



Sime Darby London Ltd.

**Proposed Access Track for former LEC
Airfield**

Ecological Constraints Report

26 June 2014

The Loft, St Clair's Farm, Wickham Road, Hants, SO32 3PW

Tel:



Fax:



Email:





Document Control

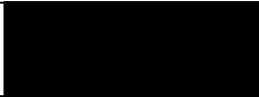
Project: Proposed Access Track for former LEC Airfield

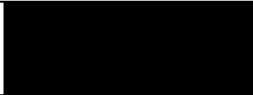
Client: Sime Darby London Ltd.

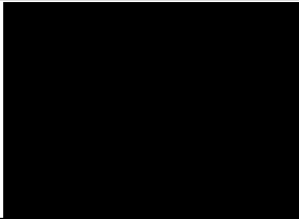
Job Number: A076230-13

File Origin: Working

Document Checking:

Prepared by:	Gary Sinclair MCIEEM Principal Ecologist	Signed:		
--------------	--	---------	---	--

Checked by:	Clare May MCIEEM CEnv Associate Ecologist	Signed:		
-------------	---	---------	---	--

Verified by:	Tamsin Clark MCIEEM Associate Ecologist	Signed:		
On behalf of:	Claire Wilmer CEnv MCIEEM Director of Ecology			

Issue	Date	Status
1	19.06.14	Issue
2	22.06.14	Final issue
3		
4		

WYG Environment Planning Transport Ltd. accept no responsibility or liability for the use which is made of this document other than by the Client for the purpose for which it was originally commissioned and prepared.



Contents Page

Executive Summary	1
1.0 Introduction	3
2.0 Baseline Survey Methodologies	4
3.0 Baseline Survey Results	11
4.0 Evaluation and Recommendations.....	26
5.0 Conclusions	36
6.0 References.....	38

Appendices:

Appendix 1 – Site Proposals

Appendix 2 – Ecological Constraints Map

Appendix 3 - Biodiversity and Environmental Legislation, Conventions & Threatened List



Executive Summary

Contents	Summary
Site Location and Development Proposals	The proposed works area is located within the Arun District of West Sussex. The development proposal is to construct a maintenance and access track. A vehicle and pedestrian bridge is to be constructed over the Rife. The route and location of the proposed access track and bridge is shown in Appendix 1. The proposed track will run from the south through amenity grassland and grazing paddocks, then cross the Lidsey Rife to run through rough grassland and connect to the south of the existing airfield runway. The area in which the proposed maintenance and access track is located lies between the village of Felpham and the town of Bognor Regis, West Sussex, central grid reference SU 944 006. Lidsey Rife and Bognor Regis Golf Course lie to the north-east, playing fields and a local wildlife area to the east, and Felpham Leisure Centre to the south-east. There is a railway to the north west, and an industrial estate and arable fields, and to the south west the urban area of Bognor Regis. The Lidsey Rife crosses the proposed track route.
Previous Survey and Assessment	A suite of ecological surveys were carried out in the area surrounding the proposed access track by WYG ecologists in 2012 with some continued through to 2013, covering all protected species groups and assessing the habitat on site. These have been used to form the baseline information for the current report.
Results	Several species present on the site are likely to constitute a direct constraint to the proposed works, notably nesting birds, water voles, bats and reptiles. These species will require appropriate mitigation in order to protect their populations during the construction phase of the proposed works.
Mitigation and Enhancement Options	• Update badger survey prior to works (30m buffer around access road route). • Update otter survey prior to works commencing (250m upstream and 250m downstream from bridge, 500m stretch in total). • Update kingfisher survey near proposed bridge to ensure no active kingfisher holes (50m upstream and 50m downstream from bridge, 100m stretch in total). • Update survey at proposed bridge to ensure no active water vole presence (250m upstream and 250m downstream from bridge, 500m stretch in total). • Works should be avoided overwinter, as reptiles will be hibernating. Within the reptiles active season (March to October, although note constraints due to nesting birds, discussed below), the route should be strimmed or cut (by a large wheeled vehicle with a flail cutter driving slowly over the site), under the supervision of a suitably qualified ecologist to dissuade reptiles from the works area. The first cut should be to 15cm, with a second cut a week or two later down to 8cm. Both cuts should take place under an ecological clerk of works. The grass should be maintained to be short for the duration of works. • After strimming, a destructive search for reptiles will subsequently be



	required along the proposed route of the access road prior to the laying any substrate material (hardcore or similar) in the initial stages of construction. Section 4.4 of this report provided full details on the methods for carrying out this search. • Site clearance works should avoid the breeding bird season if possible (usually considered to be March to September). However, as it is necessary to complete works while reptiles are not in hibernation. Ideally works would take place either in late September or in October. If this is not possible, and works are to take place between March and early September, then the following recommendations are made: ○ If the clearance works must take place between March and August, a thorough check for nesting birds should be made by an ecologist prior to works commencing to confirm no active nests will be disturbed. ○ A 10m buffer from patches of scrub that may support Cetti's warbler should be maintained. Or, if this is not possible, all scrub within 10m of the proposed works area should be checked by an ecologist to confirm the absence of active Cetti's warbler nests. • A 15m buffer of bank side vegetation should be retained along the Rife and as much as possible beneath the bridge to retain connectivity along the Rife. Where riparian vegetation has been removed beneath the bridge it should be allowed to regenerate naturally. • Canopy connectivity should be retained where possible during the crossing of the species poor hedgerow. In the future, trees to either side of the track in this location should be allowed to grow tall to retain connectivity. • Recommendations are made to ensure badgers are not disturbed by the construction phase, and to ensure that best practice is followed with regards to avoiding the potential for sediment entering the Rife.
--	---



1.0 Introduction

1.1 Background

WYG was commissioned by Sime Darby London Ltd. to prepare an ecological constraints report in relation to a proposed maintenance and access track at the former LEC Airfield site. This report is informed by the results of a suite of ecological surveys previously carried out by WYG on the site in 2012-13, which provide the baseline data for the site, and will be referred to as such in this report. Any ecological constraints to the proposed maintenance and access track works indicated by the previous surveys will be highlighted and summarised, and recommendations for mitigation and avoidance provided.

1.2 Site Location and General Description

The site is located within the Arun District of West Sussex. The area in which the proposed maintenance and access track is located lies between the village of Felpham and the town of Bognor Regis, West Sussex, central grid reference SU 944 006. Lidsey Rife and Bognor Regis Golf Course lie to the north-east, playing fields and a local wildlife area to the east, and Felpham Leisure Centre to the south-east. There is a railway to the north-west, with an industrial estate beyond, and arable fields to the south west of Bognor Regis.

1.3 Proposed Development

The development proposal is to construct a maintenance and access track across the site from the A259, heading north across the Lidsey Rife where a vehicle and pedestrian bridge is to be constructed to allow the track to continue northwards and connect to the south of the existing runway. The route and location of the proposed maintenance and access track and bridge is shown in Appendix 1.

The track will make use of an existing gateway to enter the site from the south, and will also pass through an existing gateway approximately one third of the way up the site, between the Rife and some adjacent tennis courts. The Rife itself will be crossed as outlined above, and then a dry ditch and hedge line, prior to the track passing through an existing hedge line gap (and across an existing culvert) to join onto the end of the existing runway.



2.0 Baseline Survey Methodologies

2.1 WYG Ecological Surveys 2012-2013

The following sections summarise the methodologies used in the suite of ecological surveys carried out at the former LEC Airfield site by WYG ecologists in 2012, some of which continued into 2013. A full summary of the pertinent legislation relating to the species identified in the surveys can be found in Appendix 3.

2.2 Desk Studies

Details of designated sites of conservation interest and protected and notable species records from within 2 km of the central grid reference of the site were obtained from Sussex Biodiversity Record Centre (SxBRC). In addition, searches for designated sites and protected species were made using Natural England's interactive, web-based MAGIC (Multi Agency Geographic Information for the Countryside) database and the National Biodiversity Network (NBN) database respectively.

2.3 Extended Phase 1 Habitat Survey

An extended Phase 1 habitat survey was conducted within the area of the proposed access track and the wider area on 26th April 2012, and updated throughout the 2012 survey season. All areas of the proposed access track route were investigated, including those parts that are not expected to be affected directly by the works but may be indirectly impacted upon, as recommended in English Nature (2002).

The vegetation and habitat types which are present were noted during the walkover survey in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (JNCC, 2007). Dominant plant species were recorded for each habitat present.

The site was inspected for evidence of and its potential to support protected or notable species, especially those listed under the Conservation of Habitats and Species Regulations 2010 and the Wildlife & Countryside Act 1981 (as amended); including those given extra protection under the Natural Environment and Rural Communities (NERC) Act 2006 and Countryside & Rights of Way (CROW) Act 2000, and listed on the UK and local Biodiversity Action Plans.



2.4 Great Crested Newts

During the Extended Phase 1 survey, the site was appraised for its suitability to support great-crested newts. The assessment was based on guidance outlined in the Joint Nature Conservation Committees' published Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003) and the Great Crested Newt Conservation Handbook (Langton, Beckett & Foster, 2001). As recommended by Natural England, the Oldham *et al.* (2000), Habitat Suitability Index (HSI) was applied to ponds and ditches on site and within 500m of the site where access was possible. Off site ponds within 500m of the site were identified using Ordnance Survey maps and aerial images.

In May and June 2012 great crested newt presence / likely absence aquatic surveys were undertaken on seven water bodies within 500m surrounding the site considered potentially suitable to support breeding great crested newts. These surveys were undertaken in accordance with the recognised guidelines set down in the Herpetofauna Workers Manual, (JNCC, 1998), The Great Crested Newt Conservation Handbook (Froglife, 2001) and the Great Crested Newt Mitigation Guidelines (English Nature, 2001). Bottle traps were set on the evening before sunset, whilst torchlight surveys were conducted after sunset. Bottle traps were then checked the following morning, when egg searches were also conducted. The surveys set out to confirm presence or likely absence of GCNs at the LEC Airfield Park site.

