JACOBS

Technical Note

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Date	19th December 2019		
To	Craig Barker	**Cc**	Jude Ward, Joe Leaper, Dave Pearce
From	Amanda Baker/Lewis York/Ben Franklin		
Subject	Leominster Extended Phase 1 Habitat Survey Update		

1. Introduction

Background

Jacobs have been appointed by the Environment Agency to update previous ecological appraisals of the flood risk management scheme along the flood relief channel of the River Lugg in Leominster, Herefordshire (hereafter known as 'the site'). The Leominster Flood Risk Management Scheme will reduce flood risk to over 200 residential properties in The Marsh area of Leominster by raising the level of an existing embankment and constructing a length of floodwall alongside the right bank of the flood relief channel of the River Lugg in the north of the town, between the B4361 in the west and the railway line in the east.

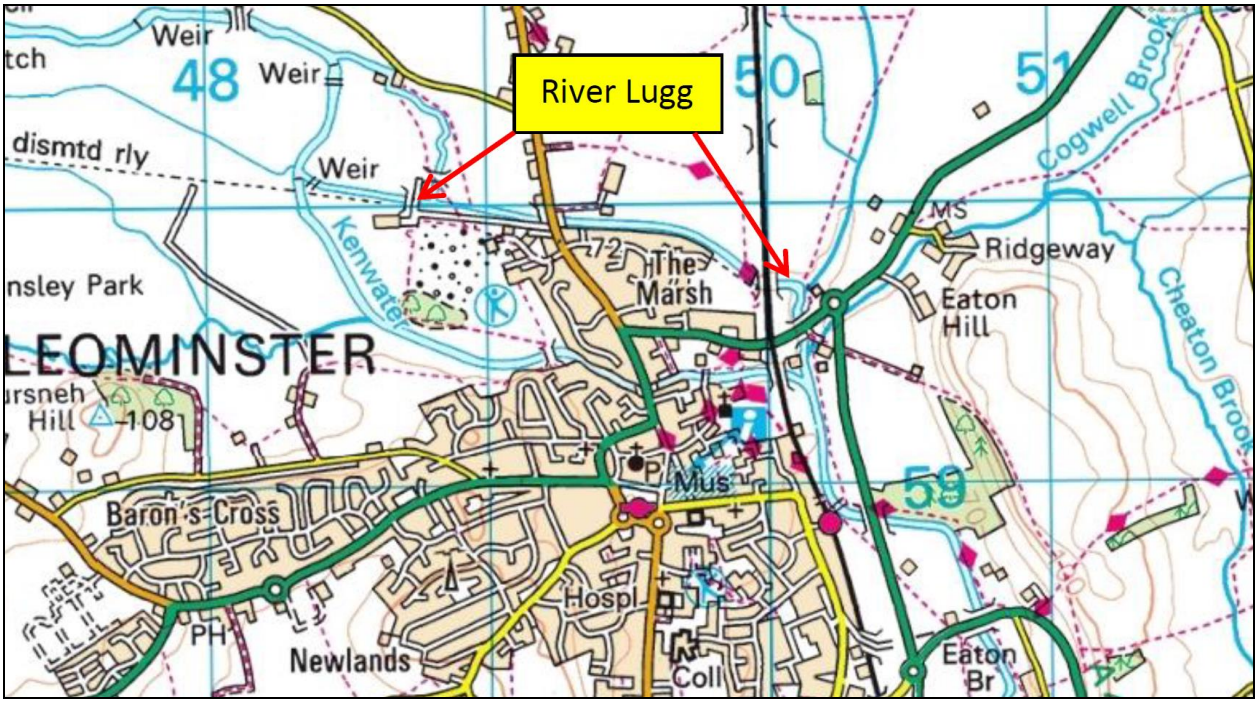

Figure 1:

Existing Documents

The ecology reports listed below have been produced for the site and as such these documents have been consulted for baseline data and referenced where required:

- Extended Phase 1 Habitat Survey (EP1HS) (CH2MHILL, 2015);
- Water Vole and Invasive Species Survey (Team Van Oord, 2017);
- Environmental Technical Note (Royal Haskoning DHV, February 2019);
- Bat Survey Report (Royal Haskoning DHV, 2019);

