CONTENTS

INTRODUCTION

11.1 This chapter provides an Ecological Impact Assessment (EcIA) on the likely significant impacts on designated sites, habitats and species from the proposed 5-year time extension to allow for the restoration of the Washington Sandpit operated by BritaniaCrest Recycling Limited at Sullington, West Sussex.

Location and Setting

11.2 Washington Sandpit is located off the A283 Washington Lane, Sullington, West Sussex (site centroid Ordnance National Grid Reference TQ107138) (please refer to Figure 11.1).

11.3 The existing sandpit (herein referred to as the application site) covers an area of 6.7 hectares (ha), as defined in the consented planning permission, and for which a recent Section 73 application has been made to extend the extraction of sand at this site for a further 2-years.

11.4 The site is bounded to the north by a narrow band of fields and woodland blocks separating the sandpit from parts of the village of Storrington, to the east by Hampers Lane and further former pits used for the extraction of sand, to the south by the A283 and further agricultural land and scattered residential properties forming the village of Sullington, and to the west by other worked-out and partially restored sandpits that extend almost to the eastern edge of Storrington.

Purpose of the Ecological Impact Assessment

11.5 The EcIA presented in this chapter of the Environmental Statement (ES) can be considered as having three main purposes:

- to provide an objective and transparent assessment of the ecological effects of the proposals at Washington Sandpit;
- to permit objective and transparent determination of the consequences of the proposals in terms of national and local policies relevant to nature conservation; and
- to demonstrate that the proposals will meet the legal requirements relating to habitats and species.

11.6 This EcIA has been undertaken in accordance with the guidelines published by the Chartered Institute of Ecology and Environmental Management (CIEEM)[1] ('the IEEM Guidelines') and follows a standard approach based upon the description of the existing baseline conditions within the application site; an evaluation of the designated sites, habitats and species present within the site; the identification of potential ecological effects of the project;

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

and an assessment of the likely significance of identified impacts on the valued ecological receptors (VERs).

11.7 Where a significant negative impact has been identified, suitable mitigation measures to prevent, reduce or offset the level of impact are provided. Any residual effects, following the implementation of mitigation and enhancement measures, are then identified and assessed.

LEGISLATIVE AND PLANNING POLICY CONTEXT

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

Legislative Context

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

Wildlife & Countryside Act 1981 (as amended)

11.10 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

11.11 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 or great crested newt. The Habitats Regulations also contain new provisions designed to implement aspects of the Marine and Coastal Access Act 2009 (The Marine Act).

11.12 In 2012 the Conservation of Habitats and Species (Amendment) Regulations 2012 modified the The Habitats Regulations. The regulations also place a duty on any competent authority, in exercising any of their functions, to have

regard to the requirements of Directive 2009/147/EC (the "Wild Birds Directive") and of Directive 92/43/EEC (the "Habitats Directive").

11.13 With respect to planning decisions the amendments places a duty on the local planning authority (the competent authority in this instance) to:

- have regard to the Wild Birds Directive in exercising any of their functions;
- take steps to contribute to the protection and creation of bird habitat; and
- avoid pollution or deterioration of bird habitat.

The Countryside and Rights of Way (CRoW) Act 2000

11.14 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 Diversity[2], 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.

11.15 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.

The Natural Environments and Rural Communities (NERC) Act 2006

11.16 The NERC Act amends the CRoW Act, by further extending the requirement to have regard for biodiversity to all 'public authorities', which includes local planning authorities, and 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

11.17 Nationally, the Government's commitment to sustainable development and conserving the diversity of wildlife is set out in the National Planning Policy Framework (NPPF). This document, along with Government Circular 06/05: Biodiversity and Geological Conservation the OPDM Circular, which accompanied the now superseded Planning Policy Statement 9 (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. These policies reflect statutory obligations for nature conservation.

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

11.18 Under the NPPFs section on '*Conserving and Enhancing the Natural Environment*' sets out in paragraph 109 that:

"*The planning system should contribute to and enhance the natural and local environment by....*

- *Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the government's commitment to halt the overall decline in biodiversity, including by establishing, coherent ecological networks that are more resilient to current and future pressures;*
- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."*

11.19 Further to this in Paragraph 118 it states that:

"When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- *if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific interest;*
- *development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *opportunities to incorporate biodiversity in and around developments should be encouraged;*
- *planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and*
- *the following wildlife sites should be given the same protection as European sites:*

- *potential Special Protection Areas and possible Special Areas of Conservation;*
- *listed or proposed Ramsar sites; and*
- *sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites."*

Local

11.20 Planning policy at the local level is provided by the West Sussex Minerals Development Plan (DPD)/Minerals Local Plan 2003, the West Sussex Waste Local Plan, the West Sussex Structure Plan 2001-2016 adopted on 25th October 2004, and the Horsham District Planning Framework dated August 2013.

11.21 The policies relevant to ecology and nature conservation within these documents are summarised in Table 11.1.

Table 11.1: Local Policies Relating to Ecology and Nature Conservation

Policy Reference	Policy
West Sussex Structure Plan	
ERA2	a) Development should not be permitted unless the wide range of habitats, species and geological features of the County will be protected, conserved and, where possible, enhanced particularly through long-term management mechanisms and habitat creation schemes. A particularly high level of protection should be afforded to sites and features of national and international importance. Proposals for the extension or creation of new habitats should be permitted provided that they are consistent with wider environmental objectives. b) Local plans will include policies to: (1) ensure that site evaluation is undertaken to establish the nature conservation importance of proposed development sites; (2) protect sites or features of nature conservation importance, including those protected under legislation and prevent development unless there are no alternative solutions and there are overriding reasons which outweigh the need to safeguard the value of sites or features; (3) ensure that where development would result in the loss of an important nature conservation resource, a new resource is provided which is of at least equivalent value, where possible; (4) where appropriate, secure the restoration, creation and management of habitats through development proposals; and (5) where necessary, ensure the investigation and recording of sites and features of nature conservation importance, and, where appropriate, the preservation of

Policy Reference	Policy
	any finds.
Horsham District Planning Framework	
Draft Policy 23	The Natural Environment and landscape character of the District, including the settlement pattern, together with protected landscapes and habitats will be protected against inappropriate development. The Council will support development proposals which: a. Protects, conserves and enhances the landscape and townscape character, taking into account areas identified as being of landscape importance, the individual settlement characteristics, and maintains settlement separation. b. Maintain and enhances the Green Infrastructure Network and addresses any identified deficiencies in the District. c. Maintains and enhances the existing network of geological sites and biodiversity, including safeguarding existing designated sites and species, and ensures no net loss of wider biodiversity.
Draft Policy 27	Outside built-up area boundaries, the rural character and undeveloped nature of the countryside will be protected against inappropriate development. Any proposal must be essential to its countryside location, and in addition meet one of the following criteria: a. support the needs of agriculture or forestry; b. enable the extraction of minerals or the disposal of waste; c. provide for quiet informal recreational use; or, d. enable the sustainable development of rural areas. In addition proposals must be of a scale appropriate to its countryside character and location. Development will be considered acceptable where it does not lead, either individually or cumulatively, to a significant increase in the overall level of activity in the countryside, and protects, and/or conserves, and/or enhances, the key features and characteristics of the landscape character area in which it is located, including; a. the development pattern of the area, its historical and ecological qualities, tranquillity and sensitivity to change; b. the pattern of woodlands, fields, hedgerows, trees, waterbodies and other features; and c. the landform of the area.
Draft Policy 32	1. The Council is committed to the protection, conservation and enhancement of biodiversity and geodiversity in the District. 2. Development proposals will be required to contribute to the enhancement of existing biodiversity, and explore opportunities to create and manage new areas where appropriate. The Council will encourage new development to make a positive contribution to biodiversity through the creation of green spaces, and linkages between sites to create a local and regional network of wildlife corridors and green infrastructure. It will seek to retain and encourage the

