1-H7 on the Habitats Plan and described below.
- 4.13 H1 is relatively short in height (c.1.5m) and in length (c. 30m) and of poor structure, being sparse and gappy. The hedgerow is dominated by blackthorn *Prunus spinosa* with occasional semi-mature and mature trees including pedunculated oak *Quercus robur*, osier *Salix viminalis* and hawthorn *Crataegus monogyna*. The hedgerow appears to have been recently flailed and topped.
- 4.14 H2 is a section of hedgerow associated with the end of Rippingall Road at the western Site boundary. The hedgerow is very short in length (c. 15m) and dominated by ornamental species including cherry laurel *Prunus laurocerasus*, privet *Ligustrum* sp. and Wilson's honeysuckle *Lonicera nitida*.
- 4.15 H3 is a line of trees comprising semi-mature and mature trees (including osier, field maple *Acer campestre* and pedunculated oak) sparsely distributed along part of the eastern site boundary and interspersed with sparse elder *Sambucus nigra*, bramble *Rubus fruticosus* agg. and hazel *Corylus avellana* coppice. Large gaps are present along its length which are dominated by tall ruderal species and bracken *Pteridium aquilinum*.
- 4.16 H4 is a section of hedgerow associated with the northern boundary, adjacent to burgh road. The hedgerow is very short in height (c. 1m) and length (c.30m) and is intensively managed. The hedgerow is dominated by blackthorn with an associated semi-mature pedunculated oak and semi-mature beech *Fagus sylvatica*.
- 4.17 Hedgerows H5-H7 are associated with the off-site Aegel House. The hedgerows are largely located off-site on the other side of a wire fence but there is some encroachment onto the site. These hedgerows are generally tall (c.3+m) dense and continuous, although short in length (70-100m) and dominated by beech and hawthorn.
- 4.18 The ground flora of all the hedgerows is generally synonymous with the field margins.

- 4.19 Hedgerows are included within Norfolk BAP. In addition, all hedgerows “consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species” are covered by the Section 41 habitat of principal importance ‘hedgerows’, as such H1 and H3-H7 would likely qualify as Priority Habitats. Given the dominance of non-native species, H2 is unlikely to qualify. Hedgerows are defined within the Hedgerow Survey Handbook (Defra, 2007) as “A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less than 20m wide” and as such, strictly speaking H2 is not considered to be a hedgerow in any case. The Hedgerow Survey Handbook (Defra, 2007) defines a species-rich hedgerow as that which contains at least 5 native woody species and as such H3 is considered species-rich.

Trees

- 4.20 Trees present at the Site range from young to mature and are generally located along hedgerows (see above) and to the west of Aegel House, although very occasional standalone trees are present at the Site boundaries. Species present are predominantly native and include cherry *Prunus* sp., pedunculated oak and osier. Trees of particular note for their ecological importance due to their size and age include a mature osier to the west of Aegel House and a mature pedunculated oak tree associated with H3 along the eastern boundary. Saplings of cherry and ash *Fraxinus excelsior* are also present.

Scrub

- 4.21 Occasional scattered scrub is present at the Site boundaries, predominantly in the form of bramble.
- 4.22 A bank is present in the north-east of the Site comprising continuous scrub, dominated by elm *Ulmus* sp., with occasional young and semi-mature trees including osier and sycamore *Acer pseudoplatanus*. Patches of tall ruderal vegetation, predominantly common nettle *Urtica dioica*, are also present along the bank. Fallen deadwood is also present in this area.

Bracken

- 4.23 Continuous bracken is present along the south-eastern site boundary and scattered bracken is present along the eastern boundary. In places this is interspersed with occasional bramble.

Tall Ruderal

- 4.24 A narrow section of land is present to the west of Aegel House. This comprises a line of semi-mature/mature trees (see above) with a ground flora dominated by ivy *Hedera helix* and tall ruderal. A small patch of tall ruderal vegetation is also present in the south-west corner of the Site and associated with the scrub covered bank in the north-east of the Site.

Bare ground

- 4.25 A small patch of bare ground is present in the north east of the Site, adjacent to the scrub covered bank. This had been cordoned off with low electric fencing at the time of survey.

Fauna

Bats

- 4.26 There are 15 bat records from within the search area dating from 2001 to 2016 and covering at least three species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus*. In addition, records for Pipistrelle *Pipistrellus* sp. were also returned. Furthermore, neither the species nor the genus was given for four of the bat records provided. The closest records are located within the same 1km grid square as the Site and include three records for roosting bats, where neither the species nor genus was provided, dating to 2001-2002. Given the description provided these roosts appear to be of low conservation significance.

Tree Inspection

- 4.27 No potential roost features were seen from ground level in association with any of the trees at the Site. However, a single tree, labelled T1 on the Habitats Plan, although no PRFs were seen from the ground, is considered to be of sufficient size and age to contain PRFs. Therefore in line with current guidance, T1 has been assessed as having 'low' suitability for roosting bats. The remaining trees present at the Site are considered to have 'negligible' suitability for roosting bats.

