

### 35.1 INTRODUCTION

35.1.1 This chapter discusses the potential impacts on terrestrial habitats, species and birds that may result specifically from development of the Compensation Site. Impacts on the aquatic environment that may result from the Compensation Site are considered in *Chapter 34*. Justification of the provision of the scale and type of habitat in the Compensation Site is provided in *Section 8* of the supporting *Habitats Regulations Assessment*, and summarised in *Chapter 11* of the Environmental Statement.

35.1.2 Impacts on the terrestrial environment and birds are identified and evaluated, possible mitigation measures are described and residual impacts are set out. Where relevant baseline data has been provided in *Chapter 11* of the Environmental Statement, this will be cross-referenced below.

35.1.3 Interaction of effects are likely to occur by direct impacts on flora and fauna and indirect impacts arising, for example, from possible noise disturbance, mobilisation of dust and sediment. Indirect impacts are discussed in this chapter where considered relevant.

### 35.2 LEGISLATION, POLICY AND GUIDANCE

35.2.1 Legislation, national policy and guidance on terrestrial ecology and birds are largely common to both the AMEP Site and the Compensation Site, and are covered in *Chapter 11*.

35.2.2 Local ERYC policies that are applicable to terrestrial ecology and birds at the Compensation Site are covered in *Chapter 34*, as many of these apply to both aquatic and terrestrial ecology.

### 35.3 ASSESSMENT METHODOLOGY AND CRITERIA

#### *Overview*

35.3.1 The methodology for assessment of impacts on terrestrial ecology and birds as a result of the Compensation Site are consistent with that used in the assessment of the AMEP site as detailed in *Chapter 11*.

## Baseline Data Collection

- 35.3.2 *Table 35.1* provides a list of those studies which have been specifically commissioned for use in the assessment of potential impacts upon terrestrial ecology and birds from the Compensation Site.

**Table 35.1** *Field Surveys*

Annex Number	Ecological Survey or Data	Interest Feature / Species	Date Undertaken
35.1	South Kilingholme Phase 1 Ecology Report. Cherry Cobb Sands	Habitats and protected species	October 2010
35.2	South Kilingholme Water Vole Survey Report. Cherry Cobb Sands	Habitats and protected species	November 2010
35.3	Protected species survey report	Protected Species	April 2011
35.4	Cherry Cobb Sands Bird Survey Results August 2010- April 2011	Waterbird data and analysis.	June 2011
35.5	Breeding Bird Survey	Breeding birds	May 2011
35.6	Black Tailed Godwit Study	Black Tailed Godwits	August 2011
35.7	Old Little Humber Farm Phase 1 Habitat Survey	Habitats and protected species	October 2011
35.8	Badger Survey at Cherry Cobb Sands	Badgers	April 2011
35.9	Badger Mitigation Strategy	Badgers	December 2011

- 35.3.3 In addition to the above data sources, a further list of literature has been compiled which has also been used to inform the assessment (as detailed in *Section 11.3*). In particular, British Trust for Ornithology (BTO) data was used to identify usage of the Humber Estuary by designated bird species in recent years.

## 35.4 CONSULTATION

- 35.4.1 Consultation comments received that relate to terrestrial ecology and birds at Cherry Cobb Sands are detailed in Annex 2.2 together with a description of how the comments have been addressed within the Environmental Statement.

***General Ecological Context***

- 35.5.1 Cherry Cobb Sands managed realignment site lies on the northern bank of the Humber Estuary. It is within the middle estuary and located between Paull Holme Strays managed realignment site to the north-west and Stone Creek to the south-east. The site is currently used for agricultural use, as is much of the surrounding area.
- 35.5.2 The ecological interest of the Middle Estuary, from a terrestrial perspective, is limited and the key habitats and species present are those generally associated with the estuary.
- 35.5.3 Old Little Humber Farm lies 1.5 km to the north-east of Cherry Cobb Sands, and comprises arable land, hedgerows and drainage ditches, typical of the surrounding area.

***Scope of Study Area***

- 35.5.4 The study area has been defined following standard IEEM guidance (2006) and the zone of influence for the site was defined as 10 km for statutory designated sites, 2 km for non-statutory designated sites, and a general field survey of all habitat within the Compensation Site red line boundary plus a buffer area 500 m around its edge.
- 35.5.5 Species records were sought from a 2 km area as provided by the North and East Yorkshire Ecological Data Centre (NEYEDC) in December 2010 for Cherry Cobb Sands and for a 10 km grid square from the National Biodiversity Network Database (NBD) for Old Little Humber Farm.

***Statutory Designated Sites***

- 35.5.6 The Cherry Cobb Sands site lies adjacent to the north bank of the Humber Estuary European Marine Site. The designated features and the conservation objectives of the European Marine Site and other protected sites within a 10 km radius are covered fully in *Chapter 11* of the Environmental Statement, and are not repeated here. There are no statutory designated sites within or adjacent to Old Little Humber Farm, although it does lie within 1.5 km of the Humber Estuary European Marine Site.

### ***Non-statutory Designated Sites***

- 35.5.7 There is one Local Wildlife Site in proximity to Cherry Cobb Sands at Ottringham Drain (TA 240 192). Local Wildlife Sites within East Riding of Yorkshire Council are currently under review and therefore details of the local site designation are not available. There are no non-statutory designated sites within or adjacent to the Old Little Humber Farm site.

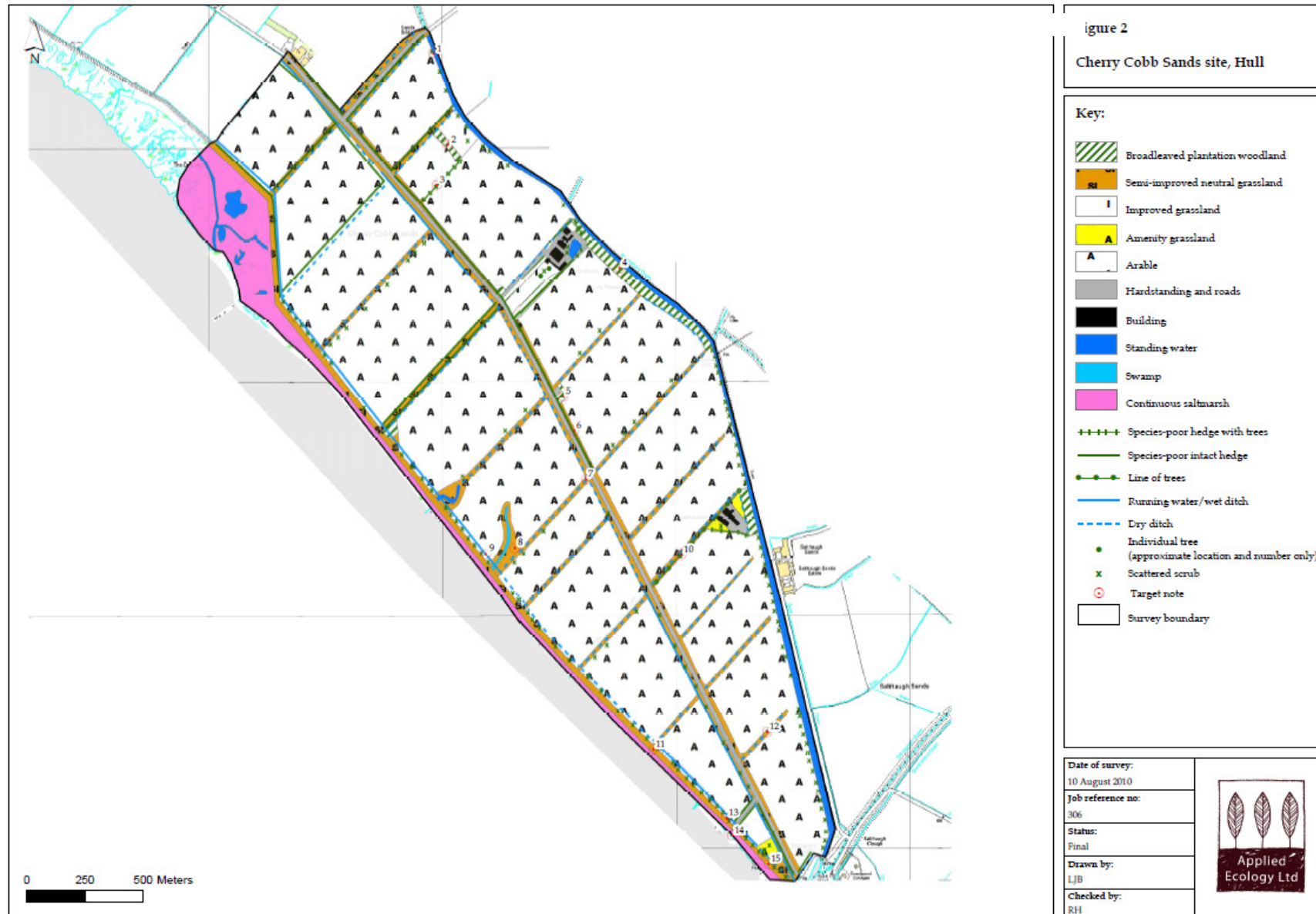
### ***Baseline Terrestrial Ecology***

- 35.5.8 This section has been informed by a number of ecology studies that have been undertaken, primarily a Phase 1 Habitat Survey, badger *Meles meles* survey, water vole *Arvicola amphibius* survey, great crested newt *Triturus cristatus* survey and a waterbird survey for the Cherry Cobb Sands site and a Phase 1 Habitat Survey for Old Little Humber Farm.

### ***Terrestrial Habitats (within Cherry Cobb Sands)***

- 35.5.9 A Phase 1 Habitat Survey of the Cherry Cobb Sands site was undertaken in September 2010 (*Annex 35.1*) which mapped all habitats within and around the boundary of the site. This survey was undertaken using standard methodology (JNCC, 1993) but was extended for use in the EIA. Habitats recorded in the survey are described using Phase 1 habitat classification and plant nomenclature (English and scientific names).
- 35.5.10 Cherry Cobb Sands is bordered by the Humber Estuary to the south and west, and Keyingham Drain to the east. Cherry Cobb Sands Road run east to west along the length of the site, with a drainage ditch running parallel to the road on its western side.
- 35.5.11 As well as being detailed in *Annex 35.1*, the terrestrial habitats present within and around Cherry Cobb Sands are shown in *Figure 35.1*.

Figure 35.1: Terrestrial habitats present within and around Cherry Cobb Sands



Source: Annex 35.1: South Killingholme Phase 1 Ecology Report. Cherry Cobb Sands

### *Standing Water*

- 35.5.12 Some sections of the roadside ditch held standing open water, with rare patches of common reed and the submerged aquatic plant fennel pondweed *Potamogeton pectinatus*.
- 35.5.13 There are no ponds directly within Cherry Cobb Sands. However, there are two ponds within the surrounding area; one is located within the grounds of Sands House (approximately 300 m north east of the site) and one within a woodland plantation immediately north of Cherry Cobb Sands Road. The former pond at Sands House was previously a slurry lagoon and comprises a large triangular farm pond (50 x 30 m) with turbid water conditions, and locally abundant emergent bulrush *Typha latifolia*. The second pond was almost dry at the time of the Phase 1 Habitat Survey undertaken in October 2010 and reported in *Annex 35.1*, and lacked aquatic vegetation.