2.5 Reptiles

In accordance with the guidance outlined in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee - JNCC, 2003), Advice Sheet 10 – Reptile Survey (Froglife, 1999) and the Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring (Hill et al., 2005) surveys were undertaken to establish the presence or absence of reptile species. This involved seven visits during the months of July, August and September 2012 in suitable weather conditions. Approximately 338 clearly numbered artificial refugia (sections of bituminised roofing felt) were placed across the wider area throughout May in areas considered to have habitat suitable for reptiles. Mats were placed at a density of 13 per hectare. The refuges were then left undisturbed on the site for 2 weeks prior to survey; to allow for reptiles on the site to find and utilize. Each refuge was then first checked for basking individuals from a distance before being slowly approached and searched for sheltering reptiles.

Terrestrial habitat between artificial refugia was also searched for reptile species on each visit. The location of each reptile sighting was then recorded to allow for analysis of population distributions across the site. As a guideline it is recommended that the optimal time to survey reptiles is between 8:30am to 11:00am



and between 16:00pm and 18:30pm and when air temperature is between 9°C and 18°C. Strong rain and wind are deemed unsuitable (Froglife, 1999). As reptile activity is heavily dependent on weather conditions the following conditions were recorded during each survey: air temperature, rain levels, and the cloud cover.

2.6 Bats

Bat Activity Survey

Bat activity surveys were completed in the wider area according to the guidance set out in the Bat Conservation Trust's Bat Surveys: Good Practice Guidelines, 2nd Edition (2012), with one visit per month, and one survey comprising a dusk and pre-dawn survey within one 24- hour period. Activity surveys were completed on 30th May, 27th June, 19th July, 20th July, 15 August, 24th September and 10th October. Two surveyors were used for each survey on each of the two transect routes, which incorporated habitat in the wider area likely to be used by foraging and commuting bats such as grassland, hedgerows, scrubland and marginal areas along water bodies.

Dusk surveys commenced 15 minutes prior to sunset and concluded approximately two hours and forty five minutes after. Dawn surveys commenced two hours before sunrise and concluded at sunrise. Weather conditions (temperature, precipitation and wind speed) were recorded on each survey. The surveyors made a note of bat activity, using both visual observation and audio bat detectors to identify foraging and/or commuting behaviour. Surveyors recorded the time and a description of any activity.

Although the proposed access track covers only a part of the site, the suite of surveys are relevant in characterising the site as a whole in terms of bat use as well as the immediate footprint of the access track, and are useful in highlighting any potential impacts associated with the works.

Additionally, where bats could be seen, the patterns/directions of the bats' flight were also recorded. Surveyors were qualified ecologists and were either experienced at undertaking bat surveys or were in training and were supported by experienced surveyors. All surveyors used a Batbox Duet (frequency division and heterodyne) bat detector and walked along the transect routes at a steady pace. The direction in which the transects were walked varied between survey visits to record activity in different locations at different times. Surveyors also stopped in a number of places along the transect route. Any notable calls were recorded on Zoom H2 digital audio recorders and later analysed using specialist software (BatSound) on a PC. The recordings and the field notes were used to help build a picture of bat use across the site and to identify areas of relatively higher use.



In accordance with BCT (2012) guidelines, automatic bat detectors (Song Metre 2) were left for five nights per month to record bat passes at two locations along each of the two transects. These were analysed to gain further information on the species present and relative amount of activity through the night.

2.7 Badgers

A badger survey was conducted within the wider former airfield site on 23rd August 2012. All areas of the site were investigated, including those parts that are not expected to be affected directly by the works but may be indirectly impacted upon. The site was surveyed for evidence of badger setts or other badger activity such as paths, latrines, footprints or signs of foraging. Methodologies used and any setts recorded were classified according to the published criteria (Harris, Cresswell & Jefferies, 1989).

2.8 Otter

The otter survey followed that of the National Otter Survey by JNCC (2008) and Chanin (2003). The general survey methodology for locating presence of otter requires the surveyor to walk over a given area usually along a 500m stretch of watercourse searching for signs indicating the presence of the animal. It is usual to conduct the search within the immediate river channel and up to 10m strip of the adjacent riparian habitat. For the purpose of the study the entire length of the Lidsey Rife and associated drainage ditches on site were surveyed for otter signs.

2.9 Water Vole

Water vole surveys were carried out in accordance with the standard guidance described in The Water Vole Conservation Handbook 2nd Edition (2006). For the purpose of this survey the entire length of the Lidsey Rife and associated drainage ditches on site were surveyed for water vole signs. This is a greater area than would normally be required (usually a 500m stretch is sufficient); however given the extent of suitable habitat within the former airfield site, it was considered appropriate to survey the entire length of the Rife within the airfield site boundary.

2.10 Dormouse

A dormouse survey was completed in the wider area in October 2013, following the methodology as described in the English Nature Dormouse Conservation Handbook (Bright, P. *et. al.*, 2006). Artificial nest tubes, supplied by the Mammal Society, were placed approximately 20m apart within hedgerows and scrub in the wider area. Nest tubes were also positioned on trees and shrubs at between 1-2m above ground



level. Surveys were completed between July 2012 and May 2013 to give a total of 20 survey points, as required to absence dormouse presence or likely absence.

2.11 Birds

Bird surveys were completed in the wider area, for both wintering and breeding birds, during 2012 and 2013. The breeding bird survey was carried out in 2012; whilst the wintering birds survey spanned the 2012-13 wintering period. The survey methodology was based on a combination of the Common Birds Census (CBC) and Breeding Bird Survey (BBS) both as described by Gilbert et al. (1998). Each survey occasion involved a walkover of the wider area to map the presence of birds along with notes on any breeding behaviour (singing, display flights, courtship etc.). Each survey was undertaken during the early morning in suitable weather and took around three hours.

2.12 Barn Owl

The surveys were carried out in accordance with published methodology (Shawyer 2011, BOT 2010), as follows:

- » A survey of the wider area, using aerial photographs and walkover surveys, to identify any trees, buildings or other structures with potential for nesting barn owls. The survey covered buildings within 500m of the site and up to 1km where buildings were considered to have high potential for nesting barn owls.
- » A visit to those buildings or trees identified to confirm whether potential nesting places existed.
- » Where potential nesting places were identified, a follow-up visit was undertaken by a Natural England licensed barn owl surveyor (Simon Thomas, licence number 20121342) to inspect potential nesting places closely for any evidence of nesting barn owls. The follow-up visit was undertaken on the 12th July 2012. Early June to mid-July is the time when barn owls are most likely to have young in the nest, but disturbance is less harmful than if undertaken early in the breeding season, when barn owls are more likely to abandon their nest.
- » Where possible, local land owners and land users were also asked if they had seen barn owls nearby. The information gathered gives an indication of the frequency of barn owl activity in the area and may also help to identify historic nesting, roosting or foraging places.



- As a number of nocturnal ecology surveys for other species (e.g. bats, great crested newts) have been completed on the site, any barn owl sightings by surveyors were recorded.

Evidence indicative of barn owls occupying a tree or building includes pellets, droppings, feathers, nesting material and egg shells. The age of pellets and nesting material can be estimated to give an indication of the timing and frequency of barn owl roosting or nesting at a site.

- Two barn owl activity surveys were conducted on the 11th July and 24th July 2012 to help determine the use of the site by foraging barn owls.

The barn owl activity survey was based on methods recommended in the RSPB Bird Monitoring Methods guidance (Gilbert et al., 1998). The ideal strategy to confirm barn owl breeding is to record all potential nest sites during the winter, followed by a summer survey to assess barn owl activity at each of the sites.

Activity surveys are best carried out on cloudless still nights and are not suitable in heavy rain or wind. The barn owl activity surveys were undertaken on two visits on the 11th and 24th July 2012.

The survey involved a walkover of the survey area, over at least four and a half hours, finishing around ninety minutes after sunset. The survey focussed on potential nest sites and optimal foraging habitat. During the surveys, the surveyors monitored the site for flying or calling barn owls. Any barn owls recorded would be observed to see if they returned to a nest site.

2.13 Terrestrial Invertebrates

Terrestrial invertebrate surveys were undertaken on four days during the summer of 2012, with visits made on 31st May, 28th June, 26th July, and 23rd August. All visits were made in good weather conditions conducive to high levels of insect activity.

Survey methods included visual searching, the use of a hand net and/or pooter to capture individual species, sweeping vegetation, beating foliage and grubbing.

Additionally, two series of pitfall traps were placed on the site, following Natural England guidelines (Drake et al. 2007). Each series comprised a row of five pitfall traps, spaced approximately two metres apart. Each trap consisted of a plastic half pint tumbler, diameter 7.5 cm and depth 11 cm. Each was filled to a depth of around 2cm. with undiluted ethylene glycol, to which a few drops of washing-up liquid were added to help reduce surface tension. The traps were buried so that the rim of each trap was positioned slightly below



ground level. The traps were covered with wire mesh to prevent small mammals from falling in and drowning.

2.14 Aquatic Invertebrates

The site was visited on the following dates: 28th June, 18th July, 2nd August and 30th August 2012 to sample the aquatic invertebrates at four sample points within ditches in the wider area, one of which will be crossed by the track, using an existing culvert. The Rife itself was not sampled.

Aquatic sampling: an invertebrate sample is collected using a standard pond net with a mesh diameter of 0.5 mm by sweeping the net through the various different habitats within the water body. The sample collected is then sorted within a white plastic tray to extract the invertebrates.

