

Bexhill Link Road Extended Phase 1 Ecological Assessment

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Bexhill Link Road

Extended Phase 1 Ecological Assessment

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Summary

S.1 Overview

An Extended Phase 1 was carried out on land between Marline Valley Woods Site of Special Scientific Interest (SSSI) and Breadsell Lane in order to provide broad habitat information for creation of compensation woodland as an extension of the SSSI. The survey comprised a desk study and a site walkover in order to map habitat types and highlight the potential for protected species to be present.

S.2 Key Ecological Features

The Marline Valley Woods SSSI designated for its nationally uncommon woodland type and its steep sided stream valley (ghyll), contains plants that have an Atlantic distribution including a number of rare and important bryophytes.

The semi-improved grassland throughout the site is of varying quality although a number of meadows represent a slightly species rich neutral sward and therefore a key ecological feature for invertebrates.

The connecting hedgerows throughout the site are native species-rich with veteran trees and provide connective corridors, shelter and foraging habitat for a variety of species which may include dormice. The majority of hedgerows on site would be considered important under the Hedgerow Regulations 1997.

S.3 Constraints and Implications

It should be noted that absence of certain protected or rare species does not preclude their presence on a site. There is always a risk of protected or rare species being over-looked, either owing to the timing of the survey or the scarcity of the species on the site. In addition, in some areas an evaluation of the habitat type and ecological features was not possible due to land access permission.

1 Introduction

1.1 Background

This Extended Phase 1 Ecological Assessment report has been prepared in support of the Environmental Statement and Addendum to the Environmental Statement for the Bexhill to Hastings Link Road.

The ES 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 East Sussex County Council Transport and Environment Department. The Addendum to the ES aims 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. It must be read in conjunction with the ES.

The project team have been committed to effective communication and consultation during the development of the Scheme design and in the preparation of the ES and the Addendum to the ES. Following their review of the ES (April 2007) and the Addendum to the ES (August 2008), Natural England (NE) as a Statutory Consultee have formally commented in a letter to the Planning Authority (17th September 2008) that the proposed mitigation is inadequate to compensate for the loss of connectivity at the southern tip of Marline Valley Woods Site of Special Scientific Interest (SSSI) and for nitrogen deposition on the edge of the woodland. Therefore, the objective of this Extended Phase 1 Ecological Assessment is to inform a report which will examine the potential for creating suitable compensation woodland, which would form a functional habitat to compensate for the indirect impacts as a result of the Scheme upon Marline Valley Woods SSSI.

1.2 Scope of Works

In order for the mitigation to be suitable, NE would seek an area of 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. NE have stated within their letter of 17th September 2008 that 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.

1.3 Study Area and the Zone of Influence

Study Area

The site is located immediately northwest of Marline Valley Woods SSSI between Crowhurst and Baldslow, East Sussex. The site consists of farm land which includes ploughed fields, poor semi-improved grassland grazed by horses and hay cut meadows. A number of small wooded copses and native species rich hedgerows contribute to an area totalling approximately 35 hectares.

Zone of Influence

Construction and operations at a site can have impacts on ecological features beyond the confines of the site itself. Following the Institute of Ecology and Environmental Management (IEEM) guidance all ecological features should be investigated which occur within the Zone of Influence and which arise during the whole lifespan of the proposed development. The potential ZoI is defined as:

- Areas directly within the land take for the proposed development and access;
- Areas which will be temporarily affected during construction;
- Areas likely to be impacted by hydrological disruption;
- Areas where there is a risk of pollution and noise disturbance during construction and/or operation.

The ZoI is regarded as being the site footprint (please refer to Appendix A.2 Phase One Habitat Map which denotes the site footprint by the red line). The study area includes both the ZoI and up to 500m radius from the site owing to the possibility of species such as great crested newts, migrating into the zone of influence. Desk study records have been collated from a wider area of 1km.

2 Methodology

2.1 Desk Study

A review of all previous records on designated sites, habitats, and protected and notable species was undertaken for a 1km radius of national grid reference (TQ 777 121). Information was obtained by searching available publications, reports and online databases.

