The Great Grid Upgrade

Sea Link

Sea Link

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1. Riparian Mammal Survey Report

1.1 Introduction

Background

1.1.1 The Sea Link Project (hereafter referred to as the 'Proposed Project') is a proposal by National Grid Electricity Transmission plc (hereafter referred to as National Grid) to reinforce the transmission network in the Southeast and East Anglia. The Proposed Project is required to accommodate additional power flows generated from renewable and low carbon generation, as well as accommodating additional new interconnection with mainland Europe. This would be achieved by reinforcing the network with a High Voltage Direct Current (HVDC) Link between the proposed Friston substation in the Sizewell area of Suffolk and the existing Richborough to Canterbury 400 kV overhead line close to Richborough in Kent.

1.1.2 The purpose of this document is to:

- summarise relevant legislation and policy;
- describe the methodologies used for desk and field-based assessments;
- describe any limitations to the surveys undertaken; and,
- detail the results of ecological presence/absence surveys for riparian mammals including otter (*Lutra lutra*), and water vole (*Arvicola amphibius*) conducted in relation to the Kent Onshore Scheme Order Limits.

1.1.3 The baseline findings of this report provide information on any potential ecological constraints associated with riparian mammals, for incorporation into **Application Document 6.2.2.2 Part 3 Kent Chapter 2 Ecology and Biodiversity** for the Kent Onshore Scheme.

1.1.4 Details of avoidance, mitigation, compensation and enhancement measures relating to riparian mammals are not included in this report and are instead reported within **Application Document 6.2.2.2 Part 3 Kent Chapter 2 Ecology and Biodiversity**.

1.1.5 This appendix should be read in conjunction with the following figures:

- **Application Document 6.4.3.2.H.1 Kent Riparian Mammal Locations and Results**.

Scope

1.1.6 This report details the results of surveys undertaken to confirm the presence or likely absence of otter, beaver and water vole within the Kent Onshore Scheme Order Limits through appropriate surveys.

1.1.7 The findings of riparian mammal surveys within the Kent Onshore Scheme Order Limits have informed the ecological impact assessment and identification of mitigation measures (where required) which are reported in **Application Document 6.2.2.2 Part 3 Kent Chapter 2 Ecology and Biodiversity**.

Survey Area

1.1.8 A total of 27 water courses (including rivers, streams and ditches) were identified as requiring survey. These areas were identified from mapping data, aerial imagery and observations made during extended Phase 1 survey. The locations of these water courses are shown in **Application Document 6.4.3.2.H.1 Kent Riparian Mammal Locations and Results**.

1.2 Legislation, Policy and Guidance

Otter

1.2.1 Otter are afforded protection under the Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981) and the Conservation of Habitats and Species Regulations 2017 (as amended) (HM Government, 2017). Under this legislation it is an offence to:

- deliberately or recklessly capture, injure or kill an otter;
- disturb an otter in a way that will impair its ability to reproduce or migrate; or,
- damage, destroy or obstruct access to their breeding or resting places (note: this is an offence whether an individual is present or not, and is an offence whether deliberate or not).

1.2.2 Otter is also listed as a priority species under Section 41 of the Natural Environment and Rural Communities Act 2006 (HM Government, 2006).

Water Vole

1.2.3 Water vole are afforded protection under the Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981). Under this legislation it is an offence to:

- intentionally kill, injure or take a water vole;
- possess or control a live or dead water vole or derivative;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection, or to disturb a water vole whilst it is using such a place;
- sell a water vole, or offer or expose for sale or transport for sale; or,
- publish or cause to be published any advertisement which conveys the buying or selling of a water vole.

1.2.4 Water vole is also listed as a priority species under Section 41 of the Natural Environment and Rural Communities Act 2006 (HM Government, 2006).

Beaver

1.2.5 Beaver are afforded protection under the Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981) and the Conservation of Habitats and Species Regulations 2017 (as amended) (HM Government, 2017). Under this legislation it is an offence to:

- deliberately or recklessly capture, injure or kill a beaver;

- disturb a beaver in a way that will impair its ability to reproduce or migrate; or,
- damage, destroy or obstruct access to their breeding or resting places (note: this is an offence whether an individual is present or not, and is an offence whether deliberate or not).

1.2.6 Beaver is also listed as a priority species under Section 41 of the Natural Environment and Rural Communities Act 2006 (HM Government, 2006).

1.3 Methodology

Desk Study

1.3.1 A desk study was undertaken and requested records of riparian mammals within the preceding 10 years and within a 2 km radius of the Kent Onshore Scheme Order Limits from the Kent and Medway Biological Records Centre.