Commuting/foraging

- 4.28 The Site, being dominated by intensively managed arable land provides very limited, if any, opportunities for foraging/commuting bats. Similarly, the boundary hedgerows, being generally short in length, low in height, of poor structure and with limited connectivity to suitable habitats in the wider landscape, also provide very limited opportunities for foraging/commuting bats. Nonetheless, the trees and areas of scrub at the Site provide potential foraging opportunities for small numbers of bats and the line of trees at the eastern Site boundary provides a linear feature that could be used by bats for commuting. Overall, the Site is considered to be of relatively low suitability for foraging/commuting bats.

Badger

- 4.29 NBIS have provided a single record of badger *Meles meles* from within the search area. This record is confidential and no information regarding the record could be released. However, consultation with the County Badger Recorded suggests this record is not located within or adjacent to the Site and is located close to the periphery of the search area.

- 4.30 Given the habitats present, the vast majority of the Site offers potential opportunities for foraging badgers. No definitive evidence of badger, such as setts, latrines, footprints hairs etc., was recorded at the Site at the time of survey. Mammal burrows recorded along the eastern Site boundary, given their size and age are considered attributable to rabbit *Oryctolagus cuniculus*. Given that badger are known to occur in the local area coupled with the availability of suitable, it is considered badger could potentially make use of habitats at the Site to forage and dig setts.

Dormouse

- 4.31 NBIS have provided no records for dormouse *Muscardinus avellanarius*.
- 4.32 Given that the site is dominated by arable land and given the poor structure of the boundary features / hedgerows, the site is considered unsuitable for dormice. Dormice prefer complex habitat structures, with a diverse range of species to ensure they have an adequate foraging resource throughout their active period. In addition, the site lacks connectivity with suitable habitats within the wider landscape. Overall, it is considered highly unlikely that dormice utilise the site.

Water Vole and Otter

- 4.33 NBIS have provided no records of either water vole *Arvicola amphibius* or otter *Lutra lutra* from within the search area.
- 4.34 Given the absence of watercourses within Site or adjacent to the Site, the Site is considered entirely unsuitable for riparian species including water vole and otter.

Other Mammals

Brown Hare

- 4.35 NBIS have provided two records of brown hare *Lepus europeus* from within the search area dating from 2001 to 2010. The closest record is located c. 1.7km north of the Site.
- 4.36 No evidence of brown hare, which is a Priority Species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, was recorded at the Site at the time of survey. However, the majority of the Site, being dominated by arable land, provides potential opportunities for brown hare. In addition, given the records returned from NBIS, brown hare are known to be present in the local area. The potential for brown hare to be present is, however, somewhat reduced by the proximity of housing.

Hedgehog

- 4.37 NBIS have provided seven records of hedgehog *Erinaceus europaeus* from within the search area dating from 2001 to 2014. The closest record

is for road kill located within the same grid square as the Site, dating to 2001.

- 4.38 The vast majority of the Site, being dominated by intensively managed arable land, is considered to provide a poor habitat for hedgehogs. However, the field margins and scrub/hedgerows at the periphery of the Site, as well as the adjacent residential gardens provide potential foraging/sheltering opportunities for this species.

Harvest Mouse

- 4.39 NBIS have provided no records of harvest mouse *Micromys minutus* from within the search area.
- 4.40 The Site, being dominated by intensively managed arable land with narrow field margins and structurally-poor hedgerows is considered sub-optimal for harvest mouse. This species favours areas of tall grasses/reeds/cereals such as road side verges, hedgerows, reed beds, dykes and salt marshes where nests can be built.

Birds

- 4.41 NBIS have provided 85 records of 38 bird species from within the search area dating from 2003 to 2014. Those of potential relevance to the Site include marsh harrier *Circus aeruginosus*, buzzard *Buteo buteo*, hobby *Falco subbuteo*, peregrine *Falco peregrinus*, golden plover *Pluvialis apricaria*, lapwing *Vanellus vanellus*, turtle dove *Streptopelia turtur*, cuckoo *Cuculus canorus*, barn owl *Tyto alba*, short-eared owl *Asio flammeus*, swift *Apus apus*, green woodpecker *Picus viridis*, grey wagtail *Motacilla cinerea*, black redstart *Phoenicurus ochruros*, fieldfare *Turdus pilaris*, song thrush *Turdus philomelos*, spotted flycatcher *Muscicapa striata*, marsh tit *Poecile palustris*, house sparrow *Passer domesticus*, yellowhammer *Emberiza citronella* and corn bunting *Emberiza calandra*.
- 4.42 During the Phase I habitat survey, blackbird *Turdus merula* was recorded along the eastern site boundary and several rook *Corvus frugilegus* were recorded within the arable crop. The habitats present at the Site including the arable land, field margins and boundary features offer potential foraging and sheltering opportunities for common garden and farmland birds.

Reptiles

- 4.43 NBIS have provided three records of a single reptile species, namely slow-worm *Anguis fragilis*, from within the search area, all of which are located c. 1.6km west and date to 2003.
- 4.44 The majority of the Site, being dominated by intensively managed arable land, is considered unsuitable for reptiles. The periphery of the Site including the field margins and associated hedgerows and scrub

habitat provide potential foraging/sheltering habitat for this species group. However, these habitats present at the Site are very limited in extent. The railway line located immediately to the south of the Site provides a potential dispersal corridor. Given the very limited extent of suitable habitats present at the Site coupled with connectivity of the Site to suitable habitats in the surrounding area, there is potential for reptiles to make use of the Site. However, the Site is considered unlikely to support a resident reptile population.