Policy Reference	Policy
	enhancement of significant features of nature conservation on development sites. 3. Where there is felling of protected trees, replacement planning with a suitable species will be required. 4. Particular consideration will be given to the hierarchy of sites in the District as follows: a. Special Protection Area and Special Areas of Conservation; b. Sites of Special Scientific interest and national nature reserves; c. Sites of nature conservation importance, local nature reserves and areas of Ancient woodland not identified in 1 & 2 above. 5. Where development is anticipated to have a direct or indirect adverse impact on sites or features for biodiversity, development will be refused unless it can be demonstrated that: a. the reason for the development clearly outweighs the need to protect the value of the site; and, b. that mitigation and compensation measures are provided 6. Any development with the potential to impact Pulborough Brooks SPA or the Mens SAC will be subject to a HRA to determine the need for an Appropriate Assessment. In addition, development will be required to be in accordance with the necessary mitigation measures for development set out in the HRA of this plan.
West Sussex Local Minerals Plan	
Policy 10	Proposals for mineral working which may irreversibly damage statutorily designated sites of historic, architectural, natural or scientific interest will only be granted if the damage can be prevented or the need for the mineral outweighs the environmental objections relating to those designations.
Policy 21	Reclamation proposals for mineral sites which offer opportunities for habitat creation, new or improved fisheries, recreation provision will be encouraged in appropriate locations.

Biodiversity Planning

11.22 The United Kingdom's (UK) post-2012 Biodiversity Framework replaces the previous UK Biodiversity Action Plan (UKBAP) published in 1994. The purpose of this Framework is to set a broad enabling structure for biodiversity action across the entire UK up to 2020, but which will be delivered through the own strategies of each of the individual countries of the UK and Northern Ireland for the protection, enhancement and expansion of priority habitats and species.

11.23 To implement actions to enhance biodiversity at a local level, a number of Local Biodiversity Action Plans (LBAPs) have been produced including the Sussex BAP as well as a BAP specifically for Mineral Sites in West Sussex[3].

[3] Ryland, K. (2004). *West Sussex Mineral Sites A Biodiversity Action Plan*. West Sussex County Council, Chichester.

The Sussex BAP implements individual habitat and species action plans that contribute to national biodiversity target.

METHODOLOGY

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

Area of Study

11.25 The area of study includes all the land within application site as well as important ecological sensitive receptors within the potential zone of influence of the site with the potential to be directly and indirectly affected by the development proposals.

Desk-based Study

11.26 A preliminary desk-based study was undertaken and involved collating data from a number of organisations and examining published data relating to the development site and in a defined search area centred on this site. Data included: details of statutory and non-statutory designated sites; and protected, rare and notable species within a 2km radius of application site.

11.27 Data sources used included a request for ecological records supplied by the Sussex Biological Records Centre (SBRC) and information held by the Multi-agency Geographic Information for the Countryside (www.magic.gov.uk), the National Biodiversity Network (www.nbn.org.uk), Natural England (www.naturalengland.org.uk) and the Sussex Biodiversity Partnership/Sussex BAP (www.biodiversitysussex.org.uk).

Field Survey

11.28 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[4]. These surveys included an Extended Phase 1 Habitat Survey.

11.29 Due to the proposal not requiring the development of any additional land but rather for the continuation of extraction of sand and importation and processing of inert waste materials for ruse in the restoration of the sandpit, it was deemed that over and above an extended Phase 1 Habitat Survey that no other no other specialist surveys were necessary in respect of the habitats present on site and their potential to support protected species.

Extended Phase 1 Habitat Survey

11.30 An Extended Phase 1 Habitat Survey was conducted within the application site on 18th September 2013 by a Senior Ecologist from SLR. The survey

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

was conducted following a standard methodology[5] and involved the production of a map of the habitats present using colour codes and target notes (TN) to describe any feature of particular ecological interest.

11.31 The survey method was extended to include the recording of additional information on habitats and species, including any evidence of, or potential presence of, statutorily protected species, other species of conservation significance, or any other features of note and that may require mitigation or an ecologically sensitive design in respect of the proposed development at this site.

Uncertainty of Data and Limitations

11.32 The Extended Phase 1 Habitat Survey was undertaken at an appropriate time of year to undertake such surveys for the habitats present on the site and the survey results are deemed representative of the habitats present within the study area that include the dominant and characteristic species of flora.

11.33 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 timing of the survey visit was suitable for protected species and their habitat-based assessment, as most species would have been active during this time and provided evidence of their presence.

Assessment Methodology

Evaluation of Ecological Features

11.34 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:

- designated sites including statutory protected (i.e. Natura 2000 sites, Sites of Special Scientific Interest, National Nature Reserve) or non-statutory locally designated sites (i.e. Local Wildlife 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 identified by the National Framework for biodiversity and/or any LBAP; and
- species protected or controlled by law or of biodiversity value or significance including priority species as identified by the National Framework for biodiversity and/or any LBAP.

[5] Nature Conservancy Council (1990). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*, 2003 reprint. JNCC, Peterborough.

Assessment of Impacts

11.35 The assessment of potential ecological impacts has been carried out using the EcIA guidelines published by the Chartered Institute of Ecology and Environmental Management (CIEEM) that 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.

11.36 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.

11.37 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

11.38 This section provides an overview of the existing ecological baseline conditions within the application site and within the wider surrounding environment.

General Site Description

11.39 The application site, covering some 6.7ha, comprises an active and consented sandpit that supports a range of anthropogenic and semi-natural habitats that have been created as part of the function of extracting sand at this site, areas of retained habitat outside the pit void, or which have developed naturally in less disturbed parts of the site.

11.40 The sandpit is accessed via an entrance located at the junction of Hamper's Lane with the A283 along a metalled road leading down to the site offices and weighbridge before entering the main active pit area. The main pit has been worked to around 30mAOD leaving a tall vertical pit wall along its southern edge but with less steep sides along its other sides.

11.41 The surrounding land-use consists of agricultural land interspersed with woodland blocks, small urban settlements and with a number of active and restored mineral extraction sites.

Natural Areas

11.42 The application site falls within the Wealden Greensand Natural Area, as defined by Natural England. The Wealden Greensand Natural Area follows the outcrop of upper and Lower Greensand which curves around the western end of the Wealden anticline in West Sussex, East Hampshire and Surrey and forms a conspicuous ridge running west to east across Surry and Kent terminating in coastal cliffs at Folkestone Warren.

11.43 The Natural Area is characterised by lowland heath that today is concentrate in West Sussex, Hampshire and western Surrey. Many ancient woodland have survived and include the Wealden Edge Hangers of Hampshire on the steep chalk and Upper Greensand escarpment, and sessile oak woods on the acid, sandy soils of Surrey, West Sussex and Kent. Other habitats include several river valleys that support of series of wetland habitats including alluvial grazing meadows with drainage ditches, marshy grassland, reedbeds and wet woodlands. Other habitats include dry acidic grassland and parkland, and a number of large, artificial ponds that are notable for aquatic flora and invertebrates.

Designated Sites

Statutory Designated Nature Conservation Sites

11.44 The application site does not have any statutory nature conservation designations.

11.45 There are no internationally designated statutory nature conservation sites within a 5km radius of the site.

11.46 Within a 2km radius of the application site there are three Sites of Special Scientific Interest (SSSI) namely:

- Sullington Warren SSSI;
- Chantry Mill SSSI (geological SSSI and as such not considered further in under this ecological assessment); and
- Amberley Mount and Sullington Hill SSSI.

The locations of these statutory designated sites in relation to the application site are shown in Figure 11.1.

Non-Statutory Designated Nature Conservation Sites

11.47 The application site does not have any non-statutory nature conservation designation.

11.48 There are two Sites of Nature Conservation Importance (SNCI) within a 2km radius of the application site namely:

- Heath Common SNCI; and
- Sullington Hill SNCI.