Aim of the Report

The purpose of the report is to:

- Provide an updated ecological evaluation of the habitats and species present or likely to be present within the site and adjacent areas;

- If required, make a revised assessment of the nature conservation value of the habitats and species present;
- Where appropriate, provide a technical appraisal of potential impacts of the proposed scheme on protected species and the local ecology;
- Identify species constraints that could influence design, programme, construction timing, methods and working areas on site;
- Where possible, identify appropriate mitigation measures to ameliorate and compensate for the likely impacts of the proposed scheme on protected species; and
- Identify what additional surveys are required, if any, to inform the above.

Report Structure

The report is structured as follows:

- Section 1 – *Introduction*. This section introduces the scheme and the context of the survey.
- Section 2 – *Methodology*. This section summarises the methodology used for undertaking the desk study and field surveys. In addition, it describes the basis for the evaluation of ecological features and impact assessment;
- Section 3 – *Legislation, Planning Policy and Biodiversity Action Plan Context*. This section sets out the considerations made while undertaking the ecological assessment and informs the recommendations set out in Section 5;
- Section 4 – *Results*. This section describes the findings and context of the site with respect to the designated sites, habitats and flora and fauna. In addition, it identifies any actual or potential protected/notable habitat or species issues which have been found; and
- Section 5 – *Evaluation and Recommendations*. This section provides an assessment of the nature conservation value of the ecological receptors within or adjacent to the site and makes recommendations for appropriate mitigation if likely to be required and/or further survey to inform the need for and scope of such mitigation.

2. Methodology

Desk Study

A desk study was conducted for an area of 2km radius around the site, extended to 5km for internationally designated sites and 30km for Special Areas of Conservation (SACs) designated for their bat populations. This area was considered to be sufficient to cover the likely zone of influence of the proposed scheme.

The desk study sought records of protected or notable species and the locations and details of any statutory or non-statutory sites designated for their nature conservation value. This exercise is valuable in identifying past records and nature conservation designations. Understanding nature conservation issues within the wider area helps in the assessment of the ecological value of a site and the habitats and species that it supports.

The following data sources were consulted during the desk study:

- the Government's '*Multi-agency Geographic Information for the Countryside*' (MAGIC) website for statutory designations (December, 2019);
- Natural England website for descriptions of statutory designated sites (December, 2019);
- Herefordshire Biological Records Centre (HBRC), for descriptions of non-statutory designated sites (December, 2019); and
- NBN Atlas website for records of protected species within 2km of the scheme (December, 2019).

Where applicable, information supplied by these organisations has been incorporated into the following account with due acknowledgement. Only recent species records (post-2009) have been included within this report.

Field Survey

An extended Phase 1 Habitat survey of the site and adjacent habitats was undertaken by two suitably experienced ecologists from Jacobs on 29th November 2019. The aim of the survey was to update the previous Phase 1 Habitat survey undertaken on the site (CH2MHILL, 2015). This report is intended to be read in conjunction with the previous account and provides an assessment of any changes in the habitats/species present or likely to be so and makes revised recommendations where necessary.

The field survey technique adopted was at a level intermediate between the Joint Nature Conservation Committee standard 'Phase 1' habitat survey and 'Phase 2' more detailed survey (JNCC, 2010). The scope and detail of the surveys undertaken follow the recommendations made by the *Guidelines for Preliminary Ecological Appraisal* (Chartered Institute of Ecology and Environmental Management, 2017). The habitats were classified and mapped, and dominant plant species recorded with nomenclature for plant species following that of Stace (2019). Note was taken of the more conspicuous fauna and any evidence of or potential for the presence of protected, notable or priority species was recorded within and immediately adjacent to the study area.

The weather conditions during the survey were sunny with a light wind and the air temperature measured approximately 7°C.

Evaluation

The evaluation is based on the guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018). The level of value of specific ecological receptors is assigned using a geographic frame of reference, i.e. international value being most important, then national, regional, county, district, local and lastly, within the immediate zone of influence of the proposals only. Value judgements are based on various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include site designations (such as Sites of Special Scientific Interest (SSSI), or for undesignated features, the size, conservation status (locally, nationally or internationally), and the quality of the ecological resource. In terms of the latter, 'quality' can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats) or species populations or assemblages.