Information regarding local and national species habitat action plans and areas of protected status was obtained from:

- Nature on the Map
- National Biodiversity Network (NBN)
- UK Biodiversity Action Plan (UKBAP)
- Multi –Agency Geographic Information for the Countryside (MAGIC)
- Joint Nature Conservation Council (JNCC) website.

Local biodiversity information was obtained from the following sources:

- Sussex Biodiversity Record Centre
- Sussex Wildlife Trust

- Individual County Recorders

2.2 Phase 1 Assessment

The survey area was visited over two days in October 2008 and the habitat types were identified and mapped in compliance with the Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit (JNCC, 1993).

2.3 Criteria for Evaluating Conservation Importance

The conservation value of each of the ecological features was assessed using the WebTAG guidance table as shown below in Table 2.3. Evaluation criteria include a variety of ecological definitions which encompass both the legal protection and the biodiversity value of each species or habitat.

Table 2.3: Criteria for Determining the Conservation Value and Level of Importance

Conservation value	Criteria	Level of importance	Criteria
Very high	High importance and rarity and limited potential for substitution. Significant populations of species and/or large areas are habitats in good condition.	International	Internationally designated sites (SPAs, SACs, Ramsar Sites). Qualifying interest features of designated sites. Habitats and species listed in EC Habitats Directive.
High	High importance & rarity, or with limited potential for substitution. Important habitats or significant species population of good condition and/or significant species population. Regionally important habitats and/or species with limited potential for substitution.	National	Nationally designated sites (SSSIs, NNR). Species protected under UK legislation.
Medium	High or medium importance and rarity. Important habitats and/or species with potential for substitution.	Regional	Locally designated sites (LNR, SINC). BAP priority habitats and species other than those of national importance.
Low	Low or medium importance and rarity. E.g. species-poor hedgerows, species-poor arable fields and margins, species poor scrub, species poor neutral grassland.	Local	Undesignated sites of some local biodiversity and earth heritage interest. Local species of importance (often listed in BAPs). Other habitats or species populations with little biodiversity value and earth heritage interest.
Negligible	Of very low or no ecological importance, areas of very low species richness, e.g. waste areas, amenity grassland, non-native planted areas.		

2.4 Study Constraints and Uncertainties

It should be noted that absence of certain protected or rare species does not preclude their presence on a site. There is always a risk of protected or rare species being over-looked, either owing to the timing of the survey or the scarcity of the species on the site. In addition, in some areas an evaluation of the habitat type and ecological features was not possible due to land access permission.

3 Legislative and Policy Framework

3.1 European Directives and International Conventions

The construction and operational activities for the development would comply with International, European and UK legislation. The following EC Directives and international conventions are relevant to the ecological assessment:

- EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitat Directive 1992) as amended (92/43/EEC);
- EC Directive on the Conservation of Wild Birds (Birds Directive 1979) as amended (79/409/EEC);
- Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979), and ;
- Convention on Biological Diversity (1992).

3.2 National Legislation

The key UK pieces of legislation are the Wildlife and Countryside Act 1981 (WCA 1981) which consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) in Great Britain.

Other key pieces of legislation are:

- The Conservation (Natural Habitats, & c.) Regulations 1994;
- The Countryside and Rights of Way Act 2000;
- The Protection of Badgers Act 1992;
- The Wild Mammals (Protection) Act 1996, and;
- The Hedgerow Regulations 1997.

The Conservation (Natural Habitats, & c.) Regulations 1994 transpose the Habitats Directive into national law. The Regulations provide for the designation and protection of 'European sites', and the protection of 'European protected species'.

3.3 National Policy and Guidance

The following strategy documents promote the conservation of non-statutory designated sites and of habitats and species of biological value. They also encourage the beneficial management of habitats for nature conservation:

- Planning Policy Statement 9: Nature Conservation;
- UK Biodiversity Action Plan.

