

Anglia Level Crossing Reduction Strategy - Suffolk

Precautionary Method of Works: Legally
Protected Species

25 May 2018

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Network Rail

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Executive summary

These precautionary methods were produced by Mott MacDonald for Network Rail for the specific purpose of the Anglia Level Crossing Reduction Strategy: Suffolk Order.

This report covers precautionary methods in relation to designated sites and habitats of principal importance (HPIs) (Section 41 of the NERC Act 2006), European badgers *Meles meles*, bats, breeding birds, great crested newt *Triturus cristatus*, hazel dormouse *Muscardinus avellanarius*, European otter *Lutra lutra*, European water vole *Arvicola amphibius*, European hedgehog *Erinaceus europaeus*, stag beetle *Lucanus cervus*, common species of reptile, and non-native invasive plant species (Indian balsam *Impatiens glandulifera*). The non-native invasive species listed above was found during desk top review undertaken as part of the Anglia Level Crossing Reduction Strategy Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a). None were recorded during the field surveys.

1 Introduction

Mott MacDonald Limited was commissioned by Network Rail to produce a Precautionary Method statement in relation to legally protected species with potential to be affected by the proposed closure of, and/or changes to rights at 22 level crossings (hereafter known as the Scheme). These crossings are located on railway lines within the county of Suffolk.

The ecological features covered in this report are designated sites and habitats of principal importance (HPIs) (Section 41 of the NERC Act 2006), European badger *Meles meles*, bats, breeding birds, great crested newt *Triturus cristatus*, hazel dormouse *Muscardinus avellanarius*, European otter *Lutra lutra*, European water vole *Arvicola amphibius*, European hedgehog *Erinaceus europaeus*, stag beetle *Lucanus cervus*, common species of reptile and non-native invasive plant species (Indian balsam *Impatiens glandulifera*).

Special Protection Areas (SPAs) are protected under EC Birds Directive (Directive 2009/147/EC) and are included in the Natura 2000 ecological network, set up under the Habitats Directive 92/43/EEC. Ramsar wetland and Sites of Special Scientific Interest (SSSI) are protected under the Wildlife and Countryside Act 1981 (as amended) from certain activities that may be damaging to the features of interest. SSSI's are also afforded protection under the Countryside and Rights of Way Act 2000 (in England and Wales). County Wildlife Sites (CWS) are designated by local authorities and are a material consideration when planning applications are being determined. The Hedgerows Regulations (1997) protect countryside hedgerows by allowing the Planning Authority to control their removal. Reedbed habitat is protected under The Natural Environment and Rural Communities (NERC) Act 2006 which states:

“Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.”

Section 41 of the NERC Act 2006 lists the habitats and species that are of principal importance for the conservation of biodiversity in England.

All species of bats found in the UK, great crested newt, hazel dormouse and otter are fully protected as European Protected Species (EPS) under the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012). These species, together with water vole, European hedgehog, stag beetle, common species of reptile and breeding birds are protected under the Wildlife and Countryside Act 1981 (as amended). Badgers are protected under the Protection of Badgers Act 1992. Non-native invasive plant species (such as Indian balsam) are listed under Schedule 9 Part 2 of the Wildlife and Countryside Act 1981 (as amended) and it is illegal to plant or otherwise cause these species to grow in the wild.

The legislation relating to the protected species and non-native invasive species found or considered likely to be present within the Scheme is summarised in Appendix A.

For EPS subject to the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012), Natural England's guidance (2013) states:

“If the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably unlikely to result in an offence under Regulation 41 or 45 then no licence is required”

A range of factors are taken into consideration when assessing whether works can proceed in the absence of a licence including the scope of works, evidence of such species and proximity of existing known populations. In cases where a licence is not required, Natural England advise that reasonable precautions be taken to avoid affecting EPS during works and that an audit trail is kept of this decision (Natural England, 2013).

This report acts as an audit trail for the decision-making process. Based on the current conditions of each level crossing included within the Scheme and the nature of the proposed works. As long as the methods of working outlined in this document are implemented in full, the proposed works would not result in a breach of the above legislation and no further detailed mitigation, such as the need for a protected species mitigation licence, is required to proceed with the works.

Should the Scheme conditions differ from those detailed below in Section 2 either prior to or during the proposed works, further mitigation may be required. Specialist ecological advice should be sought should this situation arise.

Potential risk to legally protected species and habitats as a result of the Scheme will also be managed through the contractor's obligation to comply with Network Rail's Contract Requirements-Environment (CR-E). Compliance with relevant sections of the CR-E will be demonstrated through the contractor's Construction Environment Management Plan (CEMP) that will be agreed with Network Rail before physical works can begin. The production of a CEMP in advance of physical works is mandatory on Network Rail schemes and this legal requirement appropriately manages construction risk. These precautionary methods have been produced in line with the objectives set out by the CR-E and provides the methodology to be carried out on site during works.

2 Background

2.1 The Project

Network Rail's Anglia Level Crossing Reduction Strategy aims to reduce the risk that level crossings pose. The proposal aims to manage the possible closure or change of use of around 130 level crossings in Anglia across Cambridgeshire, Suffolk, Essex, Havering, Hertfordshire, Southend and Thurrock. Of these crossings, 22 are located within the county of Suffolk. These are contained in the draft Suffolk Level Crossing Reduction Order (Suffolk Order) which is part of the wider Anglia Level Crossing Reduction Strategy.

2.2 The Proposed Works

Outlined below are the works categories assigned to each crossing as defined in The Network Rail (Suffolk Level Crossing Reduction Order) Design Guide NR12-SCC (Network Rail, 2017).

- Category 1 – Closure of historic Public Rights of Ways that currently have no physical infrastructure to allow crossing of the railway;
- Category 2 – Closure of (mostly private) level crossings with no works required outside of the Network Rail boundary and no Public Rights of Way in the vicinity to be affected;
- Category 3 – Closure of level crossings and extinguishment of the Public Rights of Way (outside of the Network Rail boundary) where there is an existing alternative means of crossing the railway in the vicinity (e.g. an existing Public Right of Way on a parallel route);
- Category 4 – Closure of level crossings and extinguishment of the Public Right of Way (outside of the Network Rail boundary) and a diversion to new or enhanced infrastructure (such as new footpaths, steps, bridleways, circular routes etc.) at an alternative railway crossing point nearby;
- Category 5 – Closure of level crossings with works required outside of the Network Rail boundary (e.g. changes to signage) but without affecting other Public Rights of Way in the vicinity of the crossing;
- Category 6 – Downgrade or change of use involving extinguishment of public vehicular rights (except for specified private users where applicable) whilst keeping the crossing open for non-motorised users (e.g. conversion to bridleway or footpath); and
- Category 7 - Proposals that will facilitate grade-separated access from each side of the railway as part of another Network Rail Scheme.

Installation of fencing within Network Rail land is required at the majority of level crossings to prevent trespass onto the railway.

2.3 Summary of Ecological Surveys

Mott MacDonald was commissioned by Network Rail to undertake an ecological appraisal to inform 24 level crossings included in the Suffolk Order. Since the completion of these surveys, S05 and S07 have been removed from the Order. Crossings were scoped in where the proposed works would result in potential direct or indirect impacts on adjacent habitats based on the category of works and a desk top review of potential ecological constraints. Following the screening exercise, 18 level crossings were scoped in for an ecological appraisal. Field surveys were conducted between April 2016 and September 2017 where access was available. All ecological features that occur within the 30m Zone of Influence (Zol) of each crossing in the

Scheme was investigated. The Zol is an area defined by the assessment in which there may be ecological receptors subject to impacts and subsequent effects as a result of the Scheme.

The proposed route associated with S01 is located adjacent to the boundary of the Stour and Orwell Estuary Special Protection Area (SPA) European site, and the Stour and Orwell Estuary Ramsar wetland of international importance. A Habitats Regulations Assessment (HRA) Task 1 Screening was completed in 2017 and identified that no likely significant effect is expected as a result of the new footpath. A Stage 2: appropriate assessment is therefore not required.

Full details of the ecology field surveys completed between April 2016 and January 2017 at the level crossings scoped in for an ecological appraisal are found in the Anglia Level Crossing Reduction Strategy Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a).

Additional protected species surveys and botanical surveys recommended within the constraints report were completed at crossing S04 in August 2017, where access allowed. The results of these surveys are considered within this report.

The proposed routes associated with crossing S17 will cross through a non-statutory designated site (County Wildlife Sites (CWS)). CWS also lie immediately adjacent to S03 and S21. Consultation with the Suffolk County Ecologist is ongoing. Consultation with Suffolk Wildlife Trust will be undertaken to agree precautionary works proposed at S21.