### *Ditches*

- 35.5.14 Cherry Cobb Sands supports a network of drainage ditches, which includes a soke dyke, approximately 2 m wide, which runs along the landward side of the flood embankment (the majority of which supports standing open water), a large drainage channel along the western side of Cherry Cobb Sands Road (around half of which supports standing open water), and intersecting drainage ditches that form boundaries between arable fields (which are mainly dry).
- 35.5.15 The soke dyke is partly shaded by hawthorn and scrub along its western margin and the majority has significant silt accumulation. Aquatic vegetation was sparse at the time of the Phase 1 Habitat Survey, with occasional patches of common reed *Phragmites australis* and sea club-rush *Bolboschoenus maritimus*. A single extensive stand of sea club-rush is present in a drain adjoining the dyke.
- 35.5.16 The roadside drainage ditch is un-shaded for most of its length and comprises a steep sided channel (1.5 - 2 m wide at its base) with characteristic semi-improved rough grassland banks. Wild celery *Apium graveolens* was occasionally present at the base of the channels bank in some sections of the roadside ditch at the time of the Phase 1 Habitat Survey, and more rarely in other ditches elsewhere within the survey area. This plant species is specifically associated with coastal sites, including brackish ditches and tidal river banks in England and Wales. Although it is not a scarce or rare plant species (and has no specific conservation status in the UK), its widespread occurrence within the

site is of botanical note due to its localised occurrence on a national basis and its specific habitat requirements.

- 35.5.17 Some sections of the roadside ditch dry out and support a range of damp ground and brackish plant species, such as red goosefoot *Chenopodium rubrum*, spear-leaved orache *Atriplex prostrata* and sea aster *Aster tripolium*, and are likely to hold standing water on a temporary basis during the winter and after periods of heavy rainfall at other times of the year.

#### *Grassland and Cultivated Land*

- 35.5.18 The Compensation Site is entirely dominated by intensive arable land, which mostly comprised recently ploughed ground and cereal stubble at the time of the Phase 1 Habitat Survey. Arable weeds are very sparse and are represented by a few common species including common field-speedwell *Veronica persica*, nettle *Urtica dioica*, charlock *Sinapis arvensis*, cleavers *Galium aparine*, common orache *Atriplex patula*, common chickweed *Stellaria media*, and scentless mayweed *Tripleurospermum inodorum*.
- 35.5.19 There are three small areas of improved grassland within Cherry Cobb Sands including a small enclosed sheep-grazed pasture field in the north, a small field in the south corner close to Stone Creek and a small field immediately south of Sands House.
- 35.5.20 Semi-improved neutral grassland is confined to narrow strips along field, road and ditch edges, and along the flood embankment. The majority of this grassland is unmanaged and of similar species composition, most characteristically forming rank and species-poor swards dominated by either false oat-grass *Arrhenatherum elatius* and/or common couch *Elytrigia repens*.
- 35.5.21 A range of other grasses and forbs were present in variable abundance, including cock's-foot *Dactylis glomerata*, red fescue *Festuca rubra*, rough meadow-grass *Poa trivialis*, creeping thistle *Cirsium arvense*, hogweed *Heracleum sphondylium*, cow-parsley *Anthriscus sylvestris*, ribwort plantain *Plantago lanceolata*, tansy *Tanacetum vulgare*, perennial sow-thistle *Sonchus arvensis*, wild teasel *Dipsacus fullonum*, and tall fescue *Festuca arundinacea*.
- 35.5.22 Amenity grassland occurs only in small areas associated with residential properties, including at Stone Creek House and Sands Farm.

### *Hedgerows & Hedgerow Trees*

- 35.5.23 Occasional sections of species-poor, hawthorn dominated, hedgerow without trees are present along the roadside, and as field boundaries. A small section of species-poor hedgerow with trees exists to the north-west of the site, which included elm *Ulmus* sp., horse chestnut *Aesculus hippocastanum*, hawthorn and sycamore *Acer pseudoplatanus*. A single line of trees is present along the drive to Sands Farm.

### *Woodland*

- 35.5.24 A few small woodland plantations occur within the study area, including a linear broadleaved plantation dominated by oak *Quercus robur* and beech *Fagus sylvatica* trees, and a small area of mixed plantation consisting of Scots pine *Pinus sylvestris*, grey alder *Alnus incana* and horse chestnut *Aesculus hippocastanum*. These woodlands are considered to be of relatively limited ecological value due to their small size and lack of ancient and/or semi-natural woodland character.
- 35.5.25 'Long Plantation' is a broadleaved plantation located along Keyingham Drain to the east of Sands House. This was the largest woodland block within the Phase 1 Habitat Survey area and was dominated by various mixtures of horse chestnut, ash *Fraxinus excelsior*, beech, Scots pines and popular hybrids. The understorey was dominated by hawthorn *Crataegus monogyna* and elder *Sambucus nigra*, with a patchy nettle *Urtica dioica* dominated ground layer.

### *Scrub*

- 35.5.26 Scattered woody scrub, that was almost exclusively hawthorn, is present as an almost continuous line of bushes along the base of the flood embankment, and along Keyingham Drain.

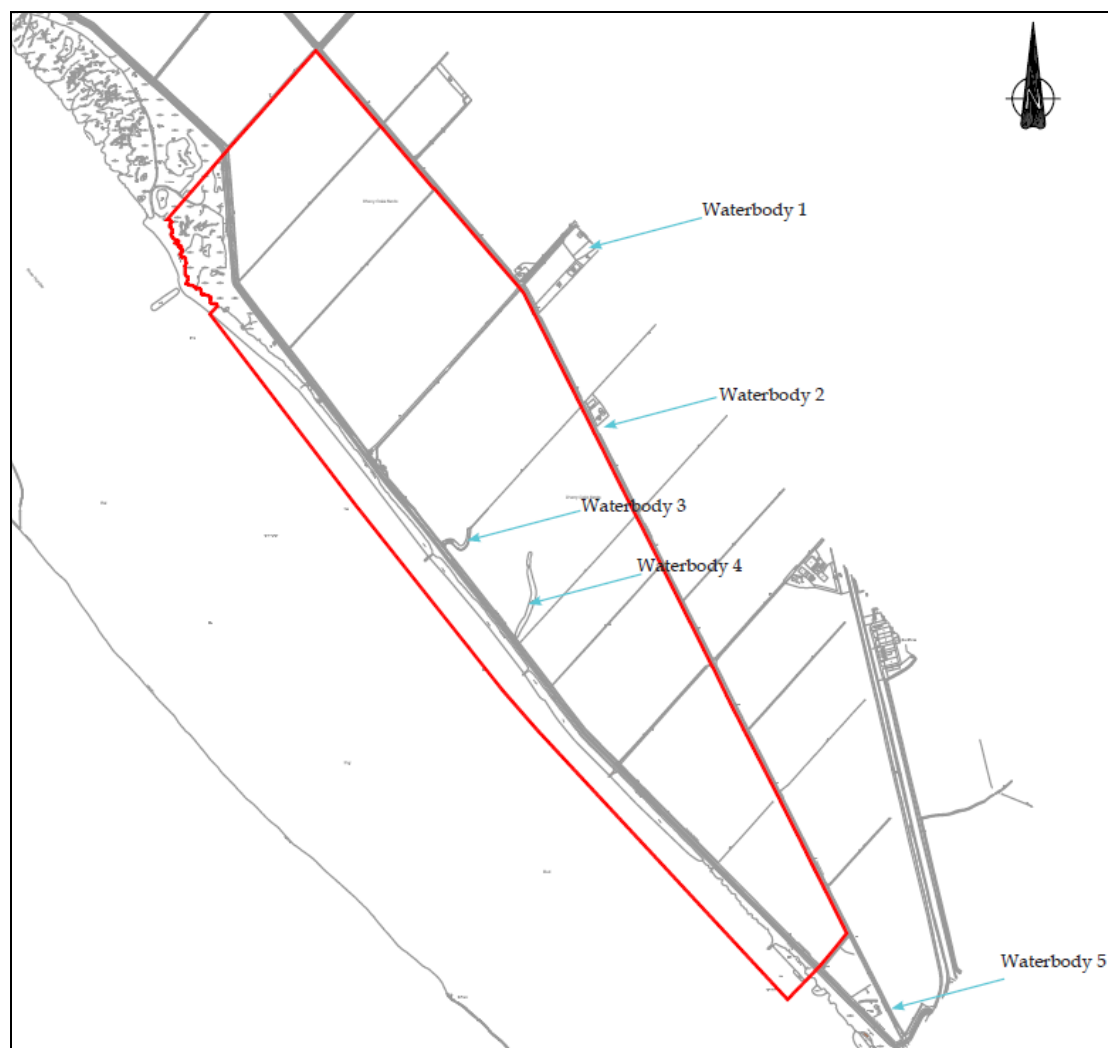
### ***Protected Species***

#### *Great Crested Newt*

- 35.5.27 Great Crested Newt (GCN) were investigated at two confirmed freshwater ponds and three other reported waterbodies either in or around Cherry Cobb Sands by Applied Ecology between the 4<sup>th</sup> April and the 10<sup>th</sup> May 2011 following the guidance produced by Natural England (then English Nature) in 2001. Further details of the guidance are provided in *Chapter 11*. A report of their findings is provided in *Annex 35.3*, and the waterbodies investigated shown in *Figure 35.2*.



**Figure 35.2**      *Waterbodies Investigated for GCN*



35.5.28      The pond at Sands House (Waterbody 1) was not surveyed due to access restrictions. This pond however, is 400 m from the site margin, and is described as a former slurry lagoon and therefore unlikely to support GCNs. Another of the waterbodies east of Cherry Cobb Sands (Waterbody 2) was dry at the time of survey and the remaining waterbodies all proved unsuitable for GCNs.

35.5.29      No GCN or GCN eggs were captured or seen on any of the four survey occasions in any of the water bodies that were surveyed.

#### *Bats*

35.5.30      There are no local records of bat species (NEYEDC, 2011) within 2 km of Cherry Cobb Sands. However, the residential housing, plantation woodland and main drain along the northern boundary of the site may be of local value to foraging/commuting bats. Buildings in proximity to the site may also be of value to roosting bats. The agricultural land

that dominates the remainder of the site is unlikely to be of importance to bats (*Annex 35.1*).

