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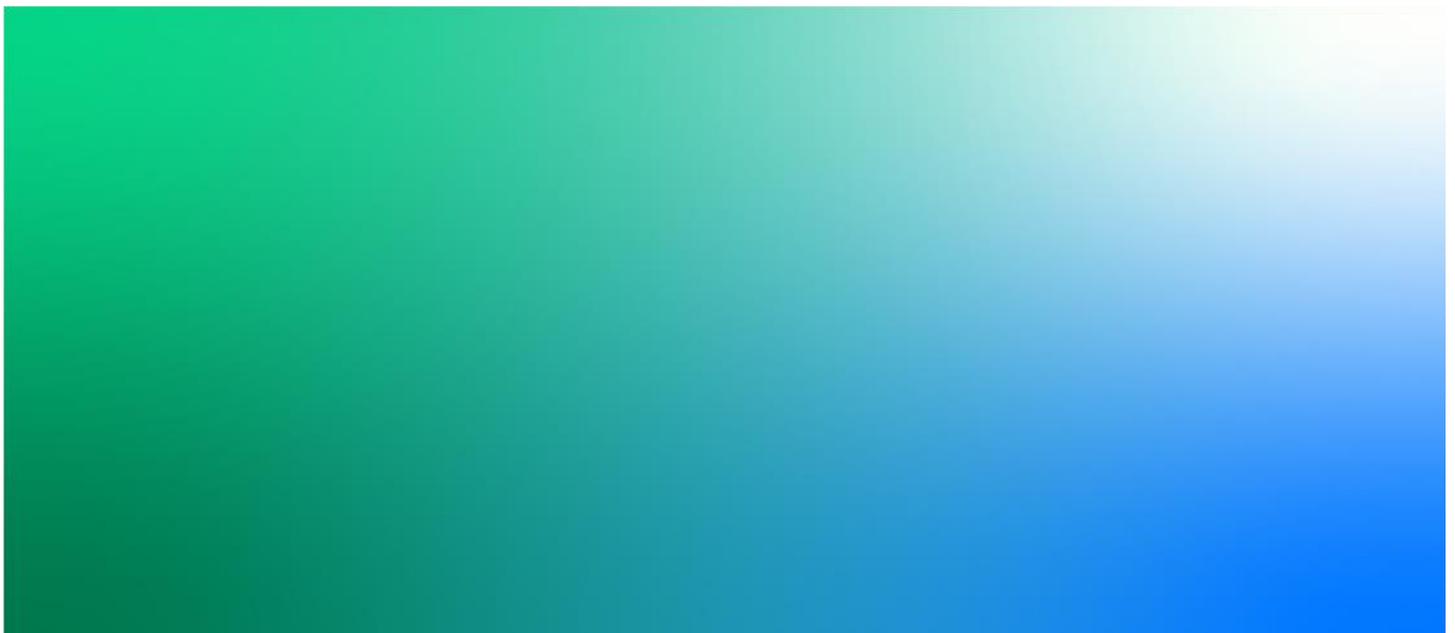
**Updated Otter Survey**

ENV0000009C-JAC-ZZ-00-MO-BD-0002  
01

October 2020

**Environment Agency**

In partnership with:



## Preston and South Ribble FRMS

Project No:  
Document Title: Updated Otter Survey  
Document No.: ENV0000009C-JAC-ZZ-00-MO-BD-0002  
  
Revision: 01  
Document Status: <DocSuitability>  
Date: <date>  
Client Name: Environment Agency  
Client No: Client Reference  
Project Manager: Matt Waddicor  
Author: Ryan Knight  
File Name: Document3

Jacobs U.K. Limited

NONE

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### Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
01	08/10/2020	Updated Otter Survey	Ryan Knight	Nick Westerman	Nick Westerman	Sean McGahan

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## Appendix A. Additional Information

## 1. Introduction

Areas 1 and 2 of the Preston and South Ribble Flood Risk Mitigation Scheme ('the scheme') were subject to an otter survey by the Environment Agency (EA) in July 2020. This survey identified potential habitat for otter, but a full visual inspection of the banks was not possible due to health and safety concerns. The results of this survey are provided in the Preston and South Ribble FRMS Otter Survey (EA, 2020) and should be read in conjunction with this Memo Report.