Another sampling method is the kick sample which is used for flowing water, whereby the surveyor stands up-stream of the net and kicks the stream substrate to dislodge the invertebrates which will be swept into the net again the sample being sorted within a white plastic tray to extract the invertebrates (Eyre, 1996; Hill et al., 2005, Sutherland, 2004).

2.15 Invasive Species

The site was searched for evidence of invasive alien plant species, such as Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*), New Zealand pygmyweed (*Crassula helmsii*), horizontal cotoneaster (*Cotoneaster horizontalis*), rhododendron (*Rhododendron ponticum*) and floating pennywort (*Hydrocotyle ranunculoides*).

2.16 Limitations

All surveys were completed within the correct time periods, and according to the relevant guidelines throughout 2012 and into winter 2012 / 2013. Due to the number of surveys within the site, there is relatively strong confidence in the survey findings, and there are considered to be no limitations to their findings. In the event that the works have not proceeded by spring 2015, it may be necessary to complete an updated assessment of the site's ecological potential, by conducting repeat surveys for species relevant to the proposed access track works.



3.0 Baseline Survey Results

3.1 WYG Ecological Surveys 2012 - 2013

The following sections summarise the relevant field survey results obtained from the suite of ecological surveys carried out in the wider area by WYG ecologists in 2012-13. Some of the results from the previous suite of surveys in 2012-13 will be mentioned only briefly in this section of the report, where adverse impacts are considered unlikely to arise as a result of the proposed access track works. The surveys referred are considered relevant to the proposed works and their results used to determine if any ecological constraints to the proposed works are likely to arise; and to inform mitigation and avoidance measures. An evaluation of these constraints and appropriate mitigation is discussed in sections 4 and 5.

3.2 Desk Studies

Statutory sites

Felpham SSSI is the closest statutory site and lies approximately 0.6km south and south west of the proposed works area. It is of great geological interest, containing new Palaeocene aged flora, one of only three known in the country, which has recently been discovered in the Reading Beds at this site.

Bersted Brooks LNR is a statutory site that lies 0.8km from the proposed works area. It is designated for its mosaic of areas of meadow, narrow reedbeds and ditches, a permanent pond and a temporary pond, and an extensive newly planted floodplain woodland. The Brooks floods every winter, making it important for wetland wildlife.

There is also a conservation area approximately 200m to the northeast of the proposed works area (adjacent to the golf club), which it is understood is being managed and enhanced for local wildlife.

As summary of the notable species and habitats identified by the desk study are provided below:

Great Crested Newts

Within 2km of the site, there was one record of great crested newt (*Triturus cristatus*) in 2004, this being approximately 1.53 km away to the north-west.

Reptiles



Within 2km of the site, there are 5 records of slow worm (*Anguis fragilis*) between 1995 and 2002 (the closest being 1.92 km away), one record of the common lizard (*Zootoca vivipara*) in 1996 (being 1.12 km away), and three records of grass snake (*Natrix natrix*) between 1993 and 2002 being 1.92 km away. (SBRC, 2012).

Bats

Within 2km of the site, there are 2 records of unknown bat species (Chiroptera) noted between 1993 and 2005, one record of whiskered bat (*Myotis mystacinus*) in 2004, seven records of pipstrelle species (Pipistrellus) between 1988 and 2009, one record of the common pipstrelle (45Hz) (*Pipistrellus pipistrellus*) in 2006 and four records of brown long-eared bat (*Plecotus auritus*) between 1953 and 2009; the closest record is 1.10km away from the site (SBRC, 2012).

Badgers

The SBRC (2012) data search returned no records of badgers (*Meles meles*) within a 2km distance from the site. However, an absence of records does not confirm an absence of this species. The lack of evidence may be due to under recording in the area.

Otter

The SBRC (2012) data search returned no records of otters (*Lutra lutra*) within a 2km distance from the site. However, an absence of records does not confirm an absence of this species. The lack of evidence may be due to under recording in the area.

Water Voles

The SBRC (2012) data search returned 7 records of water vole (the closest being 1.3km from the site) with records between 1892 and 2009.

Dormice

The SBRC (2012) data search returned no records of dormice (*Muscardinus avellanarius*) within a 2km distance from the site. However, an absence of records does not confirm an absence of this species. The lack of evidence may be due to under recording in the area.

Birds



Relevant bird records are discussed within the survey findings in sections 3.11 and 3.12.

Barn Owl

There are 12 records of barn owl within a 1km grid square of SU9400. These species are protected under Schedule 1 of the Wildlife and Countryside act 1981 (as amended).

Other species

Vascular plant species

A number of rare and notable vascular plant species were noted within 2km of the site, however, none were in the immediate vicinity of the site (SBRC, 2012).

Invertebrates

The UK Biodiversity Action Plan (BAP) species; Silver-studded blue butterfly (*Plebejus argus*), wall butterfly (*Lasiommata megera*) and the cinnabar moth (*Tyria jaco baeae*), were noted within 2km of the site (the closest being less than 1km from the site).

Hedgehog

The UK Biodiversity Action Plan (BAP) species the hedgehog (*Erinaceus europaeus*) was noted within 1.17km of the site.

Brown hare

The UK Biodiversity Action Plan (BAP) species, brown hare (*Lepus europaeus*) was noted within 1.3km of the site.

3.3 Extended Phase 1 Habitat Survey

The proposed access track passes mainly through areas of semi-improved grassland, some of which is regularly grazed, and other parts that have developed into rougher grassland.

The track will make use of an existing gateway to enter the site from the south, and will also pass through an existing gateway through a species poor hedgerow approximately one third of the way up the site, between the Rife and adjacent tennis courts.



The Rife itself, comprising running water and marginal reeds along the bank will be crossed. Near to the northern extent of the track, it will cross a dry ditch and species poor hedgerow, prior to the track passing through an existing hedge line gap (and across an existing culvert) to join onto the end of the existing airport runway.

The wider area consists of a matrix of many habitat types including short and long semi-improved grassland, species poor hedgerows with associated ground flora, marginal vegetation associated with the ditches and the Lidsey Rife watercourse.

Semi-improved Grassland

This was the dominant habitat type throughout the proposed works area. Species present included Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra*), dandelion (*Taraxacum agg.*) and vetch sp. (*Vicia sp.*). The vegetation was commonly in tussocks. The whole area has been known to become flooded (as confirmed during a site visit on 13th June 2012).

Marginal Vegetation

This was present along the length of Lidsey Rife and was dominated by reeds.

Running Water

The Lidsey Rife was approximately 12m in width throughout the site with steep banks. The current ran north to south, and is controlled by sluices. The water is understood to be partially brackish.

Species-poor intact Hedgerow

Intact hedgerows are present on site, interspersed with mature trees. Dominant species include crack willow (*Salix fragilis*), bramble, hawthorn (*Crataegus monogyna*), ivy (*Hedera helix* ssp.), elder (*Sambucus nigra*) and blackthorn (*Prunus spinosa*). These hedges are found across the site, but predominantly along the banks of one of the ditches in the south part of the site (between 10-100m west of proposed access road), and also in the west of the site, running both parallel and perpendicular to the former airfield hardstanding.

Wet Ditch



A wet ditch is crossed via an existing culvert, near to the northern extent of the proposed route. This ditch is bordered by dense brambles and reeds.

Dry ditch

A dry ditch is present in the northern part of the proposed route, which was shaded at the time of the survey by the hedgerow and did not support any aquatic vegetation.

Scrub

Dense and patchy bramble scrub is present in the wider area, with occasional patches of scrub adjacent to ditches and hedgerows.

3.4 Great Crested Newts

A number of ditches were identified on site; these were considered to be of low potential to support great crested newts as they were largely linked directly to the Lidsey Rife, and as such accessible to predatory fish. A number of water bodies identified within a 500m radius of site were considered to hold moderate potential for great crested newts.

Results for the Habitat Suitability Index revealed twenty two ponds in the 'poor' category, two ponds in the 'below average' category and three in the 'average' category.

A suite of aquatic surveys for great crested newts were completed on all accessible water bodies within 500m of the site, and no great crested newts were recorded, although smooth and palmate newts were found to be present in small numbers at several ponds.

3.5 Reptiles

Slow worms were recorded during all of the seven survey visits, common lizards were recorded during six of the seven survey visits, while grass snakes were recorded during three of the seven survey visits. Both adult and juvenile slow worms, common lizards and grass snakes were recorded during the reptile presence / likely absence survey indicating a successful breeding population of all of these species. A maximum of 24 adult slow worms were recorded in any one visit. A maximum of 11 adult common lizards were recorded in any one visit and a maximum of 2 adult grass snakes were recorded in any one visit.



Reptiles were recorded in the south and west of the former airfield site where the route of the proposed access track will be located. Slow worms and small numbers of common lizard were recorded in the south-east compartment (refugia 107-175), with a similar assemblage in the south compartment (500-554) and the south-western compartments (231-239 and 240-249). No grass snakes were recorded within the zone of influence of the proposed works.

3.6 Bats

The proposed access track will bisect a strip of species-poor hedgerows and trees (intact and defunct) to the south-west of the existing runway as well as crossing the Rife habitat. Grassland, hedgerow and watercourses present in the wider area are considered to be of moderate potential for bats to use for foraging and commuting. During bat activity surveys, up to seven species of bat were recorded using the habitats across the former LEC Airfield site. The species recorded include; common pipistrelle, soprano pipistrelle, Nathusius's pipistrelle, Myotis (likely whiskered/ Brandt's), Leisler's, noctule and Daubenton's.

Common pipistrelle bats were the most frequently encountered species, as they were recorded on all transects on each survey visit as well as recorded by the automatic bat detector on every evening that bats were recorded. Soprano pipistrelle was the second most frequently recorded bat at the site.