1.3.2 The desk-study was undertaken on 6 June 2022 and updated on 4 October 2024 to obtain records protected and notable species (JNCC, 2020), (HM Government, 2006) within the land within the Kent Onshore Scheme Order Limits and appropriate Zones of Influence (ZOI).

Zone of Influence

1.3.3 The potential impact(s) of a development are not always limited to the boundaries of the site concerned. A development may also have the potential to result in impacts upon ecologically important sites, habitats or species that are located beyond the site boundaries.

1.3.4 The area over which a development may impact ecologically important features is known as the ZOI. The ZOI is determined by the source/type of impact, the potential pathway(s) for that impact and the location and sensitivity of the ecologically important feature(s) beyond the boundary. The potential ZOI of a project in relation to riparian mammals is used to determine the extent of the riparian mammal survey and study areas.

1.3.5 The ZOI was used to establish the required extents of the riparian mammal survey, which included all suitable habitat within the Order Limits and relevant adjacent habitats (boundary scrub, tree lines and hedgerows), also noting any obvious territorial behaviour that encompassed both the Order Limits and adjacent fields.

Habitat Suitability Assessments

1.3.6 Habitat suitability assessments were carried out using aerial imagery and available GIS mapping, prior to Order Limit visits commencing June 2024. This method was used to identify potential habitats (based on the presence of suitable water features). The suitability of these features was confirmed during the initial presence/absence surveys undertaken in June 2024.

Otter Presence/Absence Survey

1.3.7 Otter presence/absence surveys were undertaken by experienced ecologists from AECOM in accordance with standard search methods as outlined in (Chanin, 2003).

The surveyors searched banks within 50 m of the watercourses where accessible, for otter field signs, including spraints, footprints, feeding remains, holts and runs. The potential of bank side habitat to support otter resting sites and/or holts was assessed. Ledges and footpaths were checked for the presence of spraints.

1.3.8 Where access was possible, two surveys of each watercourse were undertaken (one in June 2024 (early summer) and one in September 2024 (late summer/early autumn). Guidelines require a minimum of one survey (Chanin, 2003). As otter surveys can be undertaken concurrently with water vole surveys, two otter surveys were undertaken for the Kent Onshore Scheme Order Limits. Due to the size of the Kent Onshore Scheme Order Limits, surveys were conducted over multiple days. Survey one was undertaken on 5, 6, 10 and 11 June 2024, and survey two was undertaken on 2, 3 and 4 September 2024.

1.3.9 An additional survey was carried out in September 2023 of the two golf courses and some additional areas in field parcel 244 to provide information on water vole to inform the ground investigation works. The golf course areas were not surveyed for the Environmental Statement as this is the area through which a trenchless technique will be undertaken and therefore no above/on ground works will be undertaken. However, they have also been added here to give a wider picture of the general population of otter across the Kent Onshore Scheme Order Limits.

1.3.10 For the purposes of recording types of otter refuge in this report, the following terms are used:

- a ‘holt’ is a well-enclosed refuge, including excavated tunnels (often in steep banks amongst tree roots) and cavities in rocks or man-made structures;
- a ‘laying-up area’ or ‘lie-up’ is a partially enclosed or screened refuge;
- and birth of cubs may occur at a ‘natal holt’, typically above normal flood levels and occupied for up to three months; and,
- a ‘couch’ is constructed in reeds; they are difficult to locate or recognise and may be some distance from main water bodies and other otters.

Water Vole Presence/Absence Survey

1.3.11 Water vole presence/absence surveys were undertaken by experienced ecologists from AECOM. The survey methodology used was in accordance with the Water Vole Conservation Handbook (Strachan, Moorhouse, & Gelling, 2011). This consisted of identifying the extent and distribution of water vole activity through searches of the banks of the watercourses for field signs indicating recent activity (e.g. feeding stations, latrines, burrow entrances and footprints) as well as signs of past and potentially present activity (e.g. burrows). Latrines are recognised as good indicators of territorial behaviour, which in turn generally correlate with water vole breeding activity.

1.3.12 Where access was possible, two surveys of each watercourse were undertaken (one in June 2024 (early summer) and one in September 2024 (late summer/early autumn)). It is in line with good practice guidelines to undertake two surveys for water vole. Due to the size of the Order Limits, multiple visits were required to ensure each watercourse was fully surveyed. Survey one was undertaken on 5, 6, 10 and 11 June 2024, and Survey two was undertaken on 2, 3 and 4 September 2024.

1.3.13 An additional survey was carried out in September 2023 of the two golf courses and some additional areas in field parcel 244 to provide information on water vole to inform

the ground investigation works. The golf course areas were not surveyed for the Environmental Statement as this is the area through which a trenchless technique will be undertaken and therefore, no above/on ground works will be undertaken. However, the results have been included here to give a wider picture of the general population of water vole across the Kent Onshore Scheme Order Limits.

