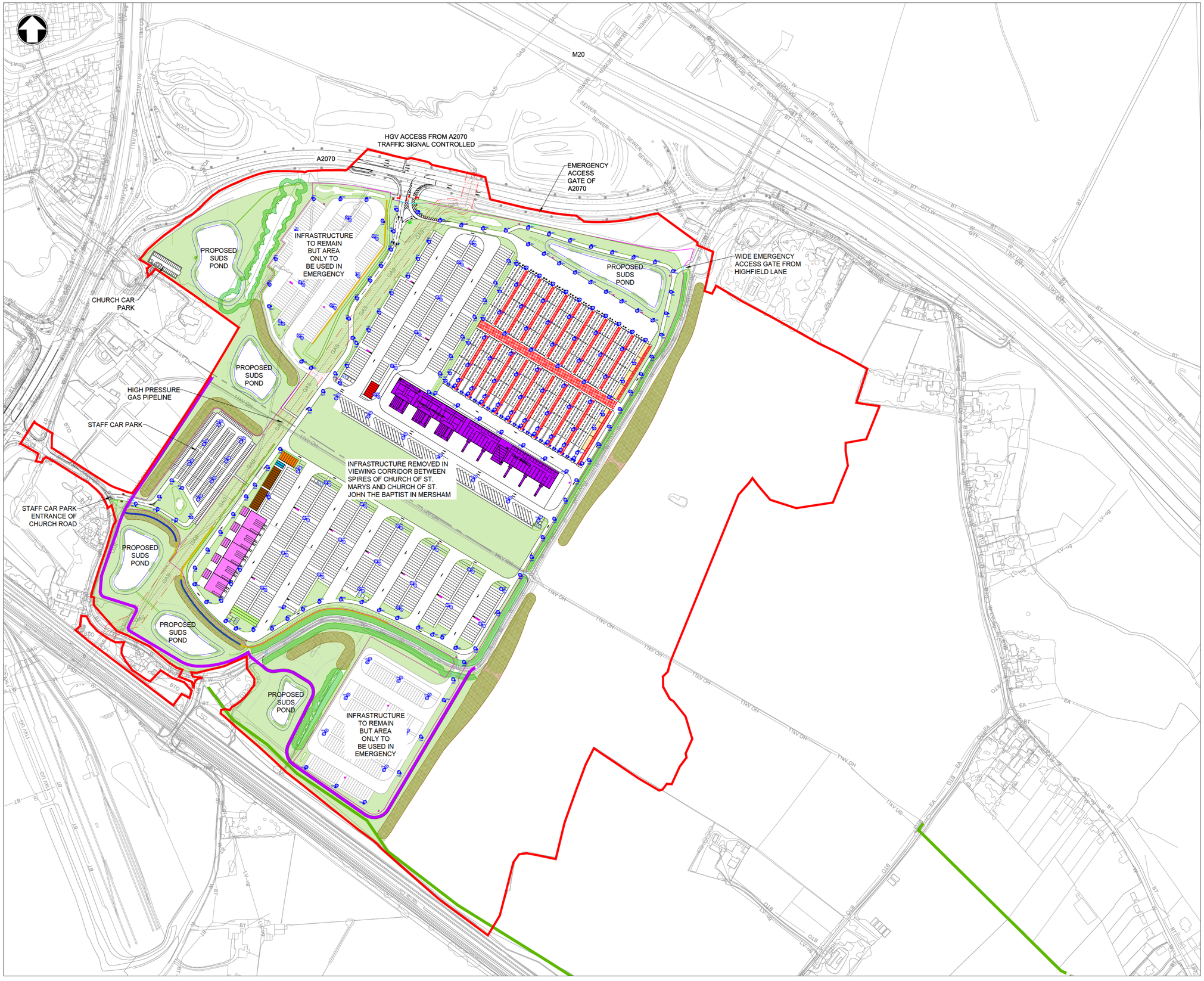

1:2500 0 125m 250m

Notes

1. DO NOT SCALE FROM THIS DRAWING
2. ALL CURRENT PROPOSALS SUBJECT TO ONGOING PLANNING PERMISSION PROCESS
3. THE MAXIMUM HEIGHT OF BUILDINGS IS 8.5M ABOVE GROUND

KEY:

- SITE BOUNDARY
- POTENTIAL LANDSCAPING AREA
- PROPOSED BUND
- EXISTING VEGATATION LANDSCAPE BUFFER
- DFT/DVSA OFFICE BUILDING
- HMRC ACCOMMODATION BUILDING
- HMRC DRIVER WELFARE BUILDING
- HMRC MARSHALS BUILDING
- HMRC INSPECTION SHEDS (25m x 25m)
- HAZARDOUS CHEMICALS LANE
- DRIVE THROUGH BAYS FOR LARGE DRAWBAR VEHICLES
- PROPOSED LOCATION OF SPILLKIT
- PROPOSED LOCATION OF FIRE EXTINGUISHERS
- PROPOSED LOCATION OF FIRE ALARM CALL POINT
- PROPOSED FENCING (2.1m PALISADE FENCE)
- PROPOSED GATE
- PROPOSED 1.8M CHAIN LINK FENCE
- PROPOSED 3M NOISE BARRIER ON BUND
- PROPOSED 4.5M NOISE BARRIER
- PROPOSED 5M NOISE BARRIER
- PROPOSED 2.1M HIGH CLOSE BOARDED FENCE
- FIRE WATER TANKS
- PUBLIC RIGHT OF WAY DIVERSION
- EXISTING PUBLIC RIGHT OF WAY TO REMAIN
- ENTRANCE GATE CABIN
- RAISED MARSHAL BOOTHS
- MARSHAL SHELTERS
- LARGE SECURITY MARSHAL CABIN
- COLUMN REFERENCE NUMBER
- COLUMN HEIGHT
- LUMINAIRE TYPE

0.5m TWIN-ARM LIGHTING COLUMN

0.5m SINGLE-ARM LIGHTING COLUMN

PRIVATE & CONFIDENTIAL

Rev	Date	Drawn	Description	Ch'k'd	App'd
P01	12/10/20	[redacted]	ISSUE TO STAKEHOLDERS		
P02	16/10/20	[redacted]	ISSUED FOR ENVIRONMENTAL CONSENT		
P03	20/10/20	[redacted]	KEY AMENDED		

Status Stamp

NOT FOR CONSTRUCTION

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Title

FUTURE EU ROADS RELATIONSHIP
SEVINGTON IBF
DAY 200 OVERVIEW PLAN DRAWING

Sheet 1 of 1

Designed	[redacted]	SM	Eng check	[redacted]	[redacted]
Drawn	[redacted]	RB	Coordination	[redacted]	[redacted]
Dwg check	[redacted]	RB	Approved	[redacted]	[redacted]

MMD Project Number	Scale at A1	Security
419419	1:2500	STD

Suitability Description	Suit. Code
Suitable for Information	S2

Drawing Number	Revision
419419-MMD-01-MO-DR-C-0118	P03

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MOTT MACDONALD

Sevington Inland Border Facility

Biodiversity Assessment

6 November 2020

Confidential

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Biodiversity Assessment

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Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
P01	30/10/20	VH	SM	JB	First draft
P02	06/11/20	[redacted]	[redacted]	[redacted]	Final for Article 4 Submission

Document reference: 419419 | 419419-MMD-XX-MO-RP-BD-0001 | P02

Information class: Secure

Contents

Tables

1 Introduction

1.1 Overview

Mott MacDonald has been appointed by the Department for Transport (DfT) to undertake an Analysis of the Likely Environmental Effects of the Development Report (document ref: 419419-MMD-XX-SV-RP-YE-0002) for the proposed use of a site at Sevington near Ashford in Kent (hereafter referred to as 'the site') for a temporary Inland Border Facility (hereafter referred to as 'the scheme'). The analysis is presented within this report, and it is required as per article 4(2)(h) of the *Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020*. Further details on the scheme including a description of the location of the site is provided in the Sevington Inland Border Facility – An *Analysis of the Likely Environmental Effects of the Development Report* (document ref: 419419-MMD-XX-SV-RP-YE-0002). This biodiversity assessment has been undertaken to support the *Analysis of the Likely Environmental Effects of the Development Report*.

1.2 Purpose of this Report

The objective of this analysis is to identify any likely adverse or beneficial significant environmental effects as a result of the scheme, and where relevant outline the measures incorporated in the scheme design and delivery method to avoid, eliminate or reduce what might otherwise have been significant adverse effects on the environment.

1.3 Site Description

The site is in a strategic location near the M20 Junction 10 located just south of Ashford between Sevington and Mersham. The site covers an area of approximately 66 hectares, principally comprised of arable farmland with small fields of semi-improved neutral grassland, areas of tall ruderal vegetation, and mixed boundary features.

The site is bounded by Church Road and the HS1 Rail Link for the Channel Tunnel to the south, the A2070 to the north and west, and Kingsford Street and Blind Lane to the east. The M20 runs to the east of the site with Junction 10 and the new Junction 10a, currently approaching completion, within close proximity to the site. A new dual carriageway, the A2070 which is also currently approaching construction completion, is located to the north of the site and is connecting an existing section of the A2070 to the M20.

2 Legislative and Policy Framework

2.1 European Legislation and International Conventions

The construction and operational activities for the scheme should comply with international and European legislation. The following European Commission Directives and international conventions are relevant to the ecological assessment:

- *Convention on Biological Diversity 1992*
- *Bern Convention on the Conservation of European Wildlife and Natural Habitats 1979*
- *Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979*
- *Ramsar Convention on Wetlands 1971*
- *EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitat Directive 1992) as amended (92/43/EEC)*
- *EC Directive on the Conservation of Wild Birds (Birds Directive 1979) as amended (79/409/EEC)*

2.2 National Legislation and Policy

The construction and operational activities must comply with UK nature conversation legislation, and with national and local biodiversity policies. The key national policies which influence the ecology and nature conservation assessments are:

- *The Conservation of Habitats and Species Regulations 2017*
- *Wildlife and Countryside Act 1981*
- *The Natural Environmental and Rural Communities Act 2006*
- *National Planning Policy Framework* (NPPF) (published March 2012, last updated June 2019)
- UK Biodiversity Action Plan (UKBAP). The relevant local biodiversity plan is the *Kent Biodiversity Action Plan* (KBAP)

The Natural Environment and Rural Communities Act 2006 requires public bodies, including local authorities, *'to have regard to the conservation of biodiversity in England'* when carrying out their normal functions. Also, under this Act a list of species of *'principal importance to biodiversity within England'* was drawn up which acts as an aid to guide public bodies in implementing their duty.

The NPPF relates to conserving and enhancing the natural environment, requires local authorities in England to take measures to:

- Protect and enhance biodiversity
- Minimise effects on and provide measurable net gains for biodiversity
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species
- Refuse planning permission for development, if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful effects) adequately mitigated, or, as a last resort, compensated for. This includes the loss or deterioration of irreplaceable habitats (such as ancient woodland or veteran trees)

The UK Post-2010 Biodiversity Framework covers the period 2011 – 2020 and replaces the UK Biodiversity Action Plan (UKBAP) 1994 – 2010. Its aim is to address the underlying causes of biodiversity loss and improve and enhance biodiversity and ecosystem services. The UKBAP priority habitats and species background information is still widely used at country level.

Legislation and policies specific to individual species likely to be present on site are presented in Appendix A.

2.3 Local Policy

2.3.1 Kent Environment Strategy

The *Kent Environment Strategy*[1] outlines the strategy to support economic growth whilst protecting and enhancing the natural and historic environment. It includes targets across a range of sectors including energy, water and natural and heritage assets.

The Kent Biodiversity Strategy replaces the Kent Biodiversity Action Plan (KBAP) and outlines goals to deliver the maintenance, restoration and creation of habitats to ensure the county's terrestrial, freshwater, intertidal and marine environments regain and retain good health by protecting threatened species and enhancing wildlife habitats.

Ashford Borough Council sets out the following core policy within the Ashford Local Plan[2] in relation to Nature Conservation:

- Policy Env 1 – Proposals that conserve or enhance biodiversity will be supported.

'Proposals for new development should identify and seek opportunities to incorporate and enhance biodiversity. Proposals should safeguard features of nature conservation interest and should include measures to retain, conserve and enhance habitats, including BAP (Priority) habitats, and networks of ecological interest, including ancient woodland, water features, ditches, dykes and hedgerows, as corridors and stepping stones for wildlife. '

Development that will have an adverse effect on the integrity of European protected Sites, alone or in combination with other plans or projects, will not be permitted.

Development that will have an adverse effect on nationally designated sites, including the borough's Sites of Special Scientific Interest and National Nature Reserves, will not be permitted unless the benefits, in terms of other objectives including overriding public interest, clearly outweigh the impacts on the special features of the scheme and broader nature conservation interests and there is no alternative acceptable solution. Development should avoid significant harm to locally identified biodiversity assets, including Local Wildlife Sites, Local Nature Reserves and the Ashford Green Corridor as well as priority and locally important habitats and protected species.'

- Policy Env 5 – Protecting Important Rural Features

'All development in the rural areas of the Borough shall protect and, where possible, enhance the following features:

a. Ancient woodland and semi-natural woodland
b. River corridors and tributaries

[1] Kent County Council (2016) *Kent Environment Strategy. A strategy for environment, health and economy*. Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0020/10676/KES_Final.pdf

[2] Ashford Borough Council. *Ashford Adopted Local Plan to 2030.* Available at: https://www.ashford.gov.uk/planning-and-development/planning-policy/adopted-development-plan-documents/adopted-local-plan-to-2030/

c. *Rural lanes which have a landscape, nature conservation or historic importance*
d. *Public rights of way*
e. *Other local historic or landscape features that help to distinguish the character of the local area'*

2.3.2 Kent Nature Partnership Biodiversity Strategy

The Kent Biodiversity Strategy[3] aims to deliver, over a 25-year period, the maintenance, restoration and creation of habitats that are thriving with wildlife and plants and ensure that the county's terrestrial, freshwater, intertidal and marine environments regain and retain good health. The Strategy looks to protect and recover threatened species and enhance the wildlife habitats that Kent is particularly important for. It has identified 17 priority habitats and 13 priority species that Kent can play a significant part in their restoration.