#### *Water voles*

- 35.5.31 The Phase 1 Habitat Survey noted that there were field signs of water vole along some of the permanently wet drainage channels. As a result of this, a more detailed water vole survey was undertaken on the 6<sup>th</sup> and 7<sup>th</sup> October 2010 to confirm the distribution and abundance of this protected species. A full survey report is provided in *Annex 35.2*, and is summarised below.
- 35.5.32 Water vole field evidence was searched for along the entire length of all water filled ditches within Cherry Cobb Sands. The survey methodology broadly followed that set out by Strachan & Moorhouse (2006), as summarised in *Section 11.5*.
- 35.5.33 Very little field evidence of water voles was present within the study area, with the only evidence being four suspected burrow holes in the ditch adjacent to Cherry Cobb Sands Road. No additional water vole field evidence (e.g. footprints, runs, droppings, latrines or feeding signs) was present in association with any of the four holes, and the presence of a small water vole population in this ditch is only suspected and could not be verified. The locations of potential water vole habitat within the site are shown on Sheet 12 of the Ecology Plans (application document *TR030001/APP/16*). The conclusion of the survey was that water voles are suspected to be present within the Cherry Cobb Sands site as a small transient population that may fluctuate in size and distribution according to ditch water levels.

#### *Reptiles*

- 35.5.34 There are no local records of reptile species within 2 km of Cherry Cobb Sands. The arable land that makes up the majority of the site is of low value as a habitat for reptiles because it is regularly disturbed by ploughing and lacks suitable permanent cover (*Annex 35.1*). Rank semi-natural grassland (particularly the grassland along the flood embankment along the southern boundary of the site) has the potential to support reptile species such as grass snake *Natrix natrix*, however no evidence of its occupation was recorded at the time of the survey.

#### *Badgers*

- 35.5.35 A walkover survey for badgers was undertaken on the 15<sup>th</sup> December 2010 by the Badger Consultancy which identified the presence of badgers within Cherry Cobb Sands and the surrounding area. Following on from this, a badger bait marking survey and walk over

survey of the wider area enclosing the site, embankment and the surrounding habitat was undertaken between the 7<sup>th</sup> and 22<sup>nd</sup> March 2011, also by the Badger Consultancy. These surveys are reported fully in *Annex 35.3<sup>1</sup>*. The locations of badger setts within Cherry Cobb Sands are shown on Sheet 12 of the Ecology Plans (application document TR030001/APP/16).

- 35.5.36 The survey in March (*Annex 35.8*) involved a systematic search of the area with particular attention paid to areas where the vegetation and/or the topography offered suitable sett sites for badgers. Areas with dense ground cover were examined closely and if the vegetation prevented entry, the perimeter was examined for paths, suggesting a hidden sett within the area.
- 35.5.37 Each sett entrance was examined, the level of activity noted and the location mapped. The presence of badger field signs (hairs, footprints, pathways, dung pits and feeding signs) were used to record patterns of movement. The 'foraging potential' of areas within the survey area was determined by a subjective assessment of the availability and number of potential food sources.
- 35.5.38 For the bait-marking survey, bait containing peanuts, treacle, golden syrup and coloured granular plastic markers was placed at two main setts outside the site boundary. Following this, a series of systematic surveys of all known dung pits was carried out and the contents searched for the presence of bait markers.
- 35.5.39 Eight badger setts were identified within Cherry Cobb Sands and it is expected that these setts belong to at least two social groups of badgers, who also use the wider area. Four setts are within the original flood defence embankment, one sett is on the western boundary of the site and three of the setts occur along field boundaries through the centre of the site. Some of these setts appear well used, but not as main or annex setts.
- 35.5.40 Badger activity was generally found to be at low levels within Cherry Cobb Sands when compared to the wider survey area. There were fewer and smaller setts, less well worn paths and less evidence of foraging activity. However, there were signs that badgers forage within the field boundaries and also access the embankment where there is a

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(1) <sup>1</sup> Potentially exempt information in accordance with the provision of Regulation 12(5)(g) of the Environmental Information Regulations 2004 (EIR).

variety of foraging opportunities including scrub vegetation, rank grassland and access to estuarine habitat.

## 35.6 OLD LITTLE HUMBER FARM BASELINE

### *Habitats*

- 35.6.1 The survey area was relatively simple in habitat terms, being comprised almost entirely of arable fields with most boundaries formed by species-poor hedgerows and dry or wet ditches. A small plantation woodland present in the southwest corner. The Phase 1 Habitat Survey is reported in *Annex 35.7*, and a map of its findings is in *Figure 35.3*.

### *Arable Fields*

- 35.6.2 Four arable fields comprised the majority of the site as shown in *Figure 35.3*. All fields had been recently cropped (oilseed rape and wheat) and were either in stubble (Fields 1 and 3), had been freshly ploughed (Field 4), or were partially ploughed (Field 2). Where stubbles remained, arable weeds were sparse, with shepherd's-purse, *Capsella bursa-pastoris*, bristly oxtongue *Picris echinoides*, groundsel *Senecio vulgaris* and charlock *Sinapis arvensis* all occasional but widespread. Annual meadowgrass *Poa annua*, and greater plantain *Plantago major* were also occasional in less recently cultivated areas along field edges.
- 35.6.3 Most fields were edged by 2 – 3 m wide improved grassland margins dominated by false oat-grass *Arrhenatherum elatius* and with frequent cock's-foot *Dactylis glomerata*. Perennial rye-grass *Lolium perenne* and the tall ruderal species, common nettle *Urtica dioica* and cow parsley *Anthriscus sylvestris* were occasional. White clover *Trifolium repens*, ribwort plantain *Plantago lanceolata*, and lady's bedstraw *Galium verum*, were rare in these margins, being recorded mainly along the southern boundary of Field 4 (*Figure 35.3*).

### *Hedgerows*

- 35.6.4 All boundary hedgerows, apart from the western section of the northern boundary of Field 3 (*Figure 35.3*), were intact and appeared to be regularly trimmed. All were species-poor and dominated by hawthorn *Crataegus monogyna*, with dog rose *Rosa canina*, and blackthorn *Prunus spinosa* occasional. Bullace *Prunus domestica* ssp. *interstitia* was rare in the northern boundary hedgerow of Field 2. The northern boundary hedgerow of Field 3 appeared to have been cut to ground level recently, and at the time of the survey consisted of very sparse re-growth of stumps. This is described as a defunct species-poor hedge.

35.6.5 The hedgerow forming the western boundary to Field 3, though species-poor, was different in character from the others, being double for much of its length, taller and broader as a result of less frequent management. It was composed of the same woody species as hedgerows elsewhere on the site, with the addition of frequent elder *Sambucus nigra*. Its southern end was dominated by damson or bullace *Prunus domestica ssp interstitia*, extending into the western boundary of the plantation woodland at the western end of Field 4.

35.6.6 Where single woody shrubs, probably remnant hedge plants, were present along field boundaries, these were marked on the Phase 1 map as 'scattered scrub'. They were invariably hawthorn.

#### *Ditches*

35.6.7 Every boundary around and within the survey area was marked by a drainage ditch except for that along the southern edge of Field 1 (Figure 35.3). Ditches were assessed as either wet or dry based on their plant species composition.

35.6.8 The ditch containing South Ends and Thorney Crofts Drain, forming the eastern site boundary, was 2 – 3 m deep and 6 m wide at its top. It held a few cm of non-flowing water in places and was considered most likely to hold at least some water for much of the year. Within the channel, common reed *Phragmites australis* was dominant for much of its length, with occasional ruderal plants such as bristly ox-tongue, curled dock *Rumex crispus*, and spear thistle *Cirsium vulgare*. Where open water was present, a fine-leaved species of pondweed *Potamogeton sp.* and a water-starwort species *Callitriche sp.* were locally abundant.

35.6.9 Smaller ditches, marking the southern boundary of Field 2, the western boundary of Field 1 and the eastern half of the southern boundary of Field 4, were judged to be more often wet than dry, though no water was present in them at the time of survey. Typical plant species present within their steep banks included frequent common reed, tall fescue *Festuca arundinacea*, creeping bent *Agrostis stolonifera* and false fox-sedge *Carex otrobae*, and rare sea club-rush *Bolboschoenus maritimus*; all indicating a high water table near the ditch bottoms.

#### *Semi-improved Grassland*

35.6.10 The predominantly grassy sides to the ditches extended approximately three m each side, giving a grassland boundary habitat, in places up to 10 m in width. The mix of plant species present was taken as an indication that mowing was infrequent and that fertilizer and chemical

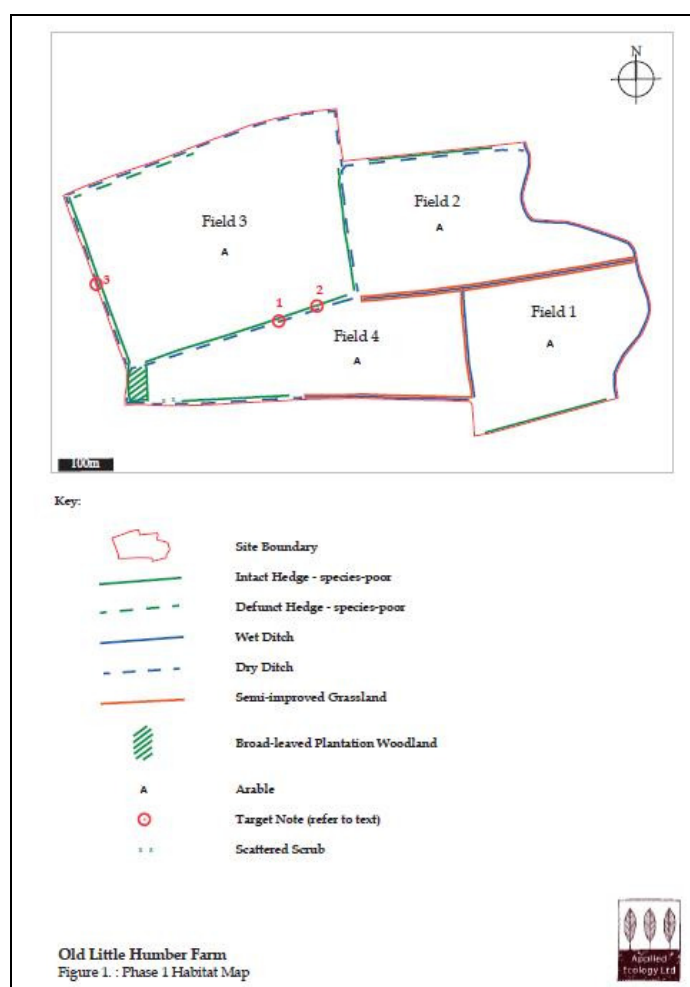
spray drift from arable farming operations had not significantly altered the flora.

- 35.6.11 All other ditches were dry and appeared to be permanently so, often with considerable leaf and woody litter accumulated in them from adjacent hedgerows.

#### *Broad-leaved Plantation Woodland*

- 35.6.12 A rectangle of broad-leaved plantation woodland, measuring 50 m x 30 m and estimated at 20 - 30 years old, was present in the western-most extremity of Field 4 (Figure 35.3). It was bounded by a species-poor hedgerow dominated by hawthorn. More or less equal numbers of English oak *Quercus robur*, ash *Fraxinus excelsior*, and horse-chestnut *Aesculus hippocastanum* comprised the plantation, the shrub layer of which was purely elder, densest to the north, where it was abundant. A species-poor ground layer was present, which consisted of abundant common nettle, and hogweed *Heracleum sphondylium* with locally abundant bramble *Rubus fruticosus* agg.

