

## Bat Survey Report:

### Beck Hole Bridge (Bridge No. 392)

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1	Executive summary.....	3
2	The survey site.....	4
2.1	Location .....	4
2.2	Surroundings.....	4
3	Proposed works .....	6
4	Survey methods.....	7
4.1	Desk study .....	7
4.2	Field work .....	7
4.3	Surveyors working on the project .....	7
4.4	Survey dates, times and weather conditions .....	7
4.4	Equipment used.....	7
5	Bridge description and features .....	9
5.1	Description.....	9
6	Bats.....	12
6.1	Existing information.....	12
6.2	Bat roost potential.....	13
6.3	Current survey data.....	13
7	Other notable, protected and invasive species.....	15
7.1	Protected species .....	15
7.2	Invasive Non-Native Species.....	16

# 1 Executive summary

An ecology survey at Beck Hole bridge was commissioned by North Yorkshire County Council in connection with proposed repairs to the south-western corner of the bridge.

A daytime scoping survey was carried out on 27<sup>th</sup> May 2021 followed by a bat emergence survey on 30<sup>th</sup> June 2021.

The survey site is a stone bridge over the Eller Beck in the village of Beck Hole. The bridge is in generally good condition other than for a large crack in the south-west spandrel which needs repair.

The crack requiring repair has some bat roost potential, but close examination of this revealed no evidence of use by bats; much of the crevice was covered with spider's webs. This stretch of river is very popular with bats with good numbers of three species in flight during the surveys. These bats all flew into the site from elsewhere and were recorded flying and foraging throughout the survey. Common Pipistrelle was the commonest species present; there is a known maternity roost close by.

A check of a stretch of the Eller Beck was carried out to search for evidence of Otters and Water Voles. Although there is some potential for both of these species in the vicinity (especially Otters) no evidence of their presence was found. This stretch of watercourse is generally quite disturbed due to its location in the village, proximity to the pub and ready accessibility to the public.

A check was also made for evidence of invasive non-native plant species. There have been past records of Japanese Knotweed and Rhododendron within 2km of the bridge, but these records do not relate to the 1km square in which the bridge is located. No evidence of either of these species was found during the field survey, but there was a small amount of Buddleia upstream of the pub and cultivated Rose species in a garden on the north bank close to the bridge. Neither of these locations will be disturbed as a result of the proposed works which are very localised in extent.

It is concluded that the proposed works are unlikely to adversely impact on protected species or result in the spread of invasive non-native species. The works are restricted to the south-west corner of the bridge and to parts of the structure on land. There is some potential for the crevice that is to be repaired to support roosting bats on a casual basis, so care must be taken during works and must stop if bats are encountered.