Amphibians

- 4.45 NBIS have provided five records of two notable amphibian species from within the search area, including great crested newt and common toad. The closest record for great crested newt is located 1.7km north of the Site and the closest record for common toad is located 1.6km north-west of the Site. Both records date to 2005.
- 4.46 Given the absence of aquatic habitats within and adjacent to the Site, it is considered unlikely that amphibians such as common toad *Bufo bufo* make use of the very limited availability of suitable habitats at the Site (i.e. field margins and scrub/hedgerow bases).

Great Crested Newt

- 4.47 There are no ponds or other aquatic habitats within the site that could be used by breeding amphibians such as great crested newt *Triturus cristatus*.
- 4.48 The majority of the Site, being dominated by intensively managed arable land, is considered suboptimal for great crested newts. However, the field margins and associated hedgerows/scrub, although limited in extent, afford potential foraging, sheltering and dispersal opportunities for this species.
- 4.49 A review of the 1:25,000 Ordnance Survey map for the area shows that six waterbodies are present within 500m of the site (see Pond Location Plan at Appendix F). The closest pond is located c. 200m east and the remaining five ponds are located beyond 250m from the Site boundary. All six ponds are well separated from the Site by significant barrier(s) to newt dispersal in the form of residential development and/or major roads including the A140. As such, despite the availability of limited terrestrial habitat at the Site, development at the Site is considered highly unlikely to have an effect on any great crested newt should they be present within any of the six identified ponds.

Invertebrates

- 4.50 NBIS have provided two records of two invertebrate species from within the search area, namely tanner beetle *Prionus coriarius* (a Nationally Notable beetle) and swallowtail *Papilio machaon* (a butterfly protected under Schedule 5 of the Wildlife and Countryside Act, 1981 (as

amended)). The swallow tail record is not of relevance to the Site given the absence of its sole larval food plant, milk-parsley *Peucedanum palustre*. The record for tanner beetle is located c. 1.1km north-west of the Site and dates to 2008.

- 4.51 Given the habitat types present, the Site is expected to support a limited range of common invertebrate species. The scrub covered bank in the north-east of the Site comprises decaying fallen deadwood thereby providing potential opportunities for saproxylic invertebrates.

5.0 DISCUSSION

- 5.1 The Site is being promoted through the Local Plan for residential development, for approximately 250 units. The majority of the Site, comprising intensively managed arable land is considered to be of limited intrinsic ecological importance.

Designated Sites

Norfolk Valley Fens SAC

- 5.2 The main adverse impacts on this designation arise from inappropriate habitat management and water abstraction. Additional development in close proximity to the SAC could increase abstraction which could impact on water availability in the area. However, given the distance of the Site from the SAC, development at the Site is considered very unlikely to have a significant adverse effect on the qualifying features of the designation through water abstraction or any other means.

Marriot's Way CWS

- 5.3 Marriott's Way County Wildlife Site (CWS), the closest designation to the Site, is accessible via the public footpath located immediately to the south of the Site. Adverse impacts arising from development at the Site on this CWS could include increased recreational pressure such as trampling of the diverse ground flora and dog fouling altering the PH of the soil. However, these indirect effects could be appropriately mitigated through the provision of on-site public open space, including an area for exercising dogs, thereby minimising recreational pressure arising from development at the Site on the CWS.
- 5.4 The remaining six non-statutory designations are considered sufficiently separated from the Site such that adverse impacts arising from the development upon these designations is considered unlikely.

Habitats

Hedgerows/trees

- 5.5 Development at the Site should seek to retain hedgerows and semi-mature/mature trees where practicable. In particular, H3 (which is of elevated ecological importance given its species-richness and presence of a number of semi-mature/mature trees) and the mature/semi-mature trees to the west of Aegel House should be retained.
- 5.6 In the absence of mitigation, retained hedgerows/trees at the Site would be vulnerable to damage during the construction phase from passing construction traffic and ground compaction. Suitable protective fencing should be erected around all retained hedgerows/trees in

accordance with BS 5837:2005. This could be secured by an appropriately worded planning condition.

- 5.7 Any losses of hedgerows/trees should be compensated through alternative planting of native species. In addition, the opportunity exists for significant enhancement of the Site through additional hedgerow planting to improve connectivity through the Site and to adjacent habitats.

Fauna

Bats

- 5.8 A single tree, T1, has been assessed as being of low suitability for roosting bats. In the event that removal or pruning of this tree is required to facilitate development at the Site, precautionary measures would be required to include careful cutting and lowering of limbs.
- 5.9 Given the habitats present at the Site (i.e. arable land with structurally-poor gappy hedgerows) coupled with the poor connectivity with surrounding habitat, in line with current guidelines, the Site is considered to be of no more than low suitability for foraging/commuting bats. Far superior habitats are available in the wider landscape including the River Bure c. 0.7km east and Marriott's Way CWS c. 0.3km west. As such, further surveys in respect of foraging/commuting bats are not required.
- 5.10 The Site is currently unlit. New artificial lighting of retained habitat during the construction and operational phases has the potential to disturb bats and other nocturnal wildlife. In order to maintain ecological functionality of new and existing hedgerows along Site boundaries for bats, a sensitive external lighting scheme would be required. The future lighting scheme should be developed in consultation with a bat ecologist to avoid/minimise light spill onto retained and created habitats. This will maintain a dark corridor available for bats and other nocturnal wildlife.

