

East Sussex County Council
County Hall
St Anne's Crescent
Lewes
East Sussex

Bexhill to Hastings Link Road

Supplementary Nature Conservation Report

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Mott MacDonald
Stoneham Place
Stoneham Lane
Southampton
Hampshire
SO50 9NW
UK
Tel: 44 (0) 23 8062 8800
Fax: 44 (0) 23 8062 8801

Bexhill to Hastings Link Road

Supplementary Nature Conservation Report

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1 Introduction

1.1 Context

1.1.1 This Supplementary Nature Conservation Report provides supplementary information to the Addendum to the Environmental Statement (AES) (August 2008) prepared for the Bexhill to Hastings Link Road (BHLR) Scheme, promoted by East Sussex County Council (ESCC).

1.1.2 The Environmental Statement (ES) (April 2007) reports the findings of the Environmental Impact Assessment (EIA) for the Scheme and forms part of a detailed Planning Application for the Scheme prepared by ESCC Transport and Environment Department.

1.1.3 The purpose of the AES is to address the requirements for missing or additional environmental information required by the Planning Authority as being essential to the determination of the Planning Application for the Scheme.

1.1.4 This Supplementary Nature Conservation Report must be read in conjunction with the ES and the AES.

1.1.5 The following documents have already been submitted to the Development, Minerals and Waste Group of ESCC in their capacity as the Determining Authority for the Scheme under Regulation 3 of the Town and Country Planning General Regulations 1992:

- Environmental Statement;
- Non – Technical Summary (NTS);
- Traffic and Transport Report;
- Regeneration Statement;
- Design and Access Statement;
- Project-level Sustainability Appraisal;
- Waster Management Strategy;
- Scheme Design Drawings and associated supporting information;

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- The Planning Statement;
 - The Addendum to the Environmental Statement;
 - The Addendum Design and Access Statement;
 - The Flood Risk Assessment;
 - The Supplementary Hydrology Report;
 - The Regeneration Statement Addendum; and,
 - The Travel and Transport Addendum.

1.1.6 This Supplementary Nature Conservation Report has been submitted to the Determining Authority in support of the Planning Application for the Scheme.

1.2 Consultation

1.2.1 The Supplementary Nature Conservation Report addresses outstanding issues relating to Protected Species and indirect impacts to Marline Valley Woods Site of Special Scientific Interest (SSSI) that are not addressed in the AES. These outstanding issues have been raised as part of the consultation process with the Statutory Environmental Body of Natural England (NE). The report should be read alongside the AES. Relevant records of meetings are contained in Appendix A of this report and include:

- Meeting held at Natural England offices, Lewes, on Tuesday 22nd July 2008, between ESCC as the Planning Authority, Natural England in their capacity as Planning Consultee, and ESCC and associates as the Project Design Team: To address outstanding Natural England concerns relating to the ES and AES Nature Conservation Chapter;
- Meeting held at County Hall, Lewes, on Tuesday 22nd July 2008, between ESCC as the Planning Authority, the Environment Agency in their capacity as Planning Consultee, and ESCC and associates as the Project Design Team: To address outstanding Environment Agency concerns relating to the ES and AES Nature Conservation Chapter;

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- Meeting held at Natural England offices, Lewes, on Wednesday 8th October 2008, between ESCC as the Planning Authority, NE in their capacity as Planning Consultee, and ESCC and associates as the Project Design Team to respond to additional Natural England concerns following their review of the AES (Applicant records);
 - Meeting held at Natural England Offices, Lewes, on Tuesday 21st October 2008, between the Planning Authority, NE in their capacity as Planning Consultee, and ESCC and associates as the Project Design Team to respond to additional Natural England concerns following their review of the AES (Applicant records).

1.2.2 In addition, relevant Letters of Consultation are presented within Appendix B of this report, and include:

- Letter addressed to Peter Earl of ESCC as the Planning Authority, from the Environment Agency, dated 5th September 2008 - SX/2007/101661/05-L01 - Construction of a new road including environmental treatment with earthworks, planting, flood and noise attenuation, wildlife compensation and facilities for non-motorised users;
- Letter addressed to Peter Earl of ESCC as the Planning Authority, from Natural England, dated 17th September 2008 – HW/MAR/ADV/07-08/1 - Construction of a new road including environmental treatment with earthworks, planting, flood and noise attenuation, wildlife compensation and facilities for non-motorised users;
- Letter addressed to Peter Earl of ESCC as the Planning Authority, from the Applicant, dated 26th September 2008 - Bexhill to Hastings Link Road: Outstanding Natural England / Environment Agency Objections;
- Letter addressed to Peter Earl of ESCC as the Planning Authority, from the Applicant, dated 16th October 2008 - Bexhill to Hastings Link Road: Outstanding Natural England objections – Protected Species;
- Letter addressed to Peter Earl of ESCC as the Planning Authority, from the Applicant, dated 23rd October 2008 - Bexhill to Hastings Link Road: Outstanding Natural England objections – Protected Species and Marline Valley Woods Site of Special Scientific Interest (SSSI);
- Letter addressed to Peter Earl of ESCC as the Planning Authority, from Natural England, dated 27th October 2008 - HW/MAR/ADV/08-09/28_10_08 - Construction of a new road including environmental treatment with earthworks, planting, flood and noise attenuation, wildlife compensation and facilities for non-motorised users; and,
- Letter addressed to Marian Ashdown of Natural England, dated 29th October 2008 – Bexhill to Hastings Link Road.

2 Protected Species

2.1 Introduction

2.1.1 The AES for the Scheme was submitted to the Planning Authority in August 2008. The objective of the AES is to address the requirements for missing or additional environmental information required by the Planning Authority as being essential to the determination of the Planning Application for the Scheme. Additional information requested has been raised under Regulation 19 of *the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999*. Regulation 19 issues are established in letters from Statutory Consultees following their external review of the published ES. All correspondence can be found in Appendix A.1 Regulation 19 Letters of the AES.

2.1.2 It was agreed at a consultation meeting of 22nd July 2008 with the Statutory Consultee of NE, which had the objective of discussing the AES content (Chapter 12, Nature Conservation), and confirming that the Regulation 19 Issues raised by NE had been addressed, that the AES would also confirm a commitment to provide a protected species survey and mitigation update report to NE by the end of the first week of September for their review. Please refer to Appendix A for records of this meeting. The Ecological Survey Progress Update Report was subsequently submitted to NE in September 2008. The report summarises all 2008 ecological survey results (to published date), and provides the initial outline mitigation strategy measures formulated for the Scheme.

2.1.3 Following the submission of the AES and the Ecological Survey Progress Report, NE formally responded with their letter dated 17th September 2008. Please refer to Appendix B. With respect to Protected Species, NE had two outstanding concerns:

- Incomplete bat surveys and the need to assess potential impacts of the Scheme upon individual roosts and associated site specific mitigation proposals; and,
- Incomplete survey information in relation to dormice.

2.2 Bats

2.2.1 Inconsistencies between the ES (April 2007), the AES (August 2008) and the Ecological Survey Progress Update Report (September 2008) with regards to references made to potential bat roost locations of “The Kennels” and “The Nursery” are clarified in the letter addressed to Peter Earl of ESCC dated 26th September 2008. Please refer to Appendix B. In addition, Table 1 within this letter details the potential impact of the Scheme for individual bat roosts, and the proposed mitigation for these impacts. The table has been updated and is represented within the letter addressed to Peter Earl of 16th October 2008. It is included here as Table 1.