**Figure 35.3: Terrestrial habitats present within and around Old Little Humber Farm**



Source: Annex 35.7: Old Little Humber Farm Phase 1 Habitat Survey Report

## *Protected Species*

### *Great Crested Newt*

- 35.6.13 No ponds where GCN could potentially breed were present within the survey area. A pond shown on Ordnance Survey maps to be present in Field 3 did not exist, presumably having been filled in. Five ponds and a moat are shown on the OS map to be within 500 m of the survey area boundary but in the absence of access permission to these areas, were not investigated.
- 35.6.14 No records of the presence of GCN in or near the site were listed on the NBN gateway website. The nearest NBN GCN record is from Thorngumbald, dated 1977, over 1.5 km to the north.
- 35.6.15 Arable fields are not generally suitable for GCN during the terrestrial phases of their life-cycle, but damp ditches, infrequently mown grassland, and hedgerows are suitable. These are all present on the site and will not be disturbed by the proposed works.
- 35.6.16 A moat, associated with Old Little Humber Farm buildings, was said by Mr White, the tenant farmer, to be dry at the time of survey. Whilst this may represent a suitable GCN habitat, its location 300 m to the south of the wet grassland area means that it will be unaffected by the proposed scheme.

### *Badger*

- 35.6.17 No recent evidence of use of the site by badgers was found. Regularly used badger paths would have been expected to be clearly evident along or across the arable field grass margins, if the species was present. However, two single-hole disused setts, with approximate positions shown as Target Notes 1 and 2 on the Phase 1 Habitat Map (*Annex 35.7*), were present in the north side of a dry ditch along the southern boundary of Field 3. These excavations had large associated spoil heaps consistent with their formation by badger but one of these (Target note 1) was overgrown with vegetation indicating a lack of recent badger activity, and both holes were cluttered with leafy and woody debris, making the entrances too small for use by badgers without re-excavation. These holes did not constitute a main sett, being classified most appropriately as disused outlier setts. Badger hairs were searched for in the burrow entrances but none were found. Other excavations within this bank were made by rabbits, though with some possible enlargement by badger, and evidence of current use by rabbits was present.

35.6.18 Definitive evidence of the recent presence of badger close to the site was found on the grass verge of Newlands Lane, the road running north-south outside the site's western boundary, at grid reference TA19928,24193. The evidence, marked on the Phase 1 Habitat Map as Target Note 3 consisted of approximately 12 small excavations in the turf and a well-used latrine with recent badger dung. No clear badger paths were present in association with this latrine, though a possible mammal path led into the adjacent dry ditch below the over-arching double hedge within the site. A careful search within the ditch, and also within the plantation woodland at its southern end (considered to be the most likely location of a sett), showed that no badger sett was present there.

35.6.19 Although no recent evidence of badger within the survey area was present, the species clearly uses ground very close to it and it is therefore very likely that badgers are sometimes to be found there.

#### *Water Vole*

35.6.20 Sections of the South Ends and Thorney Crofts Drain were searched for evidence of the presence of water vole, such as characteristic droppings, burrows and feeding signs. None were found and it was judged likely that owing to the meagre amount of water present in the drain, the species was unlikely to be there. Nevertheless, in other respects, the drain appeared attractive to water vole and its presence could not be confidently ruled out without more exhaustive survey effort.

35.6.21 Numerous unspecified records of water vole within TA22 were listed in the NBN Gateway up to 2006. Although no records were clearly relevant to the survey area, the number of records and the recent dates of some of them give weight to the argument that they may be present on the site.

#### *Reptiles*

35.6.22 No evidence of reptiles was found on the site, and the majority of the survey area, being frequently disturbed arable land was not suitable for this species group. However, the semi-improved grass-banked ditches, and the South Ends and Thorney Crofts Drain at the eastern side of the site were considered to provide suitable habitat, particularly for grass snake, and also potentially for common lizard and slow-worm.

35.6.23 Grass snake and common lizard were both recorded in the NBN Gateway within TA22 but no details of records were given.

#### *Bats*



35.6.24 No buildings or trees were present on the site that could have represented suitable roosting places for bats. The survey area was, in general, open and unsheltered, within a flat and similarly unsheltered wider landscape without attractive commuting or foraging corridors for bats. The tall hedge running along the western boundary of the site offered some potential as a sheltered foraging or commuting route but it was not well-linked with similar hedges and was therefore considered unlikely to be used regularly or frequently by bats.

## 35.7 *BIRD BASELINE*

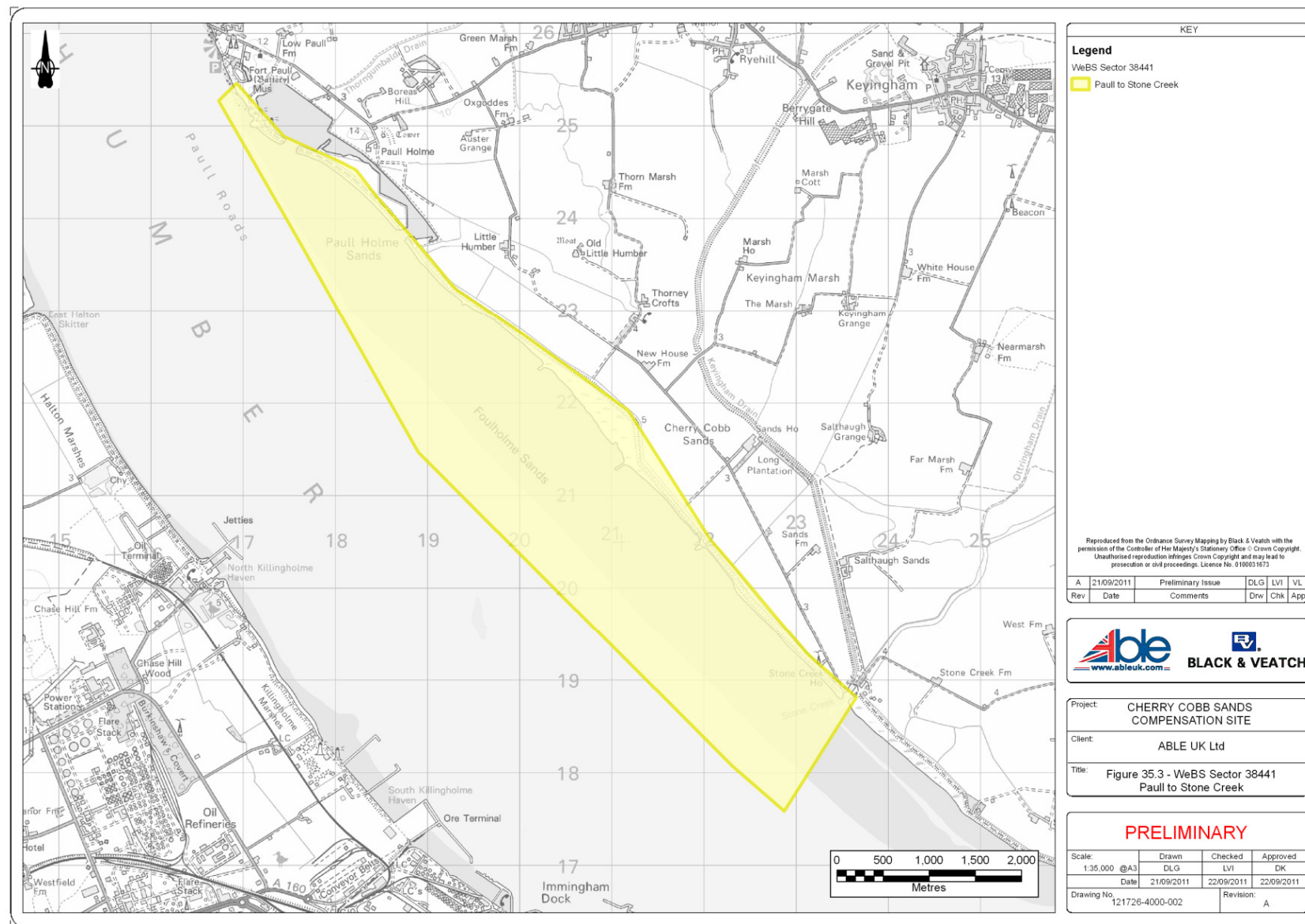
### *General*

35.7.1 The Humber Estuary supports internationally important populations of Annex 1 bird species and migratory bird species, as well as supporting a large non-breeding assemblage of wildfowl and waders (further details on the estuary's importance for birds, including descriptions of the designated bird species are provided in *Chapter 11*).

35.7.2 This section is informed by a number of site specific studies and surveys (listed in *Section 35.3* above). A summary of the WeBS data for the Humber Estuary, which has also informed this assessment, is provided in *Section 11.3*.

35.7.3 *Table 35.2* and *Table 35.3* below, show those SPA, Ramsar Site and SSSI qualifying Annex 1 and migratory bird species recorded within Cherry Cobb Sands and its vicinity. Population numbers given in the tables represent the qualifying populations under which the assessment of effects upon these populations has been undertaken. The numbers are based on the mean of peaks for the BTO WeBS five year Core Count Data from 2004/05 - 08/09 for Sector 38441 Paull to Stone Creek (TA201215) as updated from Calbrade *et al* (2010). The extent of the Paull to Stone Creek WeBS sector is shown in *Figure 35.4*.

Figure 35.4 WeBS Sector 38441 Paull to Stone Creek



Note: the extent of the Paull to Stone Creek sector is shown in yellow highlight. Source: WeBS Online, [http://blx1.bto.org/websonline/public/gpub-boundary.jsp?loclabel=38441\\_Paull to Stone Creek \(Cherry Cobb Sands\) \(Humber Estuary\)~TA201215](http://blx1.bto.org/websonline/public/gpub-boundary.jsp?loclabel=38441_Paull%20to%20Stone%20Creek%20(Cherry%20Cobb%20Sands)%20(Humber%20Estuary)~TA201215)

**Table 35.2** *Annex I Bird Species of the Humber Estuary Surveyed in the Paull to Stone Creek WeBS Sector (Figure 35.4)*

Species	Population	Population (Five Year Mean of Peaks - 2004/05 to 2008/09)
<b>Avocet</b>	Wintering population from Western Europe / Western Mediterranean population	103
<b>Bar-tailed Godwit</b>	Wintering Population from Western Palearctic population	2124
<b>Golden Plover</b>	Wintering Population from breeding North-Western Europe population	16 851
<b>Hen Harrier</b>	Supported over winter	1
<b>Marsh Harrier</b>	Supported during the breeding season	3
<b>Ruff</b>	Passage Population from Africa – wintering population	2

*Source: BTO WeBS data 2004/05 – 2008/09 and Calbrade et al. (2010) Waterbirds in the UK 2008/09*

**Table 35.3** *Populations of Regularly Occurring Migratory Species of the Humber Estuary SPA Surveyed in the Paull to Stone Creek WeBS Sector (Figure 35.4)*

Species	Population	Population (Five Year Mean of Peaks - 2004/05 to 2008/09)
<b>Dunlin</b>	Passage and Wintering Populations of Northern Siberia/Europe/Western Africa population	3891
<b>Knot</b>	Passage and Wintering Populations of North-eastern Canada/Greenland/Iceland/North-western Europe population	1135
<b>Black-tailed Godwit</b>	Passage and Wintering Populations of Iceland Breeding population	386
<b>Shelduck</b>	Passage and Wintering Populations of North-western Europe population	1522
<b>Redshank</b>	Passage and Wintering Populations of Eastern Atlantic wintering population	1401

*Source: BTO WeBS data 2004/05 – 2008/09 and Calbrade et al. (2010) Waterbirds in the UK 2008/09*

- 35.7.4 It should be noted that not all species listed on the SPA citation (listed in *Table 11.2*) including bittern *Botranus stellaris* and little tern *Sterna albifrons* have been included in *Table 35.2* and *Table 35.3* as these species were not recorded in the most recent WeBS data for the site (years 2004/05 to 2008/09) or from the IECS surveys undertaken across 2010-11 (details of these surveys are provided below). SPA species that were not recorded in populations >1 percent of the SPA qualifying interest population (as per the following assessment), have also not been listed in *Table 35.2* and *Table 35.3*, but are included within *Table 35.4* as they were recorded during the IECS survey and are discussed thereafter.
- 35.7.5 All relevant SPA assemblage species and their proportion of Humber population present at Cherry Cobb sands are listed in *Table 35.4* for Cherry Cobb Sands as requested by Natural England in their response to the PEIR.
- 35.7.6 Due to the AMEP site's potential for displacement of black-tailed godwit *Limosa limosa*, this species' counts within Cherry Cobb Sands are discussed in *Chapter 11* as well as within this chapter.