Beaver Presence/Absence Survey

1.3.14 Beaver presence/absence surveys were undertaken by experienced ecologists. The survey methodology consisted of identifying the extent and distribution of beaver activity through searches of the banks of the watercourses for field signs indicating recent activity (e.g. pullouts, feeding remains and footprints).

1.3.15 Where access was possible, two surveys of each watercourse were undertaken (one in June 2024 and one in September 2024). Guidance in the Eurasian Beaver Handbook was used for these surveys. This indicates beaver surveys can be undertaken any time of year but if undertaken in early spring or autumn there is less risk of obscuring vegetation. Considering that beaver surveys can be undertaken concurrently with water vole surveys two surveys for beaver were also undertaken. Due to the size of the Kent Onshore Scheme Order Limits, surveys were conducted over multiple days; Survey one was undertaken on 5, 6, 10 and 11 June 2024, and Survey two was undertaken on 2, 3 and 4 September 2024.

Limitations

1.3.16 It should be noted that ecosystems are dynamic and constantly changing, and therefore species may move, or new species may be recorded in subsequent years. For this reason and in accordance with current guidance, the field survey data detailed in this report are valid for two years (The Chartered Institute of Ecology and Environmental Management, 2019). After this date, updated surveys may be required, and advice should be sought from an appropriately qualified ecologist to determine the survey scope and methods.

1.3.17 Some watercourses within the Order Limits had limited visibility and access due to steep banks and dense vegetation. It is therefore generally difficult to survey these watercourses both in terms of physical penetration (even with a boat) and in terms of avoiding damaging habitat. While this limited some of the survey particularly for water voles, which has been taken into account in the impact assessment, it is believed that the watercourses were adequately accessed for the results of these surveys to be valid.

1.4 Results

Desk Study Results

1.4.1 Table 1.1 below contains a summary of the results of the desk study for the Kent Onshore Scheme Order Limits showing records for protected and notable riparian mammals within 2 km of the Kent Onshore Scheme Order Limits.

Common Name	Scientific Name	Legally Protected Species	Species of Principal Importance	Other Notable Species	Present on Site	Present/Potentially Present in Wider ZOI	Latest Record	Closest Record
European water vole	*Arvicola amphibius*	Y	Y	Y	-	Y	Approximately 100 m southeast, 2024	Approximately 10 m northwest, 2017
Beaver	*Castor fiber*	-	-	-	-	Y	Within Kent Onshore Scheme Order Limits, 2024	Within Kent Onshore Scheme Order Limits, 2024
Eurasian otter	*Lutra lutra*	Y	Y	-	-	Y	Approximately 1.8 km west, 2022	Approximately 960 m south, 2017

1.4.2 The closest of these records is for beaver, recorded within the Kent Onshore Scheme Order Limits.

Table 1.1 Summary of records of riparian species

Common Name	Scientific Name	Legally Protected Species	Species of Principal Importance	Other Notable Species	Present on Site	Present/Potentially Present in Wider ZOI	Latest Record	Closest Record
European water vole	*Arvicola amphibius*	Y	Y	Y	-	Y	Approximately 100 m southeast, 2024	Approximately 10 m northwest, 2017
Beaver	*Castor fiber*	-	-	-	-	Y	Within Kent Onshore Scheme Order Limits, 2024	Within Kent Onshore Scheme Order Limits, 2024
Eurasian otter	*Lutra lutra*	Y	Y	-	-	Y	Approximately 1.8 km west, 2022	Approximately 960 m south, 2017

Habitat Suitability Assessments

1.4.3 The descriptions of each watercourse surveyed are outlined in Table 1.2 and Table 1.3 below and shown in **Application Document 6.4.3.2.H.1 Kent Riparian Mammal Locations and Results**.

1.4.4 Table 1.2 and Table 1.3 provide the results of the habitat suitability assessment for otter, water vole, and beaver respectively, for each watercourse.

