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INTRODUCTION

Background

1.1 This Chapter provides a summary of the Ecological Impact Assessment (EcIA) conducted by SLR Consulting Limited (SLR) to inform the planning submission for development of an outdoor recreation facility at the former Huntley Wood Quarry near Cheadle, Staffordshire.

Location and Setting

1.2 Huntley Wood Quarry is located approximately 2km southwest of the town centre of Cheadle (site centroid Ordnance Survey National Grid Reference SJ994416)

1.3 The site covers approximately 68.4 hectares (ha) comprising the former Huntley Wood Quarry, an access road to the site and some surrounding mature and ancient woodland. The site lies within an area of predominantly agricultural land between the urban settlements of Cheadle to the northeast, Upper Tean to the southeast and Blythe Bridge to the west.

Purpose of the Ecological Impact Assessment

1.4 The EcIA can be considered as having three main purposes:

- to provide an objective and transparent assessment of the ecological effects of a proposed development or activity;
- to permit objective and transparent determination of the consequences of the proposals in terms of national, regional and local policies relevant to nature conservation; and
- to demonstrate that a proposed development or activity will meet the legal requirements relating to habitats and species.

1.5 This EcIA follows a standard approach based upon the description of the existing baseline conditions within the application site; an evaluation of the habitats and species present within the application site; the identification of potential ecological effects of the proposed development; and an assessment of the likely significance of identified impacts on the valued ecological receptors (VERs) both within the application site and within the zone of influence of the proposed development. Where a significant negative impact has been identified suitable mitigation measures to prevent, reduce or offset the level of impact are provided with any residual effects, following the implementation of mitigation and enhancement measures, identified and assessed.

LEGISLATIVE AND POLICY CONTEXT

1.6 This section summarises the key legislation and policies relevant to ecology and nature conservation.

Legislation

1.7 The key wildlife legislation underpinning the conservation of habitats and species are summarised below.

Wildlife & Countryside Act 1981 (as amended)

1.8 The Wildlife and Countryside Act 1981 is the primary legislation in Great Britain for the protection of flora, fauna and the countryside. This legislation is the means by which the 'Bern Convention' and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/EEC) are implemented in Great Britain. The Act also empowers Natural England to protect habitats of national importance through the statutory designation of Sites of Special Scientific Interest (SSSIs) for features of interest.

The Conservation of Habitats and Species Regulations 2010

1.9 The Conservation of Habitats and Species Regulations 2010 (The Habitats Regulations) consolidate and update the Conservation (Natural Habitats, &c.) Regulations 1994 and all its various amendments, in respect to England and Wales. The Habitat Regulations transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law and provides for the designation and protection of 'European sites' including Special Areas of Conservation (SAC) and Special Protection Area (SPA), the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. The regulations introduce a review procedure for plans and projects likely to significantly affect a European site, and licensing requirements for developments that may affect a European protected species for example, bats, otter and great crested newt.

The Countryside and Rights of Way (CRoW) Act 2000

1.10 Part III of the CRoW Act deals specifically with wildlife protection and nature conservation. The Act requires that Government departments have regard for the conservation of biodiversity, in accordance with the Convention on Biological Diversity1, and demands that the Secretary of State publishes a list of living organisms and habitat types that are considered to be of principal importance in conserving biodiversity.

1.11 The CRoW amends the Wildlife and Countryside Act 1981, by strengthening the protection of designated SSSIs. In addition, it increases the legal protection of threatened species, by also making it an offence to 'recklessly' destroy, damage or obstruct access to a sheltering place used by an animal listed in Schedule 5 of the Act or 'recklessly' disturb an animal occupying such a structure or place.

[1] Adopted at the Earth Summit held in Rio de Janeiro in June 1992.

The Natural Environments and Rural Communities (NERC) Act 2006

1.12 The NERC Act 2006 created a new integrated agency, named 'Natural England', through the merger of the Countryside Agency's landscape, access and recreation functions, English Nature and the part of the Rural Development Service (RDS).

1.13 It also amends the CRoW Act, by further extending the requirement to have regard for biodiversity to all 'public authorities', which includes local planning authorities. It also requires that the Secretary of State consults Natural England in the publication of the list of living organisms and habitat types deemed to be of principal importance in conserving biodiversity.

Planning Policies

National

1.14 Nationally, the Government's commitment to sustainable development and conserving the diversity of wildlife is set out in a number of Planning Policy Guidance (PPG)/Planning Policy Statement (PPS) Notes.

1.15 PPS9: Biodiversity and Geological Conservation was published in August 2005 and is accompanied by Government Circular 06/05: Biodiversity and Geological Conservation which covers relevant legislative provisions at the international and national level that can impact on planning decisions affecting biodiversity and geological conservation issues, and Good Practice Guidance. PPS9 sets out the Government's broad policy objectives in relation to the protection of biodiversity and geological conservation in England through the planning system, and its proposed planning policies that will help deliver these objectives. These policies reflect statutory obligations for nature conservation.

Regional

1.16 The Regional Spatial Strategy (RSS) provided by the West Midlands RSS (June 2004) that set out the long-term spatial planning framework for the West Midlands Region was revoked by the incumbent Government on 6th July 2010 and as such all regional planning policies have been abolished.

Local

1.17 Planning policy at the local level is provided at this current time by saved policies within the Staffordshire & Stoke-on-Trent Structure Plan as of 28th September 2007 and in the saved policies of the adopted Staffordshire Local Plan dated October 1998.

1.18 The policies relevant to ecology and nature conservation in these Local Plans are detailed in Table 1-1.

Table 1-1
Local Policies Relevant to Ecology and Nature Conservation

Policy Reference	Policy
Staffordshire & Stoke-on-Trent Structure Plan	
NC1 – Protection of the Countryside: General Considerations	The countryside will be safeguarded for its own sake and non-renewable and natural resources will be afforded protection. New building in the open countryside, away from existing settlements or from areas allocated for development in Development Plans, will be strictly controlled. Development which is acceptable with respect to other Structure Plan policies should respect the character of the countryside and maintain or improve the environment. Where overriding economic or social interests outweigh the need for environmental maintenance or improvement, development proposals should include measures for adequate mitigation of, or compensation for, adverse environmental impacts.
NC6 – Important Semi-Natural Habitats	In considering or formulating proposals for development or land use change, planning authorities will ensure, wherever possible, that damage to important semi-natural habitats or other features or sites of significant nature conservation or geological value is avoided. Particular care will be taken to safeguard and consolidate the integrity of linear and other landscape features which are of major importance for wild fauna and flora. Where damage is unavoidable, measures to mitigate or compensate through establishment of replacement habitat or features should be taken, wherever possible.
NC7A – Sites of International Nature Conservation Importance	Proposals for development or land use change which are likely to have significant effects on an existing or proposed site of international importance for nature conservation will be subject to the most rigorous examination. Proposals not directly connected with or necessary to the management of the site, and which are likely (either individually or in combination with other plans or projects) to have an adverse effect on the integrity of the site, will not be permitted unless the planning authority is satisfied that there is no alternative solution, and there are imperative reasons of overriding public interest for the development or land use change. Where the site concerned hosts a priority natural habitat type and/or a priority species, development or land use change will not be permitted unless the planning authority is satisfied that it is necessary for reasons of human health or public safety or for beneficial consequences of primary importance for nature conservation.

Policy Reference	Policy
NC7B – Sites of National Nature Conservation Importance	Proposals for development or land use change in or likely to affect Sites of Special Scientific Interest will be subject to special scrutiny. Where such proposals are likely to have an adverse effect, directly or indirectly, on the SSSI, they will not be permitted unless there are no reasonable alternative means of meeting that development need and the reasons for the development clearly outweigh the nature conservation value of the site itself and the national policy to safeguard the national network of such sites. Where the site concerned is a National Nature Reserve (NNR) or site identified under the Nature Conservation Review (NCR) or Geological Conservation Review (GCR), particular regard will be paid to the individual site's national importance.
NC7C – Site so Local Nature Conservation Importance	Development or land use change likely to have an adverse effect on a Local Nature Reserve or a Site of Local Nature Conservation Importance will not be permitted, unless it can be clearly demonstrated that there are reasons for the proposal which outweigh the need to safeguard the intrinsic nature conservation value of the site.
NC13 – Protection of Trees, Hedgerows and Woodlands	Measures to improve the management and conservation of existing woodlands and important trees and hedgerows, including those in urban areas, will be supported. Development or land use change will only be approved where it will not result in the loss of or significant damage to ancient woodlands, and will not have an unacceptable adverse effect on other woodlands or hedgerows which contribute significantly to landscape character and quality or to the meeting of biodiversity targets, unless it can be demonstrated that there are reasons for the proposal which clearly outweigh the need to safeguard the site. Where, exceptionally, such a woodland or hedgerow is lost to development, the developer should incorporate or provide for such compensatory planting as is appropriate and feasible in order to minimise the loss of an environmental resource. Schemes for the planting of a new woodland should include subsequent management.
Staffordshire Moorlands Local Plan	
N13 – Nationally Designated Nature Conservation Sites	Proposals for development in or likely to affect a Site of Special Scientific Interest, a National Nature Reserve, a site identified under the nature conservation review or geological conservation review, will be subject to special scrutiny, with particular regard paid to the site's national importance. Where such development may have a significant adverse affect, directly or indirectly, on the designated site, it will only be approved if it can be clearly demonstrated that the reasons for the development clearly outweigh the value of the site itself and the national policy to safeguard such sites.

Policy Reference	Policy
N14 – Locally Designated Nature Conservation Sites	Proposals for development likely to have an adverse effect on a Local Nature Reserve, a Grade 1 county Site of Biological Importance or a Regionally Important Geological / Geomorphological Site will only be approved if it can be clearly demonstrated that there are reasons for the proposal which clearly outweigh the need to safeguard the intrinsic nature conservation value of the site.
N15 – Other Nature Conservation Sites	Where development is to be approved which could adversely affect any site of significant nature conservation value, appropriate measures shall be required to conserve the site's biological or geological interest and to provide for replacement habitats or features where damage is unavoidable.
N17 – Unimproved Grasslands	Within an area of unimproved grassland and on surrounding land planning permission will only be granted for development if it can be demonstrated that the need for the development outweighs the nature conservation importance of the grassland.
N18 - Lowland Heaths	Within an area of lowland heath and on surrounding land development will only be granted if it can be demonstrated that the need for the development outweighs the nature conservation importance of the lowland heath.
N22 - Hedgerows	In considering development proposals, the council will require, where appropriate, measures for the protection, conservation and enhancement of hedgerows and hedgerow trees and the adoption of management practices which are sensitive to sound ecological principles.

Biodiversity Action Plan

1.19 The UK, along with 150 other countries, signed up to the Convention on Biological Diversity in 1992, during the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992, which required the UK Government to halt, and where possible reverse, the steady decline of species and natural habitats.

1.20 The UK Biodiversity Action Plan (UK BAP) identifies habitats and species on a UK wide basis that require special consideration for protection, enhancement and expansion with the primary aim "*conserve and enhance biological diversity within the UK, and to contribute to the conservation of global biodiversity through all appropriate mechanisms*". The UK BAP identifies a number of Priority Habitats and Species and outlines UK Habitat Action Plans (HAPs) and Species Action Plans (SAPs) to conserve them.

1.21 To implement the UK BAP, a number of Local Biodiversity Action Plans (LBAPs) have been produced including the Staffordshire BAP. This plan implements individual HAPs and SAPs at the local level.

METHODOLOGY

1.22 Baseline ecological data were collated through a combination of desk-based study and field survey consistent with current standard methodologies and published good practice guidelines.