#### ***WeBS Low Tide Count Data – 2003/ to 2004 Count Data***

- 35.7.7 Analysis of WeBS low tide data for Cherry Cobb Sands follows the same structure as for the AMEP site (detailed in *Section 11.6 of Volume 1*). Species diversity along the Cherry Cobb Sands frontage is relatively low, with only 12 species in total being recorded during the 2003/04 overwinter low water WeBS surveys.
- 35.7.8 The number of species present at low tide at Cherry Cobb Sands varies between nine in October and five in April. The largest number of individual birds was recorded over winter between November and February, although high numbers were also recorded in July due to the presence of a large flock of dunlin *Calidris alpina*. The intertidal foreshore appears to be particularly important for shelduck *Tadorna tadorna*, dunlin and redshank *Tringa totanus*, which are individual SPA qualifying interest species.

#### ***IECS Wetland Bird Surveys and WeBS Core Counts***

- 35.7.9 Data presented in *Table 35.4* shows the key peak counts collected from IECS Wetland Bird Surveys and WeBS Core Count data (2004/05 to 2008/09) together with the Humber population and the percentage of each peak count as a proportion of the Humber population. In addition to the data presented below, *Annex 35.4* should be referred to for

specific month by month detail as created from IECS 2010/11 through the tide count data.

**Table 35.4 Paull to Stone Creek and Cherry Cobb Sands Compensation Site Wetland Bird Data Summary**

Species	Humber population	Monthly Peak / Mean of Peak count	Proportion Of Humber Population (%)	Month	Data Source
Assemblage	140 197	29940	21.4	Jan	WeBS
Avocet	493	-	-	-	IECS
		103	20.9	Jun	WeBS
Bar-tailed godwit	5 926	358	6.0	Dec	IECS
		1066	18.0	Jan	WeBS
Black-tailed godwit	3 887	544	14.0	Dec	IECS
		665	17.1	Oct	WeBS
Curlew	4 440	1703	38.4	Aug	IECS
		1310	29.5	Feb	WeBS
Dark-bellied Brent Goose	3024	-	-	-	IECS
		12	0.4	Mar	WeBS
Dunlin	21 518	2940	13.7	Oct	IECS
		5200	24.2	Jul	WeBS
Golden plover	46 926	11735	25.0	Sep	IECS
		26 260	56.0	Jan	WeBS
Greenshank	37	23	62.2	Aug	IECS
		17	45.9	Aug	WeBS
Grey plover	2 916	623	21.4	Feb	IECS
		1199	41.1	Jan	WeBS
Hen Harrier	-	1	-	Feb	IECS
		-	-	-	WeBS
Knot	41 772	5180	12.4	Nov	IECS
		2275	5.4	Sep	WeBS
Lapwing	18 756	2073	11.1	Nov	IECS
		7612	40.6	Jan	WeBS
Mallard	2 096	240	11.5	Oct	IECS
		829	39.6	Nov	WeBS
Marsh Harrier	-	3	-	Dec	IECS
		-	-	-	WeBS
Oystercatcher	3 528	22	0.6	Sep	IECS
		61	1.7	Nov	WeBS
Redshank	5 445	801	14.7	Sep	IECS
		2345	43.1	Oct	WeBS
Ringed plover	2 168	351	16.2	Aug	IECS
		627	28.9	May	WeBS
Ruff	64	1	1.6	Sep	IECS
		6	9.4	Oct	WeBS
Sanderling	579	-	-	-	IECS
		3	0.5	Aug	WeBS
Scaup	4	-	-	-	IECS
		1	25	Sep	WeBS

Species	Humber population	Monthly	Proportion Of	Month	Data
		Peak / Mean of Peak count	Humber Population (%)		
Shelduck	5 314	2408	45.3	Aug	IECS
		2153	41.0	Nov	WeBS
Teal	2 865	529	18.5	Jan	IECS
		766	26.7	Jan	WeBS
Turnstone	570	1	0.2	Nov	IECS
		7	1.2	Oct	WeBS
Whimbrel	72	6	8.3	Aug	IECS
		5	6.9	Jul	WeBS
Wigeon	3 520	122	3.5	Oct	IECS
		674	19.1	Nov	WeBS
Bird Species Recorded on Site which are not named in the SPA designation					
Black-headed gull	7 865	2350	29.9	Sep	IECS
		-	-	-	WeBS
Canada goose	653	-	-	-	IECS
		5	0.8	Sept	WeBS
Common Sandpiper	1	-	-	-	IECS
		7	700	Aug	WeBS
Common/Arctic Tern	1	-	-	-	IECS
		1	100	Jul	WeBS
Common Tern	0	-	-	-	IECS
		9	>100	Aug	WeBS
Common Scoter	-	-	-	-	IECS
		-	-	-	WeBS
Cormorant	108	6	5.6	Oct, Feb	IECS
		20	18.5	Aug	WeBS
Curlew Sandpiper	11	-	-	-	IECS
		5	45.5	Oct	WeBS
Fieldfare	-	267	-	Oct	IECS
		-	-	-	WeBS
Gadwall	179	2	1.1	Aug	IECS
		6	3.4	Oct	WeBS
Great black-backed gull	226	29	12.8	Oct	IECS
		-	-	-	WeBS
Green Sandpiper	10	2	20	Sep	IECS
		8	80	Aug	WeBS
Grey heron	74	2	2.7	Sep,Oct	IECS
		12	16.2	Jun	WeBS
Greylag Goose	762	89	11.7	Jan	IECS
		316	41.5	Oct	WeBS
Herring gull	110	16	14.5	Sep	IECS
		-	-	-	WeBS
Jack Snipe	2	-	-	-	IECS
		1	50	Dec	WeBS
Kingfisher	6	1	16.7	Oct	IECS
		1	16.7	Sep,Dec,Jan	WeBS
Lesser black-backed gull	120	2	1.7	Sep	IECS
		-	-	-	WeBS

Species	Humber population	Monthly Peak / Mean of Peak count	Proportion Of Humber Population (%)	Month	Data Source
Little Egret	38	8 9	21.1 23.7	Oct Sep	IECS WeBS
Little Grebe	92	- 12	- 13.0	- Dec	IECS WeBS
Little Gull	7	- 1	- 14.3	- Jun	IECS WeBS
Little Stint	8	- 5	- 62.5	- Oct	IECS WeBS
Moorhen	146	5	3.4	Nov	IECS WeBS
Mute Swan	288	- 7	- 2.4	- Jan	IECS WeBS
Pink-Footed Goose	4902	400 50	8.2 1.0	Jan Oct	IECS WeBS
Pintail	158	11 3	7.0 1.9	Sep Sep, Nov	IECS WeBS
Shoveler	126	5 6	4.0 4.8	Oct Oct	IECS WeBS
Siskin	-	45 -	- -	Oct -	IECS WeBS
Snipe	118	20	16.9	Aug	IECS WeBS
Snow Goose	0	- 1	- >100	- Oct	IECS WeBS
Spoonbill	2	- 1	- 50	- May	IECS WeBS
Spotted Redshank	16	2 2	12.5 1.3	Aug Sep	IECS WeBS
Tufted duck	410	- 2	- 0.5	- May, Jun	IECS WeBS
Whooper Swan	57	- 55	- 965	- Mar	IECS WeBS
Woodcock	2	- 1	- 50	- Oct	IECS WeBS

#### Table Legend


**Humber Population** – Population taken from Mean of Peak data from 5 Year WeBS Core Count Data between 2004/05 – 08/09 for Sector 38950 the Humber Estuary.

**Peak count** – The highest species count recorded within Paull to Stone Creek either from WeBS data or IECS surveys (datasets expanded below).

**WeBS** – Mean of Peak Count derived from WeBS 5 Year Core Count Data from 2004/05 – 08/09 for Sector 38441 Paull to Stone Creek (TA201215).

**IECS** – Waterbird Surveys undertaken at Cherry Cobb Sands between August 2010 and March 2011, reported by Institute of Estuarine Coastal Studies (IECS).

**Month** – The month(s) the peak count per species was recorded.

 Records highlighted in blue represent counts ≥1% of the Humber Population

Species written in **red** are those which are individual qualifying interests of the Humber Estuary SPA.

35.7.10 Bird data collected for the Cherry Cobb Sands area (Paull to Stone Creek WeBS sector shown in *Figure 35.4*, above and the IECS count area which includes the whole of the Cherry Cobb Sands site and foreshore, shown in *Figure 35.5* below) recorded 21 out of 25 SPA species at  $\geq 1$  percent of their Humber population, either through WeBS data (Core Count Data from 2004/05 - 08/09 ) or through the IECS 2010-2011 Waterbird Surveys. In addition, 21.4 percent of the overall assemblage was recorded at a peak in January through WeBS data.

35.7.11 From the data, it is considered that the area in and around the Cherry Cobb Sands site is currently of particular importance for seven species listed in the Humber Estuary SPA citation. These species are golden plover *Pluvialis apricaria* (56 percent of Humber population using the Paull to Stone Creek sector), lapwing *Vanellus vanellus* (40.6 percent), curlew *Numenius arquata* (29.5 percent), greenshank *Tringa nebularia* (45.9 percent), shelduck (41 percent), grey plover *Pluvialis squatarola* (41.1 percent) and redshank (43 percent). As identified below, most of the species present at the Cherry Cobb Sands site utilise the foreshore area, although usage by certain species is more focused on the fields behind the existing flood defence.

