

Brinkmans Nurseries Ltd

New Plant Nursery at Park Farm, Lagness

Ecological Impact Assessment Review

November 2011

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Approved

A handwritten signature in black ink, appearing to read 'Mark Holland', with a stylized, wavy line extending from the end.

Mark Holland

Position

Principal Consultant

Date

4th November 2011

Revision

Final

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SUMMARY

This report reviews the Ecological Impact Assessment for the proposed development of a new plant nursery at Park Farm, Lagness near Bognor Regis in West Sussex. The original assessment was undertaken in 2007 but the delivery of the proposed Scheme has not yet taken place.

The purpose of this review has been to determine whether any significant changes to the ecology of the Site have occurred in the last 5 years. Such changes may have either increased or decreased the overall ecological value of the Site, but in both cases such changes may result in a revision to the original assessment of ecological impacts and the suite of mitigation actions that were proposed in order to ameliorate those impacts.

The review included a desk top study and a field walk-over survey to identify any changes in ecological character and quality in relation to the original assessment.

The review has demonstrated that there have been no significant ecological changes to the character of Park Farm since the original surveys were undertaken in 2006. It is considered that this is a reflection of the continued operation of the Site as an intensively managed commercial horticultural business. This has meant that there has been little or no opportunity for land to remain fallow, or for semi-natural habitats to further develop beyond those already recorded and which remain restricted to the headlands and marginal areas of the Site. Moreover, inspection of the neighbouring fields and developments did not identify any changes to the periphery of the Site that could potentially enhance both the Site's and the surrounding areas' existing ecological value.

On the basis of the Review of the original EcIA, it is considered that no significant changes have occurred that has altered the ecological value of the Site and its environs since the original work was completed in 2006. It is therefore considered that the assessment of effects and the mitigation proposed to ameliorate those effects on the ecological resource of the Site remain relevant and applicable to the proposed Scheme.

It is advised that if a further delay to the implementation of the proposed Scheme in excess of eighteen months from the date of this report occurs, the EcIA should be reviewed again to determine whether any changes in the ecological value of the Site, have occurred.

1.0 INTRODUCTION

1.1 Background and Purpose of the Assessment

- 1.1.1 Chris Blandford Associates (CBA) was commissioned by Brinkmans Nurseries Ltd. to review the Ecological Impact Assessment (EcIA) for the proposed construction and operation of a new plant nursery at Park Farm, Lagness, near Bognor Regis in West Sussex, which had originally been undertaken (by CBA) in 2006.
- 1.1.2 The purpose of this review is to determine whether any significant changes to the ecology of the Site have occurred in the last 5 years. Such changes may have either increased or decreased the overall ecological value of the Site, but in both cases such changes may result in a revision to the original assessment of ecological impacts and the suite of mitigation actions that were proposed in order to ameliorate those impacts.
- 1.1.3 For the purposes of undertaking the review, this report is based on the original Ecology Section of the EcIA, including the original background, structure and methodology. Each aspect of the EcIA has been reviewed, with a statement setting out any identified changes, and their implications in relation to the original assessment, at the beginning of each Chapter. For ease of reference, the original assessment text and plans have been included in this report. For further background material, such as the Scheme Description and other elements of the assessment, including appendices containing baseline survey data, the original Environmental Impact assessment should be consulted.
- 1.1.4 Overall, the purpose of the EcIA is to describe and evaluate the existing flora and fauna within the Site and to assess the effects of the proposed Scheme upon them. Assessments are provided for both the construction and operational effects of the Scheme. Proposed mitigation measures are identified where appropriate and have been designed into the Scheme to allow for the assessment of a mitigated scheme. Any impacts assessed are therefore residual impacts.

2.0 PLANNING AND LEGISLATIVE CONTEXT

2.1 Review of Planning and Legislative Context

- 2.1.1 There have been no significant changes to the Planning and Legislative context which could affect the basis for the EclA.
- 2.1.2 Since the original assessment, The Conservation (Natural Habitats &c.) Regulations 1994 have been amended and are now known as Conservation (Natural Habitats &c.) Regulations 2010 (as amended). The 2010 Regulations represent a consolidation of previous amendments and there are, therefore, no new regulations that would need to be taken into account as part of the EclA.
- 2.1.3 Pagham Harbour has been identified as a recommended Marine Coastal Zone (rMCZ) under The Marine & Coastal Access Act 2009. The terms of reference for the rMCZ, which predominantly identify processes, habitats and species restricted to the coastal zone and its immediate environs, would not be impacted upon by the proposed development at Park Farm and have, therefore, been discounted from further consideration.

2.2 Planning and Legislative Context – Original EclA

- 2.2.1 The main legal framework for the assessment is set by the following Acts of Parliament and Regulations:
- National Parks and Access to the Countryside Act 1949;
 - Wildlife and Countryside Act 1981 (as amended);
 - Natural Environment and Rural Communities Act 2006 (otherwise known as the NERC Act);
 - Protection of Badgers Act 1992;
 - Wild Mammals Protection Act 1996;
 - Countryside and Rights of Way Act 2000 (otherwise known as the CRoW Act); and
 - Conservation (Natural Habitats &c.) Regulations 1994 as amended (otherwise known as the Habitats Regulations).
- 2.2.2 The following EC Directives and international conventions are also relevant and are implemented through the above UK Acts and Regulations as applied under English law:
- EC Directive 79/409/EEC on the Conservation of Wild Birds as amended (also called the Birds Directive);
 - EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora as amended (also called the Habitats Directive);
 - Convention on the Conservation of European Wildlife and Natural Habitats (1979): also called the Bern Convention; and,
 - The Convention on the Conservation of Migratory Species of Wild Animals (1980): also known as the Bonn Convention.

- 2.2.3 The UK Biodiversity Action Plan targets (HMSO, 1994 et seq.) are addressed in this instance through the West Sussex Biodiversity Action Plan (West Sussex BAP). These identify a series of Habitat Action Plans (HAPs) and Species Action Plans (SAPs).

3.0 ASSESSMENT METHODOLOGY

3.1 Review of Assessment Methodology

- 3.1.1 There have been no significant changes to the way in which proposed Schemes can be assessed for their ecological impacts. The original assessment methodology is, therefore, considered to remain fit for purpose.