Table 1.2 Otter habitat suitability assessments

Watercourse	Watercourse Type	Width (m)	Flow	Connectivity	Presence of Refuges Cover	Level of Human Disturbance	Opportunities for breeding holds	Opportunities for above ground resting sites	Presence of foraging opportunities	Other Details
St Augustine's Channel (surveyed for GI works only)	Ditch	1.75 m	Slow	Good	No cover present, bankside vegetation consists of closely mown grass and weeds	High (stream runs through golf course)	Steep banks and no woodland cover	No tree or shrub cover		
Stoneless Crossing 3 (surveyed for GI works only)	Ditch	2 m at widest point	Static	Good	Tall tussocky grass and reeds present	High (stream runs through golf course)	Steep banks and no woodland cover	No tree or shrub cover		
Stream 1	Ditch	3-4 m	Static	Good	Reeds and scrub present	Moderate (ditch divides active fields)	Steep eastern bank, Shallow western bank	More wooded and shaded to the north		Total duckweed Cover

Watercourse	Watercourse Type	Width (m)	Flow	Connectivity	Presence of Refuges Cover	Level of Human Disturbance	Opportunities for breeding holds	Opportunities for above ground resting sites	Presence of foraging opportunities	Other Details
Stream 2	Ditch	4-5 m	Static	Good	Common reed present	Moderate (ditch divides active fields)				90% duckweed cover
Stream 3	Ditch	3-4 m	Slow/static	Good	Lots of reeds present	Moderate (ditch divides active fields)	Sloped banks	Occasional trees and scrub along bank		
Stream 4	Ditch	3-4 m	Slow/static	Good		Moderate (ditch divides active fields)				
Stream 5	Ditch	Narrow	Slow/static	Good	Dense reeds present along length of ditch	Moderate (ditch divides active fields)	Steep banks			Total macrophyte cover
Stream 6	Ditch	3 m	Slow/static	Good	Lots of in channel vegetation	Moderate (ditch divides active fields)	One steep bank, one shallow bank			

Watercourse	Watercourse Type	Width (m)	Flow	Connectivity	Presence of Refuges Cover	Level of Human Disturbance	Opportunities for breeding holds	Opportunities for above ground resting sites	Presence of foraging opportunities	Other Details
Stream 7	Ditch	3-4 m	Slow/static	Good	Dense reeds present along length of ditch	Moderate (ditch divides active fields)	Steep banks			
Stream 8	Ditch	1-2 m wide with a couple of wider sections	Slow/static	Good		Moderate (ditch divides active fields)	Steep banks			Recent poaching by sheep and total duck weed cover
Stream 9	Ditch	2-3 m	Slow/static	Good	High abundance of reeds	Moderate (ditch divides active fields)	Steep banks			
River Stour	River			Good						
Stream 11	Stream	3-4 m	Slow/static	Good	Reeds present in eastern portion and wooded on eastern	Moderate (stream divides active fields)	Vertical banks	Wooded at eastern end of northern banks		

Watercourse	Watercourse Type	Width (m)	Flow	Connectivity	Presence of Refuges Cover	Level of Human Disturbance	Opportunities for breeding holds	Opportunities for above ground resting sites	Presence of foraging opportunities	Other Details
					end of the northern bank					
Stream 12	Stream		Slow/static	Good	Reeds present along length, tree and scrub cover on southern bank	Moderate (stream divides active fields)	Vertical banks	Tree and scrub cover on southern bank		
Stream 13	Ditch	2 m	Slow/static	Good	Totally covered in reeds and nettles	Moderate (ditch divides active fields)	Steep banks	No tree or scrub cover		
Stream 14	Ditch	2-3 m	Slow/static	Good	Dense reeds	Moderate (ditch divides active fields)	Sloping bank	No tree/scrub cover		Open channel with lots of marginal vegetation
Stream 15	Ditch	1 m	Static – Mostly dry	Good	Overgrown with bramble, nettle and willow	Moderate (stream divides active fields)	Unsuitable	Very dense scrub providing total shading		

Watercourse	Watercourse Type	Width (m)	Flow	Connectivity	Presence of Refuges Cover	Level of Human Disturbance	Opportunities for breeding holds	Opportunities for above ground resting sites	Presence of foraging opportunities	Other Details
					herb, some reeds present around puddles in ditch					
Stream 16	Ditch	4 m	Static	Good	Yes	Farm field to west, strip of woodland to east	Possibly within woodland strip	Yes, vegetation dense. Mainly Phragmites to west and bramble and blackthorn to east	Fishponds to northeast. Possibly small fish supported by this watercourse	Very dense vegetation in stream may prevent/deter use for commuting
Stream 17	Stream	4 m	Sluggish	Good	Dense reeds and grasses along edge of ditch	Moderate (stream divides active fields)	Sloping/steep banks	No tree/scrub cover		
Stream 18	Stream	4 m	Slow	Good	Dense reeds and some scrub present	Moderate (stream divides active fields)				