Over the seven bat activity survey visits, the majority of the wider area seemed to support commuting or foraging bats to some extent. Highest levels of bat activity were along the entire length of Lidsey Rife, with greatest densities around the mid section where it runs east/west (to the south of the proposed bridge). Bats were commonly recorded along hedgerow features in both the north and south of the site.

Based on the BCT (2012) assessment criteria, the commuting and foraging bat score for the wider area is 21, therefore bat commuting and foraging activity was deemed to be of up to county level importance during the surveys, with small numbers of bats recorded at any one time. Commuting and foraging bats occurred throughout the area, predominantly along linear features. These were within areas of tussocky grassland, along hedgerow features and aquatic/marginal habitat along Lidsey Rife. The majority of bats recorded were common species including common and soprano pipistrellus. A number of rarer bats were also recorded intermittently, including noctule and Myotis species (whiskered or Brandt's) Daubenton's, Leisler's and Nathusius's pipistrelle.



3.7 Badgers

Anecdotal evidence from dog walkers existed for the presence of badgers using the site. During the walk over of the site, no evidence of badger setts was identified along the proposed route or within 30m of the proposed works area.

Evidence confirming badger activity was noted in an isolated area in vegetation to the east of the runway. This was in the form of a dung pit. Several mammal runs were also noted in the wider area. Although it was not possible to conclusively distinguish if these were in fact from a badger or from other mammals seen on site such as deer species, European rabbit, fox, dogs being walked on site or indeed human beings, it is however likely that badgers will use such trails.

No other evidence of badger was recorded, either during the badger survey, or during other protected species surveys within the site, and in the wider area. Access to and from the area for badgers is relatively unrestricted, except for the Rife bordering the east of the northern part of the site and the west of the southern part of the site which is considered to represent a barrier to badger movement, except where bridges are present. The surrounding areas to the east and west are residential, while agricultural land and a well managed golf course are present to the north.

The Lidsey Rife and associated ditches provide water resources for badgers. The grassland, scrub and hedgerow habitat on site was identified during the extended phase 1 habitat survey to offer potentially suitable badger foraging and commuting habitat. Although no badger setts were identified during the Phase 1 survey, a number of earth banks were noted on site that offer potentially suitable excavation sites for this species. In addition anecdotal evidence exists for the presence of badgers (Badger Trust West Sussex, pers. comm). On this basis the site is considered to be of moderate potential for badgers. The existing field signs for this species do not however represent a constraint to the proposed access track works.

3.8 Otter

The presence of the Lidsey Rife and associated riparian vegetation was found to offer potentially suitable foraging habitat for this species during the WYG 2012 survey. The survey concluded that the available habitats are sub-optimal for this species and unlikely to support breeding, however the Rife is likely to be used as a foraging resource and transit corridor between other areas of more suitable habitat by this species.



3.9 Water Vole

This species was positively identified during the WYG 2012 survey along the length of the Lidsey Rife flowing through the wider airfield site by a variety of field signs and sightings of the animals themselves. In the latter case, three individuals were observed cleaning themselves during the survey. A number of burrows and latrines were noted along the water's edge. As recorded during the Extended Phase 1 habitat survey, the Phragmites-dominated marginal habitat along the waterways on the site creates ideal conditions for water voles.

During the Extended Phase 1 Survey water vole evidence (such as feeding stations) were also noted in water courses adjoining the Lidsey Rife. Additionally, a number of individual water voles were observed using the Rife during this walk over. These observations confirm the presence of water voles on site.

3.10 Dormouse

Although potentially suitable habitat for dormice was identified during the Extended Phase 1 Habitat Survey of the wider area, no dormice were found during nest tube surveys completed between July 2012 and May 2013. Several wood mice, and wood mice nests and food stores were found during the surveys.

It is considered that hazel dormice are likely to be absent from the survey site and therefore do not present a constraint to the proposed access road works. As such they will not be considered further.

3.11 Breeding Birds

During the Extended Phase 1 Habitat survey carried out in 2012, it was observed that there was a mosaic of habitats present across the site (such as hedgerows, scrub, grassland habitats and marginal vegetation associated with riparian habitats), which offer suitable nesting and foraging habitats for birds. A number of birds were noted during the walk over of the site including sky larks (*Alauda arvensis*), green woodpeckers (*Picus viridis*), large flocks of gull species and many species of passerine birds. The site is considered to be of potentially high value for both breeding and wintering birds.

During the breeding bird survey in 2012, a total of 50 bird species were recorded within the wider area. A summary of the species recorded during the survey is as follows:



Wildlife and Countryside Act (WCA) 1981 (as amended) Schedule 1 Species

On the first three survey occasions, two male Cetti's warblers were recorded singing simultaneously, consistently in two locations in the centre of the site, adjacent to Lidsey Rife, and approximately 150-200m north east of the proposed access road route. The habitat in both areas was dense scrub. As the birds were recorded defending their territories consistently on each visit, this species is considered to be a probable breeder within the site. No Schedule 1 species were found to be within the zone of influence of the proposed works.

NERC Section 41, UK BAP

Twelve species were recorded within the wider area that are listed on both Section 41 of the NERC Act and the UK Biodiversity Action Plan (BAP) (see Section 1.5 of the breeding birds report); bullfinch, cuckoo, dunnock, grey partridge, herring gull, house sparrow, linnet, reed bunting, skylark, song thrush, starling and yellowhammer. Of these species, song thrush and starling are included in the Sussex BAP, along with swift and barn owl. One male bullfinch (BoCC Amber List) was recorded on the fourth survey occasion and, as suitable habitat exists, this species is considered to be a possible breeder within the wider area. A cuckoo (BoCC Red List) was recorded on the third survey occasion crossing the air strip. As dunnocks and reed warblers are a favoured host species for the cuckoo and these were abundant within the site, the cuckoo is considered to be a possible breeder within the wider area.

As male dunnocks were heard defending the same territories consistently on multiple occasions, this species is considered to be a probable breeder in the wider area. A grey partridge (BoCC Red List) was heard on the airstrip within the northern part of the site during a night time barn owl survey on 11th July 2012. As suitable nesting habitat exists on the periphery of the site, this species is considered to be a possible breeder within the wider area.

Herring gulls (BoCC Red List) were recorded very frequently flying over the site, as would be expected in a coastal location. A group of up to 150 herring gulls were recorded on the ground in a playing field to the east of the site on three survey occasions, and on one occasion, seven herring gulls were recorded on the grassland south of the Rife. This species is not considered to have been breeding within the site.

Four groups of house sparrows (BoCC Red List) were recorded. Two of the groups were within scrub vegetation within the site and two were associated with residential properties outside the site. As sparrow colonies were consistently recorded within the site, this species is considered to be a confirmed breeder.



Linnets were noted in groups of up to eight individuals in the northern part of the site on all survey occasions. As suitable nesting habitat (scrub and hedgerow) exists within the site, this species is considered to be a probable breeder within the site.

Reed buntings were recorded abundantly on all survey occasions, including at least two pairs. As suitable breeding habitat is present, particularly along Lidsey Rife, this species is considered to be a probable breeder within the site.

Skylarks were recorded singing in four locations; two within the site and two adjacent to the site. The locations within the site were both in fields in the southern part of the site. Outside the site, skylarks were recorded singing over an arable field to the north-west of the site and over the golf course to the east of the site. A skylark was recorded singing in the northern of the two territories identified within the site on the first three occasions and therefore this species is considered to be a probable breeder within the wider area.

Song thrushes were recorded in three locations within the wider area, each on different occasions. As suitable nesting habitat exists but individuals were not recorded in consistent territories, this species is considered to be a possible breeder within the proposed works area. Starlings were recorded frequently flying over and in groups of up to twenty-five within and adjacent to the site. This species was observed entering a nest in trees and residential buildings adjacent to the west of the site.

A single male yellowhammer was recorded singing in the northern corner of the site on one occasion. As suitable nesting habitat exists within the site, this species is considered to be a possible breeder.

Other notable species

In addition to the above species, a further nine species listed on the BoCC Amber List were recorded during the surveys; black-headed gull, green woodpecker, lesser black-backed gull, little grebe, mallard, mistle thrush, swallow, swift and whitethroat. Twenty black-headed gulls and one lesser black-backed gull were recorded on the final survey occasion only in the playing field adjacent to the east of the site, associated with a flock of one-hundred and twenty herring gulls. As neither species was recorded within the site, these species are considered to be non-breeding within the site.

Green woodpeckers were recorded frequently within the wider area, including juvenile birds, indicating that this species is a confirmed breeder, although the nests themselves may have been located outside the site, potentially within the golf course. Little grebes were recorded at various points within the Lidsey Rife on all



survey occasions. As a pair was seen within the Rife, this species is considered to be a probable breeder. Mallards were recorded within the Rife on all survey occasions, in pairs in groups of up to 9 and females with young ducklings. It is estimated that four families of mallards were present. This species is a confirmed breeder within the wider area.

A single mistle thrush was recorded within the site on one occasion. As suitable nesting and foraging habitat exists, this species is considered to be a possible breeder.

Swallows were recorded occasionally foraging over the site in groups of up to three. As swallows were seen attacking magpies on a shed in the south of the wider area, this species is considered to be a confirmed breeder in the wider area.

Of these species, the following were recorded within the zone of influence of the proposed works: skylark and starling (BoCC Red list) within approx. 5m of the proposed route, whitethroat, mallard, reed bunting, swallow, dunnoek and green woodpecker (BoCC Amber list) all within approx. 5-25m of the proposed route, and wren, blackcap, blue tit, reed warbler, moorhen, carrion crow, blackbird, wood pigeon, chaffinch, great tit and collared dove (BoCC Green list) also all within 5-25m of the proposed access road route.