These precautionary methods cover those legally protected species potentially affected by the proposed closure of, and/or changes to rights at 18 level crossings on railway lines within Suffolk.

2.3.1 Work activities covered in this Precautionary Method Statement

The report covers works which are anticipated to commence during Spring 2018. It covers the following programmes of work:

- Removal of some existing level crossing infrastructure and installation of fencing within Network Rail land;
- Removal/trimming of trees/ vegetation for diversions to new or enhanced infrastructure (such as new footpaths, steps, bridleways, circular routes, bridges etc.);
- Ground disturbance for footbridges and culverts;
- Clearance of vegetation for access tracks and grade-separated access;
- Removal/trimming of vegetation for changes to signage; and
- Access points;

The specific works proposed for each level crossing are outlined within the Suffolk Order and not all of the works outlined above will occur at each crossing. No other works within Suffolk will be undertaken as part of the Suffolk Order. Any activity subsequently programmed that is not as detailed within the Order documents, will require assessing by a suitably experienced ecologist to establish whether any further precautionary mitigation measures are required.

2.4 Scope of the Precautionary Method Statement

The precautionary methods detailed within this report have considered the scope and localised, small scale works associated with the proposed closure of, and/or changes to rights at the 18 crossings and assesses how those works could potentially affect badgers, bats, breeding birds, great crested newt, hazel dormouse, otter, water vole, European hedgehog, stag beetle, common species of reptile and non-native invasive plant species (Indian balsam) within the Zol of the works.

Full details of the ecological assessment and ecological constraints associated with work at each crossing is found in the Anglia Level Crossing Reduction Strategy Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a).

Section 3 of this report includes the rationale as to why the proposed works are considered unlikely to lead to an offence being committed in relation to protected species associated with the Scheme and why a protected species mitigation licence may or may not be required, where the baseline currently allows.

Section 4 of this report includes both general and species-specific measures to be employed by the Network Rail for minimising impacts to wildlife during the proposed works. The A3 sheets highlight the habitats and identification of signs typical of the legally protected species that have potential to be present within the Scheme; precautionary methods of working and the procedures to be followed should they be recorded within the Scheme during the works.

Maps are provided in Appendix B that detail the locations of the crossings that have potential for each legally protected species to be present.

3 Rationale as to why a Precautionary Method Statement is considered appropriate

3.1 General licence/consent requirements

The site specific requirements detailed in this document have a validity of two years from the date of issue of this document. Due to the transient nature some of the wildlife detailed within this document, if works are to be carried out after two years from the date of this document, further surveys may be required. Additional surveys may also be required if the proposed works alter significantly from what was proposed in the Order application. The requirement for further surveys would be decided by consultation between the Suitably Qualified Ecologist (as defined in Section 4 of this document) and the Suffolk County Council Ecologist.

3.1.1 Designated site and HPIs

Special Protection Areas (SPAs) are European protected sites (part of the EU Natura 2000 ecological network) classified in accordance with Article 4 of the EC Birds Directive (Directive 2009/147/EC). Ramsar sites are wetlands of international importance designated under the Ramsar Convention (ratified in the UK in 1976). Ramsar wetland and Sites of Special Scientific Interest (SSSI) are protected under the Wildlife and Countryside Act 1981 (as amended). SSSI's are also afforded protection under the Countryside and Rights of Way Act 2000 (in England and Wales). CWS are designated by local authorities and hedgerows are protected under The Hedgerows Regulations (1997). Reedbed habitat is listed under Section 41 of the NERC Act 2006.

Where a development has the potential to affect a Natura 2000 site or Ramsar wetland, a Habitats Regulations Assessment (HRA) is required to provide extra information to Local Planning Authorities (LPA) and Natural England. Certain activities are prohibited on SSSI land without Natural England's consent. Permission from Natural England must be requested in writing if a listed activity is intended for works in a SSSI. Proposals to carry out works within a CWS or to HPIs, must be discussed with the LPA.

3.1.2 European Protected Species (EPS)

All species of bats found in the UK, great crested newts, hazel dormouse and European otters are EPS subject to the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012). A range of factors are taken into consideration when assessing whether works can proceed in the absence of a licence including the nature of the proposals; the suitability of habitats within the Scheme to support protected species; evidence of such species; and proximity of existing known populations.

Dormice are a nocturnal arboreal species, primarily associated with highly diverse broadleaved woodlands, with well-developed understoreys and species rich hedgerows (Bright et al, 2006) but have also been recorded within reed beds, culm grassland and conifer plantations (Chanin and Woods, 2003). Important food sources for dormice include flowers, fruits, nuts, seeds, insects and caterpillars (Bright et al, 2006). Whilst primarily considered to be arboreal, research has shown that dormice will cross open ground over short distances in order to access food sources and/or for dispersal (Chanin and Gubert, 2012).

3.1.3 Nationally protected species

3.1.3.1 Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended) (see Appendix A). A licence may be required for any work within the vicinity of a sett that is likely to cause disturbance to badgers. Licences are not granted from December to June inclusive because cubs may be present within setts. When assessing the requirement for a licence in respect of development, Natural England states that badgers are relatively tolerant of moderate levels of noise and activity around their setts, and that a low or moderate level of apparent disturbing activity at or near to badger setts does not necessarily disturb the badgers occupying those setts.

3.1.3.2 Breeding birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), with some species afforded greater protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the protection that all birds receive, Schedule 1 birds and their young are protected against intentional or reckless disturbance at, on or near an active nest. This can include pairing behaviour occurring prior to nesting. There are no licensing purposes that explicitly cover development activities affecting wild birds.

3.1.3.3 Common reptiles

There is no requirement for a licence where development works affect common species of reptiles. Instead, Natural England advise that where reptiles are present, they should be protected from any harm that might arise during the development works through appropriate mitigation.

3.1.3.4 Water vole

Water voles are protected under the Wildlife and Countryside Act 1981 (as amended). Licences cannot be issued for the specific purpose of development or other construction activities which could have an impact on water voles.

When development work is proposed in or near an area which is either known to or likely to contain water voles, the developer will need to implement suitable mitigation to prevent impacts to water voles. The preferred mitigation option is to leave water voles in situ, with the development works adopting avoidance measures through redesign of the proposals.

Where impacts cannot be avoided, operations aimed at displacing water voles from a development site would need to be undertaken under a licence. In England, small scale (limited to continuous lengths of bank not exceeding 50m) displacement of water voles can be carried out at certain times of the year (February to April) for the purposes of conservation under a Class Licence by a registered person. For larger scale displacements or displacements outside of this period, a site-specific conservation licence is required.

In the circumstances where it is considered that the best outcome for water voles is to capture and translocate to a different location, there may be genuine grounds for Natural England to issue a conservation licence for the purpose of translocating the water vole population to suitable alternative habitat.

3.1.3.5 European hedgehog

European hedgehogs are classified as a national priority species in section 41 of NERC. Licenses are not required for surveys or to affect the habitats. They should be protected from any harm that might arise during the development works through appropriate mitigation.

3.1.3.6 Stag beetle

Stag beetles are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which means it is prohibited to intentionally kill, injure or trade wild stag beetles. The species is also protected under section 41 of NERC. No licences are required to work on sites where stag beetles may be present but steps should be taken to limit risk of harm.

3.2 Rationale for this Precautionary Method Statement

3.2.1 Designated sites and HPis

The proposed route associated with S01 is located adjacent to the boundary of the Stour and Orwell Estuary SPA European site, and the Stour and Orwell Estuary Ramsar wetland of international importance. Report 367516/RPT192 (Mott MacDonald, 2017b) provides a Habitats Regulations Assessment (HRA) Task 1 Screening for the proposal. It provides information to enable screening of the proposed route option at S01 Sea Wall with respect to the determination of a likely significant effect (LSE) on European sites of nature conservation importance. This Task 1 Screening report identified that no likely significant effect alone or in combination is expected during the construction and operational phase of the new footpath and as such, does not require further assessment on site integrity. No SSSIs are affected by the scheme.

Impacts on non-statutory designated sites are unlikely due to the localised, small scale nature of the works. Minimal habitat removal would be required for the creation of new routes. No potential loss of integrity to the SPA/ Ramsar or CWSs is anticipated and no resurfacing of new access within the sites. Access to the SPA/ Ramsar or CWSs would be unchanged and there are no implications for loss of habitat or disturbance.

