

# Mountfield First Time Sewerage Scheme, East Sussex

## Mountfield, Ecological Constraints Survey

Southern Water

ATKINS

October 2012



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# 1. Introduction

Atkins Limited were instructed by Southern Water to undertake an Ecological Constraints Survey for the proposed installation of a new sewerage system and Wastewater Treatment Works at Mountfield in East Sussex, centred on Ordnance Survey Grid Reference TQ 743 203. The proposed locations of the sewage treatment works and the proposed routes of the sewer pipelines can be seen in Drawing 5105602 Figure 1. The date for undertaking the proposed works is not known at this time. Anywhere where there are proposed works as per Figure 1 is referred to throughout this report as 'the site'

This ecological constraints survey report sets out potential ecological constraints and recommendations required in relation to the proposed works. This assessment is based on ecological information obtained from a desk study (15<sup>th</sup> June 2012) and a walkover survey (1<sup>st</sup> October 2012).

The ecological constraints survey was undertaken prior to any topographical survey and confirmation of outline route, and was based on the outline route proposed by Jacobs.

This ecological constraints report is intended for advice only in respect of project design, site layout and/or site investigation. This report is not for use as part of a supporting statement to a planning application or within an EIA.

## 2. Method

### 2.1. Desk study

An initial zone of influence of 1 km was considered appropriate for the desk study, with a wider search of 2 km for statutory designated sites due to the presence of the River Line running through the site.

Web tools such as MAGIC (Multi Agency Geographical Information for the Countryside) (<http://magic.defra.gov.uk/website/magic/>) were consulted to search for statutory designated sites (Sites of Special Scientific Interest (SSSI), Local Nature Reserves (LNRs), National Nature Reserves (NNRs), Areas of Outstanding Natural Beauty (AONBs), Ramsar sites, Special Protection Areas (SPAs) and Special Areas of Conservation (SAC)) within 2 km of the site.

Ordnance Survey (OS) maps and aerial photographs at Where's the path website (<http://wtp2.appspot.com/wheresthepath.htm>) were used to search for waterbodies within, and up to 500 m from, the application site in order to establish if the application site could be used as terrestrial habitat for great crested newts, a European protected species. Great crested newts use waterbodies as breeding habitat and commonly use terrestrial habitat within 500 m from their breeding ponds<sup>1</sup>.

A further data search was carried out using Sussex Biodiversity Records Centre (SxBRC) to find non statutory, locally designated sites and records of protected and notable species within 1 km of the site, including any known bat roost records.

### 2.2. Field survey

An ecological walk-over survey of the site and the immediate surrounds (the survey area – shaded with additional target notes is on Drawing 5105602 Figure 2) was undertaken on 1<sup>st</sup> October 2012 broadly following the 'Extended Phase 1' methodology as set out in Guidelines for Baseline Ecological Assessment<sup>2</sup>. The ecological constraints survey provides information on the habitats in the survey area and assesses the potential for protected/notable fauna to occur in or adjacent to the site. Plant names in this report follow New Flora of the British Isles<sup>3</sup>.

The proposed route of the sewer line, plus Wastewater Treatment Works and tie-in with British Gypsum system along with target notes and Phase 1 habitats are on Drawing 5105602 Figure 1.

Preliminary investigations were undertaken in respect of the potential presence of legally protected species within the survey area (a summary of legislation relevant to this scheme may be found in Appendix A):

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<sup>1</sup> Great Crested Newt Mitigation Guidelines, English Nature, 2001

<sup>2</sup> Institute of Environmental Assessment, 1995. Guidelines for Baseline Ecological Assessment,

<sup>3</sup> Stace, 2010. New Flora of the British Isles (3<sup>rd</sup> Edition).

- A visual inspection of trees from the ground to assess their suitability for bat roosts (trees were classified as having potential where suitable features for roost sites were present, such as rot holes, cracks, peeling bark or dense ivy);
- Assessment of suitable habitats for nesting birds;
- Search for signs of badger activity within and immediately adjacent to the site boundary (including setts, tracks, snuffle holes and latrines);
- Assessment of habitat potential for reptiles and amphibians, in particular great crested newts;
- Assessment of suitable habitats for dormice;
- Assessment of water courses' potential to support otters, water voles and white clawed crayfish; and
- Checking for invasive plant species subject to legal control under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) such as Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam within the survey footprint.

## Limitations to Survey

Any absence of species records from the Biodiversity Records Centre may be a reflection of lack of survey effort rather than absence of the species itself. Species records give an indication only of what species may be present in search area.

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The ecological survey has not therefore produced a complete list of plants and animals and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. Nevertheless, the results of this constraints report permit an initial assessment of the ecological value of the site and the potential for negative impacts from the proposed works.

The search for waterbodies within 500 m of the site was undertaken by using Ordnance Survey plans and aerial photographs only. These sources may not show all ponds and/or waterbodies within 500 m of the site boundary and therefore some waterbodies may not have been identified.

Access into each individual garden was not possible during the site visit although some could be seen from field margins and public rights of way. However, it is proposed that the sewer pipe routes will predominantly be located along roads in the more built up parts of Mountfield village (Figure 1) and aerial maps confirmed many of the gardens were amenity grassland of low ecological value. One pond was noted from both OS and aerial maps but could not be accessed at the time of the survey due to lack of landowner permission.

It was not possible to access the railway line as part of the survey due to access permissions and health and safety.