## 2 The survey site

### 2.1 Location

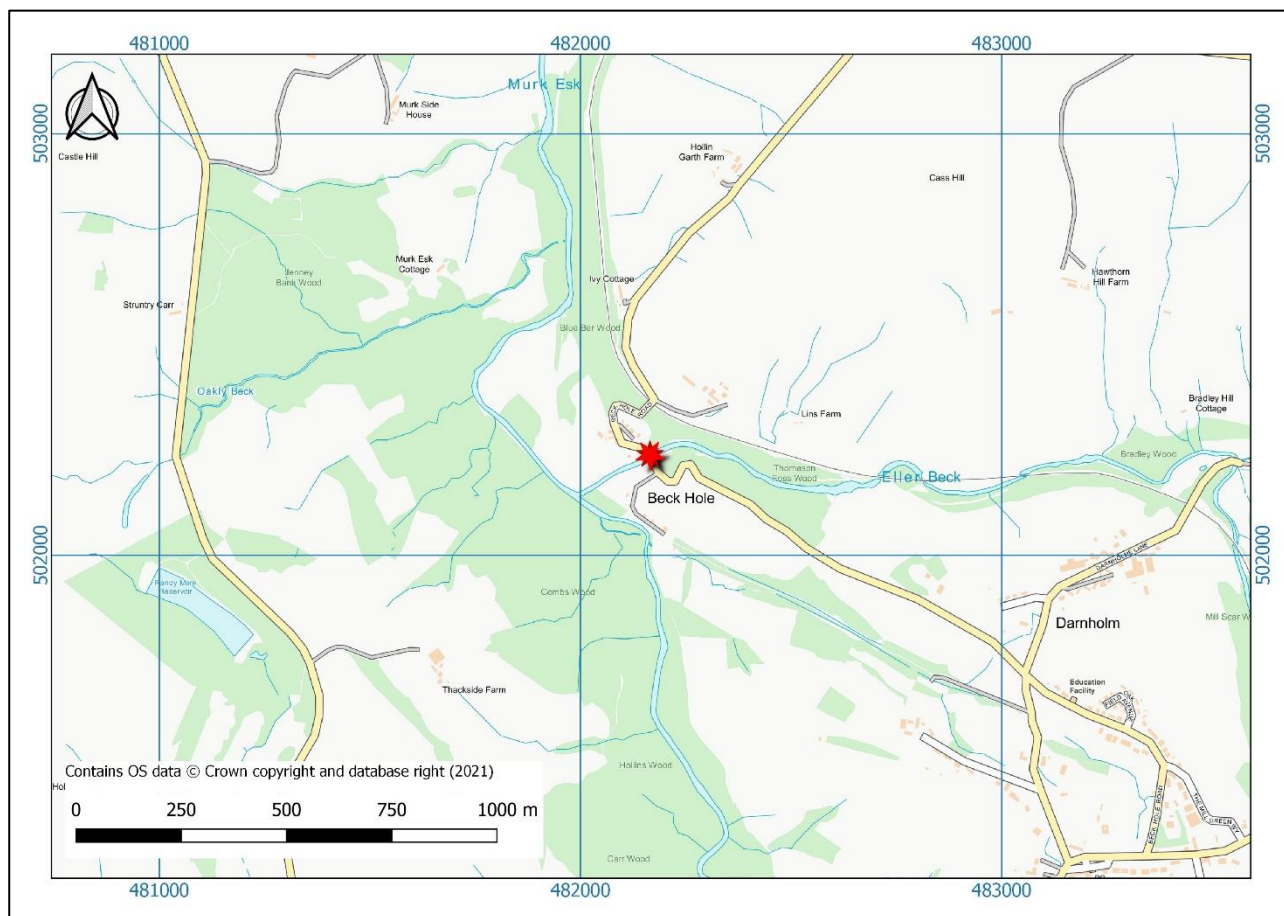


Figure 1: Beck Hole Bridge location, OS Grid Ref. NZ 82163 02230

### 2.2 Surroundings

The bridge is located in a steep sided valley on the edge of the village green and adjacent to a public house. There are broadleaved woodlands to the east and west of the site, which link to further woodland in the surrounding area. The valley floor has several small fields with thick hedges and/or tree lines bordering them making a good interlinked network of vegetated corridors. The North York Moors Railway runs through a cutting part way up the hillside to the north of the village forming another well-vegetated corridor.

The bridge carries the road over the Eller Beck which has a bed of stones, boulders and rock. There are smaller areas of scrub, improved grassland and semi-improved grassland nearby.

The bridge is very close to the Beck Hole Site of Special Scientific Interest (SSSI). This includes mixed deciduous woodland and alder woodland with some areas of neutral grassland, flush and mire habitats.