[3] Kent Nature Partnership. *Kent Nature Partnership Biodiversity Strategy 2020 to 2045.* Available at: http://kentnature.org.uk/uploads/Kent%20Biodiversity%20Strategy%202020%20-%202045.pdf

3 Assessment Methodology

The assessment presented below identifies ecological features and resources of nature conservation value and determines the value (sensitivity) of these resources. Following this, the characterisation of each ecological impact and the magnitude of change as a result of the scheme has been determined, which enables the assessment of the overall significance of each effect upon ecological resources to be undertaken.

The impact assessment on biodiversity will be undertaken in accordance with the following guidance:

- *Design Manual for Roads and Bridges (DMRB) LA 108 Biodiversity*[4]
- Chartered Institute of Ecology and Environmental Management (CIEEM 2018) *Guidelines for Ecological Impact Assessment in the UK*[5]
- CIEEM Sources of Survey Methods

The assessment of the potential impacts considers both impacts within the scheme boundary and those that occur beyond the scheme boundary. The assessment will consider mitigation measures required and assess the significance of effects of residual impacts, after mitigation. *Guidelines for Ecological Impact Assessment in the UK* will be used to help evaluate sites, habitats and species and to assess the effects on ecological integrity to help apply the DMRB method.

3.1 Significance Criteria

The value (sensitivity) of ecological features and nature conservation resources will be assessed using the criteria outlined in Table 3.1. Following this, the characterisation of ecological impacts will be undertaken and will include consideration of the value, integrity and conservation status of the resource affected, and a characterisation of the impact, which will consider:

- Positive or negative (adverse / beneficial)
- Duration (permanent / temporary)
- Reversibility (irreversible / reversible)
- Extent / magnitude
- Frequency and timing

[4] Highways England (2020) *DMRB Sustainability & Environment Appraisal LA 108 Biodiversity (formerly Volume 11, Section 3, Part 4 Ecology and Nature Conservation and IAN 130/10), Revision 1*

[5] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal.*

Table 3.1: Biodiversity Resource Importance

Biodiversity resource	Details
International or European Importance	
Designated Sites	Sites including: 1. European sites: a. Sites of Community Importance (SCIs) b. Special Protection Areas (SPAs) c. potential SPAs (pSPAs) d. Special Areas of Conservation (SACs) e. Candidate or possible SACs (cSACs or pSACs) f. Wetlands of International Importance (Ramsar sites) 2. Biogenetic Reserves, World Heritage Sites (where recognised specifically for their biodiversity value) and Biosphere Reserves 3. Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such
Habitats	N/A
Species	Resident, or regularly occurring, populations of species which can be considered at an international or European level where: 1. the loss of these populations would adversely affect the conservation status or distribution of the species at an international or European scale 2. the population forms a critical part of a wider population at this scale 3. the species is at a critical phase of its life cycle at an international or European scale
UK or National Importance	
Sites	Sites including: 1. Sites of Special Scientific Interest (SSSIs) or Areas of Special Scientific Interest (ASSIs) 2. National Nature Reserves (NNRs) 3. National Parks 4. Marine Protected Areas (MPAs) including Marine Conservation Zones (MCZs) 5. areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such
Habitats	Habitats including: 1. areas of UK BAP priority habitats 2. habitats included in the relevant statutory list of priority species and habitats 3. areas of irreplaceable habitats including: a. ancient woodland b. ancient or veteran trees c. blanket bog d. limestone pavement e. sand dunes f. salt marsh g. lowland fen 4. areas of habitat which meet the definition for habitats listed above but which are not themselves designated or listed as such
Species	Resident, or regularly occurring, populations of species which can be considered at an international, European, UK or national level where: 1. the loss of these populations would adversely affect the conservation status or distribution of the species at a UK or national scale 2. the population forms a critical part of a wider population at this scale 3. the species is at a critical phase of its life cycle at a UK or national scale
Regional Importance	
Sites	Designated sites (non-statutory) including heritage coasts.
Habitats	Areas of habitats identified (including for restoration) in regional plans or strategies (where applicable).
Species	Species including:

Biodiversity resource	Details
	1. resident, or regularly occurring, populations of species which can be considered at an international, European, UK or national level where: a. the loss of these populations would adversely affect the conservation status or distribution of the species at a regional scale b. the population forms a critical part of a wider regional population c. the species is at a critical phase of its life cycle 2. Species identified in regional plans or strategies
County or equivalent authority importance	
Sites	Wildlife / nature conservation sites designated at a county (or equivalent) level including: 1. Local Wildlife Sites (LWS) 2. Local Nature Conservation Sites (LNCS) 3. Local Nature Reserves (LNRs) 4. Sites of Importance for Nature Conservation (SINCs) 5. Sites of Nature Conservation Importance (SNCIs) 6. County Wildlife Sites (CWSs)
Habitats	Areas of habitats identified in county or equivalent authority plans or strategies (where applicable).
Species	Species including: 1. resident, or regularly occurring, populations of species which can be considered at an international, European, UK or national level where: a. the loss of these populations would adversely affect the conservation status or distribution of the species at a county or unitary authority scale b. the population forms a critical part of a wider county or equivalent authority area population, e.g. metapopulations c. the species is at a critical phase of its life cycle 2. Species identified in a county or equivalent authority area plans or strategies
Local Importance	
Sites	Wildlife / nature conservation sites designated at a local level including: 1. LWS 2. LNCS 3. LNRs 4. SINCs 5. SNCIs 6. Sites of Local Nature Conservation Importance (SLNCIs).
Habitats	Areas of habitat considered to appreciably enrich the habitat resource within the local context including features of importance for migration, dispersal, or genetic exchange.
Species	Populations / communities of species considered to appreciably enrich the habitat resource within the local context including features of importance for migration, dispersal or genetic exchange.

Source: DMRB LA108 Biodiversity

The importance of the resource (Table 3.1) and level of impact (Table 3.2) shall be used to determine the significance of effect on the ecological features (Table 3.3). For the purposes of this assessment, effects of Moderate Adverse or Moderate Beneficial and above are considered to be significant. Impacts are unlikely to be significant where features of low importance or sensitivity are subject to small or short-term impacts. However, where there are a number of small-scale impacts that are not significant alone, the assessor may determine that, cumulatively, these may result in an overall significant impact.

Guidelines for Ecological Impact Assessment in the UK defines a significant effect as one *'that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general'*. For designated sites, effect shall be considered significant when the scheme and associated activities affect the integrity of the designated site

in terms of the coherence of its ecological structure and function or the effect on the designated site is likely to be significant in terms of its ecological objectives

For ecosystems, an effect shall be considered significant when the scheme and associated activities result in a change in ecosystem structure and function, that reduces its ability to sustain the habitat, complex of habitats and/or the population levels of species of interest.

Table 3.2: Level of Impact and Typical Description

Level of Impact (Change)		Typical Description
Major	Adverse	• Permanent / irreversible damage to a biodiversity resource • The extent, magnitude, frequency, and / or timing of an impact negatively affects the integrity or key characteristics of the resource.
	Beneficial	• Permanent addition of, improvement to, or restoration of a biodiversity resource • The extent, magnitude, frequency, and / or timing of an impact positively affects the integrity or key characteristics of the resource
Moderate	Adverse	• Temporary / reversible damage to a biodiversity resource • The extent, magnitude, frequency, and / or timing of an impact negatively affects the integrity or key characteristics of the resource
	Beneficial	• Temporary addition of, improvement to, or restoration of a biodiversity resource • The extent, magnitude, frequency, and / or timing of an impact positively affects the integrity or key characteristics of the resource
Minor	Adverse	• Permanent / irreversible damage to a biodiversity resource • The extent, magnitude, frequency, and / or timing of an impact does not affect the integrity or key characteristics of the resource
	Beneficial	• Permanent addition of, improvement to, or restoration of a biodiversity resource • The extent, magnitude, frequency, and / or timing of an impact does not affect the integrity or key characteristics of the resource
Negligible	Adverse	• Temporary / reversible damage to a biodiversity resource • The extent, magnitude, frequency, and / or timing of an impact does not affect the integrity or key characteristics of the resource
	Beneficial	• Temporary addition of, improvement to, or restoration of a biodiversity resource • The extent, magnitude, frequency, and / or timing of an impact does not affect the integrity or key characteristics of the resource
No change		No observable impact, either positive or negative

Source: DMRB LA108 Biodiversity

Table 3.3: Significance Matrix

Resource Importance \ Level of Impact	No change	Negligible	Minor	Moderate	Major
International or European importance	Neutral	Slight	Moderate or large	Large or very large	Large
UK or national importance	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
Regional importance	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
County or equivalent authority importance	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
Local importance	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Source: DMRB LA108 Biodiversity

3.2 Study Area

The Zone of Influence (ZoI) is the area surrounding a scheme within which the environmental conditions could be affected. *Guidelines for Ecological Impact Assessment in the UK* recommends that all ecological features that occur within a ZoI for a scheme are investigated. Areas within the ZoI may include:

- Areas that will be lost to construction
- Areas that would be temporarily affected during construction
- Areas likely to be impacted by hydrological disruption
- Areas where there is a risk of pollution and noise disturbance during construction and/or operation

The ZoI will vary for different ecological features depending on their sensitivity to an environmental change. The geographical area for obtaining ecological data through desk and field-based surveys is based on the potential impacts of the scheme on ecological features and accepted best practice field survey guidance.

The ZoI is also used to determine the geographical area for assessing the impacts (both positive and negative) of the scheme on ecological features based on all the available information. Table 3.4 below details the extent of land required to inform this assessment:

Table 3.4: Zone of Influence for this assessment

Ecological Feature	Relevant Survey Guidance	Zone of Influence / Area Surveyed
Statutory Designated Sites	CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*	2km from the scheme boundary
Non-Statutory Designated Sites	CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*	1km from the scheme boundary
Designated Sites for Bats	*Design Manual for Roads and Bridges (DMRB) LA 108 Biodiversity*	30km from the scheme boundary
Phase 1 habitat Hedgerows	Joint Nature Conservation Committee (2010) *Phase 1 Habitat Survey Handbook*	Within the scheme boundary

Ecological Feature	Relevant Survey Guidance	Zone of Influence / Area Surveyed
	Department for Environment Food and Rural Affairs (2007) *Hedgerow Survey Handbook* (2nd edition)	
Breeding Birds	Common Bird Census (1983) *British Trust for Ornithology*	Within the scheme boundary
Wintering Birds	Bibby *et al.,* (2000) *Bird Census Techniques* (2nd Edition)	Within the scheme boundary
Badger *Meles meles*	Harris et al., (1989) *Surveying Badgers* Delahay *et al.,* (2000) *Mammal Review*	Within and adjacent to the scheme boundary
Water Vole *Arvicola amphibious*	Strachen & Moorhouse (2006) *Water Vole Conservation Handbook* Dean *et al.,* (2016) *The Water Vole Mitigation Handbook*	Aylesford Stream to the north of the scheme
Bats	Bat Conservation Trust (2016) *Good Practice Guidelines: Bat Surveys for Professional Ecologists*	Within and adjacent to the scheme boundary
Reptiles	Froglife (1999) *Advice Sheet 9: Reptile Survey*	Within the scheme boundary
Great crested newts *Triturus cristatus*	English Nature (2001) *Great crested newt mitigation guidelines*	Terrestrial habitat, ponds and other suitable waterbodies within and up to 500m of the scheme boundary
Invertebrates	Drake *et al.,* (2007) *Surveying terrestrial and freshwater invertebrates for conservation evaluation*	Within the scheme boundary
Dormice *Muscardinus avellanarius*	Bright, Morris, and Mitchell (2006) *Dormouse Conservation Handbook* (2nd Edition). English Nature	Within and adjacent to the scheme boundary

3.3 Impacts Scoped in the Assessment

The assessment of effects considers the potential impacts associated with activities during construction and operation as detailed below. It has been assumed that construction would have a duration of six months, following which the scheme would become fully operational. Reinstatement of the site is proposed after a period of five years, in 2025.

3.3.1 Construction

The assessment considers the following impacts associated with the construction of the scheme:

- Alteration or degradation of habitats within statutory and non-statutory designated sites as a result of emissions to air and accidental release of hazardous materials. For example, as a result of accidental construction-phase oil or fuel spills
- Permanent or temporary removal or disturbance of habitats within and adjacent to the scheme leading to habitat loss. This could occur where habitats fall within the construction footprint of the scheme and need to be removed to allow construction to take place
- Loss and/or disturbance of protected species and their habitats due to site clearance and construction activities, including increased construction traffic. These impacts could arise as a result of removal of habitats to facilitate construction and/or noise, vibration, visual disturbance and light spill generated by construction activities
- Changes in environmental conditions as a result of construction activities i.e. dust, changes in water quality as a result of polluted runoff for example

- Direct killing or injury of protected species as a result of movements of construction vehicles across the scheme/construction activities

3.3.2 Operation

The assessment considers the following impacts associated with the operation of the scheme:

- Severance of key wildlife dispersal corridors and habitat connectivity as a result of displacement caused by increased noise, visual and lighting (light spill) impacts
- Disruption of ecological networks due to changes in environmental conditions through an increase in pollutants i.e. emissions

3.4 Air Quality Assessment

The Air Quality Impact Assessment (report number 419419-MMD-XX-MO-RP-AQ-0001) will also assess the impact of air quality upon ecological receptors of nationally designated sites (SAC, SPA, Ramsar, SSSI and LNR) within 200m of the site and the affected road network (ARN). The results are discussed in Section 5 of this report.