Common and widespread species

A further twenty-seven species were recorded in the wider area that are included on the BoCC Green List of species that are not currently of conservation concern in the UK.

Of these groups of species, the following were recorded within the zone of influence of the proposed works: skylark and starling (BoCC Red list) within approx. 5m of the proposed route, whitethroat, mallard, reed bunting, swallow, dunnoek and green woodpecker (BoCC Amber list) all within approx. 5-25m of the proposed route, and wren, blackcap, blue tit, reed warbler, moorhen, carrion crow, blackbird, wood pigeon, chaffinch, great tit and collared dove (BoCC Green list) also all within 5-25m of the proposed access road route.

3.12 Wintering Birds

A total of 52 bird species were recorded within and adjacent to the site during the surveys.



Wildlife and Countryside Act (WCA) 1981 (as amended) Schedule 1 Species

During the December survey occasion, a male Cetti's warbler was recorded singing in scrub habitat in the north part of the site pertaining to the access road, and to the east of the southern end of the runway. The scrub habitat is approximately 150-200m north-east of the proposed access road route. It is likely that this individual is resident within these scrub habitats in the wider area, as at least two Cetti's warblers were present there during the previous breeding bird surveys. During the January survey, fieldfare were present in relatively high numbers – up to 227 individuals were recorded within the wider area. During the February survey only 2 were recorded and none in the November and December surveys. This migratory species is considered very unlikely to breed within the site but the habitats within and adjacent to the site appear to offer a useful feeding resource for over-wintering birds.

A peregrine falcon was recorded flying over the site from east to west during the December survey. The individual was not observed to stop within the site. As the site does not contain suitable breeding habitat for this species, the proposed works to the site would not be considered likely to impact this species significantly.

A single redwing was observed within the site during the November survey. This migratory species is considered very unlikely to breed within the site and was not seen in significant numbers.

NERC Section 41, UK BAP

Nine species which are directly relevant to the access road works were recorded within the former Airfield site that are listed on both Section 41 of the NERC Act and the UK Biodiversity Action Plan (BAP); bullfinch, dunnoek, house sparrow, linnet, reed bunting, skylark, song thrush and starling. Of these species, song thrush and starling are included in the Sussex BAP. Two further species – curlew (BoCC Amber List) and lapwing (BoCC Red List) – were recorded outside the site boundary to the west, in a partially flooded field. Up to twenty-seven curlew and five lapwing were recorded. These two species were not recorded during the breeding bird surveys but this field (not within the proposed works area) appears to provide a winter feeding resource.

Herring gulls (BoCC Red List) were recorded very frequently flying over the site, as would be expected in a coastal location. A group of one-hundred-and-seventy-five herring gulls was recorded on the ground outside the site boundary to the west, in a partially flooded field and on the same date a group of fifty-five herring gulls was recorded on the ground in the southern-most field within the site boundary. Both fields were partially flooded and this wet habitat provides an ideal feeding habitat for this species during the



winter. Starlings were recorded in significantly higher numbers in the winter than in the summer – a group of up to two-hundred birds was recorded in winter on telegraph wires within the wider area, compared to up to twenty-five starlings within the site during summer. This trend is to be expected as higher numbers of starlings reside in the UK during the winter, often forming large flocks near the coast. The wider area as a whole is considered to offer good foraging resources for starlings during the winter. The remaining seven NERC Section 41 and UK BAP species were all recorded within the wider area during the breeding bird surveys as confirmed, probable or possible breeders. Therefore the birds recorded during the winter bird surveys are likely to be resident throughout the year.

Other notable species

In addition to the above species, a further ten species listed on the BoCC Amber List were recorded during the surveys; black-headed gull, common sandpiper, great black-backed gull, green woodpecker, kestrel, lesser black-backed gull, little grebe, mallard, mistle thrush and snipe. Black-headed gulls were recorded in the partially flooded fields in the south of the site and beyond the north-west of the site, in maximum numbers of approximately five-hundred. Seventeen great black-backed gulls and up to six lesser black-backed gulls were recorded in the partially flooded field to the north-west of the site.

A single little grebe was recorded within the Lidsey Rife on one occasion during the winter surveys. This species was considered to be a probable breeder within this habitat during the summer. A single common sandpiper was recorded in the partially flooded field to the north-west of the site on one occasion. At least one green woodpecker was recorded frequently across the wider area, particularly to the east. During the breeding bird surveys, this species was considered to be a probable breeder off-site.

A single kestrel was seen hunting within across the site on the first three winter survey occasions. The tussocky grassland habitats of the site offer an ideal hunting resource for this species.

Up to twelve mallards were recorded within the Lidsey Rife on one occasion during the winter surveys. This species was previously confirmed as breeding within this habitat during the summer. Up to two mistle thrushes were recorded within the wider area on two winter survey occasions. In January a single snipe was recorded and in February a group of ten snipe was recorded in wet grassland and scrub habitats in the wider area. This species is likely to be under-recorded by the surveys as snipe are inconspicuous and are often only apparent when flushed at close range. This species was not recorded during the breeding bird surveys and is more likely to breed in moorland habitats. However, the wider area offers ideal winter feeding habitats.



Common and widespread Species

The remaining twenty-six species are included on the BoCC Green List of species that are not currently of conservation concern in the UK. The exception is pheasant, which is not classified as it is an introduced species. None of the remaining species were recorded in notably high numbers in the wider area.

Over the course of the wintering birds survey period, the following species were identified to be within the zone of influence of the proposed access road works: Fieldfare (Schedule 1) within approx. 10m of the route, linnet & starling (BoCC red list) within approx. 10m of the route, kestrel, green woodpecker and little grebe (BoCC amber list) within approx. 10-25m of the route; and blue tit, magpie, woodpigeon, wren, coot, carrion crow, greenfinch and blackbird (BoCC green list) within approx. 10-25m of the proposed route.

3.13 Barn Owl

The marginal vegetation associated with the waterways, hedgerows and expansive grassland areas was identified during the extended phase 1 habitat survey to provide good foraging habitats for barn owl. During the Extended phase 1 survey a barn owl was noted to be hunting within the boundary of the airfield site.

This confirms the presence of barn owl in the wider area and that the site is of high potential for this species. Information gained indicates that barn owls forage occasionally within the site, although no nesting places were confirmed during the inspections of potentially suitable buildings and trees on site and in the wider area.

Large quantities of barn owl pellets were identified at Sack Barn (approximately 0.7 km north of the site), both old and new, indicating ongoing presence of barn owls in the area, roosting at the Barn. SBRC returned five historic records of barn owls within 2km from the site in a north easterly, easterly and south westerly direction, confirming that barn owls are present in the wider area.

No evidence of nesting barn owls was found either on site or within 250m of the proposed maintenance and access track.

3.14 Aquatic Invertebrates

The Lidsey Rife was not sampled during this survey, rather the surrounding ditches and channels draining into the Rife. The BMWP scores obtained from the aquatic invertebrate survey analysis suggest that the water bodies sampled may have been polluted in the past and are now recovering. The Actual Score Per



Taxon (ASPT) scores range from 2.0 to 4.4 indicating a greater number of the lower scoring invertebrates species present which are more tolerant of poorer water quality.

It is considered that the former airfield site is not of significant importance for aquatic invertebrates. However, the water bodies present do form an integral part of the mosaic of habitats within the site. Hence, the aquatic invertebrates recorded on the airfield site during the surveys are considered unlikely to present a constraint to the proposed access track works, and will not be considered further in this report.

3.15 Terrestrial Invertebrates

The terrestrial invertebrates recorded on the Airfield site during the surveys are considered unlikely to present a constraint to the proposed access track works. Hence, they will not be considered further in this report.

3.16 Invasive Species

No invasive species were identified on or near the boundaries of the proposed works area. Japanese knotweed and parrots feather were noted on a neighbouring site and within an adjoining water body. These species are not likely to constitute a constraint to the proposed works, either directly or indirectly.



4.0 Evaluation and Recommendations

4.1 Statutory and Non-statutory Sites

Felpham SSSI is the closest statutory site and lies approximately 0.6km south and south west of the proposed works area. Bersted LNR is a statutory site that lies 0.8km from the site. No direct impacts on these two designated sites are anticipated from the proposed access track to the LEC Airfield Site. There is also a conservation area to the northeast of the site, which it is understood is being managed and enhanced for local wildlife. This site is not expected to present a constraint to the works proposed.

4.2 Extended Phase 1 Habitat Survey

The results of the habitat survey elements of the phase 1 are summarised in section 3.

No protected habitats or notable plant species will be adversely affected by the proposed access track works, and consequently will not present a direct constraint to the proposed works. However, there will be some loss of existing habitats within the development site, notably areas of semi-improved grassland.

The track will make use of an existing gateway to enter the site from the south, and will also pass through an existing gateway approximately a third of the way up the site, between the Rife and some adjacent tennis courts. The Rife itself will be crossed as outlined above, and then, finally, a dry ditch and hedge line will be crossed, prior to the track passing through an existing gap in the hedge line (and across an existing culvert) to join onto the end of the existing runway.

The loss of a small section of species poor hedgerow is not considered to be significant, and the dry ditch did not support any notable vegetation. There is a ditch course / watercourse running approx east - west to south of runway. This will be crossed via the existing culvert. A secondary ditch course running approx north - South will require a pipe culvert, approximately 375mm in diameter.

Making use of the existing culvert to cross the watercourse south of the runway is considered unlikely to have an adverse effect on water quality. Where an additional culvert will be required, appropriate mitigation will be required to safeguard water quality and associated species. Mitigation measures are discussed in section 4.12 of this report.



The Lidsey Rife and associated ditches are key features of the site, providing a network of wildlife corridors within the site and into the wider area. It is recommended that bridge construction works have a minimal footprint, and that a buffer of bank side vegetation remains beneath the bridge to protect connectivity.