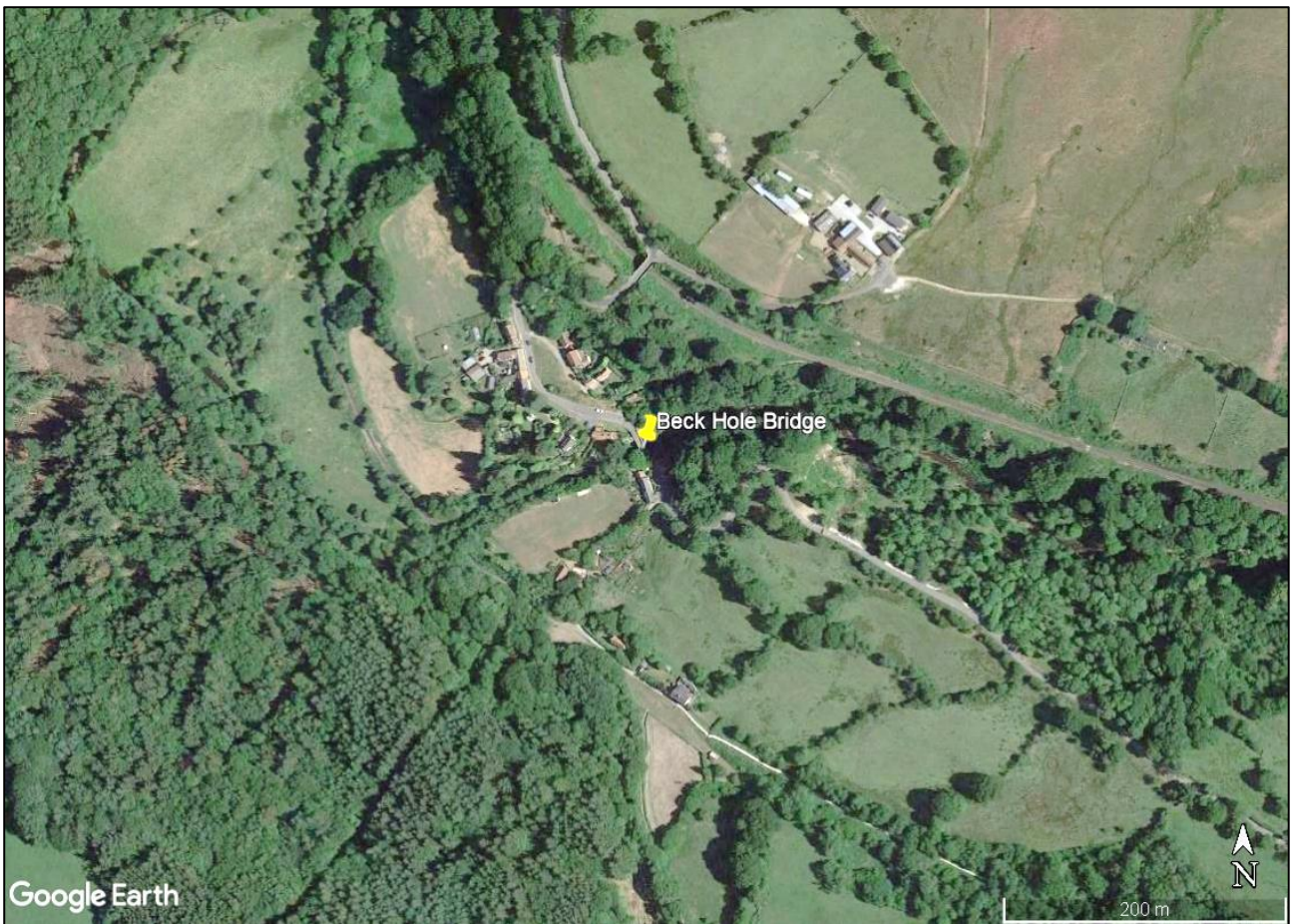


Figure 2 Aerial view of survey site and surrounding countryside:

### 3 Proposed works

Works to repair the southern end of the bridge (west side) where a large crack has developed.

## 4 Survey methods

### 4.1 Desk study

- Consulted the Multi-Agency Geographic Information for the Countryside (MAGIC) website at <http://magic.defra.gov.uk> to check if there are any statutory nature conservation designations relating to the site or nearby.
- Asked North Yorkshire Bat Group for records of bats previously recorded within 2km of the survey site to gather any previous information about bats at the site and to put our findings in the context of existing information.
- Requested data regarding notable, protected species and invasive species within 2km of the bridge from North & East Yorkshire Ecological Data Centre.
- Researched the features and habitats of the area through the use of maps and aerial photographs.

### 4.2 Field work

- Undertook a survey of habitats and landscape features on the site and within 300m
- Examined the bridge to record its main features especially those that may be suitable for roosting bats or other protected species.
- Carried out a detailed check to look for bat droppings; feeding remains such as moth & butterfly wings; live bats; dead bats; stains and marks on surfaces indicating regular use by bats; urine marks; and areas devoid of cobwebs
- Took photographs of the bridge, its features and any evidence of bats to illustrate the findings in this report.
- Carried out a bat activity survey at dusk to record bats flying over or past the site, feeding at the site and leaving or entering buildings.
- Undertook a search for evidence of Otter, Water Vole and invasive plant species within the vicinity of the bridge.
- Recorded weather conditions.