Some mature oak trees within Duke's Wood at the location for the proposed tie-in with the British Gypsum system (British Gypsum Mine is located to the west of Duke's Wood) had ivy-covered trunks and branches which obscured any cracks, crevices and holes which could be used by roosting bats. Other trees were in full leaf which made it difficult to see if any features such as those described above were present that could be used by roosting bats.

It was not possible to access some areas of dense scrub to look for signs of badger setts, although a search for signs of mammal tracks, badger latrines, prints and snuffle holes was undertaken where possible in the vicinity of these dense scrub areas.



The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The ecological constraints survey checked, in particular, for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam. There may be other invasive plant species present along the route which were not recorded, but it is considered that this survey is sufficient to identify any significant constraints posed by invasive plants.

# 3. Results

This section includes information obtained from a desk study in June 2012 and a site visit in October 2012. The legislation covering the designated sites and protected species in this section can be seen in Appendix A.

## 3.1 The Site

The site is located within the High Weald Area of Outstanding Natural Beauty (AONB). Areas of Outstanding Natural Beauty are areas of high scenic quality that have statutory protection in order to conserve and enhance the natural beauty of their landscapes. They differ from National Parks in their more limited opportunities for extensive outdoor recreation and by the way they are managed. AONBs are designated by Natural England under the Countryside and Rights of Way Act 2000. AONBs are not designated for their nature conservation value and this designation is mentioned here as background and is not considered further in the report.

There are no statutory designated sites for nature conservation within 2 km of the site.

There is one Site of Nature Conservation Importance (SNCI) within 1 km of the scheme. SNCIs are also known as Local Wildlife Sites and are usually selected within a local authority area and this process is often managed by the local Wildlife Trust together with representatives of the local authority and other local wildlife conservation groups. They support both locally and nationally threatened wildlife, and many sites will contain habitats and species that are priorities under the county or UK Biodiversity Action Plans (BAP (see Appendix A).

**Table 1: SNCIs within 1 km of the site (SxBRC, 2012)**

Site Name	Site Reference	Location	Distance and Direction	Notable Features
Limekiln Wood Complex	CR40	TQ722197	674 m west of the proposed sewer pipeline route.	A series of woodlands dominated by ancient, semi-natural hornbeam coppice with occasional oak standards and some mixed coppice of ash and hazel and very occasional sweet chestnut coppice. These woodlands surround Mountfield Mine and a plaster mill, both belonging to British Gypsum.

A phase 1 map of the site is provided as Figure 1 with accompanying target notes in Appendix B. Due to the size of area surveyed additional target notes can be found on Figure 2 along with the area surveyed (shaded on drawing). From this map it can be seen that the main habitat types within the survey area are:

- amenity grassland, which comprises the gardens and also the football pitch next to the proposed Wastewater Treatment Works;
- improved grassland, which comprises pasture used by horses and sheep;
- semi-improved grassland, which includes the area to be lost to the proposed Wastewater Treatment Works;
- broad-leaved woodland, mainly comprising oak, hornbeam, hazel and ash;
- mixed woodland, comprising same species as broad-leaved woodland but also includes some conifers;
- dense scrub, comprising bramble and blackthorn;
- arable fields, comprising a majority of the fields in the survey area;
- buildings, comprising houses and both domestic and agricultural outbuildings; and
- running and standing water, comprising of four ponds and the River Line.

SxBRC holds records of Japanese knotweed within 2 km of the site and during the walkover survey in October 2012 there were multiple records of rhododendron and giant rhubarb at TN22. These species are all



invasive non-native species included in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and it is an offence to plant or cause them to grow in the wild.

Habitats that the works is likely to affect are as follows:

Sewer pipelines: Hedgerows; standing water; running water; semi-improved grassland; dense scrub; and mixed semi-natural woodland.

Wastewater Treatment Works (WTW): Running water; semi-improved grassland; dense scrub; and broadleaved woodland.

Within the site there are 4 UKBAP Priority habitat types<sup>4</sup>: lowland mixed deciduous woodland, hedgerows, arable field margins and ponds which are likely to be affected by the works.

No notable plant species were recorded during the walkover in October 2012, although some ancient woodland indicator species were recorded in the broadleaved woodland at TN 23.

### 3.2 Nesting birds

SxBRC holds records of 130 species of birds within 2 km of the site, of which 8 are notable species. These birds on the Sussex Notable Bird List are noted as particularly scarce or vulnerable to development in Sussex<sup>5</sup>. There were no records for the site itself.

Of particular note are records of hobby south west and east of the route; red kite east of the route, turtle dove south west of the route and lapwing north east of the route. These species are found in the type of habitat (farmland and woodlands) that are expected to be affected by the works.

Hobby and red kite are listed under Schedule 1 of the Wildlife and Countryside Act (1981) as amended and red kite is also on the Amber list of Birds of Conservation Concern. Amber list species are those with Unfavourable Conservation Status in Europe; whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations<sup>6</sup>.

Lapwing and turtle dove are UK Biodiversity Action Plan Priority Species and also on the Red list of Birds of Conservation Concern. Red list species are those that are Globally Threatened according to International Union for the Conservation of Nature (IUCN); those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery<sup>7</sup>.

There is suitable nesting bird habitat across the site for breeding birds in general, particularly in broadleaved woodland and scrub habitat.