Badger

- 5.11 Badgers are protected under the Protection of Badgers Act (1992). Killing or injury of a badger or interference with a sett is prohibited.
- 5.12 No evidence of badger was recorded at the Site and badger are unlikely to represent a constraint to development. However, it should be noted that badgers are known to be present in the local area and could dig new setts at any time. Therefore, given the availability of suitable habitat at the Site, a precautionary pre-construction badger survey would be advisable to ensure there has been no change in the status.

Hedgehog

- 5.13 Foraging opportunities for hedgehog on Site are afforded by the narrow field margins and hedgerows. These boundary features should be

retained where practicable but in any case residential gardens and/or areas of open space would provide alternative habitat for this species to forage/shelter. Provision of cut-outs in new garden fences at ground level would allow movement of this species through the Site.

Birds

- 5.14 Wild birds, their active nests, and their eggs are protected under the Wildlife and Countryside Act 1981 (as amended).
- 5.15 In order to minimise the loss of bird nesting habitat on-site, existing boundary habitats, including hedgerows and trees, should be retained within the development wherever possible.
- 5.16 To avoid committing an offence under the Wildlife and Countryside Act 1981 (as amended), any vegetation clearance must take place outside of the bird nesting period (i.e. outside of March to August inclusive), or failing that, following confirmation by a suitably qualified ecologist that nesting birds are absent from the habitats to be cleared.

Reptiles

- 5.17 The boundary features at the Site including the field margins, scrub and hedgerow bases provide suitable, albeit limited, foraging/basking/sheltering/dispersing habitat for common reptiles.
- 5.18 Retention of these boundary features would prevent the need for reptile survey and/or mitigation. In the event that the field margins would be lost to development proposals, it is considered that reasonable avoidance measures in the form of a habitat manipulation exercise would be appropriate to minimise the risk of killing or injury of reptiles. This would include phased strimming of the field margins, outside of the hibernation period (i.e. outside of October to end-February inclusive). This would encourage reptiles, in the unlikely event that any are present, to move to suitable off-site habitats.

Invertebrates

- 5.19 The decaying deadwood in the north-east of the Site provides potential opportunities for saproxylic invertebrates. As such, this deadwood should be retained *in-situ* where practicable or moved to suitable areas of habitat within the proposed development.

Opportunities for Ecological Enhancement

- 5.20 The following opportunities for ecological enhancement have been identified:
 - Incorporation of native plants and those of wildlife value in to landscaping scheme
 - Improved connectivity of green infrastructure – new hedgerow planting, comprising native species, would enhance connectivity of

the Site to the wider landscape and provide foraging and sheltering opportunities for wildlife.

- Provision of bat roosting opportunities
- Provision of bird nesting opportunities
- Provision of invertebrate boxes/houses
- Cut-outs at ground level should be incorporated into garden fences to ensure hedgehog and other small mammals are able to move freely between new gardens within the proposed development.