Limitations

This report describes the findings of an extended Phase 1 Habitat survey carried out on 29th November 2019. November is a sub-optimal month for botanical assessment, as many species are not visible or are difficult to identify at this time of year. However, some features such as badger setts and potential bat roost features are more visible at this time of year due to lack of foliage. Flora and fauna species are often transient in nature and survey visits can only provide a general indication of species present on site; the possibility exists that other species not recorded during the survey may be present on site. During the survey it was not possible to access several plots of land included within the red line boundary of the scheme (refer to habitat plan).

Due to recent prolonged heavy rain, water levels in the River Lugg flood relief channel were higher than average and consequently, field signs of otter and water vole may have been washed away. Close inspection of areas of dense scrub was not generally possible. In such areas where there was evidence of animal activity, the potential for the scrub to conceal features such as badger setts and other mammal holes has been noted. The recommendations provided within this report take full account of these limitations.

3. Legislative, Planning and Biodiversity Action Plan Context

Legislation

Specific habitats and species receive legal protection in the UK under various pieces of legislation, including:

- The Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2017;
- The Natural Environment and Rural Communities Act 2006 (NERC);
- The Eels (England and Wales) Regulations 2009;
- The Hedgerow Regulations 1997; and
- The Protection of Badgers Act 1992.

Where relevant, the ecological assessment takes account of the legislation protection afforded to specific habitats and species.

Planning Policy

National Planning Policy Framework

An updated version of *The National Planning Policy Framework* (NPPF) (Ministry of Housing, Communities and Local Government, 2019) was published during February 2019 and updates the previous version published in 2018. The document sets out the Government's planning policies for England and provides guidance on how these policies are expected to be applied.
The NPPF includes a chapter on biodiversity, *Chapter 15 – Conserving and Enhancing the Natural Environment*. In addition to being concerned with the protection of statutorily designated sites, the Chapter outlines ways in which the planning system is required to contribute to and enhance the local environment and sets out guidance for local authorities in respect of the consideration of biodiversity and green infrastructure. The NPPF is a material planning consideration.

The NPPF states that:

- To protect and enhance biodiversity and geodiversity, plans should:

  a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

  b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity (Para 174).

- When determining planning applications, local planning authorities should apply the following principles:

  a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts) adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

  b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other

developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity. (Para 175).

- The following should be given the same protection as habitats sites:

  a) potential Special Protection Areas and possible Special Areas of Conservation;

  b) listed or proposed Ramsar sites; and

  c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites (Para 176).

- The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site (Para 177).

Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact Within The Planning System (DEFRA 01/2005, ODPM 06/2005)

The DEFRA Circular 01/2005 states that:

- *UK Biodiversity Action Plan Priority Species and Habitats (Species and Habitats of Principal Importance, Section 41, NERC Act 2006) are capable of being a material consideration in the making of planning decisions.*

Leominster Neighbourhood Development (LND) Plan

The proposed scheme is located within Leominster Council Local Authority area. The LND Plan was adopted by the Council in 2012.

Policies of relevance to the scheme are:

- Policy LA5: Protection of trees, woodlands and hedgerows;
- Policies DR6 Water resources and DR8 Culverting are relevant to safeguarding ponds and watercourses;
- Policy NC1: Relevant to the safeguarding of habitat networks. The protection of species and habitats within a development and also the habitat networks that they depend on is vital to ensure they do not become isolated. When habitats become isolated their ability to recover from extreme events can be impaired. All development proposals should retain the linkages between habitats and, where possible and if appropriate, strengthen them;
- Policy NC2: Development which may affect a European Site, a proposed or candidate European Site or a Ramsar Site will be subject to the most rigorous examination;