### 3.3 Great crested newts and other amphibians

SxBRC hold no record of great crested newts within 1 km of the proposed sewer route. Within 500 m of the proposed sewer route works there are 5 ponds. These are:

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<sup>4</sup> JNCC, 2012. <http://jncc.defra.gov.uk/page-5706>

<sup>5</sup> Sussex Biodiversity Records Centre, 2012. Desktop Biodiversity Report – Land at Mountfield + 2 km radius

<sup>6</sup> Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. [http://www.rspb.org.uk/Images/BoCC\\_tcm9-217852.pdf](http://www.rspb.org.uk/Images/BoCC_tcm9-217852.pdf)

<sup>7</sup> Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. [http://www.rspb.org.uk/Images/BoCC\\_tcm9-217852.pdf](http://www.rspb.org.uk/Images/BoCC_tcm9-217852.pdf)

- Pond in entrance to Hoath Farm on Church Road is 11 m south of proposed sewer pipeline route;
- Pond in garden on Church Road opposite Hoath Hill is 59 m north of proposed sewer pipeline route;
- Pond in pasture adjoining Duke's Wood and south west of railway crossing on Hoath Hill / Eatenden Lane is 174 m south west of proposed sewer pipeline route;
- Pond in garden of Church House on Church Road is 378 m west of proposed sewer pipeline route; and
- Large pond on Church Road is 394 m south of proposed sewer pipeline route.

The Wastewater Treatment Works is located on an area of semi-improved grassland next to scrub and a strip of broadleaved woodland. These terrestrial habitats offer potential foraging and shelter opportunities for great crested newts and other widespread amphibian species. However, there are no ponds within 500 m of the proposed Wastewater Treatment Works.

Due to the inability to access some of these ponds it was not possible to carry out Habitat Suitability Index Assessments (HSIs) on each of them as discussed in the limitations of Section 2.2. These HSIs are a component of presence/likely absence surveys for great crested newts and can be undertaken with these surveys. All the ponds have connectivity to suitable habitat through which the sewer route is understood to pass. The pond in pasture adjoining Duke's Wood (TN 25) had a number of other newt species larvae present. These larvae are likely to be smooth newt or palmate newt larvae rather than great crested newt larvae which are highly distinctive. The terrestrial habitat of tussocky grassland adjoining scrub and mixed woodland, surrounding this pond was highly suitable for great crested newts. The large pond on Church Road has a population of carp which will predate on great crested newt larvae, and it is therefore unlikely that great crested newts will use this or other ponds with fish as breeding ponds.

A common frog was found during the walkover survey in October 2012 on the wooded bank leading to Hoath Hill/Eatenden Lane.

### 3.4 Reptiles

SxBRC hold no records of reptiles within 1 km of the proposed works.

Habitat areas assessed as having medium - high suitability for common / widespread reptile species which is likely to be affected by the works are located at TN 6, 13, 16, 18, 29 and 32. These habitats are semi-improved grassland with patches of scrub (TN 6 and 32), linear strip of semi-improved grassland with ruderal plants (TN29), field margin with ruderal weeds, bramble, brash and hay pile (TN 13), and field margins with bramble, nettles and areas of garden waste / compost (TN 16 and 18).

### 3.5 Bats

SxBRC provided the following records of bat species within 2 km of the works;

- Bat sp.;
- Serotine;
- Pipistrelle sp.;
- Soprano pipistrelle;
- Long-eared sp.;
- Brown long-eared bat; and
- Grey long-eared bat.

Grey long-eared bats are restricted to a few known colonies in Sussex, Hampshire, the Isle of Wight, Dorset, Somerset and Devon<sup>8</sup>. The colony in Mountfield Church on Church Lane (approx 556 m south west of proposed sewer route) is therefore of importance due to their restricted range. The full list of bat records is provided for reference in Appendix C.

It is understood that no buildings will require demolition as part of the works.

A number of mature oak trees within the woodland (Duke's Wood) adjoining Eatenden Lane may offer bat roost potential as some had ivy – covered trunks and limbs, which may obscure any cracks or holes. This woodland is where the proposed tie-in with British Gypsum system is located.

Many of the roads and field boundaries have hedgerows, some of which lead to woodlands. These hedgerows are linear features in the wider landscape and can act as commuting routes and foraging areas for bats. It is currently not known whether any of these hedgerows will be severed or lost as part of the scheme.

### 3.6 Badger

SxBRC holds no records of badger within 1 km of the site.

During the walkover in October 2012 there were two fresh badger latrines located at TN 12. A number of holes were also seen in this part of the woodland and a single badger hair was found by the entrance to one of these holes. Signs of rabbit were also found by holes within this woodland.

### 3.7 Dormice

SxBRC holds records of dormice within 2 km but not within 1 km of the site.

The woodland patches located across the site offer suitable habitat for dormice with good connectivity along intact hedgerows with plant species suitable for use by dormice. Some sweet chestnut coppice is located in Duke's Wood at the location of the proposed tie-in with the British Gypsum system (see TN 26). Sweet chestnut coppice and other species, such as hazel and honeysuckle, within Duke's Wood offer suitable habitat for foraging, nesting and in the case of the sweet chestnut coppice stools, hibernating dormice. Sweet chestnut and hazel coppice is also located within Battle Wood which lies between the railway line and the A2100 to the east of gardens off Hoath Hill/Eatenden Lane. This area of coppice also offers suitable habitat for foraging, nesting and hibernating dormice.

The majority of the hedgerows along the roads and field margins have a variety of species including hazel which offer suitable habitat for foraging and nesting dormice.

It is currently not known whether any of these hedgerows will be severed or lost as part of the scheme.

### 3.8 Fish

SxBRC holds records of the following notable fish species within 1 km of the site (Table 3 below).

