

SITE NAME:

**Strategic Exe Weirs
-
Bridgetown Weir, Somerset
&
Bickleigh Bridge Weir, Devon**

TITLE:

Preliminary Ecological Appraisal Report

FOR:

Westcountry Rivers Trust

April 2020

Draft



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Draft

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Summary

A preliminary ecological appraisal and biological desk study was undertaken of Bridgetown Weir in Somerset and Bickleigh Bridge Weir in Devon, both located on the River Exe. Proposals for each weir included the construction of a fish pass, with associated, small scale engineering works.

Located in a rural setting, Bridgetown Weir was approximately 560 square metres (sqm) and lay within a rural location approximately 500 m north of Bridgetown, Somerset. Adjacent riparian habitats included broad-leaved woodland, dense scrub, scattered trees, semi-improved and improved grasslands, and bare ground (gravel deposit). The wider landscape comprised a mosaic of pastoral and arable fields as well as woodlands and villages, connected by mature hedgerows, tree lines and small lanes. The town of Minehead was located approximately 13 km north-east of the weir.

Located in a rural setting, Bickleigh Bridge Weir was approximately 620 square metres (sqm), and also lay within a rural location to the north-west of Bickleigh. Adjacent riparian habitats included broad-leaved woodland, scattered trees, inundation vegetation, amenity grassland, and bare ground (gravel deposit). The wider landscape comprised a mosaic of pastoral and arable fields, woodlands, as well as residential and commercial properties, connected by mature hedgerows, tree lines and small lanes. The town of Tiverton was located approximately 5.5 km north-east of the weir.

At the time of the survey, no evidence of terrestrial protected species was noted within the zones of impact at both weirs, however, potential for protected species was identified and suitable recommendations were provided along with ecological protection measures.

1.0 Introduction

- 1.1 Colmer Ecology was commissioned by Westcountry Rivers Trust to undertake a preliminary ecological appraisal (PEA) of Bridgetown Weir in Somerset as well as Bickleigh Bridge Weir in Devon, hereinafter referred to as the Sites. The PEA comprised reviewing biological data obtained from the Somerset Environmental Records Centre (SERC) and the Devon Biodiversity Record Centre (DBRC), with a phase 1 habitat survey and a protected species habitat assessment.
- 1.2 It is understood that proposals for the Sites include the construction of a fish pass at each weir, with associated, small scale engineering works.

Site Description

- 1.3 Bridgetown Weir was approximately 560 square metres (sqm) and lay within a rural location approximately 500 m north of Bridgetown at National Grid Reference (NGR) SS 92323 33765. The Site consisted of a small weir on the River Exe with associated riparian habitats including broad-leaved woodland, dense scrub, scattered trees, semi-improved and improved grasslands, and bare ground (gravel deposit). The wider landscape comprised a mosaic of pastoral and arable fields as well as woodlands and villages, connected by mature hedgerows, tree lines and small lanes. The town of Minehead was located approximately 13 km north-east of the Site.
- 1.4 Bickleigh Bridge Weir was approximately 620 square metres (sqm) and lay within a rural location to the north-west of Bickleigh at National Grid Reference (NGR) SS 93724 07553. The Site consisted of a small weir on the River Exe with associated riparian habitats including broad-leaved woodland, scattered trees, inundation vegetation, amenity grassland, and bare ground (gravel deposit). The wider landscape comprised a mosaic of pastoral and arable fields as well as woodlands and residential and commercial properties, connected by mature hedgerows, tree lines and small lanes. The town of Tiverton was located approximately 5.5 km north-east of the Site.

Scope of Surveys

- 1.5 The objectives were to:
- Carry out biological desk studies within 1 km of each Site;
 - Carry out phase 1 habitat surveys and map all habitat types within each Site and, where possible, described those immediately adjacent;
 - Carry out a protected species habitat assessments of each Site; and
 - Establish the need for further surveys and provide recommendations for ecological enhancements/mitigation for each Site, where necessary.

Caveat

- 1.6 It should be noted that a PEA does not aim to identify all botanical species within a site, or constitute a full contaminated land/invasive species assessment. It should also be noted that protected species can be highly mobile and be found in/around structures or habitats at any time of year. Although Colmer Ecology is confident in the survey results, we cannot ensure that protected species will/will not be present on Site at any other time. Descriptions of Site conditions and photographs are based on the PEA survey undertaken in March 2020.

Nomenclature

- 1.7 For ease, common names were used throughout this report, however, where no common name existed or it was not possible to identify to species level, genus/family names were used. Details of indicative Latin names were provided in Appendix 1.