Area of Study

1.23 The area of study includes all the land within the application boundary of the proposed outdoor recreation facility (herein referred to as the application site) as well as important ecological sensitive receptors within the zone of influence of the site with the potential to be directly or indirectly affected by the proposed development.

Desk-based Study

1.24 A preliminary desk-based study was undertaken and involved collating data from a number of organisations and examining published data relating to the application site and in a defined search area centred on this site. Data included details of statutory and non-statutory designated nature conservation sites and protected and notable species within a 2km radius of the site (site centroid OS NGR SJ994416).

1.25 Data sources used included a request for ecological records supplied by the Staffordshire Ecological Record (SER) and information held by the Multi-agency Geographic Information for the Countryside (MAGIC) (www.magic.gov.uk), the National Biodiversity Network (NBN) (www.nbn.org.uk), Natural England (www.naturalengland.org.uk), Staffordshire BAP (www.sbap.org.uk) and the UK BAP (www.ukbap.org.uk).

Field Survey

1.26 The scope of the ecological field surveys was defined on the basis of known and the potential ecological interest within the application site and best practice[2].

1.27 SLR Consulting Ltd has been involved with a previous planning application for the Huntley Wood Quarry site and has gathered baseline ecological data for the application site from previous desk-based studies and field surveys undertaken between 2006 and 2010 and these are summarised in Table 1-2.

Table 1-2

Summary of Ecological Surveys Undertaken at Huntley Wood Quarry 2006-10

Taxonomic Group/Survey Type	Date	Survey Area	Organisation
Phase 1 Habitat Survey Badger Survey Bat Survey Bird Survey Reptile Survey Great Crested Newt Survey Invertebrate Survey	2006	Application Area	Staffordshire Wildlife Trust

[2] Institute of Environmental Assessment (1995). *Guidelines for Baseline Ecological Assessment*. Chapman and Hall (E & F N Spon), London.

Desk-based Study Extended Phase 1 Habitat Survey Badger Survey Great Crested Newt Survey	2008	Application Area	SLR Consulting Ltd
Desk-based Study Walkover Survey (to update the Phase 1 Habitat Survey and Protected Species Risk Assessment)	2010	Application Area	SLR Consulting Ltd

1.28 Throughout the period this site has been studied there has been no significant changes to the baseline conditions of the habitats on this site and there is no reason to believe that the baseline in respect to the actual or potential presence of protected and notable species has substantially altered based on the Protected Species Risk Assessment undertaken in July 2010.

1.29 Based therefore on the known and potential ecological interest within the application site and on the nature of the development proposals it was deemed that no other specialist surveys were necessary in respect of the habitats present on the site and their potential to support protected species at this current time.

Limitations

1.30 The walkover survey carried out in July 2010 updated the results of the 2008 extended Phase 1 Habitat Survey as well as providing an updated Protected Species Risk Assessment based on the current habitat baseline conditions. The survey was conducted in at an optimum time to undertake such surveys and it is considered that the survey results are representative of the habitats within the application site, and include the dominant and characteristic species of flora.

1.31 The lack of evidence of any one particular protected species does not necessarily preclude its presence at the site either at this current time or in the future. It is considered however, that the baseline conditions at the site have not significantly altered since previous surveys to provide additional opportunities for individual and groups of species and that the surveys carried out at this site are still likely to be representative of the baseline value of the study area for protected and notable species at the current time.

Assessment Methodology

Evaluation of Ecological Features

1.32 The ecological features, identified through the desk-based study and field survey, were given a value based on a geographic context. Ecological features are defined as:

- statutory protected (i.e. Natura 2000 sites, Sites of Special Scientific Interest, National Nature Reserve) or non-statutory locally designated (i.e. Local Wildlife Sites) sites and features;

- sites, habitats and features of recognised biodiversity value but not designated as detailed above (i.e. areas listed on published inventories of priority habitats such as the ancient woodland inventory and lowland grassland inventory) or areas of habitats subject to an UK HAP or Local HAP; and
- species protected or controlled by law or of biodiversity value or significance including Species of Conservation Concern; and UK SAP and Local SAP species.

Assessment of Impacts

1.33 The assessment of potential ecological impacts has been carried out using the guidelines published by the Institute of Ecology and Environmental Management (IEEM)3 and can be summarised as:

- the identification of the range of potential impacts that may arise from the proposed development;
- the consideration of the systems and processes in place to avoid, reduce and mitigate the possible effects of these impacts;
- the identification of opportunities for ecological enhancement within the proposed development;
- an assessment of the residual impacts, following consideration for the implementation of avoidance, mitigation and enhancement measures; and
- where necessary the identification of compensation required to offset any residual effects.

1.34 Impacts are defined as being negative, neutral or positive. The term significant is independent of the value of the receptor. A significant impact is defined as an impact on the integrity of a defined ecosystem and/or the conservation status of habitat or species within a given geographical area.

1.35 Where a potential negative impact has been identified, mitigation measures have been formulated using best practice techniques and guidance to prevent, reduce or offset a significant effect.

ECOLOGICAL BASELINE CONDITIONS

1.36 This section provides a general overview of the existing ecological baseline conditions in the study area and within the wider local environment.

General Site Description

1.37 The application site is located approximately 1.5km southwest of the town of Cheadle, Staffordshire and covers approximately 69ha that consists of the former Huntley Wood Quarry and Huntley Wood. The surrounding landscape

[3] Institute of Ecology and Environmental Management (2006). *Guidelines for Ecological Impact Assessment in the United Kingdom*.

is predominantly agricultural grassland but also includes some arable land and woodland blocks lying inside a ring of urban settlements with Cheadle in the northeast, Upper Team to the southeast, Draycott in the Moors and Blythe Bridge towards the west.

1.38 A large part of the site was, until fairly recently, an active quarry for the extraction of sand and gravel which has left steep slopes leading from the surrounding land to the quarry floor. Within the confines of the quarry the topography is varied with areas of old spoil heaps and made ground, steep banks and cliff faces and a number of depressions some of which have filled with water.

1.39 Since the cessation of quarrying operations the site has been largely left abandoned. Today, the site is dominated by post-mineral extraction habitats that form a mosaic of bare substrates (consisting of sand and gravels), semi-natural and plantation woodland, scrub and open standing water.

1.40 The site is subject to large amounts of disturbance caused by its informal use. In particular, large numbers of motorbikes have resulted in damage to open areas of the quarry floor, its sloping sides and many of the sand banks.

Nature Conservation Sites

Statutory Designated Nature Conservation Sites

1.41 There are no international (i.e. SAC, SPA, or Ramsar Site), national (i.e. SSSI, or NNR) or local (i.e. Local Nature Reserve (LNR)) statutory designated nature conservation sites at or within 2km of the application site.

Non-Statutory Designated Nature Conservation Sites

1.42 There are three non-statutory designated nature conservation sites within 2km of the proposed application site that include one Sites of Biological Importance (SBI) and two Biodiversity Alert Site (BAS):

- Huntley Wood SBI (SJ988416);
- Commonside Quarry SBI (SJ989421); and
- Draycott Common Wood BAS (SJ996412).

1.43 Of these sites, Huntley Wood SBI and Draycott Common Wood BAS lie within the application area. Huntley Wood is also listed on the Ancient Woodland Inventory (AWI) as Ancient and Semi-Natural Woodland (ASNW). These sites are detailed on Drawing 1.

Habitats

1.44 Drawing 2 show the locations and extent of the habitats recorded within the application site along with the location of associated Target Notes (TN). A description of each TN provided in Table 1-3.

1.45 The application site is a mosaic of different habitat types that include the following in order of area of coverage from high to low:

- semi-natural broadleaved woodland;
- bare sand and gravel (quarry workings);
- scrub;
- woodland plantation (broadleaved, coniferous and mixed);
- standing open water;
- dry dwarf shrub and lichen/bryophyte heaths;
- marshy grassland;
- acid grassland; and
- marginal vegetation.

Woodland and Scrub

1.46 The majority of the site is covered in different woodland and scrub types including semi-natural broadleaved woodland, plantation woodland (broad-leaved, coniferous and mixed) and dense and scattered scrub consisting of a variety of woody species.

1.47 Mature semi-natural broadleaved woodland, typically consisting of an oak-birch woodland type with a rich bryophyte community and often abundant rhododendron, is predominantly found in the northern (TN51) and eastern (TN17) parts of the site with a further smaller block in the central part of the site (TN8). By far the largest block of this woodland type is Huntley Wood which has been designated a SBI and ASNW.

1.48 Semi-mature birch dominated semi-natural woodland is found in small blocks on the edge of the quarry, its slopes and floor (TN3, 12, 14, 22, 30, 31, 33, 38, 40 and 46). This woodland often has a field and ground flora showing an affinity to dry dwarf shrub and lichen/bryophyte heath communities although through successional changes these heathland type habitats are diminishing under dense gorse scrub and birch regeneration.

1.49 Woodland planting consisting of broadleaved species (TN7, 18, 41 and 45), conifers (TN5) and mixed planting (TN39) has taken place on some of the quarry sides and in the southern parts of the site. Birch regeneration and gorse development is often conspicuous forming dense re-growth vegetation in the drier areas of broadleaved tree planting. In damper areas rich thick carpets of bryophytes are present.

1.50 A variety of scrub habitat types are present across the site often forming relatively large patches of dense vegetation consisting of a dominant single species with typically an acid grassland or dry dwarf shrub and/or lichen/bryophyte heath community where the canopy is relatively open. The main types of scrub include: gorse scrub (TN6, 35, 42 and 44) with the largest stands predominantly found in the western half of the site but which is prominent throughout; alder and willow scrub (TN20) present in damper areas of the site; hawthorn scrub (TN15) on the far eastern side of the site and which is dominant in a complex mosaic of scrub, bracken and acid grassland; and silver birch regeneration (TN23, 25, 26, 32, 34 and 47) ubiquitous across the site and often forming very dense growth.

Grassland and Marsh

1.51 Acid grassland is predominantly found in the eastern parts of the site (TN16) but small patches are found throughout the site (TN11) forming generally a sparse field and ground layer under the more dominant woodland and scrub habitats. The largest areas of acid grasslands are dependent upon heavy rabbit grazing to check the development of scrub and tall ruderal species.

1.52 A semi-improved neutral grassland is found in the southwest corner of the application site (TN48) and is currently managed for low density grazing by cattle. Other neutral grasslands are found at the entrance of the site (TN1) and on the narrow roadside verges of the lane leading to the site entrance (TN49 and 50).

1.53 Marshy grassland, dominated by soft rush, is found at the entrance of the site (TN2 and 4) and in damper areas of the site (TN36) but birch regeneration and scrub development are evident in these areas.

Heathland

1.54 Remnant patches of heathland habitat consisting of ling dominated dry dwarf shrub heath (TN9) and lichen/bryophyte heath (TN24 and 43) are found throughout the site but which often form a component part of the woodland and scrub habitats found on the site.

Open Standing Water and Associated Habitats

1.55 There are a number of permanent and ephemeral ponds within the application area (TN10, 13, 19, 27, 28 and 29). The quality of water in each of the ponds varies considerably with some receiving large quantities of silt carried in surface water run-off and most appearing to be eutrophic with dense green algae forming in areas of shallow water. TN29 is a perched pond and does not receive large quantities of surface water run-off and the water quality in this pond would appear to be eutrophic/mesotrophic. Most of the ponds have some marginal vegetation that becomes more diverse in the smaller ephemeral water bodies but little truly aquatic species of flora.

Bare Ground

1.56 Bare ground consisting of exposed sands, gravels and pebbles is predominantly found in the western half of the site. A sand cliff face forms a prominent feature in this part of the site and provides nesting opportunities for sand martin. Erosion through surface water flows and by motorbikes has however, damaged significant parts of this feature.