**Table 3: Records of notable fish species within 1 km of the site**

Common Name	Location(s)	Date	Distance and Direction
Bullhead	1. TQ742198	1. 1989 – 1995 2. 07/08/1973 –	1. 34 m west of proposed sewer route 2. 950 m south east of proposed

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<sup>8</sup> Bat Conservation Trust, 2010. Grey long-eared bat.

	2. TQ755195	17/08/1973	sewer route and Wastewater Treatment Works
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A full assessment of the watercourses on site in respect of these species was not completed. The current proposed pipeline route crosses the River Line using the existing road; however, this watercourse is within 50 m of the proposed location for the Wastewater Treatment Works.

### **3.9 Otter, water vole, and white clawed crayfish**

SxBRC provided no records of water vole, otter or white clawed crayfish within 1 km of the site.

The proposed crossing point of the River Line for the sewer route and the stretch of the river closest to the proposed Wastewater Treatment Works were assessed during the walkover survey in October 2012 as offering negligible potential for water voles, otters and white clawed crayfish due to the high level of shading, the silty base and the lack of aquatic vegetation. No signs of water vole or otter were found during the walkover survey.

### **3.10 Invertebrates and other mammals**

SxBRC holds no records of notable invertebrate species within 500 m of the site. This is more likely to be an absence of survey effort in this area rather than actual absence. The hedgerows, woodlands, field margins, semi-improved grassland and scrub habitats within the area surveyed during the walkover survey have the potential to support a wide range of invertebrate species.

### **3.11 Other mammals**

Rabbit burrows were present in a number of areas surveyed and there is also potential for fox dens to be present, although none were identified at the time of survey. However, consideration of the Wild Mammals (Protection) Act (1996) (see Appendix A) which makes it an offence to intentionally inflict unnecessary suffering to any wild mammal will need to be considered if the scheme requires the removal of rabbit warrens or fox dens.

## 4. Conclusion and Recommendations

The site lies within the High Weald AONB and the closest SNCI is located over 650m away. At this distance, under the current scheme design, impacts on the SNCI are not expected. SxBRC holds no records of great crested newts, water voles, otters, white clawed crayfish or reptile species within 1 km of the site. SxBRC does hold records of dormice and four bat species within 2 km of the site.

The proposed Wastewater Treatment Works is located on habitat that may support reptiles, great crested newts and breeding birds.

The majority of the proposed sewer route will follow the existing roads within the village. However, if this route changes then the adjoining habitats of lowland broadleaved woodland, mixed woodland, hedgerows, arable field margins, semi-improved grassland, running water and ponds could be affected. Some of these habitats may support reptiles, great crested newts, bats, dormice, badger, fish, invertebrates and breeding birds. The following habitats are also UK Biodiversity Action Plan (BAP) Priority Habitats; lowland mixed deciduous woodland, hedgerows, arable field margins, ponds and rivers.

### Recommendations for further specialist surveys and initial recommendations for mitigation measures:

Further specialist surveys are required to fully establish the baseline conditions of the site in order to assess the impacts of the works on the site and how they can be mitigated or compensated for. Recommendations for surveys and other measures are set out below. Full recommendations would be provided after the specialist surveys.

#### Habitats:

It is recommended that the works adhere to the Environmental Agency Pollution Prevention Guidelines (PPGs) with particular reference to PPG1 (general guide to the prevention of water pollution), PPG5 (works near or liable to affect watercourses), PPG6 (working at construction and demolition sites) and PPG21 (pollution incident response planning). All of the PPGs are available at the Environment Agency website: <http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx>.

It is recommended that the loss of any trees and hedgerows for the scheme should be avoided / minimised where possible.

It is recommended that a National Vegetation Classification (NVC) survey is undertaken for the grassland that will be lost for the proposed Wastewater Treatment Works.

If the current sewer route changes and any hedgerows will be crossed it is recommended that a hedgerow survey is undertaken to assess the conservation status of these hedgerows.

**These surveys (NVC and hedgerows) are constrained to between March and September.**

The other UK BAP Priority Habitats that will be crossed by the proposed sewer route will not require further survey due to the small and temporary nature of the works.

Care should also be taken to avoid the spread of invasive species on the site, such as rhododendron and giant rhubarb in the Duke's Wood and the gardens opposite on Hoath Hill/Eatenden Lane.

#### Reptiles:

The legislation covering the protected species in this section can be seen in Appendix A.

A presence/likely absence survey for reptiles (seven visits) should be carried out where the works will affect areas identified as having potential habitat for reptiles (Section 3.4). If reptiles are found to be present in the grassland habitat identified for the location of the WTW then it may be appropriate to undertake a further 13 survey visits (total of 20 visits) to determine a population size estimate. It should be noted that Natural England may release new guidance on reptile survey protocols prior to the 2013 survey season, in which case these recommendations may need revision.

**These surveys are constrained to between March and October.**

It is recommended that any ground investigations carried out in areas discussed in Section 3.4 as having medium-high potential for reptiles be undertaken with the supervision of a suitably experienced ecologist.

Great crested newts:

A great crested newt habitat suitability assessment is recommended for each pond within 500m of the works to calculate a Habitat Suitability Index (HSI). The HSI determines a ponds suitability to support great crested newts.

**These assessments can be done between January and October.**

If ponds are scored as suitable for great crested newts then further presence/likely absence surveys (4 visits) should be carried out on those ponds. If great crested newts are found to be present then a further 2 visits should be made to determine a population size estimate.

**These surveys are constrained to between mid-March and mid-June.**

It is recommended that any ground investigations carried out in areas discussed in Section 3.3 as having potential for great crested newts be undertaken with the supervision of a suitably experienced ecologist.