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2.0 Methodology

2.1 Biological Desk Study

2.1.1 Following guidance produced by the Chartered Institute of Ecology and Environmental Management (CIEEM), records of statutory and non-statutory designated habitats and protected or noteworthy species were obtained from SERC and DBRC within a 1 km desk study area based on the central grid reference SS 92323 33765 and SS 93724 07553 respectively. In addition, 'Priority Habitat Inventory' areas, ancient woodland and granted European protected species licence (EPSL) applications were sought from the government-based website MagicMap. Furthermore, Colmer Ecology's own biological records and knowledge of local ecological designations were also reviewed.

2.2 Phase 1 Habitat Survey

2.2.1 The Sites were subject to a PEA on 23rd March 2020 by Mr H. Colmer BSc (Hons) Dip MCIEEM¹ FLS², a Natural England licensed ecologist³. Each habitat present within and surrounding each Site was mapped in accordance with the, '*Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*' (Joint Nature Conservation Committee, 2010 [Revised in 2016 with minor corrections]). Habitats and features of interest were described, with botanical species recorded. In addition, a colour coded habitat map of each Site (Figures 1 and 2) and annotated photographs (Figures 3 and 4) were produced. Non-native invasive species were also identified (where possible) and mapped where appropriate.

2.3 Survey Constraints and Best Practice

2.3.1 The PEA was undertaken at a suitable time of year and under good weather conditions with methodology proposed following industry standards and recommended guidelines. Due to the time of the year, some botanical species may have been under recorded, although based on the location of the Site, this was not thought to have been a significant constraint.

2.3.2 The PEA survey was carried out after a prolonged period of dry weather, with water conditions also remaining stable. This period of stable water conditions was essential to increase the chances of detecting riparian mammal signs that would otherwise have been washed away if surveying was carried out after flooding.

¹ Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM)

² Fellow of the Linnaean Society of London (FLS)

³ Mr H. Colmer: Great crested newt licence. Barn owl licence. Dormouse licence. Accredited agent under bat licence.

3.0 Results

3.1 Biological Desk Study

Bridgetown Weir

Statutory Designated Sites

- 3.1.1 According to data provided by SERC, the River Exe was a Local Wildlife Site (LWS). In addition, based on MagicMap, Bridgetown Weir was within the impact risk zones of several Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SAC) including South Exmoor SSSI, Barle Valley SSSI, Exmoor Heaths SAC and Exmoor and Quantock Oakwoods SAC. These Sites were designated primarily for their habitats and/or geology as well as associated flora and fauna. The Site was also located within Exmoor National Park.

Other Designated Sites/Information

- 3.1.2 According to SERC, several LWS were noted within the desk study area namely Parsonage Wood, Rabbit Wood, Week Wood (the closest to the Site and approximately 90 m west at its closest), Bridgetown Wood, Edbrooke Wood, and Blind Cleeve Wood. In addition, Bridgetown Cutting Local Geological Site (LGS), Edbrooke Road Cutting LGS and Widlake Road Cutting LGS were also present. Based on MagicMap, no non-statutory or other ecologically designated sites were located within the desk study area. Several habitats on the Priority Habitat Inventory were noted within the desk study area on MagicMap, including good quality semi-improved grassland (non priority) and deciduous woodland (the closest located approximately 90 m west of the Site).
- 3.1.3 The Site was not within any great crested newt, greater horseshoe or cirl bunting consultation zones.

Ancient Woodland

- 3.1.4 Several ancient woodlands were noted within the desk study area including Bridgetown Wood, ancient and semi-natural woodland and ancient replanted woodland, Broford Wood Ancient replanted woodland, Parsonage/Widlake Woods ancient and semi-natural woodland and Week/Edbrooke Woods ancient and semi-natural woodland and ancient replanted woodland (the closest to Site, located 90 m west as its nearest).

European Protected Species Licence Applications

- 3.1.5 When reviewing the most recent (2019) Natural England licence update on MagicMap, no EPSL applications were noted within the desk study area. The closest licence was noted 2.5 km south-east for brown long-eared and Natterer's (in 2014, valid until 2024). MagicMap also provided information on ponds surveyed for great crested newt between 2017 and 2019, with no ponds surveyed in the vicinity of the Site.