To further ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.2 Badger

Habitat loss would be small in the context of surrounding suitable habitats and no badger setts were identified within 30m of the proposed routes during the surveys. It is therefore considered reasonably unlikely that the works will result in wilful killing, injury or capture of badgers or intentional or reckless damage, destruction or obstruction of a sett. Similarly, it is considered reasonably unlikely that the works will result in deliberate disturbance to a badger whilst occupying a sett.

Therefore, on the basis of specialist knowledge and experience working with badgers, it is considered on balance that the works are reasonably unlikely to result in an offence under the Protection of Badgers Act 1992 and no licence is required.

However, to ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.3 Bats

To inform proposals at S25 and S31, ground level assessments of trees within the land boundary of the proposed route were undertaken in 2016 in accordance with the Bat Conservation Trust (BCT) Good Practice Guidelines (Collins, 2016) and British Standard 8596:2015 'Surveying for bats in trees and woodland guidelines' (BSI, 2014). No potential (bat) roost features (PRF) were identified along the proposed routes and the underbridge at S25 was determined to have low potential for roosting bats.

No tree removal is required for the proposed routes as part of the Scheme. Vegetation clearance along the proposed routes will be minimal. Habitat lost will be very small in the context of the wide areas within which bats can forage and commute and no additional lighting is proposed.

Taking into account the habitats present within the footprint of the proposed works and in the wider area and the limited suitable bat roosting opportunities within the structures/ trees present within the Scheme it is considered reasonably unlikely that the works will result in deliberate capture, injury or killing of bats.

Similarly, it is considered highly unlikely that the works will result in deliberate disturbance to bats in such a way as to be likely to impair their ability to survive, breed, reproduce, rear or nurture their young, hibernate or migrate; or to affect significantly the local distribution or abundance of the species.

Due to the limited potential for bats to be using the structures/ trees within the Scheme that are to be affected it is considered reasonably unlikely that the proposed works will result in damage or destruction of their resting places.

The works will not affect any structures/ trees that could be used by bats as maternity roosts and so the proposed works will not result in the damage or destruction of their breeding places.

Therefore, on the basis of specialist knowledge and experience working with bats, it is considered on balance that the proposed works are reasonably unlikely to result in an offence under the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) and no Natural England development licence is required.

Similarly, it is considered reasonably unlikely that works will result in disturbing a bat in its place of shelter or obstructing access to such a place and therefore the proposed works are reasonably unlikely to result in an offence under the Wildlife & Countryside Act 1981.

However, to ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.4 Breeding birds

All birds are protected when nesting under the Wildlife and Countryside Act 1981 (as amended) making it an offence to damage or destroy a nest. Species designated under Schedule 1 of the legislation are further protected against disturbance under the act.

Where possible works should be undertaken outside of the typical bird breeding season of 01 March to 31 August and it is proposed that work should proceed under the precautionary methods detailed in Section 4 to ensure that there are no offences under the above legislation.

Where overwintering birds are also considered important this should take priority when any timings are considered (see paragraph 3.2.5).

3.2.5 Overwintering Birds

The area adjacent to S01 has been designated for overwintering birds and therefore works should not be carried out between November and March to ensure the reason for designation is not compromised.

3.2.6 Great crested newt

In the absence of detailed survey information, a precautionary approach would be adopted whereby it is assumed that great crested newts may be present in the potential foraging and/or commuting habitats identified (Appendix B). The water bodies will not be directly affected by the works. However, foraging and/or commuting habitat within the site may be affected by the vegetation clearance. The works will result in small scale, localised ground disturbance which will take place over a short period of time.

The template for the Natural England Method Statement used for development licensing purposes (Natural England, 2015) includes a Rapid Risk Assessment, which provides an initial estimate of the potential risk of the proposed works resulting in an offence being a committed under the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) and therefore requiring mitigation and/ or a licence from Natural England. The calculation is based on the area of suitable habitat affected and the distance from breeding ponds. This calculator tool was applied to the proposed scope of works.

The result of the NE Rapid Risk Assessment is green: offence highly unlikely (see Appendix C).

Works are to be limited to above ground clearance only and no resurfacing along suitable habitat is proposed. Vegetation clearance will be minimal and will not result in any long-term loss of large areas of suitable habitat or result in permanent or temporary habitat fragmentation.

Considering the habitats present within the footprint of the proposed works and in the wider area, and the small scale of the works it is considered reasonably unlikely that the works will result in deliberate capture, injury or killing of great crested newts.

Similarly, it is considered reasonably unlikely that the proposed works will result in deliberate disturbance to great crested newts in such a way as to be likely to impair their ability to survive, breed, reproduce, hibernate; or to affect significantly the local distribution or abundance of great crested newts.

Due to the limited potential for great crested newts to be using the habitats within the area of works it is considered reasonably unlikely that the proposed works will result in damage or destruction of their resting places.

As the works will not affect any ponds, they will not involve deliberate taking or destroying the eggs of great crested newts during the breeding season.

Therefore, on the basis of specialist knowledge and experience working with great crested newts, it is considered on balance that the proposed works is reasonably unlikely to result in an offence under regulation 41 of the conservations of habitats and species regulations 2010 (as amended) and no protected species mitigation licence is required.

Similarly, it is considered reasonably unlikely that works will result in disturbing a great crested newt in its place of shelter or obstructing access to such a place and therefore the proposed

works is reasonably unlikely to result in an offence under the Wildlife & Countryside Act 1981 (as amended).

However, to ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.7 Hazel dormouse

Hedgerows to be crossed by the proposed routes were reviewed to assess their connectivity to the surrounding network of hedgerows and areas of woodland, including ancient woodland, using OS mapping. The assessment considered the results of the initial ecological survey (identification of species rich / species poor hedgerows / management). The requirement for dormouse habitat suitability surveys were identified and undertaken at S04. The habitats adjacent to the proposed new route at S04 are considered to be sub-optimal for dormice (species poor hedgerow with gaps, grass and tall ruderal) and no further surveys are required.

Taking into account the habitats present within the footprint of the proposed works and in the wider area and the localised scale and nature of the works at S04, it is considered reasonably unlikely that the works will result in deliberate capture, injury or killing of hazel dormice.

Similarly, it is considered reasonably unlikely that the proposed works will result in deliberate disturbance to hazel dormice in such a way as to be likely to impair their ability to survive, breed, reproduce rear or nurture their young, hibernate; or to affect significantly the local distribution or abundance of hazel dormice.

Due to the limited potential for hazel dormice to be using habitats, it is considered reasonably unlikely that the proposed works will result in damage or destruction of hazel dormice resting places or breeding places.

Similarly, it is considered reasonably unlikely that works will result in disturbing a hazel dormouse in its place of shelter or obstructing access to such a place and therefore the works are reasonably unlikely to result in an offence under the Wildlife & Countryside Act 1981 (as amended).

However, to ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.8 European otter

In the absence of detailed otter survey information, a precautionary approach has been adopted whereby it has been assumed that otters are present at crossings identified as having potential habitat for otter within the Ecology Constraints Report: Suffolk (Mott MacDonald, 2017). The majority of the proposed routes have no impacts anticipated to watercourses. Proposed routes that cross watercourses make use of existing crossings where possible. Where proposed routes require new crossings over a watercourse, the proposed works would have a low impact on this species if present. Any loss of foraging habitat will be temporary and the area very small in the context of the surrounding habitats. No holts or potential resting places were identified within the ZOI during the surveys.

Considering the habitats present within the footprint of the proposed works and in the wider area and the localised scale and nature of the works, it is considered reasonably unlikely that the works will result in deliberate capture, injury or killing of otters.

Similarly, it is considered reasonably unlikely that the proposed works will result in deliberate disturbance to otters in such a way as to be likely to impair their ability to survive, breed,

reproduce rear or nurture their young, or to affect significantly the local distribution or abundance of otters.

Due to the limited potential for otters within the Zol of the crossings, it is considered reasonably unlikely that the proposed works will result in damage or destruction of otter resting places or otter breeding places.

Therefore, on the basis of specialist knowledge and experience working with otters, it is considered on balance that the proposed works are reasonably unlikely to result in an offence under Regulation 41 of the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) and no protected species mitigation licence is required.

Similarly, it is considered reasonably unlikely that the proposed works will result in disturbing an otter in its place of shelter or obstructing access to such a place and therefore the works are reasonably unlikely to result in an offence under the Wildlife & Countryside Act 1981 (as amended).

However, to ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.9 European Hedgehog

In the absence of detailed survey information, a precautionary approach has been adopted whereby it has been assumed that hedgehogs are present at crossings identified as having potential habitat for hedgehogs. The proposed works are unlikely to result in the long-term loss of large areas of this habitat or result in permanent or temporary habitat fragmentation.