Dormice:

If the current sewer route changes and any hedgerows that have dormouse potential will be crossed it is recommended that a presence/likely absence survey for dormice be carried out.

**These surveys are constrained to between April and November.**

It is recommended that any ground investigations carried out in areas discussed in Section 3.7 as having potential for dormice be undertaken with the supervision of a suitably experienced and licensed ecologist. If ground investigations are required in an area with potential for hibernating dormice, such as Duke's Wood, then ecological input is required to agree the precise location and working practices to minimise any risks to dormice.

Bats:

Working practices should be designed to avoid disturbance of bats through avoiding night time working. If lighting is required during the works then its installation should be designed to minimise light spill.

If the current sewer route changes and any hedgerows will be crossed then further assessment will be needed to determine whether a bat activity survey should be undertaken for those hedgerows to identify how bats are using them.

A bat activity survey should be undertaken in relation to bats to identify how they are using hedgerows and woodland edges if these will be disturbed for the proposed sewer route and the installation of the WTW.

**These surveys are constrained to between March and October.**

It is understood at this stage that no trees identified from the walkover as having medium/high potential for roosting bats will need to be removed as part of the works. However, following confirmation of the route and which, if any, trees will need to be removed as part of the works it is recommended that those trees are assessed by an ecologist for bat roost potential.

Breeding birds:

Breeding bird surveys should be undertaken to determine how birds are using the semi-improved grassland areas and associated scrub/hedgerow/woodland borders where the Wastewater Treatment Works is proposed to be located.



It is recommended that works in habitat suitable for nesting birds (mixed woodland, lowland broadleaved woodland, hedgerows, arable field margins, semi-improved grassland, scrub, single mature trees and ponds) take place outside of the breeding bird season (mid February – September, depending on weather). If this is not possible a detailed inspection for nesting birds should be carried out no more than 24 hours prior to any works being undertaken.

**These surveys are constrained to between March and September.**

A calendar indicating the optimal time for ecology surveys and mitigation is included in Appendix D.

#### Recommendations for further consultation:

Consultations will be required with other specialists in relation to the results of this report.

A landscape specialist should be consulted in relation to the location of the site within the High Weald AONB  
An arboriculturalist should be consulted in relation to the removal of trees for the works.

The input of an aquatic ecologist is recommended to assess whether the proposed pipeline route and the Wastewater Treatment Works will have any impacts on aquatic species within the River Line or its tributaries.

#### **NOTE:**

Should the proposed route or location of the Wastewater Treatment Works change at any point, a suitably qualified ecologist should be consulted in order to review the recommendations provided in this report.

## 5. Appendices

### Appendix A: Summary Legislation Table

Site Designation	Legislation (England)	Protection	Guidance
<b>Site of Importance for Nature Conservation (SINC)</b>	There is no statutory designation for SINC.	SINCs are given protection through policies in the Local Development Plan.	Development proposals that would potentially affect a SINC would need to provide a detailed justification for the work, an assessment of likely impacts, together with proposals for mitigation and restoration of habitats lost or damaged.  Planning Policy Statement 9: Biodiversity and Geological Conservation (ODPM 2005) for England.

Habitats & Species	Legislation (England)	Guidance
<b>Biodiversity Action Plan (BAP) Habitats &amp; Species</b>	No specific legislation, unless it is also a species or habitat of principal importance as described above.	The Biodiversity Action Plan (BAP) is the UK's initiative to maintain and enhance biodiversity in response to the Convention on Biological Diversity signed in 1992.  The original BAP list of species and habitats, prepared over 10 years ago, was used to form the new list of species and habitats of principal importance. However some of the species have been taken off the new list and additional species and habitats have been included.
<b>Hedgerows</b>	The Hedgerows Regulations 1997	Under the regulations, it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. In general, permission will be required before removing hedges that are at least 20 metres in length, over 30 years old and contain certain species of plant. The local planning authority will assess the importance of the hedgerow using criteria set out in the regulations.  See Defra and Natural England websites for further guidance and information.

Species	Legislation (England)	Offences	Licensing procedures and guidance (England)
<b>Bats</b> <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 (as amended) Reg 41	Deliberately <sup>1</sup> capture, injure or kill a bat; deliberate disturbance <sup>2</sup> of bats; or damage or destroy a breeding site or resting place used by a bat.  [The protection of bat roosts is considered to apply regardless of whether bats are present.]	A Natural England (NE) licence in respect of development is required in England. <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2010) <i>Bat Mitigation Guidelines</i> (English Nature 2004) <i>Bat Workers Manual</i> (JNCC 2004)
	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.	Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
<b>Badger</b>	Protection of Badgers Act 1992	Wilfully kill, injure or take a badger; or intentionally or recklessly damage, destroy or obstruct access to a badger sett or disturb a badger in its sett.  [It is not illegal to carry out disturbance activities in the vicinity of setts that are not occupied.]	Where required, licences for development activities involving disturbance or sett interference or closure are issued by Natural England (NE). Licences for activities involving watercourse maintenance, drainage works or flood defences are issued under a separate process.  Licences are normally not granted from December to June inclusive because cubs may be present within setts. <i>Badgers &amp; Development</i> (NE 2007)
<b>Dormouse</b> <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 (as amended) Reg 41	Deliberately <sup>1</sup> capture, injure or kill a dormouse; deliberate disturbance <sup>2</sup> of a dormouse; or damage or destroy a breeding site or resting place used by a dormouse.	A Natural England licence in respect of development is required in England. <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2010) <i>Dormouse Conservation Handbook</i> (English Nature 2006)
	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a dormouse in such a place.	Licence issued for survey and conservation by Natural England.