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




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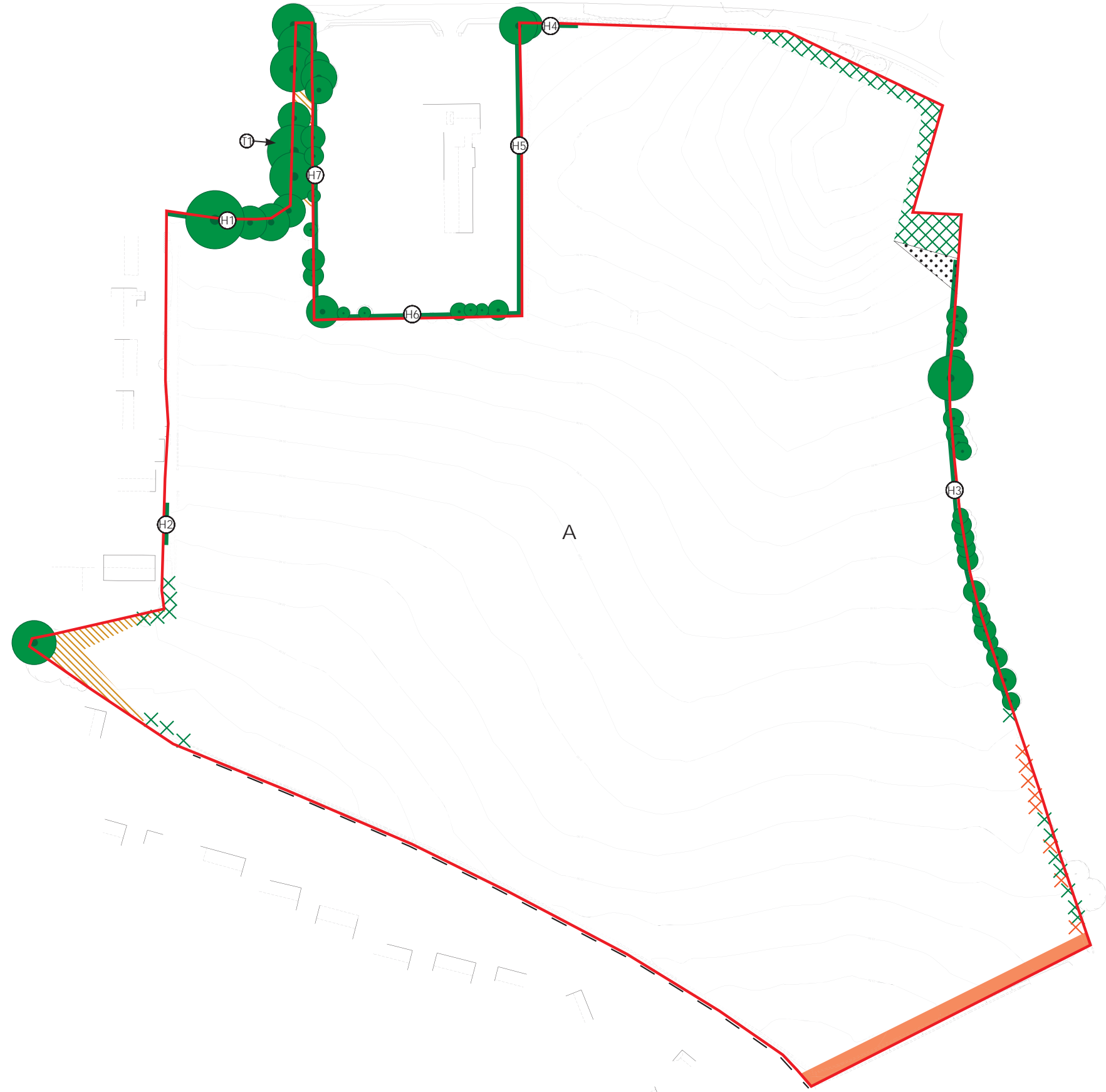
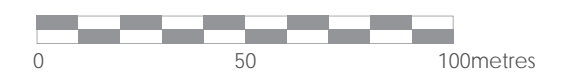
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Appendix A

Habitats Plan & Photosheet



-  Site boundary
-  Arable
-  Hedgerow
-  Dense/continuous scrub
-  Scattered scrub
-  Tall ruderal
-  Bare ground
-  Continuous bracken
-  Scattered bracken
-  Tree
-  Recreational route



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Project	Land South of Burgh Road, Aylsham	Date	Dec 2016	Drawing No.	CSA/3135/100
Drawing Title	Habitats Plan	Scale	RTS	Rev.	-
Client	Kier Living Ltd	Drawn	MJB	Checked	JW



Plate 1. Arable field showing adjacent houses associated with Rippingall Road to the west (right side of photograph)



Plate 2. Western Site boundary with H1 in background



Plate 3. Southern Site boundary adjacent to Bure Valley Walk



Plate 4. eastern Site boundary (H3)



Plate 5. Narrow section of land to west of Aegel House comprising ruderal vegetation and trees.



Plate 6. Scrub covered bank in north-east of the Site.

Appendix B

Legislation and Planning Policy

The **Conservation of Habitats and Species Regulations 2010** (as amended) enacts the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, and Council Directive 79/409/EEC on the Conservation of Wild Birds, into UK law. The Regulations allow for the designation of Statutory Nature Conservation-sites (SACs and SPAs) and European Protected Species ('EPS' including all UK bat species, great crested newt, hazel dormouse and otter) which are assigned a greater level of protection than under national legislation.

The **Wildlife and Countryside Act 1981** (as amended) forms the primary piece of UK legislation relating to the protection of habitats and species (including nesting birds, reptiles and water vole). Additionally, badgers are protected under the **Protection of Badgers Act, 1992**.

Section 40(1) of the **Natural Environment and Rural Communities (NERC) Act 2006** states that each public authority "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications, with particular regard to the Section 41 list of 56 habitats and 943 species of principal importance, irrespective of whether they are covered by other legislation. The S41 list was taken forward for action under the UK BAP (first published in 1994). The UK BAP has now been superseded by the Biodiversity 2020 Strategy (DEFRA, 2011), which continues to prioritise the S41 list, setting national targets for the period to 2020, and the UK Post-2010 Biodiversity Framework (JNCC & DEFRA, 2012), which shows how these contribute to targets at the European level. Whilst BAPs are therefore no longer formally recognised, many of the tools and resources originally developed for the BAP remain in use, such as the background information which still forms the basis of work at national level.

National Planning Policy Framework (2012) (NPPF) sets out the government planning policies for England and how they should be applied. With regards to ecology and biodiversity, Chapter 11: Conserving and Enhancing the Natural Environment, paragraph 109, states that the planning system and planning policies should:

- Minimise impacts on, and provide 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".
- Recognise the wider benefits of ecosystem services.