Where suitable habitats are located within the Zol such as scrub, woodland edges and hedgerows clearance methods will be implemented that limit the risk of damage to hedgehogs such as phase cutting. If possible, vegetation clearance should be undertaken during autumn so as to avoid breeding season and hibernation. Clearance that is unavoidable in spring or winter should be carried out cautiously using phase cutting to allow for hand searching of active nests before clearance. Should a nest or hibernating hedgehog be encountered, they should be left undisturbed and covered with the original material and work shall halt in this area until the nest is vacated.

Taking these precautions into consideration it is deemed unlikely that the proposed works will result in the death or injury of any hedgehogs within the vicinity of the proposed works.

However, to ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.10 Stag Beetle

In the absence of detailed survey information, a precautionary approach has been adopted whereby it has been assumed that stag beetles are present at crossings identified as having potential habitat for stag beetles. The proposed works will not result in the long-term loss of large areas of this habitat or result in the permanent or temporary habitat fragmentation.

Where suitable habitats are located within the Zol such as dead/rotting logs and wood piles, these areas should remain undisturbed where possible. If clearance is necessary, the material should be moved as short a distance as possible and placed in a comparable area of habitat (i.e. shaded wooded area). Should larvae be encountered during clearance they should be reburied away from disturbance with as much of the original rotting wood as possible.

Based on specialist knowledge of stag beetle ecology, it is considered relatively unlikely that the proposed works will result in an offence under the Wildlife and Countryside Act 1981 (as amended).

However, to ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.11 Common reptiles

In the absence of detailed survey information, a precautionary approach has been adopted whereby it has been assumed that common species of reptiles are present at crossings identified as having potential habitat for common reptiles within the Ecology Constraints Report: Suffolk (Mott MacDonald, 2017). The proposed works will not result in the long-term loss of large areas of this habitat or result in the permanent or temporary habitat fragmentation.

There are suitable habitats (grassland and scrub), suitable refuge and hibernation sites (for example log or stone piles, rabbit burrows and cable troughs) within the ZoI. There is a possibility that reptiles will therefore be encountered during the works. Any vegetation clearance should be undertaken during the active reptile season (March to October) and at sufficiently high temperatures (i.e. above 10°C). If vegetation clearance is carried out during the reptile hibernation season, should hibernating reptiles be recorded, they will be left undisturbed and their place of shelter returned to its original condition. Only where this is not possible shall the reptiles be removed with minimal handling and placed in a suitable, safe habitat to enable continued hibernation/ torpor. The works are therefore likely to result in small scale disturbance to reptiles during the hibernation period; this level of disturbance is not considered to be significant.

On the basis of specialist knowledge and experience working with common lizards, slow worms, grass snakes and adders, it is considered that the proposed works are reasonably unlikely to result in an offence under the Wildlife and Countryside Act 1981 (as amended) and translocation of reptiles from the Site is not considered necessary.

However, to ensure that such an offence is not committed, it is proposed that work should proceed under the precautionary method detailed in Section 4.

3.2.12 Water vole

In the absence of detailed survey information, a precautionary approach has been adopted whereby it has been assumed that water voles are present within the site. The majority of the proposed routes have no impacts anticipated to watercourses. Proposed routes that cross watercourses, make use of existing crossing where possible. Where proposed routes require new crossings over a watercourse, the proposed works would have a low impact on this species if present. Any loss of foraging habitat will be temporary and the area very small in the context of the surrounding habitats.

Any affected watercourses that have not yet been assessed for water vole potential will require additional pre-start survey ahead of construction (Section 5).

Attention has been paid to the presence of water voles and, as far as is reasonable, appropriate action should be taken to safeguard the animals and their places they use for shelter and protection (see Section 4). On the basis of specialist knowledge and experience working with water voles, it is considered on balance that displacement of water voles under licence may be required following the additional surveys.

4 Precautionary Method Statement

4.1 General measures

The details of the precautionary methods will form the basis for a site briefing with the Contractor. A suitably qualified ecologist, hereafter referred to in this document as the “Ecologist” is identified as someone who either is a full member of Chartered Institute of Environmental and Ecological Management (CIEEM) or has enough experience to apply. The Ecologist will be present prior to the commencement of the site works to undertake a brief Tool Box Talk (TBT). The TBT will outline the known and potential ecological constraints within the footprint of the Scheme and sets out the methods of working that need to be employed by Network Rail for minimising impacts to protected species during the proposed works. A record of attendance to be completed as part of the TBT is provided in Appendix E.

It will be the responsibility of the Network Rail to ensure the measures detailed in these precautionary methods are undertaken. A member of staff that will be present on the Scheme for the full duration of the works will be appointed by Network Rail with responsibility for overseeing the implementation of this precautionary method of working, hereafter referred to in this document as the “Ecological Representative”. The Ecological Representative will be responsible for ensuring that works minimise impacts to wildlife throughout the full duration of the works, when it is considered appropriate for an Ecologist not to be present. The Ecological Representative will be fully briefed on their required tasks by the Ecologist and the PMW updated to retain a record of these tasks.

The Ecologist will remain at each site during the implementation of key measures set out within this document. Key measures include all recommended ecology surveys and/or mitigation strategies that require a suitably qualified ecologist to be present to ensure works minimise risks to protected species.

Tasks identified within this report which can only be undertaken by an ecologist are specified within each species-specific method of working in Section 4.2. The Ecological Representative will ensure that a copy of the Precautionary Method Statement is available during the works and provides a signed copy to Suffolk County Council once they have discussed the necessary requirements with the ecologist.

A list of telephone numbers of Ecologists and Ecological Representative (to be added once known) is included in Appendix D in case a protected species is found and further advice is required.

Table 1 below, outlines which species specific precautionary methods of working are to be applied at each site, and any further site-specific requirements that must be adhered to.

Table 1: Suffolk Site Specific Requirements

Site reference	Species Present Requiring Precautionary Method of Working to be followed	Further Site-Specific Instructions	Signature	Date
S01 – Sea Wall	• Badger; • Schedule 1 breeding birds; • Otter; • Reptiles; • Water vole;	The reedbed along the proposed route provides suitable habitat for Cetti's warbler, a Schedule 1 bird (See Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a) and Map in Appendix B).		

Site reference	Species Present Requiring Precautionary Method of Working to be followed	Further Site-Specific Instructions	Signature	Date
	- European hedgehog; and - Stag beetle	A pre-construction breeding bird survey would be required to identify and map Cetti's warbler territories to ensure no direct or indirect disturbance to breeding birds during proposed works. Field methods would be based on the British Trust for Ornithology's Common Bird Census (Marchant, 1983) with the number of visits undertaken in accordance with Scottish Natural Heritage (2005 and 2014). See section 3.2.5 "overwintering birds" above. There should be no physical works from November to March		
S02 - Brantham High Bridge	- Badger; - Bats; - Breeding birds; - Reptiles; - European hedgehog; - Stag beetle			
S03 - Buxton Wood	- Badger; - Otter; - Bats; - Breeding birds; - Reptiles; - European hedgehog; - Stag beetle			
S04 - Island	- Badger; - Bats; - Breeding birds; - Hazel dormouse; - Otter; - Reptiles; - European hedgehog; - Stag beetle			
S05 - Pannington Hall (Broomhaughton)	This crossing has been removed from the Order and therefore no further action required.			
S07 - Broomfield	This crossing has been removed from the Order and therefore no further action required.			
S08 - Stacpool	- Badger; - Otter; - Bats; - Breeding birds - Reptiles; - European hedgehog; - Stag beetle.			
S11 - Leggetts	- Badger; - Breeding birds; - Hedgehog			

Site reference	Species Present Requiring Precautionary Method of Working to be followed	Further Site-Specific Instructions	Signature	Date
	• Stag beetle			
S12 - Gooderhams	• Breeding birds; • Hedgehog • Stag beetle			
S13 - Fords Green	• Badger; • Great crested newt; • Bats; • Breeding birds; • Reptiles; • Water vole; • European hedgehog; • Stag beetle			
S16 - Gislingham	• Badger; • Bats; • Breeding birds; • Reptiles; • European hedgehog; • Stag beetle			
S17 - Paynes	• Badger; • Bats; • Breeding birds; • Reptiles; • European hedgehog; • Stag beetle			
S18 - Cow Pasture Lane	• Breeding birds; • Hedgehog • Stag beetle			
S21 - Abbotts	• Great crested newt; • Breeding birds; • Hedgehog • Stag beetle	Works will not commence without consultation with Suffolk Wildlife Trust to ensure agreement with precautionary measures.		
S22 - Weatherby	• European hedgehog; • Breeding birds; • Stag beetle			
S23 - Higham	• European hedgehog; • Badger • Breeding birds; • Stag beetle			
S24 - Higham Ground Frame	• Badger; • Bats; • Breeding birds; • Reptiles; • Water vole; • European hedgehog; • Stag beetle			
S25 - Cattishall	• Badger; • Bats; • Breeding birds; • Reptiles; • European hedgehog;			