Species	Legislation (England)	Offences	Licensing procedures and guidance (England)
<b>Birds</b>	Wildlife and Countryside Act 1981 (as amended) S.1	<p>Intentionally kill, injure or take any wild bird; intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; intentionally take or destroy the nest or eggs of any wild bird.</p> <p>[Special penalties are liable for these offences involving birds on Schedule 1 (e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover).]</p> <p>Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species.</p>	<p>No licences are available to disturb any birds in regard to development.</p> <p>Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development.</p> <p>General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety.</p>
<b>Great crested newt</b> <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 (as amended) Reg 41	Deliberately <sup>1</sup> capture, injure or kill a great crested newt; deliberate disturbance <sup>2</sup> of 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.	<p>Licences issued for development by Natural England.</p> <p><i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2010)</p> <p><i>Great Crested Newt Mitigation Guidelines</i> (English Nature 2001)</p>
	Wildlife and Countryside Act 1981 (as amended) S.9	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.	Licences issued for science (survey), education and conservation by Natural England.
<b>Adder</b> <b>Common lizard</b> <b>Grass snake</b> <b>Slow worm</b>	Wildlife and Countryside Act 1981 S.9(1) (part); S.9(5)	Intentionally kill or injure any common reptile species.	<p>No licence is required in England.</p> <p>However an assessment for the potential of a site to support reptiles should be undertaken prior to any development works which have potential to affect these animals.</p>
<b>Rabbits, foxes</b>	Wild Mammals	Intentionally inflict unnecessary	Natural England provides guidance in relation to rabbits (TIN003, Rabbits- management options for




Species	Legislation (England)	Offences	Licensing procedures and guidance (England)
<b>and other wild mammals</b>	(Protection) Act 1996	suffering to any wild mammal.	preventing damage, July 2007) and foxes (which are also protected under the Wildlife and Countryside Act 1981 from live baits and decoys, see TAN43 April 2005 and TAN08 April 2005) as well as other wild mammals; see Natural England's website for the list of 'Regulatory Guidance, Best Practice and Information'. Lawful and humane pest control of these species is permitted.
<b>Plants</b> <i>Invasive species e.g.</i> Japanese knotweed, hybrid knotweed, giant knotweed, giant hogweed, rhododendron, Himalayan balsam	Wildlife and Countryside Act 1981 S.14	It is illegal to plant or otherwise cause to grow in the wild these species.	Any contaminated soil or plant material is classified as controlled waste and should be disposed of in a suitably licensed landfill site, accompanied by appropriate Waste Transfer documentation, and must comply with section 34 of the Environmental Protection Act 1990. <i>The Knotweed Code of Practice</i> (Environment Agency 2006) <i>Guidance on Section 14 of the Wildlife and Countryside Act, 1981</i> (Defra 2010)

<sup>1</sup>Deliberate capture or killing is taken to include "accepting the possibility" of such capture or killing



<sup>2</sup>Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong.



Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2010 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided.

# Appendix B: Target notes for Figures 1 and 2




Target Number	Note	Photograph
1	Large pond with carp on Church Road.	
2	Hedgerows alongside Church Road with the following species: hazel, holly, blackthorn, hornbeam, ivy, nettle, bracken and bramble.	
3	Ivy-covered ash tree in above hedgerow with bat roosting potential.	





4	Grass bank on Church Road with herb Robert, cow parsley, wild strawberry, dandelion and ribwort plantain. Low hedge on top of bank contains hawthorn, blackthorn, holly, yew, ash, bramble, ivy and hop.	No photo taken
5	Pond at entrance to Hoath Farm on Church Road.	
6	Field adjoining garden with tussocky semi-improved grassland and bramble scrub. This habitat has potential for reptiles.	
7	Hedge containing hawthorn, holly, bramble, bracken and nettles located between garden and field edge of Hoath Farm.	No photo taken
8	Semi-improved grassland with area used for bonfires on field edge of Hoath Farm.	No photo taken




<p><b>9</b></p>	<p>Hedge containing hazel, blackthorn, holly and bramble in arable field of Hoath Farm.</p>	
<p><b>10</b></p>	<p>Hoath Wood comprising of hazel, holly, hornbeam, ash, oak, elder, bramble and dog's mercury.</p>	
<p><b>11</b></p>	<p>Mammal holes within Hoath Wood with no signs of badger and thought likely to be rabbit.</p>	<p>No photo taken</p>






<p><b>12</b></p>	<p>Mammal hole within Hoath Wood with a single badger hair. Hole appears to be quite small for a badger sett. A ditch lies on the east side of Hoath Wood and field margin of Hoath Farm.</p>	
<p><b>13</b></p>	<p>Brash and hay pile with nettles and brambles next to hedge and mature oak at Hoath Farm. This area of habitat has reptile potential.</p> <p>Hedge contains hazel, elm, brambles, nettles and hedge bindweed.</p>	
<p><b>14</b></p>	<p>Hedge with standing trees adjoining gardens and field margin of Hoath Farm.</p> <p>Hedge contains hazel, hawthorn, holly, dog rose, bramble and ivy with standing trees of oak, sycamore and white poplar.</p>	
<p><b>15</b></p>	<p>Hedge adjoining gardens of Hoath Hill following on from hedge in TN14. Hedge contains holly, hawthorn, hazel, yew, willow,</p>	<p>No photo taken</p>