3.2 Assessment Methodology – Original EcIA

General Assessment Overview

- 3.2.1 The general approach to the Assessment follows the Guidelines for Ecological Impact Assessment produced by the Institute of Ecology and Environmental Management (IEEM). These guidelines are now Web-based and will be subject to review and updating. The guidance covers all stages of EIA, including both evaluation and impact criteria. Guidance published by the former Institute of Environmental Assessment (IEA) [now Institute of Environmental Management and Assessment - IEMA]; 'Guidelines for Baseline Ecological Assessment'; and Ecological Impact Assessment (Treweek, 1999) have also been referred to, together with Developing Naturally (Oxford, 2000) which provides specific guidance on assessing biodiversity for environmental assessment purposes.
- 3.2.2 For the purposes of this assessment, biodiversity is considered as an integral part of the evaluation of habitats, communities and species and is therefore considered in each of these sub-topics.
- 3.2.3 The overall order to the approach of assessing the impacts on flora and fauna can be summarised as follows:
- Identification of the Resource (Baseline Conditions)
 - Evaluation of the Importance of the Resource
 - Identification of Impact Types
 - Assessment of Impact Magnitude
 - Assessment of Impact Significance on the Resource
- 3.2.4 Each stage of the above process is described below:

Identification of the Baseline Conditions

3.2.5 The baseline assessment of existing conditions identifies the types and value of habitats and species found within the Site and also certain information of the wider area. The baseline studies comprise:

- a Desk Study of relevant background ecological information, past surveys and other relevant documents within a set Desk Study Area;
- an Extended Phase I Habitat Survey to identify key habitats and potential for protected and uncommon species within the Site; and
- detailed surveys of targeted species and habitats within the Site.

Desk Study

3.2.6 The Desk Study Area extended to 2km from the Site to identify any 'sensitive areas' as required by the DETR Circular for the Environmental Impact Assessment Regulations 1999. This also enables the results of the detailed survey to be placed in context within the surrounding area.

Site Surveys

3.2.7 A Phase I Habitat and Desk Top Survey were undertaken by Chris Blandford Associates in 2006. The habitats were mapped in accordance with the 'Handbook for Phase I Habitat Survey – a Technique for Environmental Audit' (Joint Nature Conservation Committee, 2001). This survey identified the main habitats present and assessed their potential for occupation by protected species.

3.2.8 Additional specific surveys have also been undertaken all following standard, recognised survey techniques and carried out by suitably qualified professional ecologists (detailed methodologies for the surveys were included as Appendices to the original EcIA):

- Phase II Botanical (conducted as a National Vegetation Classification (NVC) survey);
- Evaluation of hedgerows in accordance with the criteria set out in the Hedgerows Regulations 1997;
- Water vole *Arvicola terrestris*;
- Reptile Survey;
- Bat *Chiroptera*;
- Aquatic macro-invertebrates; and
- Amphibian (specifically great crested newt) survey.

3.2.9 No ecological surveys of any alternative sites considered for the Scheme as part of the ES process have been undertaken.

Evaluation of the Site's Nature Conservation Resource

- 3.2.10 The main criteria used to assess the ecological value of habitats and communities are those described by Ratcliffe (1977), the selection criteria for SSSIs produced by the Nature Conservancy Council (1989) and Sussex Habitat Action Plans (HAPs) by the Sussex Biodiversity Partnership (2000). The primary criteria include rarity, typicalness, size, diversity, naturalness and fragility. Subsidiary criteria include ecological position, intrinsic appeal, potential value, and recorded history.
- 3.2.11 Further criteria used for assessing the ecological importance of a site may be based upon their value for particular species or assemblages of species. Examples include 'scoring systems' for bird and amphibian communities (NCC, 1989; and British Herpetological Society, 1996) and reptile communities (Froglife, 1999). The relative importance of species is evaluated using published information such as Red Data Books, County Floras and national/local Biodiversity Action Plans (BAPs). These identify whether particular species are uncommon or declining, and list relevant species of importance as determined by national and local conservation organisations.
- 3.2.12 In addition to the individual species and groups, the overall species and habitat assemblage or biodiversity is evaluated.
- 3.2.13 Biodiversity has been given a number of definitions but, insofar as it relates to EIA, it is generally considered as including both structural relationships (spatial linkage, fragmentation, aspect, dispersion etc.) and functional relationships (nutrient cycling rates, energy flow rates, metapopulation dynamics etc.) (Byron, 2000).

Table 3.1: Assessment of the Value of Ecological Resource

Value	Examples of Valuation Criteria
International	An internationally designated site or candidate site (SPA, cSAC, etc); Species that are protected by the Habitats Regulations 1994 (e.g. dormouse; great crested newt).
National	A nationally designated site (Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) etc.;
Regional	Viable areas of key habitat identified in the Regional BAP or smaller areas of such habitat which are essential to maintain the viability of a larger whole; Sites which exceed the County-level designations but fall short of SSSI selection guidelines where these occur.
County	County sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation including Local Nature Reserves selected on County criteria;
Local (including	Areas of habitat identified as being of Local Value in the relevant Natural Area profile

Value	Examples of Valuation Criteria
District)	Local Nature Reserves not selected on County criteria
Parish/ Neighbourhood	Areas of habitat considered to appreciably enrich the habitat resource within the context of the Parish or Neighbourhood e.g. species-rich hedgerows
Within the zone of influence	This may be the project site or a larger area.
Negligible	Sites or areas which support few or no habitats, communities or species populations of nature conservation interest. Typical of such areas are most intensively managed silage fields and arable crops.

Mitigation

3.2.14 In ecological assessment, mitigation includes “any deliberate action taken to alleviate adverse effects” (Treweek, 1999) and can take several forms including:

- Reduction/Minimisation;
- Amelioration; and
- Relocation/Translocation.

3.2.15 In addition, avoidance measures are those taken to avoid adverse impacts (for example, redesign/relocation of the Scheme layout and timing of works). Compensation can also be provided where mitigation is unsuitable. Compensatory measures are those that would redress but not remove residual harm within the Site. These are often off-site and involve habitat re-creation to compensate for that habitat being lost. These compensatory measures can be proposed but should not be considered as a reduction in impacts during the EIA process.

Impact Assessment

3.2.16 Impacts are assessed in the context of the predicted baseline conditions to encompass the lifetime of the Scheme. Where impacts are predicted in the future (for example, construction several years down the line) impacts are based on the predicted baseline which will include other completed developments which may affect the zone of influence in the future, as well as other developments for which planning consent has been granted.

3.2.17 The following factors are considered when assessing the impacts:

- Confidence in predictions;
- Magnitude of impact;
- Extent of impact;
- Duration;
- Reversibility; and
- Timing and frequency.

3.2.18 A level of confidence is required in assessing impacts, the standard for which is given below. The requirement for the lowest confidence level, given below as “Extremely unlikely”, is for those impacts which, although considered as extremely unlikely to occur, would have very serious consequences and would merit contingency planning.

- Certain/near certain;
- Probable;
- Unlikely; and
- Extremely unlikely.

3.2.19 The following broad impact categories (Treweek, 1999) have been used to assist in identifying the nature and types of different ecological impacts:

- Direct impacts
 - habitat loss or destruction (for example, through construction work);
 - habitat fragmentation; and
 - disturbance (for example, construction, people, operative effects).
- Indirect Impacts
 - reduced population viability (for example, due to decrease in habitat area etc.); and
 - habitat isolation.
- Associated impacts
 - ecological impacts caused by actions linked with the Scheme.