Site reference	Species Present Requiring Precautionary Method of Working to be followed	Further Site-Specific Instructions	Signature	Date
	• Stag beetle			
S27 - Barrels	• Badger; • Bats; • Breeding birds; • Reptiles; • European hedgehog; • Stag beetle			
S28 - Grove Farm	• Badger; • Bats; • Breeding birds; • Reptiles; • European hedgehog; • Stag beetle			
S29 - Hawk End Lane	• Badger; • Great crested newt; • Bats; • Breeding birds; • Reptiles; • European hedgehog; • Stag beetle			
S30 - Lords No.29	• Badger; • Bats; • Breeding birds; • Reptiles; • European hedgehog; • Stag beetle			
S31 - Mutton Hall	• Badger; • Bats; • Breeding birds; • Reptiles; • European hedgehog; • Stag beetle			
S69 - Bacton	• Badger; • Bats; • Reptiles; • Water vole; • European hedgehog; • Stag beetle			

Source: Mott MacDonald

4.2 Species specific measures

Species specific precautionary methods are presented in this section. Each A3 sheet highlights the habitats and identification of signs typical of the legally protected species that have potential to be present within the Scheme; precautionary methods of working and the procedures to be followed should they be recorded within the Scheme during the works. Maps are provided in Appendix B for each legally protected species and to show the crossings where these species may be present.

4.2.1 Designated sites and HPis

4.2.1.1 Special Protection Areas (SPA) and Ramsar wetland

Ramsar sites are wetlands of international importance designated under the Ramsar Convention (ratified in the UK in 1976) and are protected under the Wildlife and Countryside Act 1981 (as amended). SPAs are European protected sites (part of the EU Natura 2000 ecological network) classified in accordance with Article 4 of the EC Birds Directive (Directive 2009/147/EC). A HRA Task 1 Screening report identified that no likely significant effect alone or in combination is expected during the construction and operational phase of the new footpath and as such, does not require further assessment on site integrity. Full details are presented in report 367516/RPT192 (Mott MacDonald, 2017b).

4.2.1.2 County Wildlife Sites (CWS)

Local authorities may designate certain areas as being of local conservation interest. The criteria for inclusion, and the level of protection provided, may vary between areas. The designation of a CWS is classified by Natural England as being a 'Local Site' designation, though sites can also be of a regional and national importance. CWS are areas of land with significant conservation importance. These sites, together with statutory designations, are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined.

The proposed route of new sections of footpath will cross through non-statutory designated sites (CWS and S17). CWSs also lie immediately adjacent to S03. Access to each CWS would be unchanged and the small scale, localised nature of the works has no implications for loss of habitat or disturbance. Indirect impacts potentially arising from works adjacent to a watercourse would be controlled by the application of best practice guidance and Network Rail standards. It is considered that there is no potential loss of integrity at any of the CWSs. However, consultation with the Suffolk county ecologists is ongoing.

Contractors are to be made aware of the sensitivity of surrounding habitats associated with the designated sites. Contractors should restrict movements to the alignment only and locate any welfare units/site vehicles, if required, outside the boundary of the CWSs and where possible, on hard standing to minimise impacts.

4.2.1.3 Protected hedgerows

The Hedgerows Regulations (1997) protect countryside hedgerows. A countryside hedgerow is protected if it meets certain criteria for length, location and “importance”. A hedgerow is important (and is protected) if it is at least 30 years old and meets at least one other criteria set out under Hedgerows Regulations (1997). The regulations allow the Planning Authority to protect 'important' countryside hedgerows by controlling their removal through a system of notification.

4.2.3 Badger

Habitats and identification on site

Badger sett openings are D-shaped, typically situated on sloping ground in or near woodland clearings or at the base of hedgerows. Typically, a spoil heap will be piled up outside the sett entrance and old bedding may also be present. The sett can be a single entrance, or many entrances with obvious pathways between them.



Badger prints have five toes, a wide palm and five long claws.



Badgers dig latrines to contain their dung, which is distinguishable from dog or fox dung as it is often soft with an earthy smell.



4.2.3.1 Crossings where badgers may be present

No badger setts were identified during the field surveys undertaken between March 2016 and September 2017. Evidence of badgers (foraging signs) were observed along the proposed route at S04 (See Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a)). Locations where pre-construction checks are required have been identified in Table 1 at 4.1.

4.2.3.2 Precautionary Method

All routes should have a walkover ahead of works to identify potential badger setts. A preconstruction check for badgers to be carried out by a suitably qualified ecologist.

Vegetation clearance should be undertaken in the presence of an ecologist using hand tools only in areas of dense scrub. If evidence of a badger sett is found clearance works would stop. If any proposed route alignment is deemed to be too close to a badger sett or considered to cause a disturbance, best practice will be followed. Either the route would be adjusted within the limit of the Order so that it lies at a sufficient distance so as not to cause disturbance or appropriate mitigation would be agreed with Natural England through the licensing process.

Any excavations should be filled or covered overnight. If this is not possible, one side of the excavation should be graded so that it provides an escape ramp to prevent any animals becoming entrapped.

Works will be carried out in accordance with Network Rail’s CR-E whereby the contractor shall protect and enhance the existing biodiversity

4.2.3.3 What to do

Badgers are active throughout the year and can excavate new setts at any time. A walkover survey will be undertaken prior to the start of works. The works are of short duration therefore, in the unlikely event that a new badger sett is found within 30m of proposed works, advice should be sought from an ecologist prior to the start of works (Appendix D).



4.2.4 Bats

Habitats and identification on site

There are 18 species of bats resident in the UK. They vary in size and appearance, but the smallest and most commonly encountered is the common pipistrelle *Pipistrellus pipistrellus*. These are approximately 2.3–3.6cm in length and can crawl into cracks and crevices in buildings and trees.



Identification of bat droppings

Bat droppings look very similar to rodent droppings but are dry and will crumble to dust under very little pressure. Bat droppings vary in size according to species. The most likely place to record bat droppings is within cracks and holes within mature trees (see photo above). There may also be some staining where the bats may be entering a space.



Moth wings may be interspersed amongst the droppings.

4.2.4.1 Crossings where bats may be present

Mature trees and buildings/structures with potential for bats that lie adjacent or along to proposed routes are presented in Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a) and Appendix B. Locations where pre-construction checks are required have been identified in Table 1 at 4.1.

4.2.4.2 Precautionary Method

Works (general): Night time works taking place in the vicinity of the trees should have artificial lighting directed away from the trees to avoid potential disturbance to roosting bats. In accordance with Bat Conservation Trust (BCT) Interim Guidance (BCT, 2014) lighting associated with the works should be the minimum required for the task.

Works (tree felling): Tree removal will be kept to a minimum for the Scheme. Prior to vegetation clearance a suitably qualified ecologist will inspect trees for features suitable for roosting bats. All trees within the Zol which have been assessed as having bat roost potential and which require felling will then be subject to detailed external and internal inspections of all ecological features of importance to roosting bats in order to establish the presence of, or evidence of, bats immediately prior to the trees being felled. The felling of the tree will only be permitted if it can be demonstrated that there will be no subsequent disturbance or damage/destruction of other trees confirmed as supporting bats.

Where it is not possible for any reason, to inspect a tree (holes/hollows/cavities) in situ, that is considered to have bat potential, the section of tree containing the hole/hollow/cavity will be cut and carefully lowered to the ground using soft-fell techniques (i.e. lowering the section of tree carefully to the ground using ropes).

If bats (alive or dead) or evidence of the presence of bats is found removal of the tree(s) will need to be undertaken under a mitigation licence. If bats are considered to be absent, it is recommended to fell the tree(s) in sections to maintain the integrity of any Potential Roost Feature (PRFs) present. Each section with a PRF should be lowered to the ground and subjected to a final check using an endoscope prior to its disposal. If bats are found during this final check, the tree section should be moved out of the works footprint with the cavity unobstructed to allow the bats to leave at dusk.

4.2.4.3 What to do

If a bat (dead or alive) or evidence of bat presence (such as droppings or feeding remains) is found on Site, all works must cease in that area and advice should be sought from an ecologist (Appendix D).



