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Jacobs

Preston and South Ribble FRMS

Verification Survey - Verification Report

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Environment Agency

In partnership with:

Lancashire County Council

North West Regional Flood & Coastal Committee

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Contents

1. Introduction

1.1 Background

Jacobs were instructed by the Environment Agency (EA) to review and revalidate the information contained within the Preliminary Ecological Appraisal (PEA) report submitted to inform the proposed works for Area 1 and Area 2 of the Preston and South Ribble Flood Risk Management Scheme (FRMS).

The PEA was carried out by Mott MacDonald in 2018 (herein referred to as the 2018 PEA (Mott MacDonald, 2019a)). As a consequence of the age of the data and the design changes to the proposed scheme since the completion of the report, an update was considered necessary to validate the existing findings and highlight any significant changes where appropriate. The design now includes in-channel construction works. This update has been completed via desk and site-based surveys between April and July 2020.

1.2 Scope of Assessment

The scope of assessment included within this report comprises the following:

- A review of all the desk study information produced for the PEA report in 2018 including protected and notable species records and statutory and non-statutory site information;
- A site walkover to assess the existing baseline data in terms of habitats and potential for protected and notable species;
- An update of invasive non-native species (INNS) locations; and
- An update of the survey information for badger (*Meles meles*).

In addition to the above, this update also includes ecological information relating to the proposed compound areas not previously covered by the PEA report and a preliminary bat roost potential assessment of the bridges within the scheme.

Recommendations for further survey and/or mitigation not previously covered by the 2018 PEA are made where required.

2. Methodology

2.1 Desk Study

An updated data search was undertaken by Lancashire Environment Record Network (LERN) in July 2020 for protected and notable species records plus statutory and non-statutory designated sites, within a 2km buffer from Area 1 and Area 2.

The desk study information presented within the 2018 PEA was subject to review. Any changes or updates to the existing information is included within this report where required.

2.2 Site Walkover

The site was subject to a walkover on 20th May 2020 by Ryan Knight MCIEEM and Sally Conyers ACIEEM. All habitats were checked against the Phase 1 habitat data contained within the 2018 PEA. The area covered is defined by the Phase 1 habitat plans (Appendix A).

A review of the protected and notable species data from the 2018 PEA was undertaken and updated where required. Where changes or amendments were identified, the habitat data and species appraisal were updated accordingly in this document.

Jacobs were also requested to take account of potential site compound areas during the site walkover which were not included in the scope of assessment for the 2018 PEA.

2.3 Preliminary Bat Roost Assessment – Structures

All bridges on the River Ribble within the scheme area were subject to a preliminary bat roost assessment to build upon outline information and recommendations given within the 2018 PEA. The survey was carried out by Jacobs ecologist alongside the site walkover by Ryan Knight MCIEEM (holding Class Licence Registration No: 2015-12611-CLS-CLS (Level 2)) and Sally Conyers ACIEEM in accordance with good practice guidelines (Collins, 2016).

Each structure was assigned a bat roost potential category (negligible to high) based upon the extent and suitability of potential roost features within each structure (see Table 2.1). Each structure was visually assessed using close focusing binoculars where required. The limitations to the survey are provided in Section 2.2.

Table 2.1 Explanation of bat roost potential (adapted from Collins, 2016)

Bat Roost Potential	Description of Roosting Habitats
High	A structure with one or more potential roost sites that are suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
Low	A structure with one or more potential roost sites that could be used opportunistically by individual bats.
Negligible	Negligible features likely to be used by roosting bats.

2.4 Limitations

The only limitation to the site walkover was the inaccessibility of the strip of woodland located on the south-west banking of the railway viaduct. This woodland was fenced off. Most of this areas area was viewed from the fence line and this was not considered a significant constraint to the survey. Overall, the site walkover to inform the updated PEA encountered no significant limitations to the achieving the aims of the assessment.

Due to the size and locations of the bridge structures over the River Ribble, it was not possible to conduct a close visual inspections of each structure (e.g., the underside of the archways). However, binoculars were used to provide information of potential roost features and gain an overview of the condition of each structure to counter this limitation. A level of precaution has also been adopted when considered the roost potential of each structure.

3. Results

3.1 Updated Desk Study Information

Designated Sites

Since the completion of the 2018 PEA, in-channel works are now proposed, and the scheme area has been revised which has resulted in an increase in the distance between the scheme and the Ribble and Alt Estuaries Special Protection Area (SPA) and Ribble and Alt Estuaries Ramsar from 4.2km to 6.5km. It is still anticipated that no likely significant effect can be concluded given the distance of the works from the SPA / Ramsar and the pollution prevention controls which will be in place. An updated Habitats Regulations Assessment (Stage 1 – Screening) is required, to confirm this conclusion.