Under these aims, paragraph 117 states the need to plan for biodiversity at a landscape scale, linked to national and local targets. Paragraph 118 sets out the principles that local planning authorities should apply when determining planning applications:

- Refuse planning permission if significant harm cannot be avoided, adequately mitigated, or, as a last resort, compensated for
- Encourage opportunities to incorporate biodiversity in and around developments
- Permission should not normally be permitted where an adverse effect on a nationally designated Site of Special Scientific Interest is likely, either individually or in combination with other developments
- Refuse planning permission if development will result in the loss or deterioration of irreplaceable habitats, such as ancient woodland and the aged or veteran trees, unless the need for, and benefits of, the development in that location clearly outweigh the loss

The **Government Circular 06/2005**, which is referred to within the NPPF, defines statutory nature conservation-sites and protected species as a material consideration in the planning process.

Local planning policies of relevance to ecology, biodiversity and/or nature conservation have been set out in Table B.1 below.

Table B.1. Summary of regional and local planning policy relating to ecology

Policy	Summary
Joint Core Strategy for Broadland, Norwich and South Norfolk	
Policy 1: Addressing climate change and protecting environmental assets	<p><i>"To address climate change and promote sustainability, all development will be located and designed to use resources efficiently, minimise greenhouse gas emissions and be adapted to a changing climate and more extreme weather.</i></p> <p><i>Development will therefore:</i></p> <ul style="list-style-type: none"> • be energy efficient • provide for recycling of materials • use locally sourced materials wherever possible • be located to minimise flood risk, mitigating any such risk through design and implementing sustainable drainage • minimise water use and protect groundwater sources • make the most efficient appropriate use of land, with the density of development varying according to the characteristics of the area, with the highest densities in centres and on public transport routes • minimise the need to travel and give priority to low impact modes of travel • be designed to mitigate and be adapted to the urban heat island effect in Norwich • improve the resilience of ecosystems to environmental change <p><i>The environmental assets of the area will be protected, maintained, restored and enhanced and the benefits for residents and visitors improved.</i></p>

Policy	Summary
	<p><i>Development and investment will seek to expand and link valuable open space and areas of biodiversity importance to create green networks. Where there is no conflict with biodiversity objectives, the quiet enjoyment and use of the natural environment will be encouraged and all proposals should seek to increase public access to the countryside. All new developments will ensure that there will be no adverse impacts on European and Ramsar designated sites and no adverse impacts on European protected species in the area and beyond including by storm water runoff, water abstraction, or sewage discharge. They will provide for sufficient and appropriate local green infrastructure to minimise visitor pressures. Development likely to have any adverse affect on nationally designated sites and species will be assessed in accordance with national policy and legislation.</i></p> <p><i>In areas not protected through international or national designations, development will:</i></p> <ul style="list-style-type: none"> • minimise fragmentation of habitats and seek to conserve and enhance existing environmental assets of acknowledged regional or local importance. Where harm is unavoidable, it will provide for appropriate mitigation or replacement with the objective of achieving a longterm maintenance or enhancement of the local biodiversity baseline • contribute to providing a multifunctional green infrastructure network, including provision of areas of open space, wildlife resources and links between them, both off site and as an integral part of the development • help to make provision for the longterm maintenance of the green infrastructure network • protect mineral and other natural resources identified through the Norfolk Minerals and Waste Development Framework <p><i>The built environment, heritage assets, and the wider historic environment will be conserved and enhanced through the protection of buildings and structures which contribute to their surroundings, the protection of their settings, the encouragement of high-quality maintenance and repair and the enhancement of public spaces."</i></p>
<p>Policy 2: Promoting good design</p>	<p><i>"All development will be designed to the highest possible standards, creating a strong sense of place.</i></p> <p><i>In particular development proposals will respect local distinctiveness including as appropriate:</i></p> <ul style="list-style-type: none"> • ... • the need to design development to avoid harmful impacts on key environmental assets and, in particular SACs, SPAs and Ramsar sites • ..."
<p>Development Management DPD</p>	
<p>Policy EN1: Biodiversity and Habitats</p>	<p><i>"Development proposals will be expected to protect and enhance the biodiversity of the district, avoid fragmentation of habitats, and support the delivery of a co-ordinated green infrastructure network throughout the district.</i></p>

Policy	Summary
	<p><i>Where harmful impacts may occur, it should be adequately demonstrated that:</i></p> <ul style="list-style-type: none"> <i>i. The development cannot be located where it would cause less or no harm; and</i> <i>ii. That adequate mitigation is incorporated, including specific mitigation requirements to address impacts upon international wildlife sites (Natura 2000 sites); and</i> <i>iii. That the benefits of the development clearly outweigh the impacts."</i>
<p>Policy EN3: Green Infrastructure</p>	<p><i>"All development will be expected to maximise opportunities for the creation of a well-managed network of wildlife habitats.</i></p> <p><i>Residential development consisting of five dwellings or more will be expected to provide at least 4 ha of informal open space per 1,000 population and at least 0.16ha of allotments per 1,000 population.</i></p> <p><i>Development will also be expected to make adequate arrangements for the management and maintenance of green infrastructure."</i></p>