### 4.3 Surveyors working on the project

Name	Natural England licences held	Survey dates
John Drewett BSc (Hons), MCIEEM	WML-CL20 (Bats); WML-CL21 (Bats Low Impact); WML- CL08 (Great Crested Newts)	27 May & 30 June 2021
Val Kirk	WML-CL18 (Bats)	30 June 2021

### 4.4 Survey dates, times and weather conditions

Date	Time		Temp °C		Wind force		Cloud cover %		Rain		Sunset
	Start	End	Start	End	Start	End	Start	End	Start	End	
27/5/21	15:00	16:00	n/r	n/r	n/r	n/r	0	0	None	None	n/a
30/6/21	21:00	22:45	11	13	0	0	100	100	None	None	21:41

### 4.4 Equipment used

A Clulite 500,000 candlepower torch was used to aid the examination of the bridge, features of which were recorded using a Nikon Coolpix L30 digital camera. During the bat emergence surveys each observer used a

handheld heterodyne bat detector. In addition, Anabat Express bat detectors were located close to the bridge to record bat activity and calls for later analysis. Recordings were analysed using AnabookW software. Temperatures were recorded using a digital thermometer. A Pulsar Axion XM30S thermal camera was also used to aid observations of bats.



## 5 Bridge description and features

### 5.1 Description

The bridge is a two-arched stone structure over the Eller Beck. There are some very minor crevices visible in the spandrel walls, but overall most of the bridge appears to be well pointed. However, there is a significant crack along joints in the stonework at the south-west corner of the bridge, indicating some movement in the structure. This crack is quite deep in places, though much of the opening was covered by cobwebs at the time of survey; only the very lowest parts near to ground level had few cobwebs.



*Figure 3: East side of bridge*



*Figure 4: Minor crevices in east side*



*Figure 5: West side of bridge*



*Figure 6: View towards west under south arch*



*Figure 7: Substantial crack at south-west corner of bridge*



*Figure 8: Substantial crack at south-west corner of bridge*

## 6 Bats

### 6.1 Existing information

The following records of bats previously recorded within 2km of the survey site have been provided by North Yorkshire Bat Group. These records have been assembled from a variety of sources, but are not the result of a structured survey. Consequently, they should not be considered to be fully representative of the local bat fauna.

Species	Site	Grid ref.	No.	Date	Comment
Daubenton's Bat	Beck Hole, Blue Ber Wood	NZ8194202863	2	Jul 2016	Day roost
Whiskered Bat	Beck Hole mine	NZ8202	1	19 Oct 2003	In flight
Natterer's Bat	Beck Hole mine	NZ8202	2	19 Oct 2003	In flight
Common Pipistrelle	Green End Farm, Green End	NZ824035	1	19 Jun 2018	Roost
Common Pipistrelle	Green End Farm, Green End	NZ824035	1	06 Jul 2018	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ82160220	335	13 Jun 2018	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ82160220	299	07 Jun 2018	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ82160220	278	15 Jun 2017	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ82160220	115	01 Jul 2017	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ821020	260	25 Jul 2018	Maternity roost
Common Pipistrelle	Green End Farm, Green End	NZ824035	1	26 May 2020	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ82160220	278	15 Jun 2017	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ82160220	115	01 Jul 2017	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ82160220	299	07 Jun 2018	Roost
Common Pipistrelle	Incline Cottage, Beck Hole	NZ82160220	335	13 Jun 2018	Roost
Common Pipistrelle	Murk Esk Cottage, Goathland	NZ8166902678	13	Jun 2020	Day roost
Common Pipistrelle	Murk Esk Cottage, Goathland	NZ8166902678	15	Jul 2020	Day roost
Common Pipistrelle	Murk Esk Cottage, Goathland	NZ8166902678	14	Jul 2020	Maternity roost
Common Pipistrelle	Murk Esk Cottage, Goathland	NZ8166902678	13	Aug 2020	Day roost
Common Pipistrelle	Murk Esk Cottage, Goathland	NZ8166902678	25	Jul 2020	Maternity roost
Brown Long-eared	Darnholme Grange	NZ8360402155		2003	
Brown Long-eared	Murk Esk Cottage, Goathland	NZ817027	35	02 Aug 2004	Roost
Brown Long-eared	NZ8347901402	NZ8347901402		11 Jun 2012	In flight
Brown Long-eared	Green End Farm, Green End	NZ824035	2	06 Jul 2018	In flight
Brown Long-eared	Incline Cottage, Beck Hole	NZ821020	10	25 Jul 2018	Maternity roost
Soprano Pipistrelle	Station House, Goathland	NZ837016	150	15 Jun 2001	Roost
Pipistrelle species	Beck Hole	NZ813018		28 Jul 1977	
Pipistrelle species	2 Ivy Cottages, Green End	NZ8209602622		10 Sep 2003	Roost
Pipistrelle species	2 Ivy Cottages, Green End	NZ8209602622		24 Oct 2006	Roost
Unknown	Glen Head, The Orchard	NZ8293101483	13	30 Sep 2002	Roost
Unknown	2 Ivy Cottages, Green End	NZ8209602622	50	24 Jun 2002	Roost
Unknown	Planters Cottage, Beck Hole	NZ8202		14 Jun 2006	Possible roost