Similarly, the in-channel works present potential impacts on the Ribble Estuary Marine Conservation Zone (MCZ). The scheme is located within the migratory route for smelt (*Osmerus eperlanus*). In-channel work will be timed to avoid the smelt migratory period (February to April). No impacts on feeding and spawning habitat is anticipated. An updated MCZ screening assessment is required to confirm this conclusion.

Other than the updated information regarding these designated sites, there are no changes to the information for statutory and non-statutory sites presented within the 2018 PEA.

Protected and Notable Species Data

No new records were received from LERN which were pertinent to this assessment.

3.2 Site Walkover

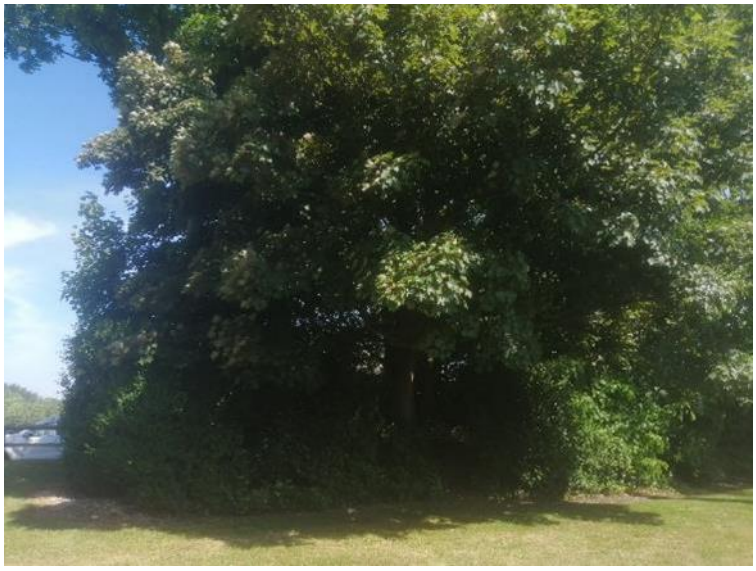
3.2.1 Habitats

Scheme Area

Areas 1 and 2 of the scheme largely comprise habitats typically associated with the urban location along the River Ribble i.e., amenity grasslands, planted trees, treelines (planted and self-seeded), roads, bridges and pedestrianised areas. As such, the habitats within the scheme were largely consistent with the 2018 results with no significant changes noted. Minor changes in the habitat data within the 2018 PEA were recorded as follows:

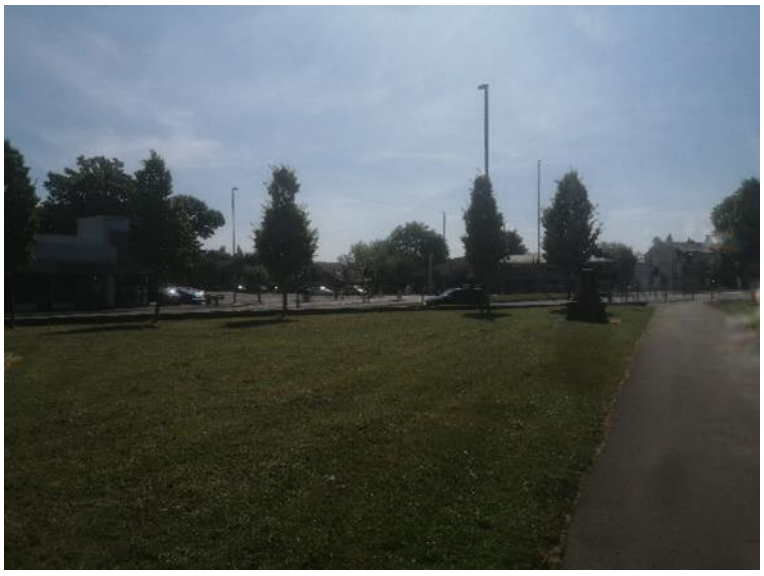
- The area of scattered broad-leaved trees (grid reference SD 52819 28956 and as shown on Page 4 of the 2018 PEA drawing ref. ENV0000009C-MMD-DZ-ZZ-DR-EN-030100) also includes a shrub layer of holly (*Ilex aquifolium)*, cherry laurel (*Prunus laurocerasus*) and garden privet (*Ligustrum ovalifolium*).