Table 1-3
Target Notes

Target Note		Description
1.57 1.58	TN 1	1.59 A 1.5m high bank dominated by a neutral grassland with abundant Yorkshire-fog (Holcus lanatus); occasional, cock's-foot (Dactylis glomerata), red fescue (Festuca rubra agg.); and rare soft rush (Juncus effusus). Also present were rosebay willowherb (Chamerion angustifolium), creeping thistle (Cirsium arvense), foxglove (Digitalis purpurea), ribwort plantain (Plantago lanceolata), broad-leaved dock (Rumex obtusifolius), dandelion (Taraxacum officinale agg.), red clover (Trifolium pratense), white clover (Trifolium repens) and gorse (Ulex europaeus). Directly behind the bank was a line of trees consisting of silver birch (Betula pendula) and goat willow (Salix caprea) with frequent bramble (Rubus fruticosus agg.).
TN2		A 2m high wide bank dominated by marshy grassland community with abundant soft rush and frequent Yorkshire-fog. Other grass species present were cock's-foot and red fescue along with rosebay willowherb, creeping thistle, broom (*Cytisus scoparius*), foxglove, hogweed (*Heracleum sphondylium*), field wood-rush (*Luzula campestris*), ribwort plantain, bracken (*Pteridium aquilimum*), bramble, broad-leaved dock, ragwort (*Senecio jacobaea*), rowan (*Sorbus aucuparis*), and gorse. Silver birch regeneration was evident with some saplings growing through the sward.
TN3		A semi-mature semi-natural broadleaved woodland with a canopy dominated by silver birch and pedunculate oak (*Quercus robur*) particularly along a raised bank that runs along the southern edge of the woodland. The sparse shrub layer consists of sycamore (*Acer pseudoplatanus*), rhododendron (*Rhodoendron ponticum*), elder (*Sambucus nigra*), rowan and gorse with goat willow in the damper areas. The ground flora consists of frequent bramble with rosebay willowherb, Yorkshire-fog, bluebell (*Hyanthioides non-scripta*), red campion (*Silene dioica*) and common nettle (*Urtica dioica*). Bryophytes are locally abundant on the woodland floor.
TN4		A 1m high raised grassland area with abundant soft rush. Floristically similar to TN2 but with common bird's-foot trefoil (*Lotus corniculatus*), greater plantain (Plantago *major*), dandelion and white clover present in the sward and many of the woody and tall ruderal species absent or in significantly lower densities.
TN5		A mature conifer plantation consisting of closely planted Scots pine (*Pinus sylvestris*) with some silver birch the only other tree species present. The ground is covered in a thick layer of pine needles and is largely absent of flora. Along the western and southern boundary of the plantation is a small strip of unimproved grassland that extends into the plantation where light can penetrate the pine trees. The grass species include abundant Yorkshire fog with false oat-grass (*Arrhenatherum elatius*), cock's-foot and red fescue. Other species include creeping thistle, spear thistle (*Cirsium vulgare*), foxglove, soft rush, field wood-rush, bramble, red campion, dandelion, white clover, gorse, germander speedwell (*Veronica chamaedrys*) and growing between the grassland and pebbled track thyme-leaved speedwell (*Veronica serpyllifolia*).

Target Note	Description
TN6	Dense scrub dominated by gorse but with some broom and bramble also forming part of the woody composition. Bracken is locally abundant forming a dense ground cover but where absent the ground flora dominated by bryophytes
TN7	Broadleaved plantation of alder (*Alnus glutinosa*) with pedunculate oak, goat willow and elder present in the scrub layer. The ground flora consists rosebay willowherb, Yorkshire fog, bracken, bramble, common nettle and rough meadow-grass (*Poa trivialis*) with abundant bryophyte coverage.
TN8	A mature semi-natural broadleaved woodland dominated by silver birch and pedunculate oak with a few Scots pine. The shrub layer is dominated by rhododendron much of which has been cleared north of the track that dissects this block of woodland but which has left a deep woody litter on the woodland floor. Other shrubs include silver birch, common hawthorn (*Crataegus monogyna*), goat willow, rowan and gorse. Where present the ground flora consists of sweet vernal-grass (*Anthoxanthum odoratum*), rosebay willowherb, creeping thistle, wavy hair-grass (*Deschampsia flexuosa*), foxglove, red fescue, hogweed, bluebell, soft rush (locally abundant along the trackside), bracken and bramble. The northern edge of the woodland ends in a 5m high cliff face leading to the main quarry floor.
TN9	A small patch of dry heath with abundant ling (*Calluna vulgaris*) with common bent (*Agrostis capillaris*), common mouse-ear (*Cerastium fontanum*), wavy hair-grass, Yorkshire fog, soft rush, bracken, ragwort and an abundance of bryophytes are all present in the sward. Silver birch regeneration with rhododendron, bramble and gorse are becoming a prominent.
TN10	A small pond that receives surface water flows emanating from the exposed sands and gravels in the east of the site. The banks are steep with silver birch woodland/scrub heavily shading the ponds margins. Small patches of submerged fennel pondweed (*Potamogeton pectinatus*) are found within the pond with soft rush present growing around the marginal zone.
TN11	A small patch of acid grassland growing on partly exposed pebbles/gravels between patches of woodland and scrub. The sward consists of common bent, sweet vernal-grass, cock's-foot, wavy hair-grass, Yorkshire fog with ling, common mouse-ear, creeping thistle, soft rush, field wood-rush, black medick (*Medicago lupulina*), tormentil (*Potentilla erecta*), bramble, common sorrel (*Rumex acetosa*), wood sage (*Teucrium scorodonia*), white clover, thyme-leave speedwell present and frequent bryophytes.
TN12	A semi-mature silver birch dominated woodland with a gorse shrub layer running between a track and conifer plantation with pedunculate oak and goat willow becoming more abundant on the lower slope. The ground flora consists of common mouse-ear, spear thistle, foxglove, red fescue, Yorkshire fog, bracken, bramble and germander speedwell.

Target Note	Description
TN13	A rectangular shaped pond used for fishing with a number of set pegs around its edge. The open pond has little vegetation with the exception of small patches of greater pond-sedge (*Carex riparia*) and reedmace (*Typha latifolia*). Around the outside of the pond and on its banks are some mature/semi-mature trees and areas of dense/scattered scrub that include sycamore, silver birch, hawthorn, wild cherry (*Prunus avium*), dog rose (*Rosa canina* agg.) and willows (*Salix* spp.) with broom, bramble and gorse comprising the scrubby elements. Other species growing around the pond include cow parsley (*Anthriscus sylvestris*), common mouse-ear, creeping thistle, spear thistle, cock's-foot, foxglove, red fescue, cleavers (*Galium aparine*), hogweed, Yorkshire fog, common cats-ear (*Hypochaeris radicata*), soft rush, ribwort plantain, greater plantain, creeping buttercup (*Ranunculus repens*), broad-leaved dock, ragwort, dandelion, white clover and common nettle.
TN14	A semi-mature silver birch dominated semi-natural woodland with holly (*Ilex aquifolium*), rhododendron, goat willow and elder forming a sparse shrub layer and a field/ground flora dominated by dense stands of bracken and bramble.
TN15	A mosaic of scrub, tall herb fern, tall ruderal and very small patches of acid grassland. The scrub consists predominantly of mature hawthorn within some sycamore, wild cherry, pedunculate oak, goat willow and elder also present interspersed by dense patches of bramble, gorse, bracken and locally abundant rosebay willowherb. Where rabbit grazing has checked the development of scrub very small patches of grassland showing affinities to acid grassland are present with species comprising common bent, sweet vernal-grass, false oat-grass, common knapweed (*Centaurea nigra*), cock's-foot, marsh thistle, spear thistle, foxglove, red fescue, cleavers, hogweed, Yorkshire fog, bluebell, ragwort, perennial rye-grass (*Lolium perenne*), ribwort plantain, greater plantain, creeping buttercup, red campion, common nettle and germander speedwell.
TN16	Within TN15 are some larger areas of acid grassland that are maintained by heavy grazing by rabbits. The grassland is dominated by sweet vernal-grass with common bent, common mouse-ear, common eyebright (*Euphrasia nemorosa*), heath bedstraw (*Galium saxatile*), heath wood-rush (*Luzula multiflora*), tormentil, creeping buttercup and germander speedwell. Areas less intensively grazed have become colonised by rosebay willowherb, creeping thistle, marsh thistle and ragwort which has deteriorated these areas of grassland.
TN17	A semi-mature pedunculate oak dominated woodland with occasional silver birch and a few specimens of common hawthorn, holly, elder and rowan along with gorse forming the shrub layer. The ground flora is relatively sparse with rosebay willowherb, bluebell and bracken all locally abundant.
TN18	Broadleaved woodland plantation consisting of predominantly alder, pedunculate oak and rowan with dense silver birch and gorse scrub regeneration on a steep east facing slope. The ground flora is dominated by ling and a rich carpet of bryophytes but with common bent, red fescue, Yorkshire fog, soft rush and bramble also present.
TN19	A small ephemeral pond with wide margins of soft rush and reedmace that receives large quantities of surface water run-off from the high ground to the west.
TN20	Alder dominated scrub with frequent goat willow and some silver birch regeneration growing in a damp low-lying area. The ground cover is dominated by a rich carpet of bryophytes.

Target Note	Description
TN21	A small ephemeral pond with clear water surrounding by woodland and scrub. Common water-starwort (*Callitriche stagnalis*) forms locally frequent patches of submerged vegetation with marsh willowherb (*Epilobium palustre*), soft rush, water forget-me-not (*Myosotis scorpioides*) and reedmace forming a patchwork of emergent species.
TN22	A semi-mature silver birch dominated woodland with a ground flora composition similar to TN18.
TN23	Dense scrub dominated by silver birch regeneration with a ground flora composition similar to TN18.
TN24	A small area of bryophyte dominated heathland on partly exposed pebbles and gravels with some common bent, ling, common mouse-ear, common cats-ear, soft rush, heath rush (*Juncus squarrosus*), ragwort and common nettle also present in small isolated patches.
TN25	An area of largely bare ground with silver birch regeneration evident. The sparse ground cover includes a short ephemeral type vegetation consisting of rosebay willowherb, spear thistle, field horsetail (*Equisetum arvense*), soft rush, ragwort, dandelion, colt's-foot (*Tussilago farfara*) and with locally frequent common spotted-orchid (*Dactylorhiza fuchsia*).
TN26	A patchwork of silver birch regeneration scrub with a sparse bryophyte heathland type ground flora.
TN27	A large open standing water body with a wide marginal fringe of reedmace around its perimeter and scattered scrub development of silver birch and goat willow on the slopes leading to the waters edge. Dense mats of green algal growth was present in areas of shallow water.
TN28	A small shallow ephemeral pond with clear water supporting marsh willowherb, soft rush, water forget-me-not and reedmace.
TN29	A rectangular shaped pond with spiked water-milfoil (*Myriophyllum spicatum*) and fennel pondweed growing in patches in open water. In the north of the pond is a large marginal dominated by reedmace but with common water-starwort also present in shallow water. In the drier areas of the marginal zone rosebay willowherb, marsh thistle (*Cirsium palustre*) and soft rush are present with an abundance of bryophytes.
TN30	Semi-mature broadleaved woodland with abundant alder and frequent goat willow with silver birch, hawthorn and rhododendron forming the shrub layer. The ground flora is limited to soft rush, bramble and a rich carpet of bryophytes.
TN31	Broadleaved woodland dominated by silver birch with alder, rhododendron and gorse forming a dense shrub layer with frequent goat willow in the wetter areas. The ground flora consists of patches of ling, soft rush in amongst abundant bryophytes.
TN32	An area of silver birch regeneration with broom, goat willow, rowan and gorse also developing over a heathland type community consisting of abundant ling with common bent, wavy hair-grass, soft rush and a rich bryophyte community.
TN33	A semi-mature broadleaved woodland consisting predominantly of alder and goat willow with some silver birch, rhododendron and gorse in the shrub layer. The ground flora is dominated by bryophytes with ling, soft rush, and bramble growing in the drier parts of the woodland.
TN34	An area of exposed pebbles and gravels that has some scrub encroachment consisting of silver birch, bramble, elder, goat willow and gorse. Other species present include marsh thistle and common nettle.