The above instruments and frameworks need careful consideration. In particular, the protection afforded to those species listed on Schedule 5 of the Wildlife and Countryside Act 1981 has recently been increased with the advent of the Countryside and Rights of Way (CROW) Act 2000. Provisions in Schedule 12 of the CROW Act make certain offences 'arrestable', create new offences of 'reckless' disturbance, confer greater powers to police and wildlife inspectors, and enable heavier penalties on conviction of wildlife offences. The CROW Act also reinforces the need to take account of species listed in Biodiversity Action Plans.

3.4 Local Policy and Planning Guidance

The East Sussex and Brighton and Hove Structure Plan 1991 – 2011 (Adopted in 1999) includes the following policies:

- Policy EN7 – The Urban Fringe;
- Policy EN17 – Protection of Species, Habitats and Geological features; and,
- Policy EN18 & EN21 – Protecting and Enhancing Biodiversity.

The Hastings Local Plan, includes the following local policies:

- Policy NC2 – Sites of Species Scientific Interest;
- Policy NC3 – Local Nature Reserves;
- Policy NC6 – Sites of Nature Conservation Importance;
- Policy NC7 – The Green Network; and,
- Policy NC10 – Ancient Woodland.

The PPS9 guidance on Planning for Biodiversity and Geological Conservation sets out the government's national planning policy on the protection of biodiversity. PPS9 states that development should be sustainable, have minimal impact on biodiversity and encourage enhancement.

The targets and actions needed to protect and manage biodiversity are set out in the Government’s Biodiversity Strategy for England (Working with the grain of nature – A biodiversity strategy for England, Defra 2002 and Working with the grain of nature – taking it forward: Volume 1 and 2, Defra 2006). Under this strategy nine headline indicators have been chosen to assess actions and targets aimed at protecting and managing England’s biodiversity. An explicit aim of the strategy is to deliver the UK Biodiversity Action Plan (UK BAP) in England.

4 Ecological Features

4.1 Desk Study Results

Designated Sites

A number of designated sites are within 1km of the ZoI. A brief summary of these designated sites is provided below and summarised in Table 4.1. Citations for the SSSI designated site are provided in Appendix B. There are no internationally designated sites within 2km of the ZoI.

National Designated Sites

Sites of Special Scientific Interest (SSSI) are of national ecological importance for the conservation of wildlife habitats, plants and animals, geological features and landforms.

Table 4.1: Summary of National Designated Sites

Site Name	Designation	Distance from Zone of Influence (m)	Conservation Importance
Marline Valley Woods The SSSI is a key ecological feature of the area and extends into and adjacent to the areas surveyed.	SSSI	Adjacent land	National

Non-Statutory Sites

Non-Statutory designated sites are of regional ecological importance for the conservation of wildlife, habitats and plants. They are known as Local Wildlife Sites or previously known as Sites of Nature Conservation Importance (SNCIs). Although they are not statutory, Local Wildlife Sites are a material consideration in planning decisions. There are 4 Local Wildlife Sites and 2 Local Nature Reserve located within 1km of the site.

Table 4.2: Summary of Locally Designated Site

Site Name	Designation	Distance from Zone of Influence (m)	Conservation Importance
Marline Wood Ancient gill woodland, coppice, and semi-improved neutral meadow.	LNR	Adjacent land	Regional
Wainwright Close Mixed habitat of species rich grassland, scrub and a pond.	SNCI	450m south east	Regional
Church Wood and Robsack Wood Ancient semi-natural woodland, gill woodland, freshwater streams, and semi-improved meadow.	LNR	850m south east	Regional
Augustus Way Pond	SNCI	885m east	Regional
Hollington Valley Semi natural woodland with associated stream and meadow habitats.	SNCI	900m east	Regional
Beauport Park Mosaic of habitats including gyhlls, damp stream valleys, woodland and meadows.	SNCI	980m north	Regional

4.2 Extended Phase 1 Habitat Survey Results

Phase 1 habitat survey target notes are presented in Appendix A. all species recorded within target notes are given a distribution rating according to the DAFOR scale. The main habitat types identified during the survey are summarised as follows:

4.2.1 Woodland and Scrub

Semi Natural Broadleaved Woodland

Broadleaved woodland was defined as vegetation dominated by trees more than 5m high when mature, forming a distinct though sometimes open canopy containing less than 10 % conifers. Woodland was classified as semi-natural if planted trees were present and

accounted for less than 30 % of the canopy composition, but as a plantation if more than 30% was obviously planted.