The river banks are very steep or vertical in places and an area of mudflat is located at the base of the banks, which made access on foot difficult and dangerous. An alternative method was required to inspect the full extent of the banks and give confidence in terms of the presence or absence of any otter resting sites. Initially, a boat survey was proposed, but this was deemed unsuitable for various reasons. Firstly, access to the base of the embankments would be very difficult to attain due to the mudflats. Secondly, the tidal nature of the river meant that an engine power boat with a trained operator would be required. Social distancing due to Covid 19 would have also been difficult on a small boat, in which case a larger boat would have been required, which would have exacerbated the access issues due to the mudflats.

An alternative method was selected which involved using camera footage from a drone survey and GoPro footage from an extendable pole, for closer inspections. Jacobs UK Ltd (Jacobs) was commissioned by the Environment Agency (EA) to undertake an otter survey within Areas 1 and 2 of the scheme using these methods.

## **2. Previous Results**

The EA have been sent recent records of otter sightings within the past year, from a member of the public. These include daytime sighting of two otters immediately below the Ribble Viaduct (SD5351 128385) and a single otter at Vernon's Mill pond around 1km south-east of the scheme (SD54046 27200).

Otter footprints were recorded on a small mudbank along Broadgate (SD 52855 28603) and on the bankside directly underneath Ribble Viaduct (SD 52841 28703), during the Phase 1 verification survey conducted in May 2020 (Jacobs, 2020).

### **3. Aims and Objectives**

This report describes the survey methods employed, presents the results of the surveys and makes recommendations to ensure that the development is in accordance with both legislative requirements and the long-term conservation of otter populations within the affected areas.

The survey was conducted to gather evidence of the presence and potential presence of otter resting sites and also to record other evidence of otter such as footprints, spraints or pathways through the vegetation. The survey results will contribute to an understanding of the value of the river banks for otter, help identify the potential impacts of the scheme on otter and inform the design of any mitigation proposals.

## 4. Methods

The habitat suitability for otter was previously assessed in the EA's otter report (EA, 2020). In addition to this, a review of drone footage, captured during previous survey on the scheme, was carried out (Jacobs 2020). This helped target further surveys in the locations where potential otter resting sites had been identified.

The otter survey was undertaken by Jacobs' ecologists Ryan Knight MCIEEM and Joel Giordano GradCIEEM on 2<sup>nd</sup> September 2020. The defined survey area comprised all potentially suitable river banksides within Areas 1 and 2 plus a 250m length of the river on either side of these areas. A collapsed footbridge meant that for Area 2 the survey of the left bank to the east was surveyed approximately 165m from the scheme boundary. The extent of the survey area is shown in Figure 1.

The River Ribble in this location is within the tidal reach of the estuary, which results in significant fluctuations in river levels at high and low tides (generally between 4 to 5m). The survey commenced before the low tide level (10:06am) and was completed after the high tide level (12:36pm) (tide data obtained from <https://www.tidetimes.org.uk/>).

All suitable bankside features were visually surveyed using a GoPro camera (model: GoPro HERO5) attached to a 7.3m telescopic pole. The GoPro camera was connected to an iPad which enabled footage to be recorded and viewed in real time in the field. All footage was also reviewed via desk-top means upon the completion of the survey. The GoPro could be positioned to give a close-up view of the bank, which enabled surveyors to pick up potential signs of otter, such as footprints or spraints. It could also be positioned to give a birds-eye view to pick out mammal pathways through the vegetation, depressions in the vegetation or otter slides on the bank. Evidence of otter was recorded where present.

**Plate 4.1 – GoPro setup on site.**



Potential resting sites were defined as 'holts' or 'couches'. The information recorded for each potential holt and couch included a grid reference, a brief description of the feature, evidence of use and a photo or video footage. A description for these terms are listed below (and as referenced within Chanin (2003) and Liles (2003)).

**Table 4.1. Terms used for otter resting sites**

Otter Resting Site Terms	Description
Holt	A holt is a 'covered' resting site an otter will use for shelter and protection. Typically, holts are located under the roots of a bankside tree. However, holts can be found in artificial embankments formed by boulders; cavities within stonework; tunnels; field drains; and in enlarged rabbit holes. Dense stands of