Target Note	Description
TN35	Dense gorse scrub with frequent broom and bramble and silver birch regeneration. The ground flora consists of common bent, sweet vernal-grass, cock's-foot, red fescue, Yorkshire fog with ling, rosebay willowherb, spear thistle, foxglove, square-stalked St John's-wort (*Hypericum tetrapterum*), soft rush and selfheal (*Prunella vulgaris*) present.
TN36	An area of soft rush dominated vegetation prone to heavy disturbance by motorbikes. Other species present are spear thistle, ragwort and colt's-foot.
TN37	A small shallow depression with scattered scrub of silver birch and goat willow growing on the sides and top of the banks. In the bottom of the depression tufted hair-grass (*Deschampsia caespitosa*), soft rush and reedmace are all present growing in the soft damp substrates.
TN38	A silver birch dominated woodland with evidence of some tree planting. The woodland has a close affinity with TN32.
TN39	A mixed woodland plantation with abundant Scots pine and dense silver birch and gorse under-storey. The ground flora is patching with affinities to TN32.
TN40	Semi-mature silver birch dominated woodland with locally frequent rhododendron and gorse. The ground flora is dominated by bryophytes with ling conspicuous.
TN41	A broadleaved woodland plantation of alder, silver birch, beech, hawthorn, ash (*Fraxinus excelsior*), pedunculate oak and goat willow with scrub development consisting of silver birch regeneration, gorse, broom and bramble. The ground flora is dominated by bryophytes.
TN42	Gorse dominated scrub with occasional broom forming dense vegetation with little vegetation growing beneath this canopy. Where open a grassland community consisting of the grass species common bent, sweet vernal-grass, red fescue, and Yorkshire fog is present along with common knapweed, creeping thistle, soft rush, common bird's-foot trefoil (*Lotus corniculatus*), ribwort plantain, greater plantain, selfheal, creeping buttercup, ragwort and germander speedwell.
TN43	Bryophyte dominated heathland with soft rush in the damper low-lying areas. Silver birch regeneration along with rhododendron, bramble and gorse is being to develop in these areas.
TN44	An area of dense scrub in front of a birch dominated woodland fringe running on the edge of the quarry. The woodland consists of silver birch and pedunculate oak with sycamore, alder, beech, hawthorn, holly and rhododendron forming a dense shrub layer. The scrub is dominated by patches of gorse and bramble with broom and birch saplings also prominent. In open areas and immediately downslope of the scrub exists a rich plant community with affinities to woodland/grassland/heath habitat types including common bent, sweet vernal-grass, ling, common centaury (*Centaurium erythraea*), common mouse-ear, rosebay willowherb, creeping thistle, spear thistle, cock's-foot, foxglove, red fescue, Yorkshire Fog, heath bedstraw, square-stalked St-John's-wort, common cat's-ear, soft rush, heath rush, heath wood-rush, tormentil, common sorrel, broad-leaved dock, ragwort and thyme-leaved speedwell.
TN45	Broadleaved woodland plantation consisting of alder, silver birch, common hawthorn, beech, ash and rowan with dense scrub of gorse and silver birch regeneration growing amongst the planted trees..
TN46	Semi-mature broadleaved woodland dominated by silver birch with gorse forming a dense shrubby layer. Ling is abundant in the field layer with bryophytes forming a rich carpet in the ground layer.

Target Note	Description
TN47	Silver birch scrub with similar field and ground layers as TN46.
TN48	A semi-improved neutral grassland consisting of the grass species Yorkshire fog, perennial rye-grass and meadow-grass (*Poa* sp.) with spear thistle, field wood-rush, ribwort plantain, greater plantain, creeping buttercup, broad-leaved dock, ragwort and dandelion present.
TN49	A line of mature trees and gappy hedgerow running along the northern side of the access lane including silver birch, hazel (*Corylus avellana*), common hawthorn, holly, blackthorn (*Prunus spinosa*), pedunculate oak, elder and rowan. The field and ground flora extending into the narrow roadside verge includes cow parsley, false oat-grass, cock's-foot, great willowherb (*Epilobium hirsutum*), cleavers, Yorkshire Fog, bluebell, bracken, bramble, red campion and common nettle.
TN50	A line of mature trees and gappy hedgerow running along the southern side of the access lane very similar in composition to TN49.
TN51	A mature semi-natural oak-birch woodland with sycamore, alder, beech, common hawthorn, holly elder ,goat willow and rowan forming the shrub layer along with locally dominant rhododendron. The field layer is dominated by locally abundant bracken, bramble and gorse with broom, ling and bilberry (*Vaccinium myrtillus*) also locally frequent particularly on the upper slopes along the woodland edge. The ground flora is relatively sparse but includes the grass species common bent, wavy-hair-grass and Yorkshire fog with rosebay willowherb, foxglove, bluebell, soft rush, wood sage and an a rich diversity of bryophytes.

Flora

Protected and Notable Species

1.60 SER returned eight records for bluebell (Hyacinthoides non-scripta) of which seven of these records were made within the application site.

1.61 During the extended Phase 1 Habitat Survey no other specially protected species of flora was recorded on, or immediately adjacent the application site.

1.62 Notable species of flora previously recorded at Huntley Quarry include trailing St John's-wort (*Hypericum humifusum*), sand spurrey (*Spergularia rubra*) and knotted pearlwort (*Sagina nodosa*) all of which have limited distribution in Staffordshire and bilberry which is listed in the Staffordshire LBAP. However, during the 2010 walkover survey none of these species were recorded at the site with the exception of bilberry.

Non-native Invasive Species

1.63 No non-native invasive species of flora listed in Schedule 9 of the Wildlife and Countryside Act 1981 (i.e. Japanese knotweed and giant hogweed) were found in, or immediately adjacent to the application area.

Mammals

Badger

1.64 SER returned a number of records for badger (Meles meles) within the study area including two setts present within the application site.

1.65 The application site provides good opportunities for badgers and badger activity has been previously recorded within the site both in 2006 and 2008.

1.66 In 2006, an active main badger sett and annex sett were found in Huntley Wood by Staffordshire Wildlife Trust. Further evidence of badger activity was also recorded to suggest that badgers were crossing the former quarry site at the time of this survey.

1.67 The re-survey of the application site during June 2008 found a total of 14 sett entrances in and around the location of the main and annex sett identified by Staffordshire Wildlife Trust with only two entrances that would appear to be active as well as a further outlier sett located in the central part of the former quarry. This consisted of two entrances with one of these showing signs of collapse. Although the spoil outside the entrances appeared to indicate that these had been excavated fairly recently there was

1.68 Other evidence of badger activity recorded during the 2008 survey included a number of pathways typical of badger crossing Huntley Wood and leading from the woodland to the farmland north of the application site; badger hair attached to pushed up fencing along the northern boundary of the wood; and footprints in soft mud around the largest pond on the former quarry site.

1.69 In July 2010 an inspection of the previously recorded setts would indicate that the main sett in Huntley Wood was still active but there was no evidence to suggest that badgers are currently using any of the other setts (i.e. footprints, bedding outside the entrances and/or pathways leading to and from the sett entrance). No new setts were found during the walkover survey or indications to suggest high levels of badger usage of the application site.

Bats

1.70 Records supplied by SER show that at least three species of bat have been recorded in a 2km radius of the application site that include common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and a *Myostis* species of bat.

1.71 Bat surveys undertaken in 2006 by Staffordshire Wildlife Trust recorded low levels of common pipistrelle, soprano pipistrelle (*Pipistrellus pygmaeus*) and a species of *Myostis* bat with common pipistrelle representing the most frequently encountered species.

1.72 There are no buildings or structures within the application site however, a number of buildings offering bat roosting potential are present in the surrounding urban and countryside areas. Most of the trees on the

application site offer low potential for bats due to their age and structure. The relatively low number of mature trees within the application site are also considered to offer low bat roosting opportunities as they do not exhibit obvious cracks, crevices, loose bark, dense ivy or other potential roosting features and no evidence was found to suggest that any of these trees are currently being used by bats.

1.73 The habitats present within the application site do provide suitable foraging potential for a wide range of bat species. These habitats are linked to the surrounding countryside by well defined features (i.e. mature hedgerows) that offer good potential commuting routes.

Dormouse

1.74 Both SER and NBN returned no records for dormouse (*Muscardinus avellanarius*) within a 2km radius of the application site.

1.75 The variation in age and structure of the woodland and scrub found within the application site is considered to provide areas of habitat suitable for dormouse with connectivity via often mature hedgerows to some other woodland areas in the wider surrounding area. Whilst dormouse have been recorded in North Staffordshire, there are no known populations of this species within close proximity of the application site and it is unlikely given the historical use of this site that this species will be present at this current time.

Otter

1.76 SER returned four records for otter (*Lutra lutra*) on the River Tean.

1.77 The habitats within the application site provide opportunities for otter however, no evidence of otter activity including spraints, footprints, feeding remains, holts, resting places were found during site visits in 2008 and during the walkover survey in July 2010.

Water Vole

1.78 SER returned a number of records for water vole (*Arvicola amphibious*) relating predominantly to the River Tean and its tributaries flowing through the 2km study area. None of these records are associated with the application site.

1.79 The waterbodies within the application site provide some opportunities for water vole however, no evidence of water vole activity including burrows, runs, droppings, latrines, feeding stations and footprints were found during site visits in 2008 and during the walkover survey in July 2010.

Other Mammal Species

1.80 No other records for any other mammal species was returned by SER and NBN. Whilst the site is considered to support habitats for a range of mammal species it is unlikely that the site is critical to any individual population of mammal.

Birds

1.81 SER returned a list of 15 notable bird species recorded in the 2km search area. Of these records the species recorded within the application area include kingfisher (*Alecedo atthis*), little plover (*Charadrius dubius*), hobby (*Falco subbuteo*), firecrest (*Regulus ignicapilla*) and ruddy shelduck (*Tadorna ferruginea*).

1.82 The mosaic of habitat types of vegetation with varying ages and structure in the application site offers suitable habitat for a diverse assemblage of bird species typical of woodland, farmland habitats and open standing water.

1.83 A formal breeding bird survey, carried out by Staffordshire Wildlife Trust in 2006, recorded 28 species of bird within the application area (24 species in the quarry and 17 in Huntley Wood). A further two species were incidentally recorded outside the timed surveys.

1.84 No formal bird survey was carried out in 2008 however, the species visually and aurally recorded during the site visits were typical of those recorded in 2006.

1.85 A total of 37 species were recorded in 2006 and 2008 on the application site. Of these species none are listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended). Three species are red listed[4], nine amber listed[5] Birds of Conservation Concern[6] and four UK BAP Priority Species. Table 1-4 provides a summary of the species recorded during 2006/08.