Protected/Noteworthy Species Data

- 3.1.6 In total, 392 records for 115 species/families of protected or notable fauna and flora were provided by SERC at low resolution (1 km or lesser precision) within the desk study area. Records spanned a date range from 1961 to 2016. In addition, 333 records for 55 species/families of protected or notable fauna and flora were also provided at high resolution (100 m or greater precision), from 1970 to 2018.
- 3.1.7 Amphibians: A single common toad recorded was provided from 1993, although at low resolution (1 km or lesser precision).
- 3.1.8 Bats: A total of four records between 1986 and 2016 were provided for one confirmed species and one family. None of the bat records were from within or in close proximity to the Site boundary. These records included:
- Common pipistrelle (1); and
 - Vespertilionidae (3).
- 3.1.9 Birds: In total, 174 records for 47 species of birds were received between 1973 and 2016 at low resolution (1 km or lesser precision). In addition, 87 records for 26 species of birds were received between 1970 and 2015 at high resolution (100 m or greater precision). Of these, one species (green sandpiper) was listed on Schedule 1 of the Wildlife or Countryside Act (as amended) 1981. There were also 21 records of six species of Red status Birds of Conservation Concern 4 (Eaton *et al.*, 2015) and 25 records of seven species of Amber status. Of the 87 high resolution records, 10 were listed as UK Biodiversity Action Plan (BAP) with 14 recorded as Local BAP (LBAP). Of the 87 records in high resolution, one record of grey wagtail was noted within a location square immediately over the Site, with an additional two species (buzzard and heron) in close proximity.
- 3.1.10 Bony fish: In total, two records for two species of bony fish (Atlantic salmon and brown/sea trout) were received in 1988 at low resolution (1 km or lesser precision) only.
- 3.1.11 Flowering plants/botanical records: In total, 108 records for 58 species of botanical species were received between 1969 and 2012 at low resolution (1 km or less precision). In addition, 41 records for 21 species of botanical species were received between 1979 and 2003 at high resolution (100 m or greater precision). None of the records were located within or in close proximity to the Site boundary. Of these records, four (all lichens) were red listed, with five records listed under Schedule 8 of the Wildlife or Countryside Act (as amended) 1981 (bluebell and lungwort), three records of UKBAP (lichens) and four listed as LBAP (lichens).

3.1.12 Invertebrates: In total, five records for two species of invertebrate species were received between 1987 and 2010 at low resolution (1 km or lesser precision). In addition, three records for three species of invertebrate species were received between 1982 and 1990 at high resolution (100 m or greater precision), none within or in close proximity to the Site. Of these, only the English chrysalis snail was recorded as a LBAP. No records of crayfish (Atlantic/white-clawed) or freshwater pearl mussel were provided.

3.1.13 Reptiles: No records of reptiles were provided by SERC.

3.1.14 Terrestrial mammals (excluding bats): In total, 13 records for four species of terrestrial mammals species were received between 1961 and 2001 at low resolution (1 km or lesser precision). In addition, 198 records for three species of terrestrial mammals were received between 1975 and 2018 at high resolution (100 m or greater precision). Of these 196 were for otters, with single records of badger and hedgehog. The majority of the otter records were noted within the Site or in close proximity on the River Exe.

Bickleigh Bridge Weir

Statutory Designated Sites

3.1.15 According to DBRC and data held on MagicMap, Bickleigh Bridge Weir was not within any designated site boundary or within any associated impact risk zones.

Other Designated Sites/Information

3.1.16 According to DBRC, several County Wildlife Sites (CWS) were noted within the desk study area namely Cleave Copse and Polecleaves Wood. In addition, several Unconfirmed Wildlife Sites (UWS) were also present including Box Wood, Yearlstone Woodland, Hatchet Close Plantation, Bickleigh Castle Plantation and Parkland, Cat's Hill Field Grassland, Tiverton to Bickleigh Marsh (closest to Site located 130 m east) and Lower Ball Orchard. Based on MagicMap, several habitats on the Priority Habitat Inventory were noted within the desk study area on MagicMap, including coastal and floodplain grazing marsh (the closest located approximately 125 m south of the Site), traditional orchards, deciduous woodland (the closest located approximately 160 m east of the Site) and '*no main habitat but additional habitat exists*'.

3.1.17 The Site was not within any great crested newt, greater horseshoe or cirl bunting consultation zones.

Ancient Woodland

3.1.18 Several ancient woodlands were noted within the desk study area including Box Wood ancient replanted woodland, Millhayes Wood ancient and semi-natural woodland,

Polecleave Wood ancient and semi-natural woodland and Dart Bridge Wood ancient and semi-natural woodland (the closest to Site, located 300 m west as its nearest).

European Protected Species Licence Applications

3.1.19 When reviewing the most recent (2019) Natural England licence update on MagicMap, no EPSL applications were noted within the desk study area. The closest licence was noted 1.6 km south for common pipistrelle, soprano pipistrelle, lesser horseshoe, greater horseshoe, brown long-eared and Natterer's (in 2010, valid until 2012). MagicMap also provided information on ponds surveyed between 2017 and 2019, with no ponds surveyed in the vicinity of the Site.