4.3 Great Crested Newts

No great crested newts were recorded during the site surveys carried out by WYG in 2012. Consequently this species does not present a direct constraint to the proposed works. However, as a precautionary measure, the following procedure should be followed by all construction staff throughout the construction phase should GCN be found on site:

- Stop all work activities immediately
- Do not attempt to handle the great crested newt
- Contact the project ecologist
- Wait for further instruction from the ecologist before proceeding with any further works

Should a great crested newt be discovered it is imperative these procedures are followed immediately to avoid an offence occurring under the Wildlife and Countryside Act 1981 (as amended) and/or the Conservation of Habitats and Species (Amended) Regulations (2012). If construction works do not commence within three years of the surveys, it is recommended that the water bodies be reassessed for GCN to ensure information remains up to date.

4.4 Reptiles

Slow worms, common lizards and grass snakes have been found in the wider area, and hence present a constraint to the works. Measures are proposed to ensure that they are not killed or injured during works to create the access track. Works should be avoided overwinter (between November and February), as reptiles will be hibernating.

Given the narrow dimensions of the proposed works area, it is recommended that reptiles are dissuaded from the works area through strimming or cutting (by a large wheeled vehicle with a flail cutter set to 15cm driving slowly over the site). These displacement works can only take place during the reptiles active season (March to October; although please note restrictions with regards to breeding birds, in section 4.8, under the supervision of an ecological clerk of works).



The first cut should be to 15cm, with a second cut a week or two later down to 8cm. Both cuts should take place under an ecological clerk of works. The grass should be maintained to be short for the duration of works.

Following strimming it is recommended that a destructive search is carried out as part of any translocation works required for any reptile populations found within the zone of influence of the proposed access road. Since suitable habitat exists elsewhere on the former airfield site, relocation of the animals need not be to a separate site. The method described below removes the need to use reptile fencing to exclude animals from the construction site.

This is undertaken using a machine with a driver who preferably is experienced in this process. The machine is fitted with a toothed bucket and positioned on previously cleared ground. The bucket is used initially to slowly rake through the taller vegetation. This process and the natural vibrations from the machine will normally ensure that any animals present in the surface vegetation will tend to move away safely. An ecologist with relevant experience should be present at all times with the machine driver ready to stop the machine should any animal be seen as the machine is then used to rake through the surface soil. Following raking through the surface vegetation the toothed bucket is then used to slowly rake through the surface soil while the wildlife expert checks each movement of the machine's bucket in readiness to stop the machine should an animal be discovered in the surface soil.

Upon completing this process the toothed bucket is then used to rake deeper into the surface soil and is then used to create a pile of vegetation and soil which is placed on the already cleared ground nearby. The cleared surface soil behind the machine and the piles of vegetation are checked a second time to ensure that no animals remain in these materials.

The process is continued with the ecologist continuing to check progress through the surface soil. All reptiles that come to the surface are retrieved carefully and placed safely in the open container and the animal and the location where it is found is recorded.

The process continues a section at a time working along the access road route so that any animals initially disturbed by the movement and vibrations of the machine, or the movement of the soil, migrate towards areas of the site where the surface vegetation is undisturbed.

While this process continues, artificial refugia are repositioned into the areas for subsequent searching by the machine and then inspected and any reptiles found retrieved safely before the machine is used to rake through the next section. When sufficient ground is searched the machine can then be used to excavate



the exposed areas of the site as reptiles and most other animals will not migrate into areas that have been cleared of vegetation. This method alleviates the need for reptile fencing as the animals will remain in the vegetated areas and will not migrate onto cleared areas comprising bare soil.

The machine may also be used to track up and down over the cleared areas to ensure that these parts of the access road route are thus far devoid of vegetation and animals remain unsuitable for ground dwelling species to continue to maintain a presence. This may be with the exception of common bird species which will exploit the exposed areas to feed on worms and insect larvae that may remain on the surface.

The presence of the gravel track is not considered to represent a barrier to reptile connectivity across the site, and may even enhance basking opportunities for these species by creating open spaces within the grassland.

4.5 Bats

Bats are known to use the Rife to commute and forage. The proposed bridge across the Rife will still allow bat passage below and above the bridge, and is not considered to represent a barrier to bat movement. There will be no new lighting associated with the access track, and night time use is not anticipated.

A hedge (with an existing gateway) will be crossed near to the tennis courts in the southern part of the track. The presence of a gravel track within this gap is considered extremely unlikely to have any impact on foraging and commuting bat behaviour or connectivity to the wider environment.

A small section of species-poor hedgerow will be removed towards the northern extent of the route. This is not expected to significantly impact bat behaviour within the wider area, particularly as the Rife itself was the main commuting route through the wider area. However, we would recommend that canopy connectivity is retained as far as possible across this gap, through allowing the trees either side of the gap to grow tall, and meet above the track to create a 'hop-over', thereby facilitating bat movements along this section.

4.6 Badgers

No badger setts were recorded on or around the works area or wider area, however evidence that badgers are using the site was recorded in the form of dung pits. Considering the highly mobile nature of badgers and the seasonality of their activity it is recommended that an update survey is carried out prior to a known



development date to update the information collected in this survey, and to ensure that no badger setts will be impacted by the proposed access track.

During the construction phase, consideration should be given to the placement of any topsoil storage, or piles of materials that may create mounds suitable for sett creation. We would advise that any such piles are placed on hard standing, such as the existing runway, and are checked on a daily basis by construction staff to ensure that no badger activity has taken place.

It is recommended that night working is kept to a minimum whenever possible to avoid disturbance to badgers, any works within 30m of a sett should cease at least two hours before sunset.

4.7 Otter & Water Vole

To ensure suitable habitat is retained along the Rife for otters and water voles, it is recommended that undisturbed vegetation is retained along the bank sides of the Rife and beneath the footbridge.

Prior to bridge construction, an update survey for otter and water vole evidence is recommended to inform mitigation measures and any licensing requirements. If water voles are found to be using the banks within the proposed works area, recommendations will be made to dissuade water voles from using the development footprint. If this is not possible, or is unsuccessful, then a licence may be required from Natural England to translocate the water voles away from the works area, into an enhanced receptor area elsewhere on the site.

4.8 Breeding Birds

As summarised by the results section, several notable bird species were recorded in the south areas of the site around the proposed route of the access road. These species were found to be using the mosaic of habitats in this part of the site, including grassland and scrub areas, and several species were recorded within the zone of influence of the works. The majority of the proposed works area comprises fairly open areas of vegetation; short semi-improved grassland in the south of the site and tall unmanaged semi-improved grassland with scattered scrub in the north. Within the short grassland areas, bird records were fairly sparse, although skylarks were recorded, as well as groups of starlings and feeding swallows.

Bird records were abundant throughout the wider area and the diversity of species recorded (fifty species) reflects the range of habitats present. Bird records were at the highest density along the Rife and in areas



of dense scrub, although species such as skylark, starling and swallow were found in open areas. Breeding birds may present a constraint to the proposed works during the breeding season.

The Rife was confirmed as supporting breeding little grebe, mallard, coot, reed warbler (particularly abundant) and sedge warbler, with moorhen, reed bunting and mute swan also potentially breeding. There are also historic records of kingfisher and snipe within the Rife and the habitat present is considered to offer suitable feeding habitat for both species, with some potential for breeding (although less likely for snipe).

Habitats in the wider area include various areas of dense scrub and hedgerow in which a high diversity of bird species were recorded, including confirmed breeding blue tit, goldfinch, magpie and robin, with probable breeding Cetti's warbler, blackbird, chiffchaff, dunnock, great tit, greenfinch, lesser whitethroat, linnet, whitethroat and wren.

To avoid an offence being committed under the WCA 1981 (As Amended), it is recommended that any removal of vegetation should ideally be undertaken outside the bird nesting season which runs from March to September inclusive.

However, this overlaps with the reptile hibernation season, when works are NOT recommended for this site. Therefore, ideally site clearance would take place in September to avoid both nesting birds and hibernating reptiles. If this is not possible, and vegetation removal is required within the bird nesting season, it is recommended that it is inspected for nests by a suitably experienced ecologist beforehand. Should active nests be found, they must be left in situ with at least a 5 m buffer of intact vegetation (dependent on species and nest location) until all the young have fledged and cease to return to the nest.

In addition, to prevent disturbance of nesting kingfishers, it is recommended that a check is made of the Rife banks prior to works commencing to confirm the absence of any active king fisher holes. No heavy construction works should be commenced within 50 m of the Rife during the kingfisher nesting season (March to October inclusive).

The majority of the proposed works area comprises fairly open areas of vegetation; short semi-improved grassland in the south of the site and tall unmanaged semi-improved grassland with scattered scrub in the north. Within the short grassland areas, bird records were fairly sparse, although skylarks were recorded, as well as groups of starlings and feeding swallows.



Wildlife and Countryside (WCA) Act 1981 (as amended) Schedule 1 Species

During surveys, Cetti's warblers were recorded defending territories in the wider area of dense scrub in the middle of the site and are considered likely to breed in the local area. The data search also returned eight records of this species in the wider area adjacent to the Rife habitat. This species nests in tall dense vegetation and reeds, often near water.

As this species is listed on Schedule 1 of the WCA, it is an offence to disturb it whilst it is nesting. Therefore, as above, it is recommended that any construction within 10 m of dense scrub habitat is commenced outside the nesting season. If this is not possible and any active Cetti's warbler nests are found, they must be left in situ with at least a 10 m buffer of intact vegetation until all the young have fledged and cease to return to the nest. Works within 10m of the nest should cease and be delayed until all the young have fledged.