Table 1-4
Summary of Birds Recorded on the Application Site 2006-10

Species	Common Name	W&CA Sched 1	RSPB Red List	RSPB Amber List	UK BAP
Accipter nisus	Sparrowhawk				
Acrocephalus scirpaceus	Reed Warbler				
Aegithalos caudatus	Long-tailed Tit				
Anas platyrhynchos	Mallard				

[4] Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a s substantial recovery.
[5] Amber list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose populations has declined historically but made a substantial recovery; rare breeders; and those with international important or localised populations.
[6] RSPB (2009). *Birds of Conservation Concern 3:The Population Status of Birds in the United Kingdom, Channel Islands and the Isle of Man*. Royal Society for the Protection of Birds.

Species	Common Name	W&CA Sched 1	RSPB Red List	RSPB Amber List	UK BAP
Aythya fuligula	Tufted Duck			√	
Buteo buteo	Buzzard				
Carduelis chloris	Greenfinch				
Columba palumbas	Wood Pigeon				
Corvus corone	Carrion Crow				
Corvus monedula	Jackdaw				
Cyanistes caeruleus	Blue Tit				
Cygnus olor	Mute Swan				
Dendrocopos major	Great Spotted Woodpecker				
Emberiza schoeniclus	Reed Bunting			√	√
Erithacus rubecula	Robin				
Fringilla coelebs	Chaffinch				
Fulica atra	Coot				
Gallinula chloropus	Moorhen				
Garrulus glandarius	Jay				
Hirundo rustica	Swallow			√	
Oenanthe oenanthe	Wheater			√	
Parus major	Great Tit				
Phylloscopus collybita	Chiffchaff				
Phylloscopus trochilus	Willow Warbler			√	
Pica pica	Magpie				
Picus viridis	Green Woodpecker			√	
Regulus regulus	Goldcrest				
Riparia riparia	Sand Martin			√	
Sturnus vulgaris	Starling		√		√
Sylvia atricapilla	Blackcap				
Sylvia borin	Garden Warbler				
Sylvia communis	Whitethroat			√	
Tachybaptus ruficollis	Little Grebe			√	
Troglodytes troglodytes	Wren				
Turdus merula	Blackbird				
Turdus philomelos	Song Thrush		√		√
Vanellus vanellus	Lapwing		√		√

1.86 Of the aforementioned species, it is considered that all have the potential to be breeding on the site. Sand martin in particularly have historically utilised the exposed sand cliffs within the application site to excavate their burrows for breeding purposes. However, since 2006, the number breeding burrows would appear to have diminished from 34 burrows to only four recorded in April 2008 and no active nest sites in 2010. The sand cliff suffers from high

levels of disturbance caused by erosion and motorbikes and may be a contributory factor to the decline in the breeding population of sand martin at this site.

Reptiles

1.87 SER returned a solitary record for adder (*Vipera berus*) approximately 400m to the southeast of the application site.

1.88 A reptile survey undertaken by Staffordshire Wildlife Trust in 2006 found no evidence of reptiles during targeted searching of habitats and from artificial refugia.

1.89 Although no specific reptile survey was undertaken in 2008 by SLR, during all site visits no reptile species were observed or evidence of reptiles using the site was found.

1.90 Although large parts of the application site are considered to provide optimum habitat for the more widespread species of reptiles such as slow-worm (*Anguis fragilis),* common lizard (*Zootaca vivipara*), grass snake (*Natrix natrix*) and adder it is considered that if any population of reptile is present it is likely to be small and the site is unlikely to be important or critical for any particular species.

1.91 SER returned a number of records for great crested newt (*Triturus cristatus*), smooth newt (*Lissotriton vulgaris*), common toad (*Bufo bufo*) and common frog (*Rana temporaria*) within the 2km search area.

Amphibians

1.92 All of the great crested newt records relating to the application site are from the great crested newt survey conducted at the site in accordance with published guidelines[7] in spring 2008 by SLR. All waterbodies within the study area were initially assessed on their suitability for great crested newt using the Habitat Suitability Index (HSI)[8] scoring system before a minimum of four visits were made to each of the ponds during spring 2008 and appropriate survey techniques including bottle-trapping, sweep netting, egg searching and nocturnal torch-lit surveys were used to determine presence/reasonable likelihood of absence at each waterbody. Where great crested newts were confirmed as present a further two visits were made to these respective ponds was made to provide an estimate of population size class.

1.93 A total of seven ponds were found within the application area. Only one pond was assessed with a HSI "good" value (TN 29) with an "average" value for the largest pond (TN27). All the other ponds had values of "below average" (TN 28 and 21) or "poor" (TN19, 13 and 10). All ponds had some

[7] English Nature, (2001). *Great Crested Newt Mitigation Guidelines.* English Nature, Peterborough.

[8] Oldham, R. S., Keeble, J., Swan, M.J. S. and Jeffcote, M. (2000). *Evaluating the Suitability of Habitat for the Great Crested Newt (Triturus cristatus*). Herpetological Journal, Vol. 10; pp. 143-156.

levels of restricted access through a combination of either steep banks or deep water or soft substrates or dense bank-side vegetation that severely constrained the survey effort on these waterbodies.

1.94 The survey found great crested newts in one pond within the application site (TN10). The maximum adult count size from this pond during the six visits was 30 individuals recorded on 19 June 2008 that would indicate a 'medium' population size class at this site.

1.95 Other amphibian species recorded included a medium population size class of smooth newt (*Lissotritron vulgaris*) and low population size class of common toad (*Bufo bufo*).

1.96 In addition to great crested newt, the site supports a 'large' population size class of smooth newt as well as common toad and common frog with these latter two species listed as priority species in the UK BAP.

Invertebrates

1.97 Both SER and NBN returned no records for any protected or notable invertebrate species within the 2km search area.

1.98 The application site provides a mosaic of habitats that are considered to provide high quality habitat for a range of invertebrate groups and species.

1.99 The invertebrate survey conducted by Staffordshire Wildlife Trust in 2006 recorded a number of notable species including the dingy skipper butterfly (*Erynnis tages*) and a total of 29 solitary bee and wasp species that are listed as a priority group of species in the Staffordshire LBAP.

Other Protected Rare and Notable Species

1.100 During the extended Phase 1 Habitat Survey and other site visits, no other protected, rare or notable species were recorded. Though the site may support low numbers of common and widespread species it is considered highly unlikely that any other specially protected species would be present.

Predicted Trends

1.101 In the absence of development, there is no reason to believe that the current baseline, as described above, would change significantly in the short term. In the medium to longer term the habitats would continue to develop on the site and it would be anticipated that scrub would continue to develop over large parts of the site reducing the diversity of ground and field floras.

1.102 Over the longer term the majority of ponds would gradually silt-up and gradually dry out and succeed to more swamp type communities and willow scrub. Areas of existing scrub would continue to develop to mature woodland to form a predominantly silver birch dominated canopy with other species of trees, through previous planting or regeneration, providing some

variation in species composition, age and vegetation structure. Acid grassland would still be present in small patches in the more open areas of woodland and where scrub development is kept in check by grazing rabbits.

ECOLOGICAL EVALUATION

Evaluation Criteria

1.103 IEEM suggest that to ensure a consistency of approach, ecological features are valued in accordance with their geographical frame of reference, as follows:

- International;
- UK;
- National (England);
- Regional (West Midlands);
- County (Staffordshire)
- District (Staffordshire Moorlands);
- Local or Parish (Cheadle); and/or
- within immediate zone of influence only (the site).

1.104 These categories are then applied to the features identified in baseline surveys and desk-top studies. Some features can already be recognised as having ecological value and, as such, they may be designated as a statutory or non-statutory wildlife site. Other features may require an evaluation based upon their previously un-assessed biodiversity value. The rationale for grading such features is provided below.

Designated Sites

1.105 Natural England notifies sites that are of international or national importance for nature conservation as Sites of Special Scientific Interest (SSSIs), although some sites that are of national importance for certain species have not been so designated. Internationally important sites may also be designated as Special Areas of Conservation, Special protection Areas or Ramsar sites. In some instances a site that is considered to be of national importance can also be purchased by Natural England and designated as a National Nature Reserve.

1.106 Staffordshire County Council, recognises sites/features that are of county importance for nature conservation with a range of non-statutory designations. Whilst these areas are not protected by law, it is a requirement of the planning process that any potential impact upon such sites is considered when making a planning decision. These designations include Ancient Woodland.

Non-designated Features of Biological Importance

1.107 Criteria are applied to assess the nature conservation value of the habitats and species/populations that a site supports. As there is rarely comprehensive quantitative data on the habitat or species population resource, particularly at the regional and local levels, the nature conservation evaluation process inevitably involves a qualitative component. This requires a suitably experienced ecologist to make a professional judgement based upon a combination of published sources, consultation responses and knowledge of both the site and the wider area.

Habitat Value

1.108 For features that have not been formally recognised by a designation, an evaluation based upon those IEEM guidelines has been undertaken. The features being evaluated are considered in the context of the site and locality. In this way it is possible to provide a more accurate assessment of the impacts in the locality.

Value for Species

1.109 The criteria used to determine the biodiversity value of a species or features that may support a species include the following general considerations:

- size of populations in the local geographic context;
- rarity at a geographical level (international, national or local);
- endemism and locally distinct varieties or sub-species;
- species on the edge of their geographic range;
- species-rich assemblages of a larger taxonomic grouping, e.g. herpetofauna or over-wintering birds;
- plant communities, ecosystems or habitat mosaics/associations that provide habitat for any of the above species or assemblages; and
- populations of species considered as significant under locally published guidelines or red data books.

1.110 All species and populations of species, including those with statutory protection, are evaluated on the same basis. The typical unit of a species for the purposes of evaluation is a viable population, i.e. a breeding adult(s) with sufficient habitat(s) to raise young. Where a site does not include sufficient habitat to support a viable population, then the assessed species value should be informed by the extent of the habitat required to support a viable population and the proportion of this habitat within the site. Additional weight would be given where a site supports habitats that are important or critical for the maintenance of a species population at some point in its lifecycle, e.g. open water habitats for over-wintering birds or hibernation areas for bats or amphibians. Consideration is also given to species listed as priority species in the UK Biodiversity Action Plan (BAP) or listed on the Local BAP, especially where inclusion on that list is related to one or more of the points highlighted above.

1.111 It should be noted that contribution to the local population is the primary criterion used for evaluating species. Even where a species is protected under European and UK statute, the presence of a small population on a site

within a region where this species is widespread is primarily assessed as valuable at a geographic level where it contributes >1% of the population present at that level. Equally, a particular feature on a site may attract large numbers of an unprotected species that has limited distribution and this may represent a feature of regional importance.

1.112 A summary of the criteria used in the evaluation of species is provided in Table 1-5.

Table 1-5
Criteria for the Evaluation of Species

Frame of Reference	Examples of Species that are Ecologically Significant at that Level
International	• A regularly occurring population of an internationally important species, which is threatened or rare in the UK. i.e. it is a UK Red Data Book species or listed as occurring as 15 or fewer 10km squares in the UK or of uncertain conservation status or of global conservation in the UK BAP. • A regularly occurring, nationally significant population/number of any internationally important species, e.g. a bird population representing greater than 1% of the international population.
National	• A regularly occurring, regionally or county significant population/number of a nationally important species. • A regularly occurring population of a nationally important species on the edge of its natural range. • A species assemblage of national significance.
Regional	• A regularly occurring, locally significant population of a species listed as being nationally scarce. For example, a species which occurs in 16-100 10km squares in the UK, or is highlighted in a Regional BAP, Red Data Book or relevant Natural Area on account of its regional rarity or localisation. • A regularly occurring, locally significant number of a regionally important species. • A species assemblage of regional significance.
County	• Any regularly occurring, locally significant population of a species which is listed in a county Red Data Book or BAP on account of its regional rarity or localisation. • A regularly occurring, locally significant number of a county important species.
District/	• A population of a species that is listed in a Local BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. • A regularly occurring, locally significant number of a district important species during a critical phase of its life cycle.
Local or Parish	• Populations or species assemblages considered to enhance the local ecological resource.
Within zone of immediate influence only	• Populations or species assemblages of common and widespread species.
Negative	• The presence of species of flora and fauna listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) or other non-native invasive species which have the potential to have significant impact on the native fauna and flora and which would be considered to have an ecological, commercial or social disbenefit, usually at a local or site level.