11.49 In addition, there is one notable road verge north on the A283 north of Washington and two Local Geological Sites (LGS) at Chantry Mill LGS and Rock Common Sand Quarry LGS (both of which are not considered further under this ecological assessment) within the 2km search area.

11.50 The 2km search area also includes a number of woodlands listed on the Ancient Woodland Inventory as Ancient Semi-natural Woodland (ASW). None of these woodland are present at, or immediately adjacent the application site.

11.51 The locations of non-statutory designated sites, including ancient woodlands, are shown in Figure 11.1.

Habitats

UK Priority Habitats

11.52 According to the Natural England GIS database of UK Priority Habitats, there are several areas identified as priority habitats located within the 2km search area that include: Chalk Stream, Lowland Calcareous Grassland, Lowland Heathland, Open Water and Traditional Orchard.

11.53 The application site does not support any priority habitat except for part of the lake, identified as Open Water that extends over the flooded pit floor of the adjacent restored sandpit to the west of the Washington Sandpit.

Application Site

11.54 The application area consists of an active sandpit that supports a range of anthropogenic and semi-natural habitats that have been created as part of the function of extracting sand at this site, areas of retained habitat outside the pit void, or which have developed naturally in less disturbed parts of the site.

11.55 The broad habitats types recorded within the application site based on the Phase 1 Habitat Survey Classification are summarised in Table 11.2.

Table 11.2: Summary of Broad Habitats Recorded in the Application Site

Habitat Type	Habitat Classification	Alphanumeric Code
Rock Exposure and Waste	Artificial – quarry	I2.1
Woodland and Scrub	Broadleaved – semi-natural	A1.1.1
	Scrub – dense/continuous	A2.1
	Scrub - scattered	A2.2
Grassland and Marsh	Neutral grassland – unimproved	B2.1
Swamp, Marginal and Inundation	Marginal vegetation	F2.1
Open Water	Standing water – eutrophic	G1.1
	Running water - eutrophic	G2.1

Habitat Type	Habitat Classification	Alphanumeric Code
Miscellaneous	Cultivated/disturbed land - ephemeral/short perennial	J1.3
	Dry ditch	J2.6
	Built-up areas buildings and hard-standing	J3.6
	Bare ground	J4

11.56 Figure 11.2 shows the locations and extent of the habitats recorded within the application site along with the location of any associated Target Notes (TN). A description of each TN provided in Table 11.3.

Table 11.3: Target Notes

Target Note	Description
TN1 	**Broadleaved Semi-natural Woodland** A small block of retained broadleaved semi-natural that lying at the entrance to the sandpit that show affinities to National Vegetation Classification (NVC) W10 *Quercus robur – Pteridium aqulinum – Rubus fruticosus* Woodland community. The woodland has a relatively open canopy dominated by mature Pedunculate Oak (*Quercus robur*) with some semi-mature Sycamore (*Acer pseudoplatanus*), Silver Birch (Betula pendula), and Horse Chestnut (*Aesculus hoppocastanum*) also present. The understorey forms a dense layer of shrubs in places consisting of Field Maple (*Acer campestre*), Common Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Wild Privet (*Ligustrum vulgare*), Honeysuckle (*Lonicera periclymenum*), Elder (*Sambucus nigra*), Goat Willow (*Salix capraea*) and Bramble (*Rubus fruticosus* agg.). The field and ground flora is typically species-poor due to the heavy shading effect from the trees/shrubs forming the understorey and consists of the herbs of Lesser Burdock *(Arctium minus*), Field Forget-me-not (*Myosotis arvensis*), Herb-Robert (*Geranium robertianum*), Ground-ivy (*Glechoma hederacea*) and Common Nettle (*Urtica dioica*); the ferns of Broad Buckler Fern (*Dryopteris dilatata*) and Male Fern (*Dryopteris filix-mas*); and mosses of which the most conspicuous species are *Brachythecium rutabulum* and *Mnium hornum.* Adjacent the road the ground has been embanked leaving areas of exposed bare substrate that has been colonised in places by Rosebay Willowherb (*Chamerion angustifolium*), Spear Thislte (*Cirsium vulgare*), Broad-leaved Willowherb (*Epilobium montanum*), Yorkshire-fog (*Holcus lanatus*), Nipplewort (*Lapsana communis*), Redshank (*Persicaria maculosa*), Common Ragwort (*Senecio jacobaea*), Common Nettle and Germander Speedwell (*Veronica chamaedrys*).
TN2	**Ditch (Running Water – Eutrophic)** A small shallow trapezoidal watercourse flowing along

Target Note	Description
	part of the southern boundary. The ditch has a mean channel width of 1m at normal water level and banks with a mean height of 1.5m. At its western end the channel is concrete lined with pipe passing through the bank and into the sandpit via large steel outflow structure. At its eastern end the watercourse passes into a culvert under the A283. The channel supports a vegetation community that would indicate that the ditch is periodically runs dry but remains relatively damp including: Creeping Bent (*Agrostis stolonifera*), False Fox Sedge (*Carex otrubae*), Great Willowherb (*Epilobium hirsutum*), Toad Rush (*Juncus bufonius*) and Soft Rush (*Juncus effusus*). The right bank supports vegetation that is typical of a woodland habitat including: Garlic Mustard (*Alliaria petiolata*), Wild Angelica (*Angelica sylvestris*), Lords-and-Ladies (*Arum maculatum*), Wood Avens (*Geum urbanum*), Ground-ivy, Ivy (*Hedera helix*) and Hedge Woundwort (*Stachys sylvatica*) along with the ferns of Broad Buckler Fern, Male Fern and Hart's-tongue (*Phyllitis scolopendrium*). The left bank and adjacent strip of land appears to be subject to more regular disturbance and supports a rank grassland / ruderal vegetation community that includes the graminoids species of: False Brome (*Brachypodium sylvaticum*) and Yorkshire-fog; and the herbs consisting of Yarrow (*Achillea millefolium*), Scarlet Pimpernel (*Anagallis arvensis*), Lesser Burdock, Mugwort (*Artemisia vulgaris*), Hedge Bindweed (*Calystegia sepium*), Rosebay Willowherb, Fat-hen (*Chenopodium album*), Creeping Thistle (*Cirsium arvense*), Spear Thistle, Hogweed (*Heracluem sphonylium*), Perforate St John's-wort (*Hypericum perforatum*), Hard Rush (*Juncus inflexus*), Oxeye Daisy (*Leucanthemum vulgare*), Greater Plantain (*Plantago major*), Creeping Buttercup (*Ranunculus repens*), Weld (*Reseda luteola*), Broad-leaved Dock (*Rumex obtusifolius*), Common Ragwort, Common Chickweed (*Stellaria media*), Dandelion (*Taraxacum officinale* agg.) and Common Nettle. Scattered scrub is found along the length of the ditch comprised of Silver Birch, Dogwood (*Cornus sanguinea*), Common Hawthorn, Hazel, Ash (*Fraxinus excelsior*), Blackthorn (*Prunus spinosa*) and Bramble. At its eastern end the top of the left bank opens and a more established grassland community that appears to be indicative of a former woodland community is present with a sward consisting of False Oat-grass (*Arrhenatherum elatius*), Hairy Brome (*Bromus ramosus*), Cock's-foot (*Dactylis glomerata*), Tufted Hair-grass (*Deschampsia cespitosa*), Yorkshire-fog and Wood Sedge (*Carex sylvatica*). The herbaceous component includes Sneezewort (*Achillea ptarmica*), Common Centuary (*Centaurium erythraea*), Spear Thistle, Foxglove (*Digitalis purpurea*), Ground-ivy, Perforate St John's-wort, Oxeye Daisy, Common