Table 1: Bat Survey Results and Proposed Mitigation

Building Name	Potential roosting sites noted during daytime surveys but not accessible	Evidence found during daytime surveys	Roost sites confirmed by subsequent evening or dawn surveys in 2008	Mitigation strategy	Impacts	Assessment of Impact Significance (with mitigation)
Adam's Farm	Serotine and long-eared droppings in loft, soffits, gables, area beneath roof and hanging tiles	Y	Y Maternity long-eared; maternity whiskered/ Brandt's; probably single serotine; small numbers common pipistrelle.	Assessment of bat bridge potential and compensation roosts potentially in the form of a bat house due to the range of bats found in this locality Further commuting route investigation required in Spring /Summer 2009	Roost situated within 60m of the Scheme Severance of foraging routes	Minor Adverse – residual impact due to close proximity of roost to the Scheme and Maternity Roost status
Adam's Farm Barn	Gaps in walls	(By ECOSA)	Y Single long-eared	Replacement bat barn roost and investigation into creation of green links due to fragmentation of hedgerows. Further commuting route investigation required in Spring /Summer 2009	Roost loss to the Scheme	Minor Adverse – roost lost to the Scheme, but replacement bat barn roost and green links would mitigate this loss

Building Name	Potential roosting sites noted during daytime surveys but not accessible	Evidence found during daytime surveys	Roost sites confirmed by subsequent evening or dawn surveys in 2008	Mitigation strategy	Impacts	Assessment of Impact Significance (with mitigation)
Acton's Farm	No internal access or loft area	-	Y Small numbers common pipistrelle	Investigation into creation of green links due to fragmentation of hedgerows. Further commuting route investigation required in Spring /Summer 2009	Roost situated within 50m of the Scheme Severance of foraging routes	Minor Adverse – residual impact due to close proximity of roost to the Scheme
Little Acton's Farm bungalow / garage	Whiskered/ Brandt's droppings and pipistrelle in house lift. Long-eared bat present in garage. Lofts, cavity walls, beneath tiles.	Y	Y Single long-eared	Investigation into creation of green links due to fragmentation of hedgerows. Further commuting route investigation required in Spring /Summer 2009	Roost situated within 50m of the Scheme Severance of foraging routes	Minor Adverse – residual impact due to close proximity of roost to the Scheme
Royal Oak cottage, Hillcroft farm	Long eared droppings in roof, hanging and roof tiles.	Y	N (owners report Y in previous years)	No specific mitigation planned	Roost situated over 1000m from the Scheme	Neutral

Building Name	Potential roosting sites noted during daytime surveys but not accessible	Evidence found during daytime surveys	Roost sites confirmed by subsequent evening or dawn surveys in 2008	Mitigation strategy	Impacts	Assessment of Impact Significance (with mitigation)
Hillcroft Barn & outbuildings	Hanging tiles, loft areas, cavity walls	-	N (Long eared recorded by ECOSA)	No specific mitigation planned	Roost situated over 1000m from the Scheme	Neutral
Lower Wilting Farm	-	-	Access to Lower Wilting Farm denied	Further evaluation required in 2009	Potential for severance of commuting routes. Lower Wilting Farm located 500m from the Scheme.	Minor Adverse (potential and worst case scenario due to potential severance of commuting routes)
The Briar	Loft, area beneath tiles, hanging tiles	Y	Access to the Briar denied	Further evaluation required in 2009	Potential for severance of commuting routes. "The Briar" located within 500m of the Scheme.	Minor Adverse (potential and worst case scenario due to potential severance of commuting routes)
Upper Wilting Farm	Loft, cavity walls, mortices – area beneath tiles and slates. The same results for the	Y	Y Small numbers of Long-eared, pipistrelle and <i>myotis</i> .	Potential for creation of green links due to fragmentation of hedgerows. Further commuting route	Roost situated within 250m of the Scheme Severance of commuting routes.	Neutral

Building Name	Potential roosting sites noted during daytime surveys but not accessible	Evidence found during daytime surveys	Roost sites confirmed by subsequent evening or dawn surveys in 2008	Mitigation strategy	Impacts	Assessment of Impact Significance (with mitigation)
	outbuildings			investigation required in Spring /Summer 2009	Upper Wilting Farm located within 250m of the Scheme	
Decoy Farm	Low potential only in modern open barns	Y	-	No specific mitigation planned although trees surrounding Decoy Pond will be re-evaluated in 2009	No impacts due to Low potential for bats	Neutral
Railway bridges Bexhill	Gaps between brickwork	-	Y Common pipistrelle in one bridge in Bexhill section	New replacement roosts to be incorporated into bridge structures	Roost loss to the Scheme	Minor Adverse – roost lost to the Scheme, but replacement roost would be provided to mitigate this loss
Nursery, London Road	Loft, area beneath slates, soffits, ridge	Y	Evidence of bats found - roost to be confirmed	Further evaluation required in 2009	Potential for severance of commuting routes.	Minor Adverse (Worst case assessment assuming presence)
Chip Shop, London Road	Loft, soffits, area beneath tiles	N	-	Roost to be surveyed in 2009.	Potential for severance of commuting routes.	Minor Adverse (Worst case assessment assuming presence)

Building Name	Potential roosting sites noted during daytime surveys but not accessible	Evidence found during daytime surveys	Roost sites confirmed by subsequent evening or dawn surveys in 2008	Mitigation strategy	Impacts	Assessment of Impact Significance (with mitigation)
Glover's Farm	-	-	Access to Glover's Farm denied	Further evaluation required in 2009	Potential for severance of commuting routes	Minor Adverse (Worst case assessment assuming presence)
Byne's Farm	Hanging tiles, roof tiles and slates, gaps under weatherboarding, loft	-	Y Approximately 20 common pipistrelle in May	Potential for creation of green links due to fragmentation of hedgerows.	Roost situated over 1000m from the Scheme	Neutral
Granary, Upper Wilting Farm	N	N	Long-eared bates recorded by ECOSA. Building now residential. No bats seen emerging in 2008.	No specific mitigation planned	No impacts likely - no roost identified and no bats observed.	Neutral

Note:

Y = Yes; N = No

- 2.2.2 A request made by NE at the consultation meeting of 8th October 2008 for the full details of proposed mitigation for the indirect impacts of the Scheme on a long-eared bat roost at Adam's Farm and the direct impacts to the two roosts at Adam's Farm Barns (both roosts lost to the Scheme) has been addressed within the letter of 16th October 2008. NE require the precise location of a replacement roost to be identified in order to mitigate for these impacts. In addition, NE require a suggested site for a replacement roost to mitigate for a potential impact upon the unconfirmed roost at Glover's Farm. This roost remains unconfirmed due to ongoing access and safety issues. A replacement roost option for Glover's Farm has also been identified within the letter of 16th October 2008.
- 2.2.3 It was confirmed that ESCC Members have made the suggestion that the smaller, older barn and bat roost to be lost at Adam's Farm could potentially be re-located to a suitable site within the vicinity of the Farm complex. As a result, two potential locations for the translocation of this barn have been identified on Figure AA enclosed within the letter of 16th October 2008. Please refer to Appendix B for this Figure.
- 2.2.4 The roost locations have been identified for their ecological benefit, within close proximity of the existing roosts and close to key bat foraging and commuting routes. Following receipt of these proposed locations, and the additional information contained within the letter of 16th October 2008, NE confirmed that they are able to withdraw their objection to the Scheme on the grounds of the impact on bats (please refer to Appendix A, minutes of meeting dated 21st October 2008 and Appendix B for a record of a letter dated 27th October 2008 from NE which withdraws their objection to the Scheme).
- 2.2.5 Further to identifying two potential locations for a replacement roost (barn translocation) for the loss of the roosts at Adam's Farm Barn, ESCC as the Planning Authority requested that a single location for the barn be identified for the Planning process. As a result, Figure 1 of Appendix D of this document identifies the precise location for a potential replacement roost within the vicinity of the Adam's Farm complex and in the context of key bat foraging areas and commuting routes. This location has been identified following a site visit on 27th October 2008, which addressed the suitability of a replacement roost location in the context of local topography, as well as the known ecological constraints. In addition, the location of the translocation site would be outside of the curtilage of the Grade II Listed Building of Adam's Farmhouse. Informal consultation with the Planning Authority has confirmed that translocating the barn to this location outside of the curtilage of the Listed Building would have no impact upon the setting of Grade II Listed Adam's Farmhouse.

2.3 Dormice

- 2.3.1 Survey results for May, June, July and August 2008 were presented to the Planning Authority and NE within the letter dated 26th September 2008. Please refer to Appendix B. The final dormouse tube check for the 2008 survey was scheduled for

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- the end of September. A figure identifying the location of all dormouse tubes for the 2008 survey and the location of positive dormouse results for the 2008 survey as well as the 2005 survey is enclosed within this letter.
- 2.3.2 The latest survey results were presented to NE at the consultation meeting held on 8th October 2008. NE and the East Sussex County Ecologist confirmed at this meeting that the current survey information is adequate. However, NE and the County Ecologist raised continuing concerns in this meeting about the adequacy of the mitigation to support dormouse populations that will potentially be isolated as a result of the Scheme.
- 2.3.3 The proposed Scheme is located within an area of countryside that generally has many features that provide suitable habitat for dormouse. The habitat to the north of the site is of particular value. This habitat extends north into the High Weald and has an extensive network of woodlands of varying size linked by hedges which, to a large degree, are managed sympathetically for dormice in this pastoral landscape.
- 2.3.4 The proposed Scheme forms a southern boundary to this high value area with the area to the south having fewer woods and, particularly in the flood plain of the Combe Haven, poorer quality hedges for dormice. Nevertheless dormice have been shown from 2005 survey data to be present south of the line of the road as well as along it and there is a network of linked dormouse habitat covering approximately 45-50ha south of the road. The extent of this habitat to the south of the road is considered within the ES and the AES to be sufficient to sustain a viable population of dormice.
- 2.3.5 In addition, the construction of the road has the potential to isolate populations of dormouse to the south of the road in two ways. Firstly, by creating a barrier to dispersal between southern and northern populations, and secondly, because it is likely that the Combe Haven and its floodplain would form a barrier to dispersal from east to west for dormice south of the road.
- 2.3.6 It would therefore be necessary to address the impact of fragmentation by the road itself, as well as the effect of additional fragmentation in the river valley through appropriate planting that creates links between hedgerows and woodland areas and provides linkage across the proposed road.
- 2.3.7 It was agreed in the consultation meeting held on 8th October 2008 that the Applicant should present the latest dormouse survey results, together with all previous results, on a figure that includes the proposed mitigation (replacement planting and proposed dormouse crossing locations). This would clarify the adequacy of the mitigation in the context of all survey results. The mitigation strategy for dormice for the Scheme has been developed in consultation with the national dormouse specialist Dr. Paul Chanin, and it was agreed that further consultation with Dr. Chanin would be required to re-address the proposed mitigation with reference to the 2008 survey results.
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- 2.3.8 The letter addressed to Peter Earl of ESCC, dated 16th October 2008, presents the proposed dormouse mitigation for the Scheme, together with all survey results. Please refer to Appendix B of this document. Figure BB and Figure CC enclosed within this letter illustrate all dormouse survey results and the existing habitat, and all dormouse survey results with the proposed environmental design respectively. A set of four illustrative dormouse crossing photographs are also included.
- 2.3.9 As requested by NE and East Sussex's County Ecologist (consultation meeting, 21st October 2008), a written endorsement of the proposed mitigation has been issued from Dr. Paul Chanin. Please refer to the letter to Peter Earl of ESCC, dated 23rd October 2008 (Appendix B). NE confirmed in the consultation meeting of 21st October that they would be willing to remove their objection to the Scheme on the grounds of the adequacy of the dormouse mitigation to support the small dormouse populations that may be isolated by the Scheme, on the proviso that Dr. Paul Chanin was able to provide this written endorsement. NE clearly state that the removal of their objection would be a risk that NE would be willing to take on the grounds of Paul Chanin's professional recommendation. Please refer to Appendix B for a record of a letter dated 27th October 2008 from NE which withdraws their objection to the Scheme.
- 2.3.10 In addition, the letter from NE dated 27th October 2008 makes the request that Dr. Chanin confirms, in writing, that his comments are based on up to date survey results. Please refer to the letter addressed to NE, dated 29th October 2008.

3 Other Species

3.1 Ecological Planning and Research (EPR) Ltd additional surveys

3.1.1 Ecological Planning and Research Ltd (EPR) was commissioned by ESCC in January 2008 to undertake ecological survey work to inform any necessary measures to ameliorate ecological impacts resulting from the construction of the proposed Scheme. Table 2 summaries the status of all protected species (bats and dormice excluded) surveys and proposed mitigation to date.

Table 2: Other Protected Species Overview

Species	2008 Update – Survey Aim	Summary
Great Crested Newts (GCN)	To supplement existing records and survey results, and to inform NE protected species licences.	The 2008 survey results and outline mitigation strategy is presented within the Ecological Survey Progress Update Report (September 2008). GCN mitigation has been concluded as adequate (please refer to Appendix A records of the meeting with NE, ESCC and associates held on 08.10.08).
Reptiles	To supplement existing records, to ascertain presence or absence and to inform NE licensing where necessary. To find and survey areas suitable for receptor sites.	The 2008 survey results and outline mitigation strategy is presented within the Ecological Survey Progress Update Report September 2008. In addition, details of receptor sites for reptile translocation are presented here. NE have stated that they are satisfied with the receipt of information with regards to the suitability and siting of receptor sites (please refer to the NE letter dated 17 th September 2008, in Appendix B).
Breeding Birds	To supplement existing records and survey results, and to inform NE protected species licences.	EPR carried out a detailed additional breeding bird survey from April to June 2008 and found limited breeding territories with the footprint of the Scheme. Proposed mitigation is presented within the Ecological Survey Progress Update Report September 2008.
Badgers	To fully understand how badgers are using the footprint of the BHLR Scheme.	EPR carried out a programme of additional badger assessment work and survey in 2008 to fully understand how badgers are using the footprint of the BHLR Scheme. The survey results and outline mitigation

Species	2008 Update – Survey Aim	Summary
		strategy is presented within the Ecological Survey Progress Update Report September 2008.
Water voles	To consider the potential presence of the Water Vole and to provide a suitable mitigation strategy should their presence be confirmed.	EPR's ecological survey work for the Scheme carried out in 2008 included consideration of the potential presence of Water Vole. The survey results have shown no evidence of Water vole activity within the Scheme corridor.