- Policy NC6: Development should have regard to those habitats and species listed in the UK and Herefordshire Biodiversity Action Plans in order to protect, manage and enhance priority species and habitats. Proposals that might result in a threat to such priority species or habitats will not be permitted unless the reasons for the development clearly outweigh the need to safeguard the habitat or species;
- Policy NC7: Where development is permitted, the use of conditions and/or planning obligations will be considered in order to provide appropriate mitigation and compensatory measures to avoid, minimise or offset the loss of or damage to any biodiversity feature covered by policies NC2 to NC6;
- Policy NC8 states: The design of new development and the restoration and reclamation of derelict and degraded sites and landscapes, should wherever possible, seek to enhance existing wildlife habitats and provide new habitats for wildlife as opportunities arise; and
- Policy NC9 states: Development proposals which provide for the creation, restoration, enhancement or protection of biodiversity features including those provided as compensation for unavoidable loss in accordance with policy NC7,

Biodiversity

UK Post-2010 Biodiversity Framework

The '*UK Post-2010 Biodiversity Framework*' succeeded the UK Biodiversity Action Plan (UKBAP) in July 2012. The post-2010 framework is underpinned by the biodiversity and environment strategies of the four countries of the UK and sets out their common purpose and shared priorities. The UKBAP list of priority species, however, remains as a reference source and has been used to help draw up statutory lists of priorities.

Biodiversity 2020 Strategy

A strategy for England's wildlife and ecosystem services, published in 2011, is the most recent biodiversity strategy for England, and has as its mission to halt overall biodiversity loss, support healthy well-functioning ecosystems, and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.

Herefordshire Local Biodiversity Action Plan

The Herefordshire Local Biodiversity Action Plan (LBAP) contains 13 Habitat Action Plans (HAPs) for key habitats, of which the following are considered potentially relevant to the site:

- Rivers and Streams.
- Green spaces and corridors

The LBAP lists 17 Species Action Plans (SAPs). Of the SAPs the following are considered potentially relevant to the site:

- Grizzled Skipper;
- White clayed crayfish; and,
- Water Vole.

4. Results

Designated Sites

The desk study has confirmed one statutory designated site within 2km of the study area, the River Lugg SSSI as described in Table 4.1. Five kilometres to the south of the town, the River Lugg is designated as a Special Area of Conservation (SAC) as part of the River Wye SAC.

Table 4.1: Designated Sites (Provided by Magic.gov.uk)

Site Name	Designation	Distance from scheme	Description
River Lugg	SSSI	Within the boundary of the scheme.	This water course and its associated habitat(s) is a statutory designated Site of Special Scientific Interest (SSSI). Despite being canalised in some sections, the River Lugg is a largely unpolluted river and supports river plant communities and species populations of interest. Atlantic stream (white-clawed) crayfish *Austropotamobius pallipes* and otter *Lutra lutra* are listed on Schedule 5 of the Wildlife and Countryside Act 1981 as amended. The River Lugg is one of the few rivers in central England that retained a strong population of otters during the widespread decline of the 1980's. The Lugg, therefore, is considered a core refuge area for otters and has played a key role in the species re-colonisation of the River Wye catchment. The fish (notably Atlantic salmon *Salmo salar*, bullhead *Cottus gobio* and twaite shad *Alosa fallax*) community contributes to the nature conservation value of the river and SSSI, and the Lugg upstream of Leominster is predominantly a brown trout *Salmo trutta* fishery.

Non-Statutory Sites

The following Local Wildlife Sites (LWS) were recognised within 2km of the site by the Herefordshire Biological Records Centre (HBRC) during the initial desk study conducted in 2015. These are listed below:

- **O46/16 Pinsley Brook LWS**. A gravel-bedded, slow-moving stream. The stream supports a rich wetland flora, including yellow iris, greater tussock-sedge, and water avens. The site forms a good habitat for birds and mammals: dipper and otter have been observed;
- **SO55/04 River Lugg LWS**. The upper reaches of the River Lugg are fast-flowing over a rocky/gravely bed and have a well-wooded margin. Nearer its confluence with the River Wye, the Lugg is slower flowing over a silt and gravel bed. An experimental river management scheme has been applied at SO466612. The results are being monitored and will be of significant interest to river managers nationally. Marginal plants include arrowhead, flowering rush and purple-loosestrife. The site forms an excellent habitat for birds, mammals and invertebrates; kingfisher, heron, sand martin, cormorant, otter and crayfish being amongst those species recorded;
- **SO55/17 Land at Eaton Hill LWS**. An area of pasture with anthills on a west facing slope. The ground flora consists of agrimony, pignut and burnet saxifrage.
- **SO55/20 Land at Eaton LWS**. An unimproved pasture situated on west facing slopes supporting a large number of anthills. The ground flora includes quacking grass, agrimony, lady's bedstraw and brunet saxifrage. The uncommon midland hawthorn occurs in the hedgerows