Target Note	Description
	Ragwort, Heath Groundsel (*Senecio sylvaticus*) and Lesser Trefoil *(Trifoium dubium*). Mosses also form a conspicuous component and include *Calliergonella cuspidata* and *Hylocomium splendens*.
TN3 	**Broadleaved Semi-Natural Woodland with some Supplementary Planting** A narrow strip of woodland extending along parts of the southern boundary that has had some supplementary planting. The relatively open canopy consists of Pedunculate Oak, Sycamore and Larch (*Larix decidua*) that has been supplemented with Ash and Scot's Pine (*Pinus sylvestris*). The understorey includes Field Maple, Common Hawthorn, Holly (*Ilex aquifolium*), Dog-rose (*Rosa canina* agg.), Elder and Bramble that in particular forms dense patches of vegetation towards to the western edge of the woodland. The ground flora is indicative of damp conditions and more open habitats that includes the graminoids of Hairy Brome, Giant Fescue (*Festuca gigantea*), Red Fescue (*Festuca rubra* agg.), Remote Sedge (*Carex remota*) and Soft Rush. The herbs include Spear Thistle, Greater Bird's-foot-trefoil (*Lotus pedunculatus*), Silverweed (*Potentilla anserina*), Creeping Cinquefoil (*Potentilla reptans*), Self-heal (*Prunella vulgaris*), Wild Mignonette (*Reseda lutea*), and Common Figwort (*Scrophularia nodosa*). Hart's-tongue is also frequent particularly towards to the southern edge along the A283. Broyphyes are typically sparse except for *Hypnum cupressiforme* with some *Cladonia portensa* also occasionally present.

Target Note	Description
TN4 	**Disturbed Ground (Ephemeral/Short Perennial Vegetation)** The majority of the western half of the sandpit supports ephemeral/short perennial vegetation that has colonised the bare substrates. The vegetation structure is typically dependent upon the levels of disturbance with the more complex structure present on less accessible slopes that are less disturbed than the sandpit floor. The more recently disturbed areas along the western boundary of the site where the topsoils are still largely present the species include many species typically associated with arable weeds including: Creeping Bent, Yorkshire-fog, Common Mouse-ear (*Cerastium fontanum*), Creeping Thistle, Spear Thistle, Broad-leaved Willowherb, Dove's-foot Crane's-bill (*Geranium molle*), Field Forget-me-not, Redshank, Greater Plantain (*Plantago major*), Knotgrass (*Polygonum avicullare*), Silverweed, Creeping Buttercup, Curled Dock (*Rumex crispus*), Broad-leaved Dock, Common Ragwort, Scentless Mayweed (*Tripleurospermum inodorum*) and Smooth Tare (*Vicia tetrasperma*). In areas where the substrates consist of sands the flora is more indicative of the acid conditions and include Red Goosefoot (*Chenopodium rubrum*), Common Hemp-nettle (*Galeopsis tetrahit*), Cleavers (*Galium aparine*), Selfheal, Large-flowered Evening-primrose (*Oenothera glazioviana*), Wild Mignoiette, Sheep's-Sorrel (*Rumex acetosella*), Prickly Sow-thistle (*Sonchus asper*), Feverfew (*Tanacetum parthenium*), Lesser Trefoil, Colt's-foot (*Tussilago farfara*) and Rat's-tail Fescue (*Vulpia myuros*). The dry ditch supports some young willow scrub consisting of White Willow (Salix alba) and Goat Willow on its banks along with species indicative of damp conditions including Pendulous Sedge (*Carex pendula*), Remote Sedge, Toad Rush, Water Mint (*Mentha aquatica*) and Common Fleabane (*Pulicaria dysenterica*). On the western boundary a small patch of rank grassland remains with a species-poor sward consisting of False Oat-grass, Cock's-foot, Red Fescue and Yorkshire-fog and the herbs of Creeping Thistle, Ribwort Plantain (*Plantago lanceolata*), Silverweed, Creeping Cinquefoil, Common Ragwort and Common Nettle with Common Horsetail (*Equisetum arvense*) also present.

Target Note	Description
TN5 	**Open Standing Water and Marginal Vegetation** The northwest corner of the sandpit is flooded by a pond separated from a larger lake to the west by a narrow strip of land but with connections where this bank appears to have been cut through. The water in the pond and adjacent lake is very turbid with high levels of suspended solids limiting aquatic vegetation with the exception of small stands of Common Reed (*Phragmites australis*) and Reedmace (*Typha latifolia*) that are beginning to develop in shallow margins. Along the lower banks a fringe of Jointed Rush (Juncus articulatus) and hard rush is beginning to develop. The shallow banks of the pond is dominated by willow scrub dominated by White Willow but with some Goat Willow also present.
TN6 	**Ephemeral/Short Perennial Vegetation** Along the northern edge of the pond and along a narrow berm the ephemeral/short perennial vegetation is showing signs of succession to acid grassland with affinities to NVC U1 *Festuca ovina – Agrostis capillaris – Rumex acetosella* grassland community. Grasses are not a prominent feature at this current time except on areas not subject to rabbit grazing (i.e. sloping walls of the pit) but where present include Sweet Vernal-grass (*Anthoxanthum odoratum*), Common Bent (*Agrostis capillaris*) and Cock's-foot with Hard Rush also present. The herbs component is also typically sparse consisting of Common Centuary, Cat's-ear (*Hypchaeris radicata*), Lesser Hawkbit (*Leontodon saxatilis*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Mouse-ear-hawkweeds (*Pilosella officinarum*), Large-flowered Evening-primrose, Ribwort Plantain and Sheep's Sorrel. Bryophytes are dominant forming a dense carpet of vegetation dominated by *Campylopus introflexus* and *Ceratodon purpureus* but with *Polytrichum juniperinum*, *Cladonia fimbriata* and *Cladonia arbuscula* also present.
TN7 	**Neutral Unimproved Grassland** An area of rank species-poor grassland that appears to have developed on an area of stored topsoils with a sward consisting of False Oat-grass, Cock's-foot, Common Couch (*Elymus repens*), Red Fescue and Yorkshire-fog. Other species present include Hairy Sedge (*Carex hirta*), Creeping Thistle, Germander Speedwell, Common Bird's-foot-trefoil, Creeping Cinquefoil, Ribwort Plantain, Broad-leaved Dock and Common Nettle. Bramble is evident throughout the sward with dense patches around the northern and western edges that has encroached from the adjacent woodland and scrub respectively.

Target Note	Description
TN8 	**Mosaic of Neutral Unimproved Grassland and Scrub** A former field supporting a mosaic of neutral unimproved grassland and scrub dominated by patches of Common Hawthorn and Bramble but with Dog-rose also present. The grassland has affinities to NVC MG1 *Arrhenatheretum elatioris* grassland that has developed as result of a lack of management. The rank sward consists of False Oat-grass, Cock's-foot, Common Couch and Red Fescue and Yorkshire-fog with some Compact Rush (*Juncus conglomeratus*) also present on the lower slopes of the field. The herbaceous component is species-poor and includes Black Knapweed (*Centaurea nigra*), Creeping Thistle, Creeping Cinquefoil, Ribwort Plantain and Broad-leaved Dock.
TN9 	**Dense Scrub** An area of dense scrub typically dominated by Common Hawthorn but with some semi-mature Field Maple and Sweet Chestnut (*Castanea sativa*) as well as Silver Birch and Ash also present. The ground flora is typically sparse due to the heavy shading effect of the dense canopy and includes Ground-ivy, Bramble and Common Nettle.
TN10 	**Broadleaved Semi-natural Woodland** A small block of woodland that typically forms an extension to TN1 but which has been separated by the access road into the sandpit. The species composition is similar to TN1 but also includes a line of mature Grey Poplar (*Populus x canescens*) and Barren Strawberry (*Potentilla sterilis*) within the ground flora. Hart's-tongue is also more prominent than in TN1. Along the access road where the ground has been disturbed during embankment works Butterfly-bush (*Buddleja davidii*), Nipplewort (*Lapsana communis*), Oxford Ragwort (*Senecio squalidus*) and Black Nightshade (*Solanum nigrum*) are also found.