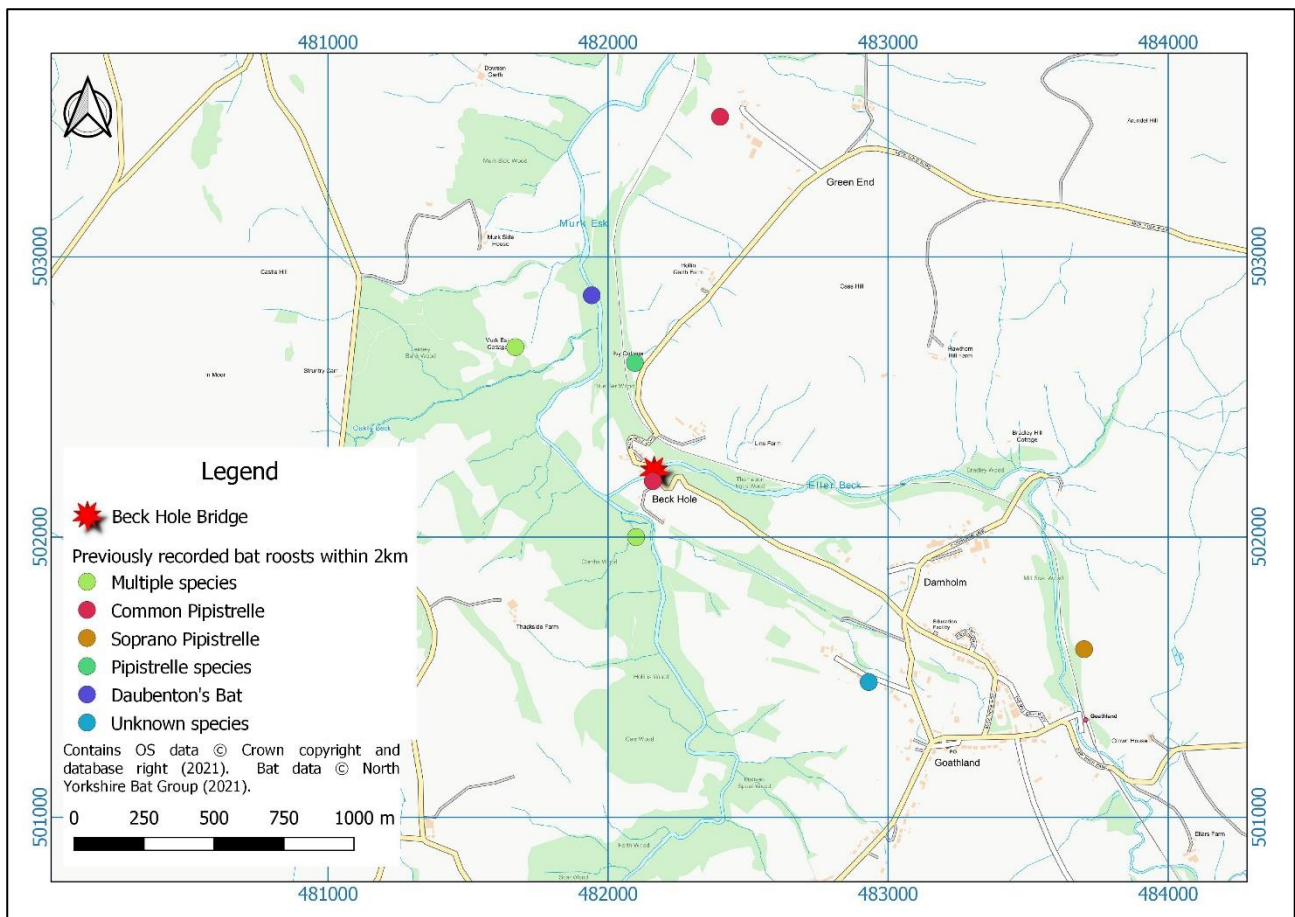


Figure 9: Previously recorded bat roosts within 2km of the bridge

## 6.2 Bat roost potential

Given the location and surrounding habitats the area around Beck Hole bridge would seem to offer favourable conditions for bats. However, the bridge itself is generally well-pointed, other than for the large crack at the south-west corner

## 6.3 Current survey data

Two surveyors took part in the emergence survey, one located to the north of the bridge on the riverbank and the other in the watercourse by the south-west corner of the structure. Both observers used a Bat Box heterodyne bat detector to alert them to bats and to assist in initial identifications. An Anabat Express bat detector by the bridge recorded bat calls for later analysis and species confirmation.