Social, Community or Economic Value

1.113 Some habitat/species may not be particularly rare or of high ecological value in their own right. However they may be of social or community value for a neighbourhood/community that has the use of such an area for recreational or educational use.

1.114 In addition some wild populations of animals may also be of economic value, such as red grouse on heather moors that can be shot, trout in rivers that are fished, or even significant populations of birds that may attract bird watchers to a region.

Whole Site Value

1.115 A second stage of evaluation entails a collective review of the differing levels of importance of the various habitats and species present, in order to reach an evaluation of the site as a whole. Ultimately, this evaluation is also a matter of professional judgement, guided by published sources, consultation responses and local knowledge.

Evaluation of Ecological Receptors

1.116 Tables 1-6, 1-7 and 1-8 summarises the ecological receptors, including nature conservation sites, habitats and species respectively, identified at and within the zone of influence of the proposed development at Huntley Wood Quarry through the findings of desk-based study and field survey and a value based on the evaluation criteria.

Table 1-6
Evaluation of Nature Conservation Sites

Level of Value	Feature at this Value	Location	Reason for Importance
County	Huntley Wood SBI and ASNW	Within application site	A semi-natural ancient woodland covering 12.6ha with a canopy dominated by birch and oak Oak-Birch ancient and semi-natural woodland with a dry heath type community in some of the drier parts of the site forming the ground and field layer. Social and community value to the town of Cheadle with good access via numerous footpaths
	Draycott Common Wood BAS	Within application site	A mosaic of habitat types covering 7.4ha of land lying within the former quarry site including a large fish pond, semi-natural woodland, broadleaved and coniferous woodland plantation, scrub and tall ruderal vegetation.
	Commonside Quarry BAS	150m northwest of application site at closest point	A disused quarry site covering 5.3ha dominated by semi-natural woodland consisting of predominantly of silver birch with a good representation of other species.

Table 1-7
Evaluation of Habitats within the Application site

Level of Value	Feature at this Value	Location	Reason for Importance
District	Semi-natural broadleaved woodland	TN3, 12, 14, 17, 22, 30, 31, 33, 40, 41, 46 and 51	UK and LBAP priority habitat. Fragments of ancient semi-natural woodland that form part of nationally diminishing habitat that by definition is an irreplaceable natural resource and home to more threatened species than any other habitat in the UK. Most woodland of this type semi-mature with very few mature trees indicating that it is likely these have been subject to some clearance in the not too distant past Potential habitat for a range of taxa including badgers, birds and invertebrates.
Parish	Open standing water and associated marginal vegetation	TN10, TN13, 19, 21, 27, 28 and 29	A UK BAP and LBAP priority habitat. Important habitat for a range of species that include birds, great crested newt and other amphibians.
	Hedgerow	TN49 and 50	A UK BAP priority habitat where the hedgerow is ancient and/or species-rich. Important hedgerows as assessed under the wildlife criteria of the Hedgerow Regulations 1997 but due to the lack of management are unlikely to be the best examples of hedgerows within a local or wider context.
Within immediate zone of influence only	Broadleaved woodland plantation	TN7, 18, 38 and 45	A typically common and widespread habitat that over time would be expected to regenerate to semi-natural broadleaved. Potential habitat for a range of taxa including birds and invertebrates.
	Coniferous woodland plantation	TN5,	An anthropogenic habitat providing some opportunities for some bird species but of little overall ecological value in the context of the site due to the dense canopy cover.
	Mixed woodland plantation	TN39	A typically common and widespread habitat that over time would be expected to regenerate to semi-natural broadleaved. Potential habitat for a range of taxa including birds and invertebrates.

Level of Value	Feature at this Value	Location	Reason for Importance
Within immediate zone of influence only	Secondary woodland, dense and scattered scrub	TN6, 15, 20, 23, 26, 32, 35, 37, 42, 44 and 47	Typically common and widespread habitat providing opportunities for a range of taxa including birds and invertebrates.
	Neutral and marshy grassland	TN1, 2, 4, 36, and 48	A typically common and widespread habitat that forms relatively small patches of habitat on the site.
	Acid grassland	TN11 and 16	A UK BAP and LBAP priority habitat type but at this time limited by the lack of management and scrub development.
	Heathland	TN9, 24, 26 and 43	A UK BAP and LBAP priority habitat type but at this time limited by the lack of management and scrub development.
	Bare sand and gravel and associated ephemeral/short perennial vegetation	TN25 and 34	An anthropogenic habitat providing some opportunities for certain invertebrate taxa but currently subject to high levels of disturbance diminishing its ecological value.

Table 1-8
Species Evaluation

Level of Value	Feature at this Value	Location	Reason for Importance
District	Great crested newt	Application site and immediate surrounding area	A medium population size class
Parish	Badgers	Application site and immediate surrounding area	Common and widespread species nationally. One main sett within the application site but opportunities for the site to support other setts.
	Bat assemblage (including common pipistrelle, soprano pipistrelle and a species of *Myostis* bat)	Application site and immediate surrounding area	Low levels of bat activity recorded foraging and commuting throughout the site with common pipistrelle representing the most frequently encountered bat species. Habitats present on the site with good connective links to other areas of high quality habitat in the wider countryside.
	Other amphibians	Application site and immediate surrounding area	Surveys recorded a medium population size class of smooth newt and low population size classes of common toad and common toad that even with the presence of great crested newt would not fulfil the criteria for an amphibian SSSI. Common toad and common frog are UK BAP priority species.
	Invertebrate assemblage	Application site	An assemblage of invertebrates including dingy skipper (UK BAP priority species) and a number of notable ground nesting solitary bees and wasps (LBAP priority species). Potential for site to support a diverse range of individual species and groups of invertebrates given the mosaic of habitats present on the site.

Level of Value	Feature at this Value	Location	Reason for Importance
Within immediate zone of interest only	Other mammals	Application site	Potential for the site to support a range of small mammals but is unlikely to be important for any particular species or population.
	Bird assemblage	Application site and immediate surrounding area	Habitat types providing suitable breeding and foraging habitat for a range of bird species but is unlikely to be critical for any individual species, or population, given the availability of alternative habitats within the wider surrounding area.
	Reptiles	Application site	Potential for small and isolated populations of the more widespread reptiles species to be present but site is unlikely to be at this current time important for any particular species or population at this current time.

Value of Whole Site

1.117 Parts of the application site include two non-statutory nature conservation sites including Huntley Wood SBI/ASNW and Draycott Common Wood BAS that are of "County" value.

1.118 The application is a former sand and gravel quarry that has not been subject to any large restoration that supports a mosaic of semi-natural and anthropogenic habitats (i.e. woodland, scrub, neutral and acid grassland, heathland, open standing water and associated marginal vegetation and bare substrates). The complex mosaic formed by these habitats and the structural variation in the vegetation across the site collectively have greater conservation value most of the sum parts of individual habitats with the potential to support a number of protected and notable species, including: badgers, foraging and commuting bats (i.e. common pipistrelle, soprano pipistrelle and a Myostis species of bat); great crested newt; and common bird species.

1.119 Based on the above it is considered that overall the application site has "District" value although parts are recognised to be of value up to "County" value.

Summary of Ecological Receptors for Impact Assessment

1.120 In accordance with IEEM guidelines, where receptors have been evaluated at a value of "within the zone of immediate influence only" no further assessment is deemed necessary as the impact on these receptors is not likely to be of significance. However, it should be noted that mitigation measures may still be required to ensure protection of receptors to comply with current wildlife legislation and best practice guidelines (i.e. breeding birds).

1.121 The following valuable ecological receptors have been identified with the potential to be affected by the proposed development of an outdoor recreation facility and as such will be carried forward for further ecological impact assessment area as following:

- Non-Statutory designated nature conservation sites:
  - Huntley Wood SBI and ASNW;
  - Draycott Common Wood BAS; and
  - Commonside Quarry BAS.
- Habitats:
  - semi-natural broadleaved woodland;
  - open standing water and associated marginal vegetation; and
  - hedgerows.
- Species:
  - great crested newt;
  - badger;
  - bat assemblage;
  - other amphibians; and
  - Invertebrate assemblage.

ECOLOGICAL IMPACT ASSESSMENT

1.122 This section provides a summary of the potential ecological impacts of the proposed development of an outdoor recreation facility based on the baseline information identified from the preliminary desk-based study, baseline surveys and evaluation of the ecological features. Both qualitative and quantitative information has been used to identify likely significant ecological impacts, including the positive, negative, direct, indirect and the cumulative environmental effects.

1.123 To assess the effects of a proposed development it is essential that the impacts that could arise are identified and characterised. The range of impacts that require consideration in the EcIA are based upon knowledge of the proposed development and of the VERs. This can only be undertaken with a thorough understanding of ecological processes and how flora and fauna react to the range of impacts that could occur.

Proposed Scheme

1.124 A detailed description of the proposed development is presented in section 3 of the supporting planning statement, but in summary the development would include the clearance and preparation of parts of the site to provide open camping and activity space, associated infrastructure including toilets and wash rooms, a club house, amphitheatre, indoor activity space, site office and storage facilities and car parking. The site would be used to provide an outdoor recreation facilities for a range of educational and amenity activities.

Identification of Potential Impacts

1.125 The proposed development of the outdoor recreation facility has the potential to have a range of effects upon the identified VERs during the construction and operational phases of the development.

Potential Causes and Effects from the Construction Phase

1.126 The construction phase will include the preparation of the site for construction (i.e. removal of vegetation and soil stripping) and construction of the outdoor recreation facilities (i.e. camp site, car parking, amphitheatre, toilets and site offices). The sources of potentially significant impacts that may arise during the construction phase of the development, in the absence of mitigation, are outlined in Table 1-9.

Table 1-9
Summary of the Sources of Potential Construction Impacts

Impact Source	Nature of Impact
Habitat loss through land take	Habitat loss involves the direct destruction or physical take-up of vegetation, or the removal of other structures with conservation interest. Habitat loss may also occur indirectly as a result of a change in land-use or water management, for instance the drying-up of ponds or through induced successional events leading to a change in habitat type.
Habitat fragmentation	Habitat fragmentation is concerned with spatial processes, such as negative edge effects (e.g. colonisation by 'aggressive' species or successional changes) and dispersal problems that can become increasingly severe as habitat lost and remaining habitat is divided into smaller units. Fragmented habitats are likely to be more vulnerable to external factors that may have a negative effect upon them; e.g. disturbance, and may be less resilient to change, including climate and management change; than connected habitats because colonising species may be unable to reach the habitat to re-colonise in the event of species loss.
Damage to wildlife	Habitat loss can have a direct impact on individual populations and assemblages of species result in the direct loss of individuals or populations of animal species, or indirectly by increasing levels of stress placed upon populations of some species through negative edge effects (e.g. predation pressure) and dispersal problems that can become increasingly severe as habitat lost and remaining habitat is divided into smaller units.
Disturbance from human activity and noise	Short-term increases in disturbance levels as a direct result of human activity (i.e. visual disturbance) and through increase generation of noise during the construction phase can have a range of impacts depending upon the sensitivity of the ecological receptor, the nature and duration of the disturbance and its timing.
Alterations to surface water quality	All construction works near water have an associated risk of pollution as a result of fuel spillages, oil leakages and other accidents that could lead to a serious impact on water quality and consequently the habitats and species present in any such affected waterbody. The stripping of vegetation, ground disturbance and improper storage of stripped soils near to watercourse increases the risk of large volumes of material being washed into waterbodies during periods of heavy and prolonged rainfall or flood events indirectly affecting water quality through increased turbidity levels and sedimentation as well as the potential mobilisation of a variety of substances that may be contained within the soils.