Photo 1: Stand of broadleaved trees within a shrub layer of holly, cherry laurel, and privet.



- A line of young planted hornbeam (*Carpinus betulus*) were present within an amenity grassland area adjacent to Strand Road (grid reference SD 52841 28929). These trees were not previously recorded within the 2018 PEA.

Photo 2: Hornbeam tree line adjacent to Strand Road.



Proposed Compound Areas

The site walkover also covered four potential compound areas (Compounds 1 to 4) for Areas 1 and 2. Two of these areas were previously covered within the 2018 PEA habitat data. Table 1 provides an overview of each area.

Table 3.1 Overview of potential compound areas

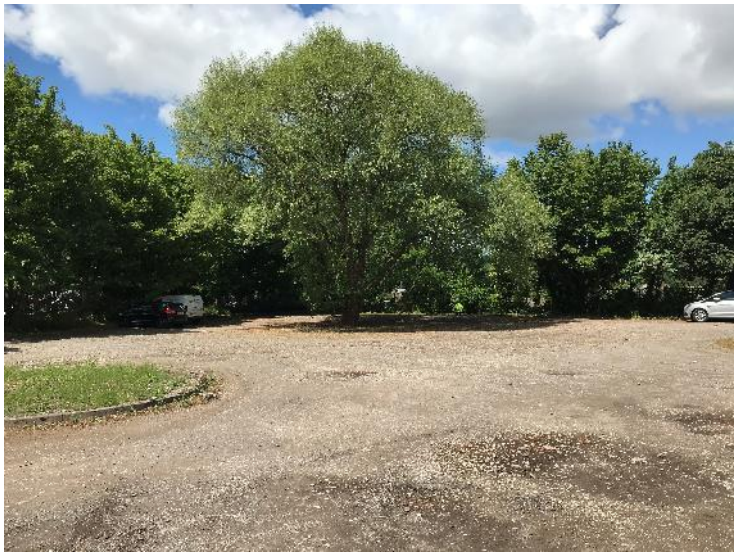
Compound Ref.	Grid Reference	Location	Description

1	SD 52842 28831	Between Broadgate and Penwortham Bridge (Liverpool Rd)	Amenity parkland area previously covered by the 2018 PEA. Area includes amenity grassland, scattered trees, footpaths and treelines (self-seeded trees along the river and also planted trees along Broadgate).
2	SD 52769 28444	Penwortham Holme Car Park	Area not previously covered by the 2018 PEA. Habitats – Hardstanding car park between the River Ribble and Leyland Rd. To the direct north-west is an allotment with a cricket field further beyond. Vegetation on the boundaries of the car park comprises lines of broadleaved trees dominated by sycamore (*Acer pseudoplatanus*) with occasional cherry (*Prunus* sp.), alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*), grey willow (*Salix cinerea*) and apple (*Malus* sp.). In addition, there is a mature red horse chestnut (*Aesculus carnea briotii)* on the northwest boundary and a large crack willow (*Salix fragilis*) located towards the north-west corner of the car park itself. The vegetation within the understory comprised a mix of common native plants and garden escapes. Dense stands of silver variegated dogwood (*Cornus alba* cultivar) covered the north-east margin of the car park. A single hawthorn hedgerow was located on the south (Leyland Rd) boundary. Of note were the several stands of Japanese knotweed (*Reynoutria japonica*) located on the margins of the car park. Protected / notable species – The trees, hedgerow and shrubs surrounding the car park will support a variety of nesting birds. No trees were identified to have any bat roost potential. Aside from nesting bird considerations, the potential for other protected and notable species to be present is very limited due to the location and type of habitats present. Also see Photo 3 below.
2	SD 52769 28444	Penwortham Holme Car Park	Area not previously covered by the 2018 PEA. Habitats – Hardstanding car park between the River Ribble and Leyland Rd. To the direct north-west is an allotment with a cricket field further beyond. Vegetation on the boundaries of the car park comprises lines of broadleaved trees dominated by sycamore (*Acer pseudoplatanus*) with occasional cherry (*Prunus* sp.), alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*),