	<p>woody vegetation may also provide enough dry cover for a holt. Many holts also have more than one entrance to protect against flooding.</p> <p>A common feature is that many holts are in places where the risk of direct physical disturbance is low. Evidence of potential use of a holt includes spraints within or adjacent to the holt and slides leading from the holt to a watercourse. A breeding holt (referred to as a natal den) is a holt in which otter pups are born and reared. Natal dens are often associated with a greater level of protective cover and evidence of use can be inconspicuous. Natal dens can also be located some distance from a watercourse.</p>
Couch	<p>A couch is an 'uncovered' resting site. Couches are usually used for day-resting and include dense vegetation such as thick reedbeds, shrubs, rushes or amongst rock piles. Similar to holts, a common feature is that couches are typically in places where the risk of direct disturbance is low.</p>

## 5. Results

### a) Field Survey

A small number of potential holt features were identified within the survey area, all of which were structures associated with the existing flood walls and drainage. On further inspection, all features were deemed to support very limited potential for use. These features comprised shallow, open, exposed cavities in the stonework and an outfall that was high above the (high-tide) water line and inaccessible for otter. Most features would also be inundated a high tide.

There were several locations on the river which contained narrow but dense stands of vegetation comprising a mix of scrub, tall grasses and ruderal vegetation. Such vegetation was potentially suitable for use as couches; although, this vegetation will become much less suitable when dying back over the winter. Most of the river within the survey area is lined by well used pedestrian pathways on both sides which may decrease the likelihood for use of these vegetated areas by otters but will not completely inhibit the potential for use.

All features were subject to a visual inspection using the GoPro camera. The full extent of voids was able to be inspected at close range. Clear aerial views of the vegetation found no signs of mammal pathways, depression in the vegetation or otter slides. No evidence of otter were recorded within or around these features. These features are listed as Target Notes (TN's) in Table 3.1 with the location of each feature shown in Figure 1. Images from the drone footage have also been included to help illustrate the proximity to the high tide mark below the features and footpath above.

**Table 5.1 Descriptions and locations of features recorded during the survey**

Target note no. (Figure 1)	Aspect	Grid Reference	Assessment notes	
TN1	Right bank (Area 1)	SD 52829 28765	Open and exposed cavity in stonework. Feature was located approximately 0.75m above the river at high tide and appears to be periodically inundated at the highest tides.	

<p>TN2</p>	<p>Left bank (Area 2)</p>	<p>SD 52892 28323</p>	<p>Series of six cavities within stonework of wall. All cavities were inundated by water at high-tide.</p>	
<p>TN3</p>	<p>Right Bank (Area 1)</p>	<p>SD 52780 29007</p>	<p>Outfall pipe (approx. 500mm diameter) located within flood defence wall. Feature was located approximately 1.5m above the river at high tide, on a steep wall.</p>	
<p>TN4</p>	<p>Right bank (Area 1)</p>	<p>SD 52851 28659</p>	<p>Area of dense ruderal vegetation between lines of trees.</p>	

<p>TN5</p>	<p>Right bank (Area 1)</p>	<p>Between SD 53262 28230 and SD 53492 28426</p>	<p>Occasional dense stands of ruderal vegetation and tall grasses with occasional small stands of scrub all along bankside of Riverside.</p>	
<p>TN6</p>	<p>Left Bank (Area 2)</p>	<p>SD 53518 28312</p>	<p>Densely vegetated area comprising Himalayan balsam and tall grasses.</p>	

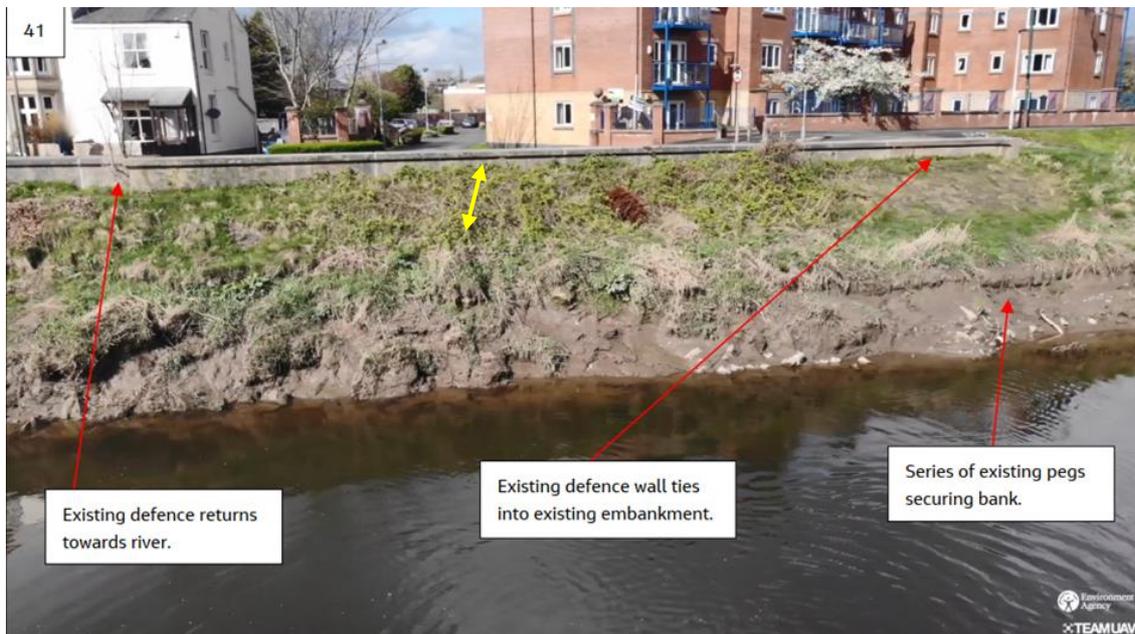
Plate 5.1 - TN1 viewed from drone (highlighted by yellow circle)