Species

Flora

Protected, Rare and Notable Species of Flora

11.57 SBRC returned records for a number of protected, rare and notable species of flora within 2km of the application site including the Species of Principal Importance of: Juniper (*Juniperus communis*), Chamomile (*Chamaemelum nobile*), Basil Thyme (Clinopodium acinos), Red Hemp-nettle (aleopsis angustifolia), Musk Orchid (*Herminium monorchis*); the bryophyes of Rusty

Fork-moss (*Dicranum spurium*) and Marsh Clubmoss (*Lycopodiella inundata*); and the lichens *Pertusaria hemisphaerica* and *Cladonia convoluta* that is also a species listed on the Sussex Protected Species Register. None of these records relate to the application site or immediate surrounding area.

11.58 During the Extended Phase 1 Habitat Survey no protected, rare or notable species of flora were recorded at or within the immediate vicinity of the application site.

Non-native Invasive Species

11.59 No non-native invasive species of flora listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were found within, or immediately adjacent the development site.

Mammals

Badger

11.60 During the Extended Phase 1 Habitat Survey no setts were found within or immediately adjacent the application site. A badger footprint was recorded on the northern edge of the pond and evidence of some foraging activity was found in the field at TN8.

Bats

11.61 SBRC returned records for a total of 11 confirmed bat species within the 2km search area including: Western Barbastelle (*Barbastella barbastellus*), Serotine (*Eptesicus serotinus*), Brandt's Bat (Myotis brandtii), Daubenton's Bat (*Myotis daubentonii*), Whiskered/Brandt's Bat (*Myotis mystacinus/brandtii*), Natterer's Bat (*Myotis nattereri*), Lesser Noctule (*Nyctalus leisleri*), Noctule Bat (*Nyctalus noctula*), Common Pipistrelle (*Pipistrellus pipistrellus*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*).

11.62 With the exception of a few mature oaks assessed as being Category 2 (trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats), all the trees within the application site and on its boundaries are assessed as being of Category 3 (i.e. trees with no potential to support bats) supporting no obvious cracks, crevices, loose bark or dense ivy cover that could provide opportunities for roosting bats.

11.63 The habitats within the site provide some opportunities for foraging bats particularly along the woodland edge habitat along the site boundaries and the pond. However, given the given the availability of large areas of high quality foraging habitats in the wider surrounding area it is highly unlikely the site is important or critical to any particular species of bat.

Dormouse

11.64 SBRC returned no records for Dormouse (*Muscardinus avellanarius*) within a 2km radius of the application site.

11.65 The habitat within the application site provides sub-optimum habitat for Dormouse consisting of small areas of woodland and scrub with poor that have a long history of disturbance.

11.66 Based on the sub-optimum habitat within the application site and the historical use of the site it is considered that there is all reasonably likelihood Dormouse are absent at this site.

Other Mammal Species

11.67 SBRC returned records for Water Vole (*Arvicola amphibius*), Hedgehog (*Erinaceus europaeus*) and Brown Hare (*Lepus europaeus*) within the 2km search area.

11.68 During the extended Phase 1 habitat Habitat Survey evidence was found of Roe Deer (*Capreolus capreolus*), Rabbit (*Oryctolagus cuniculus*) and, Fox (*Vulpes vulpes*) within the application site.

11.69 A detailed inspection of the pond (TN5) and ditch (TN2) running along parts of the southern edge of the application found no evidence to indicate the presence of water voles for example burrows, runs, droppings, latrines, feeding stations and/or footprints at these waterbodies.

11.70 Whilst the application site has the potential to support a number of small mammals, including Hedgehog, no evidence was found to indicate the presence of any other protected species or notable species of mammal at this site.

Birds

11.71 SBRC returned records for a total of 129 bird species within the 2km search area. Of these species, 10 are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), namely Kingfisher (*Alcedo atthis*), Little Plover (*Charadrius dubius*), Hobby (*Falco subbuteo*), Peregrine Falcon (*Falco peregrinus*), Common Crossill (*Loxia curvirostra*), Wood Lark (*Lullula arborea*), Red Kite (*Milvus milvus*), Honey-buzzard (*Pernis apivorus*), Firecrest (*Regulus ignicapilla*) and Barn Owl (*Tyto alba*).

11.72 The habitats present within the application site provide opportunities for a range of bird species typically associated with open grassland and woodland/scrub and open water habitats. The sandpit itself is unlikely to attract many breeding species due to the extraction of sand and moving vehicles.

11.73 No formal bird survey was carried out in 2013. However, during the extended Phase 1 Habitat Survey a total of 13 species of birds were visually

and aurally recorded. Table 11.4 provides a summary of the species recorded on the application site.

11.74 Of the species recorded none are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), no species is red-listed[6] and only the Green Woodpecker is an amber-listed[7] Birds of Conservation Concern[8] with no species identified as priority species under the UK Biodiversity Framework.

Table 11.4: Summary of Birds Recorded on the Application Site (September 2013)

Scientific Name	Common Name	W&CA Sched 1	RSPB Red List	RSPB Amber List	UK BAP
Anas platyrhunchos	Mallard				
Branta canadensis	Canada Goose				
Columba livia	Feral pigeon				
Columba palumbus	Wood Pigeon				
Corvus corone	Carrion Crow				
Erithacus rubecula	Robin				
Fringilla coelebs	Chaffinch				
Fulica atra	Coot				
Parus major	Great Tit				
Pica pica	Magpie				
Picus viridis	Green Woodpecker			√	
Troglodytes troglodytes	Wren				
Turdus turdus	Blackbird				

11.75 All of the species listed in Table 11.4 have the potential to breed within the application site.

Reptiles

11.76 SBRC returned a number of records for Grass Snake (*Natrix natrix*), Adder (*Vipera berus*), Slow Worm (*Anguis fragilis*) and Common Lizard (*Zootoca vivipara*) widely distributed through the 2km search area. None of the records are for the application site.

11.77 The sandpit itself provide sub-optimum habitat for reptiles due to historical and continued disturbance of habitats. However, the areas of retained

[6] 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 substantial recovery.
[7] 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.
[8] 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.

habitat including woodland habitat and in particular the field supporting the grassland/scrub mosaic (TN8) provide high quality habitat for all the common species of reptiles.

Amphibians

11.78 SBRC returned a number of records for the protected Great Crested Newt (*Triturus cristatus*) as well as for Common Toad (*Bufo bufo*) a Species of Principal Importance. The closest record for Great Crested Newt was made at Badgers Holt that lies within 250m of the application site

11.79 The pond within the application site is assessed to provide 'poor' suitability for breeding Great Crested Newts with a Habitat Suitability Index (HSI) score of 4.6. Based on this score and given the low quality terrestrial habitat within the sandpit and the levels of disturbance it is considered highly unlikely that Great Crested Newt or any other species of amphibian would be present in the areas where sand is extracted.