			grey willow (*Salix cinerea*) and apple (*Malus* sp.). In addition, there is a mature red horse chestnut (*Aesculus carnea briotii)* on the northwest boundary and a large crack willow (*Salix fragilis*) located towards the north-west corner of the car park itself. The vegetation within the understory comprised a mix of common native plants and garden escapes. Dense stands of silver variegated dogwood (*Cornus alba* cultivar) covered the north-east margin of the car park. A single hawthorn hedgerow was located on the south (Leyland Rd) boundary. Of note were the several stands of Japanese knotweed (*Reynoutria japonica*) located on the margins of the car park. Protected / notable species – The trees, hedgerow and shrubs surrounding the car park will support a variety of nesting birds. No trees were identified to have any bat roost potential. Aside from nesting bird considerations, the potential for other protected and notable species to be present is very limited due to the location and type of habitats present. Also see Photo 3 below.
3	SD 53499 28277	Area adjacent to the railway viaduct	Location previously covered by the 2018 PEA. Amenity parkland area on the southern margins of the River Ribble and directly adjacent to the railway viaduct (West Coast Mainline). Area comprises amenity grassland which is fringed by a band of broadleaved tree lines and woodland to the south and the tall herbs and grasses along banks of the river. Several stands of giant hogweed (*Heracleum mantegazzianuman*) and Himalayan balsam (*Impatiens glanduifera*) were noted in the woodland adjacent to this area.
4	SD 53576 28500	Miller Park adjacent to the railway line	Area not previously covered by the 2018 PEA. Habitats - Located on the northern margins of the Ribble, adjacent to the railway viaduct. Comprises a typical mix of parkland habitats including semi-mature to mature scattered trees and treelines, amenity grassland and shrubs. It is understood that the park has very recently (within the last 5-6 yrs) been subject to renovation including tree planting. Protected / notable species – The shrub and trees may be utilised by nesting birds. No trees with bat roost potential were identified. Due to the managed

			nature of the park, the potential for protected and notable species is very limited.

Photo 3: - Proposed compound at Holme car park



3.3 Invasive Non-native Species

Based on the desk and field data from the 2018 PEA, INNS (plants) are prevalent within the scheme and surrounding area. Appendix B also provides an overview of the INNS locations within the scheme. Generally, most INNS were covered within the 2018 PEA with the addition of several hogweed sightings recorded during the site appraisal. Photo 4 below shows the location of giant hogweed on the pipeline bridge embankment (grid reference SD 52949 28102).

The recommendations made within the 2018 PEA remain valid, in which an Invasive Species Management Plan (or similar) was recommended for completion prior to the commencement of any works. It is also recommended that this plan be accompanied by the details of the best practice biosecurity mitigation measures to be employed for the scheme to avoid the accidental spread of INNS.

Photo 4: Giant hogweed along pipeline embankment

3.3.1 Protected and Notable Species

Preliminary Bat Roost Assessment

A total of four bridge structures over the River Ribble were subject to assessment within the scheme. These bridges were assessed as the proposed works will necessitate the tying in of flood mitigation features or construction works immediately adjacent to the bridges. The bat roost potential category for each structure is provided in Table 3.3. A photo and description of each bridge is provided in Appendix C.

Table 3.2. Bat roost potential category of each bridge.

Structure Name	Bat Roost Potential
Penwortham New Bridge	Negligible
Penwortham Old Bridge	Low
Pipeline Bridge	Low
Railway Bridge	High

No potential roost features were noted in Penwortham New Bridge, Penwortham Old Bridge or Pipeline Bridge. A low potential category has been given to both Penwortham Old Bridge and the Pipeline Bridge to account for the age, size, construction type and the limitations to the assessment (Section 2.2).

The railway bridge is of high bat roost potential largely due to the longitudinal joint in the centre of the arches. All potential roost features were located high (>20m) on the underside of the bridge and the parapet. It can be confirmed that no potential roost features were recorded in any sidewalls (including the abutments and spandrels) on any bridge.

Bats – General

A bat tree potential roost assessment was carried out by Mott MacDonald in 2019 (Mott MacDonald, 2019c). In addition to the tree information contained within this report, the site walkover recorded an ash tree located within a stand of trees adjacent to Strand Road at grid reference SD 52824 28952. An ash tree was identified to have a small tear out on the south aspect of the main stem at approx. 3.5m height. This potential roost feature did not appear to be sufficiently recessed for use by bats. This tree was assessed as having low bat roost potential.