During the survey Common Pipistrelle, Soprano Pipistrelle and *Myotis* spp. bats<sup>1</sup> (most probably Brandt's bats) were recorded in flight. No bats were seen to emerge from the bridge, despite one observer being positioned less than five metres from the crack to be repaired.

The dominant species recorded during the survey was Common Pipistrelle. These were first recorded very early at 21:17 (24 minutes *before* sunset). The early appearance was probably partly due to the very dull

<sup>1</sup> *Myotis* bat spp. Indicates that bats of the genus *Myotis* were recorded during the survey. In Yorkshire, members of this genus are Whiskered, Brandt's, Alcatheo, Daubenton's and Natterer's bats. These species can be difficult to separate based on the characteristics of their echolocation calls alone. Where this is the case and bats have not been caught for identification purposes it is not possible to be more precise.

and overcast weather conditions, but also indicate a roost close by. The bats were first seen over the pub next to the bridge, but very soon were foraging extensively over the Eller Beck upstream of the bridge in the wooded gorge. From the initial views it was thought that the bats may have emerged from the pub, but given the presence of an unusually large maternity roost at Incline Cottage, 175m south of the bridge, this is most likely the origin of the species here.

Soprano Pipistrelles were very infrequent during the survey with individual foraging bats being recorded only at 21:47, 22:07, 22:09 and 22:26.

Occasional *Myotis* bat spp. were recorded in flight at 21:57, 22:03, 22:05, 22:06, 22:11, 22:13, 22:14, 22:15, 22:17, 22:22, 22:23, 22:24, 22:27 and 22:30. The individual at 22:15 was clearly identifiable as a Natterer's bat, but the rest are considered (based on the characteristics of their calls) most likely to be Brandt's bats. The habitats and geography of the area make this a fairly typical location for this species even though there are no previous records of Brandt's bats in the immediate local area.

## 7 Other notable, protected and invasive species

### 7.1 Protected species

#### 7.1.1 Existing data

North & East Yorkshire Ecological Data Centre provided information on European Otter, European Water Vole, European Eel, Atlantic Salmon and Brown/Sea Trout within 2km of the survey site.

Species	Location	Grid Ref.	Dates	Notes
European Eel	Eller Beck	NZ822022	23 Aug 2011	At survey site
European Eel	Eller Beck	NZ821022	14 Jun 2005	At survey site
European Eel	Eller Beck	NZ821022	9 Oct 1997	At survey site
Atlantic Salmon	Eller Beck	NZ822022	23 Aug 2011	At survey site
Atlantic Salmon	Eller Beck	NZ821022	14 Jun 2005	At survey site
Brown/Sea Trout	Eller Beck	NZ822022	23 Aug 2011	At survey site
Brown/Sea Trout	Eller Beck	NZ821022	14 Jun 2005	At survey site
Water Vole	Eller Beck, Darnholme	NZ8302	1973	
Water Vole	Eller Beck, Darnholme	NZ8302	1972	
Otter	Beck Hole	NZ821022	1 Jun 1995	At survey site

#### 7.1.2 Current survey

A search for evidence of Otters (spraints, holts, etc.) and Water Voles (droppings, burrows, feeding remains, etc.) was carried out along the course of the stretch of the Eller Beck indicated on the map below. No evidence of either species was found.

The area would appear suitable for use by Otters, especially upstream of the bridge, due to the large number of rocks and boulders both in the watercourse and along the banks. There are some reasonably large spaces between boulders and under tree roots along the banks in this section, which would appear to offer opportunities for this species. However, this section is directly accessible from the public house and is much used by the public for picnicking, exploring and paddling as, when water levels are reasonably low the course of the waterway is easily walked.

The stretch downstream of the bridge is more secluded and is wooded throughout. There are many moss covered boulders along the banks and further gaps around tree roots which could also be suitable to conceal Otter holts, but no evidence was found. The bankside in the immediate vicinity of the proposed works was very thoroughly examined.