Protected/Noteworthy Species Data

3.1.20 In total, 37 records for 19 species/families of protected or notable fauna and flora were provided by DBRC within the desk study area. Records spanned a date range from 1914 to 2015.

3.1.21 Amphibians: No records of amphibians were provided by DBRC.

3.1.22 Bats: A total of six records between 1990 and 2005 were provided for one confirmed species, one genus and 'a bat'. None of the bat records were from within or in close proximity to the Site boundary. The closest record was for 'a bat' approximately 130 m east of the Site. These records included:

- Common pipistrelle (1);
- Long-eared (1); and
- A bat (4).

3.1.23 Birds: In total, three records for three species of birds (swift, little owl and barn swallow) were received between 1994 and 2014. Of these, only swift was listed as Amber status (Eaton *et al.*, 2015). None of the records were located within the Site boundary, although the swift record was 30 m north at Bickleigh Bridge, with the little owl 164 m north-east of the Site.

3.1.24 Flowering plants/botanical records: Although none were located within or in close proximity to the Site boundary, a total of 11 records for six botanical species between 1981 and 2014 were provided within the desk study area. Of these records, seven were for Japanese knotweed and Indian balsam, both listed on Schedule 9 of the Wildlife or Countryside Act (as amended) 1981. In addition, single records each of alternate-leaved golden saxifrage, a Devon Notable 1 (DN1), primrose, a Devon BAP (DBAP) and goldilocks

buttercup, a DN2, were also noted within the desk study area. The closest record was that of Japanese knotweed noted under the bridge immediately north of the Site.

3.1.25 Invertebrates: Records of two invertebrates of two species from 1914 to 2011 were provided, with brown hairstreak listed on Schedule 5 of the Wildlife or Countryside Act (as amended) 1981, under Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act (NERC Act [2006]) as well as being UKBAP species. None of these records were within or in close proximity to the Site boundary. No records of crayfish (Atlantic/white-clawed) or freshwater pearl mussel were provided.

3.1.26 Reptiles: No records of reptiles were provided by DBRC.

3.1.27 Terrestrial mammals (excluding bats): In total, 15 records of five species of terrestrial mammal between 1999 and 2015 were provided by DBRC, including seven records of otters, four for badgers, two of stoats, and single records each of hedgehog and weasel. None of these records were within the Site boundary although two records of otters were noted at Bickleigh Bridge, immediately north of the Site.

3.2 Phase 1 Habitat Survey

3.2.1 The habitats present within and immediately adjacent to each Site were identified and described below. Colour coded habitat plans for each Site (Figures 1 and 2) with associated target notes (TN) and annotated photographs of habitats (Figures 3 and 4) were also provided.

Bridgetown Weir

3.2.2 Broad-leaved woodland: Although not within the Site and with no access, an area of broad-leaved woodland was noted immediately to the north/north-west. Species present included alder, ash, *Salix* species, hazel, ivy, hemlock, hart's-tongue fern, bracken, pendulum sedge, holly, bramble and daffodils with liverworts in the splash zone (TN1).

3.2.3 Dense scrub: Although not within the Site, to the north-west and along the true right bank of the River Exe, was an area of dense scrub dominated by bramble with scattered alder. No access to the bank was possible from the river, due to the thickness of the scrub (TN2).

3.2.4 Scattered broad-leaved trees: Several areas of scattered broad-leaved trees were noted adjacent to the Site along the true right bank comprising alder, ash, sycamore and *Salix* species (TN3). An under-storey was also noted, containing bramble, hemlock and wild garlic, with dense bramble scrub areas with pendulum sedge, ivy, herb-robert, buttercup, dog's mercury, lesser celandine, cleavers, male fern, hart's-tongue-fern, perennial rye-

grass and common nettle with bryophyte and liverworts in the splash zone. A second area of scattered broad-leaved trees was noted on the true left bank with no access (TN4). Species present at TN4 included alder and *Salix* species, with an under-storey of bramble, holly, ivy, hemlock and pendulum sedge. Finally, a small island of trees was noted within the water channel at TN5 comprising sycamore and alder. An under-storey dominated by pendulum sedge was also present with other species including ivy, wood anemone, hemlock, foxglove and rare occurrences of holly and bramble.