4.2.5 Breeding birds

Habitats and identification on site

Birds can nest in trees, scrub and dense ground vegetation as well as buildings and infrastructure. A nest often creates an anomaly with its surroundings in terms of shape, colour or structure.

During breeding, birds may fly up from the ground when disturbed. They can be observed carrying nest material or food. They can be on sentry duty or repeatedly singing from a prominent place, one of these is usually close to the nest. Birds show agitated behaviour, feigning injury and/or repeated calling when the nest is disturbed.



1. Song thrush *Turdus philomelos* nest



2. Skylark *Alauda arvensis* nest

4.2.5.1 Crossings where breeding birds may be present

The full extent of the proposed works will be covered by the precautionary methods with respect to common breeding birds. Locations where pre-construction checks are required have been identified in Table 1 at 4.1

4.2.5.2 Precautionary Method

Vegetation clearance should be undertaken outside the breeding season (1 September to 28). Where vegetation clearance activities cannot be avoided during the breeding season, a check for breeding birds would be undertaken by a suitably qualified ecologist no more than 24 hours before vegetation clearance. If breeding birds are discovered, then works within a 10m buffer of the active nest would be postponed until the chicks have fledged and the nest is inactive. Nests with large chicks should not be approached as it may cause chicks to fledge prematurely.

Works would also be carried out in accordance with Network Rail's CR-E whereby the contractor shall protect and enhance the existing biodiversity.

4.2.5.3 What to do

If a bird's nest is found on site and you are unsure of what to do, seek advice from an ecologist (Appendix D).

4.2.6 Great crested newt

Habitats and identification on site

Great crested newts will utilise ponds and static watercourses to breed during spring and early summer. Adult newts generally leave the breeding ponds from late May onwards and return between February and March. Juveniles will emerge from the breeding ponds from August and will usually remain on land for two to four years until they reach sexual maturity.

Suitable habitats whilst on land include rough (tussocky) grassland, scrub and woodland. Log piles, rock piles underground crevices, tree and hedge roots, mammal burrows, and brash are particularly important habitats for great crested newts during hibernation in the winter. Hibernation usually takes place between October to February depending on seasonal variation.

If suitable terrestrial habitat is present great crested newts are likely to stay within 250 m of their breeding pond (Cresswell & Whitworth, 2004)

Great crested newts are the largest species in the UK and can measure between 14 and 16 cm. They have dark grey-brown backs and flanks, and are covered with darker-coloured spots. Their undersides are yellow/ orange-coloured and are covered in large, black blotches.



1. Male great crested newt (right) and smooth newt (left)



2. Great crested newt showing orange colour and large, black blotches

4.2.6.1 Crossings where great crested newts may be present

Waterbodies with potential to support breeding populations of great crested newts were identified within 250 m from aerial imagery and OS maps. No Habitat Suitability Index (HSI's) have been undertaken of these water bodies. An HSI is a numerical index (between 0 and 1) which was developed as a means of evaluating quality and quantity of habitat for great crested newts. All sections of the scheme that take place in terrestrial habitat that is considered to have some potential to support great crested newts are show in a map in Appendix B and Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017). Locations where pre-construction checks are required have been identified in Table 1 at 4.1.

4.2.6.2 Precautionary Method

Any vegetation clearance should be undertaken during the active great crested newt season (March to October). A tool box talk would be given to all contractors working within the area, prior to the start of works, to ensure that they are aware of the potential presence of newts. All suitable habitats within the working area would be checked by the suitably qualified ecologist for the presence of great crested newt, prior to works.

Any piles of wood, brash and rubble within the working area would be dismantled by hand and immediately removed to outside the working area. Where it is not essential to remove potential refuges to undertake the works, these will be left undisturbed. Once the hand search is complete the vegetation will be strimmed and/or cut by the Contractor to approximately 150mm.

A further vegetation cut would be carried out in the presence of an ecologist following the initial cut to reduce the vegetation to the required height. If works are occurring during the hibernation period for great crested newt (November to February), potential refuges are to be left undisturbed.

Works will be carried out in accordance with Network Rails CR-E whereby the contractor shall protect and enhance the existing biodiversity.

4.2.6.3 What to do

If at any time during the works a great crested newt is seen, all works should halt (when safe to do so) and the Ecologist must be contacted immediately. The Ecologist will then be able to advise on an appropriate course of action. At no time should you attempt to handle a great crested newt as incorrect handling can cause injury/death.



4.2.7 Hazel dormouse

Habitats and identification on site

The dormouse has gingery-brown fur, large black eyes and a fluffy tail. They live in in deciduous woodland, hedgerows and dense scrub.



In winter (October to April/May), the hazel dormouse will hibernate in nests on the ground in the base of old coppiced trees or hazel stools, under piles of leaves or under log piles.



Examination of hazelnuts may show a neat, round hole in the shell. The cut surface of the hole has toothmarks which follow the direction of the shell.

4.2.7.1 Crossing where hazel dormouse may be present

There is potential habitat for hazel dormouse within woodland and hedgerows along the proposed route at S04 (See Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a) and Appendix B).

4.2.7.2 Precautionary Method

Any affected woodland/ hedgerows that have not yet been assessed for dormouse potential will require additional survey by a suitably qualified ecologist ahead of construction (Section 5). Further survey work may identify the requirement for a dormouse licence to be obtained. Additional licenced work (if required) is not covered by these precautionary methods.

A habitat suitability assessment (optimal vs sub-optimal) for this species was conducted at crossing S04 in August 2017. This assessment was based on habitat connectivity, vegetation density and height and abundance of fruiting shrubs.

The wider landscape surrounding the proposed works at S04 supports blocks of woodland, which are connected to the proposed route. Arable farmland dominated adjacent habitats both east and west of the rail line, with a small section of woodland to the southwest of the survey area. The hedgerow comprised elder and elm with bramble and nettles. Approximately 2-3m in height and approximately 1m wide. There is a gap for vehicle access into the field. There were no sign of recent management (apart from yearly flailing) at the time of survey. These habitats are considered to be sub-optimal. No hedgerow removal is required as part of the works as the route will utilise the existing gap (used for vehicle access into the field) to avoid habitat loss.

In sub-optimal habitats, a precautionary approach would be adopted for vegetation clearance. In the unlikely event that a dormouse is present, this will to minimise the likelihood of injury/ death. Works would require small-scale and localised ground disturbance.

Vegetation clearance would only occur following hand searches by a suitably qualified ecologist. Once the area has been checked and dormice are confirmed absent from the area, vegetation clearance should be undertaken by hand, in a slow and directional manner in the presence of the ecologist. the timing of vegetation clearance should avoid sensitive periods such as hibernation (October/ November to April/ May) and when female dormice are likely to have young in their nests (between early June and late September), to minimise risks of harm or injury in the unlikely event that dormouse are present.

4.2.7.3 What to do

If at any time during the works a dormouse or dormouse nest is seen, all works should halt (when safe to do so) and suitably qualified ecologist must be contacted immediately (Appendix D).



4.2.8 European otter

Habitats and identification on site

Otters occur in both rural and urban areas, including major cities. They will use any size watercourse. Places where they are found include rivers, canals, lochs and reservoirs, estuaries, coasts, streams, ponds, bogs, marshes and woodland. Otters may use a variety of places as ‘holts’ or sheltering places, for instance within well covered vegetation or in-between boulders/ rocks.



They are chocolate brown in colour with flattened heads, webbed feet and thick tapering tails.



Other ways to identify the presence of otter are from field signs, including prints (as shown above), spraints (faeces) and feeding remains.

4.2.8.1 Crossings where otters may be present

Rivers, streams and woodland with potential for otters that lie adjacent or along to proposed routes are presented in Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017) and Map in Appendix B.

4.2.8.2 Precautionary Method

Works should be carried out ensuring there is no obstruction of watercourses during works to allow otters to continue commuting along the watercourse throughout the duration of the works.

Prior to works commencing a pre-construction survey should be carried out by a suitably qualified ecologist to ensure otter are not affected by the proposed works.

If a potential holt site is identified the application of best practice would be undertaken and/or avoidance of impacts through appropriate timing of works. This would prevent any adverse impact to otter as a result of increased noise associated with the presence of machinery/increased human presence during construction. Where night works are required adjacent to habitat considered suitable for otter, directional lighting would be used to reduce light spill. It is recommended that all works near water are undertaken with regard the Construction Industry Research and Information Association (CIRIA) guidance on the control of water pollution from construction sites. Works will be carried out in accordance with Network Rail’s CR E whereby the contractor shall protect and enhance the existing biodiversity.