Appendix C

Desk Study Information

11/16/2016

Site Check Report Report generated on Wed Nov 16 2016
You selected the location: Centroid Grid Ref: TG200265
The following features have been found in your search area:

Special Areas of Conservation (England)

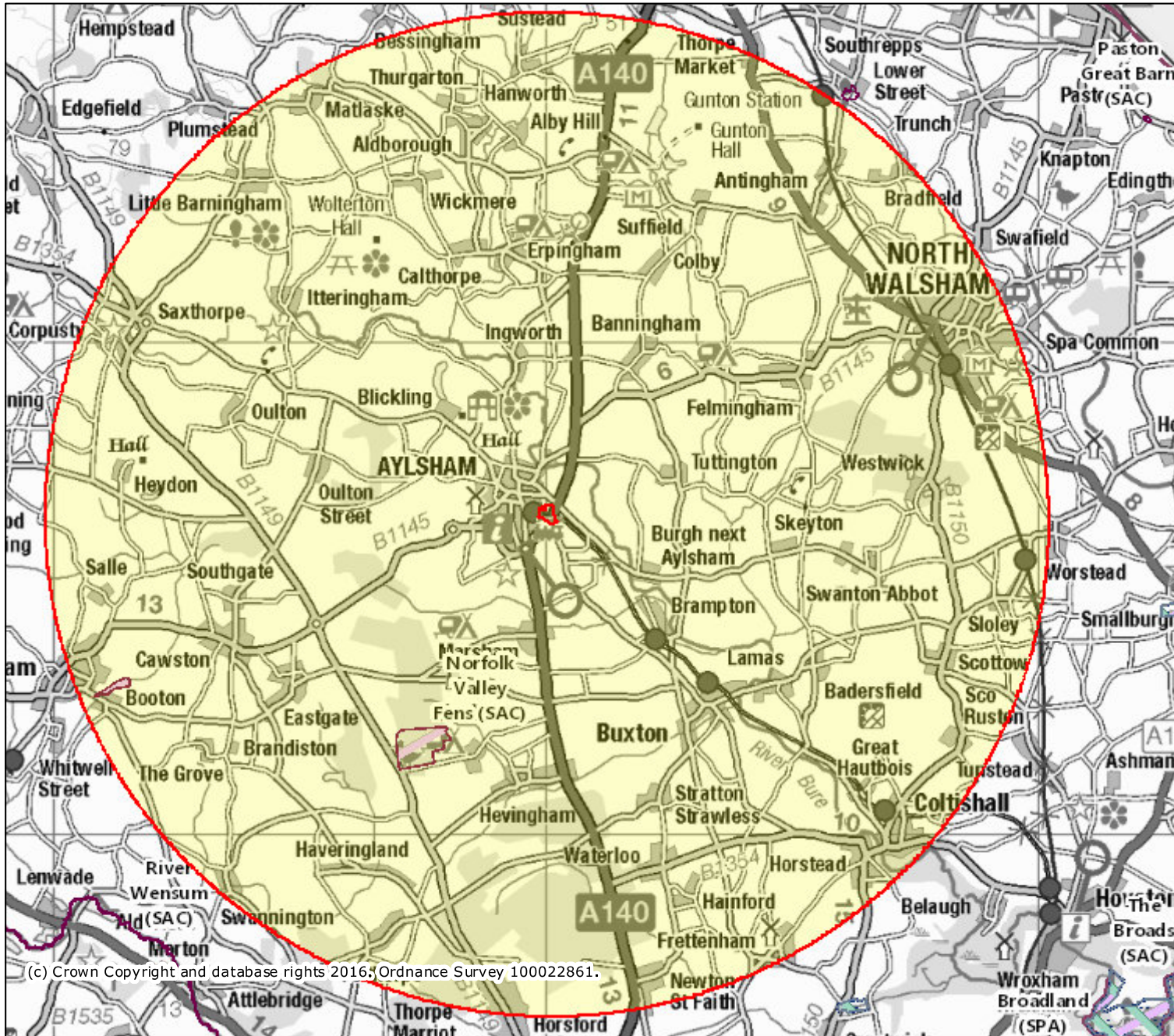
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Reference	UK0012892
Hectares	616.51
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?euocode=UK0012892

Ramsar Sites (England)




No Features found

Special Protection Areas (England)

No Features found



Legend

-  Ramsar Sites (England)
-  Special Areas of Conservation (England)
-  Special Protection Areas (England)

Projection = OSGB36
 xmin = 590700
 ymin = 311700
 xmax = 651100
 ymax = 341100

Map produced by MAGiC on 16 November, 2016.
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11/16/2016

Site Check Report Report generated on Wed Nov 16 2016
You selected the location: Centroid Grid Ref: TG200265
The following features have been found in your search area:

Local Nature Reserves (England)

No Features found

National Nature Reserves (England)

No Features found

Sites of Special Scientific Interest (England)

No Features found

11/16/2016

Site Check Report Report generated on Wed Nov 16 2016

You selected the location: Centroid Grid Ref: TG200265

The following features have been found in your search area:

Ancient Woodland (England)