- 3.2.5 Semi-improved species poor grassland: Immediately downstream of the weir on the true left bank was a fringe of semi-improved species poor grassland with scattered broad-leaved trees (TN6). Species included perennial rye-grass, creeping bent, daisy, dock species, buttercup, common nettle, pendulum sedge, bryophytes and rare occurrences of daffodils. A mud bank section also contained bracken, wild garlic, hemlock, ivy, dock species, pendulum sedge, celandine, red campion, meadow sweet, foxglove, soft rush, thistle species and rare occurrences of honeysuckle and golden-saxifrage (opposite-leaved).
- 3.2.6 Improved grassland: Although not within the Site, an area of improved/semi-improved grassland was noted beyond the true right bank of the river with species comprising annual meadow-grass, perennial rye-grass, cock's-foot, ribwort plantain, dock species, dandelion, buttercup and common sorrel (TN7).
- 3.2.7 Running water: The dominant habitat within the Site was the River Exe.
- 3.2.8 Fence: Fences were present, largely of post and wire/rail, and affording no ecological interest.
- 3.2.9 Wall: Immediately adjacent to the weir on the true right bank was a low-lying stonewall around an existing fish ladder. A second high wall of very tight stone construction was noted along the true left bank, acting as reinforcement for the A369.
- 3.2.10 Bare ground: A small area of gravel deposit/bare ground was noted immediately downstream of the weir, centrally within the water channel.
- 3.2.11 Other habitat: The weir was noted centrally within the Site, which was accessed from the true right bank. Approximately 95 % of the weir was covered in water, although with dry areas near the existing fish ladder.

Bickleigh Bridge Weir

- 3.2.12 Broad-leaved woodland: Immediately adjacent to the Site on the true left bank of the River Exe was an area of broad-leaved woodland (TN1). Species present included alder, ash, hazel, elder, sycamore, ivy, hemlock, hart's-tongue fern, bracken, pendulum sedge, bramble, dog violet, dog's mercury, cleavers, common primrose, herb-robert, red campion dock species, stitchwort, common nettle, lords-and-ladies, honeysuckle, dandelion, wild raspberry, with grasses including perennial rye-grass and cock's-foot.
- 3.2.13 Scattered broad-leaved trees: Scattered broad-leaved trees were noted adjacent to the Site along the true right bank and also the true left and right banks above the weir (TN2).
- 3.2.14 Inundation vegetation: Immediately downstream of the weir on the true right bank was a small areas of inundation vegetation and gravel deposit, with botanical species comprising hemlock and *Glyceria* species (TN3).
- 3.2.15 Running water: The dominant habitat within the Site was the River Exe (TN4).
- 3.2.16 Amenity grassland: Although not within the Site, an area of amenity grassland was noted beyond the true right bank of the River Exe with species comprising annual meadow-grass, perennial rye-grass, ribwort plantain, dandelion, buttercup and rare occurrences of daffodils (TN5).
- 3.2.17 Fence: Post and rail fences were recorded, affording no ecological interest.
- 3.2.18 Wall: Immediately adjacent to the weir on the true right bank was a low-lying stonewall with a wall running along Bickleigh Bridge also noted.
- 3.2.19 Bare ground: A small area of gravel deposit/bare ground was noted immediately downstream of the weir, on the true left bank.
- 3.2.20 Other habitat: The weir was noted centrally within the Site, which was accessed from both the true left and true right banks. Bickleigh Bridge was noted immediately north, upstream of the weir. The bridge was of stone construction, which appeared tight, although a full assessment was not possible due to restricted access.

3.3 Protected Species Habitat Assessment

Bridgetown Weir

- 3.3.1 Badgers: The Site and surrounding habitats (where possible) were searched for signs of badgers but none were found. In addition, a single badger record were provided by SERC within the desk study area, not in close proximity to the Site.
- 3.3.2 Bats (foraging habitat): The River Exe and surrounding vegetation were considered to provide suitable foraging and commuting habitat for bats, with riparian, woodlands and tree lines in the wider landscape likely to support a varied assemblage of invertebrates providing a good food source for foraging bats. However, only four records of Chiroptera were provided by SERC, none were located within or in close proximity to the Site.
- 3.3.3 Bats (roosting potential): No trees with roosting potential were located within the Site's boundaries.
- 3.3.4 Breeding birds: Although no breeding birds were noted at the time of the survey, the habitat surrounding the Site provided suitable breeding bird resources. No potential for breeding kingfisher was recorded within the zone of impact. In addition, 174 records of birds, including kingfisher at low resolution, were provided by SERC, however, only grey wagtail, buzzard and heron were located within or in close proximity to the Site.
- 3.3.5 Crayfish (Atlantic/white-clawed) and freshwater pearl mussel: Although an assessment of the aquatic ecosystem was outside the remit of this report, the soft gravel and bankside vegetation provided some potential for these species. However, no freshwater pearl mussel or white-clawed crayfish records were received from the SERC, although it is appreciated this does not constitute absence.
- 3.3.6 Dormice: No suitable dormouse habitat was present within the Site although the scattered trees to the west and woodland immediately north of the Site provided suitable habitat with excellent connectivity to the wider landscape. However, no records of dormouse were provided by SERC. In addition, the scattered trees and woodland were unlikely to be impacted by the proposed works.
- 3.3.7 Great crested newts: No ponds were noted in close proximity to the Site boundaries, and the fast flowing water within the Site was considered unsuitable for this species. Terrestrial habitat surrounding the Site had optimal potential for this species, although no great crested newt records were provided by SERC.