3.2 Environment Agency outstanding concerns

3.2.1 Following their review of the AES, the Statutory Consultee of the Environment Agency (EA) stated in their letter to Peter Earl of ESCC of 5th September 2008 that they would uphold their objection to the Scheme on the grounds of two outstanding issues. Please refer to Appendix B. These were:

- Impacts upon ecological receptors as a result of salts contained in surface water runoff; and,
- Habitat severance, clear span structures and species isolation.

3.2.2 EA have stated within their letter dated 5th September 2008 that they would require the discharge points for the Scheme to be mapped in relation to known ecological receptors and for the ecological sensitivity of receiving watercourses to be highlighted, with particular reference to salt impacts from surface water runoff.

3.2.3 In addition, the EA have requested within their letter of 5th September 2008 that additional drawings are compiled to illustrate soft bank proposals at bank and bed crossings of watercourses for the Scheme.

Salts

3.2.4 A series of figures enclosed within the letter addressed to Peter Earl of ESCC, dated 26th September 2008, have been submitted by the Applicant to address the EA requirement for discharge points to be mapped with the sensitivity of the receiving watercourse highlighted. Please refer to Figure 2 within the letter of 26th September contained in Appendix B of this document. Watercourses have been assigned a sensitivity rating, based upon the EA's River Ecosystem Classification

(RE) and General Quality Assessment (GQA) of river grades. Suitability of watercourses to potentially support lamprey and white-clawed crayfish are also taken into consideration. Table 3 details this sensitivity rating:

Table 3: Ecological sensitivity of watercourses coding

Sensitivity code	Description of Sensitivity	Type of Watercourse	Justification for Sensitivity Coding
Red	High ecological sensitivity denoted by RE1 and RE2	Watermill Stream, Powdermill Stream, ditches draining into Filsham Reedbed Nature Reserve	Watercourses with a GQA of A/B with high biodiversity value, supporting diverse macro-invertebrates, populations of lamprey and potential for white-clawed crayfish.
Amber	Moderate ecological sensitivity denoted by RE3 and RE4	Upstream ditches of Combe Haven SSSI	Watercourses with a GQA of B to D with good biodiversity supporting a range of macro invertebrates and course fish populations. Watercourses that feed directly into Combe Haven meadows and fen communities.
Green	Low ecological sensitivity, mainly RE5	Egerton stream and urban drainage ditches	Watercourses with a low biodiversity value with a GQA less than D.

3.2.5 Figure 2 enclosed within the letter of the 26th September 2008 should be read in conjunction with the Supplementary Hydrology Report (SHR), which was submitted to the Planning Authority in support of the Planning Application and AES in August 2008. The maps contained within the SHR and those enclosed within the letter of 26th September 2008, illustrate that sensitive ecological receptors such as the fish spawning grounds and nursery sites within Powdermill Stream would be avoided where possible. The SHR supports the conclusion within the ES that due to the high dilution capacity from the Sustainable Drainage Design (SuDs) and overflows, and the low concentrations of salts for this location, the impact on river ecology from salt run-off would not be significant (Section 9.5 of the ES).

Habitat severance, clear span structures and species isolation

3.2.6 It was agreed at the consultation meeting of 22nd July 2008 with the EA, that should a green engineering (soft bank engineering) solution be adopted for the clear span structures, EA concerns over barriers to movement for species such as watervoles

and otters would be satisfied. Please refer to Appendix A for a record of this meeting.

- 3.2.7 The incorporation of clear span structures for all watercourse crossings for the Scheme has been developed through consultation with Grant Moffatt of the EA. A 2m buffer zone on either side of the watercourse has been agreed through this consultation process. In response to the request by EA for illustrations of soft bank solutions rather than engineered solutions for bank and bed crossings for watercourses for the Scheme, an indicative sketched cross-section of potential soft bank solutions was enclosed within the letter from the Applicant, dated 26th September 2008. Please refer to Figure 3 of this letter, which can be found in Appendix B.
- 3.2.8 The final design of such a soft bank solution would be developed in close consultation with the EA, to meet their standards and recommendations for soft bank engineering at each specific locality along the Scheme.

4 Habitat Compensation Woodland

4.1 Introduction

4.1.1 Following their review of the AES, the Statutory Consultee of NE stated in their letter to Peter Earl of ESCC of 17th September 2008, that they would maintain their objection to the Scheme on the grounds of four outstanding issues. Two of these issues related to Protected Species, and have been addressed in Chapter 2 of this document.

4.1.2 The remaining issues are as follows:

- Inadequate mitigation for the loss of small areas of woodland ground flora, loss of connectivity and nitrogen deposition for Marline Valley Woods Site of Special Scientific Interest (SSSI); and,
- Air Quality effects – local dry deposition of Nitrogen and Ammonia and associated contribution to acidification to be assessed for both SSSIs (Marline Valley Woods and Combe Haven).

4.1.3 The latter issue of Air Quality effects has been clarified within the letter addressed to Peter Earl of ESCC dated 26th September 2008. Please refer to Appendix B. It is stated here that the current assessment, as presented within Appendix G of the AES, is of sufficient scope and detail to fulfil the requirements of Environmental Impact Assessment. The scope and methodology of the assessment of air quality effects on Designated Sites was carried out in accordance with guidance provided in the Design Manual for Roads and Bridges (DMRB) "Annex F Assessment of Designated Sites". This guidance is considered to represent best practice for assessments of this type, and provides a step-by-step methodology for addressing local impacts of nitrogen deposition. It specifically does not include a requirement or method to assess acid deposition, and states:

"Nitrogen deposition in terms of acidification and wet deposition is therefore a regional issue. The change in primary emissions as a result of a project are already assessed in the DMRB Screening Method, and so this guidance addresses only local impacts".

4.1.4 Acidification (as a result of dry deposition) was therefore not included within the AES, as regional mass emissions have already been adequately addressed within the ES.

4.1.5 The remaining issue of the mitigation proposed for Marline Valley Woods SSSI is discussed in the following paragraphs of this document.

4.2 Background and Consultation

- 4.2.1 In their letter to Peter Earl of ESCC of 17th September 2008, NE state that they consider that the proposed mitigation is inadequate to compensate for the loss of connectivity at the southern tip of Marline Valley Woods SSSI and for nitrogen deposition on the edge of the woodland. In order for the mitigation to be suitable, NE would seek compensatory native local provenance planting and/or areas of natural woodland regeneration of broadleaved woodland that is continuous with an uninfluenced section of the Marline Valley Woods SSSI. The compensatory habitat should include a strip of native, broadleaved woodland large enough to improve the adaptability of the SSSI to air quality and climate change influences and provide an opportunity for the bryophytes to spread away from the zone of influence of the road should suitable microclimatic conditions develop within the new mitigation woodland.
- 4.2.2 ESCC as the Applicant has responded to this request through a series of consultation meetings and letters with NE and ESCC as the Planning Authority. The suitability and location of a compensation site has been discussed in detail, with reference to the likely Air Quality impacts as a result of the Scheme and related to the species and habitats present within Marline Valley Woods SSSI. Please refer to Appendix A and Appendix B for records of these consultations.