Protected Species (Desk and Field Study)

Amphibians

The desk study revealed a single record of great crested newt within 2km of the works area. Several ponds and wet ditches within 500m of the survey area were identified during the desk study, though all offered unfavourable connectivity to the site (arable land, major barriers e.g. urban development, main roads, fast flowing rivers).

No water bodies were identified within the site during the survey which offered the potential to support great crested newts. However, the terrestrial habitat within the local area including woodland, tall grassland, tall ruderal and scrub which could offer refuge and foraging for amphibians.

Badger

One record of badger was revealed by the desk study. Information on the location of badger setts is confidential, and as such, no more information can be provided at this stage.

No setts or other field signs were encountered within or adjacent to the site during this survey. The original Phase 1 survey conducted in 2015 identified a potential disused badger sett located 200m from the surveyed area, though this was not present at the time of the survey.

Bats

The desk study revealed 12 records of bats within 2km of the survey area, 11 records of Daubenton's bat, and one record of unidentified bat.

There are small pockets of woodland within the study area and along the river corridor that offer foraging habitat to bats, however limited roosting potential for bats. It is understood that all the trees in conflict with the project were felled in spring 2019 and those identified during the survey of 2015, with bat roosting potential, have been retained.

Birds

An abundance of bird records have been provided by the desk study, including red listed species such as startling *Sturnus vulgaris*, fieldfare *Turdus pilaris*, house sparrow *Passer domesticus* and redwing *Turdus iliacus*.

During the survey two schedule 1 species were recorded; Cetti's warbler *Cettia cetti* and fieldfare. Due to the wide diversity of bird species and their equally diverse choice of nesting sites it is possible for birds to also nest on the ground in the fields, along the banks of the river, drains, ditches and along road verges. It should be considered that all of the vegetated habitats within the survey area are suitable for nesting birds, except those fields that are heavily grazed by cattle.

Invasive Species

The walkover survey identified that a small stand of Japanese Rose (*Rosa rugosa*) is situated to the east of the B4361 at NGR: SO 49281 59948 (TN3, Plate 1). Japanese rose is listed under Section 14 on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended 2010) and therefore it is illegal to release or allow this plant species to escape into the wild.

Plate 1: Japanese rose

The Himalayan balsam (*Impatiens glandulifera*) and Japanese knotweed (*Fallopia japonica*) previously reported were not evident during this survey.

Invertebrates

Scrub and grassland mosaics and transition zones in the study area, particularly the banks of the river, have good habitat structure and diverse food plants suitable to support a range of invertebrates. Mature trees also have high potential to support invertebrate assemblages.

Otter

No records of otters were revealed by the desk study.
Although the survey noted that the habitat could provide cover for commuting and foraging otters, there was no evidence to suggest they are currently present within the study area.

Reptiles

No records of reptiles were revealed by the desk study.

During the survey it was noted that the river corridor has the potential to support grass snakes, but all other reptile species are unlikely as the site is unfavourable for a stable population to be maintained. No reptiles were observed during the survey; however potentially suitable habitat for these species was noted throughout the study area, including areas of dense scrub and tall ruderal vegetation in an area locally referred to as The Marshes (Plate 2). A pile of degrading grass cuttings was also noted along the fence line of adjacent gardens (TN2); this has the potential to provide grass snakes with an egg laying opportunity.

Plate 2: Rough grassland with potential to support reptile; The Marshes.

Water Vole

No records of water voles were provided by the desk study.

No burrows or other field signs of water vole were found during the survey. Previous surveys have identified the presence of suitable water vole habitat, however also mention that mink have been known in the area which out-compete water vole. It should be noted that at the time of the survey the river level was high due to recent prolonged rain and consequently burrows could have been obscured by the high-water level and field signs could have been washed away.