- 3.3.8 Invertebrates (excluding crayfish [Atlantic/white-clawed] and freshwater pearl mussel): While suitable terrestrial habitats were present within the Site, which could potentially support a varied assemblage of invertebrates, these were likely to support common and widespread species. In addition, none of the invertebrate species records from SERC were within or in close proximity to the Site boundary.
- 3.3.9 Otters: No evidence of otters (spraints/holt/lie up or prints) were recorded within the zone of impact, but potential habitat was present, particularly within the main water channel, the vegetated banks and adjacent riparian habitats. A total of 196 records of otters were provided by SERC within the desk study area, the majority of which were noted within of in close proximity to the Site.
- 3.3.10 Reptiles: No suitable reptile habitat occurred within the Site, with the fast flowing water unsuitable for reptiles. In addition, no reptile records were provided by SERC within the desk study area.
- 3.3.11 Water vole: No evidence of water vole was noted within the Site, with the weir providing no potential burrowing opportunities. However, potential habitats were present surrounding the Site in vegetated bank areas and associated riparian habitats. In addition, no water vole records were provided by SERC within the desk study area.

Bickleigh Bridge Weir

- 3.3.12 Badgers: The Site and surrounding habitats (where possible) were searched for signs of badgers but none were found. In addition, only four badger records were provided by DBRC within the desk study area, none within or in close proximity to the Site.
- 3.3.13 Bats (foraging habitat): The River Exe and surrounding vegetation were considered to provide suitable foraging and commuting habitat for bats, with riparian, woodlands and tree lines in the wider landscape likely to support a varied assemblage of invertebrates providing a good food source for foraging bats. However, only six records of Chiroptera were provided by DBRC, none were located within or in close proximity to the Site.
- 3.3.14 Bats (roosting potential): The trees in the immediate vicinity of the Site were briefly assessed for their potential to support roosting bats. Both the ash and *Salix* species tree on the true right bank were considered to provide 'No/Negligible' potential for roosting bats (Collins, 2016). A partially collapsed tree downstream of the weir on the true left bank provided 'Moderate' potential for roosting bats due to the cavities created from snapped limbs/leaders.

- 3.3.15 Breeding birds: Breeding birds were noted at the time of the survey in the form of a rookery within the woodland on the true left bank of the River Exe. In addition, the habitat surrounding the Site provided suitable breeding bird resources for a wide variety of bird species. No potential for breeding kingfisher was recorded within the zone of impact. In addition, only three records of birds were provided by DBRC (swift, swallow and little owl) with no records of kingfisher.
- 3.3.16 Crayfish (Atlantic/white-clawed) and freshwater pearl mussel: Although an assessment of the aquatic ecosystem was outside the remit of this report, the soft gravel and bankside vegetation provided some potential for these species. However, no freshwater pearl mussel or white-clawed crayfish records were received from the DBRC, although it is appreciated this does not constitute absence.
- 3.3.17 Dormice: No suitable dormouse habitat was present within the Site although the scattered trees to the south and woodland immediately east of the Site provided suitable habitat with excellent connectivity to the wider landscape. No dormice records were provided by DBRC within the desk study area. In addition, the scattered trees and woodland were unlikely to be impacted by the proposed works.
- 3.3.18 Great crested newts: Several ponds were located within 500 m of the Site, however, these were located either side of distal barriers (A3072 and A386 roads). In addition, the fast flowing water within the Site was considered unsuitable for this species. Terrestrial habitat surrounding the Site had optimal potential for this species on the true left bank only. However, no great crested newts records were provided by DBRC within the desk study area.
- 3.3.19 Invertebrates (excluding crayfish [Atlantic/white-clawed] and freshwater pearl mussel): While suitable terrestrial habitats were present within the Site, which could potentially support a varied assemblage of invertebrates, these were likely to support common and widespread species. In addition, none of the invertebrate species records from DBRC were within or in close proximity to the Site boundary.
- 3.3.20 Otters: No evidence of otters (spraints/holt/lie up or print) was recorded within the zone of impact, but potential habitat was present, particularly within the main water channel, the vegetated banks and adjacent riparian habitats. A total of seven records of otter were provided by DBRC within the desk study area, of which two were located immediately north of the Site at Bickleigh Bridge.