Watercourse	Watercourse Type	Width (m)	Flow	Connectivity	Presence of Refuges Cover	Level of Human Disturbance	Opportunities for breeding holds	Opportunities for above ground resting sites	Presence of foraging opportunities	Other Details
Stream 19	Ditch	3 m	Slow/static	Good	Total channel coverage with reeds	Moderate (ditch divides active fields)		No tree/scrub cover		
Stream 20	Ditch	3 m	Static	3 inches deep	Bramble and tussocks grass on eastern side, evidence of recent management on western side	Moderate-high	Low, only 1 m disturbed habitat on eastern bank	Low. Human disturbance present	Fish pond nearby but only likely small fish in ditch	Dense pond weed cover, lack of vegetation cover, water in ditch very exposed
Stream 21	Stream	3 m	Slow/static	Good	Bramble and nettle cover and marginal vegetation of dense reeds	Moderate (stream divides active fields)	Steep banks with dense vegetation	Some tree/scrub presence		
Stream 22	Ditch	2-3 m	Slow/static	Good	Dense reeds at bank	Moderate (stream divides	Vertical bank for approximate	No Tree/scrub cover		

Watercourse	Watercourse Type	Width (m)	Flow	Connectivity	Presence of Refuges Cover	Level of Human Disturbance	Opportunities for breeding holds	Opportunities for above ground resting sites	Presence of foraging opportunities	Other Details
						active fields)	ly 20 cm then sloped			
Stream 23	Ditch	2-3 m	Slow/static	Good	Dense reeds and nettles at bank	Moderate (stream divides active fields)	Steep bank	No Tree/scrub cover		
Stream 24	Ditch	3 m at widest point	Static	Suitable as connects across farmland to wider habitats	Lots	Minimal - farmed either side but ditches left	Unlikely - small area of bank left vegetated	Possibly in woodland habitat to west and southeast	No fish present	
Stream 25	Stream	3 m		Good	Dense reeds and scrub	Moderate (Stream divides active fields)	Steep banks	Occasional scrub cover		
Stream 26	Ditch	2 m	Static	Well connected but dense scrub vegetation limits access/use	Lots	Minimal in watercourse but farm fields either side well managed	Minimal	Potentially in wider area beyond farm fields	No fish likely to be present in watercourse	Woodland to southeast

Watercourse	Watercourse Type	Width (m)	Flow	Connectivity	Presence of Refuges Cover	Level of Human Disturbance	Opportunities for breeding holds	Opportunities for above ground resting sites	Presence of foraging opportunities	Other Details
				by larger mammals						
Stream 27	Stream	3-4 m	Slow/static		Dense vegetation	Moderate (Stream divides active field and golf course)	Steep banks with dense vegetation	Potentially in woodland to north		

Table 1.3 Water vole habitat suitability assessments

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
St Augustine's Channel (surveyed for GI works only)	Ditch	1.75 m	Slow	Steep earthen banks	Occasional flooding	10	Closely mown grass and weeds	Lacking, just algae	5	
Stonelees Crossing 3 (surveyed for GI works only)	Ditch	2 m at widest point	Static	Steep earthen banks	Minimal	50	Tall tussocky grass, hemp, agrimony and phragmites, very dense	Tall tussocky grass and Phragmites	100	Mown up to edges as active golf course, connected to water body in the west
Stream 1	Ditch	3-4 m	Static	Steep eastern bank, shallow western bank	Minimal evidence of fluctuation	40	Reeds and scrub shallow western bank steep eastern - more wooded and shaded to	Duckweed	100%	Poor suitability

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
							the north with suitable but poor habitat			
Stream 2	Ditch	4-5 m	Static	Sloped banks	Minimal evidence of fluctuation	0	Phragmites	Duckweed	90%	Poor suitability
Stream 3	Ditch	3-4 m	Slow/static	Sloped banks	Minimal evidence of fluctuation	10-20	Phragmites with occasional trees and scrub	Duckweed	50%	Good suitability
Stream 4	Ditch	3-4 m	Slow/static	Sloping/steep banks	Minimal evidence of fluctuation	0	Phragmites	Duckweed	20%	Moderate suitability
Stream 5	Ditch	Narrow	Slow/static	Steep banks	Minimal evidence of fluctuation	15	Total cover along banks, Phragmites			Good suitability
Stream 6	Ditch	3 m	Slow/static	One steep bank, one shallow bank	Minimal evidence of fluctuation	0	90% cover along banks, Phragmites	Duckweed	10%	Good suitability

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
Stream 7	Ditch	3-4 m	Slow/static	Steep banks	Minimal evidence of fluctuation	0	Dense reeds	Duckweed and green algae	95%	Moderate suitability
Stream 8	Ditch	1-2 m wide with a couple of wider sections	Slow/static	Steep banks	Minimal evidence of fluctuation	0	Tall tussocky grass	Duckweed	100%	Good suitability Recent poaching by sheep
Stream 9	Ditch	2-3 m	Slow/static	Steep banks	Minimal evidence of fluctuation	0	Dense common reed	Green Algae	70%	Good suitability
River Stour	River	20 m	Flowing	Variable	Seasonal fluctuations	20%	Variable	Variable	5%	Moderate suitability
Stream 10	Stream	3-4 m	Slow/static	Sloping banks	Minimal evidence of fluctuation	0%	Dense common reed	Green Algae	50%	Inaccessible due to dense reeds and steep banks - bed too soft to walk on