3.4.1 Embedded Environmental Measures

This assessment has been completed assuming that environmental measures to avoid, eliminate and reduce predicted impacts on ecological features, have been directly incorporated into the design for the scheme. These are set out in Table 3.5 below, along with how it is anticipated that they will influence the assessment.

Table 3.5: Summary of Embedded Environmental Measures

Ecological Feature	Predicted Impacts	Embedded measures and influence on assessment
Ashford Green Corridor LNR	Air quality changes as a result of increased traffic movements	Production of a Construction Management Plan (CMP) to include measures to limit dust exposure, control and manage construction waste and contaminants and minimise noise and traffic movements to reduce the impact of the proposed scheme on the LNR.
Habitats	Habitat loss, degradation, fragmentation	Minimise the number of access roads to limit fragmentation of the land. Planting a new native species, broadleaved woodland along the eastern boundary of the scheme providing a green corridor along the edge of the field boundary. Hedgerow planting and standard trees around and throughout the car park. Realignment of the works along Highfield Lane to ensure hedgerows are retained. These measures would minimise the impact on habitat loss / degradation / fragmentation as a result of the scheme.
Light sensitive species including bats, badgers, and terrestrial invertebrates	Increased light levels resulting in disturbance / displacement of light sensitive species	The lighting strategy has been designed to minimise light spill while ensuring safety. The strategy includes the use of: • LED lanterns with a colour temperature of 3000K has been specified as recommended in *Guidance Note 08/18 Bats and artificial lighting in UK*[6] • All lanterns are tilted at zero degrees to ensure that the light is focused on the ground with minimal upward light spill; and,

[6] Bat Conservation Trust and Institute of Lighting Professionals (2018) *Guidance Note 08/18 Bats and artificial lighting in UK*. Available at: https://cdn.bats.org.uk/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?mtime=20181113114229

Ecological Feature	Predicted Impacts	Embedded measures and influence on assessment
		• Column height used 12m / 10m and 8m. These would reduce any potential impacts of light to light sensitive species.
Reptiles	Loss of habitat and connectivity	Creation of a mosaic of habitat types that would provide enhanced reptile habitat, including provision of wildflower grassland, scrub / shrub planting and a series of ponds and drainage swales. This would reduce any impacts of the scheme on potential reptile habitat.
Dormouse, breeding and wintering birds	Habitat loss and fragmentation	Planting of woodland, shrub and trees within the design. Hedgerow planting using native woody species and wildflower meadows. This would reduce the potential impact of habitat loss and fragmentation on dormouse and bird species and provide a net gain of habitat for these species as a result of the scheme.

The construction environmental effects of the scheme will be managed through implementation of a detailed Construction Management Plan (CMP). The CMP will set out a series of measures, based on best-practice guidance relevant and appropriate to biodiversity, to control the environmental effects of construction of the scheme. This will include measures aimed at controlling noise, vibration and light impacts and methods for managing waste and methods for addressing pollution incidents, should they occur. A summary of these are set out in Table 3.6 below; these have been considered in the assessment of the construction effects.

Table 3.6: Summary of Construction Control Measures for the scheme CMP

Ecological Feature	Predicted Impacts	Control Measure during Construction
Ashford Green Corridor LNR	Degradation	Air pollution caused by dust generation during construction will be minimised as far as practicable. During earthworks methods will be employed to wet the material to suppress dust creation. Where possible haul roads will be constructed using bound material and regularly swept to minimise dust. These measures will minimise the impact on habitat degradation as a result of the scheme.
Species likely to be active within the site boundary i.e. bats, badger, and hedgehog *Erinaceus europaeus*	Disturbance to fauna due to noise levels	Best practice measures will be employed on site to minimise impacts due to construction noise as far as possible. Any plant used on site will be silenced / sound reduced models and will be appropriately maintained to reduce noise. Any static plant will be sited away from sensitive receptors or where necessary within acoustic enclosures. Screening may be deployed where appropriate.
	Habitat loss, degradation	Existing trees and vegetation to be retained (including hedgerows) will be protected during the construction phase with protective fencing where necessary. Air pollution caused by dust generation during construction will be minimised as far as practicable. During earthworks methods will be employed to wet the material to suppress dust creation. Where possible haul roads will be constructed used bound material and regularly swept to minimise dust. These measures will minimise the impact on habitat degradation as a result of the scheme.
	Death or injury to species if present on site during construction	The majority of the works will be programmed to operate during the day reducing the impact of encountering those species which are predominantly active at night or close to dusk / dawn. A Reptile Mitigation Strategy will be implemented in order to protect the reptile populations during construction. The following methodologies and techniques will be used prior to construction commencing: • Receptor site review

Ecological Feature	Predicted Impacts	Control Measure during Construction
		• Habitat manipulation • Trapping and translocation • Supervised soil strip • Sensitive timing of works • Worker awareness and sympathetic working practice
Breeding and wintering birds	Disturbance	Vegetation clearance will be programmed to avoid the nesting bird season (March – August inclusive). Where this is not possible a breeding bird survey will be carried out by an ecologist 48 hours in advance of proposed clearance works to check for bird nesting activity. If active nests are found a buffer of vegetation shall be retained until all young have fledged and the nest is deemed inactive by an ecologist.

The scheme CMP will be supported by the Landscape and Ecological Management Plan (LEMP) and Framework Ecological Mitigation Strategy (FEMS) which set out detailed mitigation proposals for protected and notable species present within the scheme together with further information on the management of both retained and new habitats.

4 Baseline Information

The surveys completed to date, as well as data collected from the following data sources will be used in developing a thorough understanding of the biodiversity baseline:

- Desk based data search (information collated using Multi-Agency Geographic Information for the Countryside[7]
- Joint Nature Conservation Committee[8]
- Kent Landscape Information System[9] (KLIS)

Previous reports including:

- Stour Park Sevington Environmental Statement[10], and:
- Stour Park West, Sevington, Kent, Phase 1A, Framework Ecological Mitigation Strategy[11] (FEMS).

The site has been subject to extensive ecological survey work since 2006. Middlemarch Environmental Ltd has undertaken a tranche of baseline ecological surveys of the site between 2012 and 2019 to support the Stour Park Environmental Statement. These surveys are summarised in Table 4.1 below.

Table 4.1: Survey Summary

Survey	Date	Report Reference
Review of Existing Ecological Data and Extended Phase 1 Habitat Survey	2012	RT-MME-111201-01
Winter bird surveys	2012	RT-MME-111201-02
Great crested newt survey	2012	RT-MME-111201-03
Reptile Survey	2012	RT-MME-111201-04
Badger survey	2012	RT-MME-111201-05
Water vole survey	2012	RT-MME-111201-06
Initial bat survey	2012	RT-MME-111201-07
Dormouse Habitat Assessment	2012	RT-MME-111201-08
Breeding bird survey	2012	RT-MME-111201-09
Hedgerow Regulations (1997) survey	2012	RT-MME-111201-010
Bat activity survey	2012	RT-MME-111201-011
Initial bat survey of buildings	2012	RT-MME-112274-01
Nocturnal and dawn bat surveys	2012	RT-MME-112274-02
Great crested newt survey	2014	RT-MME-116467
Preliminary Ecological Appraisal	2015	RT-MME-120243-01
Hedgerow Regulations (1997) Assessment	2015	RT-MME-120243-02
Dormouse habitat assessment	2015	RT-MME-120243-03
Reptile survey	2015	RT-MME-120243-04
Badger survey	2015	RT-MME-120243-05

[7] Defra. *MAGIC interactive map.* Available at: https://magic.defra.gov.uk/

[8] https://jncc.gov.uk/

[9] Kent County Council (2020) *KLIS Map.* Available at: https://webapps.kent.gov.uk/KCC.KLIS.Web.Sites.Public/ViewMap.aspx

[10] Waterman Infrastructure and Environment (2016) *Stour Park Sevington Environmental Statement Volume 1*

[11] Middlemarch Environmental Ltd (2019) *Stour Park West, Sevington, Kent, Phase 1A, Framework Ecological Mitigation Strategy*

Survey	Date	Report Reference
Bat activity survey	2015	RT-MME-120243-06
Bat tree roost inspection	2015	RT-MME-120243-07
Arboricultural Survey	2015	RT-MME-120243-08
Court Lodge Farm Buildings – Bat Surveys	2016	RT-MME-121385-02
Dormouse Survey	2019	RT-MME-130434

An updated Ecological Walkover has been completed in May 2020 by Mott MacDonald, to confirm whether there have been any changes to the ecological baseline and habitats within the site since 2015.

4.1 Designated Sites

No internationally designated sites were identified within 2km of the scheme. Two nationally designated sites occur within 2km of the scheme and three non-statutory designated sites occur within 1km, as presented in Table 4.2 below. There are no SACs designated for bats within 30km of the scheme.

Table 4.2: Designated Sites

Designation		Distance and direction from the site at its closest point	Qualifying features
Statutory Sites	Hatch Park SSSI	550m north east	This site is of special interest for its unimproved acidic grassland, a scarce habitat in Kent, and its ancient pollard woodlands, the latter supporting the richest epiphytic lichen community in the county. The site is also of importance for the mature timber habitat supporting beetles *Coleoptera* and hole-nesting birds such as nuthatch *Sitta europaea*, stock dove *Columba oenas*, and three species of woodpecker *Picidae*.
	Ashford Green Corridors LNR	50m west	Habitats include Singleton Lake, riverside pollards, urban meadows, ponds and parks. Riverside species include kingfisher *Alcedo atthis* and wintering birds on Singleton Lake.
Non-Statutory Sites	AS44 Willesborough Lees and Flowergarden Wood LWS	900m north	This site is protected due to its assemblage of wet woodland and bog habitats.
	AS19 South Willesborough Dyke LWS	1km south west	This area is protected as it is a marshland, which support a wide range of invertebrates, birds (a good population of snipe *Gallinago gallinago*) and mammals including dormice and water voles.

4.2 Habitats and Flora

Habitat types identified on site during the Phase 1 Habitat Survey (Report RT-MME-120243-01) undertaken in 2015 are summarised in Table 4.3 with updates based on the 2020 updated walkover survey provided where relevant. Please refer to Appendix A which details the Phase One Habitat Survey.

Table 4.3: Summary of Habitat Types

Habitat Type	Description
Arable	This was the dominant habitat within the survey area, occupying over 75% of the site. At the time of the Phase 1 survey visit in August 2015 this consisted of wheat *Triticum*. The 2020 survey confirmed that the site continues to be dominated by arable habitat. The south-western corner of the site, which was occupied by tall ruderal in 2015, has since been converted to arable. In 2015, arable also dominated the ecological mitigation area to the north of the site. This area was also planted with a crop of wheat. Since 2015, habitat establishment works have been completed, and the arable land has been converted to wildflower grassland.
Boundaries	The boundaries frequently comprised hedgerows of varying quality (see 'Hedgerows' below). Non-hedgerow boundaries were formed by a variety of fencing types including wooden fencing and wooden post and rail fencing adjacent to the A2070, and wooden post and stock-netting/barb wire fences, often with scrambling vegetation associated with them largely typified by bramble. The northern boundary of the ecological mitigation area was formed by a post and rail fence along the edge of the M20 motorway road verge. The 2020 survey confirmed that there has been no change to the non-hedgerow boundaries since the 2015 survey works were completed.
Ditches	Several ditch features were observed within the site around the semi-improved grassland to the north of St Mary's Church. These varied in width between 1m and 2m, with a depth of between 0.5m and 1m. These ditches were confirmed to be present during the 2020 walkover survey.
Hardstanding	A small section of the A2070 is included within the Site to the west, and Highfield Lane runs through the Site to the east.
Hedgerows	Five hedgerows were recorded within the site, generally delineating field boundaries. These varied in size, management and composition, and included species such as blackthorn *Prunus spinosa*, bramble *Rubus fruticosus,* hawthorn *Crataegus monogyna,* dogwood *Cornus sanguinea*, elder *Sambucus nigra*, field maple *Acer campestre*, hazel *Corylus avellana*, sycamore *Acer pseudoplatanus* and ivy *Hedera helix*. None of the five hedgerows were considered to be 'Important' in accordance with the Hedgerow Regulations (1997), although all hedgerows are a priority habitat in accordance with Section 41 of the *Natural Environment and Rural Communities Act (NERC) 2006*.
Improved Grassland	Patches of improved grassland were recorded along some of the road verges, in a grazing paddock in the western part of the site, and in a grassland area near to the southern site boundary. The improved grassland areas were generally dominated by perennial rye-grass *Lolium perenne*. The 2020 survey confirmed that there has been minimal change to the extent or species composition of this habitat since the 2015 survey works were completed.
Plantation Woodland	A small area of plantation woodland was located in the western part of the site, adjacent to the A2070 highway. A range of broad-leaved species were present including ash *Fraxinus excelsior*, oak *Quercus robur*, hazel, hawthorn and blackthorn. The 2020 survey confirmed that part of this woodland has been removed to facilitate the construction of the M20 J10a scheme.
Poor semi-improved grassland	Two fields of coarse semi-improved grassland are present on the western side of the site, sandwiched between St Mary's Church and arable fields. The sward is tussocky and appeared to be dominated by common grass species typified by cock's-foot *Dactylis glomerata* and couch grass *Elymus repens* and with a selection of common forbs and tall herbs including several species of umbellifers *Apiaceae*, thistles *Cirsium vulgare*, nettle *Urtica dioica*, common ragwort *Jacobaea vulgaris*, yarrow *Achillea millefolium* and stands of rosebay willowherb *Chamaenerion angustifolium*. Patches of invading bramble and elder scrub were also present in the field. Poor semi-improved grassland was also recorded within a field in the westernmost part of the site, adjacent to the A2070 highway, which was unmanaged and had a dense, tussocky sward. The 2020 survey confirmed that there has been minimal change to the extent or species composition of this habitat since the 2015 survey works were completed.
Scattered Trees	Scattered mature trees were present on both banks of a small watercourse that flows through the north-western corner. Species included common alder *Alnus glutinosa*, ash, sycamore, crack willow *Salix fragilis* and poplar *Populus nigra*. Additional mature trees were located alongside the wooden post and stock-netting fence line enclosing the arable field to the south of the small watercourse. Species included sycamore and poplar with one or two Scots pine *Pinus sylvestris* and horse chestnut *Aesculus hippocastanum*.
Scrub	Small pockets of scrub were occasionally noted within the site, often resulting from outward encroachment from hedgerows or present in field corners. Hawthorn and bramble were the

Habitat Type	Description
	dominant species with lesser amounts of blackthorn and elder. A linear stand of bramble scrub was present along the north of Highfield Road. Some additional scattered scrub was noted around the site peripheries during the 2020 survey, and an area of dense scrub was noted in the south-western corner of the site. Species recorded consisted of bramble, willow *Salix spp.* and hawthorn.
Tall Ruderal Vegetation	In 2015, an area of set aside was present in a large arable field to the southwest of the site. The area was composed of tall ruderal species including broom *Cytisus scoparius*, creeping thistle *Cirsium arvense*, dock *Rumex spp.*, oat-grass *Arrhenatherum spp.* and ragwort *Jacobaea vulgaris*. The 2020 survey confirmed that this area of tall ruderal was no longer present and was instead occupied by arable habitat. A second area of ruderal vegetation was present along the margins of the watercourse in the ecological mitigation area and is dominated by nettle, white deadnettle *Lamium album*, great willowherb *Epilobium hirsutum*, cleavers *Galium aparine*, and garlic mustard *Alliaria petiolata*. The 2020 survey confirmed that small pockets of tall ruderal had developed within the grassland areas in the north-western and south-eastern parts of the site.