4.2.8.3 What to do

If at any time during the works an otter or possible otter holt is seen, all works likely to cause damage or destruction to a holt (vegetation clearance, excavation, movement of machinery etc) should halt (when safe to do so) and the suitably qualified ecologist must be contacted immediately (Appendix D).

4.2.9 European hedgehog

Habitats and identification on site

Hedgehogs are very widespread occurring across the whole of the UK in both rural and urban locations. They are predominately a woodland edge and hedgerow species in rural areas and have learned to thrive in the urban/suburban environment through networks of gardens where they can access supplementary food.



They are creamy brown in colour and covered in spines with grey fur on their underside and a shrew-like nose.



Other ways to identify the presence of hedgehogs are through field signs such as droppings (as shown above) which are dark brown-grey to black and contain invertebrate exoskeletons.

4.2.9.1 Crossings where hedgehogs may be present

The full extent of the proposed works will be covered by the precautionary methods with respect to hedgehogs (See Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a) and Appendix B) for suitable habitat.

4.2.9.2 Precautionary Method

Further surveys: Assessment of suitability of hedgerows and woodland to support hedgehogs is required. These are to be undertaken preconstruction by a suitably qualified ecologist with surveys to follow best practice.

Walkovers of the sites should be carried out to determine suitability of habitat for hedgehogs. Where suitable habitats are located within the ZoI such as scrub, woodland edges and hedgerows we will implement clearance methods that limit the risk of damage to hedgehogs such as phase cutting. These methods should also aim to be undertaken during the lower risk period in autumn to not disturb potential nests or hibernating hedgehogs. If vegetation clearance must be carried out during spring or winter, phase cutting should be implemented by hand to allow for searching of nests and hibernation spot before clearance.

Works will be carried out in accordance with Network Rail’s CR E whereby the contractor shall protect and enhance the existing biodiversity.

4.2.9.3 What to do

To avoid harming any hedgehogs that may be present on site, clearance of vegetation should aim to be carried out in autumn between breeding and hibernation season. If this is not possible then the area should be checked for nests prior to clearance being carried out. Any active nests or nests with hibernating individuals in them should be left undisturbed and recovered with as much of the original material as possible.



4.2.10 Stag beetle

Habitats and identification on site



Stag beetles are one of the most striking beetle species occurring in the UK characterised by the male’s antler-like mandibles. Their distribution is limited to the south-east of England and can be found in oak woodland, gardens, hedgerows and parks. They lay their eggs on rotting wood that the larvae will feed on during development which can take up to 6 years.



They males can be up to 7.5cm long including their large jaws and have reddish-brown bodies and the females can have larger bodies of up to 5cm with smaller heads and a brown wing-case.

4.2.10.1 Crossings where stag beetles may be present

The full extent of the proposed works will be covered by the precautionary methods with respect to common stag beetles (See Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a) and Appendix B) for suitable habitat.

4.2.10.2 Precautionary Method

If potential habitat for stag beetles is found within the site (i.e. dead/rotting wood and logs) and needs to be moved, the material should be moved as short a distance as possible and replaced in a shady, wooded area to avoid displacement of any beetles or larvae within it. No rotting wood should be cleared unnecessarily from any of the sites.

4.2.10.3 What to do

If digging up of larvae occurs at any point on site, the larvae should be moved to a suitably shaded habitat with as much of the original rotting wood as is possible. To offset any loss of habitat, brash and logs removed from parts of each site should be piled up to rot away from the work area to provide future hibernacula for stag beetles in the area.



4.2.11 Common reptiles

Habitats and identification on site

Britain supports four species of common reptile which are found throughout a number of habitat types and can be found in large numbers within grassland, scrub and near wet areas such as ponds.



1. Common lizard *Zootoca vivipara*

ID: The common or viviparous lizard is widespread. It is a small, very quick brown lizard. Typical adult size is approx. 15cm (including its tail) and coloration is commonly some shade of brown with patterns of spots or stripes. Unusual colour variations are common, everything from yellow through various shades of green to jet black are encountered.
Habitat: Most frequently seen on commons, heaths, dry stone walls, and embankments around the British Isles



2. Slow worm *Anguis fragilis*

ID: The slow worm is a lizard which has evolved into a legless form with the development of a burrowing habit. Appearance is always shiny; the males are grey, and the females brown with dark sides and a thin line down the back.
Habitat: The slow-worm can be found in almost any open or semi-open habitat. It likes warmth but instead of basking in the open sun it prefers to hide under a stone, log or piece of discarded rubbish such as a sheet of corrugated iron or plank of wood exposed to the sun.



3. Grass snake *Natrix natrix*

ID: The grass snake is the largest UK snake. Grass snakes are typically grey-green in colour, often with black spots and a yellow/cream/orange collar. Black lines run down from their large golden eyes to their top lips. Their underside is usually white or pale yellow with a checkering of blue-black and white markings. Their forked tongues are blue-black.
Habitat: Preferred habitats tend to be associated with water e.g. ponds, lakes, reservoirs, marshes, river valleys but, also requires a range of terrestrial habitats, including grassland, scrub and woodland



4. Adder *Vipera berus* (Female)

ID: Adders have a venomous bite, but this is rarely fatal to humans. A full-grown adult adder can be up to 65 cm long. Adders have a dark zig- zag running along the back and a dark V on the back of the head. As with all reptiles, colouration varies and becomes duller as sloughing (skin shedding) approaches. If a black snake is encountered (melanistic) it is best practice to treat this as an adder.
Habitat: Adders are usually associated with open heathland in the southern regions, although they also often occur in dense woodland and in particular open, sunny areas within woodland.



5. Adder (Male)

4.2.11.1 Crossings where common reptiles may be present

The full extent of the proposed works will be covered by the precautionary methods with respect to common reptiles (See Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a) and Appendix B).

4.2.11.2 Precautionary Method

If vegetation clearance is undertaken during the active reptile season (March to October), immediately prior to the works, all suitable habitats within the working area would be checked by a suitably qualified ecologist or ecological representative (having been advised by the ecologist). Any piles of wood, brash and rubble within the working area would be dismantled by hand and immediately removed to outside the working area. Where it is not essential to remove potential refuges to undertake the works, these would be left undisturbed. Once the hand search is complete the vegetation would be strimmed and/or cut using hand tools by the Contractor to approximately 150mm. Following the initial cut the area would be checked for the presence of reptiles before being cleared to ground level.

If works need to take place during the hibernation period (October to March), a suitably qualified ecologist would be present to check the area for suitable hibernation sites. Should hibernating reptiles be recorded, they will be left undisturbed and their place of shelter returned to its original condition to minimise the risk of mortality at this time of year.

Works would be carried out in accordance with Network Rail’s CR-E whereby the contractor shall protect and enhance the existing biodiversity.

4.2.11.3 What to do

Any reptile found during the site work should be left to move away of its own accord. If a common lizard, slow worm or grass snake does not move away from the footprint of the works, they can be carefully moved by hand, taking care to any avoid injury and relocated in a suitable area (i.e. dense vegetation) within the immediate surrounds. Adders should not be handled as their bite is venomous and could cause serious injury. If an adder does not move from the area, an ecologist should be contacted. If a large number of reptiles are observed (i.e. more than five), work should stop and an ecologist should be contacted for advice regarding how to proceed.

4.2.12 Water vole

Habitats and identification on site

European water voles are a uniform dark brown colour, with slightly paler coloration on the underside. Their pelage is quite thick and they are furred over their entire body, including their tail. They are found in slow moving rivers streams ditches and around lakes, reed-beds marshes and ponds.

Water voles will establish burrows several meters from a water course. Water vole burrow entrances are typically wider than high with a diameter of 4-8cm, located at the water's edge, on banks or at the top of banks, occurring within vegetation up to 5m from the water.



Latrines and feeding remains of large grasses and rushes are known to be good survey indicators of this species.



4.2.12.1 Crossing where water voles may be present

Streams and ditches with potential for water voles that lie adjacent or along to proposed routes are presented in Anglia Level Crossing Ecology Constraints Report: Suffolk and Map in Appendix B.

4.2.12.1 Precautionary Method

It is recommended that all works near water are undertaken with regard the Construction Industry Research and Information Association (CIRIA) guidance on the control of water pollution from construction sites.

Works would be carried out in accordance with Network Rail's CR-E whereby the contractor shall protect and enhance the existing biodiversity.