3.2.20 In addition to individual impacts on the ecological resource being identified and evaluated, the cumulative impact of two or more impacts on the resource is also evaluated using the same terminology.

- Cumulative Impacts
 - overall reduction in habitat diversity; and
 - ongoing habitat loss or fragmentation.

Assessment of Significance of Impact

3.2.21 Activities which may affect the ecological resource need first to be identified. The associated changes and the implications for the ecological resource then need to be assessed. Reference should be made when describing the impacts to the following:

- confidence in predictions;
- extent;
- magnitude;
- duration (temporary, short term, long term, permanent);
- reversibility;
- timing and frequency; and
- cumulative effects.

Impact Magnitude and Significance

- 3.2.22 The magnitude or physical extent of predicted impacts upon an ecological feature is presented, wherever possible, in quantifiable terms. For example, the area of land taken, percentage of habitat lost or the number of communities, species or individuals affected. Impact magnitude also considers the context of the feature affected within the categories of relative importance described in Table 4.1. For example, if there is an internationally designated site, the significance of predicted impacts are assessed within an international context with reference to the relevant legislation. Although not specified in the IEEM EclA guidelines, the following terms are used within this ES to describe the magnitude of impact.

Table 3.2 - Determination of Magnitude of Impact

Magnitude	Criteria
Large Negative	Likely to have an adverse effect on the ecological integrity of a site or significant percentages of an ecologically valuable habitat would be lost (e.g. loss of >50% of a site or habitat); An adverse impact that would result in the loss of a species population/assemblage or its ability to remain viable.
Medium Negative	Likely to have some adverse impact on a site or habitat significant in terms of its ecological objectives (for a designated site) or its ecological value as a habitat (undesignated site) (e.g. loss affecting between 20-49% of the site or habitat); Impacts likely to result in a reduction of a population of a species or an assemblage, but not sufficient to affect the long-term viability at the site.
Small Negative	Likely to have some adverse impact on a site or habitat but not significant in terms of its ecological objectives (for a designated site) or its integrity (undesignated site). Adverse impacts affecting a few individuals of a population of a species or assemblage which are unlikely to be significant in terms of their long-term viability.
Negligible	Site, habitat or population not directly affected and with no known indirect effects on populations or species.

- 3.2.23 The potential effects of development schemes on nature conservation can also be either positive or negative.
- 3.2.24 Previous methodologies for EclA included matrices of impact magnitude, whereas the new IEEM guidance requires that in assessing the level of impact the simpler concept of Significant Negative Impact or No Significant Impacts be used.
- 3.2.25 The terms for the magnitude of change are explained further below.
- 3.2.26 Negative impacts on the ecological resources has been related to both legislation and planning policy and these are described below (taken from IEEM 2006):

Table 3.3: Implications of Impacts on Resource

Importance of Resource	Example	Legal Implications	Policy Implications	Implications for Development Control
International	Loss of internationally important habitat, or negative impact affecting the integrity of an internationally important site. Negative impacts on species of protected by European legislation.	Under the Regulations the competent authority may not be able to grant consent for the development.	Project does not comply with the protection of internationally and nationally important sites, nor with policies relating to legally protected species.	Having been satisfied that, there are no alternative solutions and if, despite mitigation, it cannot be concluded that there will be no negative affects on the integrity of the internationally important habitat, by law planning permission cannot be granted, unless there are over-riding issues of public interest. Redesign of the project or relocation to another site may be necessary. If consent is granted, compensation for damage will be required by the Secretary of State under Regulations 53, and secured via planning conditions and obligations.
National	Loss of nationally important habitat, or negative impact affecting the integrity of nationally important site.	Likely conflict with the LPA's duty under section 28G of the Wildlife and Countryside Act 1981 (as amended). May conflict with NERC Act 2006 where such sites host habitats/species are listed under Section 41. The Planning Authority will be required to consult with statutory conservation agency before authorising a damaging project on designated site.	Conflicts with development plan policies for the protection of nationally important sites. May conflict with BAP maintenance of UK Priority habitats	If, despite mitigation, negative affects cannot be avoided, planning permission is likely to be refused; unless there are over-riding material planning considerations. If permission is granted, detailed compensation measures (related in scale and kind) should be secured through planning conditions and/or obligations. These should be in addition to mitigation and enhancement measures, which might also need to be secured through planning conditions and/or obligations
Regional/County	Loss of regionally or County important habitat, or negative impact affecting the integrity of such a site.	May conflict with NERC Act 2006 where such sites host habitats/species are listed under Section 41.	Conflicts with development plan policies protecting Local Sites. May trigger 'no net loss' policies requiring adequate mitigation and compensation.	If, despite mitigation, negative affects cannot be avoided, permission is only likely to be granted if there are over-riding material planning considerations. If permission is granted, detailed compensation measures (related in scale and kind) should be secured through planning conditions and/or obligations. These should be in addition to mitigation and enhancement measures which

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Chris Blandford Associates

Importance of Resource	Example	Legal Implications	Policy Implications	Implications for Development Control
Local	Loss of a locally important habitat or negative impact affecting the integrity of such a site	May conflict with Wildlife & Countryside Act 1981,	May trigger 'no net loss' policies in development plan requiring adequate mitigation and compensation	might also need to be secured through planning conditions and/or obligations. Measures to provide compensation of an equal or greater area of scrub should be secured through planning conditions or obligations.

4.0 EXISTING CONDITIONS

4.1 Desk Study

Review of Desk Study Data

- 4.1.1 A review was undertaken of on-line data sources including Defra's [Magic](#) website and Natural England's [Nature on the Map](#) . Updated desk study records were also requested from the Sussex Biological Records Centre (SxBRC) to determine whether any new records for habitats and species of nature conservation value had been added since the original EclA was undertaken.
- 4.1.2 No new desk study data was identified during the Review which would materially alter the original Assessment. The valuation of the desk study data as set out in the original EclA is therefore considered to remain accurate.

Desk Study Data – Original EclA

- 4.1.3 Sussex Biological Records Centre (SxBRC) was formally contacted, in confidence, for information on statutory and non-statutory ecologically designated sites and for records of protected and uncommon species within the Desk Study Area. Desk study results are summarised below.
- 4.1.4 There are no internationally, nationally or locally designated sites of nature conservation importance within 2km of the Site. The internationally designated Pagham Harbour Special Protection Area (SPA) is approximately 2.9km from the Site. Due to the relatively small scale of the Scheme, it would not adversely impact upon the SAC.

Natural Area Profile

- 4.1.5 The Site falls within the eastern half of the South Coast Plain and Hampshire Lowlands. This part of the Natural Area has a long history of arable cultivation on the naturally fertile soils which has left little room for wildlife habitats. In this part of the Natural Area, hedgerows no longer form important stock-proof barriers and following the impacts of Dutch elm disease, have been left to become derelict. Other typical habitats of the wider countryside such as hedgerow trees, farm ponds, patches of scrub and corners of rough grassland are also rare in this part of the Natural Area. (NE Website, 2007).