11.80 The area of retained habitat in particular the field at TN8 provide high quality terrestrial habitat for Great Crested Newts and lies within 500m of a

Invertebrates

11.81 Records supplied by SBRC show a number of rare and notable invertebrate species having been recorded within the 2km search area. These include: the Wood Tiger Beetle (*Cicindela sylvatica*) and Stag Beetle (*Lucanus cervus*); the butterflies species of Small Pearl-bordered Fritillary (*Boloria selene*), Small Heath (*Coenonympha pamphilus*), Small Blue (*Cupido minimus*), Dingy Skipper (*Erynnis tages*), Wall (*Lasiommata megera*), Silver-studded Blue (*Plebejus argus*), Grizzled Skipper (*Pyrgus malvae*) and White-lettered Hairstreak (*Satyrium w-album*); and the moths of Grey Dagger (*Acronicta psi*), Knot Grass (*Acronicta rumicis*), Green-brindled Crescent (*Allophyes ocyacanthae*), Mouse Moth (*Amphipyra tragopogninis*) Dusky Brocade (*Apamea remissa*), Sprawler (*Asteroscopus sphinx*), Minor Should-knot (*Brachylomia viminalis*), Small Pheonix (*Ecliptopera silaceata*), Galium Carpet (*Epirrhoe galiata*), Lackey (*Malacosoma neustria*), Dot Moth (*Melanchara persicariae*), Broom Moth (*Melanchara pisi*), Shoulder-striped Wainscot (*Mythimna comma*), White Ermine (*Spilosoma lubricipeda),* Buff Ermine (*Spilosoma luteum*), Blood-vein (*Timandra comae*), Cinnabar (*Tyria jacobaeae*), Oak Hook-tip (*Watsonalla binaria*), Dark-barred Twin-spot Carpert (*Xanthorhoe ferrugata*), Sallow (*Xanthia icteritia*) and Heath Rustic (*Xestia agathina*); the Hornet Robberfly (*Asilus crabroniformis*) and the mining bee *Eucera lonicornis*.

11.82 The application site provides suitable substrates and habitats for a range of invertebrate species but in particular for solitary bees. A number of holes typical of mining bees were found in a section of vertical wall along the northern edge of the sandpit.

11.83 Whilst no site is without invertebrate interest, it is unlikely that the site is important or critical for any particular individual species or group of

invertebrates given the availability of alternative habitat in the wider surrounding area.

Other Protected, Rare and Notable Species

11.84 During the Extended Phase 1 Habitat Survey no other 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, rare or notable species would be present.

Predicted Trends

11.85 In the absence of the 5-year time extension, all existing sand extraction operations would cease and the site restored under the existing and agreed restoration plan to provide part of a proposed Country Park.

11.86 If the 5-year time extension is agreed then the baseline as described above would not significantly change in the short-term with the site restored at the end of this period to provide part of a proposed Country Park.

ECOLOGICAL EVALUATION

11.87 The methodologies used to determine value of ecological resources, to characterise impacts of the development, and to assess the significance of impacts and any residual effects are described below. This approach is in accordance with EPA's guidance and the CIEEM guidelines.

Evaluation Criteria

11.88 CIEEM 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 (South East);
- County (West Sussex);
- District (Horsham);
- Local or Parish (Storrington & Sullington); and/or
- within immediate zone of influence only (the application site and its immediate surrounding area).

11.89 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

11.90 Natural England notifies sites that are of international or national importance for nature conservation as 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 SACs, SPAs 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.

11.91 West Sussex 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 Biodiversity Importance

11.92 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

11.93 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

11.94 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.

11.95 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.

11.96 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.

11.97 A summary of the criteria used in the evaluation of species is provided in Table 11.5.

Table 11.5: Criteria for the Evaluation of Species

Frame of Reference	Examples of Species that are Ecological 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.

Frame of Reference	Examples of Species that are Ecological Significant at that Level
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.

Whole Site Value

11.98 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

11.99 An evaluation of the ecological features, including designated sites, habitats and species, identified through the findings of desk-based study and field survey are summarised in Tables 11.6, 11.7 and 11.8 respectively.

Table 11.6: Evaluation of Designated Sites

Level of Value	Site/Feature at this Value	Location in relation to Application Site	Reason for Importance/Designation
National	Sullington Warren SSSI	675m west at closest point	Sullington Warren covering 25.2ha supports a range of heathland habitats including both wet and dry heath, grassland, scrub and woodland. The woodland support s rich community of breeding birds.
	Amberley Mount and Sullington Hill SSSI	1.6km south-west at closest point	Amberley Mount and Sullington Hill, covering 181.2ha, contains some of the richest chalk grassland in Sussex on the scarp slope of the South Downs and in two south-west facing coombes. It also includes the rare juniper scrub habitat and is the locality of several nationally restricted invertebrates including butterflies, moths and snails.
County	Heath Common SNCI	240m north-west at closest point	A site with moderately rich remnants of wet and dry heath, several ponds and some relics of ancient base-rich woodland.
	Sullington Hill SNCI	1.1km south at closest point	A moderately species-rich chalk grassland on the South Downs escarpment.
District	Un-named wood	430m south-east	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.
	Ash Copse (Parts of)	500m west by southwest	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.
	Rockwood Shaw (Parts of)	780m west by southwest	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.
	Un-named wood near Chantry Mill	900m west	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.
	Rodwell Holt (East and West)	1km south	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.
	Un-named wood	1.3km south-west	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.
	Road Verge on A283 north of Washinton	1.4km east	Notable road verge.
	Biggen Holt	1.4km south	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.

Level of Value	Site/Feature at this Value	Location in relation to Application Site	Reason for Importance/Designation
District	Lily Holt	1.7km south-east	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.
	Un-named wood	1.8km south-west	Ancient and semi-natural woodland listed on the Ancient Woodland Inventory.

Table 11.7: Evaluation of Habitats

Level of Value	Receptor	Location	Rationale
Local	Broadleaved Semi-Natural Woodland	Retained habitats on peripheries of sandpit including TN1, TN3 and TN10	A typically common and widespread habitat within West Sussex but not likely to be the best examples of such habitat-type with few mature trees and poor diversity of field and ground floras. Habitat providing opportunities for a range of species including birds, invertebrates and foraging bats.
	Standing water – eutrophic (ponds) and associated marginal and inundation vegetation	Northwest corner of Sandpit at TN5 plus adjoining lake west of the application site	Pond likely to fulfil the criteria for UK and local BAP priority habitat. Typically common habitat resource within the context of the local area that provides poor habitats at this current time for wetland species but with the potential to improve on cessation of mineral extraction but in time likely to have higher ecological value.
	Neutral grassland – semi-improved	Retained habitats on peripheries of sandpit (TN8) and within sandpit itself (TN4 and TN7).	A priority habitat where grassland is unimproved Species-poor grasslands which are typically common and widespread with little botanical interest and conservation value but still developing. Habitat providing suitable habitat for a range of species including reptiles, amphibians and invertebrates.
Within immediate zone of influence only	Scrub – dense/continuous and scattered	Retained habitats (TN28 and TN9), and sandpit (TN5)	A typically common and widespread habitat that at this current time has little overall ecological and conservation interest. A habitat providing opportunities for a range of species including birds and invertebrates but limited due to the structure of the scrub.

Level of Value	Receptor	Location	Rationale
Within immediate zone of influence only	Running water - eutrophic	TN2	An anthropogenic habitat of low conservation and ecological value providing limited opportunities for wildlife.
	Cultivated/disturbed land - ephemeral/short perennial	Sandpit including TN4 and TN6	A typically common and widespread early-successional habitat that over time can be expected to succeed to more permanent communities such as acid grassland, under-scrub, scrub and woodland that over time would providing opportunities for a range of species as the habitats develop.
	Built-up areas – buildings/hard-standing	Access track, office and weighbridge	An anthropogenic habitat that has negligible ecological value.
	Bare ground	Sandpit	An anthropogenic habitat that has low ecological value due to high levels of continuous disturbance.

Table 11.8: Species Evaluation

Level of Value	Receptor	Location	Rationale
Within immediate zone of influence only	Badger	Operational areas of Application site	Protected under the Badgers Act 1992. Common and widespread species nationally and locally. No setts within application site but parts of site lying within the territory of badgers with evidence of badgers visiting the site.
	Bats assemblage	Application site and immediate surrounding area	Protected under the Wildlife & Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2010. Site offering negligible bat roosting potential but may provide some opportunities for foraging but unlikely to be important or critical for any particular species of bat given the availability of alternative high quality habitat in the surrounding area.