Photo 4: Ash with low bat roost potential to the south of the Scout hut

Since the completion of the 2018 PEA, potential tree loss has been highlighted within several areas of the scheme including trees along Broadgate. Bats utilise trees for a variety of reasons. Trees provide protective commuting linkages (i.e., to and from roosts sites and between foraging areas) and support invertebrates which, in turn, provide sustenance for bats. Trees also provide shelter for foraging during suboptimal weather and can 'screen off' artificial light to create darkened corridors for bats (particularly for species with known sensitivity to artificial light sources). In light of the potential tree loss, further survey recommendations are provided in Section 4 to assess the potential impacts to bats.

3.3.2 Protect and Notable Species

Great crested newt

A great crested newt (GCN) survey report was produced to inform the scheme in 2019 (Mott Macdonald, 2019d). The report included a justification for the inclusion or exclusion of waterbodies for GCN survey within a 500m radius of the scheme; a Habitat Suitability Index (HSI) assessment; and presence / absence surveys. Environmental DNA tests and / or traditional survey methods were carried out on three ponds within this survey extent. GCN were found to be absent in all three ponds. In addition, the proposed scheme area has significantly reduced since the completion of the GCN surveys and only one pond (Pond 7 - located within Avenham Park at grid reference SD 53787 28746) is located within 500m of the revised scheme area.

Pond 7 is an isolated pond located in excess of 350m from the scheme. The previous survey in 2019 confirmed GCN to be absent from this pond and this result is still considered to be valid given the isolation of this pond. No further surveys for GCN are currently recommended.

Badger

No evidence of badger was recorded during the site visits, which is consistent with the findings of the 2018 PEA. Given the urban setting and limited extent of suitable habitat, badgers are unlikely to be present within the scheme.

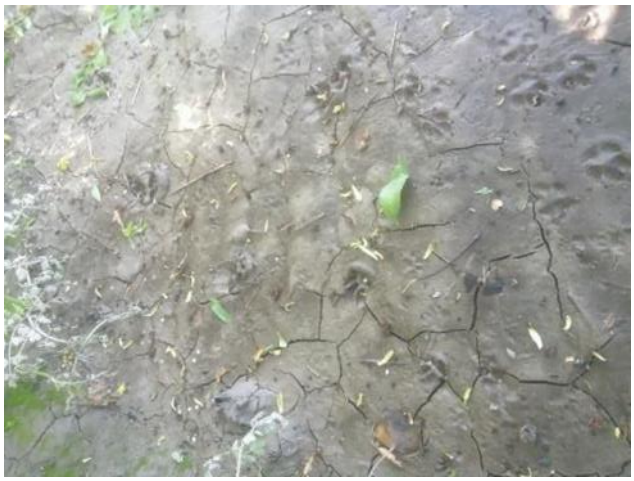
The presence of badger is considered unlikely within the scheme area. The recommendations within the 2018 PEA remain valid in that, a pre-commencement check was recommended prior to the construction works.

Otter

The desk study data from the 2018 PEA included otter records on the River Ribble within the scheme. In addition, the EA have provided two further records of otter from September 2019. These records comprised a sighting during the daytime of two otters immediately below the railway bridge on the River Ribble (grid reference SD5351128385); and a sighting of a single otter at Vernon's Mill pond around 1km south-east of the scheme (gird reference SD5404627200).

Otter prints were also recorded on a mudbank under the railway bridge during the site visit and on a mudbank on the north margins of the river (grid reference SD 52855 28603).

Photo 5: Otter and American mink footprints amongst dog prints on bankside directly underneath railway bridge



Water vole

Water vole (*Arvicola amphibious*) was not included for consideration within the 2018 PEA. This is likely to be due to the tidal fluctuations of the River Ribble within the scheme and the general unsuitability of the banksides due to the existing flood defence works. As such water voles are not considered for further assessment within Areas 1 and 2.

Birds

Birds noted during the site visits included grey wagtail (*Motacilla cinerea*), black headed gull (*Chroicocephalus ridibundus*), mallard (*Anas platyrhynchos*), blue tit (*Cyanistes caeruleus*) and wren *Troglodytes troglodytes*). A goosander (*Mergus merganser*) with two young was also recorded on a mud bank close to the railway viaduct. Grey wagtail are included on the red list of birds of conservation concern (Eaton *et al* 2015) and the River Ribble provides suitable nesting habitat for this species.

The recommendations made within the 2018 PEA remain valid, in that, any vegetation clearance during nesting season (March to August inclusive) should be avoided. A breeding bird check must be undertaken if any vegetation clearance works are proposed within nesting period.