The wooded copses and main wooded larger blocks of Alder Wood and Brickyard Shaw demonstrate a high canopy of broadleaved trees of ancient origins. The main canopy trees varied although Pendunculate oak *Quercus robur*, Hornbeam *Carpinus betulus*, Sweet Chestnut *Castanea sativa* birch *Betula pubescens*, and alder *Alnus glutinosa* were abundant constants with a frequent shrub layer dominated by hazel *Corylus avellana* and holly *Ilex aquifolium*.

Scrub

Scrub is defined as serial or climax vegetation dominated by locally native shrubs less than 5m in height and occasionally with a few scattered trees. Scattered scrub was identified along woodland margins and around the overhead powerline tower bases. The dominant species were bramble *Rubus fruticosus* and hawthorn *Crataegus monogyna* and a single patch of gorse *Ulex europaeus* scrub adjacent to Alder Wood. Willow *Salix sp.* was also identified in central areas along field margins.

4.2.2 Grassland and Marsh

Poor semi-improved grassland

Semi improved grassland of a poorer diversity was identified as the dominant grassland type Much of the grassland is mown indicating use for hay and several fields are heavily grazed. The fields were dominated by Yorkshire Fog *Holcus lanatus*, Cocks Foot *Dactylis glomerata*, fescue *Festuca sp*, ribwort plantain *Plantago lanceolata*, meadow buttercup *Ranunculus acris*, and red clover *Trifolium pratense*.

The field margins tended to be slightly richer in species to include. *Agrostis sp.*, False oat grass *Arrhenatherum elatius*, Meadow foxtail *Alopecurus pratensis*, Crested dogs tail *Cynosurus cristatus* and Black knapweed *Centaurea nigra*.

It is considered likely that cessation of grazing will allow the grasslands to become richer in species thereby increasing their ecological value.

Within the central meadow (see Target Note 3) of poor semi-improved grassland small pockets have been allowed to scrub over for some time potentially due archaeological features within the field.

4.2.3 Tall Herb and Fern

Tall Ruderal

All tall stands of perennial or biennial dicotyledons of more than 25cm were included in the habitat category. Tall ruderal vegetation exists in patches with one extensive area dominated by nettles *Urtica dioica*, bramble *Rubus fruticosus* and thistles *Cirsium arvense*. Tall ruderals were observed along field boundaries, around the base of pylon towers and as a component of the set-aside fields adjacent to the London to Hastings railway.

4.2.4 Open Water

Standing Water

There are two ponds within the study area. One is within the farm residential area and is of relatively small size and inhabited by waterfowl. The other lies within the small wooded copse of Brickyard Shaw and is heavily shaded, full of leaf litter and lacks any aquatic vegetation.

Running Water

Several wet ditches cross the fields feeding into the ghylls of the SSSI. Ghylls (steep sided streams) are located within the wooded copses and are fed from the streams within the woodlands themselves.

4.2.5 Hedgerows

Hedgerows with trees

The hedgerows in the study area are all species rich and composed largely of hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* with dogwood *Cornus sanguinea*, some field maple *Acer campestre*, bramble *Rubus fruticosus*, holly *Ilex aquifolium*, hazel *Corylus avellana*, and wild privet *Ligustrum vulgare*. Most of the hedges have mature veteran tree species such as pendunculate oak and ash *Fraxinus excelsior*. They are likely to be utilised by numerous species such as birds, invertebrates, and small mammals by providing shelter and numerous feeding resources.

Intact hedgerows without trees

These hedgerows were less frequent but were also relatively species rich and composed largely of hawthorn and blackthorn *Prunus spinosa* with dogwood, bramble, and hazel.

4.2.6 Other Habitat Types

Arable

This included several large fields which are regularly ploughed and are heavily disturbed, the largest of which lies between Alder Wood and the eastern boundary of Marline Valley Woods SSSI.