	hornbeam, dog rose, field maple and woody nightshade. A ditch lies between the hedge and the field margin of Hoath Farm.	
<b>16</b>	<p>Strip of nettles, brambles with garden waste and compost bins backing onto gardens off Hoath Hill and adjoining field margin facing east.</p> <p>This area has reptile potential habitat, particularly for slow worms.</p>	
<b>17</b>	Dense area of brambles and nettles backing onto gardens off Soloman's Lane and field margin. This area of habitat has bird nesting potential.	No photo taken.
<b>18</b>	Area of nettles and brambles on field margin and adjoining gardens between Hoath Hill and Soloman's Lane with a number of mammal paths and strong smell of fox. A nesting pheasant was present.	No photo taken.
<b>19</b>	Four mammal holes in woodland adjoining A2100 approximately 15 m from field margin and stream. Likely to be rabbit as droppings present and no signs of badger.	No photo taken.
<b>20</b>	Steep bank of stream within woodland in TN 19. Stream banks are shady with ferns. Habitat has negligible potential for otters, water voles and white clawed crayfish.	








<p><b>21</b></p>	<p>Bank of River Line by Riverhall Bridge with holly, hazel, willow and ground flora of ferns, ivy, dog's mercury and bramble. Habitat of River Line has negligible potential for otters, water voles and white clawed crayfish.</p>	
<p><b>22</b></p>	<p>Giant rhubarb on garden bank leading to Hoath Hill/Eatenden Lane.</p>	
<p><b>23</b></p>	<p>Mixed woodland known as Duke's Wood with mature oaks, silver birch, hazel, larch, hornbeam, sweet chestnut coppice, rhododendron and honeysuckle. Ground flora contains ferns, dog's mercury, primrose, wood sorrel and bramble. A common frog was found on bank leading down to Hoath Hill/ Eatenden Lane.</p> <p>This woodland has good habitat for amphibians, nesting birds, bats, badgers and dormice.</p>	



<p><b>24</b></p>	<p>Bramble scrub on west edge of Duke's Wood adjoining semi-improved grassland.</p>	
<p><b>25</b></p>	<p>Pond adjoining horse pasture and Duke's Wood on west side. Marginal species contain rush sp., branched bur-reed, floating sweet grass, purple loosestrife and ornamental zebra reed. Tussocky grassland with bramble surrounds pond.</p> <p>Smooth or palmate newt larvae seen in pond.</p> <p>Pond and surrounding terrestrial habitat has good potential for great crested newts.</p>	
<p><b>26</b></p>	<p>Sweet chestnut coppice with brash/log piles and rhododendron within Duke's Wood.</p> <p>The proposed tie-in with the British Gypsum system is located within this woodland.</p>	
<p><b>27</b></p>	<p>Herd of fallow deer seen in horse pasture to the east of Hoath Hill/</p>	<p>No photo taken.</p>



	Eatenden Lane.	
28	Sweet chestnut and hazel coppice within Battle Wood.	No photo taken.
29	Public right of way between horse pasture with semi-improved grassland that has reptile potential habitat.	
30	Additional semi-improved grassland and scrub with reptile potential habitat leading from TN 29.	

<p><b>31</b></p>	<p>Earthstar fungus present on edge of woodland and highway verge of A2100.</p>	
<p><b>32</b></p>	<p>Semi-improved grassland leading to scrub, deciduous (broad-leaved) woodland and River Line. Patch of ruderal weeds, buddleia and bramble within semi-improved grassland. This area is located in path of proposed access road to Wastewater Treatment Works.</p> <p>The semi-improved grassland with scrub edge has potential habitat for reptiles, nesting birds and amphibians.</p>	
<p><b>33</b></p>	<p>Semi-improved grassland leading to scrub, deciduous (broad-leaved) woodland and River Line. This area is the location of the proposed Wastewater Treatment Works.</p> <p>The semi-improved grassland with scrub edge has potential habitat for reptiles, nesting birds and amphibians. Active rabbit burrows are located in the bramble scrub at the woodland edge.</p>	



<p><b>34</b></p>	<p>Railway sidings with scrub, willow, bracken and leading to deciduous woodland.</p>	
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Figures 1 and 2 (see separate attachment)

## Appendix C: Table of bat records held by SxBRC within 2 km of the works

Common Name	Location(s)	Number	Record type	Date	Distance and Direction
Bat sp.	TQ755195	Not specified	Field observation of bats flying around wood at dusk	07/08/1973 – 17/08/1973	958 m east of proposed sewer route
	TQ724212	No bats present	Building inspection. Well distributed droppings, probably a pipistrelle sp. summer roost.	15/11/1988	1.8 km north west of proposed sewer route
	TQ728190	Not specified	Building inspection. Unspecified roost	23/04/1993	1.4 km south west of proposed sewer route
	TQ728191	Not specified	Building inspection. Unspecified roost	05/05/1993	1.4 km south west of proposed sewer route
Serotine	TQ734200	Not specified	Building inspection. Unidentified roost with	23/04/2002	715 m south west of proposed sewer route