- 4.1.6 The Natural Area contains nationally important habitats and those relevant to the survey include unimproved grassland, chalk streams and rivers, floodplain grassland and fen within 1km. To the east and west of Park Farm there is floodplain grassland included within a Habitat Action Plan (HAP) in the Sussex Biodiversity Action Plan and highlighted as a rich wildlife resource. Other relevant HAPs found on Site include species-rich hedgerows and neutral grassland.

Species

- 4.1.7 SxBRC provided records of mammals, reptiles, amphibians and invertebrates within the 3km Desk Study Area, although none were recorded within the Site (details of Desk Study records were provided in the original EclA).

Mammals

- 4.1.8 Water voles have been recorded throughout the Desk Study Area, with the nearest record less than 1km to the west of the Site at Pagham Rife recorded in 2001. Ten bat records were provided and include records for Serotine *Eptesicus serotinus*, Pipistrelle *Pipistrellus pipistrellus* species, brown-long eared bat *Plecotus auritus* and grey-long eared bat *Plecotus austriacus*. No further details of the records were given and the nearest record of bat activity to the Site is approximately 1.5km from the Site on the margins of Bognor Regis.

Reptiles

- 4.1.9 Records of slow-worm *Anguis fragilis*, grass snake *Natrix natrix*, common lizard *Lacerta vivipara* and adder *Vipera berus* were provided. The nearest record of a grass snake is at South Mundham, approximately 2km to the west of the Site.

Amphibians

- 4.1.10 Amphibian records include three for great crested newt *Triturus cristatus*, the nearest being 2.5 km from the Site located at Bognor Regis.

Invertebrates

- 4.1.11 A record for rove beetle *Quedius puncticollis*, a Nationally Notable B species, was recorded at Lagness within 1km of the Site. Within the Desk Study Area there are records for many uncommon dragonflies including ruddy darter *Sympetrum sanguineum*, black-tailed skimmer *Orthetrum cancellatum* (both Priority species in the UK BAP) and hairy dragonfly *Brachytron*

pratense (Nationally Notable and a UK BAP Priority species). There is also one record for the white letter hairstreak *Satyrion w-album* at Pagham Harbour which is a Nationally Notable and a UK BAP Priority species. From the National Biodiversity Network records of Stag beetle *Lucanus cervus* a Sussex Priority BAP species, are found to the east of Bognor.

Botany

- 4.1.12 No uncommon plants were highlighted from the data provided by SxBRC within the Site. However a number of uncommon species are located within 2km They include: flat-sedge *Blysmus compressus*, blunt-flowered rush *Juncus subnodulosus*, marsh helleborine *Epipactis palustris*, fragrant orchid *Gymnadenia conopsea densiflora*, opposite leaved pondweed *Groenlandia densa*, chamomile *Chamaemelum nobile*, musk stork's-bill *Erodium moschatum* and corn parsley *Petroselinum segetum*.
- 4.1.13 The NBN search for species records included protected mammals; badger and water vole within the 10km² square that contains the Site. No specific records were highlighted within the Desk Study Area or Survey Area.

4.2 Site Survey

Walk Over Survey, 2011

- 4.2.1 A walk over survey of the Site was undertaken by a CBA ecologist on 4th October 2011. The purpose of the survey was to compare the findings of the original surveys with current conditions on the Site. The walk over survey did not include any species specific surveys, but did involve a review of the habitats present on site which included an assessment of type, extent, distribution and condition. The habitat assessment has been taken as a surrogate for likely species presence and distribution, in comparison with the original surveys, and used the original Phase I and Habitat Survey maps to provide a comparison to identify changes.

Habitats

- 4.2.2 There has been no change in the distribution, extent, type or condition of any of the habitats present within the Site, in comparison with the surveys undertaken in 2006. As far as could be ascertained, there have been no changes to the agricultural land-use and management practices of the Site, such as:
- Types of crops grown, cultivation or harvesting techniques;
 - Extent of cultivated land;

- New tree or hedge planting;
- New waterbodies;
- Grassland reversion;
- Management of existing hedges, ditches and grass headlands; and,
- New built structures or haul routes;

4.2.3 The species composition of the hedgerows has remained the same, as has the composition of the grass headlands (insofar as this could be ascertained during a survey in October). However, the lack of changes in land-use management or changes in the extent of any of the habitat types, strongly suggests that there have been no significant changes in overall species composition.

4.2.4 The waterbodies identified in the original surveys are still present; although they were dry (as were the boundary ditches) at the time of the survey. This was to be expected due to the prolonged periods of dry weather, particularly during the Spring, and limited catchment areas to provide surface water recharge.

4.2.5 There appears to have been no new tree planting, or tree felling work.

4.2.6 The majority of the Site remains under intensive horticultural cultivation

Species

4.2.7 Although the walk-over survey did not include any species specific surveys, it is still possible to evaluate the potential for the presence of certain species based on the habitats present.

4.2.8 It is therefore considered that:

- The botanical description of the Site (discussed in Sections 4.2.11 – 4.2.19 below), remains an accurate assessment;
- Although all the waterbodies were dry at the time of the survey, they are likely to support the same amphibian and similar aquatic macro-invertebrate communities. The structure and periodic drying of the ditches, as well as their relative isolation (from similar, neighbouring ditch networks), strongly suggest the continued absence of water voles from the Site;
- The structure of the hedgerow and tree network strongly suggests that the bat population using the Site for foraging and dispersal will have remained largely unaltered; and,
- The small grass snake population is also highly likely to be present along the grass headlands to the west of Park House.

4.2.9 In summary, it is considered that the baseline descriptions of both habitats and species presence on Site, set out in Sections 4.2.11 – 4.2.36 below, remain relevant and an accurate reflection of the current ecological value of the Site.

Site Survey – Original EclA

- 4.2.10 Site surveys were undertaken in 2006. A summary of the results of the baseline surveys of habitats and species is given below.

Habitat and Botanical Surveys

- 4.2.11 The Site predominantly consists of large, cultivated, arable fields. Semi-natural habitats are restricted to boundary features of hedgerows, small stands of trees, drainage ditches, with associated narrow grass headlands consisting of a mix of tall ruderal and grass species. A single pond was also recorded on the Site. No plant species classified as scarce in the national and county context were recorded. However, a number of species indicative of remnant unimproved grassland were recorded such as common knapweed *Centaurea nigra* and tufted vetch *Vicia cracca*. Furthermore, indicator species mature grassland / woodland were recorded (false brome *Brachypodium sylvaticum*, greater knapweed *Centaurea scabiosa*, hedge bedstraw *Gallium mollugo*, meadow vetchling *Lathyrus pratensis* and common centaury *Centarium erythraea*), as were a number of species indicative of ancient woodlands (ancient woodland vascular plants (AWVPs)) (black bryony *Tamus communis*, bluebell *Hyacinthoides non-scripta*, early dog-violet *Viola reichenbachiana*, hart's-tongue fern *Phyllitis scolopendrium*, spurge-laurel *Daphne laureola* and primrose *Primula vulgaris*).