3.3.21 Reptiles: No suitable reptile habitat occurred within the Site, with the fast flowing water unsuitable for reptiles. In addition, no reptile records were provided by DBRC within the desk study area.

3.3.22 Water vole: No evidence of water vole was noted within the Site, with the concrete weir providing no potential burrowing opportunities. However, potential habitats were present surrounding the Site in vegetated bank areas and associated riparian habitats. In addition, no water vole records were provided by DBRC within the desk study area.

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4.0 Evaluation

4.1 Summary

4.1.1 The current proposals for the Sites include the construction of fish passes at each weir, with associated, small scale engineering works. A PEA survey of each weir was completed with habitats on and adjacent to the Sites identified and the potential to support protected species evaluated. A desk study was also completed to complement the ecological assessment of the proposed works at each weir.

4.1.2 In order to evaluate impacts on biodiversity and protected species that may be present within or adjacent to the Sites and the need or otherwise for further surveys, the location, the proposed development and likely level of works have been reviewed (where possible) against current standing advice and legislation. In addition, professional judgment has also been used.

4.2 Biological Desk Study

Bridgetown Weir

4.2.1 The Site was within the impact risk zones of several SSSIs and SACs. These designated sites were classified for their flora and fauna interest and any development in close proximity to these sites may have a detrimental impact on their ecological functionalities. This may result from the development activities themselves, or increased visitors and subsequent pressure on ecological resources of species linked to the designated sites.

4.2.2 The Local Planning Authority (LPA) will need to review the proposed development against impact risk zone criteria to ascertain whether the proposed development is likely to have a significant effect on these designations. The LPA will be required to consider the development alone, but also in conjunction with other proposals or local plans. In determining impacts on these designations, the location, nature of the proposal and plans for the Site will all be assessed. If the proposed development was considered likely to have significant impact on the SACs, the LPA/competent authority will be required to conduct a formal assessment of the ecological implications of the proposed works. Generally termed a Habitat Regulations Assessment (HRA), the proposed works may require a formal screening to the LPA for any likely significant effects (alone or in combination with other projects).

4.2.3 Natural England suggests, *'Where these effects cannot be excluded, assessing them in more detail through an appropriate assessment (AA) is required to ascertain whether an adverse effect on the integrity of the site can be ruled out. Where such an adverse effect on the site cannot be ruled out, and no alternative solutions can be identified, then the*

project can only then proceed if there are imperative reasons of over-riding public interest and if the necessary compensatory measures can be secured'. (Natural England).

Bickleigh Bridge Weir

- 4.2.4 The Site was not located within any statutory site or Site of Special Scientific Interest (SSSI) impact risk zone.

4.3 Phase 1 Habitat Survey

Bridgetown Weir

- 4.3.1 The dominant habitats within the Site were the weir and running water (River Exe) with broad-leaved woodland, dense scrub, scattered trees, semi-improved and improved grasslands, and bare ground (gravel deposit) adjacent to the Site. At the time of the survey, no rare or nationally scarce botanical species were identified, however, it should be noted that a PEA does not aim to identify all botanical species.

Bickleigh Bridge Weir

- 4.3.2 The dominant habitats within the Site were the weir and running water (River Exe) with broad-leaved woodland, scattered trees, inundation vegetation, amenity grassland, and bare ground (gravel deposit) adjacent to the Site. At the time of the survey, no rare or nationally scarce botanical species were identified, however, as highlighted above a PEA does not aim to identify all botanical species.

Both Weirs Combined

- 4.3.3 This report does not constitute a full contaminated land or invasive species survey. In addition, although the presence of Indian balsam was not confirmed within the Sites, its presence may be considered possible (noted within the 1 km desk study at Bickleigh Bridge). In addition, Japanese knotweed was recorded by DBRC under Bickleigh Bridge, immediately north of the Site. These species are listed under Schedule 9, part II of the Wildlife and Countryside Act (as amended) 1981, making it an offence to plant or otherwise cause these species to grow in the wild. Suitable precautionary measures were proposed in Section 5. Based on the impacts of the developments being restricted to relatively small working footprints, ecological impacts may be considered low in this instance with appropriate mitigation. At the time of writing, **no additional habitat surveys** were considered necessary.

4.4 Protected Species

Both Weirs Combined

- 4.4.1 Badgers: In England, badgers are listed under Appendix III of the Bern Convention, and protected under the Protection of Badgers Act 1992, which makes it an offence to

intentionally kill, injure or capture a badger, damage, destroy or block access to their setts, disturb badgers when occupying their sett, as well as treat them cruelly, deliberately send or intentionally allow a dog into a sett, and bait or dig for them. At the time of the survey **no** evidence of badgers were found within either Site (Bridgetown Weir or Bickleigh Bridge Weir) and **no further surveys** were required. However, suitable precautionary measures were proposed in Section 5.