4.3 Protected Species Results

4.3.1 Breeding Birds

It is illegal to kill birds (with some exceptions), their chicks and eggs and disturbance of nesting birds is an offence under the Wildlife and Countryside Act 1981. For bird species listed on Schedule 1 of this act there is a further offence of intentionally or recklessly disturbing any wild bird while it is nest building or is at (or near) a nest with eggs or young; or disturb the dependent young of such a bird. It is highly likely that a number of bird species will be utilising the existing habitat on site groups of pied wagtails were seen foraging of the grazed areas and woodpeckers and thrushes seen in fields adjacent to the woodland. If large amounts of vegetation are to be removed breeding bird surveys shall be undertaken, and clearance of scrub and trees shall avoid where possible the breeding bird season (February to early September inclusive).

4.3.2 Badgers

The Protection of Badgers Act 1992 makes it an offence to kill, injure, or take a badger (*Meles meles*), and it is also an offence to intentionally or recklessly damage, destroy or obstruct access to a badger sett, or disturb a badger while it is occupying a sett. A badger sett (disused) was identified in the wooded copse area towards the north eastern extent of the area. The surrounding wooded areas were dry enough to provide ideal places for sett construction and foraging.

4.3.3 Bats

All bat species found in the UK are protected under the EC Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981. The latter makes it an offence to intentionally kill, injure, take, possess, or trade in any wild animal of those species noted.

All of the mature trees, especially oak and hornbeam species within the site are potentially suitable to support bat roosts. The wooded corridors and associated grassland are also likely to be utilised for foraging and navigation.

4.3.4 Dormice

Dormice *Muscardinus avellanarius* are protected under the EC Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981. Killing and injuring a dormouse is prohibited and it is also an offence to damage, destroy or obstruct access to, any structure or place which a dormouse uses for shelter or protection.

The wooded areas and hedgerows provide a diverse array of tree and shrub species for dormice to forage. Local records and surveys of the nearby area have confirmed the presence of dormice within the SSSI and LNR, adjacent to the site. Therefore the potential for dormice to be present on site is high.

4.3.5 Reptiles

Common species of reptiles such as grass snake *Natrix natrix*, adder *Vipera berus*, common lizard *lacerta vivipara* and slow worm *Anguis fragilis* are protected from injury and killing by their inclusion on Schedule 5 of the Wildlife and Countryside Act 1981. The grass meadows with their sloping embankments and mosaic of scrub and grassland habitat are suitable for all species of common reptiles. A dead grass snake was found on the track near Stonebridge farm.

4.3.6 Great Crested Newts and Other Amphibians

Great crested newts *Triturus cristatus* are protected under the EC Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981. Killing and injuring a great crested newt is prohibited and it is also an offence to damage a breeding or resting place or to deliberately disturb a great crested newt.

Great crested newt records have been identified within the local area at Stonebridge Farm (TQ772120) and Horseshoe Farm (TQ7611). Several ponds exist within the ZoI but have not been assessed using the Habitat Suitability Index (HSI) as any compensatory works are unlikely to affect this species.

4.3.7 Invertebrates

A range of woodland, grassland and ruderal areas were identified as providing good habitat for invertebrate groups including butterfly and moth *Lepidoptera*, ants, bees and wasps *Hymenoptera*, flies *Diptera*, spiders *Araneae* and crickets *Orthoptera*.

4.4 Summary of Ecological Features

A summary of the main ecological features and their nature conservation value on site are presented in Table 4.1.

Table 4.1: Ecological Features Conservation Value

Ecological features	Conservation value and level of importance	Evaluation criteria – Legal protection	Evaluation criteria – Biodiversity value
Habitat Type			
Semi Natural Broadleaved Woodland	High regionally and locally	Wildlife & countryside Act	Parts form sections of the SSSI
Scrub	Medium locally	-	-
Semi-improved grassland	Medium locally	-	In Sussex HAP
Running water	High regionally and locally	-	UK BAP and local priority habitat
Standing water	Medium locally	-	-
Tall ruderal	Medium locally	-	-
Hedgerows	High regionally and locally	The Hedgerow Regulations 1997	In Sussex HAP
Protected & Notable Species			
Bats	Very high (international and national)	Protected under the EC Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981 from trade, possession, injury, killing, disturbance and damage/obstruction to a breeding site or place of rest.	High biodiversity value due to the international and UK BAP importance.