4.3 Air Quality

- 4.3.1 An update of Air Quality impacts (nitrogen deposition) was presented as a Technical Note to NE and ESCC as the Planning Authority in the consultation meeting of 21st October 2008. It is enclosed within the letter dated 23rd October 2008, which can be found in Appendix B of this document.
- 4.3.2 The update had the objective of graphically representing an “exceedence” contour for Marline Valley Woods SSSI. Previously, the assessment had been presented in tabular form.
- 4.3.3 The baseline assessment contained within Appendix G of the AES shows that areas of Marline Valley Woods SSSI are predicted to exceed the critical loads for Nitrogen deposition in 2004 and 2010, where specific habitat types and background concentrations are present. Average Nitrogen deposition rates are based on the UK Air Pollution Information System (APIS) habitat classifications which details total average nitrogen deposition rates for these classifications, at the relevant location. Therefore, for Marline Valley Woods SSSI, total background nitrogen deposition levels vary between 14.7 and 31.4 kg N ha⁻¹ yr⁻¹ in 2003-2005 to 13.0 to 27.8 kg N ha⁻¹ yr⁻¹ for 2010 (refer to Table 4).

Table 4: APIS Total Nitrogen Deposition (Background)

APIS Grid Square NGR		APIS Habitat Classification	Total Nitrogen Deposition (kg N ha ⁻¹ yr ⁻¹)	
X	Y		2003 - 2005	2010 ⁽¹⁾
577500	112500	Alkaline fens and reedbeds	14.7	13.0
		Grazing Marsh	14.7	13.0
		Improved Grassland	14.7	13.0
		Urban Grasslands	14.7	13.0
		Ash Woodland	31.4	27.8
		Oak Woodland	31.4	27.8
		Urban Woodlands	31.4	27.8
		Ancient/Species Rich Hedgerows	31.4	27.8
		Eutrophic Standing Waters	-(2)	-(2)
Rivers and Burns	-(2)	-(2)		

Note: NGR = National Grid Reference

(1) Based on a 2% reduction from 2003 – 2005 values per year

(2) Total nitrogen deposition value unavailable

4.3.4 To give a quantitative estimate of nitrogen deposition exposure below which significant harmful effects on sensitive elements of the environment do not occur, according to present knowledge, critical loads for nitrogen deposition are applied. The critical loads applicable for Marline Valley Woods SSSI are equivalent to the APIS defined critical loads for ‘Temperate and boreal forests’ and ‘Low and medium altitude hay meadows’ which are the two habitats of relevance to the SSSI. Please refer to Table 5.

Table 5: Critical Loads for nitrogen deposition, applicable for Marline Valley Woods SSSI

Critical Load (kg N Ha ⁻¹ y ⁻¹)	
Temperate and Boreal Forests	Low and Medium Altitude Hay Meadows
10-20	20-30

4.3.5 The habitats of temperate and boreal forests and low and medium altitude hay meadows encompass all of the habitats included within Table 4. The Air Quality assessment contained within Appendix G of the AES identifies that the proposed Scheme would cause an increase in nitrogen deposition within Marline Valley Woods SSSI in 2010, but that this is at locations where critical loads are already being exceeded due to existing concentrations, as demonstrated by the high background deposition levels. The new contour plots contained within the Technical Note presented to NE and the Planning Authority on 21st October 2008, (Figure 2a) illustrate the areas that would experience a change in nitrogen deposition of greater than 1% of the critical load as a result of the Scheme.

4.3.6 The contour plots represent a “zone of influence” for which the Scheme would potentially impact upon Marline Valley Woods SSSI. All areas are already experiencing an exceedence of the critical loads. However, NE consider that a

change of greater than 1% at this location, and in the context of the species and habitats present within Marline Valley Woods SSSI, to be potentially significant. Therefore, a 1% change significance threshold has been applied.

4.4 Rationale for Site Selection

- 4.4.1 It was agreed in the consultation meeting of 21st October 2008 that the Air Quality Technical Note (Appendix B; enclosed within the letter dated 23rd October 2008). , demonstrating a “zone of influence” for the Scheme upon Marline Valley Woods SSSI, can be applied to identify an area of land suitable in size and location to compensate for the indirect Air Quality, shading¹ and loss of connectivity.
- 4.4.2 Compensation habitat for the Scheme has been developed and agreed through the consultation process as constituting 2 for 1 replacement habitat. Therefore, as agreed at the consultation meeting with NE of 21st October 2008, the area of land identified as being suitable for compensatory habitat for Marline Valley Woods SSSI would correspond to twice the area where it has been assessed that there would be a known degradation impact upon vegetation communities within the SSSI as a result of the Scheme. This was confirmed in the consultation meeting with NE of 21st October 2008 as the area that falls within the red contour of Figure 2a of the Air Quality Technical Note The contour is defined by applying a 1% change in the exceedence of the critical load as a result of the Scheme significance threshold, when the critical load is given as 20 kg N Ha⁻¹ y⁻¹. The subsequent area identified is 3.3ha in area. A compensation site of approximately 6.6ha should therefore be proposed in accordance with the 2:1 criteria.
- 4.4.3 A number of ecological principles were also adhered to in selecting sites that could potentially be transformed through habitat creation and management into ecologically valuable compensation woodland. An initial desk study assessment of aerial photos and maps was undertaken prior to selection of potential sites. This is presented as Figure 2 in Appendix D. The Phase 1 Habitat survey walkover followed and focused on a study area defined as the area of land between Breadsell Lane and the north-western boundary of Marline Valley Woods SSSI. See Appendix E. Once the Phase 1 mapping was completed the site was traversed again in order to select three possible locations for woodland creation.

4.5 Site Selection Principles

- 4.5.1 The following principles were adhered to for selecting potential woodland habitat creation sites:
- The site area should be a minimum of 6.6ha as agreed with Natural England;

¹ Shading impacts have been identified for the crossing of the London to Hastings Railway line. The impact from shading would amount to an impact upon less than 0.1% of the SSSI (AES Chapter 12, Section 12.5.113 to 12.5.121).

-
- Potential sites should link or strengthen fragmented areas of woodland or surrounding hedgerows;
 - Sites should be in keeping with the surrounding landscape enhancing rather than weakening the general landscape character of the area;
 - Sites existing ecological value should be considered e.g. areas such as rich semi-improved grassland should be avoided as should other Biodiversity Action Plan (BAP) habitats;
 - Sites should have a proportion of woodland habitat boundary adjacent to the Marline Valley Woods SSSI in order for successful colonisation to occur;
 - The new woodland should not impact upon any known archaeological remains or the setting of Listed Buildings and Scheduled Ancient Monuments where they exist;
 - Woodland should not be created within the buffer zone of overhead power line towers or cable and should not impact on any other know utilities;
 - The topography should have similarities to the ghylls of Marline Valley Woods SSSI; and,
 - The site should have existing surface hydrological features that could be incorporated in to the new woodland and have the potential to eventually support bryophyte communities.

4.6 Methodology for Woodland Site Selection

- 4.6.1 As part of the preliminary assessment for selecting a suitable woodland compensation site, a rapid Phase 1 Habitat Survey, followed by an additional visual walkover, was undertaken to gather initial baseline information on habitat type and structure. The survey area was visited in October 2008 and all broad habitat types were identified and mapped in compliance with the Handbook for Phase 1 Habitat Survey: a Technique for Environmental Audit (JNCC, 1993).
- 4.6.2 All habitats within the study area were classified and notable species of flora, fauna and areas of high ecological value were identified. Where possible, botanical species were identified to species level. Species lists were compiled and dominance noted and incorporated into the habitat target notes. The Extended Phase 1 Habitat Survey is contained in Appendix E, together with the accompanying target notes and photographs of each feature.
- 4.6.3 A key outcome of a Phase 1 assessment is to identify any potential impacts to those species and habitats which are protected under UK and EU nature conservation legislation, and therefore ensure compliance with the legislation and other conservation guidelines.