The most notable habitats recorded on site are considered to be the hedgerows, which are Habitats of Principal Importance as listed under Section 41 of the *Natural Environment and Rural Communities Act 2006*. Other habitats of note include the plantation woodland, which is listed as a priority habitat in the Kent Biodiversity Action Plan, the ditches, which provide important ecological links across the site, and the mature scattered trees which have intrinsic value. The majority of other habitat types recorded on site are either species-poor, well represented in the local area or could easily be replicated if lost.

4.3 Protected and Notable Species

The results of the desk study and field surveys undertaken for protected[12] and notable[13] species to date are detailed below.

4.3.1 Amphibians

4.3.1.1 2012 surveys

In 2012, Middlemarch Environmental Ltd undertook a Great Crested Newt (GCN) survey and found great crested newts in two garden ponds (P20 and P21) located off Kingsford Street, forming a medium population. These ponds are located to the east of the scheme and a very small section of the scheme falls within a 500m radius of these ponds. Common amphibian species, including smooth newts *Lissotriton vulgaris*, palmate newts *Lissotriton helveticus*, common frog *Rana temporaria* and common toad *Bufo bufo* were also recorded in several of the ponds during the presence / absence surveys in 2012.

4.3.1.2 2014 Surveys

In 2014, Middlemarch Environmental Ltd undertook a GCN survey (Report RT-MME-116467) within a 500m radius of the M20 Junction 10a Scheme, which is located adjacent to the site. The survey area for the M20 Junction 10a Scheme overlaps and encompasses the site and surrounding area and was therefore sufficient to update the earlier surveys undertaken at the site in 2008 and 2012.

Seventeen waterbodies were identified within the survey area. Of these 17 ponds, four ponds (P7, P8, P22 and P23) could not be surveyed due to access constraints, six ponds (P1, P6, P9,

[12] Species protected under current environmental legislation such the *Conservation of Habitats and Species Regulations (2017)*, *Wildlife and Countryside Act (1981) (as amended)* and the *Badger Act (1992)*.

[13] Those species listed under S41 of the *NERC Act (2006)*.

P10, P11 and P13) were scoped out of further assessment due to a lack of habitat connectivity and the presence of dispersal barriers, and the remaining seven ponds (P2, P3, P4, P5, P19, P20 and P21) were subject to Habitat Suitability Index (HSI) Assessments and presence / absence surveys.

Two ponds (P3 and P4) were categorised as having 'excellent' habitat suitability, three ponds (P5, P19 and P20) were categorised as having 'good' suitability, and two ponds (P2 and P21) were categorised as having 'average' suitability for great crested newts.

The 2014 presence / absence surveys revealed that a small population of great crested newts was present in Pond P20, one of the garden ponds located off Kingsford Street where great crested newts had previously been recorded during the 2012 surveys. Smooth newts were also recorded in two ponds (P4 and P20) during the 2014 presence / absence surveys.

4.3.2 Bats

4.3.2.1 2008 Surveys

Parsons Brinkerhoff carried out bat surveys at the site in 2008. Two tree roosts and two notable foraging areas within and adjacent to the site boundary were recorded. A total of five species of bat were identified using the site, and activity was dominated by common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*. Two records of a Myotis species to the north of the site were highlighted, although it is unclear whether these referred to roost locations or activity records.

4.3.2.2 2010 Surveys

Surveys were completed by URS Corporation Ltd in July, August and September 2010. No bat roosts were recorded on site. A total of five species of bat were recorded using the site for foraging and commuting. As in 2008, bat activity was dominated by common and soprano pipistrelle.

4.3.2.3 2012 Surveys

The site was subject to bat surveys, undertaken by Middlemarch Environmental Ltd in 2012. These included initial daytime surveys of trees and built structures, nocturnal and dawn emergence and activity surveys, and walked activity transect surveys. Built structures adjacent to the site with potential to support bat roosts included the Court Farm complex, St. Mary's Church, Bridge Cottage and Highfield Cottage, although formal access to these properties to undertake a detailed inspection was not granted. A brick-built bridge over Aylesford Stream (outside of the site boundary) was also found to offer some roost potential. All other bridges and culverts were assessed and found to offer negligible bat roost potential.

Dusk emergence and dawn re-entry surveys were undertaken in order to assess whether features identified during the initial daytime surveys supported bat roosts. Where formal land access was not granted (to the Court Farm complex), surveyors assessed the properties from Public Rights of Way (PROW). Bat roosts identified within or in proximity to the site in 2012 are summarised in Table 4.4 below.

Table 4.4: Summary of Bat Roost Locations in Proximity to the Site

Roost Number	Species	Location	Distance from the Site	Notes
1	Common pipistrelle	Mature horse chestnut tree or adjacent stump to north of St Mary's Church	150m north	Patterns of activity recorded during the 2012 surveys indicate a common pipistrelle roost within a mature horse chestnut tree or adjacent dead stump along the northern boundary of the field to the north of St Mary's Church. Early detections of a single common pipistrelle were recorded by these trees during both nocturnal surveys, although no dawn re-entry was noted. This location corresponds with a tree roost location reported from the 2008 bat surveys undertaken on site.
2	Common pipistrelle	St Mary's Church	46m south west	Maximum of two common pipistrelles seen emerging from slipped tiles on southern face of Church during nocturnal surveys, and one common pipistrelle seen to re-enter during dawn survey.
3	Common pipistrelle	Court Farm Complex	Approximately 90m south east	Precise roost location not confirmed due to lack of formal access. Early detection of foraging common pipistrelle in gardens of Court Lodge during both surveys indicates roost site within the complex of buildings. Late detection of common pipistrelle recorded during dawn survey, although entry into roost location not observed.

No roosts were found to fall within the site boundary, although the tree roost (Roost 1) is situated towards the northern boundary and the roosts within the buildings (Roosts 2 and 3) are both located in close proximity to the western boundary of the site.

A total of five species of bat were recorded using the site for foraging and commuting: common and soprano pipistrelle, noctule *Nyctalus noctula*, Leisler's bat *Nyctalus leisleri*, and Natterer's bat *Myotis nattereri*, with the majority of activity attributable to common and soprano pipistrelles.

4.3.2.4 2015 Surveys

A daytime bat survey (Report RT-MME-120243-07) was undertaken in 2015 for trees at the site by Middlemarch Environmental Ltd. A total of 27 Category '1*', '1' or '2' trees (Hundt, 2012[14]) with potential features suitable for roosting bats were identified, all of which were situated outside, but adjacent to, the north of the site boundary. These included a number of mature poplar, sycamore and horse chestnut trees along the northern boundary of the grassland area to the north of St Mary's Church.

The bat activity surveys (Report RT-MME-120243-06) completed in August, September and October 2015 allowed areas of key bat activity to be confirmed. A total of four species of bat were recorded on, or in proximity to, the site during the activity transect and static surveys. These were: common pipistrelle, soprano pipistrelle, noctule, and a Myotis species which was considered to be Whiskered/Brandt's bat *Myotis mystacinus/Myotis brandti*.

[14] Hundt L (2012) *Bat Surveys: Good Practice Guidelines*, 2nd edition, Bat Conservation Trust ISBN-13: 9781872745985

Common and soprano pipistrelle were the most frequently encountered species, mainly associated with the field boundaries in the north-west of the site. However, activity for both species was considered to be low and generally clustered at one or a few points each night. Noctules were encountered infrequently, and only a single detection of the Whiskered / Brant's bat was made during the September transect survey. The assemblage of species using the site during the 2015 surveys is similar to the findings of the previous bat survey works undertaken at the site in 2008, 2010 and 2012, with the exception of the serotine, which was recorded in 2010 and 2012, and Natterer's bat which was recorded in 2012 only, in an area that is outside of the current site boundary.

Most bat activity was concentrated along the boundary features in north-west of the site and Church road in the south-west. These areas of bat activity generally correspond to the concentrated areas of bat activity identified during the 2012 surveys, although it should be noted that many of the areas where bat activity was highest in 2012 are now outside of the site boundary.

4.3.2.5 2016 Surveys

In 2016 Middlemarch Environmental Ltd carried out bat surveys (Report RT-MME-121385-02), consisting of a Preliminary Roost Assessment and dusk emergence and dawn re-entry bat surveys at Court Lodge Farm, which is located adjacent to the site. The Preliminary Roost Assessment was undertaken 11 August 2016 and identified a number of potential features which could be utilised by roosting bats within several of the buildings and trees located within the site, although many of these could not be fully inspected due to their height and location. As a result, it was recommended that further survey work, in the form of dusk emergence and dawn re-entry bat surveys, be undertaken. These surveys were completed between 17 August and 23 September 2016. No bats emerged from any of the buildings within the Court Lodge Farm Complex. Foraging and commuting activity by common pipistrelle, noctule and brown long-eared *Plecotus auritus* bats was recorded on site during the surveys.

4.3.3 Badger

4.3.3.1 2015 Surveys

The site was subject to a badger survey, comprising both walkover surveys to identify field signs and activity monitoring of sett locations in August 2015. No badger setts were recorded on site in 2015. Four badger setts were present adjacent to north of the site boundary in 2012 and included a main sett, an annexe sett and two outliers in the locations of those previously recorded in 2012. Only the annexe and the two outlier setts were considered to be in current but sporadic use. None of the identified setts fall within the current site boundary or within 50m of the current site boundary. The nearest identified sett to the site boundary is located approximately 50m to the north or 70m to the east of the ecological mitigation area.

4.3.3.2 2020 Surveys

During the walkover survey undertaken in May 2020 by Mott MacDonald, an active outlier sett (one hole) was identified towards the north west of the site.

4.3.4 Birds

4.3.4.1 Wintering Birds

Winter bird survey visits were undertaken at the site in January, February, November and December 2012. The wintering bird survey encompassed both the site and an area of land to

the north where a new road link is proposed (M20 Junction 10a Scheme). However, in order to reflect boundary changes since 2012, this section only includes data which is relevant to the current boundaries of the site.

A total of 41 bird species were recorded using the site during the winter bird survey visits. The list of 41 species included:

- Eight species listed as Species of Principal Importance (bullfinch *Pyrrhula pyrrhula*, dunnock *Prunella modularis*, herring gull *Larus argentatus*, lapwing *Vanellus vanellus*, skylark *Alauda arvensis*, song thrush *Turdus philomelos*, starling *Sturnus vulgaris* and yellowhammer *Emberiza citrinella*)
- Three species listed as Priority Species in the Kent BAP (bullfinch, skylark and song thrush)
- Seven species Red Listed[15] by The Royal Society for the Protection of Birds (RSPB) (fieldfare *Turdus pilaris*, herring gull, lapwing, redwing *Turdus iliacus*, skylark, song thrush and starling)
- Ten species Amber Listed[16] by the RSPB (barn owl *Tyto alba*, black-headed gull *Chroicocephalus ridibundus*, bullfinch, dunnock, golden plover *Pluvialis apricaria*, green woodpecker *Picus viridis*, lesser black-backed gull *Larus fuscus*, mallard *Anas platyrhynchos*, mistle thrush *Turdus viscivorus* and stock dove)

The site was found to be of lower (local/district) value to wintering birds, with a few notable concentrations of feeding or roosting birds identified. The site is dominated by arable farmland, which was found to support wintering species including skylark and lapwing, and larger numbers of mixed gulls. In addition, a small flock of 12 golden plover was recorded within the arable land during the January 2012 survey visit. It is considered likely that this occurrence may relate to birds taking advantage of a temporary feeding resource rather than the site being a regular wintering area supporting significant numbers of this wading bird.

The lack of substantial areas of open water and mature woodland on site accounted for the limited diversity of wildfowl and typical woodland species, including corvids *Corvidae*, pigeons *Columbidae*, woodpeckers, tits *Paridae* and finch *Fringillidae* species. In terms of raptors, the site was noted to support three species, namely tawny owl *Strix aluco*, common buzzard *Buteo buteo* and sparrowhawk *Accipiter nisus*. These species are common and widespread and are not unexpected given the size of the study area and the types of habitat present. The site included an area of coarse neutral grassland which is the favoured hunting habitat of barn owl. However, it should be noted that this low-flying species is frequently detrimentally impacted by the presence of major road routes such as the M20 motorway, A20 and A2070 as a result of collisions with traffic.