The available habitats are generally less suitable for Water Voles due to the degree of woodland cover though, for this species, the stretch upstream of the bridge would appear the most suitable due to its more open nature. However, much of the ground adjacent to the watercourse is quite rocky and the banks are shallow, offering few burrowing opportunities. The upstream stretch of the watercourse will not be impacted upon by the proposed works, which are confined to the south-west corner.

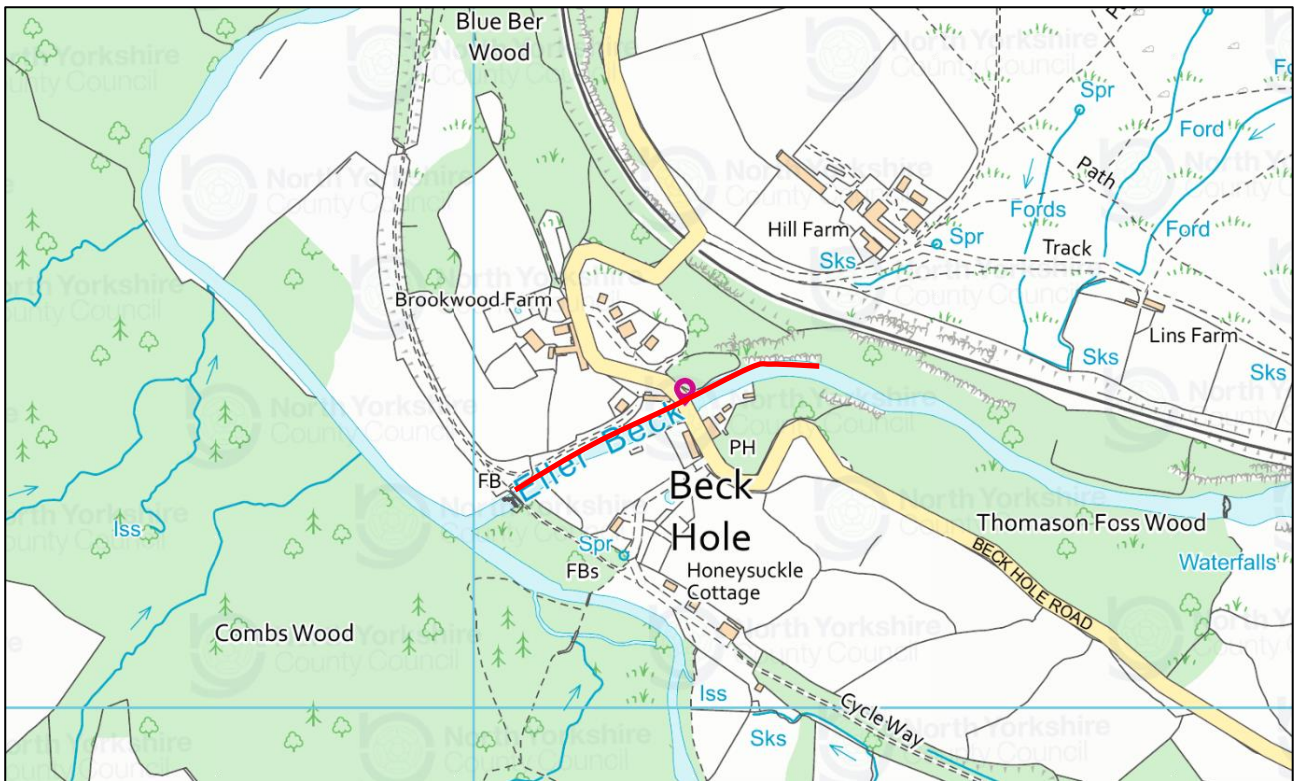


Figure 10: Survey extent for evidence of Otter & Water Vole

## 7.2 Invasive Non-Native Species

### 7.2.1 Existing data

North & East Yorkshire Ecological Data Centre provided records of Japanese Knotweed and Rhododendron within 2km of the survey site, but not in the same 1km square as the survey site.

### 7.2.2 Current survey

There is no evidence of Japanese Knotweed or Rhododendron in the vicinity of the bridge. However, the bridge is located in the village, with domestic properties alongside the watercourse, which is likely to lead to the escape of some non-native plants. There is some Buddleia growing on the south bank of the river upstream of the public house and some cultivated Rose species close to the bridge on the downstream north bank.