Potential Causes and Effects from the Operational Phase

1.127 Post construction the site would be managed to provide an outdoor recreation facility providing a range of educational and amenity activities.

1.128 Sources of potentially significant impacts arising during the operational phase of the outdoor recreation facility are outlined in Table 1-10.

Table 1-10
Summary of the Sources of Potential Operational Impacts

Impact Source	Nature of Impact
Direct and indirect effects of recreational use	The recreational use of the site can have direct and indirect impacts upon retained habitats within the development site from increased long-term low-level human disturbance including noise, visual disturbance and physical damage from persons using the site for recreational purposes. Permanent fixed on-site lighting could provoke long-term behaviour changes in sensitive species that use the site (i.e. bats).

Assessment of Effects

1.129 The following section details the assessment of predicted effects on the identified VERs through the construction and operation of the proposed outdoor recreation facility at Huntley Wood.

Construction Effects

1.130 Potentially significant impacts that may arise during the construction phase of the outdoor recreation facility include:

- habitat loss and fragmentation through land-take;
- effects of habitat loss and fragmentation upon species of fauna;
- disturbance from construction activities including noise and visual disturbance, and
- alteration to surface water quality.

1.131 The effects that these predicted impacts may have on designated sites, habitats and species identified with ecological value within the development's zone of influence are discussed below.

Habitats Loss and Fragmentation through Land-take

Non-Statutory Designated Nature Conservation Sites

1.132 There will be no direct land take or reduction in habitat area of Huntley Wood SBI/ASNW or Commonside Quarry BAS.

1.133 A small area of coniferous plantation, valued at "within immediate zone of influence only" that forms part of the Draycott Common Wood BAS would be lost to the development of two small buildings to provide an indoor activity space and toilet/washroom in Zone 3 of the development. The loss of habitat, based on the plans supplied, would be much less that 1% of the total area of the BAS and is therefore not likely to be have a significant impact on this nature conservation site or on the overall integrity of the BAS.

1.134 The development will not result in the fragmentation of any of the non-statutory designated nature conservation sites or parts of these sites and no significant impacts are predicted.

Habitats

1.135 The preparation of the site through the clearance of vegetation and the re-profiling of parts of the site prior to construction works will cause the direct loss of habitat in these areas. It is anticipated that approximately 8ha of the total application site (69ha) will experience a direct loss of habitat predominantly consisting of bare substrates and other habitats of low ecological value. However, habitats of value that would be lost include:

- approximately 0.04ha of semi-natural broadleaved woodland to allow the construction of a site office and associated storage in the Restricted Zone;
- approximately 0.1ha of bryophyte dominated heath (TN24) for the provision of car parking and buildings for accommodation and indoor activities in Zone 2; and
- a small ephemeral pond (TN28) in Zone 2.

1.136 The loss of semi-natural broadleaved woodland and open standing water would be much less than 1% of the total resource of these habitats within the application site and is therefore considered not likely to be significant.

1.137 There are no anticipated losses of the hedgerows along the access road to the site and no impacts are predicted.

Effects of Habitat Loss and Fragmentation on Species

Badgers

1.138 The development will not result in the loss of any known badger sett or would result in the loss of large areas of potential foraging habitat with extensive alternative foraging habitat available both with the site and in the surrounding area and no significant impacts on badgers are predicted.

Bats

1.139 There would be no loss of any known or potential bat roosting habitat/features as a result of the proposed development.

1.140 Due to the size and nature of it is highly unlikely that any critical or important foraging habitat or commuting routes for the local bat population would be lost or fragmented as a result of development and no significant impacts on any species of bat are predicted.

Great Crested Newt and Other Amphibian Species

1.141 There would be no loss of any known great crested newt breeding pond as a result of the development. However, the development of a camping area and associated facilities and car parking in Zone 1 and the construction of buildings in the Restricted Zone and Zone 3 in the proximity of the only known breeding pond (TN10) in the site has the potential to result in the loss of terrestrial habitat used by great crested newts. In the absence of mitigation there would be a high risk of direct injury or mortality to individual great crested newts and other amphibian species present in these areas that may be significant up to "District" value.

Invertebrates

1.142 The loss and disturbance of a relatively large area of bare substrate within Zone 1 of the development has the potential to affect a range of invertebrate species in particular the assemblage of solitary bees and wasps and dingy skipper and would be significant up to "Parish" value.

Disturbance form Construction Activities

1.143 The disturbance from construction activities will be limited at and within localised areas of the application site and will be temporary in nature.

1.144 The construction activities are predicted to result in an increase in noise levels at the site during daylight hours within a 100m to 200m zone around the site of any construction works. With the exception of some bird species, none of the ecological receptors have been identified as sensitive to elevated levels of noise and no significant impacts are predicted on any VER.

1.145 Of the known ecological receptors, only bats have been identified as sensitive to light pollution and any artificial lighting used during the construction phase could impact upon any species foraging and commuting where lighting is installed. Lighting is anticipated to be minimal during construction and will retain large areas of the site in darkness for the use of bats and no impacts are predicted.

1.146 Dust levels are anticipated to increase slightly during the construction phase. The potential deposition of dust is predicted to be far below the level of 1000 mg/m2/day which is when it is likely to have an impact on sensitive ecosystems (i.e. heathland) with most fugitive dust likely to be typically deposited within 100-200m of its source; the greatest proportion of which comprising larger particles (greater than 30 microns) deposited within 100m of the construction sites[9]. The habitats within the application site have been subject historically to dust from quarrying operations and do not appear to have suffered detrimentally. Therefore it is considered highly unlikely that

[9] Department of the Environment (1995). *The Environmental Effects of Dust from Surface Mineral Workings. Volume 1: Summary Report & Best Practice Guides.* HMSO.

there will be any significant impacts on any habitats or species of flora as a result of the deposition of dust.

Alterations to Surface Water Quality

1.147 During the construction phase there is an increased risk of increased sedimentation to the waterbodies in close proximity to the construction sites that have the potential to affect water quality in the receiving waterbody. In addition, construction activities, particularly when working near the water, have the potential to cause pollution and affect water quality. Any pollution incident or deterioration in water quality may have an adverse significant impact on the aquatic and marginal habitats and the species associated with these habitats up to "Parish" value.

1.148 The Environment Agency is responsible for the protection of controlled waters from pollution under the Water Resources Act 1991 and have produced a number of Pollution Prevention Guidance (EAPPG) notes including EAPPG1 – General Guide to the Prevention of Water Pollution; EAPPG2 – Above ground oil storage tanks; EAPPG5 – Works in, near or liable to affect watercourses; and EAPPG6 – Working at construction and demolition sites. Provided that these are adhered to during the preparation of the site and construction works as standard mitigation measures, the risk of pollution and contamination entering surface waters should be minimised and the impact negligible.

Operational Effects

1.149 Potentially significant impacts that may arise from the operation of the outdoor recreational facility are the direct and indirect impacts of recreation on VERs.

Direct and Indirect Impacts of Recreation

1.150 The direct and indirect impacts of recreation can have considerable effects on retained ecological features within the application site from increased human disturbance (noise and visual disturbance), light pollution, litter, erosion and malicious damage (i.e. fire, damage to trees).

Non-Statutory Designated Nature Conservation Sites

1.151 Unmanaged there is a risk of sensitive parts of the non-statutory designated nature conservation site being affected by increased recreation that could be the site being damaged by increased public access into these areas. The ancient woodland at Huntley Wood and in particularly the ground flora and understorey may become more vulnerable through an increase in recreation that has the potential to be damaged through trampling of ground flora, increased soil compaction and litter. Trees may have to be removed for reasons of public safety. Increased disturbance to the woodland areas may result in the deterioration of the conservation status of Huntley Wood.

1.152 Unmanaged, the development has the potential to cause the deterioration of Huntley Wood that would be significant up to County level.

1.153 Draycott Common Wood BAS is not considered to support habitats that are overly sensitive and no impacts from increased recreation are predicted.

1.154 No significant impacts are predicted on Commonside Quarry BAS as a result of increased recreation use at Huntley Wood Quarry.

Habitats

1.155 The direct and indirect impacts of recreation on other retained habitats, in particular areas of semi-natural broadleaved woodland, are considered likely to be comparable with the impacts previously identified for Huntley Wood and unmanaged would be significant up to District level.

Species

1.156 The presence of humans within the site would increase disturbance levels across the site. Essentially the levels of disturbance are not anticipated to be high with many species over time expected to become habituated to increase disturbance levels from the operation of the outdoor recreation facility and no significant impacts are predicted.

1.157 Bats are sensitive to light pollution and any artificial lighting used around the site could impact upon species foraging and commuting where lighting is installed. Although areas of lighting are anticipated to be used in and around the infrastructure of the site large parts of the site will remain in darkness and no significant impacts are predicted.

Summary of Predicted Significant Effects

1.158 Table 1-11provides a summary of the predicted effects on the VERs and their significance in the absence of mitigation.

Table 1-11
Summary of Predicted Impacts

Receptor	Predicted Impact	Significance
Construction Phase		
Huntley Wood SBI/ASNW	None predicted	Not significant
Draycott Common Wood BAS	Loss of small area of coniferous woodland plantation representing less that 1% of the total BAS	Not likely to be significant
	Fragmentation of habitat.	Not significant
Commonside Quarry BAS	None predicted	Not significant
Semi-natural broadleaved woodland	Loss of 0.04ha representing less than 1% of the total resource of this habitat type	Not likely to be significant

Receptor	Predicted Impact	Significance
	within the application site.	
Open water and associated marginal vegetation	Loss of one pond representing less than 1% of the total area of this habitat resource within the application site.	Not likely to be significant
	Alterations to surface water quality	Significant up to Parish Value.
Hedgerows	None predicted	Not significant
Badgers	Habitat loss and fragmentation	Not significant
Bats	Habitat loss and fragmentation	Not significant
	Construction lighting	Not significant
Great Crested Newt and other amphibian species	Loss of areas of potential terrestrial habitat within a 500m radius surrounding the breeding pond used by great crested newts	Significant at District Level
	Risk of direct injury or mortality to individual animals	Significant at District Level
Invertebrates	Habitat loss of areas of predominantly bare substrate and scrub/grassland interfaces.	Significant at Parish Level.
Operational Phase		
Huntley Wood SBI/ASNW	Direct and indirect impacts of recreation	Significant up to County Level
Draycott Common Wood BAS	None predicted	Not significant
Commonside Quarry BAS	None predicted	Not significant
Semi-natural broadleaved woodland	Direct and indirect impacts of recreation	Significant up to District Level
Open standing water and associated marginal vegetation	Direct and indirect impacts of recreation	Significant up to Parish Level
Hedgerows	Direct and indirect impacts of recreation	Significant up to Parish Level
Badgers	None predicted	Not significant
Bats	Light pollution	Not significant
Great Crested Newt and other amphibian species	None predicted	Not significant
Invertebrates	None predicted	Not significant

MITIGATION, ENHANCEMENT AND COMPENSATION

1.159 The section outlines the mitigation measures considered appropriate in order to prevent, reduce or offset any potential adverse effects on the ecological resource present on the application site and within the zone of influence of the site.