4.2.12.2 What to do

A preconstruction survey will be undertaken by a suitably qualified ecologist prior to the start of works. However, in unlikely event that a potential burrow is discovered during works (in the absence of an ecologist), all works likely to cause damage or destruction to a burrow (vegetation clearance, excavation, movement of machinery etc) should halt (when safe to do so) and the suitably qualified ecologist must be contacted immediately (Appendix D).

4.2.13 Non-native invasive plant species
(Indian balsam)

Habitats and Identification on site



1. Indian balsam

Indian Balsam is a non-native and invasive plant species in the UK, and occurs in a variety of disturbed habitats, especially on riverbanks, waste ground and open woodland. Indian Balsam plants can grow up to 2.5-3m tall and reproduce through seeds only.

4.2.13.1 Crossings where non-native invasive species may be present

There are biological records of non-native invasive plant species within 500m crossing S07 (See Anglia Level Crossing Ecology Constraints Report: Suffolk (Mott MacDonald, 2017a) and in Appendix B).

4.2.13.2 Precautionary Method

It is an offence to plant or otherwise cause non-native invasive plant species (Indian balsam) to grow (spread) in the wild.

No non-native invasive plant species were recorded in the Zol of any of the crossings during the filed surveys. Considering the localised scale and nature of the works, it is considered reasonably unlikely that the works will result in an offence.

4.2.13.3 What to do

If a previously unrecorded non-native invasive plant species (such as Indian balsam) is suspected on Site, a suitably qualified ecologist should be contacted (Appendix D). If it is confirmed to be a non-native invasive plant species, advice should be sought from gov.uk.

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A. Summary of legislation

The information in this section relates to species assessed within this document as having the potential to be affected by the development and is a summary version of the full legislative text only. The acts described to in this section should be referred to for the full legislative text.

Table 2: Summary of legislation

Species	Legislation
European badger	Badgers and their setts are afforded protection under the Protection of Badgers Act 1992. Under this act it is an offence to capture, kill, injure and cruelly or ill-treat a badger. It is also an offence to interfere with their setts without the appropriate derogation licence.
Bats	All bat species found in the UK are fully protected as EPS under the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012). It is an offence to deliberately capture, injure or kill a bat; deliberately disturb a bat; or damage or destroy a breeding site or resting place used by a bat (whether or not the bat is present in that resting place). Bats are also protected in the UK under the Wildlife and Countryside Act 1981 (as amended). This means It is an offence to intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place. Seven species are also listed on Section 41 of the NERC Act 2006.
Birds	All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), which prohibits the intentional killing, injuring or taking of any wild bird (and) the taking, damaging or destroying eggs or of the nest (whilst being built or in use). Schedule 1 bird species are afforded greater protection under the Wildlife and Countryside Act 1981 (as amended); it is an offence to disturb Schedule 1 birds at or near the nest or the dependant young of Schedule 1 birds. This can include pairing behaviour occurring prior to nesting.
Great crested newt and other amphibians	Great crested newts are fully protected as EPS under the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012). It is an offence to deliberately capture, injure or kill a great crested newt; deliberately disturb a great crested newt; deliberately take or destroy its eggs; or damage or destroy a breeding site or resting place used by a great crested newt. Great crested newts are protected under the Wildlife and Countryside Act 1981 (as amended)). Under this act it is an offence to intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a great crested newt in such a place. Great crested newts are also listed under Section 41 of the NERC Act (2006). Common toads are listed on Section 41 of the Wildlife and Countryside Act 1981 (as amended).
Hazel dormouse	Hazel Dormouse are fully protected as EPS under the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) and are protected under the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally kill, take or injure a dormouse; possess or control a dormouse; intentionally or recklessly cause damage, destruction or obscure access to any structure or place used by dormice for shelter or protection and intentional or reckless disturbance of dormice. Hazel Dormouse are also listed under Section 41 of the NERC Act (2006).
European otter	Otter are fully protected as EPS under the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) and are protected under the Wildlife and Countryside Act 1981 (as amended). It is illegal to deliberately or recklessly kill, injure or take (capture) an otter; deliberately or recklessly disturb or harass an otter; and damage, destroy or obstruct access to a breeding site or resting place of an otter (i.e. an otter shelter). Otter are also listed under Section 41 of the NERC Act (2006).
European hedgehog	Hedgehogs are afforded some legal protection within the UK under the Wildlife and Countryside Act 1981 (as amended) and the Wild Mammals Protection Act 1996 under Schedule 6 which makes it illegal to kill or capture wild hedgehogs using certain methods or treat them cruelly. Hedgehogs are also listed under Section 41 of the NERC Act (2006).
Stag beetle	Stag beetles are partially protected under the Wildlife and Countryside Act 1981 (as amended) under Schedule 5 this means it is prohibited to intentionally kill, injure or trade the wild stag beetles. Stag beetles are also classed as a priority species under Section 41 of the NERC Act (2006)
Common reptiles	Reptiles have varying degrees of protection under the Wildlife and Countryside Act 1981 (as amended). The common species of reptiles are protected under Schedule 5. This means it is prohibited to intentionally kill, injure or trade the common lizard, slow-worm, grass snake and adder.
European water vole	Water vole are protected under the Wildlife and Countryside Act 1981 (as amended). it is an offence to intentionally or recklessly cause damage, destruction or obscure access to any structure or place used by a water vole for

Species	Legislation
	shelter or protection; to intentionally or recklessly disturb a water vole while occupying such a place; or to intentionally kill or injure a water vole. Water vole are also listed under Section 41 of the NERC Act (2006).
Other mammals	All wild mammals are also protected from intentional inhumane treatment under the Wild Mammals (Protection) Act (1996).
Non-native invasive plant species	It is an offence to plant or otherwise cause to grow in the wild invasive non-native plants listed on Schedule 9 Part 2 of the Wildlife and Countryside Act 1981 (as amended).

B. Maps

C. Great Crested Newt Rapid Risk Assessment

C.1 Is a mitigation licence required?

C.1.1 Background

The template for the Natural England Method Statement used for development licensing purposes (Natural England, 2015) includes a Rapid Risk Assessment Tool, which provides an initial estimate of the potential risk of the proposed works resulting in an offence being a committed under the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) and therefore requiring mitigation and/ or a licence from Natural England.

Given that great crested newts can disperse over 1km from breeding ponds, the potential for offences may seem vast, yet the probability of an offence outside the core breeding and resting area is often rather small, and even if an offence takes place, the effect on the population may be negligible.

C.1.2 Method and limitations

The simple risk assessment tool (Table C.1) has been used to as part of the process to inform the decision as to whether to apply for a licence. The impacts of the works without any licensed mitigation were considered and a likely effect was selected for each "component".

This risk assessment tool was used as a general guide only and has been used following a site-specific risk assessment informed by field surveys of the crossings. Maps of each crossing and associated proposed works and all waterbodies within a 250m radius are presented in Suffolk Ecology Constraints (Mott MacDonald, 2017). A careful comparison using the survey results and development plans was carried out to also inform the decision to whether a licence should be obtained.

Each crossing is different and the risk assessment tool does not include all factors (such as population size, terrestrial habitat quality, presence of dispersal barriers, timing and duration of works or detailed layout of development in relation to newt resting and dispersal).

The following factors could increase the risk of committing an offence:

- Large population size;
- High pond density;
- Good terrestrial habitat;
- Low pre-existing habitat fragmentation;
- Large development footprint; or
- Long construction period.

The following factors could decrease the risk:

- Small population size;
- Low pond density;
- Poor terrestrial habitat;
- Substantial, pre-existing dispersal barriers;

- Small development footprint; or
- Short construction period.

These factors were considered during mitigation design.

C.1.3 Table C.1. Rapid Risk Assessment Tool

Component	Likely effect	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.05
Land 100-250m from any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.005
Land >250m from any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.001
Individual great crested newts	No effect	0
Maximum:		0.05
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

C.1.4 Risk assessment results

The assessment result from Table C.1 indicates that the proposed works are of such a type, scale and location that it is highly unlikely any offence would be committed should the development proceed. Therefore, no licence would be required. Bearing in mind that this is a generic assessment, the specific plans for each crossings and proposed route have also been carefully examined to ensure this is a sound conclusion.

In addition, precautions to avoid offences have also been taken (See Section 4.2.5). It is likely that any residual offences would have negligible impact on conservation status, and enforcement of such breaches is unlikely to be in the public interest.

D. Contact details

Once ecological consultant for the works is known, contact details are to be added in the table below.

Contact Name	Role	Mobile Number	E-Mail

E. Toolbox Talk Attendance

Anglia Rail Level Crossings				
Name	Company	Role	Date	Signature