There are ten historic records of kingfisher relating to the Rife. Kingfisher was not recorded during the surveys, but this species is quiet and elusive, so likely to be under-recorded. The Rife habitat is considered to provide optimal foraging habitat for this species and moderate breeding habitat (kingfishers prefer sandy banks where tunnels can be built). Kingfishers nest in underground tunnels and are particularly susceptible to vibrations in the ground. As this species is listed on Schedule 1 of the WCA, it is an offence to disturb it whilst it is nesting. Kingfishers may nest later in the year than other species, particularly when nesting has been unsuccessful earlier in the year. Kingfishers may nest into October in some years.

To prevent disturbance of nesting kingfishers, it is recommended that a check is made of the Rife banks prior to works commencing to confirm the absence of any active king fisher holes. No heavy construction works should be commenced within 50 m of the Rife during the kingfisher nesting season (March to October inclusive).

4.9 Wintering Birds

High numbers of birds were recorded in partially flooded fields in the south of the site and outside the site boundary to the north-west. These habitats were of little value as nesting habitats during the breeding season, but during the winter period they were used by a variety of species as a feeding habitat.

The proposed access road works will have little impact on the majority of grassland habitat in the south of the site, both grazed and ungrazed; the majority of which will be retained. Therefore it is considered



unlikely that bird species using this arable habitat will be significantly impacted due to habitat loss from the proposed development site.

4.10 Barn Owl

The unmanaged grassland at the northern end of the proposed track (near the former runway) has been identified as suitable foraging habitat for barn owls, and a barn owl was seen on two occasions within this area, as well as historically in areas to the north and east of the site. However, the construction and use of the proposed access road is not considered likely to impact barn owl behaviour, and this species is unlikely to present a constraint to the works.

4.11 Aquatic Invertebrates

Although aquatic invertebrates do not present a constraint to the proposed works, the following best practise measures should be adhered to during the crossing of the stream to the north of the site (making use of the existing culvert) to minimise the risk to local biodiversity. The same precautionary measures should be applied while constructing the bridge over the Rife.

- Construction within 5m of the Rife should be minimised so as to limit the potential for any pollutant entering the stream, other than in the area of the culvert and proposed bridge crossing.
- Spill kits are available and used immediately should a pollution incident occur.
- During works any siltation to the stream is kept to an absolute minimum.
- Following construction the Rife banks should be returned to their original height and shape (profile) and allowed to re-vegetate naturally from the surrounding area.
- Best management practices such as temporary sediment traps, silt fences and diversion trenches are all means to reduce runoff pollution and sedimentation and should be utilised to minimise runoff entering the water column.

4.12 Terrestrial Invertebrates

Since no significant impacts are envisaged to terrestrial invertebrate populations as a result of the proposed access track works, no additional mitigation is recommended.



4.13 Invasive Species

Although invasive species were recorded on the former airfield site, none were found along the route of the proposed access road or within the zone of influence of the works. Consequently, no additional mitigation is recommended. It is however recommended that vigilance be maintained on the site for the presence of these invasive species.

4.14 General Mitigation of Aquatic Impacts

When the proposed development work is undertaken (i.e. during the site preparation/ construction phase) care should be taken to avoid and reduce to an absolute minimum, any siltation, pollution or run-off taking place into the watercourse. This will ensure impacts on any habitats or species using the watercourse are minimised. This can be achieved by strictly adhering to best practice and appropriate working methods in the following guidance documents (please note that this list is not exhaustive):

- » *Pollution Prevention Guidelines (PPG) 1: Understanding your environmental responsibilities – good environmental practice* (Environment Agency, 2013);
- » *PPG 5: Works and maintenance in or near water* (Environment Agency, 2007);
- » *PPG 7: Refuelling facilities - good practice guidelines* (Environment Agency, 2011);
- » *PPG 13: Vehicle washing and cleaning* (Environment Agency, 2007);
- » *PPG 21: Pollution incident response planning* (Environment Agency, 2009);
- » *PPG 22: Dealing with spills* (Environment Agency, 2011);
- » *Control of Water Pollution from Construction Sites – Technical Guidance* (Chartered Institute of Water and Environmental Management (CIRIA), 2006); and
- » *Environmental Good Practice on Site* (third edition; CIRIA, 2010).

Measures should include:

Site Preparation and Construction Phase



- » Ensuring that any excavated material is not stored adjacent to the stream and is appropriately stored elsewhere on site.
- » During the construction of the bridge, construction should be limited in length of the stream banks affected and minimise any siltation of the stream taking place along with avoiding all potential pollution during their construction.
- » Any potential siltation can be significantly minimised by the implementation a buffer zone of approximately 5m either side of the stream, with storage of all materials taking place outside this buffer zone.
- » When constructing the crossing points material removed should also be stored outside this buffer zone thus minimising the potential for any material to re-enter the water body.
- » Any potential pollutant should be contained and dealt with as quickly as possible and appropriately for the pollutant type following an Emergency Response Procedure.
- » Following the construction of the bridge, it is recommended that the banks be reinstated to the same height and profile as prior to works, and allowed to vegetate naturally from the surrounding area (unless the banks are deemed to be unstable and subject to erosion in which case additional measures such as hydro-seeding with an appropriate native seed mix may be more appropriate to encourage a faster growth in vegetation that will reduce silt water pollution). This will help to maintain the stream in as natural a condition as possible.



5.0 Conclusions

In conclusion, species which are likely to constitute a direct constraint to the proposed access and maintenance track and bridge works are nesting birds, water voles, reptiles and bats; which will require mitigation measures to be applied in order to safeguard their populations on site. Where it has been highlighted, some of the other species surveyed may present indirect constraints to the proposed works (such as otter), however since these species have not been recorded on site, best practice methods and general mitigation measures to safeguard water quality are considered to be adequate to protect these species.

- Update badger survey prior to works (30m buffer around access road route).
- Update otter survey prior to works commencing (250m upstream and 250m downstream from bridge, 500m stretch in total).
- Update kingfisher survey near proposed bridge to ensure no active kingfisher holes (50m upstream and 50m downstream from bridge, 100m stretch in total).
- Update survey at proposed bridge to ensure no active water vole presence (250m upstream and 250m downstream from bridge, 500m stretch in total).
- Works should be avoided overwinter, as reptiles will be hibernating. Within the reptiles active season (March to October, although note constraints due to nesting birds, discussed below), the route should be strimmed or cut (by a large wheeled vehicle with a flail cutter driving slowly over the site), under the supervision of a suitably qualified ecologist to dissuade reptiles from the works area. The first cut should be to 15cm, with a second cut a week or two later down to 8cm. Both cuts should take place under an ecological clerk of works. The grass should be maintained to be short for the duration of works.
- After strimming, a destructive search for reptiles will subsequently be required along the proposed route of the access road prior to the laying any substrate material (hardcore or similar) in the initial stages of construction. Section 4.4 of this report provided full details on the methods for carrying out this search.
- Site clearance works should avoid the breeding bird season if possible (usually considered to be March to September). However, as it is necessary to complete works while reptiles are not in



hibernation. Ideally works would take place either in late September or in October. If this is not possible, and works are to take place between March and early September, then the following recommendations are made:

- If the clearance works must take place between March and August, a thorough check for nesting birds should be made by an ecologist prior to works commencing to confirm no active nests will be disturbed.
 - A 10m buffer from patches of scrub that may support Cetti's warbler should be maintained. Or, if this is not possible, all scrub within 10m of the proposed works area should be checked by an ecologist to confirm the absence of active Cetti's warbler nests.
- A 15m buffer of bank side vegetation should be retained along the Rife and as much as possible beneath the bridge to retain connectivity along the Rife. Where riparian vegetation has been removed beneath the bridge it should be allowed to regenerate naturally.
- Canopy connectivity should be retained where possible during the crossing of the species poor hedgerow. In the future, trees to either side of the track in this location should be allowed to grow tall to retain connectivity.
- Recommendations are made to ensure badgers are not disturbed by the construction phase, and to ensure that best practice is followed with regards to avoiding the potential for sediment entering the Rife.



6.0 References

- Bat Conservation Trust (2012). Bat Surveys – Good Practice Guidelines, 2nd Edition. Bat Conservation Trust, London.
- Bright, P., Morris, P. and Mitchell-Jones, A. (2006). The Dormouse Conservation Handbook. 2nd Edition.
- Chanin, P. (2003) Monitoring the otter. Conserving Natura 2000, Rivers Monitoring Series No. 10, English Nature, Peterborough
- Eaton, M.A., et al. (2009). Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 102:296-341
- English Nature (2002). Badgers and Development. English Nature, Peterborough, UK.
- Eyre, M.D. (ed.) (1996) *Environmental monitoring, surveillance and conservation using invertebrates*. EMS publications, Newcastle-upon-Tyne, UK.
- Gent, T. & Gibson, S. (2003). Herpetofauna Workers' Manual. JNCC, Peterborough.
- Harris, S., Cresswell, P. & Jeffries, D. (1989). Surveying Badgers. An occasional publication of the mammal society – No. 9. Mammal Society, London.
- Hill, D., Fasham, M., Tuicker, G., Shewry, M. and Shaw, P. (2005) *Handbook of biodiversity methods survey, evaluation and monitoring*. Cambridge University Press, Cambridge, UK.
- Institute for Ecological Assessment (1995). Guidelines for Baseline Ecological Assessment. E & FN Spon, London.
- Jeffries, M. and Mills, D. (1990) *Freshwater ecology principles and applications*. Belhaven Press, London, UK.
- Joint Nature Conservation Committee (2007). Handbook for Phase 1 Habitat Survey: A technique for environmental audit. JNCC, Peterborough.
- Langton, T.E.S., Beckett, C.L. and Foster, J.P. (2001). Great Crested Newt Conservation Handbook. Froglife, Halesworth.
- Mason, C.F. (1991) *Biology of freshwater pollution* (2nd edition). Longman Scientific & Technical, Harlow, Essex, UK.
- Mitchell-Jones, A.J. & McLeish, A.P. (Eds) (2004). Bat Workers Manual, 3rd Edn. JNCC, Peterborough.
- National Policy Planning Framework National Planning Policy Framework and Biodiversity & Geological Conservation (Office of the Deputy Prime Minister - ODPM, 2005),
- Oldham, R.S., Keeble, J., Swan, M.J.S. & Jeffcote, M. (2000). Evaluating the suitability of habitat for the great crested newt *Triturus cristatus*. Herpetological Journal, **10(4)**, 143-155.