No Features found

Appendix D

Habitats and Flora Species List

Table D.1 Habitats and Flora Species List

Habitat	Phase 1 Reference Codes	S41/Annex I status	Flora	
			Common name	Latin name
Arable	J1.1		Wild angelica	<i>Angelica sylvestris</i>
			Creeping thistle	<i>Cirsium arvense</i>
			Cock's-foot	<i>Dactylis glomerata</i>
			Sun spurge	<i>Euphorbia helioscopia</i>
			Cleavers	<i>Galium aparine</i>
			Ivy	<i>Hedera helix</i>
			Hogweed	<i>Heracleum sphondylium</i>
			Yorkshire-fog	<i>Holcus lanatus</i>
			White dead-nettle	<i>Lamium album</i>
			Nipplewort	<i>Lapsana communis</i>
			Common mallow	<i>Malva sylvestris</i>
			Curled dock	<i>Rumex crispus</i>
			Groundsel	<i>Senecio vulgaris</i>
			Milk thistle	<i>Silybum</i> sp.
			Comfrey	<i>Symphytum</i> sp.
			Wheat	<i>Triticum</i> sp.
Common nettle	<i>Urtica dioica</i>			
Hedgerow (with trees)	J2.3	S41 Priority Habitat "Hedgerows"	Field maple	<i>Acer campestre</i>
			Wild angelica	<i>Angelica sylvestris</i>
			Hazel	<i>Corylus avellana</i>
			Hawthorn	<i>Crataegus monogyna</i>
			Cock's-foot	<i>Dactylis glomerata</i>
			Beech	<i>Fagus sylvatica</i>
			Cleavers	<i>Galium aparine</i>
			Ivy	<i>Hedera helix</i>
			Hogweed	<i>Heracleum sphondylium</i>
			Yorkshire-fog	<i>Holcus lanatus</i>
			White dead-nettle	<i>Lamium album</i>
			Blackthorn	<i>Prunus spinosa</i>
			Pedunculate oak	<i>Quercus robur</i>
			Bramble	<i>Rubus fruticosus</i> agg.
			Osier	<i>Salix viminalis</i>
			Elder	<i>Sambucus nigra</i>
Comfrey	<i>Symphytum</i> sp.			
Common nettle	<i>Urtica dioica</i>			
	J2.1		Wild angelica	<i>Angelica sylvestris</i>

Intact (hedgerow)			Dogwood	<i>Cornus</i> sp.
			Hawthorn	<i>Crataegus monogyna</i>
			Cock's-foot	<i>Dactylis glomerata</i>
			Beech	<i>Fagus sylvatica</i>
			Cleavers	<i>Galium aparine</i>
			Ivy	<i>Hedera helix</i>
			Ivy	<i>Hedera helix</i>
			Yorkshire-fog	<i>Holcus lanatus</i>
			White dead-nettle	<i>Lamium album</i>
			Privet	<i>Ligustrum</i> Sp.
			Wilson's honeysuckle	<i>Lonicera nitida</i>
			Cherry laurel	<i>Prunus laurocerasus</i>
			Cherry	<i>Prunus</i> sp.
			Flowering currant	<i>Ribes sanguineum</i>
			Bramble	<i>Rubus fruticosus</i> agg.
			Curled dock	<i>Rumex crispus</i>
Elder	<i>Sambucus nigra</i>			
Comfrey	<i>Symphytum</i> sp.			
Trees			Field maple	<i>Acer campestre</i>
			Sycamore	<i>Acer pseudoplatanus</i>
			Ash	<i>Fraxinus excelsior</i>
			White poplar	<i>Populus alba</i>
			Cherry	<i>Prunus</i> sp.
			Pedunculate oak	<i>Quercus robur</i>
			Osier	<i>Salix viminalis</i>
Scrub (dense/ continuous and scattered)	A2.1 and A2.2		Hawthorn	<i>Crataegus monogyna</i>
			Holly	<i>Ilex aquifolium</i>
			Wilson's honeysuckle	<i>Lonicera nitida</i>
			Cherry laurel	<i>Prunus laurocerasus</i>
			Dog-rose	<i>Rosa canina</i>
			Bramble	<i>Rubus fruticosus</i> agg.
			Elder	<i>Sambucus nigra</i>
			Elm	<i>Ulmus</i> sp.
Bracken (continuous and scattered)	C1.1 and C1.2		Bracken	<i>Pteridium aquilinum</i>
Tall ruderal	C3.1		Ground-elder	<i>Aegopodium podagraria</i>
			Wild angelica	<i>Angelica sylvestris</i>
			Cow parsley	<i>Anthriscus sylvestris</i>
			Burdock	<i>Arctium</i> sp.
			Cock's-foot	<i>Dactylis glomerata</i>

			Teasel	<i>Dipsacus fullonum</i>
			Fine-leaved fescues	<i>Festuca</i> spp.
			Cleavers	<i>Galium aparine</i>
			White dead-nettle	<i>Lamium album</i>
			Broad-leaved dock	<i>Rumex obtusifolius</i>
			Comfrey	<i>Symphytum</i> sp.
			Common nettle	<i>Urtica dioica</i>
			Periwinkle	<i>Vinca</i> sp.
Bare ground	J4		-	-



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