#### **2010-2011 Waterbird Surveys**

35.7.12 The following presents the findings from the waterbird surveys undertaken at Cherry Cobb Sands site by IECS from August 2010 to April 2011 (details of the surveys are provided in *Annex 35.4*). *Table 35.3* shows the bird species which have been recorded at the site and whether the species are listed as being internationally important under Annex I, or Annex II, or as part of an internationally important assemblage. Greater species diversity has been recorded within the WeBS data than that recorded in the IECS survey results, as evident in *Table 35.4*.

#### *Waterbird usage at high and low tide*

35.7.13 From the total number of birds using the site over the winter, it is clear that the Cherry Cobb Sands site and foreshore (the IECS count area described above) much more widely utilised on low tides than at high tides.

35.7.14 The number of birds recorded on the intertidal area at high water is linked to the amount of exposed intertidal habitats available for the birds to roost or feed. The Cherry Cobb saltmarsh is known as a regular key high tide roost for dunlin, curlew, redshank, bar-tailed godwit *Limosa lapponica*, grey plover and occasionally for knot *Calidris*



*canuta*. However, it is understood that the continuing growth of the saltmarsh vegetation at Cherry Cobb Sands combined with an expansion further down shore has recently impacted on the numbers of birds using this habitat to roost or loaf on the higher ground at high water (see Annex 35.4). The August 2010 to April 2011, surveys which covered the eastern edge of the Cherry Cobb Saltmarsh (included in the Buffer Zone and Zone A), did not record a regular use of the area by roosting waders.

35.7.15 Of the low tide counts, November and September experienced peak activity counts. This is primarily due to numbers of golden plover, but large numbers of knot used the site in November which contributed to that month's particularly high level of activity. Conversely, November's high tide count revealed particularly low levels of bird activity with only 267 birds recorded that month. This suggests that few birds visited the area in and around Cherry Cobb Sands during November unless it was for feeding purposes on a low tide.

35.7.16 The greatest monthly average for a single species recorded was the number of golden plover on a low tide in September, which averaged at slightly fewer than 12 000 birds concentrated entirely on the foreshore. The largest flocks of birds in general over the entire survey period (August – March) were golden plover (on both high and low tides), knot (at low tides), shelduck (at high and low tides), black-headed gulls (at low tides) and lapwing (on low tides). All of these species recorded a flock of at least 1 000 birds at some stage of the survey period. Of these, golden plover, knot, shelduck and lapwing are all SPA designated species.

#### *Locations of waterbird usage*

35.7.17 As well as the timing of birds visiting the proposed Compensation Site, their preferred locations have also been assessed. The over-wintering survey reported by IECS described the birds' locations within specified Zones 1-9, the fields behind the existing embankment at Cherry Cobb Sands, at the location of the managed realignment site, as well as Zones A-D along the foreshore, with buffers at the Eastern and Western ends. The Zoning within the managed realignment site is detailed below in Figure 35.5. Zones 1-9 generally coincide with field boundaries.

**Figure 35.5 Wetland Bird Survey Zones as used for the Cherry Cobb Sands Site Survey (IECS, 2011)**



35.7.18 The Cherry Cobb Sands site itself (approximately located within Zones 3 – 9) was of modest bird importance at high water for the SPA birds, probably due to the lack of suitable roosting habitats within the site, and the availability of roosting areas remaining on the foreshore.

35.7.19 When considering the bird species that are individual qualifying interests of the Humber SPA designated population (species listed in red text in *Table 35.4*), only four species (golden plover, dunlin, bar tailed godwit and ruff) were recorded in the fields behind the existing embankment (Zones 1-9 on *Figure 35.5*) over the August 2010 – April 2011 wintering period, the majority of which were recorded in Zone 1. The peak counts for each of these four SPA species were 40 roosting golden plover in Zone 3 (early October), 85 dunlin in Zone 1 (early September), 21 roosting bar tailed godwit in Zone 9 (mid-late September) and 1 ruff in Zone 1 (September). All these counts were made during high tide surveys. Comparatively smaller numbers of these species were noted in Zones 2, 3, 5 and 8 on occasion but none of these species were recorded using Zones 4, 6 and 7 at the time of any surveys.

- 35.7.20 Five species listed in the SPA were recorded within the Compensation Site in Zones 1-9 at some stage of the survey (peak counts within Zones 1-9 and the corresponding month are given in brackets), including curlew (640 in September), grey plover (26 in October), mallard *Anas platyrhynchos* (9 in March), teal *Anas crecca* (42 in February) and lapwing (787 in February)
- 35.7.21 By far, the most widespread and frequent use of Zones 1-9 is by curlew. Birds particularly favour the site at high tide for roosting and this extends across all Zones, in particular Zones 8 and 9.
- 35.7.22 The fields behind the existing embankment at Cherry Cobb Sands (Zones 1-9) are hardly used by grey plover, mallard or teal. It can be seen that these species are present in small numbers and infrequently. Although lapwing have a high peak count, their usage of the site was infrequent and it was only in February that reasonable numbers were achieved. Other than the numbers in February (totalling 787 birds in Zones 1-9 for the month), there were only four other weeks throughout the entire survey period that recorded any lapwing.
- 35.7.23 Foreshore areas were much more heavily utilised by birds than Zones 1-9, including 17 of the SPA species listed in the SPA citation. Zones B, C and D, regularly supported large flocks of waders, whilst Zone A and the Buffer Zone fronting the Cherry Cobb saltmarsh were less frequently used, probably due the saltmarsh cover in Zone A and in the Buffer Zone. Conversely, Zone A and the adjacent Buffer Zone, were seen to attract the bulk of the wildfowl population, in particular dabbling ducks such as wigeon *Anas penelope* and teal. These species favoured the pioneer saltmarsh and the network of creeks associated with the Cherry Cobb saltmarsh. Raptors also favoured the eastern edge of the Cherry Cobb saltmarsh (Buffer Zone fronting and Zone A) and the marsh harrier *Circus aeruginosus* was a regular sighting over saltmarsh which provided a suitable hunting ground. Merlin *Falco columbarius* and peregrine *Falco peregrinus* were more occasionally sighted around the area.
- 35.7.24 Golden plover (11 735 peak count in September) and knot (5 180 peak count in November) were present in the largest numbers on the foreshore and favoured Zones C and D on a frequent basis. Curlew (1 703 peak count in August) were present across all of the foreshore Zones including the buffers and were frequently recorded using the site for the entire survey season. Redshank (801 peak count in September) and grey plover (623 peak count in February) were also frequent users of the foreshore area in all Zones except for the western buffer which

was not used by grey plover. Mallard were recorded using all Zones including the buffers but in comparatively smaller numbers (240 peak count in October). Generally Zones C and D were favoured by all the above species and September and October had the highest number of visits.

- 35.7.25 It was noted that black tailed godwit do not appear to currently use the agricultural land at Cherry Cobb Sands. This is one of the main species that will be displaced from the AMEP site and will need new feeding ground at Cherry Cobb Sands (further details are provided in *Chapter 11 in Volume 1*).

### ***Breeding Birds at Cherry Cobb Sands***

- 35.7.26 Four breeding bird surveys were carried out at Cherry Cobb Sands between 31 March and 3 May 2011 (*Annex 35.5*). The surveys were conducted using a modified Common Bird Census (CBC) / Breeding Bird Survey (BBS) methodology.
- 35.7.27 Several Red-List Species were recorded as breeders (possible or probable) immediately within and in very close vicinity of the proposed development area. Farmland bird species were well represented across the survey area with skylark *Alauda arvensis* and yellow wagtail *Motacilla flava* present in good numbers in the fields. Reed buntings *Emberiza schoeniclus* were also well represented along the relict hedgerows bordering the fields and the vegetated soke dykes. Breeding linnets *Carduelis cannabina* were present in lower numbers and the species appears to show a preference for dense patches of hawthorn *Crataegus* sp. and bramble *Rubus fruticosus* present along the Cherry Cobb Sands Bank. The more mature and continuous hedgerows on the opposite side of Cherry Cobb Sands Road supported several breeding territories of yellowhammers *Emberiza citronella*. Other Red List species recorded in the survey area included grey partridge *Perdix perdix*.
- 35.7.28 After four visits, there was no evidence of the presence of breeding birds listed in Schedule 1 of the Wildlife and Countryside Act (1981).
- 35.7.29 Data from the four breeding bird surveys suggest that, in general, the habitats within the survey area are of low to moderate ornithological value, and are characteristic of assemblages associated with farmland habitat and the estuarine fringe of the Holderness area.

- 35.7.30 Few birds were noted during the Phase 1 Habitat Survey (*Annex 35.7*), and the timing of the survey was not optimal for assessing the site's use by breeding species. However, a number of typical arable farmland species were noted feeding or roosting on the remaining stubbles, indicating the site's value to this group of birds, all of which are Red listed Birds of Conservation Concern owing to rapid recent population declines. These species were linnet (flock of 30), yellowhammer (three males along the southern boundary) and grey partridge (2 – 3 birds each recorded in fields 2 and 3).

## 35.8 *IMPACTS*

### *Construction Phase*

- 35.8.1 As noted in *Section 11* in *Volume 1* of the ES, a range of impacts may occur during construction of the Compensation Site, which are similar to the construction impacts anticipated within the zone of influence of the AMEP. The following impacts may occur during construction of the proposed Compensation Site.

#### *Terrestrial Habitats (within Cherry Cobb Sands)*

- 35.8.2 Once construction starts there will be disturbance to most existing terrestrial habitats within the Cherry Cobb Sands due to the re-grading of ground and movement of plant and machinery across the site. There will be a substantial amount of earth moving to create the realigned embankment and the new intertidal area. Given the large extent of similar terrestrial habitat in the local area, the loss of useable habitat on site during construction has been assessed as being of minor negative significance.

#### *Terrestrial Habitats (within Old Little Humber Farm)*

- 35.8.3 Construction operations at Old Little Humber Farm will be relatively small and limited to the deactivation of the field drains and the creation of the wet grassland. This will involve only a small amount of plant and personnel on site, with the working area restricted to the boundary of the site itself.
- 35.8.4 The Phase 1 Habitat Survey has demonstrated that the existing area comprise arable fields with most of the boundaries being species-poor hedgerows and dry or wet ditches, and some plantation woodland, all

being of little ecological value. Therefore the sensitivity of the existing environment is low and given the large extent of similar terrestrial habitat in the local area, the loss of any terrestrial habitat during construction at Old Little Humber Farm has been assessed as being of minor negative significance.