Ecological features	Conservation value and level of importance	Evaluation criteria – Legal protection	Evaluation criteria – Biodiversity value
Badgers	High (national)	The Protection of Badgers Act 1992 makes it an offence to kill, injure, or take or recklessly damage, destroy or obstruct access to a badger sett, or disturb a badger while it is occupying a sett.	Species widespread in the UK and locally common.
Dormice	Very high (international and national)	Protected under the EC Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981 from trade, possession, injury, killing, disturbance and damage/obstruction to a breeding site or place of rest.	High biodiversity value due to the international and UK BAP importance.
Great crested newts	Very high (international and national)	Protected under the EC Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981 from trade, possession, injury, killing, disturbance and damage/obstruction to a breeding site or place of rest.	High biodiversity value due to the international and national importance. Local BAP species.
Reptiles – widespread species	Medium (local and regionally)	Protected under the Wildlife and Countryside Act 1981 from trade, injury and killing.	Species widespread and locally common.
Invertebrates	Medium (local and regionally)	-	Site supports species nationally notable and UK BAP species.

5 Conclusions and Recommendations

5.1 Conclusions

The site comprises a mosaic of habitats to include ancient semi-natural woodlands and species rich hedgerows which are of high ecological value in terms of the connective corridors, areas for shelter and an abundant source of food they provide for wildlife. The poor semi-improved grasslands field margins exhibit increased grassland species richness and areas of scattered scrub which are of moderate value for invertebrates, reptiles and birds.

The site walkover has identified that badgers are likely to utilise the site as evidence was found within the broadleaved woodland copses. Records suggest that dormice are present within the semi natural ancient woodland and the native species rich hedgerows have high potential for dormice to utilise as wildlife corridors. Previous surveys have identified great crested newts in the nearby ponds and the wet woodlands provide ideal terrestrial habitat for these species. The veteran trees, semi-natural ancient woodland copses and hedgerows provide ideal habitat for bat roosts and the linear features would be used for foraging and navigation. Therefore it can be concluded that this site is of high ecological value in terms of locally important habitats and protected species.

5.2 Recommendations

Phase 2 surveys are recommended to provide detailed information on the presence of protected species utilising the site. Protected species data would be analysed to determine any potential impacts that woodland creation will have on the existing habitats and protected species.

Appendix A

A.1 Phase 1 Target Notes

Phase 1 Target Note to be read with Phase 1 Map

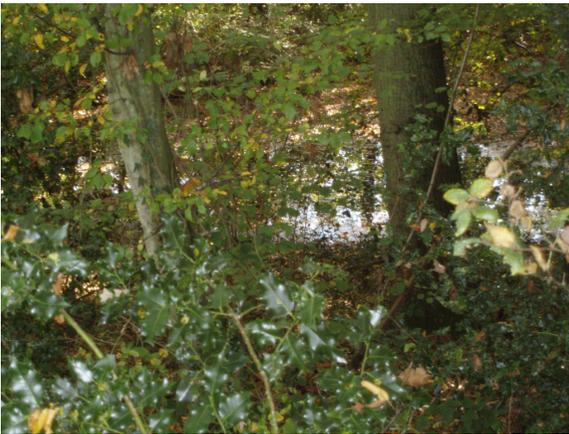
Target Note Number	Target Note Comments	Species List	Ecological Value	Photograph
1	Poor semi improved grazed field with woodland to the south. Hedgerow with trees lining the field with Pendunculate oak and nettles.	<i>Cirsium vulgare</i> (F) <i>Ranunculus repens</i> (A) <i>Lolium perenne</i> (D) <i>Rumex obtusifolius</i> (F) <i>Quercus robur</i> (D) <i>Urtica dioica</i> (O)	Grassland is of low value. Hedgerows are of high value representing Local and UK BAP habitat type.	
2	Small area of broad leaved semi-natural woodland. Looks like existing pond may be present. Inactive badger sett. Archaeology: Lord Hastings Post	<i>Quercus robur</i> (O) <i>Fagus sylvatica</i> (D) <i>Fraxinus excelsior</i> (O) <i>Mercurialis perennis</i> (F)	Woodland of high value representing Local and UK BAP habitat type.	