The boundary hedgerows within the site provided foraging and roosting areas for passerines with species such as blackbird *Turdus merula*, song thrush, fieldfare, redwing, and goldfinch *Carduelis carduelis* noted feeding within these habitats and utilizing their protective cover at dusk. Passerine numbers were greatest in November and December 2012. Other species of conservation concern recorded on site included starling and song thrush.

4.3.4.2 Breeding Birds

A breeding bird survey of the site was completed between March and late June 2012. As with the wintering bird survey, this survey encompassed both the site and an area of land to the

[15] Red listed species are those identified as being of national nature conservation concern due to sharp declines of over 50% of the in the past 25 years in their respective UK populations.

[16] Amber listed species are those identified as suffering moderate declines of 25-49% in the past 25 years in their respective UK populations.

north in which a new link road is proposed. However, in order to reflect boundary changes since 2012, this section only includes data which is relevant to the current boundaries of the site.

A total of 24 species of bird were recorded within the site during the 2012 breeding bird survey, of which 21 species were confirmed to have bred or were thought likely to have done so. The remaining three bird species were either passage migrants or were recorded within habitats outside of the survey footprint. The 21 species thought to have bred within the site include:

- Five species listed as Species of Principal Importance (linnet *Linaria cannabina*, skylark, song thrush, starling and yellowhammer)
- Four species Red Listed by RSPB (linnet, sky lark, song thrush and starling)
- Four species Amber Listed by RSPB (common whitethroat *Sylvia communis*, dunnock, stock dove and yellowhammer)

The most notable concentration of breeding birds within the site was adjacent to the southern boundary in proximity to Bridge Cottage, where, linnet and yellowhammer were recorded. In addition, the arable fields within the site were found to support a minimum of five breeding sky lark territories during the 2012 surveys. Other species of conservation concern confirmed to be breeding within the site were whitethroat, dunnock and song thrush.

Other breeding birds within the site were generally common passerine species typical of scrub and boundary habitats, such as robin *Erithacus rubecula*, chaffinch *Fringilla coelebs*, blackbird and wren *Troglodytidae*. The highest concentrations of species were associated with boundary features such as hedgerows and scattered trees.

The site does not include any significant areas of open water or woodland habitat, which may explain the overall lack of breeding wildfowl, wader, corvid and raptor species. With the exception of moorhen *Gallinula*, a ubiquitous species, no further records of wildfowl, waders, corvids or raptors were made during the 2012 breeding bird survey.

Overall, the findings of the 2012 survey concur with the previous surveys undertaken in 2008 and 2010. Based on breeding diversity criteria defined by Fuller (1980)[17], the site is currently considered to be of lower (local) value with regard to breeding birds, and falls some way short of the species diversity required for the site to be considered of medium (county) value.

During the 2020 updated walkover undertaken by Mott MacDonald, skylarks were recorded within the arable fields, a result consistent with the results obtained during the surveys completed in 2012.

4.3.5 Dormice

4.3.5.1 2010 Survey

URS Corporation Ltd carried out a nest-tube survey at the site in 2010. Tubes were installed and monitored between July and October. No dormice were found during this survey.

4.3.5.2 2012 Survey

The habitat assessment undertaken in 2012 revealed the majority of habitats within the site to be suboptimal to support this species. The exceptions were:

- A length of hedgerow to the north of St Mary's Church, comprising coppiced hazel and blackthorn

[17] Fuller, R. J. (1980) A method for assessing the ornithological interest of sites for conservation. *Biological Conservation,* 17(3), 229-239.

- A hedgerow dominated by coppiced hazel, running along the northern side of Church Road.

4.3.5.3 2015 Surveys

The site was subject to a Dormouse Habitat Assessment (Report RT-MME-120243-03), based on walkover surveys undertaken in August 2015. Both lengths of hedgerow assessed in 2012 were also present in the site in 2015 and considered to provide suitable habitat for dormice. An additional area of linear scrub was also present within the site to the north of Highfield Lane, which was also deemed to offer some potentially suitable habitat for dormice.

A review of mapped data and aerial imagery indicates that the site is isolated on at least three sides by the presence of large man-made structures, consisting of the expanding settlement of Ashford to the west, the Channel Tunnel Rail Link to the south and the M20 motorway to the east. The site does abut open countryside to the east; however, this countryside is characterized by large arable fields with sparse hedgerow boundaries that are generally unsuitable to support dormice.

Mott McDonald carried out a dormice survey for the M20 Junction 10a Scheme. The results of the survey revealed the presence of three dormice nests in a plantation woodland to the north-east of the site adjacent to the M20 motorway. Due to the unsuitability of the surrounding hedgerows within the northeast of the site, it is considered that there is negligible/low potential that dormice from this adjacent population will be present within the site.

In addition, dormouse evidence was recorded in a section of woodland off-site to the west of Church Lane. This woodland is situated in close proximity to the hedgerow with dormouse potential located within the site boundary to the north of Church Road.

4.3.5.4 2019 Surveys

In 2019, Middlemarch Environmental Ltd undertook a dormouse survey of the site between April and November 2019. A total of 100 tubes were deployed and dormouse evidence was recorded in the following locations:

- Six dormice nests in tubes, and evidence of two additional dormouse nests on top of bird boxes, situated along Transect B, in the small block of broadleaved woodland to the west of the site
- One dormouse nest in a tube located towards the eastern end of Transect C, within vegetation located to the north of Church Road
- Four dormice nests in tubes towards the southern extent of the hedgerow along Transect D (Highfield Lane)

4.3.6 Invertebrates

A desk study undertaken in support of the Junction 10a Scheme in 2010 identified records of a wider range of species. These were long-legged fly *Dolichopodidae*, picture-winged fly *Ulidiidae*, toadflax brocade moth *Calophasia lunula*, white spot moth *Hadena albimacula*, black-veined moth *Siona lineata*, small blue, wall, spinach moth *Eulithis mellinata*, buff ermine moth *Spilarctia luteum*, cinnabar moth, mouse moth, dusky brocade moth *Apamea remissa*, rosy rustic and rustic moths *Hoplodrina blanda*, orange-tip *Anthocharis cardamines*, peacock *Aglais io*, meadow brown *Maniola jurtina*, large white *Pieris brassicae*, small white *Pieris rapae*, painted lady *Vanessa cardui*, small tortoiseshell *Aglais urticae*, comma *Polygonia c-album*, speckled wood *Pararge aegeria*, gatekeeper *Pyronia tithonus*, large skipper *Ochlodes sylvanus*, red admiral *Vanessa atalanta*, common blue *Polyommatus icarus*, holly blue *Celastrina argiolus*, green-veined white *Pieris napi*, purple hairstreak *Neozephyrus quercus*, small copper *Lycaena*

phlaeas, brown argus *Aricia agestis*, and silver-washed fritillary *Argynnis paphia*. These records were mainly from Hinxhill (Quarrington Wood), Mersham Hatch, Mersham (Brookhanger Wood) and Willesborough.

An invertebrate survey associated with the proposed Junction 10a Scheme was undertaken for URS Corporation in August 2010. This survey concentrated on the following habitats that would have been impacted by the proposed road junction development: the grassland to the north of St Mary's Church, vegetation either side of the Aylesford Stream, and vegetation adjacent to the A20 Hythe Road. The survey identified a total of 114 terrestrial invertebrates and 77 aquatic invertebrates. The majority of terrestrial invertebrates were recorded along the sides of the A20 and the grassland to the north of St Mary's Church. Two nationally scarce species were recorded: long winged conehead *Conocephalus discolor* and Adonis ladybird *Hippodamia variegata*. A small pond in the north-eastern corner of the field to the north of St Mary's Church (outside of the site boundary) was found to support several species of water beetle, however no aquatic invertebrates of high conservation value were recorded.

The desktop study provided by KMBRC in 2012 included records of a small number of priority invertebrate Species of Principal Importance, including stag beetle *Lucanus cervus*, moth species (cinnabar *Tyria jacobaeae*, rosy rustic *Hydraecia micacea*, mouse moth *Amphipyra tragopoginis*), and butterfly species (white admiral *Limenitis camilla*, small blue *Cupido minimus*, wall *Lasiommata megera*, small heath *Coenonympha pamphilus*).

4.3.7 Reptiles

Middlemarch Environmental Ltd carried out a reptile survey of habitats within the original red line boundary for the scheme in August and September 2015.

- The reptile surveys undertaken in 2015 recorded three reptile species (common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and slow worm *Anguis fragilis*) in a number of locations within the site boundary. These locations were:
  - Common lizard, grass snake and slow worm recorded within the grassland area to the north of St Mary's Church
  - Common lizard within grassland areas adjacent to the southern site boundary, including land to the southeast of Bridge Cottage and the northern road verge of Highfield Lane
  - Common lizard and slow worm within the margins of the ecological mitigation area to the north of the site
  - Slow worm within the road verges of the A2070 Bad Munstereifel Way

Population estimates were undertaken using a methodology described by Froglife[18] for assessing 'Key Reptile Sites'. The findings of this exercise indicate that the site generally supports 'low' populations of the three species recorded, although an exceptional population of slow worm is present along the road verges of the A2070 Bad Munstereifel Way.

The site supports two areas that are considered to be a 'Key Reptile Sites' in accordance with the Froglife criteria. The area of rough grassland to the north of St Mary's Church is considered to be a 'Key Reptile Site' because it was found to support populations of three native reptile species (albeit in fairly low numbers). The road verges of the A2070 Bad Munstereifel Way are considered to be a 'Key Reptile Site' because it found to support an exceptional population of a reptile species (slow worm).

[18] Froglife (1999) *Reptile survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10.* Froglife: Peterborough.

4.3.8 Water vole

The Aylesford Stream was subject to a survey for evidence of water voles in May 2012. The Aylesford Stream is located 130m north of the scheme boundary. The 2012 survey confirmed the presence of water voles within the Aylesford Stream. Widespread evidence was found along the length of the surveyed watercourse, including 10 potential burrows, grazing areas, latrine sites and footprints.

4.3.9 Other Species

Desk study data from previous studies includes records of brown hare *Lepus europaeus* and hedgehog within the 2km search radius. No observations of either species were made during any survey work undertaken by Middlemarch Environmental Ltd in 2012 or in 2015; however, the arable land and associated boundary features provide suitable habitat for these species respectively. A summary of protected species can be found within the drawing in Appendix B. Table 4.5 below summarises the ecological features identified and the scale at which they are important.

Table 4.5: Resource Importance

Ecological Feature	Resource Importance
Hatch Park SSSI	National
Ashford Green Corridors LNR	County
AS44 Willesborough Lees and Flowergarden Wood LWS	Local
AS19 South Willesborough Dyke LWS	Local
Ditches	Local
Hedgerows	County
Plantation Woodland	Local
Scattered Trees	Local
Breeding Birds	Local
Wintering Birds	Local
Badger	Local
Water Vole	County
Bats	Local
Reptiles	Local
Invertebrates	County
Dormice	County
Brown hare	Local
Hedgehog	Local

4.3.10 Insignificant Effects

For the purpose of this report, ecological features of Local importance or higher are assessed as being an important ecological feature and are carried forward into the assessment. Potential effects on the following ecological features have been considered insignificant and have therefore not been considered within this assessment:

- Temporary and permanent disturbance / loss of arable, tall ruderal, scrub, improved grassland, and poor semi-improved grassland during construction and operation. The protected species these habitats may support are considered but the habitats themselves are not considered important at the Local scale.

- The scheme would not result in the loss of any GCN breeding ponds. The nearest confirmed breeding population is located approximately 500m to the east and is separated from the site by a large expanse of arable habitat. Populations of common amphibians (smooth newt and palmate newt) were also recorded in this pond during surveys in 2014. Due to the lack of aquatic habitat within the site footprint and the large distance and poor quality of intervening terrestrial habitat between the known breeding ponds and the site boundary it is considered that the scheme would have a negligible effect on great crested newts and common amphibians. Therefore, the numbers of amphibians likely to be present within the boundary of the scheme are not considered to be of Local importance.

5 Predicted Impacts

5.1 Construction Impacts

5.1.1 Designated Sites

5.1.1.1 Hatch Park SSSI

Hatch Park is notified as a SSSI as it contains unimproved acidic grassland, a scarce habitat type in Kent, and ancient pollarded woodland which supports the richest epiphytic lichen community in the county. This SSSI is located approximately 550m north east of the scheme at its closest point. Habitat connectivity between the scheme and Hatch Park SSSI is fragmented by the presence of intensively managed arable farmland and the M20 motorway corridor, in addition to a number of other roads. Due to the distance from the scheme and the lack of connectivity, no direct or indirect effects (permanent or temporary) are anticipated.

5.1.1.2 Ashford Green Corridors LNR

Ashford Green Corridors LNR comprises a chain of green sites that links the centre of Ashford to the surrounding countryside. A variety of habitat types are supported, including open water, riparian habitat, woodland and urban meadows.

One the network of sites that forms part of the Ashford Green Corridors LNR is located approximately 50m to the west of the site boundary and is separated from the site by the A2070 Bad Munstereifel Road. This part of the LNR comprises an ‘L’ shaped parcel of woodland / parkland habitat.

No direct effects (permanent or temporary) on this LNR are anticipated during the construction phase of the development, as works would be confined to the site footprint. Furthermore, it is noted that the part of the LNR that is adjacent to the site is at the easternmost end of the chain of sites that form the nature conservation site, therefore the location of the development is not anticipated to lead to any fragmentation / severance issues that could damage connectivity through the site network that forms the LNR.

The proximity of the LNR to the site means, however, that some temporary minor indirect effects could occur during the construction process in the absence of mitigation, e.g. dust deposition and noise pollution. This could result in a temporary minor adverse impact, with slight adverse effects which are not significant.