White-clawed Crayfish

No records of white-clawed crayfish *Austropotamobius pallipes* were revealed by the desk study.

Previous surveys have highlighted anecdotal evidence for the presence of white-clawed crayfish within the River Lugg. However, the section of river located within the survey area was deemed unsuitable due to its consistent fast flowing nature, and lack of vegetation debris.

Other Notable Species

Eight records of hedgehog *Erinaceus europaeus* have been revealed by the desk study.
The diverse mosaic of habitats within the survey area have the potential to support a population of hedgehogs. Arable land to the north of the site could potentially support brown hare, though it is unlikely that they will be affected by the scope of the proposed works.

Habitat Descriptions

Arable

Arable land was located on the northern banks of the River Lugg and dominates much of the land north of the scheme (Plate 3). Arable land parcels offers some value to local biodiversity as they provide foraging and nesting habitat for some bird species.

Plate 3: Arable fields north of the River Lugg

Amenity Grassland

An area of amenity grassland was located near the eastern extent of the survey area, consisting of a fenced area with playground equipment. Species present include; ribwort plantain *Plantago lanceolata*, daisy *Bellis perennis* and clover *Trifolium repens*.

Semi-improved Grassland

Semi-improved grassland dominates the area affected by the proposed works. Located between the southern bank of the river and the fencing for the Middlemarsh housing estate, the area is mostly used as a public footpath, consisting of common grassland species including cocks-foot *Dactylis glomerata*, false-oat grass *Arrhenatherum elatius*, dandelion *Taraxacum officinale*, clover *Trifolium repens*, ribwort plantain *Plantago lanceolata* and daisy *Bellis perennis*. It is likely that this grassland is subject to periodic flooding.

Improved Grassland

An area of improved grassland was located between the River Lugg and the railway located to the east of the site. This area was unavailable for survey but was visible from the far banks of the river. This grassland would most likely be subject to annual flooding and would produce suitable habitat for a number of invertebrates and wading bird.

Tall Ruderal

Areas of tall ruderal vegetation were present along the banks of the River Lugg, close to the western extent of the survey. Species included hemlock *Conium maculatum*, common nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius*, wood avens *Geum urbanum* and bind weed *Convolvulus arvensis*. Patches of bramble *Rubus fruticosus* agg. were beginning to encroach from the footpath. A similar area of tall ruderal was noted adjacent to the west of the railroad

tracks, displaying similar species with the edition of rosebay willowherb *Chamaenerion angustifolium* and teasel *Dipsacus fullonum*.

Dense Scrub

Patches of dense scrub were present in several areas along the River Lugg and the surrounding area. Scrub mostly consisted of bramble, with small patches of nettle and willow herb. Self-seeded ash *Fraxinus excelsior* and crack willow *Salix fragilis* saplings where present within the scrub along the railway embankment. Many common garden bird species were noted to be using the scrub for foraging and shelter.

Scattered Broad-leaved Trees

Scattered broadleaved trees were located along the western railway embankment to the east of the survey area, as well as within the plot of amenity grassland to the west. Species include ash, crack willow, goat willow *Salix caprea*, hazel *Corylus avellana*, apple *Malus* sp., cherry *Prunus avium*, poplar *Populus* sp. and whitebeam *Sorbus* sp. Trees ranged from young saplings to mature specimens, though all were deemed to have negligible potential for roosting bats.

Scattered Coniferous Trees

Scattered coniferous trees were found in several plots across the survey area. Lines of mature cypress *Cupressus* sp. lined the farmers track at the very eastern edge of the site. Two small groups of scots pine *Pinus sylvestris* were present along the banks of the Lugg. Three trees were located within the centre of the amenity grassland, while a dozen trees were located near the rear of residential properties. These had been retained from previous vegetation removal works. All trees were mature, with negatable potential for roosting bats.

Broad-leaved plantation

Adjacent to the farmers track, was a small triangle plot of land, populated with broadleaved plantation. Tree species included ash, hazel, silver birch *Betula pendula*, alder *Alnus glutinosa* and oak. The woodland was dominated by leaf litter with large patches of ivy *Hedera helix* visible.