#### *Waterbirds*

- 35.8.5 Construction of the Cherry Cobb Sands managed realignment scheme will cause loss of roosting and feeding habitat for waterbirds utilising some fields behind the existing embankment at Cherry Cobb Sands. This area is used by certain waterbirds, including curlew and eight other SPA designated species. It is considered that during construction of the site, curlew and other waterbirds utilising the fields for roosting will migrate to the extensive available area of fields at either end of, or behind, the realigned embankment. This impact is therefore considered to be temporary and of moderate negative significance.
- 35.8.6 It is possible that construction of the breach and new embankment, and associated earthworks at Cherry Cobb Sands will cause disturbance to birds using intertidal foreshore areas in front of the existing embankment, due to noise and the presence of additional personnel in the area. The extent of such disturbance on the foreshore will vary depending on the construction work being undertaken and on the state of the tide. At low tide, birds may not be disturbed as they can utilise the mudflats further out into the estuary, but at higher states of the tide, impacts may be greater as birds will be restricted to a narrower strip of the intertidal zone which will result in them being in closer proximity to construction plant and personnel. Some birds will tolerate a degree of disturbance from noise and additional personnel in the area, as they will be habituated to noise and visual intrusion from agricultural operations and users of the footpath on the existing embankment.
- 35.8.7 As noted in *Section 11.6* of the ES, the conservation objectives for the Humber Estuary (Natural England, 2009), include objectives relating to disturbance and displacement; there should be no specific reduction in numbers, either on the European Site, or from one part of the European Site to another attributable to anthropogenic factors.
- 35.8.8 Noise monitoring at the Cherry Cobb Sands shows baseline levels typical of an isolated rural setting. The  $L_{Aeq,T}$  background noise levels were between 42 dB(A) and 51 dB(A). Variation in ambient noise levels during the day is attributed to passing cars, nearby vessel traffic, aeroplanes flying overhead and bird noise. Construction noise at 200 m distance may locally reach 65 dB(A) (see *Chapter 38*). As noted in

Section 11.6, construction tends to disturb bird feeding patterns at standoff distances of between approximately 120 m (for example for dunlin / ringed plover) and 275 m (for example for curlew) assuming unhabituated birds (Cutts *et al* (2008).

- 35.8.9 The 65 dB(A) noise level at 200 m is based on all machinery operating at once, which is unlikely to be the case for the majority of the time. In addition, the main working area will be concentrated at different locations within the Cherry Cobb Sands site as construction progresses and therefore the distance of waterbirds on the adjacent intertidal zone to the main source of noise is likely to be greater than 200 m. It is during the excavation works within Zones 4-9 (as shown in *Figure 35.5*) that the greatest disturbance would occur as the areas of foreshore adjacent to these Zones (Zones B, C, D and E) have the highest levels of bird usage. This is particularly true for the top of the foreshore at Zone C where an area of excavation will occur to create the breach. Given that 19 species of waterbirds utilising the foreshore are designated features of the European Site, the temporary disturbance of these birds as a result of construction noise and the presence of construction workers is of moderate negative significance.

#### *Breeding Birds*

- 35.8.10 The disturbance of soil on the fields to create the required ground levels for the Compensation Site will present a feeding opportunity during construction, (outside working hours) for birds to feed on invertebrates from the disturbed ground. The impact on feeding opportunities for breeding birds during construction is assessed as being of short term minor beneficial significance.
- 35.8.11 Species such as grey heron *Ardea cinerea*, which feed on fish in the soke dykes, may be temporarily impacted during construction as they prefer fresh water prey. Nevertheless, they can alternatively make use of estuarine shores. Reinstatement of the soke dyke behind the new embankment will maintain the use of this habitat for birds in the longer term; this impact is therefore assessed as being of negligible significance.

#### *Great Crested Newt*

- 35.8.12 GCN are absent from all ponds and waterbodies within either Cherry Cobb Sands or Old Little Humber Farm due to the unsuitability of the habitat. Therefore there is predicted to be no impact on GCNs.

### *Bats*

- 35.8.13 No trees have been identified as potential bat roosts within either the Cherry Cobb Sands or Old Little Humber Farm area. If bats are foraging in or around the site, they may be impacted by any local artificial lighting that is in use after sunset during the construction phase as they would not be habituated to this. Nevertheless, the works are planned to be undertaken during normal working hours in the summer months (with comparatively late sunsets), and therefore light disturbance during foraging is unlikely to be an issue.

### *Water voles*

- 35.8.14 At Cherry Cobb Sands, evidence of water voles was limited to four holes in the banks of the ditch running adjacent to Cherry Cobb Sands Road. Disturbance to this ditch (particularly the areas around the suspected water vole holes) can be avoided during construction provided a suitable vehicle standoff distance can be maintained (up to 1.5 from the waters edge). Impacts upon the transient water vole population at Cherry Cobb Sand are assessed as being of minor negative significance.
- 35.8.15 There was no evidence of water voles at Old Little Humber Farm and the habitat was considered largely unsuitable (apart from a drain at the eastern boundary that would not be affected by the scheme). Therefore impacts upon water voles at this site are considered to be of negligible significance.

### *Reptiles*

- 35.8.16 If present on site, reptiles will be vulnerable to injury by construction plant and machinery. Reptiles will be mobile during summer months (when construction is planned) so can disperse to adjacent areas if necessary. Potential impacts upon reptiles are therefore assessed as being negligible.

### *Badgers*

- 35.8.17 The location of the badger setts present within the Cherry Cobb Sands site mean it is not possible to avoid having an impact on badgers. However, no setts were classified as main or annex setts, they were either subsidiary setts or outlier setts. The loss of these setts is unlikely to have a detrimental impact on badgers during construction, given the availability of alternative setts nearby (and the levels of activity associated with these setts). The loss or alteration to part of the badger group's range would also have no impact in the longer term due to the



good availability of alternative well used setts (The Badger Consultancy, 2011). There was no evidence of recent badger use of the Old Little Humber Farm site, therefore the impact on badgers is assessed as being of minor negative significance.

- 35.8.18 Although the area of land at Cherry Cobb Sands that will be inundated as a result of the works is extensive, the amount of useful foraging habitat within that area is only a small proportion of the total area to be affected. Short term impacts during the works are unlikely to occur, as a range of alternative foraging areas exist in the wider area. Unless severe weather conditions (such as a drought) result in a marked shortage of food, there would be no short term impacts on badgers through the loss of foraging areas (The Badger Consultancy, 2011). Therefore the impact of loss of foraging areas has been assessed as negligible.

### ***Operational Phase - Habitats***

#### *Terrestrial Habitats within the Cherry Cobb Sands Site*

- 35.8.19 Creation of the managed realignment at Cherry Cobb Sands will result in the permanent loss of terrestrial habitats including agricultural land (mainly arable) with associated soke dykes, hedgerows and occasional trees and a few small patches of improved grassland. This pattern of terrestrial habitat and estuarine fringe is characteristic of Holderness, and is considered to be of relatively low ecological importance. Whilst these terrestrial habitats on site are not *per se* very valuable ecologically, they provide areas for use by a variety of species and their loss will result in some species relocating into the similar habitats adjacent to Cherry Cobb Sands. The permanent loss of terrestrial habitat is therefore assessed as being of minor negative significance.
- 35.8.20 Due to the exposed nature of the banks of the Humber Estuary, trees of any size are limited in the area and large trees are particularly rare/scarse. Certain bird species require larger trees for nesting/roosting. Loss of the few trees (largely semi-mature) within Cherry Cobb Sands will affect these species as there is likely to already be competition for any suitable trees. Loss of trees from the Cherry Cobb Sands site is therefore assessed as being of minor negative significance.
- 35.8.21 The 38 ha wet grassland area to be created at Old Little Humber Farm will provide a temporary additional feeding resource for black-tailed godwits, as well as for other bird species whilst the habitats of the managed realignment site become established.

## *Species*

### *Ornithological - Waterbirds*

- 35.8.22 Long term operation of the managed realignment at Cherry Cobb Sands will cause loss of roosting and feeding habitat for waterbirds utilising the fields behind the existing embankment. During operation of the site, waterbirds utilising the fields for roosting will migrate to fields at either end of, or behind, the realigned embankment. Given that the existing population of waterbirds utilising the fields is relatively limited in number, although it does contain nine species designated as part of the Humber Estuary European Site, the site has a greater capacity to support more waterbirds. This permanent impact is therefore assessed as being of minor negative significance.
- 35.8.23 Birds utilising existing freshwater creeks within the arable farmland at Cherry Cobb Sands for preening, cleansing and drinking will be adversely affected through the conversion of these channels to brackish waters with varying water levels. Nevertheless, these brackish channels are likely to become an important feeding resource during operation of the scheme, and therefore this impact is assessed as being negligible.
- 35.8.24 The creation of the 100 ha intertidal site will provide a substantial new feeding resource for waterbirds. The proposed managed realignment at Cherry Cobb Sands is very similar in character to the Paull Holme Strays managed realignment site, an 80 ha site (ultimately anticipated to create approximately 45 ha of mudflat and 35 ha of saltmarsh) which lies up river along the northern shore of the middle Humber Estuary. According to monitoring results from five years of monitoring at Paull Holme Strays, designated bird species have readily utilised the site since its creation in 2002 (Environment Agency, 2009). A summary of key findings from five years of bird monitoring at the site by IECS (from 2003 to 2008) are as follows:
- Bird usage of the site is continuing to increase though numbers of early colonisers such as teal and mallard are now in decline.
  - Areas inside the realignment have a different usage to areas outside, with more foraging wildfowl and less foraging waders (specialist feeders) inside the site than outside. The exceptions to this were that there were more redshank, grey plover and bar-tailed godwit inside, probably because these species have a preference for the upper shore.

- There has been a change in the types of wintering species using the site, in response to the continuing development and change of habitats in the realignment. However outside the winter period no change can be detected.
- Peak maxima of 174 redshank and 365 dunlin were recorded during the winter of 2007/2008.
- Overall, density of activity is lower than expected for the potential carrying capacity of the site.
- The site continues to be of international importance for golden plover in winter, and black-tailed godwit in spring and summer. Fewer avocets *Recurvirostra avosetta* attempted to nest in 2008, following the unsuccessful nesting (flooded by high spring tides) in 2007. The saltmarsh is becoming more dense (sea aster *Aster tripolium*) and is therefore becoming less suitable for this species and other breeding waders. However, wigeon may start using the site if red fescue continues to spread in the upper zones.
- Volunteer bird surveys over the past five years have shown up to 20 800 birds using the site in winter (monthly maxima in December 2003), with 64 species in total being recorded. The most numerous species recorded by volunteers in each year over the five years of monitoring were all wading species including golden plover, black-tailed godwit, lapwing, dunlin and redshank, which is consistent with the main bird monitoring undertaken by IECS.

35.8.25 In particular, black-tailed godwit (which will be displaced in large numbers by the AMEP) have been known to use Paull Holme Strays and other managed realignment sites in the Humber Estuary successfully and there has been a large increase in the number of black-tailed godwit in the estuary from the 1990s onwards (see *Annex 35.6* for further details on population changes in black-tailed godwits within the estuary).

35.8.26 The intertidal habitat resource would increase by 100 ha through the creation of the managed realignment. Based on the findings at other similar sites it is therefore anticipated that wildfowl and waders will feed on this resource in much greater numbers than those currently recorded on the existing arable farmland, potentially in nationally or internationally significant numbers. The Cherry Cobb Sands site is therefore assessed as having a positive impact upon the feeding resource for waterbirds of major significance.

35.8.27 The managed realignment boundary will be much closer to Cherry Cobb Sands Road than the current mudflats and saltmarsh. Birds feeding or roosting on the site may therefore be more readily disturbed by passing traffic along the road or during activities to maintain the new embankment (including grass cutting for example). However, it is likely that birds utilising the site are accustomed to noise from agricultural operations and people using the Public Right of Way along the existing embankment. The new embankment itself will act as a noise and visual buffer which will act to reduce the impact from ambient noise within the site. The impact of operational noise upon birds is therefore considered to be negligible.