Plate 5.2 - TN 4 viewed from drone in winter. Narrow band of scrub between high tide mark and wall.



Plate 5.3 - TN 5 viewed from drone in winter. Narrow band of scrub between high tide mark and wall.



### Field Signs

Two well used spraint sites were recorded during this inspection. These were located on small outfall and on log immediately adjacent to outfall next to the Ribble Viaduct (SD 53557 28329).

Plate 5.4 – Spraint site on log near Ribble Viaduct



## 6. Conclusions

A small number of potential holt features were initially identified from the side of the bank and drone footage. Upon further and closer examination using the GoPro, all features were considered to be of very limited value and no evidence of otter was recorded in or near these features. The features were shallow and exposed and some were inundated at high tide. All features were in close proximity to well-used footpaths, with very limited shelter around the features. This increases the risk of disturbance and significantly reduces the chance that these features would be used by otter. There was no evidence of trackways or depressions in the narrow bands of vegetation. No evidence of otter was recorded in or near these features and on this basis, the absence of otter holts and couches could be reasonably concluded.

The surveys and records confirm that the river is frequently used by otters as a foraging and connective link. Areas further upstream, outside of Preston are less disturbed and provide greater cover for otter resting sites. This also includes areas away from the main river, such as Vernon's Mill pond where recent sightings have been recorded. An otter's home range varies greatly and is generally between 10km to 50km with males tending to have wider home ranges than females (Chanin, 2003). Therefore, it is considered highly likely that otter resting sites will be present within the wider area of the Ribble catchment.

Based on the survey findings, no resting sites are present within Area 1 and 2, however, indirect impacts that may adversely affect otters must be considered. These impacts may include bankside tree loss (and the increased exposure of the river corridor), construction disturbance through increased noise and artificial lighting.

## 7. Recommendations

A precautionary pre-construction survey for otter should be completed six weeks prior to start of proposed works, to ensure availability of up-to-date information and confirm the baseline results.

Otter are largely nocturnal and therefore any construction works at night-time may adversely impact otter movement and foraging success along this stretch of river. To avoid this impact, night time works should be avoided.

Opportunities should be sought to improve riparian cover along the river banks. This should include the fencing of the river banks along with scrub, tree and reedbed planting. The fencing and scrub will help restrict access to the river, reduce disturbance and improve the available cover for otter. This factor should be included as a conservation objective for habitat creation as part of the biodiversity net gain plans for the Scheme.

Opportunities to incorporate artificial otter holts into the bank could also be sought. These features need to be placed within 10m of the river, above the 1:50 year flood level and away for potential public access and including public footpaths. Areas 1 and 2 do not support suitable areas for artificial otter holts, but habitat creation sites and Areas 3, 4 and 5 may present opportunities.

### b) References

Jacobs (2020) *Preston and South Ribble Flood Risk Management Scheme Drone Footage Review - Existing Channel Wall/Bank Condition* (April 2020)

Environment Agency (2020) *Preston and South Ribble FRMS Otter Survey*

Chanin, P. (2003). *Ecology of the European Otter*. Conserving Natura 2000 River Ecology Series No. 10. English Nature, Peterborough

Liles, G. (2003) *Otter Breeding Sites*. Conserving Natura 2000 River Ecology Series No. 5. English Nature, Peterborough