RSPB (2002). The Population Status of British Birds in the UK: Birds of Conservation Concern 2002-2007.

Strachan, R. & Moorhouse, T. (2006). Water Vole Conservation Handbook (2nd Edn). Wildlife Conservation Research Unit, Oxford.

Sutherland, W.J. (ed.) (2004) *Ecological census techniques a handbook*. Cambridge University Press, Cambridge, UK.

WYG. Various Reports for Sime Darby (London) Ltd. (2012 & 2013).



Appendices



Appendix 1 - Site Plan and Access Track Location





Appendix 2 – Ecological Constraints Map (including species results where appropriate)



Appendix 3 – Biodiversity and Environmental Legislation, Conventions & Threatened List

Introduction

The UK has ratified a number of Conventions and implemented legislation pertaining to the protection of biodiversity and habitats, either independently or as member state of the European Union. These are defined and summarised below. Lists of threatened, endangered and extinct species are also provided, together with a summary explanation of each.

Bern Convention (1982)

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the Convention, and regulate the exploitation of species listed in Appendix 3. The regulation imposes legal obligations on participating countries to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the EC Birds Directive (1979) and the EC Habitats Directive (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Biodiversity Action Plan (BAP)

The UK Biodiversity Action Plan (UKBAP – UK Steering Group, 1995; UK Biodiversity Group, 1998 - 2000) lists and prioritises habitats and species and sets national targets to be achieved. The intent of the UKBAP, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The UKBAP has recently undergone a review (Biodiversity Reporting and Information Group, June 2007) resulting in the identification of 391 'Priority' Species Action Plans (SAPs), 45 'Priority' Habitat Action Plans and 162 Local Biodiversity Action Plans. Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.



Birds Directive (BD)

The EC Directive on the Conservation of Wild Birds (791409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Birds of Conservation Concern (BoCC)

This is a review of the status of all birds occurring regularly in the United Kingdom. It is regularly updated and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

Red list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.

Amber list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.

Regularly occurring species that do not qualify under any of the red or amber criteria are Green listed.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985, Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CRoW).



Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe. The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for the designation of species into each of the categories are complex, and consider several principles.

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes. In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2010 in England, Scotland and Wales.

Protection of Badgers Act 1992 (PBA 1992)

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett. The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger"

Species of Principal Importance in England

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 habitats of principal importance and 1,150 species of principal importance.



The Conservation of Habitats and Species Regulations 2010

This is the main piece of legislation which transposes the Habitats Directive into national law. The Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years. The Regulations also make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 (see Table B1). The 2010 Regulations consolidate and update the Conservation (Natural Habitats, &c.) Regulations 1994 (the 1994 Regulations) and any amendments. It also contains new provisions to implement aspects of the Marine and Coastal Access Act 2009 (the "Marine Act"), giving powers to the Marine and Coastal Access Act and Marine Enforcement Officers.

The Hedgerow Regulations 1997

The Hedgerow Regulations 1997 were made under Section 97 of the Environment Act 1995 and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Wildlife and Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the 'Bern Convention' and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times. The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

kill, injure, or take any wild bird,

take, damage or destroy the nest of any wild bird while that nest is in use, or

take or destroy an egg of any wild bird.

In addition, the Act makes it an offence (subject to exceptions) to:



intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5, interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places.

The Act also prohibits certain methods of killing, injuring, or taking wild animals. Finally, the Act also makes it an offence (subject to exceptions) to:

intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant, unless an authorised person, intentionally uproot any wild plant not included in Schedule 8,

sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates.

Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise cause to grow in the wild any plant which is listed in Part II of Schedule 9. It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

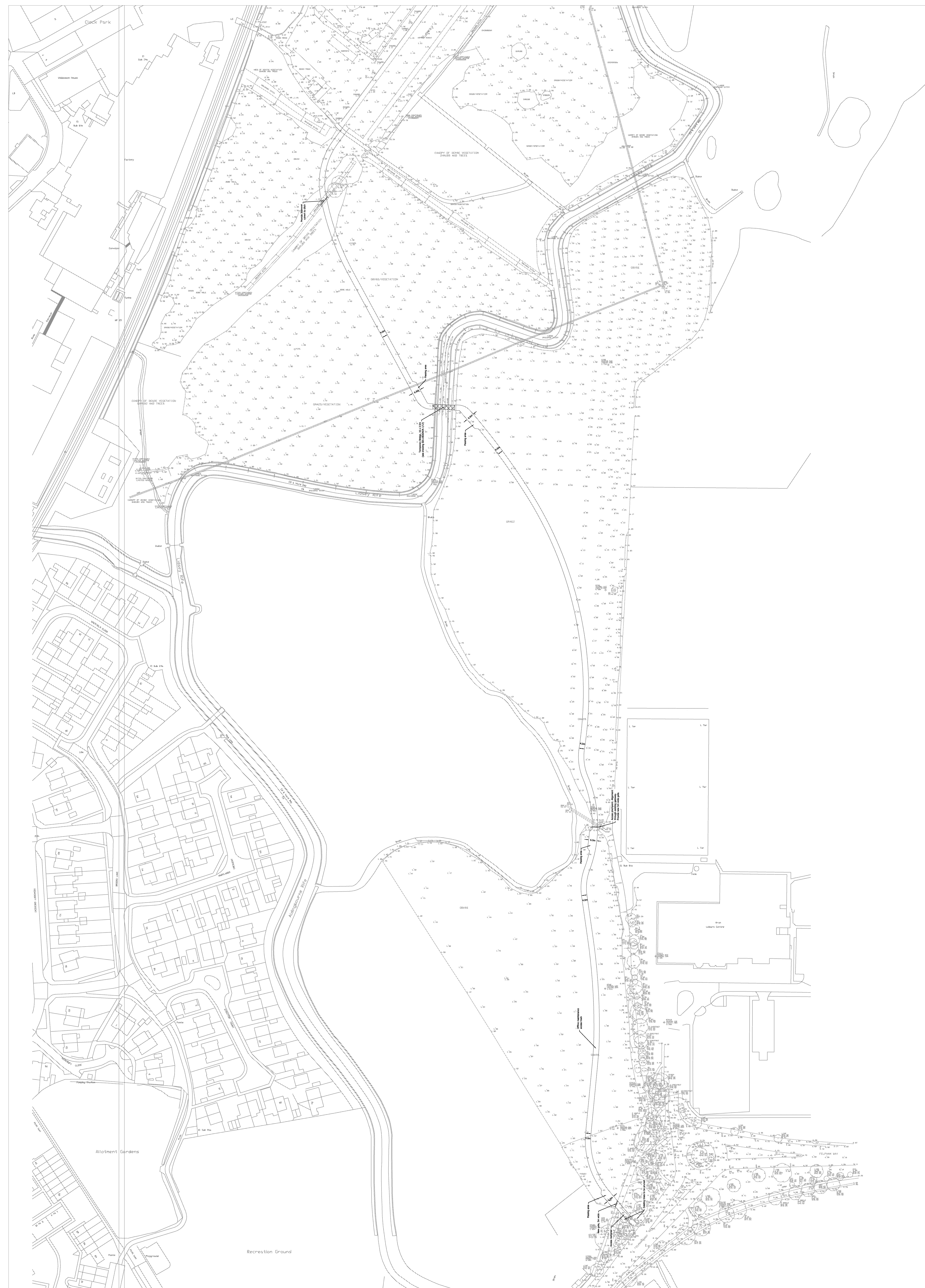
The *Wildlife and Countryside Act 1981* (as amended) protects burrows occupied by water voles from damage or disturbance. Changes implemented by the Department for Environment, Food and Rural Affairs (DEFRA) in April 2008 have extended this protection to individual animals in addition to their places of rest or shelter.

The otter and its breeding and resting places are protected under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010*. The European sub-species is listed as globally threatened on the IUCN/WCMC RDL.











Key

BOCC Red list

BOCC Amber list

WCA schedule 1 species

Species-poor defunct hedge

Species-poor intact hedge

Mammal paths

Access road

Dry ditch

Wet ditch

Runway

Lidsey Rife

Swamp

Scattered scrub

Dense scrub particularly valuable for Cetti's warbler

Reptile habitat

Semi-improved neutral grassland

BF- Bullfinch

CW- Cetti's Warbler

D.- Dunnock

G.- Green Woodpecker

LG- Little Grebe

Li- Linnet

RB- Reed Bunting

S.- Skylark

SG- Starling

SL- Swallow

ST- Song Thrush

WH- White Throat

0

45

90

180

270 m

Drawing title:

Access road constraints map

Project:

A076230-4
Former LEC Airfield:
Ecological Constraints

Client:

Sime Darby (London) Ltd.

Scale (A3):

Created by:

Reviewed by:

Verified by:

1:6,369

ESH
June 2014

Office:

Drawing number:

Revision:

4094

PLAN ##

Rev.--

WYG Planning
and Environment

The Loft,
St Clair's Farm,
Wickham Road,
Droxford,
Hampshire,
SO32 3PW
Tel: +44 (0)1489 872929