Cultural heritage

4.6.4 Oxford Archaeology were commissioned to undertake an initial desk study. Results of the desk study are presented in Appendix C. In summary, the Cultural Heritage appraisal has identified that the Study Area, as defined in Figure 1 of the Cultural Heritage appraisal, does not include nor is in close proximity to any Scheduled Monuments, Historic Battlefields or Registered Parks and Gardens. The study area does include:

- Two Grade II Listed Buildings;
- Two archaeological features associated with the Grade II Listed Buildings;
- A complex of English Nature designated Ancient and Semi Natural Woodlands; and,
- A complex of established hedges that are very likely to be covered by the 1997 Hedgerow Regulations as 'Important Hedgerows' on historic value, and thus would be regarded as historic landscape features.

4.6.5 In addition, the study area has the specific potential to include:

- Remains of a Post Medieval brick and tile works, possibly including quarry pits;
- Iron-ore quarry pits possibly of Roman or Later Medieval origin;
- Later Medieval or Post Medieval earthworks possibly relating to exploitation of the woodlands;
- An extant non-Listed historic building associated with the former brick and tile works;
- Several non-Listed historic buildings in the environs of Stonebridge Farm;
- Features marking the historical boundary between the parishes of Crowhurst and Hollington; and,
- A historic farmstead locale at Stonebridge Farm.

Ecology

4.6.6 All desk survey results are presented within the Extended Phase 1 Habitat Survey report in Appendix E.

4.7 Field Survey Results

4.7.1 The Extended Phase 1 Habitat field survey and desk study established initial baseline of the area and identified three potential sites that could be managed and planted to create compensation woodland. The locality and boundaries of sites A, B and C are shown in Figure 2 of Appendix D. The summary of habitat types, general character and archaeology is presented in Table 6 and further discussed below.

Table 6: Initial Phase 1 Habitat Survey Results

Site	Phase 1 Habitat types	Location and general land use	Cultural Heritage ²
A	Semi-natural broadleaved woodland Poor semi-improved grassland Tall ruderals Arable Hedge and trees native species rich Running water Standing water Scattered scrub	Site A is adjacent to the northern edge of Marline Wood. Woodland is the dominate habitat type. A large ploughed arable field separates Marline Wood from Alder Wood.	The Grade II Listed Building of Park Farmhouse is situated approximately 450m west of Site A; There is a reference to a possible archaeological excavation on land in the vicinity of Park Farm, approximately 650m west of Site A. The reference is to a possible Iron Age and Roman Bloomery. That was excavated in the 1930s; and, There is an extensive area of former earthworks on a south facing slope approximately 900m north west of Site A. These had been ploughed out by 1973.

² In the Cultural Heritage Appraisal for these study areas, Oxford Archaeology confirm that there are designated Ancient Woodland and Semi natural Woodland sites adjacent to the sites which should be regarded as historic landscape assets. The Oxford Archaeology report also confirms that the study area includes a complex of established hedges that are likely to be covered by the 1997 Hedgerow Regulations as "Important Hedgerows" for their historic value

Site	Phase 1 Habitat types	Location and general land use	Cultural Heritage ²
B	<p>Semi-natural broadleaved woodland</p> <p>Poor semi-improved grassland</p> <p>Tall ruderals</p> <p>Arable</p> <p>Hedge and trees native species rich</p> <p>Running water</p> <p>Standing water</p> <p>Scattered scrub</p>	<p>Site B is the central site of the three potential sites situated south of Park Farm House and dominated by horse grazed semi-improved grassland bound by connecting native species rich hedgerows with trees.</p>	<p>The Grade II Listed Building of Park Farmhouse is situated approximately 500m north west of Site B;</p> <p>There is a reference to a possible archaeological excavation on land in the vicinity of Park Farm, approximately 750m north west of Site B. The reference is to a possible Iron Age and Roman Bloomery. That was excavated in the 1930s; and,</p> <p>There is an extensive area of former earthworks on a south facing slope approximately 1000 north west of Site B. These had been ploughed out by 1973.</p> <p>The Grade II Listed Building of Stourbridge Farmhouse is situated approximately 500m south west of Site B;</p> <p>The Grade II Listed Building of Sturbridge Cottage is situated approximately 550m south west of Site B;</p> <p>Two archaeological features recorded within 500m and 550m of Site B, both referring to possible deposits associated with the Listed Buildings of Stourbridge Farm and Stourbridge Cottage.</p>

Site	Phase 1 Habitat types	Location and general land use	Cultural Heritage ²
C	<p>Semi-natural broadleaved woodland</p> <p>Poor semi-improved grassland</p> <p>Tall ruderals</p> <p>Arable</p> <p>Hedge and trees native species rich</p> <p>Running water</p> <p>Standing water</p> <p>Scattered scrub</p>	<p>Site C east of Stonebridge Farm comprises three small hay cut fields bounded by native specie rich hedgerows with trees.</p>	<p>The Grade II Listed Building of Sturbridge Farmhouse is situated approximately 450m west of Site C;</p> <p>The Grade II Listed Building of Sturbridge Cottage is situated approximately 500m west of Site C;</p> <p>Two archaeological features recorded within 450m and 500m of Site C, both referring to possible deposits associated with the Listed Buildings of Stourbridge Farm and Stourbridge Cottage.</p>

4.8 Existing Ecological Baseline

Site A

- 4.8.1 Site A encompasses two large areas of semi-natural woodland to the north-west, including the land either side of the SSSI wooded ghyll area.
- 4.8.2 The semi-improved horse grazed field between the ancient woodland of Alder Wood and Brickyard Shaw is dominated by Yorkshire fog *Holcus lanatus*, with occasional meadow foxtail *Alopecurus pratensis* and crested dog's-tail *Cynosurus cristatus*. A public footpath cuts through the field and into Marline Valley Woods.
- 4.8.3 Alder Wood is an area of woodland approximately 2 hectares in size. Two small streams run along the embanked boundary of Alder Wood draining into the ghyll stream encompassed within the SSSI designation. The canopy comprises dominant Pendulate oak *Quercus robur*, with frequent sweet chestnut *Castanea sativa* and occasional alder *Alnus glutinosa* and hornbeam *Carpinus betulus*. The understorey is dominated by coppiced hazel *Corylus avellana* and holly *Ilex aquifolium*. The field layer is sparse with patches of yellow archangel *Lamiastrum galeobdolon*, bracken *Pteridium aquilinum* and frequent dead wood with lichens.
- 4.8.4 Brickyard Shaw is a small ridge woodland dominated by oak, hornbeam and downy birch *Betula pubescens* with an understorey of hazel. In the centre of Brickyard

Shaw woodland is a shallow pond (not suitable for great crested newts) and to the edge of the wood is a pylon tower. The wood is connected to Alder Wood by a gappy hedge with mature trees.