General Measures

1.160 The construction and operation of the outdoor recreation facility at Huntley Wood Quarry would be carried out in accordance with all statutory requirements and with various best practice techniques and appropriate guidelines in a sensitive manner.

1.161 All construction works will be undertaken in accordance with “best practice” and appropriate guidelines in a sensitive manner and with all due regard to current wildlife legislation.

1.162 In general, mitigation measures to reduce adverse effects on valued ecological features include minimising land take and disturbance by reducing the footprint of the works so that adjacent habitats are not significantly impacted upon by the development, and to ensure key habitats and areas potentially used by protected and notable species are avoided wherever practically possible.

1.163 A Conservation Management Plan will be produced for the site that outlines the management proposals over a minimum 5-year period to enhance the retained habitats on the site and create areas of new habitat for example heathland and acid grassland for the benefit of wildlife including, bats, birds, amphibians, reptiles and invertebrates as well as detailing public access arrangements to parts of the site to minimise potential damage to sensitive areas of the site.

Human Disturbance, Dust, Noise and Light

1.164 Suitable site management and procedures would be implemented to avoid and/or minimise the generation of excessive human disturbance, dust, noise and light during the construction phase of the development.

1.165 Lighting used on the site would be minimal and sited to ensure that large parts of the site remain in darkness.

Pollution and Contaminated Surface Water Quality

1.166 During all construction works and earthworks appropriate plant and manpower methods will be used to limit silt mobilisation. All arisings from excavations will be stored, spread and disposed in a manner as to prevent silt entering surface waters in accordance EAPPG5.

1.167 Measures would be incorporated into the site design to manage and control the amount of surface water run-off and contamination of surface waters before being discharged to the perimeter drains.

Specific Ecological Mitigation

1.168 This section outlines measures that should be taken specifically for mitigation where significant ecological impacts on VERs have been identified in order to reduce the residual impact on the relevant receptor.

Great Crested Newts

1.169 Great Crested Newts and their habitats are protected under the Habitats 2010 Regulations. A detailed mitigation scheme will be required for the development within a 500m radius of the known breeding pond to ensure no animals are harmed and there is no net reduction in the local great crested newt population caused through construction activities. This is likely to require the capture and removal of animals from the areas to be lost to development to a safe area of the site under an appropriate European Protected Species licence from Natural England. The safe area would be enhanced through appropriate management actions in order to provide suitable breeding and terrestrial habitats prior to the release of any animals.

Invertebrates

1.170 No specific mitigation is proposed for invertebrates but areas outside the development footprint providing suitable habitat solitary wasps and bees and dingy skipper will be safeguarded.

1.171 Through the implementation of a Conservation Management Plan full consideration will be given for the creation and enhancement of areas of the site for invertebrates in particular areas of bare substrate for solitary wasps and bees.

Further Recommended Mitigation and Enhancement

1.172 Through the consideration of the mitigation incorporated into the proposed scheme, it is considered that all reasonable and practical steps have been taken to avoid significant adverse effects upon the identified VERs and no further recommendations are deemed necessary.

1.173 However, in order to ensure the protection of other potential ecological receptors at the site (i.e. breeding birds and reptiles) and to comply with current wildlife legislation and best practice guidelines other mitigation measures are recommended and detailed under the section Legal and Policy Implications.

RESIDUAL IMPACTS

1.174 This section discusses how, after the application of the mitigation measure, the likely significant ecological effects would impact upon the identified VERs within the zone of influence of the proposed scheme, this being defined by the sensitivity of the ecological receptor and the nature of the potential effect.

1.175 Table 1-12 provides a summary of the criteria used to evaluate the residual impacts and assess the significance of any such impact.

Table 1-12

Key Considerations when Characterising Residual Impacts

Description	Definition
Direction of impact	Positive or negative impact
Probability of occurring	Broadly defined on 3 levels: Certain, Probable or Unlikely
Complexity	Direct, Indirect or Cumulative
Extent and Context	Area/number affected and % of total
Magnitude	Describes the severity of effect as major, moderate, minor or negligible.
Duration	Permanent or Temporary in ecological terms (e.g. within the lifetime of the species affected)
Reversibility	Whether or not the effect can be reversed.
Area	Expressed as area or percentage of the study area.

1.176 Residual impacts are characterised in terms of their direction, permanence, certainty and reversibility. These factors are brought together to assess the magnitude of the impact on a particular VER using the following criteria:

- Major – a permanent or long-term effect on the extent/size or integrity of a site, habitat, species assemblage/community, population or group. If adverse, this is likely to threaten its sustainability: if beneficial, this is likely to enhance its conservation status;
- Moderate - a permanent or long-term effect on the extent/size or integrity of a site, habitat, species assemblage/community, population or group. If adverse, this is unlikely to threaten its sustainability: if beneficial, this is likely to be sustainable but is unlikely to enhance its conservation status;
- Minor – a short-term but reversible effect on the extent/size or integrity of a site, habitat, species assemblage/community, population or group that is within the range of variation normally experienced between years; and
- Negligible - a short-term but reversible effect on the extent/size or integrity of a site, habitat, species assemblage/community, population or group that is within the range of variation normally within the normal range of annual variation.

1.177 An assessment is then made of the likely significance of the impact prior to mitigation, and the significance of the residual impact (i.e. after all agreed mitigation or compensation is implemented). The degree of confidence in the likely success of mitigation or compensation, based upon published studies and the experience of the assessor, is also made and any uncertainties are clearly expressed.

1.178 The final part of the assessment is to assign a level of significance of the residual impact of this scheme in terms of their significance from an ecological perspective and also the implications of those effects from a legal and policy perspective following mitigation. This is based on the sensitivity of the ecological resource that will be affected, the magnitude of the predicted impact.

Summary of Residual Impacts

1.179 A summary of the likely significant effects on the VERS and the magnitude and significance of the effect are detailed in Table 1-13. This evaluation takes into account the mitigation measures already discussed and the residual impacts after their application.

Table 1-13
Summary of Residual Impacts

Valued Ecological Receptor	Description of Potential Impact	Characterisation of Impact	Ecological Significance of Impact if Unmitigated	Mitigation, Enhancement and Compensation Proposals	Residual Impact following Mitigation and its Significance
Huntley Wood SBI/ASNW	Impacts of recreation	Negative Probable Direct/Indirect Moderate Permanent Reversible	Significant impact at County Level	Provision of formal access through parts of the woodland. Implementation of a Conservation Management Plan	Positive impact at County Level
Semi-natural broadleaved woodland	Impacts of recreation	Negative Probable Direct/Indirect Moderate Permanent Reversible	Significant impact at District Level	Provision of formal access through parts of the woodland. Implementation of a Conservation Management Plan	Positive impact at District Level
Open standing water and associated marginal vegetation	Degradation of water quality through pollution and contaminated surface water run-off during construction phase	Negative Probable Direct/Cumulative Moderate Temporary Reversible	High risk at Parish Level	In accordance with EAPPG5: - silt mobilisation would be kept to a minimum by using appropriate working methods and storage of excavated materials. - any pollution incident would be reported immediately to the Environment Agency, spill kits kept on site and pollution emergency procedures establish.	Low risk and low probability and unlikely to be significant

Valued Ecological Receptor	Description of Potential Impact	Characterisation of Impact	Ecological Significance of Impact if Unmitigated	Mitigation, Enhancement and Compensation Proposals	Residual Impact following Mitigation and its Significance
Open standing water and associated marginal vegetation	Impacts of recreation	Negative Probable Direct/Indirect Moderate Permanent Reversible	Significant impact at Parish Level	Implementation of a Conservation Management Plan	Negligible impact and not significant
Hedgerows	Impacts of recreation	Negative Probable Direct/Indirect Moderate Permanent Reversible	Significant impact at Parish Level	Implementation of a Conservation Management Plan	Negligible impact and not significant
Great Crested Newt	Loss of terrestrial habitat through land-take	Negative Certain Direct Major Permanent Irreversible	Significant impact at District level	Implementation capture and removal of great crested newts from construction areas under EPS licence to safe areas enhanced to provide optimum habitat for this species	Negligible impact and not significant.
	Risk of direct injury or mortality to individual animals	Negative Probable Direct Major Permanent Irreversible	Significant impact at District level	As detailed above	Negligible impact and not significant

Valued Ecological Receptor	Description of Potential Impact	Characterisation of Impact	Ecological Significance of Impact if Unmitigated	Mitigation, Enhancement and Compensation Proposals	Residual Impact following Mitigation and its Significance
Invertebrates	Loss of habitat	Negative Probable Direct Major Permanent Irreversible	Significant impact at Parish level	Habitat creation and enhancement through the implementation of a Conservation Management Plan	Negligible impact and not significant

LEGAL AND POLICY IMPLICATIONS

Legal Implications

Non-Statutory Designated Nature Conservation Sites

1.180 Provided all in-built and other appropriate mitigation measures are put in place no significant impacts from the construction and operation of the outdoor recreation facility are predicted.

Statutory Protected Species

1.181 The only statutory protected species with relevance to the development of Huntley Wood Quarry to provide an outdoor recreation facility are badgers, bats, great crested newt and birds. Of these the development only has the potential to have a significant impact on great crested newts however, provided that appropriate mitigation strategies are properly implemented and all appropriate licences obtained where necessary, it will be possible for the development this site without the risk of breaching current wildlife legislation.

1.182 Although no significant impact on birds is predicted, all wild bird species occurring in the UK, with the exception of eleven very common and/or 'pest' species, are afforded protection under the Wildlife & Countryside Act 1981 (as amended) prohibiting: their killing, injuring or taking; the damage, destruction or taking of nests in use or being built; and the taking or destruction of eggs. A refined list of bird species receives a greater degree of protection under Schedule 1 of the Act.

1.183 In order to comply with wildlife legislation, all work to trees, scrub and sandbanks shall be avoided during the bird breeding season (between the middle of March and the end of August), wherever practicable and possible. If however, any clearance works need to be carried out during this period they will only proceed after the habitats to be removed has been checked and deemed free of active nests by a suitably qualified ecologist. If active nests are found then no clearance works will begin at the nest site and an adequate buffer zone around the nest site until the young birds have fledged and left the nest.

1.184 Whilst it is considered unlikely that other protected species are present within the development the site, it does not necessarily preclude their being present at a later date. Therefore prior to any construction activities on the site a pre-works inspection will be undertaken for and where necessary appropriate mitigation put in place to ensure compliance with current wildlife legislation.

Policy Implications

1.185 Provided that all appropriate mitigation measures to prevent, reduce or offset an impact are implemented it is considered that the construction and operation of the proposed outdoor recreation facility will comply with the

requirements of current national and local planning policies relating to ecology and nature conservation.

SUMMARY AND CONCLUSIONS

1.186 The construction and operation of the proposed outdoor recreation facility will comprise a small scale development within the former Huntley Wood Quarry that would result in approximately 8ha of existing habitat being lost or disturbed whilst retaining all other remaining habitat areas. The implementation of a Conservation Management Plan for this site would provide opportunities to create and enhance areas of retained habitat of this to benefit both wildlife and the users of this site.

1.187 The construction works have the potential to have significant effects on the great crested newts population at this site however the implementation of suitable mitigation measures should ensure the predicted impacts on these species is negligible and not significant.

1.188 Through careful consideration of the potential impacts of the construction and operation of the outdoor recreation facility and the implementation of suitable mitigation to minimise these effects it is considered that the impacts of this development on the VERs identified within the application site and within its zone of influence are not likely to be significant and would be in compliance with legislation and planning policy