Grasslands

- 4.2.12 The grasslands along the banks of ditches, around Park Farm Pond and along the field margins were found to have affinity with unimproved MG1 - *Arrhenatherum elatius* mesotrophic grassland. Species-rich unimproved grassland on neutral soils is highlighted as being of importance within the West Sussex BAP as much of the habitat has been lost or degraded in recent years. The numbering of specific features described below are shown on **Figure 4.1** (which has been included in this report for information).
- 4.2.13 Features 2 (Park Farm Pond) and 4 are assessed as having **Parish Importance** for their botanical interest as they have at least two grassland species of interest plus two Ancient Woodland Vascular Plant (AWVP) indicator species. Feature 14 has two grassland species of interest and Features 10 and 15 both have two AWVPs and these are therefore assessed as also having **Parish Importance** for their botanical interest.
- 4.2.14 Features 1, 3, 6, 7, 9 and 16 are assessed as having Local Importance for their botanical interest as they have at least five grassland species of interest recorded and additionally Features 6, 7 and 16 also have two AWVPs. Features 1 and 3 run north-south with Park Farm Pond in their

centre and had wide open banks with woody herbs and grassland species. Feature 6 ran along the northern drive to Park Farm itself and had a species-rich flora on the south facing bank. Features 7 and 9 also have a patchy species-rich flora and Feature 16, a ditch with wide open banks also had a remnant woodland flora and grass herbs.

- 4.2.15 The remaining grassland areas including grassland at Features 5, 8, 11, 12 and 13 are assessed as having **Negligible Importance** for their botanical interest as they are comprised of species-poor grassland.

Hedgerows

- 4.2.16 Hedgerows are included in the West Sussex BAP, which notes that all natural boundaries are important for wildlife. Hedgerows recorded on Site included one (Hedgerow H1b) that reached the threshold of 'important' under the Hedgerows Regulations 1997. Hedgerow H1b is assessed as being of at least Local Importance due to having been classified as 'important' under the Hedgerow Regulations 1997.
- 4.2.17 All the hedgerows appeared to be mature with a number of woodland herbs present in the groundflora. The hedgerows are of general ecological interest in providing habitat for wildlife adjacent to arable land and the urban area of Bognor Regis. The hedgerows form a green network of semi-natural habitat therefore the remaining hedgerows are assessed as being of **Parish Importance**.

Wetland Flora

- 4.2.18 The wetland flora of the features was overall species-poor with many of the ditches dry for much of the summer (except Features 1, 3 and 16). The most common NVC habitat was S23 other vegetation, dominated by hemlock water-dropwort, pendulous sedge and fool's-water-cress. Feature 16 had the most diverse vegetation with NVC types S23, A2 (duck weed aquatic community), A16 (water starwort aquatic community) and S12a, the latter a stand of bulrush, a habitat highlighted within the 'Fen, marsh and swamp' Habitat Action Plan in the West Sussex BAP. Therefore the botanical interest within the ditches themselves, i.e. the wetland flora has been assessed as being of **Parish Importance**.

Pond and Woodland

- 4.2.19 Feature 2 is Park Farm Pond and the surrounding deciduous semi-natural woodland. The pond has no marginal vegetation due to the dense shading from overhanging trees. A16 *Callitriche stagnalis* aquatic community is present in small patches in the centre of the pond. The

woodland has affinity with NVC type W22a sub-community *Hedera helix*- *Silene dioica* due to the dominant blackthorn and bramble scrub with a carpet of ivy over much of the ground, which is typical of this community. Mature oak trees and a few ash, field maple, sycamore *Acer platanoides* and hawthorn also comprise the canopy with a little grey willow *Salix cinerea* scrub. Two AWVPs were recorded here, bluebell and field maple, as well as two species of mature grassland/woodland; false brome and hedge bedstraw. The pond and associated woodland are assessed as being of **Local Importance** due to the pond's aquatic macro-invertebrate community and the surrounding trees potential to support bats (see separate sections below).

Species Surveys

Aquatic macro-invertebrates

- 4.2.20 An aquatic macro-invertebrate survey was undertaken to appraise the ecology of the various waterbodies within the Site. The Survey Area incorporates a series of drainage ditches and a heavily shaded pond within arable farmland.
- 4.2.21 A combination of kick-net and sweep sampling was undertaken in the ditches and pond in the Survey Area. A total of 53 species of aquatic invertebrate were recorded amongst approximately 14,000 individuals. Within these two species are Nationally Scarce (a water beetle and a soldierfly) and two Local (an aquatic snail and a flatworm). None of the wetland and aquatic plants recorded in the area were found to be of conservation interest.
- 4.2.22 The drainage ditches were largely confined within steep-sided, deep well-vegetated banks; the channels themselves typically obscured by a combination of overhanging and emergent herbaceous vegetation. The aquatic fauna generally reflected this densely vegetated habitat; species generally favouring slow flowing, organic, weedy conditions. The Coleoptera (water beetle) fauna were the most diverse group recorded in the survey, with a total of 13 species identified. The Mollusca (aquatic snails and bivalves) were however by far the most abundant group of invertebrates; dominating each of the ditch sites sampled. Overall the ditches are assessed as being of no greater than **Local Importance**.
- 4.2.23 The floral diversity of Park Farm Pond was low, limited through extensive shading by peripheral trees and scrub. This Site can be described as being of moderate conservation value based on its invertebrate fauna. Overall the pond is assessed as being of no greater than **Parish Importance**.

Bats

- 4.2.24 A bat activity survey was undertaken to determine the importance of the Site in terms of the assemblage of species and the level of foraging activity. A total of seven species of bat have been recorded during the surveys. These were:
- 45kHz pipistrelle bat;
 - 55kHz pipistrelle bat;
 - Daubenton's bat;
 - whiskered/Brandt's
 - serotine;
 - noctule or Leisler's; and
 - long-eared – either brown or grey long-eared
- 4.2.25 The Transect surveys recorded 318 bat passes. Approximately 88% of all passes were considered to be from the Pipistrelle genus whilst 4.1% were from the Myotis genus. A relatively small number of passes by serotine bats from the Nyctalus genus were recorded with only 12 and two of these passes attributed to these species respectively. The first survey recorded seven passes (2.2% of all passes) which were unidentified bats due to the faint echolocation recorded.
- 4.2.26 Information relating to trees with potential for bats is provided within the Phase I Habitat Survey report. However, in summary few trees with potential for bats were recorded, the main tree with potential being a large oak tree adjacent to the pond.
- 4.2.27 The overall evaluation of the bat assemblage within the Site is that it is of **Local Importance**. This assessment is based on the relatively limited number of species recorded, the high number of pipistrelles recorded within the Site and the level of activity recorded.