5.1.1.3 Non-Statutory Nature Conservation Sites

Two non-statutory nature conservation sites are located between 900m and 1km from the scheme and have no direct connectivity. Therefore, no direct or indirect construction phase effects on Willesborough Lees and Flowergarden Wood LWS and South Willesborough Dyke LWS are anticipated.

5.1.2 Habitats

The construction of the scheme would result in the removal of a proportion of the habitats during construction and associated works. The approximate area (ha) of habitat loss within the scheme footprint is provided in Table 5.1 below.

Table 5.1: Habitats within Scheme footprint

Habitat Type	Area (Ha)	Permanent Loss (Ha)	% Loss
Arable	80.63	47	58%
Ditches	N/A	N/A	N/A
Hedgerows	0.61	0.03	5%
Improved Grassland	0.35	N/A	N/A
Plantation Woodland	0.22	N/A	N/A
Poor semi-improved grassland	3.74	0.6	16%
Scattered Trees	0.02	0.005	25%
Scrub	0.86	0.01	1%
Tall Ruderal Vegetation	0.75	0.08	11%

Direct impacts include the removal of 0.03 ha of intact hedgerow, scrub and scattered trees to allow construction of new access points into the site. No 'important' hedgerows under the *Hedgerow Regulations 1997* would be removed. The predominant habitat loss is arable fields and poor semi-improved grassland during construction of the new parking areas. The plantation woodland and ditches will remain unaffected by the construction works.

Whilst it is recognised that there would be a period of time required for newly planted habitats to become established and functional, it is considered that embedded mitigation, in the form of landscape planting, would offset ecological effects associated with habitat loss. The landscape design includes the commitment for the creation of locally important habitats, woodland, species rich wildflower meadow, native shrub, specimen trees and hedgerows, together with appropriate management programmes are detailed within the LEMP. The Sustainable Drainage Systems (SuDS) ponds are to incorporate a wildflower pond mix with both marginal and aquatic planting.

New, interlinked, hedgerow and woodland planting would provide wildlife corridors around the scheme, maintaining and enhancing the integrity of the hedgerow network and avoiding habitat fragmentation following construction. This connectivity and increase in areas of semi-natural habitats would maximise the resilience and functionality of habitats within the scheme, therefore augmenting the contribution of new habitats within the local area. Impacts as a result of habitat loss would be an adverse impact of minor magnitude, with slight adverse effects that are not significant.

Embedded mitigation measures, including waterborne pollution prevention measures and dust suppression measures, would ensure retained hedgerows, ditches and habitat creation areas are protected from deterioration caused by the release of harmful pollutants during construction. Appropriate ecological supervision would establish root protection areas of retained trees and hedgerows and prevent direct and indirect impacts. The impact of habitat degradation of retained habitats would be of minor magnitude, with neutral/slight adverse effects that are not significant.

5.1.3 Protected Species

5.1.3.1 Bats

No confirmed bat roosts would be lost or damaged as a result of direct impacts of the scheme. However, as a number of known roosts are within close proximity to the scheme, the nearest roost is located approximately 46m south west, it is possible that these roosts could be subject to indirect effects during the construction process, including increased noise, vibration and deposition of dust. The risk of disturbance from these sources is considered to be low due to the distance and is unlikely to affect the favourable conservation status of local bat populations.

These indirect impacts would be an adverse impact of minor magnitude, with slight adverse effects that are not significant. To ensure no reduction of roosting opportunities, 10 bat boxes (at varying aspects) would be deployed within retained vegetation. Boxes would be deployed at suitable locations and at an appropriate distance from construction activities to minimise disturbance.

It is not proposed that night-time working would be allowed during the months when bats are actively foraging (April to October inclusive) and therefore lighting disturbance to foraging bats during the construction phase is considered to be low. The effect of lighting on bats is therefore considered to be not significant.

The areas where the highest bat activity was recorded was concentrated along the boundary features within the north-west of the site and along Church Road in the south-west. Common and soprano pipistrelle were the most frequently encountered species. These commuting routes would not be severed by the scheme.

There would be habitat loss of small sections of hedgerow along Highfield Lane to facilitate the scheme construction (Sevington IBF – Vegetation Clearance. Drawing ref: 419419-MMD-01-MO-DR-C-0028). Embedded mitigation in the form of landscape planting within the Environmental Masterplan (drawing ref: 419419-MMD-01-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MMD-01-MO-DR-L-3031) would offset effects on bats associated with habitat loss. Retained hedgerows are to be integrated into the planting of the site and the landscape design would lead to a net increase in the overall area of suitable habitats for the species (including woodland and hedgerows) and avoid fragmentation of commuting routes once planting has matured. The area of grassland habitat to be created towards the north east of the scheme would result in increased habitat suitability for foraging and commuting bats across the scheme. The impact of habitat loss would be an impact of minor magnitude, with neutral/slight adverse effects that are not significant.

5.1.3.2 Badger

An active single hole outlier was recorded within the site during the walkover undertaken in May 2020. To facilitate the construction works, the sett would need to be closed under a Natural England licence. As this is an outlier sett, the construction of a new sett is not required. Other confirmed active setts which are located approximately 50m to the north of the site boundary along a field boundary hedgerow would remain unaffected.

The habitats within the site are likely to form part of the home range of the badger population, given the proximity of badger setts to the north of the site. The construction phase of the scheme would only effect upon part of the home range of the badger population, and would include the provision of new landscaping that would incorporate a range of habitat types of value to foraging badgers, including areas of wildflower grassland, woodland and native tree and shrub planting. The former habitat type would provide suitable habitat for earthworms, the favoured prey item of the badger, and the latter habitats would provide fruit and berries that would also be of value for foraging badgers.

During construction, the impact of habitat loss would be an impact of minor magnitude, with neutral/slight adverse effects that are not significant.

5.1.3.3 Birds

The scheme would result in the loss of arable fields (47ha), scrub (0.01ha) and semi-improved / poor semi-improved grassland (0.6ha), as well as small sections of hedgerow, the majority of which would be permanent. Potential impacts during construction activities on birds include the

loss and fragmentation of foraging, roosting and breeding habitat. As well as reducing the available habitat, this would increase the vulnerability of species to a range of external factors such as adverse weather conditions and predators.

The habitats support low concentrations of breeding and wintering farmland bird species, most notably species such as skylark (breeding and wintering), yellowhammer (breeding and wintering) and lapwing (wintering). Whilst the site is considered to be of low to moderate value for its concentrations of breeding and wintering birds, it is recognised that the loss of arable habitat within the site, could potentially lead to displacement of breeding and wintering birds into new territories within adjacent habitat.

However, suitable farmland habitat is widespread in the area, with large expanses located in proximity to the site to the north, east and south, therefore it is not considered that the scheme would have a significant effect on the favourable conservation status of local breeding and wintering farmland bird populations. It is therefore considered that the proposed loss of predominantly arable habitat would have an impact of minor magnitude, resulting in a slight adverse effect, that is not significant.

Vegetation clearance should be undertaken outside the nesting bird season to avoid effects of direct impacts on breeding birds. The nesting bird season is weather dependent but generally extends between March and September inclusive. If this is not possible then any vegetation that is to be removed or disturbed should be checked by an experienced ecologist for nesting birds immediately prior to works commencing. If birds are found to be nesting, any works which may affect them will have to be delayed until the young have fledged and the nest has been abandoned naturally. This timing of works has been incorporated into the CMP (and will be implemented throughout the construction phases).

There would be an increase in disturbance (light, visual and noise) during construction which may displace bird species from habitats retained around the scheme. General design mitigation would minimise disturbance levels. Noisy activities and night-time working or floodlit works would be restricted to a prescribed working corridor, as stated in the CMP. Construction requirements such as haul routes, material storage areas, compounds, lighting and generators would be carefully sited and temporary screening would be provided as required. Lighting would be minimised to avoid light spill of habitats retained around the construction area.

In the absence of mitigation, the clearance of habitats required as part of the construction phase of the scheme could lead to the disturbance, injury or killing of nest building birds. Based on the established value of the site to breeding birds and the species present, this impact would have a temporary minor magnitude, resulting in a slight adverse effect that is not significant.

The landscaping and habitat creation work proposed as part of the construction phase of the scheme would provide locally important habitats including broadleaved woodland, species rich wildflower meadow, native shrub, specimen trees and species rich hedgerows and the provision of a series of ponds and drainage swales. This would increase the availability of potential nesting sites and food sources for a range of tree and scrub dwelling passerine species, including species of conservation concern such as song thrush, bullfinch and common whitethroat. The provision of a series of SuDS ponds would also provide a habitat type that is currently absent from the site and would provide habitat opportunities for wildfowl and other species closely associated with aquatic habitats.

5.1.3.4 Dormice

Small sections of hedgerow and scrub to the north of Church Road and Highfield Lane are to be removed to facilitate construction of the scheme. Dormouse presence have been confirmed (in

2019) within these habitats, despite their apparent isolation from larger areas of suitable habitat such as woodland. The removal of vegetation has the potential to disturb, injure or result in death of individual dormice and loss of habitat for foraging and shelter if unmitigated. A Natural England development licence will be required and will detail a sensitive method of vegetation clearance, in accordance with best practise, to ensure any potential harm to dormice is reduced.

There would be an increase in disturbance (light, visual and noise) during construction which may displace dormice from habitats retained around the scheme. General design mitigation would minimise disturbance levels. Noisy activities and night-time working or floodlit works would be restricted to a prescribed working corridor, as stated in the CMP. Construction requirements such as haul routes, material storage areas, compounds, lighting and generators would be carefully sited as required. Lighting would be minimised to avoid light spill of habitats retained around the construction area.

Embedded mitigation in the form of landscape planting would offset effects on dormice associated with habitat loss. Retained hedgerows are to be integrated into the planting of the site and the landscape design would lead to a net increase in the overall area of suitable habitats for the species (including woodland and hedgerows) and avoid fragmentation of habitats once planting has matured. The proposed landscaping includes the creation of areas of woodland, native shrub and hedgerow planting throughout the site. This would increase the available habitat for dormice and provide improved connectivity between the site and suitable dormice habitats within the wider landscape. During construction, the impact of habitat loss and increases levels of disturbance would be of minor magnitude, resulting in a slight adverse effect, that is not significant.

5.1.3.5 Invertebrates

The construction phase of the scheme would result in the partial loss of an area of semi-improved grassland habitat to the north of St Mary's Church that has been found to support two nationally scarce species: long winged conehead and Adonis ladybird. The former is a bush cricket species of southern and eastern England which favours rough grassland and woodland rides, and the latter is a beetle species with an easterly distribution that favours ruderal, weedy vegetation on well drained sandy soils.

The scheme would result in the displacement of invertebrate species into the adjacent part of the field that falls outside of the scheme boundary, and would involve the creation of a mosaic of habitats in the area including wildflower grassland, open water, marginal vegetation and tree and shrub planting.

Overall, it is considered that the proposals would diversify the available invertebrate habitat in this area, although those habitats to be created might not necessarily provide optimal conditions for long winged conehead or Adonis ladybird. The habitat creation proposals for the remainder of the site, particularly in areas currently occupied by arable farmland with minimal field margins, would enhance the quality of habitat for a range of invertebrates, particularly aquatic species which are largely absent from the site at present.

During construction, the impact of habitat loss would be of minor magnitude, resulting in a slight adverse effect, that is not significant.

5.1.3.6 Reptiles

The construction phase of the scheme would largely be concentrated within arable farmland that is of no value to reptile species. It would, however, have an effect upon part of the complex of fields to the north of St Mary's Church which were found to support, or have connectivity to

habitat supporting, low numbers of grass snake, slow worm and common lizard. The scheme footprint also includes a pocket of habitat to the rear of Bridge Cottage in the southern region of the site in which common lizards were recorded, and may have an effect on the grassed road verges along the northern edge of Church Road and Highfield Land along the southern site boundary. The clearance of these habitats could result in potential harm to reptiles such as injury or death to individual reptiles in the absence of mitigation.

A reptile mitigation strategy would be implemented prior to construction and would incorporate a number of measures as detailed in Table 3.6 to mitigate the impacts of construction on reptiles.

The construction phase would include the creation of a mosaic of habitat types that would provide enhanced reptile habitat on-site in the long term, including provision of wildflower grassland and native shrub planting with a grassland understorey. A series of ponds and drainage swales would also be provided which would enhance the value of the site to grass snake, a species generally associated with wetland areas. The major benefit of the scheme to reptile species would be the provision of enhanced habitat connectivity, which should allow formerly isolated populations to connect and promote genetic exchange which would improve the long-term viability of the local reptile (specifically common lizard) population.

During construction, the impact of habitat loss would be of minor magnitude, resulting in a slight adverse effect, that is not significant.

5.1.3.7 Water vole

The Aylesford Stream is approximately 100m to the north of the scheme and was found to support a population of water voles during a survey undertaken in 2012. No direct effects on this watercourse are predicted as a result of the scheme. However, there is potential to impact water vole via the following pathways: changes in environmental conditions including water quality. There is an outfall located to the north of the site, which is a 900mm diameter culvert constructed as part of A2070 works and connects to the Aylesford Stream.

In the absence of mitigation measures, the uncontrolled release of pollutants at the site as a result of leaks and spillages could adversely affect the water quality of the Aylesford Stream during the construction stages.

However, the CMP would include pollution control measures in accordance with the CIRIA *C753 SuDS Manual*[19] and CIRIA *C736 Containment systems for the prevention of pollution and EA Requirements*[20]*.* The surface discharge would be controlled to greenfield run-off rate and attenuation would be provided by ponds. The SuDS features will provide sufficient treatment to the run-off. During construction, potential for indirect impacts are anticipated to result in a negative impact of minor magnitude, with neutral effects that are not significant.