Level of Value	Receptor	Location	Rationale
Within immediate zone of influence only	Bird assemblage	Application site and immediate surrounding area	All birds are protected whilst nesting under Wildlife & Countryside Act 1981. 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.
	Reptile assemblage (Grass Snake, Adder, Common Lizard and Slow Worm	Application site and immediate surrounding area	Protected under the Wildlife and Countryside Act 1981 against killing and injuring. Habitats within the operational pit areas providing limited opportunities for reptiles due to habitat loss and high levels of disturbance. Retained habitats outside the operational areas providing higher quality habitat for reptiles but unlikely to be critical for any individual species, or population, given the availability of alternative habitats within the wider surrounding area.
	Great Crested Newt and other Amphibian species	Application site and immediate surrounding area	Protected under the Wildlife & Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2010. Habitats within the operational pit areas providing poor breeding and low quality terrestrial habitats. Retained habitats outside the operational areas providing high quality terrestrial habitat for Great Crested Newt and other amphibians but unlikely to be critical for any individual species, or population, given the availability of alternative habitats within the wider surrounding area.
	Invertebrates	Application site and wider surrounding area	Potential for site to support a range of individual species and groups of invertebrates but is unlikely to be important or critical for any particular species or population.

Value of Whole Site

11.100 The application site is not subject to any statutory or non-statutory nature conservation designations.

11.101 The application site supports a wide range of habitats most of which are ubiquitous, anthropogenic and of intrinsically low nature conservation value that are considered to be of value 'within immediate zone of influence only' except for some areas of retained habitat outside the main pit area including broadleaved semi-natural woodland, neutral unimproved grassland and the pond lying within the pit floor are considered to be of 'Local' value.

11.102 The site provides suitable habitat for a range of common and widespread individual and groups of species typically associated with sandpits, grassland and woodland habitats. For most species and groups of species, it is unlikely the application site is important or critical for any particular species or population given the availability of alternative suitable habitat in the wider surrounding area.

11.103 Based on the above and the overall size of the application site it is considered that the whole site is of value up to "Local" level.

Summary of Ecological Receptors for Impact Assessment

11.104 In accordance with CIEEM 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).

11.105 The following valuable ecological receptors have been identified with the potential to be affected by the proposed time extension, the importation and processing of waste materials for use in the restoration scheme at Washington Sandpit are carried forward for further ecological impact assessment:

- Designated Sites:
  - Sullington Warren SSSI;
  - Ambrley Mount and Sullington Hill SSSI;
  - Heath Common SNCI;
  - Sullington Hill SNCI;
  - Ancient Woodlands (all); and
  - Notable Road Verge on A283.
- Habitats:
  - Broadleaved semi-natural woodland;
  - Neutral unimproved grassland; and
  - Standing water (eutrophic ponds).

IMPACT ASSESSMENT

11.106 This section assesses the ecological impacts from the proposed from the proposed 5-year time extension for the extraction of sand, and the proposed importation and processing of inert waste materials for use in the restoration of the Washington Sandpit, 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.

11.107 To assess the effects of the proposed scheme it is essential that the impacts that could arise are identified and characterised. The impacts that require consideration in the EcIA are based upon knowledge of the 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

11.108 Planning consent exists for the extraction of sand that is due to expire at the end of 2013. A Section 73 application has been made to extend the extraction of sand at Washington Sandpit by a further 2-years and is currently pending consideration.

11.109 The proposed development is for a separate planning application for a 5-year time extension for the restoration of the sandpit that allows for the continuation of the extraction of sand and the importation and processing of inert waste material for use in the final restoration of the Washington Sandpit.

11.110 The inert material would consist of ‘clean’ construction/demolition waste materials.. Only material not suitable for recycling would be used for inert fill within the site. Any processed recoverable soil forming material would be recovered and used in the final site restoration as required.

11.111 A detailed description of the development is presented in Chapter 3 of the EIA.

11.112 The continuation of operations until 2018 will not require any further taking of land outside the existing active sandpit area.

Identification and Characterisation of Potential Hazards

11.113 The proposed scheme has the potential to have a range of effects upon the identified VERs. The sources of potential hazards arising from the scheme at Washington Sandpit, in the absence of mitigation, are outlined in Table 11.9.

Table 11.9: Summary of the Sources of Potential Hazards

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 wetland systems 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 resulting 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, noise and vibration	Increases in disturbance, including noise and visual disturbance, from human activity can have a range of impacts depending upon the sensitivity of the ecological receptor, the nature and duration of the disturbance and its timing. The response of individual species to increased levels of human disturbance will depend upon a number of factors including the sensitivity, reproductive status, previous exposure to human disturbance, behaviour during the event, species tolerance to disturbance, location in relation to the source, availability of alternative nearby habitat, and environmental factors (i.e. topography, vegetation and atmospheric conditions which can influence noise levels). The level of disturbance will also be dependent upon the existing ambient noise levels and maximum noise levels. It is generally accepted that for noise, certain species or groups of species can be impacted upon up to a distance of up to 300m from its source for high level and discontinuous disturbance with these distances reducing for low level and/or continuous disturbance levels.

Impact Source	Nature of Impact
Dust deposition	The extraction and processing of sand and gravels, traffic movements and other associated works has the potential to generate dust. Literature suggests that the most sensitive species are only likely to be affected by dust deposition at levels above 1000 mg/m^2/day[9] which is five times greater than the level at which most dust deposition may start to cause a perceptible nuisance to humans. Fugitive dust from construction sites is typically deposited within 100-200m of the source; the greatest proportion of which, comprising larger particles (greater than 30 microns) is deposited within 100m[10]. Where large amounts of dust are deposited on vegetation over a long time-scale (a full growing season for example) there may be some adverse effects upon plants restricting photosynthesis, respiration and transpiration. Furthermore it can lead to phytotoxic gaseous pollutants penetrating the plants. The overall effect would be a decline in plant productivity, which may then have indirect effects on the quality of the surrounding habitats, for example ancient woodland, and associated fauna. The amounts of dust deposited and its effects are also dependent upon weather conditions as in wet weather less dust will be generated and that which has been deposited upon foliage is likely to be washed off.
Alterations to groundwater levels and surface water flows	The extraction of sand and gravels have the potential to cause alterations to localised groundwater levels and surface water flows through the extraction of sand and gravels and where dewatering and the discharge of water to surface watercourses is required to ensure the continued operability of working areas.
Changes in water quality	The extraction of minerals 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 watercourse. 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 watercourses 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.

[9] Farmer, A.M. (1993). *The Effects of Dust on Vegetation – A Review*. Environmental Pollution Vol.79, Issue 1, Pages 63-75.
[10] Department of the Environment (1995). *The Environmental Effects of Dust from Surface Mineral Workings. Volume 1: Summary Report & Best Practice Guides.* HMSO.

Impact Source	Nature of Impact
Changes in air quality (traffic emissions)	The main pollutants from traffic emissions of primary concern for ecology are nitrogen oxides (NOx) and oxides of sulphur, mainly sulphur dioxide (SO_2), along with the acidification and eutrophication associated with acid and nitrogen deposition upon sensitive ecosystems that can occur when these substances are deposited to land at high rates. High rates of nitrogen deposition upon sensitive ecosystems can increase the eutrophication of soils and water that can have a detrimental effect on species-rich plant communities and semi-natural habitats that are often associated with a low nutrient status. Eutrophication can decrease species diversity and the dominant plant species can change to those better to respond to increased nitrogen levels. Acid deposition, whether from SO_2, NO_X or ammonia formed by the reaction of SO_2 and NO_X, can affect habitats by changing the species composition of plants and their associated communities of fauna. Acid deposition can occur through both wet and dry deposition. Under the Highways Agency's 2007 Design Manual for Roads and Bridges (DMRB)[11] only where there is an annual average daily total of 200 or more heavy duty vehicles (HDV) and a designated site within 200m of the affected road(s) will there be a requirement to undertake further air quality assessment in respect to traffic emissions.