Water vole

- 4.2.28 A search for water vole signs using guidance from Strachan (1998) was undertaken on the ditch network of the Site. Evidence was searched for in the emergent and bank side vegetation for signs such as: burrows in the bank side; footprints on areas of exposed mud, droppings and well used latrines; feeding piles and other feeding signs; and runs in and under the vegetation.
- 4.2.29 No evidence of water voles was recorded in the ditches. Most of the ditches are heavily shaded for at least part of the day and have little emergent vegetation. The ditches are steep sided and many were dry by mid-summer 2006 and overgrown with ruderal vegetation. Although a number of ditches (Features 1, 3, 11, 12 and 16) retained shallow water throughout

the summer, the majority of the ditch vegetation was unsuitable or of limited suitability as water vole habitat.

Reptiles

- 4.2.30 A reptile survey was undertaken using an array of refugia distributed across the Site, with the surveys being undertaken during September and the beginning of October in suitable weather conditions. A total of two grass snakes were recorded during the survey on a south-facing grassy bank along the east-west line of poplars just to the west of Park House.
- 4.2.31 Due to the pattern of the landscape, it is likely that grass snakes remain restricted to the hedge, narrow grass headlands and ditch network. The grass snake population is considered to be low on the basis of the survey results and the grass snake population is therefore assessed as being of **Parish Importance**.

Great Crested Newts and other amphibians survey

- 4.2.32 An Amphibian Survey was undertaken to confirm presence and identify potential impacts on amphibian populations in relation to the development of the Site. Eight ponds were located within 500m of the Site of which one was situated within the Site boundary. Four of these ponds were shaded, deep ditches, three were large ponds and the last a partly shaded ditch beside a garden. All ponds were surveyed by netting, evening torch surveys and bottle trapping, except three due to access and safety issues.
- 4.2.33 No great crested newts were recorded. Three amphibian species in total were recorded in the Study Area and one species, smooth newt, within the Site. The ponds are within an arable landscape and all except one are linked by a hedgerow and ditch network that act as a conduit for wildlife throughout the area.

Overall Biodiversity

- 4.2.34 The Park Farm Site supports a limited range of semi-natural habitats and species of conservation interest. Plant species indicative of unimproved grassland (two), MG1 type grassland (two), mature grassland (four), woodland (one) and ancient woodland vascular plants (six) were recorded. A total of 53 species of aquatic macro-invertebrates were recorded of which two are nationally scarce (a water beetle and a soldier fly) and two locally scarce (an aquatic snail and a flatworm). A total of seven species of bat were recorded, of which approximately 88% passes were attributed to Pipistrelle genus. A low population of grass snakes was also recorded on the Site.

- 4.2.35 Although the habitats recorded within the Site have limited nature conservation interest, the network of hedgerows, mature treelines and ditches with associated grassland banks and headlands, provide a limited network to help species migration and dispersal through an otherwise intensively farmed arable landscape.
- 4.2.36 The Site in terms of its biodiversity is considered overall to be of **Local Importance**.

Table 4.1: Summary of Significance of Features

Feature	Description	Comments	Value of Ecological Resource
Grasslands	Indicators of remnant unimproved grassland: common knapweed <i>Centaurea nigra</i> and tufted vetch <i>Vicia cracca</i>. Indicator species mature grassland/woodland: false brome <i>Brachypodium sylvaticum</i>, greater knapweed <i>Centaurea scabiosa</i>, hedge bedstraw <i>Galium mollugo</i>, meadow vetchling <i>Lathyrus pratensis</i> and common centaury <i>Centarium erythraea</i>. Species indicative of ancient woodlands (ancient woodland vascular plants (AWVPs)) black bryony <i>Tamus communis</i>, bluebell <i>Hyacinthoides non-scripta</i>, early dog-violet <i>Viola reichenbachiana</i>, hart's-tongue fern <i>Phyllitis scolopendrium</i>, spurge-laurel <i>Daphne laureola</i> and primrose <i>Primula vulgaris</i>.	Limited in extent due to being restricted to ditch banks, headlands and hedgerows.	Local to Negligible
Hedgerows	One (Hedgerow H1b) classified as 'Important' under the Hedgerows Regulations 1997. All the hedgerows appeared to be mature with a number of woodland herbs present in the groundflora. The hedgerows form a green network of semi-natural habitat.		Local to Parish
Wetland flora	Overall species-poor with many of the ditches dry for much of the summer (except Features 1, 3 and 16). The most common NVC habitat dominated by hemlock water-dropwort, pendulous sedge and fool's-water-cress. The most diverse NVC habitat types (duck weed aquatic community), (water starwort aquatic community) and a stand of bulrush, a habitat highlighted within the 'Fen, marsh and swamp' Habitat Action Plan in the West Sussex BAP.		Parish
Pond and Woodland	Park Farm Pond and the surrounding deciduous semi-natural woodland. The pond has no marginal vegetation due to the dense shading from overhanging trees. Aquatic plant community is present in small patches in the centre of the pond. The woodland dominant blackthorn and bramble scrub with a carpet of ivy over much of the ground, which is typical of this community. Mature oak trees and a few ash, field maple, sycamore <i>Acer platanoides</i> and hawthorn also comprise the canopy with a little grey willow <i>Salix cinerea</i> scrub. Two AWVPs were recorded here, bluebell and field maple, as well as two species of mature grassland/woodland; false brome and hedge bedstraw.		Local

Feature	Description	Comments	Value of Ecological Resource
Aquatic macro-invertebrates	2 Nationally scarce species: Water Beetle <i>Hydraena testacea</i> ; Flecked General Soldierfly <i>Stratiomys singularior</i> . 2 Locally scarce species: Moss Bladder-snail <i>Aplexa hypnorum</i> ; Flatworm <i>Bdellocephala punctata</i>		Local
Bats	Activity survey recorded a total of seven species of bat have been recorded during the surveys. These were: 45kHz pipistrelle; 55kHz pipistrelle; Daubenton's; whiskered/Brandt's; serotine; noctule or Leisler's; and long-eared – either brown or grey long-eared	Relatively limited number of species recorded, the high number of pipistrelles recorded (88% of total) within the Site and the level of activity recorded.	Local
Reptiles	One species recorded: grass snake	Low population of grass snakes restricted to the ditch network across the Site.	Parish
Overall Biodiversity	Plant species indicative of unimproved grassland (two), MG1 type (two), mature grassland (four), woodland (one) and AWWPs (six) were recorded. Two nationally scarce and two locally scarce species of aquatic macro-invertebrates. A total of seven species of bat were recorded, of which approximately 88% passes were attributed to Pipistrelle genus. A low population of grass snakes was recorded.	Although the habitats recorded within the Site have limited nature conservation interest, the network of hedgerows, mature treelines and ditches with associated grassland banks and headlands, provide a limited network to help species migration and dispersal through an otherwise intensively farmed arable landscape.	Local

5.0 MITIGATION MEASURES

5.1 Review of Mitigation Measures

- 5.1.1 As discussed in Section 4.0 above, there have been no material changes to the ecological composition or value of the Site, since the original assessments were undertaken. Based on the review findings, therefore, it is considered that the Mitigation measures set out in Sections 5.2.1 – 5.2.12 below remain commensurate and relevant to ensuring that the construction and operational effects of the proposed Scheme are appropriately ameliorated.