3	<p>Poor semi improved neutral grassland field - mown. Several areas of scattered scrub possibly archaeology remains. Field surrounded by mature, linear belt of trees and shrubs (species rich hedgerow with trees). Dragonfly and green woodpecker seen.</p>	<p>Grass species: <i>Holcus lanatus</i> (D) <i>Dactylis glomerata</i> (A) <i>Festuca sp.</i>(O) <i>Agrostis sp.</i>(O) <i>Arrhenatherum elatius</i>(O)</p> <p><i>Quercus robur</i> (F) <i>Fagus sylvatica</i> (O) <i>Prunus spinosa</i>(O)</p>	<p>Field and scrub are of medium value.</p> <p>Hedgerows are of high value representing Local and UK BAP habitat type.</p>	
4	<p>Intact species rich hedge splitting the field (poor semi-improved), approximately 55m in length.</p>	<p><i>Cornus sanguinea</i> (O) <i>Crataegus monogyna</i> (D) <i>Ilex aquifolium</i> (R) <i>Corylus avellana</i> (R) <i>Prunus spinosa</i>(O) <i>Geranium robertianum</i>(O) <i>Ligustrum vulgare</i> (O)</p> <p>Grasses: <i>Holcus lanatus</i> (D) <i>Festuca ovina</i>(O) <i>Agrostis sp.</i>(O) <i>Arrhenatherum elatius</i>(O) <i>Dactylis glomerata</i> (A) <i>Cynosurus cristatus</i> (R)</p>	<p>Hedgerows are of high value representing Local and UK BAP habitat type.</p>	
5	<p>Intact species rich hedgerow with ditch.</p>	<p><i>Quercus robur</i>(F) <i>Faxinus excelsior</i> (O) <i>Corylus avellana</i> (A) <i>Crataegus monogyna</i> (F)</p>	<p>Hedgerows are of high value representing</p>	<p>No photograph taken.</p>

		<p><i>Acer campestre(O)</i> <i>Prunus spinosa (F)</i> <i>Mercurialis perennis(F)</i></p>	<p>Local and UK BAP habitat type.</p>	
6	<p>Footpath with double hedge. Dense sections of scrub (bramble) and tall ruderal.</p>	<p><i>Quercus robur(A)</i> <i>Hedera helix (F)</i> <i>Crataegus monogyna(A)</i></p>	<p>Hedgerows are of high value representing Local and UK BAP habitat type.</p> <p>Scrub and tall ruderal of medium value.</p>	<p>No photograph taken.</p>

7	Poor semi-improved fields.	<i>Centaurea nigra (F)</i> <i>Ranunculus reptans(O)</i> <i>Plantago lanceolata (O)</i> Tall grasses: <i>Holcus lanatus (D)</i> <i>Dactylis glomerata (A)</i>	Low ecological value	
8	Large oak dead wood dell	<i>Quercus robur (F)</i>	Medium potential for bats.	No photograph taken.
9	Disused quarry	<i>Geranium robertianum (O)</i> <i>Mercurialis perennis (F)</i> <i>Hedera helix(A)</i>	-	No photograph taken.
10	Slightly richer poor semi improved field. Areas of marshy grassland.	<i>Juncus effusus (O)</i> <i>Holcus lanatus (D)</i> <i>Festuca ovina(O)</i> <i>Agrostis sp(O)</i> <i>Arrhenatherum elatius(O)</i>	Medium ecological value.	No photograph taken.