5.1.3.8 Other mammals

Suitable habitat for brown hare and hedgehog was found within and surrounding the scheme including arable, grassland and woodland habitats. Habitat loss during construction would be offset by the landscape design resulting in no overall loss of habitat available to these species with a net gain in the overall area of habitat for the species with regards to woodland and grassland. However, clearance of habitats, such as hedgerows and scrub (used for foraging and

[19] Woods Ballard, Wilson, Udale-Clarke, Illman, Scott, Ashley, and Kellagher (2015) *SuDS manual (C753).* ISBN: 978-0-86017-759-3. CIRIA

[20] Walton (2014) *Containment systems for the prevention of pollution (C736F).* ISBN: 978-0-86017-740-1. CIRIA.

shelter), could result in the killing or injuring of these species, resulting in a reduction in numbers within the local area.

Embedded mitigation measures (waterborne pollution prevention measures and dust suppression measures) would maintain habitats adjacent to the scheme. During construction, the impact of habitat loss is anticipated to result in a negative impact of minor magnitude, with neutral effects that are not significant.

5.2 Operational Impacts

5.2.1 Designated Sites

5.2.1.1 Hatch Park SSSI

Due to the type of development proposed (i.e. non-residential) it is not anticipated that there would be any increase in recreational pressure at this site during the operational phase of the scheme. Due to the distance of the SSSI from the scheme, this site would not be affected by light spill or be susceptible to disturbance from noise and vibration from increased traffic within the scheme.

The scheme would result in an increase in vehicle movements to and from the site, which may result in an increase in localised deposits of pollutants including nitrogen. This can, over time, increase the level of nutrients in the soil and effect upon species composition.

The Air Quality Impact Assessment Report (Appendix D, document reference: 419419-MMD-XX-MO-RP-AQ-0001) carried out to support the Analysis of the Likely Environmental Effects of the Development Report, has modelled traffic flows on roads closest to the Hatch Park SSSI to understand if there is a change in nitrogen deposition for the SSSI, which might exceed the Critical Load (CLO) for the site. This has been modelled for both the Do-Minimum (without scheme) and Do-Something (with scheme) scenarios.

It was concluded that there are no predicted increases in nitrogen deposition greater than 1% of the minimum nitrogen deposition CLO applied to the habitat. In accordance with DMRB LA 105[21], if higher than 1% it would be considered to have a significant impact on ecological designations. On this basis, it is not considered likely that the development itself would lead to an increase in nutrients within the SSSI and therefore the effect on this receptor of national nature conservation importance is considered to be not significant.

5.2.1.2 Ashford Green Corridors LNR

As with the Hatch Park SSSI site, no operational phase effects as a result of increased recreational pressure on this site are anticipated due to the type of development proposed.

5.2.2 Air Quality Impact Assessment

As well as Hatch Park SSSI, the Air Quality Impact Assessment identified a number of other designated sites where there could be changes in nitrogen deposition as a result of the scheme due to changes in traffic flows on the Affected Road Network (ARN). These are as follows:

- North Downs Woodlands SAC
- Folkestone to Etchinghill Escarpment SAC
- Wouldham to Detling Escarpment SSSI

[21] Design Manual for Roads and Bridges (DMRB) Sustainability and Environment Appraisal LA 105 – Air Quality

- Seabrook Stream SSSI
- Folkestone Warren SSSI
- Ashford Green Corridors LNR
- Western Heights LNR

The assessment found that the CLO for all sites do not increase above the 1% in all cases, therefore the effect on these receptors of national nature conservation importance is considered to be not significant.

5.2.3 Non-Statutory Designated Sites

As the two non-statutory nature conservation that occur within a 1km radius of the scheme are located in excess of 900m distance, no operational phase effects are anticipated.

5.2.4 Habitats

Initially, the new habitat types would increase in ecological value during the operational phase as they become established, reach maturity and develop features of value to wildlife. It is possible, however, that the value of the created habitat areas could subsequently decrease in the long term in the absence of appropriate management and maintenance, which could result in the encroachment of coarse, undesirable species into grassland areas and the loss of favourable condition of new ponds and aquatic features. This could result in a temporary minor adverse impact, giving a slight adverse effect, which is not significant.

The nature of the scheme means that the habitats on site are unlikely to be subject to high levels of recreational pressure as might be the case for a residential scheme. However, the landscape planting strategy would create a more attractive recreational destination than the existing arable land use and may therefore attract local walkers and workers. In the absence of appropriate site maintenance this increases the risk of habitats being adversely impacted by issues such as accumulation of litter, fires and small pollution incidents. Such incidents could result in temporary minor adverse impacts, resulting in slight adverse effects which are not significant.

The operational phase is likely to result in polluted run-off and accidental pollution which would be of particular concern if it happened in proximity to sensitive habitats such as ditches, potentially resulting in habitat degradation. However, this would be avoided or reduced to levels which are not significant by the SuDS design. Impacts arising during operational activities would be of a minor adverse impact, with neutral/slight effects that are not significant.

The habitats lost would not be replaced on a like for like basis due to nature of developing the area from predominantly arable to areas of hardstanding, but the ecological attributes of the replacement habitats would be replaced with habitats of greater ecological value than the existing.

The habitat replanting scheme is designed to incorporate different habitats, species specific planting for protected species and planting of the SUDs ponds to increase biodiversity value, would result in the following changes in habitat shown in Table 5.2 below, showing a positive result of 9.7 units calculated using the Biodiversity Metric 2.0[22].

[22] http://publications.naturalengland.org.uk/publication/5850908674228224

Table 5.2: Biodiversity Net Gain Calculations

Habitat	Existing Value	Proposed Value	Unit Change
Arable	94	67.3	-26.7
Grassland	1.2	17.2	+16
Heathland and shrub	0.1	8.6	+8.5
Sparsely vegetated	0.2	2	+1.8
Wetland	0	5.2	+5.2
Woodland	0.1	5	+4.9
		Total value (units)	**+9.7**

A five year aftercare period would follow completion of the works. During this time, maintenance activities would be undertaken to ensure the successful establishment of planting and provision of new functioning habitats. Maintenance and monitoring tasks would be prescribed in the LEMP. This would include the replacement of failed or defective plants. As such, once the habitats have become established and with successful management, operation of the scheme is anticipated to result in a beneficial impact of minor magnitude, with slight beneficial effects. Upon reinstatement after five years, all infrastructure would be removed from the site, leaving only areas of hardstanding in the once operational plots of the site, along with the drainage infrastructure and the SuDs ponds. The green-blue infrastructure within the Environmental Masterplan (drawing ref: 419419-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MO-DR-L-3031) would also remain on-site which would ensure long-term beneficial effects.

In addition, further enhancements to the site would be implemented at this stage. Indicative enhancement proposals are documented in the Long-Term Enhancement Plan (419419-MMD-01-MMD-01-MO-DR-L-3032) which would be further developed, and a detailed plan included as part of the Reinstatement Plan for the scheme. This, together with an updated LEMP, would carefully outline the requirements for future management and maintenance of the site to ensure a positive long-term legacy for the site and the local biodiversity, once the inland border facility has ceased operation.

5.2.5 Protected Species

5.2.5.1 Badgers and other terrestrial mammals

The badgers present are habituated to the noise created by agricultural machinery and the adjacent motorway corridor and the increase in background noise levels is unlikely to exceed tolerable levels. The lighting design for the scheme would minimise light spill and ensure retained and newly created wildlife corridors remain dark.

Badgers could be killed or injured following collisions as a result of increased movement of traffic in the area. This is offset to some extent by the proposed landscaping, which would include enhanced green corridors around the periphery of the site. The eastern area of the site in particular would provide a valuable wildlife corridor and foraging area and would be free from traffic. Also, as the created habitats become established, they would increase in value to terrestrial mammals. Overall, the operational phase is considered likely to have negligible effect on badgers and other terrestrial mammals.

5.2.5.2 Bats

the lighting strategy for the scheme has been sensitively designed to minimise light spill and to ensure both retained and newly created habitats would provide ‘dark’ areas surrounding the parking areas. The strategy includes the use of LED lanterns with a colour temperature of

3000K in accordance with BCT guidelines[23]. Where light does encroach into vegetation, the illuminance contour plan shows the lighting levels to be at 1 and 0.5 lux. These illuminance levels are comparable to twilight (1 lux) and clear full moon (0.25 < 1 lux). This is anticipated to result in minor adverse changes, which are unlikely to affect the favourable conservation status of bat species.

Bats currently using habitats within the scheme are habituated to the noise created by agricultural machinery and the adjacent motorway corridor of the M20 together with the corridor of the M20 Junction 10a Scheme. The proposed planting of hedgerows and woodland around the perimeter of the car parking would minimise impacts from noise and disturbance to the known roosts that are within close proximity to the scheme. Impacts arising from disturbance and noise would be of minor magnitude, with neutral/slight effects that are not significant.

5.2.5.3 Birds

Potential impacts from lighting would be minimised by sensitive lighting, to minimise light spill away from parking areas and associated infrastructure, these mitigation principals would benefit both breeding and wintering bird assemblages.

The likelihood of disturbance to breeding or wintering birds as a result of the proposed scheme is considered to be low, although an increase in human activity and potential dog-walking within the new habitat areas could have an effect. This is mitigated to some extent by the restricted access to the public and layout of the landscaped areas which would include defined footpaths for visitors (PROW diversion), although the potential for visitors to wander into habitats away from footpaths must be considered. Although the risk is low, without management of access and recreation, operational phase disturbance of birds would constitute a temporary minor adverse impact, resulting in a slight adverse effect that is not significant.

5.2.5.4 Dormice

Once the scheme is operational, there would be an increase in noise disturbance due to vehicle movements using the parking areas. A footpath would also be located along the hedge line along Highfield Lane, which is for use by pedestrians and equine users. However, dormice have shown to become habituated by elevated levels of noise as demonstrated by their presence along motorways such as the M20.

There would be lighting of the parking areas, but this has been designed to direct light away from adjacent suitable habitat to minimise light spill onto the retained and proposed new vegetation, to minimise nocturnal disturbance to dormice.

To prevent failure of the newly created woodland and hedgerows, habitat maintenance would be undertaken for a period of five years. Audits would ensure that the planting is being managed correctly and make recommendations for remedial actions. Any failed plants would be replaced with stock which is one year more mature for every year that has lapsed since the original planting.

Impacts arising from the operational phase would be of minor magnitude, with neutral / slight effects that are not significant.

[23] Bat Conservation Trust and Institute of Lighting Professionals (2018) *Guidance Note 08/18 Bats and artificial lighting in UK*. Available at: https://cdn.bats.org.uk/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?mtime=20181113114229

5.2.5.5 Invertebrates

The landscape strategy would provide a variety of habitats for all invertebrate species to use, including the provision of replacement scrub and hedgerows and planting of wildflower grassland. Once established, this would provide habitats of higher quality to invertebrate species. As such, once the habitats have become established and with successful management, operation of the scheme is anticipated to result in a beneficial impact of minor magnitude, with slight beneficial effects.

5.2.5.6 Reptiles

The mosaic of habitats to be created within the landscaped areas has been designed to provide suitable features for use by reptiles. The landscape strategy includes replacement and creation of habitats of value to reptiles, such as grassland, scrub and woodland edge. Once the vegetation has established, this would provide a wildlife corridor which reptiles can utilise for basking, foraging and shelter. The operation of the scheme is anticipated to result in a beneficial impact of minor magnitude, with slight beneficial effects.

5.2.5.7 Water voles

The potential for the operational phase of the scheme to effect upon water voles is considered to be low, given the proximity of the water vole population from the site. With the creation of a SuDS network within the scheme, there is a limited risk of spills and leakages which could cause contamination to the local drainage network and subsequent Aylesford Stream. In terms of water vole, would be a negligible impact, resulting in a neutral effect that is not significant.

5.2.6 Summary of Effects on Biodiversity

A summary of the effect on biodiversity is summarised in Table 5.3 below.