5.2 Mitigation Measures – Original EclA

- 5.2.1 Mitigation is set out below in terms of measures for reduction/minimisation, amelioration and relocation/translocation. Avoidance measures, although not strictly mitigation measures, are also identified where relevant. In addition, where benefits have been incorporated into the design, these have also been identified. Mitigation for ecology and nature conservation would be required during the construction and operation of the Scheme.
- 5.2.2 Provisions for nature conservation are becoming integral to designs of new developments, as described in publications such as ‘Developing Naturally’ (Oxford, 2000) and RTPI (1999), for example green corridors are being maintained through developments to preserve links between habitats and populations of species and to avoid fragmentation.

Construction

Reduction Measures

- 5.2.3 Many of the potential adverse impacts identified which could occur are as a result of the construction of the Scheme. The risk of occurrence for many of the potential adverse impacts can be limited/reduced by following best practice during construction activities. To ensure that best practice is followed, formal risk assessments would be undertaken to inform a detailed Ecological Construction Method Statement. The Ecological Construction Method Statement would be prepared to take into account ecological sensitivities to inter alia pollution events, dust, noise, human disturbance, trampling and compaction effects.
- 5.2.4 Reduction measures, to be incorporated into the detailed construction method would include:
- Defined works areas clearly marked and no construction works, storage of materials or workers would be allowed outside these areas. These would specifically delineate the

existing hedgerows, their associated banks and headlands, and the network of drainage ditches across the Site;

- Storage and fuelling of machinery and generators would be undertaken in appropriately constructed bunds to reduce the potential for fuel spillages into the drainage ditches;
- Culverting of drainage ditches would be limited to the width required for the construction of new access and site roads;
- The use of existing gaps in hedgerows to reduce the requirements for new access routes to and within the Site;
- Site drainage and run off from construction areas to be collected, settled and attenuated to prevent flooding. No site drainage would be piped directly to the existing drainage system (which may include requirements for the construction of headwalls) without prior consultation with the Environment Agency (EA). It is possible that site drainage may require EA consent;
- Specific protected species mitigation guidance would be provided including:
 - Seasonal constraints such as vegetation clearance only allowed outside the breeding bird season. In particular this would take into account the potential for the Site to support ground nesting birds such as lapwing and skylark, as well birds which may be present in the hedgerows.

5.2.5 As well as reducing the risk of potential impacts during construction activities, potential impacts of the Scheme which would be implemented during construction and maintained throughout the operational stage have also been informed by the ecological surveys. Wherever possible these impacts have been reduced:

- The construction of a new reservoir to the north western side of the Site to take run-off from the glasshouses and hard standing areas;
- The use of existing routes to minimise requirements for ditch culverts and new roads;
- The construction footprint, hard standing and storage areas have been restricted to the areas of land that have been under continuous intensive arable cultivation.

5.2.6 The Scheme has been designed to use the existing intensively farmed arable land for the footprint. As far as possible, the integrity of the existing network of ditches and hedgerows, including the existing pond and its associated trees, has been retained as part of the Scheme.

Translocation Measures

5.2.7 There are no requirements for translocation measures for the low population of grass snakes as they are restricted to the existing semi-natural habitat which would be conserved as part of the overall development of the Site.

Avoidance Measures

5.2.8 Avoidance measures would include:

- The retention of the existing network of hedgerows;
- The establishment of root protection zones adjacent to each of the hedgerows and the wooded area around Park Farm pond. This would provide a minimum 2m buffer between

- the edge of the hedgerow and the adjacent land within which no vehicular movements are allowed;
- Ground preparation work outside the bird breeding season (March to July inclusive);
- Limiting the requirements for culverting to three short sections to allow access across the Site

Operation

Reduction Measures

5.2.9 The EIA process has identified several potential operational impacts of the Scheme on the Nature Conservation and Biodiversity resource. The following mitigation would be implemented to minimise the impacts:

- The retention of the existing network of hedgerows and ditches, with their associated grassy headlands to help maintain dispersal and migratory corridors for reptiles and invertebrates, as well as maintain the albeit limited, botanical interest of the Site;
- The provision of substantial lengths of new planting, particularly along the eastern and northern boundaries of the Site will:
 - Help to strengthen the connectivity of the existing hedgerow and ditch system within the wider, and intensively managed, agricultural landscape;
 - Help to strengthen existing migratory and dispersal corridors for bats. The new planting would also help to provide a screen to reduce light spillage when the glasshouses are lit at night.

5.2.10 The hydrological mitigation measures within the Scheme are designed to reduce the potential for any pollution incidents to occur post construction particularly from the proposed wash down facilities or site drainage.

Enhancement

5.2.11 The provision of substantial areas of new planting would help to enhance the overall landscape. This planting would incorporate a range of species and help to provide additional strengthening to the network of existing hedgerows and drainage ditches that cross the Site. Such features are of particular value within an intensively farmed arable landscape such as this.

Monitoring

5.2.12 The requirements for monitoring would be to ensure that the new planting becomes well established and that if there are any losses, these are replaced in order to maintain the integrity of these corridors in the long term.

6.0 RESIDUAL EFFECTS

6.1 Review of Residual Effects

- 6.1.1 As so long as the mitigation proposals set out in Sections 5.2.1 – 5.2.12 above, are adhered to and implemented, there will be no change to the overall construction and operational (existence) effects of the proposed Scheme (as described in Sections 6.2.1 – 6.2.17 below).

6.2 Summary of Residual Effects – Original EcIA

Construction Effects

Habitats

Hedgerows

- 6.2.1 The Scheme would not result in the loss of any existing hedgerows. It is therefore considered that there would be a **Negligible impact** on the hedgerows during construction phase of the Scheme.

Grasslands

- 6.2.2 The grass headlands would be retained in continuity with the retained hedgerows and field ditch system. The impact is therefore considered to be a **Negligible impact** during construction phase of the Scheme.

Wetland Flora (within the Ditch System)

- 6.2.3 The wetland flora would be retained as part of the existing field ditch system. The impact is therefore considered to be a **Negligible impact** during the construction phase of the Scheme.
- 6.2.4 Approximately 12m of ditch would be culverted as a result of this Scheme. The total length of drainage ditch within the Site is approximately 4,500m, which means there would be an approximately 0.26% loss of ditch as a result of the Scheme. Therefore it is considered that there would be a **Negligible impact** with respect to the construction phase of this Scheme.