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
Stream 11	Stream	3-4 m	Slow/static	Vertical banks to west	Minimal evidence of fluctuation		Higher density reeds and in-channel vegetation to east, northern bank becomes wooded to west.	Variable	10%	More suitable to east
Stream 12	Stream		Slow/static	Vertical banks	Minimal evidence of fluctuation	40%	Reeds and bramble. Wooded to west	Duckweed	10%	Moderate suitability. Only assessed from top of bank due to steepness and depth of water
Stream 13	Ditch	2 m	Slow/static	Steep banks	Minimal evidence of fluctuation	80%	Reeds	Reeds, narrowing channel	80%	Stretch perpendicular to 14 is particularly suitable but couldn't be accessed

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
										properly - bottom end and perpendicular stretch is totally covered in reeds and nettles / 2 m wide steep banks
Stream 14	Ditch	2-3 m	Slow/static	Sloping bank	Minimal evidence of fluctuation	10%	Lots of marginal vegetation including dense common reed and tussocky grass	Green algae	50%	Good suitability. Channel open
Stream 15	Ditch	1 m	Static – Mostly dry	Shallow earthen bank	Appears mainly dry with bramble scrub in channel, some Phragmite	100	Dense scrub, willow so, black thorn	Scrub	100	Poor suitability

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
					s and dog rose.					
Stream 16	Ditch	4 m	Static	Shallow vertical, earthen bank	Minimal evidence of fluctuation	100	Tall tussocky grass, Phragmites and willow herb to west, dense scrub, blackthorn, hawthorn and bramble to east	Tall tussocky grass, Phragmites with duckweed on surface of water	100	Moderate suitability. Southern end inaccessible due to dense bramble
Stream 17	Stream	4 m	Sluggish	Shallow earthen banks	Minimal evidence of fluctuation	45	Tussocks grass to west and dense scrub to east	Tall tussocky Grass, minimal in channel presence	60	Moderate suitability
Stream 18	Stream	4 m	Slow	Shallow earthen banks	Minimal evidence of fluctuation	45	Tussocks grass to west and dense scrub to east	Tall tussocky Grass, minimal in channel presence	60	Moderate suitability

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
Stream 19	Ditch	3 m	Slow/static		Minimal evidence of fluctuation		Common reed	Marginal vegetation encroaching on water course	80	Moderate suitability
Stream 20	Ditch	3 m	Static	Steep vertical banks.	Minimal evidence of fluctuation	5	Tall grasses, teasel and other plants on eastern bank, Phragmites on west bank becoming denser to south	Largely submerged vegetation	5	Good suitability
Stream 21	Stream	3 m	Slow	Steep banks with dense vegetation	Minimal evidence of fluctuation	5	Dense reeds with bramble and nettle cover	Green algae	80	Moderate suitability
Stream 22	Ditch	2-3 m	Slow/static	Vertical bank for approximately 20 cm then sloped	Minimal evidence of fluctuation	0	Dense common reed	Minimal	10	Moderate suitability Channel is open

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
Stream 23	Ditch	2-3 m	Slow/static	Steep bank	Minimal evidence of fluctuation	0	Dense common reed and nettles.	Near total channel cover with reeds.	80	Poor suitability
Stream 24	Ditch	3 m at widest point	Static	Steep banks	Minimal evidence of fluctuation	80	Dense bramble scrub to south becoming dense reed beds to the north	Almost total channel cover with odd pockets where in channel veg absent and duck weed dominates	80	Moderate suitability
Stream 25	Stream	3 m		Steep banks	Minimal evidence of fluctuation	20	Dense reeds and scrub	Green algae	90	Good suitability
Stream 26	Ditch	2 m	Static	Minimal	Minimal evidence of fluctuation	20	Dense reed giving way to dense scrub on occasion	Near total channel cover with reeds.	80	Good suitability. Banks inaccessible - viewed from to

Watercourse	Watercourse Type	Width (m)	Flow	Bank Profile and Substrate	Frequency and Height of Water Level Changes	Shading	Bankside Vegetation and Density	In-Channel Vegetation	% In Channel Vegetation Density	Other Details
Stream 27	Stream	3-4 m	Slow/static	Steep banks with dense vegetation	Minimal evidence of fluctuation	10	Arable land to west, mown grass (golf course) and bramble in parts to east	Green algae	30	Largely inaccessible banks due to steepness and dense veg

Presence/Absence Survey Results

Otter

1.4.5 Table 1.4 summarises evidence of the presence of otter found during the surveys, results are shown in **Application Document 6.4.3.2.H.1 Kent Riparian Mammal Locations and Results**.