			droppings		
Pipistrelle sp.	TQ734202	1	Building inspection. Unidentified roost.	01/08/2004	556 m south west of proposed sewer route
	TQ735203	10	Building inspection. Unidentified roost.	27/10/2001	556 m south west of proposed sewer route
	TQ735203	10	Building inspection. Unidentified roost.	27/09/2001	556 m south west of proposed sewer route
	TQ736208	Not specified	Building inspection. Unidentified roost with droppings.	16/11/2007	637 m north west of proposed sewer route
	TQ748209	6	No internal inspection possible.	08/08/1996	724 m north east of proposed sewer route
	TQ753174	Not specified	Building inspection. Unidentified roost.	19/09/1999	734 m north east of proposed sewer route
Soprano pipistrelle	TQ7420	Not specified	Building inspection. Unidentified roost.	06/07/2003	552 m south west of proposed sewer route
	TQ732203	130	Building inspection. Unidentified roost.	01/06/2002	739 m south west of proposed sewer route
	TQ732203	10	Building inspection. Unidentified roost.	04/09/2001	739 m south west of proposed sewer route
	TQ732203	200	Building inspection. Unidentified roost.	01/06/2001	739 m south west of proposed sewer route
	TQ732203	200	Building inspection. Unidentified roost.	01/06/2000	739 m south west of proposed sewer route
	TQ732203	130	Building inspection. Unidentified roost.	01/06/1996	739 m south west of proposed sewer route

	TQ732203	80	Building inspection. Unidentified roost.	01/07/1995	739 m south west of proposed sewer route
Long-eared sp.	TQ736208	Not specified	Building inspection. Unidentified roost with droppings.	16/11/2007	637 m north west of proposed sewer route
	TQ734199	Not specified	Building inspection. Unidentified roost with droppings.	23/04/2002	715 m south west of proposed sewer route
Brown Long-eared bat	TQ735203	10	Building inspection. Unidentified roost.	27/10/2001	556 m south west of proposed sewer route
	TQ735203	10	Building inspection. Unidentified roost.	27/09/2001	556 m south west of proposed sewer route
	TQ734199	Not specified	Building inspection. Unidentified roost.	23/04/2002	715 m south west of proposed sewer route
	TQ754205	12	Building inspection. Unidentified roost with droppings.	03/06/2004	724 m north east of proposed sewer route
	TQ747209	Not specified	Building inspection. Unidentified roost with droppings.	29/11/1996	724 m north east of proposed sewer route
Grey Long-eared bat	TQ735203	10	Building inspection. Unidentified roost with droppings.	27/09/2001	556 m south west of proposed sewer route

## **Appendix D: Ecology survey timetable**



# Ecology Survey and Mitigation Calendar

Note: this sheet shows indicative survey and mitigation timings only. Survey and mitigation work is not prescriptive due to regional and seasonal variations and should be designed, by an ecologist on a project by project basis.



	January	February	March	April	May	June	July	August	September	October	November	December		
<b>Bats</b>	Inspection of hibernation roosts		Limited activity survey		Summer roosts, emergence and activity surveys				Limited activity survey	Inspection of hibernation roosts				
	Hibernation period – No closure of hibernation roosts		Optimum Period – Roost Closure		Sub-optimum time for roost closure. No closure of maternity roosts				Optimum Period – Roost Closure	Hibernation period – No closure of hibernation roosts				
<b>Badgers</b>	Sett Survey and Bait Marking				Limited Sett Survey and Bait Marking				Sett Survey and Bait Marking					
	Breeding Season – No Sett Closure or Disturbance in General						Undertake Badger Sett Closure under Licence				Breeding Season – No Sett Closure or Disturbance in General			
<b>Nesting Birds</b>	Wintering Species	Migrant Species and Breeding Birds		Breeding Birds		Limited Breeding Activity		Migrant Species		Wintering Species				
	Vegetation Clearance		Vegetation may be cleared under precautionary method of work (if nests will not be harmed)						Vegetation Clearance					
<b>Otters</b>	Activity Surveys													
	Mitigation throughout the year dependent upon site and action required													
<b>Great Crested Newts</b>	Habitat Assessment Only		Surveys to determine presence of breeding Great Crested Newts. Two of four surveys must be undertaken between mid-April and mid-May				Habitat Assessment Only							
	Hibernation Period – No works that disturb hibernating Newts		Undertake mitigation including trapping, translocation, hand-searching, and destructive searching						Hibernation Period – No works that disturb hibernating Newts					
<b>Water Voles</b>	Habitat Assessment Only No Activity Surveys		Limited Survey (depending on weather conditions)		Activity Surveys		Limited Survey due to vegetation cover		Activity Surveys		Habitat Assessment Only No Activity Surveys			
	Mitigation throughout the year dependent upon site and action required													
<b>Reptiles</b>	Habitat Assessment Only No Activity Surveys		Activity Surveys				Reduced basking activity. Activity surveys dependant on temperature		Activity Surveys		Limited activity		Habitat Assessment Only No Activity Surveys	
	Hibernation Period – No works that disturb hibernating Reptiles		Undertake mitigation including translocation, hand searching and destructive searches						Hibernation Period – No works that disturb hibernating Reptiles					
<b>Dormouse</b>	Hibernation Period – Habitat Assessment Only. No Activity Surveys				Activity Surveys				Hibernation Period – Habitat Assessment Only. No Activity Surveys					
	Hibernation Period – No Mitigation (in general)		Undertake mitigation		Breeding season – Do not disturb		Undertake mitigation		Hibernation Period – No Mitigation (in general)					
<b>White-Clawed Crayfish</b>	Habitat Assessment Only No Activity Surveys		Torch survey only No Handling		Activity Surveys Trapping and Torch				Habitat Assessment Only No Activity Surveys					
	Overwintering period – Works that could disturb crayfish may be limited		Breeding season – Do not disturb		Undertake mitigation including trapping, translocation, hand-searching, and destructive searching				Overwintering Period – Works that may disturb crayfish may be limited					

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