- 4.8.5 The field to the east of Alder Wood is agricultural land with little current ecological value. The ploughed land is however, bordered by Marline Valley Woods SSSI to the east and south. No pylons are located in this area although overhead lines pass above.

Site B

- 4.8.6 The dominant habitat type of Site B is poor semi-improved grassland grazed by horses. A drain runs through the centre of the field that has created a marshy marginal habitat adjacent to the drain. The drain flows from the north of the field which then descends into woodland on the edge of Marline Valley Wood. Much of the lower section of the field has water logging and *Juncus* sp. are present. Species rich hedgerows with mature trees encompass much of the field, although small tracts of ancient woodland are located within the south west corner of the site and in the far north at Brickyard Shaw.
- 4.8.7 The southern tip of Site B is adjacent to an ancient woodland area encompassed within the SSSI designation. A small drain flows from a spring within this southern wood which was observed to be dry during the survey. A pylon tower lies north of this woodland, located in an area of bramble, tall ruderals and *Salix* sp. scrub.
- 4.8.8 The species rich hedgerows enclosing the field have a diverse range of veteran trees and are of high ecological value. The hedgerows form an intact corridor linking Marline Valley Wood to smaller copses and woodland blocks within the surrounding landscape.

Site C

Species rich hedgerows enclose the three small semi-improved meadows within this Site. The hedgerows are dominated by hawthorn *Crataegus monogyna*, hazel field maple *Acer campestre* with bramble *Rubus fruticosus* agg., Dog rose *Rosa canina* agg. and strong holds of blackthorn *Prunus spinosa* with mature trees including oak, hornbeam and ash *Fraxinus excelsior*. The semi-improved grassland that dominates this area slopes towards Marline Valley Woods SSSI. The grasslands, recently cut for hay are dominated by Yorkshire fog with occasional meadow foxtail *Agrostis* sp., *Fescues* sp and crested dog's-tail. Pylon towers sit within two of these meadows and associated overhead lines run through these, restricting the establishment of mature trees and shrubs within these areas.

- 4.8.9 The meadow in the centre of Site C has patches of bramble and a single central block of hawthorn. These areas are un-mown, which indicates the potential either an archaeological concern or an obstruction (i.e. rubble or footings) within the field.

- 4.8.10 Site C encompasses the same southern proportion of semi-improved grassland and the scrub habitat around the pylon tower north east of Watergates Wood.
- 4.8.11 This site, although dominated by semi-improved grassland of poorer quality, has an overall medium ecological value due to its combined linked habitats and species rich hedgerow that surround the meadows.
- 4.8.12 Each of the three sites has a range of habitats that have the potential to support protected species. The majority of wooded vegetation has trees that have potential as bat roosts, some of the richer marginal grassland edges and tall ruderals could provide suitable foraging habitat and the network of hedgerows would provide important commuting routes.
- 4.8.13 The hedgerows provide important habitat for small mammals (dormice are known to be in the area) and birds, the woodland edge provides an important habitat for butterflies and dragonflies and the meadows themselves are likely to provide important nesting areas for ground nesting birds such as skylarks. Further details of protected species are reported within the Extended Phase 1 Habitat Survey report contained within Appendix E.

4.9 Site Selection Analysis

- 4.9.1 Table 7 presents details of each habitat type, approximate size and ecological value of each proposed site based on information provided within the Phase 1 Habitat Survey.
- 4.9.2 It is apparent from the initial Extended Phase 1 Habitat Survey results and detailed value analysis of habitats that the most suitable site location for the potential woodland creation is Site A. Site A has a number of advantages over the other two sites selected. Although all three sites were located adjacent to Marline Valley Woods SSSI in order to facilitate colonisation, Site A also encompasses the largest area of existing undesignated semi-natural broadleaved woodland (2.5ha) of ancient origins (Brickyard Shaw and Alder Wood).

Table 7: Existing Size and Ecological Value of Potential Woodland Sites

Site	Phase 1 Habitat	Approximate size (ha)	Ecological value
A	Semi-natural broadleaved woodland	2.5	High - UK and local BAP
	Poor semi-improved grassland	1	Medium - UK and local BAP
	Tall ruderals	<0.2	Low
	Arable	2.6	Low
	Hedge and trees native species rich	-	High - UK and local BAP

Site	Phase 1 Habitat	Approximate size (ha)	Ecological value
	Running water	-	High especially in streams that drain into the main SSSI ghyll
	Standing water	<0.1	High if occupied by great crested newts
B	Semi-natural broadleaved woodland	1.4	High - UK and local BAP
	Poor semi-improved grassland	4.2	Medium - UK and local BAP
	Tall ruderals	0.5	Low
	Arable	0.4	Low
	Hedge and trees native species rich	<0.1	High - UK and local BAP
	Running water	<0.1	High especially in streams that drain into the main SSSI ghyll
	Standing water	<0.1	High if occupied by great crested newts
	Scattered scrub	0.5	Medium local value
C	Semi-natural broadleaved woodland	0.7	High - UK and local BAP
	Poor semi-improved grassland	5.4	Medium - UK and local BAP
	Tall ruderals	0.1	Low
	Arable	-	Low
	Hedge and trees native species rich	0.2	High - UK and local BAP
	Running water	-	High especially in streams that drain into the main SSSI ghyll
	Standing water	-	High if occupied by great crested newts
	Scattered scrub	0.5	Medium local value

4.9.3 Hydrologically, Site A comprises a number of small water courses that drain directly into the SSSI ghyll, which are located 50m from the key bryophyte communities that Marline Valley Woods SSSI is notified for, as identified in Appendix E. Sites B and C also have ditches that drain into the ghyll. However, the Phase 1 Habitat Survey identified that only the ditches draining from Alder Wood and a single ditch from Site B have the potential to be of importance in any future woodland design that could eventually support bryophytes.

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- 4.9.4 Site A also comprises 2.4 ha of ploughed arable field of low ecological value. Both fields of Sites B and C comprise mainly horse grazed or hay cut fields and largely poor semi-improved grassland, although cessation of existing management would improve the grassland ecological value. The combination of fields enclosed by species rich hedgerows are an important landscape feature and have a higher ecological value than the large arable field to the north of Site B.
- 4.9.5 The alignment of pylon towers and overhead lines would restrict any new woodland planting. This would impact on any planting scheme in Sites A and B that have narrower fields within which to plant woodland.
- 4.9.6 Topographically, all fields are sloping with varying angles. Some of the steeper fields to the north are sloping at a 40^o angle. The majority of the fields have an eastern facing aspect towards Marline Valley Woods.
- 4.9.7 NE were consulted on the outcome of the Extended Phase 1 Habitat Survey and actively involved in finalising the potential outline for Site A. Please refer to records of the consultation meeting with NE held of 21st October 2008 (Appendix A).