#### *Breeding Birds*

35.8.28 In the long term, the habitat on site will be converted to more saline intertidal conditions, and is likely to be unsuitable as a feeding and roosting area for most breeding birds. As with waterbirds utilising the fields behind the existing embankment, it is considered that during operation breeding birds will migrate to fields at either end of, or behind, the realigned embankment, which may result in additional competition for resources in these areas, although the extent of resource utilisation is not known at this time. Certain species, which rely on large foraging areas, such as hen harriers and marsh harriers will have a reduced foraging area, which may impact on their numbers in the area. Given that the fields of the Cherry Cobb Sands are of low to moderate ornithological value for breeding birds, and are characteristic of farmland habitat and the estuarine fringe of the Holderness area (as identified in *Section 35.6*), the impact of loss of roosting and feeding areas for breeding birds is assessed as being of long term minor negative significance.

#### *Water voles*

35.8.29 The water vole survey found that the species may be present in the Cherry Cobb Sands site as a small transient population. Evidence of water voles was limited to four holes in the banks of the ditch running adjacent to Cherry Cobb Sands Road. Potential impacts upon water voles that may be utilising this ditch during operation could result from seepage of saline water through the new embankment where its alignment would be close to the ditch. Nevertheless, a soke dyke will be constructed between the existing ditch and the embankment, which would absorb this saline water, with the rest likely to be absorbed into the area of ground (approximately 10 m to 12 m wide) between the embankment and the ditch. It is therefore assessed that there will be negligible effects on water voles once the managed realignment site is

operational. There will be no impacts on water voles at Old Little Humber Farm.

#### *Bats*

- 35.8.30 If bats are foraging nearby, their feeding patterns may be impacted by the removal of hedgerows that form flight paths. Whilst bats may use the existing agricultural land for foraging, evidence suggests that the area is not very important to bats, and therefore any impact will be negligible.

#### *Reptiles*

- 35.8.31 Due to its regular disturbance as arable farmland, the Cherry Cobb Sands site and Old Little Humber Farm are of limited benefit to reptiles except for possible use of the existing soke dykes by grass snakes. As a soke dyke will be created behind the new embankment at Cherry Cobb Sands, therefore it is not predicted that there will be any impacts on reptiles during operation.

#### *Badgers*

- 35.8.32 Once the breach has been made, the Cherry Cobb Sands site will be less suitable for badgers. However, as mentioned above the loss of foraging habitat is only likely to be detrimental if it occurs during a period of severe food shortage as there is extensive alternative foraging ground nearby.

### **35.9**      ***MITIGATION MEASURES***

- 35.9.1 As identified for the AMEP in *Section 11.7*, generic mitigation will be implemented during construction to reduce impacts upon terrestrial ecology and birds, and will include the following:

- Best Practice Guidance to be used to avoid contamination of habitats from spills or accidents during transportation of dangerous and/or contaminated wastes and goods during construction, including reference to PPG 1 on storage and or use of hazardous materials.
- Where any works are likely to occur in or near watercourses particular care must be made to avoid contaminants entering the water column. Fuels will be stored in bunded areas and all chemicals will be stored in appropriate containers. The use of sediment or contaminant traps such as hay bales or booms in the

water will be used if necessary. Wherever possible working in or near watercourses should be avoided, and where it cannot, work will be carried out using PPG 5 best practice.

- Ecological awareness training will be provided in the form of a toolbox talk to all site contractors.
- In line with best practice, all construction plant and equipment should be of an appropriate size for the job, should be fitted with effective exhaust silencers and should be maintained in good efficient working order to minimise impacts on terrestrial ecology from traffic and noise disturbance. Storage areas should be close to the Cherry Cobb Sands site so as to minimise the traffic between the working area and the storage areas.
- Dust suppression techniques as well as emission reduction Best Available Techniques (BAT) will be employed as outlined in *Chapter 39*.

#### *Terrestrial Habitats (within the Cherry Cobb Sands site)*

- 35.9.2 There is little mitigation that can be done for the loss of terrestrial habitats on the Cherry Cobb Sands site, but there will be creation of new habitats which are likely to be more ecologically valuable.

#### *Species*

##### *Ornithological*

- 35.9.3 Construction of the managed realignment at Cherry Cobb Sands will be undertaken between April and October which will minimise impact upon designated bird species that utilise the foreshore or fields behind the existing foreshore for feeding and roosting overwinter or on passage. It is anticipated that the majority of earthworks would be undertaken in the first year.
- 35.9.4 Due to the need to avoid winter working, it will be necessary to undertake works during part of the bird breeding season which, subject to local variation, is taken to run from 1 March to 31 August. To minimise impacts upon breeding birds, an Ecological Clerk of Works (ECoW) will supervise any vegetation removal that occurs during bird breeding season, and if an active nest is located it will have to be retained along with its associated vegetation until the nest is vacated.

35.9.5 Birds utilising intertidal areas for feeding or roosting require long range views to allow them see any approaching predators. This factor has been considered in the topographical design of the managed realignment, which incorporates a new embankment with 1 in 3 slope angles.

35.9.6 Three bird hides are proposed to be located on the top of the realigned embankment, which will mitigate impacts of anthropogenic disturbance caused by bird watching activities.

#### *Great Crested Newt*

35.9.7 If works encroach on the un-surveyed pond at Sands House and GCN are found to be using the site, then measures will be put in place to avoid injuring them during construction. It may be necessary to consider erecting newt fencing to prevent GCN that are leaving the ponds in summer to gain access to the Cherry Cobb Sands site. Such measures will only need to be considered if the design of the managed realignment encroaches further towards this un-surveyed pond as currently the risk of encountering GCN is very unlikely.

#### *Bats*

35.9.8 The use of artificial lighting should be avoided as far as possible, since it will disturb feeding by bats.

#### *Water voles*

35.9.9 Because of the negligible impact on wolveroles as a result of the proposed works, no mitigation is required.

#### *Reptiles*

35.9.10 Before commencing work to divert the soke dyke, close hand strimming will be undertaken to discourage reptiles from using the dykes and to allow them to move away from the area.

#### *Badgers*

35.9.11 As badgers have been found on site, it is not possible to avoid affecting the setts within Cherry Cobb Sands. A badger mitigation strategy has been prepared and is included in *Annex 35.9*.

35.9.12 A license will be required to allow the exclusion of badgers and the closure of all setts with evidence of current use by badgers.

- 35.9.13 Following the creation of the Compensation Site the key nature conservation interests remaining within the vicinity of the site are likely to be water birds utilising the site. In order to assess the effective implementation of the site, monitoring of the site for bird species and other nature conservation features will be undertaken in accordance with a strategy and programme to be developed in consultation with the Regulators.
- 35.9.14 Monitoring surveys for wetland bird species and habitats would be broadly similar to those undertaken for the baseline data collection, although further tailoring of effort closer to the time would be required.
- 35.9.15 Able will develop and implement a management plan for the future management and maintenance of the Compensation Site. The management plan will be developed in consultation with Regulators, particularly Natural England.

## **35.10** *CUMULATIVE IMPACTS*

- 35.10.1 The primary reason for implementing the Compensation Site is to compensate for likely significant effects on Natura 2000 designated habitats and bird species resulting from the AMEP. Therefore the likely significant positive impacts upon these features identified through the creation of the Compensation Site adjacent to the Natura 2000 designated habitats need to be balanced against the significant negative impacts resulting from the AMEP. It is therefore assessed that the in-combination impacts of the two aspects of the Compensation Site will balance out to have negligible impacts and will maintain the favourable conservation status of habitats and species on the Humber Estuary European Site.

### ***Construction Phase***

- 35.10.2 There are no other projects known at this time which will result in cumulative impacts upon terrestrial ecology or breeding birds at Cherry Cobb Sands. Nevertheless, it is recognised that waterbirds are likely to utilise numerous locations throughout the Humber Estuary on passage or overwinter and therefore have the potential to be affected if the construction of several projects occurred simultaneously. Restricting construction of the Compensation Site to avoid peak times when waterbird species will be utilising the site will reduce any potential cumulative impacts.



- 35.10.3 *Section 11.8* identifies several schemes that could act in combination with the AMEP to cause cumulative impacts on ecological features. Nevertheless, as noted in *Section 11.8*, for all projects which will have impacts on waterbird species, mitigation and even compensation have been applied. It is therefore assessed that there will be no cumulative impacts upon waterbird species resulting from the Compensation Site and AMEP in combination with other schemes.

### ***Operational Phase***

- 35.10.4 There are no other projects known at this time which will result in cumulative impacts upon terrestrial ecology or birds at the Compensation Site during operation of the scheme.

## **35.11 RESIDUAL IMPACTS**

### ***Construction Phase***

- 35.11.1 The loss of terrestrial habitat of relatively low ecological importance is unavoidable during the construction of Cherry Cobb Sands. The residual impact on terrestrial habitats will therefore remain as being of minor negative significance.
- 35.11.2 Timing of the works to avoid the overwintering season and the construction of the wet grassland habitat at Old Little Humber Farm will mitigate for the temporary loss of roosting and feeding habitat for waterbirds utilising the foreshore and the fields behind the existing defence, as waterbird species will largely be using the site during autumn and winter months; the residual impacts during construction are therefore assessed as being negligible.
- 35.11.3 Residual impacts from construction of the Cherry Cobb Sands, in relation to noise disturbance to waterbirds are likely to be negligible, as construction works will be timed to avoid the overwintering season.
- 35.11.4 The residual impact on feeding opportunities for breeding birds during construction is assessed as being of short term minor beneficial significance.
- 35.11.5 Mitigation to deter water voles and badgers from using the site during construction will reduce potential impacts upon the species to negligible levels.

### *Operational Phase*

- 35.11.6 The loss of terrestrial areas of vegetation, including agricultural land (mainly arable), soke dykes, hedgerows, occasional trees and patches of improved grassland, of relatively low ecological importance will be mitigated through creation of the wet grassland site, as well as the creation of a new soke dyke behind the realigned embankment. The residual impact upon terrestrial habitats is therefore assessed as minor negative.
- 35.11.7 As explained above, the permanent loss of terrestrial roosting and feeding habitat for waterbirds in the area to be used for intertidal habitat creation will be minimal because of the extensive available alternative land for them to use, and it will also be partly offset through the creation of the wet grassland site at Old Little Humber Farm. It is considered that birds will readily utilise fields at either end of, or behind, the realigned embankment and will therefore be largely unaffected. Monitoring of waterbird usage of adjacent fields will be undertaken as part of the monitoring programme during operation of the scheme. It is assessed that (subject to the results of future monitoring) the residual impacts upon roosting and feeding habitat for waterbirds in fields behind the existing embankment is of minor negative significance.
- 35.11.8 The temporary creation of the wet grassland site at Old Little Humber Farm (primarily for use by Black tailed godwit) in addition to the managed realignment site at Cherry Cobb Sands, will provide feeding, roosting and breeding opportunities for breeding birds during operation. The residual impacts are therefore assessed as being negligible.