Table 5.3: Summary of Effects for Biodiversity

Ecological Feature	Summary of Effects	Mitigation	Sensitivity	Magnitude (with mitigation)	Overall significance of effect (with mitigation)
Hatch Park SSSI	Habitat degradation through pollution (increase in nutrients)	Working methodology in accordance with CIRIA C532: Control of Water Pollution from Construction Sites. Best practice measures implemented to store, handle, transport and dispose of waste, CMP to be prepared and implemented.	National	**Construction Phase:** No change **Operational Phase:** No change	Neutral (Construction and Operation)
Ashford Green Corridors LNR	Habitat degradation through pollution (airborne dust)	Working methodology in accordance with CIRIA C532: Control of Water Pollution from Construction Sites. Best practice measures implemented to store, handle, transport and dispose of waste, CMP to be prepared and implemented.	County	**Construction Phase:** Potential for pollution events and changes in airborne pollutants. Minor adverse **Operational Phase:** Negligible	Slight Adverse (Construction) Neutral (Operation)
• AS44 Willesborough Lees • Flowergarden Wood LWS • AS19 South Willesborough Dyke LWS	No adverse effects anticipated either directly or indirectly	None required.	Local	**Construction Phase:** No change **Operational Phase:** No change	Neutral (Construction and Operation)
Ditches	Potential for increased surface runoff and pollution incidents into the local ditch network	Working methodology in accordance with CIRIA C753 SuDS Manual, CIRIA C736 Containment systems for the prevention of pollution and EA Requirements. The surface discharge shall be controlled to greenfield run-off rate	Local	**Construction Phase:** Potential for pollution events Minor adverse **Operational Phase:** Negligible	Slight Adverse (Construction) Neutral (Operation)

Ecological Feature	Summary of Effects	Mitigation	Sensitivity	Magnitude (with mitigation)	Overall significance of effect (with mitigation)
		and attenuation shall be provided by ponds. The Sustainable Drainage Systems (SuDS) features will provide sufficient treatment to the run-off.			
Hedgerows	Removal of sections of hedgerow to facilitate construction works	Native species-rich hedgerows to be incorporated into landscape design.	County	**Construction Phase:** Loss of hedgerow sections Minor adverse **Operational Phase:** Net gain in species rich hedgerows Improved connectivity within and around the site Minor beneficial	Slight Adverse (Construction) Slight beneficial (Operation)
Plantation Woodland	No adverse effects anticipated either directly or indirectly.	None required.	County	**Construction Phase:** No change **Operational Phase:** No change	Neutral (Construction and Operation)
Scattered Trees	Loss of scattered trees	Standard native trees, shrub and woodland planting to be incorporated into the landscape design.	Local	**Construction Phase:** Loss of trees Minor adverse **Operational Phase:** Net gain in tree planting Improved connectivity within and around the site Minor beneficial	Slight Adverse (construction) Slight beneficial (operation)
Breeding Birds	Loss of vegetation and disturbance reduces nesting potential within construction and operational area. Vegetation clearance could result in the destruction of nests and	Vegetation clearance to be undertaken outside of breeding bird season (March to September inclusive) or sensitive working methods within this season. Loss of suitable nesting bird habitat mitigated by landscape planting incorporating breeding	Local	**Construction Phase:** Loss of vegetation and disturbance, potential of killing and injuring and destruction of nests. Decrease in nesting habitat.	Slight adverse (Construction) Slight adverse (Operation)

Ecological Feature	Summary of Effects	Mitigation	Sensitivity	Magnitude (with mitigation)	Overall significance of effect (with mitigation)
	eggs and killing/injuring of birds.	bird habitats and installation of bird boxes in retained habitats. Habitat creation of hedgerow, shrub, woodland and wildflower grassland.		Increase in area and quality of nesting and foraging habitat through landscape planting. Minor adverse **Operational Phase:** Increased human disturbance. Minor Adverse	
Wintering Birds	Foraging habitat loss/ disturbance	Best practice measures would be implemented to minimise noise, vibration and visual disturbance during construction. Habitat creation.	Local	**Construction Phase:** Loss of foraging habitat. Minor Adverse **Operational Phase:** Increased human disturbance. Loss of arable habitat Increase in nesting and foraging habitat through landscape planting. Minor Adverse	Slight adverse (Construction and Operation)
Badger	Noise, vibration and light (if night works) disturbance during construction. Permanent exclusion from an outlier sett. Increased collision risk during operation.	Sett closure is required under a licence from Natural England. Mitigation would include habitat enhancement and compensation; offsetting habitat loss. Lighting and noise disturbance would be minimised through CMP.	Local	**Construction Phase:** Potential for disturbance. Potential for sett closure. Increase in foraging and sett construction habitat; Increase in wildlife corridors around the site. Minor Adverse **Operational Phase:** Potential for disturbance Potential for collision Negligible	Slight Adverse (Construction) Neutral (Operation)
Water Vole	Potential for increased surface runoff and pollution incidents into the local ditch network.	Working methodology in accordance with CIRIA C753 SuDS Manual, CIRIA C736 Containment systems for the prevention of pollution and EA Requirements.	County	**Construction Phase:** Potential for pollution events Minor adverse **Operational Phase:** Negligible	Slight Adverse (Construction) Neutral (Operation)

Ecological Feature	Summary of Effects	Mitigation	Sensitivity	Magnitude (with mitigation)	Overall significance of effect (with mitigation)
		The surface discharge shall be controlled to greenfield run-off rate and attenuation shall be provided by ponds. The SuDS features will provide sufficient treatment to the run-off.			
Bats	Disturbance and habitat loss	No loss of a confirmed roost. Working at night would be avoided. Best practice measures would be implemented to minimise noise and vibration disturbance during construction. Sensitive lighting strategy, minimising light spill. Landscape planting would result in Increased habitat suitability for commuting and foraging.	Local	**Construction Phase:** Potential for disturbance due to increased noise. Increase in foraging and commuting habitat Minor adverse **Operational Phase:** Increased lighting of retained/created habitats Minor adverse	Slight adverse (Construction) Slight adverse (Operation)
Reptiles	Habitat loss. Potential to kill and injure reptiles during earthworks and vegetation clearance.	Sensitive working methods, including translocation to a receptor site and ecological supervision. Landscaping would provide replacement habitat. Production of a LEMP, including habitat management.	Local	**Construction Phase:** Habitat loss and potential for killing and injury Minor adverse **Operational Phase:** Creation of a mosaic of habitats, suitable for reptiles Minor beneficial	Slight adverse (Construction) Slight beneficial (Operation)
Invertebrates	Loss of low quality terrestrial habitat. Potential to cause harm and/ or disturbance to invertebrates	Species rich grassland, hedgerows and woodland incorporated into the landscape design, would be of benefit to invertebrate species.	County	**Construction Phase:** Loss of habitat. **Operational Phase:** Creation of a mosaic of habitats Minor beneficial	Slight adverse (Construction) Slight beneficial (Operation)
Dormice	Habitat loss. Potential to disturb, kill and injure dormice during vegetation clearance.	Natural England development licence required. Sensitive method of vegetation clearance.	County	**Construction Phase:** Loss of habitat. Minor adverse **Operational Phase:**	Slight adverse (Construction)

Ecological Feature	Summary of Effects	Mitigation	Sensitivity	Magnitude (with mitigation)	Overall significance of effect (with mitigation)
		Species-rich hedgerows and woodland to be incorporated into landscape design.		Increase in noise and light disturbance Creation of species rich habitats Increased connectivity around the scheme. Minor adverse	Slight adverse/neutral (Operation)
Brown hare / hedgehog	Habitat loss. Potential to disturb, kill and injure during vegetation clearance.	Landscape planting would offset the loss of habitats leading to a net increase in the overall habitat area.	Local	**Construction Phase:** Habitat loss Minor adverse **Operational Phase:** Negligible	Slight adverse (Construction) Neutral (Operation)

6 Residual Effects and Conclusion

No likely significant adverse effects have been identified from the assessment. There is predicted to be a residual impact on farmland birds of slight adverse effect that is not significant, resulting from the permanent removal of arable land which is known to support these species.

For bats and dormice, a residual impact of slight adverse effect that is not significant is anticipated resulting from increases in disturbance from lighting and noise around the site.

For breeding birds, a residual slight adverse effect that is not significant is anticipated due to the increase in recreational use of the site, once operational.

The land within the scheme boundary predominantly comprises arable fields bound by habitats of higher importance including hedgerows and woodland. Mitigation to reduce impacts on these habitats and associated species, arising from the scheme, has been identified. This mitigation seeks to avoid impacts through carefully siting of infrastructure away from sensitive habitat and species associated with such habitats (i.e. dormice) and timing works to avoid sensitive periods (i.e. avoidance of night working).

Key design principles include:

- Design balancing ponds and drainage swales to have a secondary biodiversity function
- Increasing connectivity around and through the site with the creation of new habitats, forming wildlife corridors and thus reducing the effects of habitat fragmentation
- Increase habitat appropriate to the local area to benefit target species such as dormice
- Use locally native tree, shrub and herbaceous species in the landscape mitigation
- Avoid the use of invasive and competitive grass species

Other mitigation principles adopted within the scheme design include:

- The commitment for the creation of new habitats to ensure net gain of locally important habitats (species rich grassland, woodland, aquatic habitat and hedgerows)
- Maintain and enhance existing wildlife commuting corridors along the boundaries of the scheme through careful siting and inclusion of buffers to lessen impacts on species using adjacent habitats
- Provision for 10 new bat roosting features on site, comprising a range of woodcrete boxes targeted towards a variety of species and suitable for a range of different use types
- Provision of 10 bird boxes will be installed within the site to provide additional nesting opportunities for species recorded at the site

The first iteration of the LEMP has been compiled for the site (document ref: 419419-MMD-XX-SV-RP-L-0001). This has been designed to ensure that habitats are appropriately managed in order to retain their value to a wide range of species including reptiles, mammals, amphibians and invertebrates. The LEMP would also include a monitoring programme which would be designed to allow the success of habitat management to be monitored. The findings of monitoring would inform future amendments to site management practices, if required.

The mitigation strategy would reduce the potential for adverse effects resulting from the scheme and provide beneficial effects for species which may utilise areas of new habitat creation (once established) including bats, badgers, breeding birds, wintering bird species, dormice, reptiles

and invertebrates. The landscape design would lead to an increase of habitats appropriate to the local area.

The operation of the site would cease in 2025 and the site would be reinstated. Upon reinstatement, all infrastructure would be removed from the site, leaving only areas of hardstanding in the once operational plots of the site, along with the drainage infrastructure and the SuDs ponds. The green-blue infrastructure within the Environmental Masterplan (drawing ref: 419419-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MO-DR-L-3031) would also remain on-site which would ensure long-term beneficial effects. In addition, further enhancements to the site would be implemented at this stage. Indicative enhancement proposals are documented in the Long-Term Enhancement Plan (419419-MMD-01-MMD-01-MO-DR-L-3032) which would be further developed, and a detailed plan included as part of the Reinstatement Plan for the scheme. This, together with an updated LEMP, would carefully outline the requirements for future management and maintenance of the site to ensure a positive long-term legacy for the site with respect to the site's habitats and wildlife that utilise them, once the inland border facility has ceased operation.

A. Species Legislation

A.1 International, European and UK Legislation and Policy on Protected Species

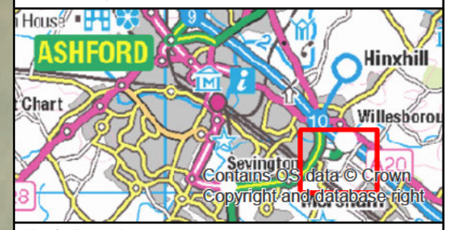
Table 6.1: International, European and UK Legislation and Policy on Protected Species

Species	Summary
Bats	All bat species are protected under the *Conservation of Habitat and Species Regulations 2017* and *Wildlife and Countryside Act 1981 (as amended)*. This means it is illegal to: • Deliberately capture, injure, or kill a bat • Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats • Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time) • Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat • Intentionally or recklessly obstruct access to a bat roost Disturbance includes, but is not limited to, any disturbance which is likely: • To impair ether ability - - to survive, to breed or reproduce, or to rear or nurture their young, or - in the case of animals of a hibernating or migratory species, to hibernate or migrate • to affect significantly the local distribution or abundance of the species to which they belong
Badgers	Badgers and their setts are afforded protection under the *Protection of Badgers Act 1992*. This Act is about welfare legislation for badgers, due to history of persecution, rather than their distribution which is widespread and abundant throughout the countryside. nder this act it is an offence to: • Wilfully kill, injure or take a badger (or attempt to do so) • Cruelly ill-treat a badger • Dig for a badger • Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it • Cause a dog to enter a badger sett • Disturb a badger when it is occupying a sett
Dormice	Dormice are protected under the *Conservation of Habitat and Species Regulations 2017* and under Schedule 5 of the *Wildlife and Countryside Act 1981 (as amended)*. This makes it illegal to: • Intentionally or deliberately injure, kill, or take any dormouse • Intentionally or deliberately damage, destroy or obstruct any access to any structure or place used for shelter, breeding, or protection by a dormouse • Possess or advertise/sell/exchange a dormouse (dead or alive) or any part of a dormouse • Disturb a dormouse intentionally or recklessly whilst it is using such a structure or place Disturbance includes, but is not limited to, any disturbance which is likely: • To impair ether ability - - to survive, to breed or reproduce, or to rear or nurture their young, or - in the case of animals of a hibernating or migratory species, to hibernate or migrate • to affect significantly the local distribution or abundance of the species to which they belong
Widespread reptile species: Slow worm, Grass snake, Common lizard, Adder	All UK reptile species are protected under the *Wildlife and Countryside Act 1981 (as amended)* making it illegal to: • Intentionally or deliberately injure, kill, or take any wild reptile • Possess or advertise/sell/exchange a reptile (dead or alive) or any part of a reptile
Nesting and wintering birds	All wild birds in the UK are protected under the *Wildlife and Countryside Act 1981 (as amended)* making it illegal to: • Kill, injure, or take any wild bird • Take, damage, or destroy the nest of any wild bird while it is being built or in use

Species	Summary
	• Take or destroy the eggs of any wild bird • Possess or control (e.g. for exhibition or sale any wild bird or egg unless obtained legally) • In addition to the above, Schedule 1 bird species are also protected from disturbance, both to their nesting areas and wintering habitats

B. Phase One Habitat Survey Drawing

Location Map



Key to Symbols

- Article 4 Red Line Boundary
- Indicative M20 J10a Road Layout - Recent Construction

Phase 1 Habitat

- Broadleaved woodland - plantation
- Scrub - dense/continous
- Scattered scrub
- Improved grassland
- Poor semi-improved grassland
- Other tall herb and fern - ruderal
- Arable
- Bare ground
- Hard standing
- Scrub - scattered
- Broadleaved Parkland/scattered trees
- Scrub - scattered
- Intact hedge - species-poor
- Defunct hedge - species-poor
- Hedge with trees - species-poor
- Fence

Notes

1. Red Line Boundary: Mott MacDonald, 2020
2. Phase 1 data: Mott MacDonald, 2020
3. Contains Ordnance Survey data © Crown copyright and database right 2020 Lic. No. 100039241

Rev	Date	Drawn	Description	Ch'k'd	App'd
01	27/10/2020		First Revision		

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HM Government

Drawing Status	Suitable for Stage Approval
Suitability	S4
Project Title	Sevington Inland Border Facility
Drawing Title	Phase One Habitat Survey

Designed			Check		
Drawn			Coordination		
GIS Check			Approved		

Scale at A3	Status	Rev	Security
1:5,500	PRE	01	STD

Drawing Number
418703-MMD-01-MO-DR-L-3007

Metres
0 50 100 200 300 400

C. Summary of Protected Species Drawing