		<p><i>Dactylis glomerata</i> (A) <i>Trifolium pratense</i> (F)</p>		
11	<p>Poor semi- improved grassland, grazed by horses. The field is surrounded by high canopy woodland a public footpath crosses the field.</p>	<p><i>Holcus lanatus</i> (D) <i>Agrostis sp</i> (F) <i>Ranunculus reptans</i> (F) <i>Dactylis glomerata</i> (F)</p>	<p>Low ecological value.</p>	

12	<p>Small wooded copse along the upper ridge of a poor semi-improved field know as Brickyard Shaw with high canopy woodland of ancient origins comprising pendunculate oak and birch. The understorey is of abundant hazel and frequent holly with a sparse ground flora. In the centre of the site is a small irregular shaped woodland pond, heavily over-shaded by the surrounding woodland the pond is shallow and full of leaf litter with no aquatic plants. It is unlikely that the pond supports great crested newts</p>	<p><i>Quercus robur</i> (D) <i>Betula pubescens</i> (A) <i>Capinus betulus</i> (F) <i>Hedera helix</i> (A)</p>	<p>Woodland of high value representing Local and UK BAP habitat type.</p>	
13	<p>Poor semi-improved field heavily over-grazed by horses so only a low patchy fragmented sward of Yorkshire fog is present. This field represents the majority of northern fields by Breadsell Land that are heavily overgrazed, only field margins represent a slightly richer sward.</p>	<p><i>Holcus lanatus</i> (D)</p>	<p>Low ecological value.</p>	

14	<p>A spur of ancient semi-improved woodland that falls within Marline Valley Woods SSSI designation. This spur represents a typical ghyll structure and is directly fed by the woodland streams flowing from Alder Wood.</p>	<p><i>Quercus robur</i> (D) <i>Betula pubescens</i> (A) <i>Capinus betulus</i> (F) <i>Hedera helix</i> (A) <i>Oxalis aceosella</i> (O) <i>Luzula sylvatica</i> (O)</p>	<p>Woodland of high value representing Local and UK BAP habitat type.</p>	
15	<p>Two woodland streams were identified in Alder wood both with a slow flow approximately 0.5m wide with an earth substrate.</p>		<p>High value representing UK BAP and local priority habitat</p>	

16	Lane side semi-improved broadleaved woodland strip.	<p><i>Quercus robur</i> (D) <i>Betula pubescens</i> (A) <i>Urtica dioica</i> (A) <i>Hedera helix</i> (F) <i>Rubus fruticosus</i> agg (A)</p>	Woodland of high value representing Local and UK BAP habitat type.	
17	Alder Wood is 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 with frequent sweet chestnut and occasional alder and hornbeam. The understorey is dominated by coppiced hazel and holly. The field layer is sparse with patches of yellow archangel, bracken and frequent dead wood with lichens.	<p><i>Lamiastrum galeobdolon</i> (O) <i>Pteridium aquilinum</i>(O) <i>Quercus robur</i> (D) <i>Betula pubescens</i> (A) <i>Capinus betulus</i> (F) <i>Hedera helix</i> (A) <i>Oxalis aceosella</i> (O) <i>Luzula sylvatica</i> (O) <i>Urtica dioica</i> (F) <i>Hedera helix</i> (F) <i>Rubus fruticosus</i> agg (A) <i>Castanea sativa</i>(F) <i>Ilex aquifolium</i> (R) <i>Corylus avellana</i> (R)</p>	Woodland of high value representing Local and UK BAP habitat type.	
18	Steep ghyll with no water, shaded by dense scrub.		Medium ecological value.	No photograph taken.

19	Lower part of field is wet underfoot.	<i>Juncus effuses (F)</i>	Low ecological value.	No photograph taken.
20	GCN record, 2002.		-	No photograph taken.
21	Scattered gorse scrub.	<i>Ulex europaeus (A)</i>	Medium ecological value.	No photograph taken.

DAFOR Scale - Dominant (D), Abundant (A), Frequent (F), Occasional (O) and Rare (R).

A.2 Phase 1 Habitat Map

Appendix B Citations of Designated Site

B.1 Marline Valley Site of Special Scientific Interest