Table 1.4 Summary of evidence of otter presence

Watercourse	Visit	Evidence
Stream 16 (TR324631)	September 2023	Mammal run (potential otter or other mammal)
Stream 25 (TR327632)	September 2023	Mammal run (potential otter or other mammal)

Stream 16 (TR324631)

1.4.6 In September 2023 two mammal runs were observed on the eastern back of stream 16. Neither of these runs could be reliably identified as being used by a specific protected species. There were two further mammal paths which were observed in June 2024. However, these were identified as being wider than an otter path would be.

Plate 1.1 Unidentified mammal run at stream 16

Plate 1.2 Unidentified mammal run at stream 16

Stream 25 (TR327632)

1.4.7 In September 2023 an unidentified mammal run was observed at the southern end of the stream 25. In June 2024, a path was observed through the vegetation although it was unclear whether this was due to the presence of otter or another animal such as a beaver or large wading bird.

1.4.8 There were two further mammal paths which were observed in June 2024. However, these were identified as being wider than an otter path would be.

Plate 1.3 Unidentified mammal run at stream 25

Plate 1.4 Path through vegetation observed at stream 25

Water vole

1.4.9 Table 1.5 summarizes evidence of the presence of otter found during the surveys results are shown in **Application Document 6.4.3.2.H.1 Kent Riparian Mammal Locations and Results**.

Table 1.5 Summary of evidence of water vole presence

Watercourse	Visit	Evidence
Stream 4 (TR317622)	September 2024	Burrow Feeding evidence Latrine
Stream 7 (TR314624)	June 2024	Burrow

Watercourse	Visit	Evidence
		Feeding evidence Latrine
Stream 8 (TR313624)	September 2024	Feeding evidence Latrine
Stream 9 (TR311625)	June 2024	Burrows of suitable dimensions Latrine
	September 2024	Feeding evidence Latrine
Stream 12 (TR320630)	September 2024	Feeding remains
Stream 26 (TR328633)	September 2023	Burrow of suitable size Feeding evidence
Stream 27 (TR337635)	September 2023	Five burrows of suitable dimensions Feeding evidence
St Augustine's Crossing (TR343636)	September 2023	12 burrows of suitable dimensions
Stonelees Crossing 3 (TR340635)	September 2023	Latrine

Stream 4 (TR317622)

1.4.10 In September 2024, a burrow with an old lawn (feeding area) was identified. Droppings were also found; these were crushed but the colour and presence of the burrow would indicted that they are from a water vole. There was some reed growth at the burrow mouth which would indicate that this had not been used recently.

Plate 1.5 Water vole burrow with latrine and feeding area

Stream 7 (TR314624)

1.4.11 In June 2024, a burrow with a feeding area and latrine were identified, indicating the presence of water vole.

1.4.12 In September 2024 evidence was found in three further areas:

- a fresh latrine with feeding remains characteristic of water vole; and,
- two fresh latrines.

Plate 1.6 Water vole burrow with latrine and feeding area

Plate 1.7 Water vole latrine and feeding area

Plate 1.8 Water vole latrine

Plate 1.9 Water vole latrine

Stream 8 (TR313624)

1.4.13 In September 2024, a latrine with typical feeding remains was identified, indicating the presence of water vole.

Plate 1.10 Latrine and feeding area

Plate 1.11 Water vole feeding area

Stream 9 (TR311625)

1.4.14 In June 2024, a latrine with droppings was observed. Due to poor access to the latrine, photographs were not taken. However, the droppings observed were indicative of water vole. Additionally, several burrows of a suitable size for water vole were observed.

1.4.15 In September 2024 a pile of more than 20 water vole droppings of various ages with feeding remains were identified.

Plate 1.12 Burrows of appropriate size for water vole

Plate 1.13 Pile of water vole droppings

Plate 1.14 Feeding remains

Stream 12 (TR320630)

1.4.16 In September 2024 old signs of feeding were identified (not fresh), but no latrine was found.

Plate 1.15 Aged feeding signs

Stream 26 (TR328633)

1.4.17 In September 2023, a burrow of appropriate size for water vole was observed, with the remains of bitten stems in the vicinity of the burrow.