Mixed Plantation

A small strip of mixed plantation was visible along the northern banks of the River Lugg. The plantation was used as a barrier between Portley Farm yard and the river. Species included cypress, poplar, *Pyracantha* sp., ash and hazel. Bramble dominated the undergrowth and was beginning to encroach on some of the younger trees.

Species poor Hedge (Intact)

A species poor hedge provided a boundary between Portley farm and the River Lugg, connecting the farm yard to the B4361. The hedge was dominated by hazel, with small patches of bind weed. The hedgerow itself was mostly intact, though some gaps revealed a wire mesh fencing following the path of the hedge.

Hedge with trees

Hedgerow with trees was identified along the western bank of the River Lugg, at the far east of the survey area. Trees consisted of alder, silver birch and ash, oak and willow while the hedgerow consisted of hazel, common snowberry *Symphoricarpos albus* and bramble. The hedgerow itself was left unmanaged and was beginning to become dominated by bramble.

Running Water

Running water was a dominate habitat within the survey area, as the River Lugg flood relief channel flowed through the entire site. At the time of the survey, the river was resting at 0.7m higher than average, and some of the bank had been submerged.

Fence

Palisade fencing, approximately 2.4m in height was located either side of the public footpath near the railway embankment to the east of the site. Much of the surveyed area was delineated by wooden panel fencing, creating the boundary between the riverside footpath and the residential properties to the south. Ornamental shrubs (Target noted along the fence line) and Japanese rose, were noted to be growing on the fence. These areas provided some suitability for nesting and foraging birds.

5. Evaluation and Recommendations

The updated phase 1 survey has shown that the baseline identified within the original survey has been subjected to minimal changes, and as such, the evaluations and recommendations regarding designated sites, habitats and protected species made within this report should be adhered to.

In addition, an area of land to the south of the survey area, known as The Marshes, has now been identified as a suitable location to establish a site compound for the duration of the works. This habitat has the potential to support a population of reptiles, and as such the following recommendations are made:

- Removal of any vegetation should be completed by through a directional staged cut using hand tools (e.g. strimmers) under the supervision of a suitability experienced ecologist. Vegetation removal should ideally be undertaken during the reptile active season (March-September).
- Vegetation should be kept at an 'unfavourable height' as to encourage reptiles to move away from the site compound.
- A buffer zone should be instated, retaining a significant proportion of the vegetation around the margins of the compound.

The existing habitats within the vicinity of the proposed scheme may provide habitat opportunities for hedgehog included on Section 41 NERC Act 2006. It is therefore recommended that:

- The potential presence of these species is considered during construction and reasonable care is taken during any removal of vegetation;
- Any animals found during the works removal should be relocated to a safe, secure area of suitable retained habitat in the vicinity.

If the Japanese Rose is to be affected by the work, then a suitable method of management should be prepared by a suitably qualified ecologist to detail the control and removal of Japanese Rose from the site.

General Recommendations

Below are a number of general recommendations to avoid and/or minimise impacts:

- Standard good practice for prevention of pollution will be incorporated into site specific guidance notes provided to the site agent. These will form part of the site Environmental Action Plan (EAP) which will detail specific measures to avoid degradation of natural habitats and the environment.
- All vehicles to carry spill kits and all staff to be trained in how to use emergency response equipment;
- The areas which will be disturbed will be kept to a minimum and should be clearly defined prior to commencement of works. This could necessitate the erection of temporary fencing to demarcate works boundaries and sensitive areas;
- If vehicles must be temporarily parked on site, they must be kept within the site construction area to minimise disturbance to the surrounding area;
- Materials will not be stored or works compounds sited within areas of ecological interest to keep the spatial footprint of the impact upon these features to a minimum;
- The EAP will include plans for robust protective fencing, e.g. Heras fencing, with warning signs to keep construction activities out of sensitive areas; and

- The Ecological Clerk of Works (ECoW), now appointed, will undertake pre-construction checks, to ensure that no animals are harmed during construction. The ECoW will advise where features of ecological interest can be retained and protected during construction. The ECoW will also provide toolbox talks to site operatives.

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