Pond and Woodland

- 6.2.5 Park Farm pond, with its surrounding woodland would be retained as part of the overall Scheme. The impact is therefore considered to be a **Negligible impact** during construction phase of the Scheme.

Species

Aquatic macro-invertebrates

- 6.2.6 The aquatic macro-invertebrate fauna are present within the pond and ditch network which are to be retained as part of the Scheme. The implementation of standard avoidance mitigation to prevent polluting discharges to the ditch network would result in a **Negligible impact** on the aquatic macro-invertebrate fauna.

Bats

- 6.2.7 The key areas of bat activity were hedgerows, particularly within the western and south eastern parts of the Site. It is anticipated that there would be no night time working during the construction phase of the Scheme. The retention of the existing network of hedgerows would ensure that there is no disturbance to dispersal corridors or foraging habitat. The construction of the Scheme would not result in the need to remove any trees, demolish, alter or refurbish any existing buildings. It is therefore considered that there would be a **Negligible impact** on bats resulting from the construction of the Scheme.

Reptiles

- 6.2.8 The low population of grass snakes is known to use the existing ditch and grassland corridors across the Site. Although there would be no direct impacts on these corridors, it considered that noise and indirect disturbance arising from construction activities would have a **Slight Adverse impact** on the grass snake population during the construction phase of the Scheme.

General Biodiversity

- 6.2.9 The retention of the existing features of semi-natural habitat; the hedgerows, ditches and associated grass headlands in association with the establishment of new planting would result in an overall **Negligible impact** on the general biodiversity of the Site, during the construction phase of the Scheme.

Operational Effects

Habitats

Hedgerows

- 6.2.10 The Scheme would not result in the loss of any existing hedgerows. In addition, substantial areas of new planting would enhance the existing network of hedgerows both within the Site, and enhancing connectivity with the wider countryside. It is therefore considered that there would be a **Negligible impact** on the hedgerows during operation of the Scheme, in the immediate term. In the longer term after 10 to 15 years, the new hedge planting, as it matures, would help to strengthen and extend the network of semi-natural habitat in an otherwise intensively farmed landscape. In the longer term, therefore, the additional planting is likely to provide a **Slight Beneficial impact**.

Grasslands

- 6.2.11 The grass headlands would be retained in continuity with the retained hedgerows and field ditch system. The impact is therefore considered to be a **Negligible impact** during operation phase of the Scheme.

Wetland Flora (within the Ditch System)

- 6.2.12 The wetland flora would be retained as part of the existing field ditch system. The segregation of run-off and site drainage to newly constructed balancing ponds would help to reduce the potential for diffuse non-point source pollution entering the ditch system. The impact is therefore considered to be a **Negligible impact** during the operation phase of the Scheme.

Pond and Woodland

- 6.2.13 Park Farm pond, with its surrounding woodland would be retained as part of the overall Scheme. The impact is therefore considered to be a **Negligible impact** during operation of the Scheme.

Species

Aquatic macro-invertebrates

- 6.2.14 The implementation of standard avoidance mitigation to prevent polluting discharges to the ditch network, either through dedicated drainage systems and/or catch pits, would result in a **Negligible impact** on the aquatic macro-invertebrate fauna of the ditch network during the operation of the Scheme.

Bats

- 6.2.15 There will be no external lighting for the new glasshouses and associated working areas and therefore there will be no associated disturbance to bats. The retention of the existing hedgerows in combination with the new planting, once established, will provide additional shelter for foraging and dispersal. It is therefore considered that there would be a **Negligible impact** during the operation of the Scheme.

Reptiles

- 6.2.16 The long term operation of the Site is not considered to represent long term disturbance to grass snakes. The provision of additional planting in the form of trees with associated headlands, once established, would provide additional foraging habitat and would therefore result in a long term **Negligible** and potentially **Minor Beneficial impacts**

General Biodiversity

- 6.2.17 The retention of the existing features of semi-natural habitat; the hedgerows, ditches and associated grass headlands in association with the establishment of new planting would result in an overall **Negligible impact** on the general biodiversity of the Site, during the construction phase of the Scheme. Once the new planting has become well established after 10 to 15 years, there is potential for the Scheme to have a **Slight Beneficial impact** due to the provision of additional areas of semi-natural habitat in a landscape that is otherwise dominated by intensive arable agriculture.

7.0 SUMMARY AND CONCLUSIONS

7.1 Review Summary and Conclusions

- 7.1.1 The desk top study and field walk over survey review of the EcIA undertaken for the Scheme in 2006, has demonstrated that there have been no significant changes in land-use and management on the Site since the original work was completed. This overall summary is a reflection of the continued operation of the Site as an intensively managed commercial horticultural business.
- 7.1.2 Importantly, the continued operation of the Site as a commercial concern has meant that there has been little or no opportunity for land to remain fallow, or for semi-natural habitats to further develop beyond those already recorded and which remain restricted to the headlands and marginal areas of the Site. Moreover, inspection of the neighbouring fields and developments did not identify any changes to the periphery of the Site that could potentially enhance both the Site's and the surrounding areas' existing ecological value.
- 7.1.3 On the basis of the Review of the original EcIA, it is considered that no significant changes have occurred that has altered the ecological value of the Site and its environs since the original work was completed in 2006. It is therefore considered that the assessment of effects and the mitigation proposed to ameliorate those effects on the ecological resource of the Site remain relevant and applicable to the proposed Scheme.
- 7.1.4 It is advised that if a further delay to the implementation of the proposed Scheme in excess of eighteen months from the date of this report occurs, the EcIA should be reviewed again to determine whether any changes in the ecological value of the Site, have occurred.

7.2 Summary and Conclusions – Original EcIA

- 7.2.1 Overall, the footprint of the Scheme would be restricted to areas of land already in intensively farmed arable cultivation. The retention of the existing features of semi-natural habitat; the hedgerows, ditches, ponds and associated grass headlands means that the limited ecology and biodiversity interest of the Site would be retained both during the construction and operational phases of the Scheme.
- 7.2.2 The retention of the semi-natural features is integral to maintaining the populations of grass snakes and commuting bats within the Site.

- 7.2.3 The construction of the Scheme would therefore have an overall **Negligible impact** on the ecology and biodiversity of the Site.
- 7.2.4 During the Scheme's operation, the provision of additional areas of planting would help to strengthen and extend the existing areas of semi-natural habitat within an otherwise intensively farmed landscape. Overall, therefore, it is considered that the provision of new planting would result in a **Negligible to Slight Beneficial impact**.

FIGURES



KEY

Hedgerow

Important Hedgerow

Semi - Natural Woodland

Quadrats Taken for Grassland

Natural Feature i.e. Pond, Ditch and Grass Banks

Ditch

Site Boundary

0 100 200 Metres
1:5,000

NEW PLANT NURSERY AT PARK FARM, LAGNESS

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Figure 4.1
Ecological Survey Results



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