Plate 1.16 Water vole burrow with bitten stems

Stream 27 (TR337635)

1.4.18 In June 2024, five burrows that were of appropriate size and shape for water vole were observed along the length of stream 27. Due to access limitations, a close inspection could not be undertaken of all the burrows. However, they all appeared to be of appropriate size and shape for water voles and additionally several of these appeared to have feeding lawns outside.

Plate 1.17 Water vole burrow with bitten stems

Plate 1.18 Water vole burrow

St Augustine's Crossing (TR343636)

1.4.19 In September 2023, 12 burrows that were of appropriate size and shape for water vole were observed along the length of St Augustine's Crossing.

Plate 1.19 Water vole burrows

Plate 1.20 Water vole burrow

Stonelees Crossing 3 (TR340635)

1.4.20 In September 2023, water vole droppings were observed on the bank at Stonelees Crossing 3. This indicated the presence of water vole in the stream at this time.

Plate 1.21 Water vole droppings

Beaver

1.4.21 Table 1.6 summarises evidence of the presence of beaver found during the surveys.

Table 1.6 Summary of evidence of beaver presence

Watercourse	Visit	Evidence
River Stour Location 1 (TR307627)	September 2024	Gnawing Stripped bark
River Stour Location 2 (TR312628)	September 2024	Gnawing Stripped bark
River Stour Location 3 (TR315627)	September 2024	Gnawed bark on bank Haul outs Faint beaver tracks
River Stour Location 4 (TR318627)	September 2024	Beaver canal Potential beaver tracks

1.4.22 Evidence of the presence of beaver was found at four locations on the River Stour.

Location 1 (TR307627)

1.4.23 In September 2024 beaver gnawing and stripped bark on willow including some fresh bark peeling, was identified.

Plate 1.22 Tree gnawed by beaver

Plate 1.23 Recent signs of beaver gnawing willow

Location 2 (TR312628)

1.4.24 In September 2024 significant beaver gnawing and stripped bark on willow including some fresh bark peeling, was identified.

Plate 1.24 Tree gnawed by beaver

Plate 1.25 Tree gnawed by beaver

Location 3 (TR315627)

1.4.25 In September 2024 gnawed bark on bank and two haul outs with faint beaver tracks were identified.

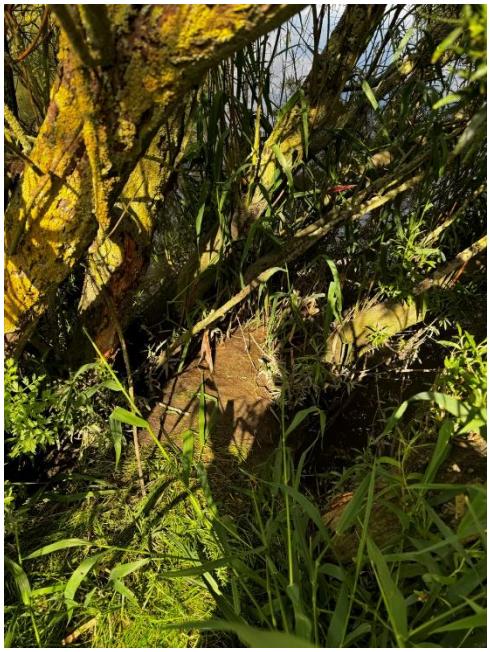

Plate 1.26 Gnawing and haul out

Plate 1.27 Tree gnawed by beaver

Location 4 (TR318627)

1.4.26 In September 2024 evidence of the start of a beaver canal, off main river, was identified. Potential beaver tracks in mud at the end of the canal were seen but not considered as definitive due to them being poorly defined in the mud.

Plate 1.28 Evidence of beaver canal

Plate 1.29 Evidence of beaver canal

Results summary

1.4.27 Mammal runs were identified that could have potentially been created by otter, however these could equally have been created by other mammals. No conclusive signs of otters were observed on any watercourse surveyed.

1.4.28 Signs of water vole were identified in several water courses.

1.4.29 Signs of beaver were identified along the River Stour.

1.5 Discussion

1.5.1 A total of 27 water courses were assessed for the presence of riparian mammals.

1.5.2 Mammal signs that could indicate the presence of otter were found at two water courses (stream 16 and stream 25). However, there was no clear evidence of otters, and the identified signs could equally have been caused by other mammals and/or large wading birds.

1.5.3 Nine water courses showed evidence of the presence of water voles. Evidence of water vole presence identified included burrows, feeding remains, feeding “lawns”, and latrines.

1.5.4 It should be noted that mink (*Mustela lutreola*) has been observed within the Kent Onshore Scheme Order Limits. Mink has the potential to impact water vole populations severely.

1.5.5 Evidence of the presence of beavers (gnawing, haul outs and the start of a beaver canal) was identified along the River Stour, in four locations.

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