Assessment of Effects of Time Extension and Importation and Processing of Inert Waste Materials for use in the Final Restoration Scheme

11.114 The following section details the assessment of predicted effects on the identified VERs including designated sites, habitats and species from the proposed time extension at Washington Sandpit.

Habitat Loss, Damage and Fragmentation

11.115 The proposed 5-year time extension will not take any further land outside the existing operational sandpit. There will be no direct habitat loss, damage or fragmentation of any designated sites, ancient woodlands or would result in any further direct loss of any existing valued habitats within or beyond the context of the operational sandpit and not predicted to result in any significant fragmentation of habitats or loss of connectivity of any habitat or feature in the wider surrounding area.

[11] Highways Agency (2007). *Design Manual for Roads and Bridges Volume 11, Section 2, Part 1 HA207/7 Air Quality*. Highways Agency

Damage to Wildlife from Habitat Loss and Fragmentation

11.116 The continuation of sand extraction and importation and process of inert waste in the existing sandpit is not predicted to have any significant impact on any valued individual or group of species or on the overall population status of any particular species.

Disturbance from Human Activity (Noise and Visual Disturbance)

11.117 Under AQTAG09[12], where specific noise from industry measured at the habitat/nest site is below the levels of 55dB $L_{Aeq,1hr}$ it is considered unlikely that it will have an adverse impact.

11.118 The noise assessment carried out as part of the EIA and presented in Chapter 8 indicates that the predicted noise levels $L_{Aeq,1hr}$ would not significantly increase the overall levels of disturbance generated at this site and noise levels would generally be below 55dB. However, disturbance will continue for a further five years. Given that the species that are already present within the application site and surrounding areas will be accustomed to the noise and human activity already generated from the operation of the site, no significant impact is predicted on the species that are currently present at or in close proximity to the application site.

Dust Deposition

11.119 All the statutory designated sites are considered to be a sufficient distance away from the sandpit that no significant changes in baseline dust levels attributable to the extraction of sand and gravels at Washington Sandpit are likely to have occurred or are predicted to occur through any time extension or importation and processing of inert waste for use in the restoration of this site.

11.120 Similarly all non-statutory designated sites and ancient woodlands are also considered to be a sufficient distance away from the sand pit that no significant changes in baseline conditions are predicted, with the possible exception of Heath Common SNCI. However, at given nature of any dust arising from the sandpit and the nature of the operations at this site it is considered very unlikely that dust levels would exceed the levels where there would be a measureable impact on the wet and dry heathland and other habitats present at this site.

11.121 The habitats in the wider surrounding area have been subjected to the long-term effects of dust with no evidence to indicate negative effects upon flora and fauna resulting from excessive deposition of dust. The continuation of sand extraction operations and importation and processing of inert waste materials is not anticipated to result in any increase in rates or levels of dust deposition and no significant adverse impact is predicted on any habitats within the immediate surrounding area of the quarry.

[12] Ormerod, L., Goodlad, N. and Horton, K. (2005) A*QTAG09 – Guidance on the Effects of Industrial Noise on Wildlife*. Air Quality Technical Advisory Group.

Changes to Groundwater Levels

11.122 The topography across the application site ranges from 58 to 30mAOD. Sand is permitted to be extracted to 17mAOD or the base of the Folkstone Beds although the current base of the workings is at approximately 26m AOD.

11.123 The extraction of sand has not intersected the groundwater table, believed to be around 13m below the lowest dry areas of the site. No de-watering operations take place at this site as the sand is worked dry.

11.124 It is predicted that there would be no significant changes in localised groundwater levels as a direct result of the proposed time extension or importation and processing of inert waste materials or from the restoration of the site to provide a country park.

Alterations to the hydrological Regime of Surface Waters

11.125 All incidental rainfall and surface water within the extraction areas is allowed to percolate naturally into the ground or directed to pond in the pit floor.

11.126 The proposed time extension and importation and processing of waste will not result in any changes to the hydrological regime of any surface waterbody and/or watercourse within the application or in the wider surrounding area. Therefore no significant effects are predicted on any designated sites, habitats and/or species dependent upon inputs from surface waters.

Changes in Water Quality

11.127 It is assessed that no significant impacts are likely to arise on the surface water quality in any waterbody and/or watercourse provided suitable measures are put in place to prevent and control pollution incidents.

Changes in Air Quality (Traffic Emissions)

11.128 The proposed time extension and importation of inert waste materials is not anticipated to exceed the threshold of 200 vehicle movements per day where further assessment is required under the DMRB criteria.

11.129 Therefore no significant impacts are predicted on any valued receptors including designated sites, ancient woodland and other valued habitats:

Assessment of Effects - Post-operational Phase

Restoration of the Sand and Gravel Pit

11.130 Upon the cessation of mineral extraction the site would be restored to provide a country park. Through careful design and restoration techniques there is the opportunity to create a range of habitats and for habitats to develop

through natural regeneration and enhancement providing opportunities for a range of individual and groups of species with positive benefits of at least "Local" value. Full details of the restoration scheme are provided at Restoration Plan attached to this ES.

Cumulative Impacts

11.131 There are no other known activities or proposed activities at or within close proximity to the application site that would be likely to result in any significant cumulative impacts on the ecology of the local area at this current time. It is therefore considered that no significant cumulative ecological impacts would occur.

MITIGATION, ENHANCEMENT & COMPENSATION

11.132 Due to the fact that the proposed scheme is for a time extension to existing extraction of sand and for the restoration of the site and providing all existing measures and controls relating to this site are maintained, no additional mitigation measures to those already in place at the site are proposed or deemed necessary.

11.133 Ecologists have and will continue to provide input to the landscape design for the restoration of the site, to ensure that opportunities are taken to maximise the ecological value of the site through its restoration for use as a country park.

RESIDUAL EFFECTS

11.134 This section discusses how, after the application of the mitigation measures, 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.

11.135 Table 11.10 provides a summary of the criteria used to evaluate the residual impacts and assess the significance of any such impact.

Table 11.10: Key Considerations when Characterising Residual Impacts

Description	Definition[13]
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.

[13] Definitions for these terms and further information relating the methods of assessment are given in Guidelines for Ecological Impact Assessment (IEEM, 2006)

	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.

11.136 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.

11.137 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.

11.138 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

11.139 No significant residual ecological impacts are predicted from the time extension of sand extraction or from the importation and processing of inert waste materials for use in the restoration of Washington Sandpit.

11.140 The restoration of the site to a country park will have a positive major residual impact on a site of ‘Local’ importance through the creation and enhancement of a range of habitats as part its restoration to a country park with benefits for wildlife.

LEGAL AND POLICY IMPLICATIONS

11.141 There are no legal or policy implications for ecology and nature conservation from the proposed scheme.

SUMMARY AND CONCLUSIONS

11.142 Britaniacrest Recycling Limited is proposing a 5-year time extension for the extraction of sand, and the proposed importation and processing of inert waste materials for use in the restoration of the Washington Sandpit, Sullington, West Sussex.

11.143 The continuation of mineral extraction and restoration operations will not require any further taking of land outside the already active permitted sandpit and as such is not likely to have significant ecological impacts on the existing baseline conditions within the application site, or on the wider surrounding area, over and above the impacts already experienced spatially from the existing operations carried out at this site. Although temporally the time extension will continue any such impacts for an additional 5-year period this is not likely to have a significant impact on any designated sites habitats and/or species within the application site or in close proximity to Washington Sandpit.

11.144 The restoration of the site to a country park provides an opportunity to enhance this site for biodiversity through the creation of habitats and provision of features suitable for a wide range of individual and groups of species that would have benefits for biodiversity over the long-term at this site whilst providing a recreation facility for the local population.