4.10 Conclusion

- 4.10.1 In order to provide effective compensation woodland the site selected must adhere to the principles in Section 4.5 in order to eventually provide a diverse range of habitats and structure that will fit within the surrounding landscape and have the long term potential to support communities of bryophytes. Site A offers the best opportunity for creating achievable compensation woodland for the following reasons:
- The site would be located within 50m of the key area of importance in Marline Valley Woods SSSI for bryophytes;
 - The site already has a suitable topography and Alder Wood has a number of boundary woodland streams that feed directly into the stream already encompassed by the existing SSSI designation that could reinforce the existing ghyll structure;
 - Approximately 60% of the site boundary would be adjacent to the northern edge of Marline, Brickyard Shaw or Alder Wood. The large expanse of adjacent woodland habitat should allow for successful colonisation of newly wooded areas;
 - Site A has approximately 2.5ha of existing ancient woodland that could be managed in order to improve biodiversity value for bryophytes and other species;
 - The woodland is of a similar community structure and type to that of surrounding woodlands and Marline Valley Woods SSSI;
 - Although Brickyard Shaw has some known archaeology history it appears that surrounding areas do not have any known areas of high archaeological interest; and,

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- Apart from the existing poor semi-improved field between Alder Wood and Brickyard Shaw, the surrounding habitats are of a lower ecological value than sites B and C, largely due to the large ploughed arable field adjacent to the SSSI.

Potential Woodland design and Management

- 4.10.2 A sensitive planting scheme that reflects the diversity and structure of the surrounding ancient woodland communities and that would fit within the existing landscape character of the area would be designed. The key strategy for Site A would be to actively manage Alder Wood and Brickyard Shaw to enhance their ecological value. The central poor semi-improved field would be left to regenerate naturally and a central ride would be maintained to accommodate footpath access within this area. Approximately 2.8ha of additional woodland would be created along the eastern edge of Alder Wood and the western edge of Marline Valley Woods. A central semi-improved grassland mosaic would be created in order to avoid creating woodland within the vicinity of the existing overhead power lines.

5 Summary

5.1 Protected Species

5.1.1 This Supplementary Nature Conservation Report provides supplementary information to the Addendum to the Environmental Statement (AES) (August 2008) prepared for the Bexhill to Hastings Link Road (BHLR) Scheme, promoted by East Sussex County Council (ESCC). In response to requests from the Statutory Consultee of NE and ESCC as the Planning Authority, this document confirms the following with respect to the protected species of bats and dormice:

- The precise location for the potential translocation of a barn and bat roost to mitigate for the loss of Adam's Farm Barns as a result of the Scheme; and,
- The adequacy of the dormouse mitigation to support low populations of dormouse to the south of the Scheme which may be isolated as a result of the Scheme.

5.2 Other Species

5.2.1 Issues relating to other species are clarified within this document. The status of all other species surveys carried out by EPR in 2008 is provided as a summary and overview within Table 2. In addition, outstanding EA concerns relating to impacts upon ecological receptors as a result of salt run-off and habitat severance and species isolation are confirmed as having been attended to, with reference to the relevant documents where each issue is addressed (letter from the Applicant, dated 26th September 2008, Appendix B).

5.3 Habitat Compensation Woodland

5.3.1 Following their review of the AES, the Statutory Consultee of NE stated in their letter to Peter Earl of ESCC of 17th September 2008, that they would maintain their objection to the Scheme on the grounds of four outstanding issues. Two of these issues related to dormice and bats. The remaining issues are as follows:

- Inadequate mitigation for the loss of small areas of woodland ground flora, loss of connectivity and nitrogen deposition for Marline Valley Woods Site of Special Scientific Interest (SSSI); and,
- Air Quality effects – local dry deposition of Nitrogen and Ammonia and associated contribution to acidification to be assessed for both SSSIs (Marline Valley Woods and Combe Haven).

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- 5.3.2 The latter issue of Air Quality effects has been clarified within the letter addressed to Peter Earl of ESCC dated 26th September 2008. Please refer to Appendix B.
- 5.3.3 To satisfy NE with regards to the former issues, NE have requested that compensatory native local provenance planting and/or areas of natural woodland regeneration of broadleaved woodland that is continuous with an uninfluenced section of the Marline Valley Woods SSSI is provided. The compensatory habitat should include a strip of native, broadleaved woodland large enough to improve the adaptability of the SSSI to air quality and climate change influences and provide an opportunity for the bryophytes to spread away from the zone of influence of the road should suitable microclimatic conditions develop within the new mitigation woodland.
- 5.3.4 This document has reviewed the suitability of three potential compensation sites, in the light of ecological and cultural heritage constraints. An Extended Phase 1 Habitat Survey has been carried out for these potential locations, alongside a desk based Cultural Heritage Appraisal. Please refer to Appendix C and Appendix E of this document.
- 5.3.5 In order to provide effective compensation woodland the site selected must adhere to the principles in Section 4.5 in order to eventually provide a diverse range of habitats and structure that will fit within the surrounding landscape and have the long term potential to support communities of bryophytes. This document therefore concludes that Site A offers the best opportunity for creating achievable compensation woodland.

Appendix A Records of Consultation – Meeting Minutes

**A.1 Minutes of Meeting between Natural England, East Sussex County Council
and Mott MacDonald: Tuesday 22nd July 2008**

A.2 Minutes of Meeting between the Environment Agency, East Sussex County Council and Mott MacDonald: Tuesday 22nd July 2008

**A.3 Minutes of Meeting between Natural England, East Sussex County Council
and Mott MacDonald: 8th October 2008**

**A.4 Minutes of Meeting between Natural England, East Sussex County Council
and Mott MacDonald: 21st October 2008**

Appendix B Records of Consultation – Letters

B.1 Letter addressed to Peter Earl of East Sussex County Council; 5th September 2008 –

SX/2007/101661/05-L01 - Construction of a new road including environmental treatment with earthworks, planting, flood and noise attenuation, wildlife compensation and facilities for non-motorised users

B.2 Letter addressed to Peter Earl of East Sussex County Council; 17th September 2008 –

HW/MAR/ADV/07-08/1 - CONSTRUCTION OF A NEW ROAD INCLUDING ENVIRONMENTAL TREATMENT WITH EARTHWORKS, PLANTING, FLOOD AND NOISE ATTENUATION, WILDLIFE COMPENSATION AND FACILITIES FOR NON-MOTORISED USERS

B.3 Letter addressed to Peter Earl of East Sussex County Council; 26th September 2008 –

BEXHILL TO HASTINGS LINK ROAD: OUTSTANDING NATURAL ENGLAND/ ENVIRONMENT AGENCY OBJECTIONS

B.4 Letter addressed to Peter Earl of East Sussex County Council; 16th October 2008 –

**BEXHILL TO HASTINGS LINK ROAD: OUTSTANDING NATURAL ENGLAND OBJECTIONS –
PROTECTED SPECIES**

B.5 Letter addressed to Peter Earl of East Sussex County Council; 23rd October 2008 –

**BEXHILL TO HASTINGS LINK ROAD: OUTSTANDING NATURAL ENGLAND OBJECTIONS –
PROTECTED SPECIES AND MARLINE VALLEY WOODS SITE OF SPECIAL SCIENTIFIC
INTEREST**

B.6 Letter addressed to Marian Ashdown of Natural England; 29th October 2008 –

BEXHILL TO HASTINGS LINK ROAD

B.7 Letter addressed to Peter Earl of East Sussex County Council; 27th October 2008 –

HW/MAR/ADV/08-09/28_10_08 – Construction of a new road including environmental treatment with earthworks, planting, flood and noise attenuation, wildlife compensation and facilities for non-motorised users.

Appendix C Cultural heritage Appraisal

Appendix D Figures

**Appendix E Phase 1 Habitat Assessment and Marline Valley Woods
bryophyte survey**

E.1 Extended Phase 1 Habitat Survey and Supporting Figures

E.2 Marline Wood – it's importance for Bryophytes; Simon Davey, October 2008