White letter hairstreak

As per the findings of the 2018 PEA, semi-mature elm trees, mostly wych elm (*Ulmus glabra*) were found very occasionally within the line of trees on the margins on the River Ribble along Broadgate and along the treeline towards the railway bridge to the south of the river. However, since the completion of the 2018 PEA, potential tree loss has been identified and this will include elm trees along Broadgate. Elm is the sole food source for white letter hairstreak; therefore, further consideration above that included within the 2018 PEA is required.

Other species

Footprints of American mink (*Neovison vison*) were noted in two locations at grid references SD 52841 28703 and SD 53376 28191. American mink are an invasive non-native species and listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) which makes it illegal to distribute or allow the release of mink into the wild.

Reptiles

The recommendations made within the 2018 PEA remain valid. Mitigation measures should be undertaken to avoid impacts to reptiles through the employment of a suitably qualified ecologist to supervise vegetation removal and to reduce the suitability of the working area via the careful phasing of vegetation removal and the removal of any debris which may be used as refuge by reptiles.

4. Conclusions and Recommendations

Whilst there are several minor alternations or updates in the ecological data collected within the site (e.g., otter footprints, slight habitat revisions, additional low bat roost potential tree etc.), there are no significant changes to the baseline information presented within the 2018 PEA and this is considered to be a robust data set to inform and support the scheme.

However, given the revisions and advancements in the design since the completion of the 2018 PEA, there are some amendments to the further survey and mitigation recommendations provided within the 2018 PEA and these recommendations are provided below.

Aside from the railway bridge, all other bridges were assessed as having negligible or low bat roost potential. The railway bridge was assessed as high bat roost potential. However, no potential roost features were identified within the direct working zone of any bridge and or immediately adjacent. Given the extent of proposed flood defence works, it is highly unlikely that any works would result in an offence against the legislation afforded to bats.

Tree loss within the scheme may adversely affect the distribution of bats within the scheme. Therefore, further survey recommendations are provided in Section 4 so that this potential impact to bats can be fully assessed.

4.1 Statutory Designated Sites

Both the HRA for Ribble and Alt Estuaries SPA / Ramsar and the MCZ screening assessment will need to be submitted as part of the supporting information for the scheme.

4.2 Bats

No further assessment of the bridges are currently recommended.

Bat activity surveys are recommended to gather information relating to the species and level of activity within the scheme so that potential impacts can be fully assessed and addressed through mitigation where required.

4.3 Otter

Otter surveys are recommended to inform the scheme. It is recommended that this survey focuses on potential resting sites (i.e., holts and couches along the banksides). Further recommendations can be made upon receipt of the survey data.

4.4 White Letter Hairstreak

No further surveys recommended. It is advised to include the planting of elm in the biodiversity mitigation package which is to be developed for the scheme in order to compensate for the loss of elm trees and also to provide enhancements for white letter hairstreak.

4.5 Biodiversity Net Gain

The scheme is to include proposals for significant biodiversity net gains which are to take account of the development plans for Areas 1 and 2 and the subsequent Areas 3 to 5.

The scheme area has been mapped using the Phase 1 habitat survey methods. All the Phase 1 habitats classifications are to be converted to UKHabs classifications and subject to a habitat condition assessment to measure and account for biodiversity losses and gains for the scheme using the Biodiversity Metric 2.0.

The temporary compound areas are also required to be mapped and taken account of in the metric calculations once the locations of compound areas can be fully confirmed.

5. References

Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition).* The Bat Conservation Trust, London.

Joint Nature Conservation Committee (2010). *Handbook for Phase I Habitat Survey – a Technique for Environmental Audit*. JNCC, Peterborough.

Mott MacDonald (2019a). Preston and South Ribble FRMS Preliminary Ecological Appraisal, produced on behalf of the Environment Agency ENV0000009C-MMD-DZ-00-RP-EN-0303001-S2-P01-C0300-EA3-LOD3

Mott MacDonald (2019b). Preston and South Ribble FRMS Preliminary Marine Conservation Zone Assessment, produced on behalf of the Environment Agency ENV0000009C – MMD – ZZ -ZZ – TN – EN – 03010036

Mott MacDonald (2019c). Preston and South Ribble FRMS Technical Note: Bat Tree Potential Roost Assessment, produced on behalf of the Environment Agency ENV000009C-MMD-ZZ-ZZ-RP-EN-03010035

Mott MacDonald (2019d). Preston and South Ribble FRMS Great Crested Newt (GCN) Report, produced on behalf of the Environment Agency ENV0000009C-MMD-ZZ-ZZ-TN-EN-03010037

Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds 108, 708–746*