4.4.2 Bats: In England, all bat species are fully protected under Annex IV of the Habitats Directive (European Union Council Directive 92 /43/EEC on the conservation of natural habitats and of wild fauna and flora), listed under Schedule 2 of The Conservation of Habitats and Species Regulations (as amended) 2017 and Schedule 5 of the Wildlife and Countryside Act (as amended) 1981, and listed under S41 of the NERC Act (2006) as well as included in the Countryside and Rights of Way Act (2000) (CROW Act [2000]). Even during the transition period, bats are still currently referred to as European Protected Species (EPS) in the UK. All UK bat species are also listed under Appendix II of the Bern Convention (with the exception of common pipistrelle, which is on Appendix III) and Appendix II of the Bonn Convention. Greater and lesser horseshoes, Bechstein's and barbastelle bats are further protected under Annex II of the Habitats Directive. In addition, greater and lesser horseshoes, Bechstein's, noctule, soprano pipistrelle, brown long-eared and barbastelle bats are also listed as UKBAP.

4.4.3 The protection afforded to bats is such that the animals and their roosts (used for rest or shelter) are legally protected. It is a criminal offence to deliberately take, injure, or kill a bat, intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats, damage or destroy a place used by bats for breeding or resting (even if bats are not present), possess or advertise/sell/exchange a bat of a species found in the wild in the EU (dead or alive), whole or any part of a bat, as well as intentionally or recklessly obstruct access to a bat roost. Important populations of greater and lesser horseshoes, Bechstein's and barbastelle require the designation of Special Areas of Conservation.

4.4.4 Therefore, unlicensed works that may cause disturbance, killing, injury or blocking access to a place of rest and shelter has the potential to cause an offence. Following the withdrawal of Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation, the National Planning Policy Framework (NPPF) was published as its replacement in 2012. Although Circular ODPM 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System, was a guidance document that accompanied PPS9, it is still valid in its interpretation by local planning authorities on the impact a development may have on protected species. Circular 06/2005 stated that the presence of a protected species is a, '*material consideration when*

a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat' (ODPM 06/2005). Furthermore, habitats within the Site were assessed for their potential to support foraging and community bats and whether the proposed development could impact bats.

Bat Foraging

- 4.4.5 Based on '*professional judgement*' (Collins, 2016), the habitats adjacent to both Sites were considered to provide suitable conditions for foraging and commuting bats, despite the poor records from both SERC and DBRC. However, the dominant habitats within the Site were not considered significantly diverse to support a large assemblage of bats with the proposed development and general works being small. Importantly, no significant changes to the connectivity of the habitats in the wider landscape were likely, with no impact to boundary features. Therefore, based on the information gathered during the PEA, **no further transect surveys** were considered necessary for either Site, however, lighting mitigation was outlined in Section 5.

Bat Roosts

- 4.4.6 Based on the proposals and with no bat roost potential within the Site, **no further surveys** were considered necessary in this instance. Although not within the Site, a single tree was noted at Bickleigh Bridge Weir with '*Moderate*' bat roost potential due to the suitable bat roost features present. **Should this tree be impacted (felled for example to facilitate works), further survey(s) would be necessary** with recommendations proposed in Section 5.

- 4.4.7 Breeding birds: Under Section 1 of the Wildlife and Countryside Act (as amended) 1981, wild birds (with exceptions) are protected from being killed, injured or captured, while their nests and eggs are protected from being damaged, destroyed or taken while in use. In addition, kingfisher is listed under Schedule 1 of the Wildlife and Countryside Act (as amended) 1981, with additional protection from disturbance at a nest or nest site. At the time of the survey, no evidence of breeding birds was recorded within each Site, only a rookery within the woodland adjacent to Bickleigh Bridge Weir. However, the scattered trees, dense scrub and woodland all provided suitable breeding bird habitat likely to support common species. Although **no further breeding bird surveys** (for example walked transects) were considered necessary, any removal of breeding bird habitat will be undertaken following the mitigation and precautionary measures provided in Section 5.

- 4.4.8 Crayfish (Atlantic/white-clawed) and freshwater pearl mussel: In England, white-clawed (Atlantic) crayfish are protected by Annexes II and V of the Habitats Directive and Schedule 5 of the Wildlife and Countryside Act (as amended) 1981. They are also listed under S41 of

the NERC Act (2006) and Appendix III of the Bern Convention. The species is also listed as UKBAP. The protection afforded to white-clawed (Atlantic) crayfish makes it an offence to take them from the wild, offer for sale, hold or transport for sale (either dead or alive, whole or in part) as well as publish or advertise as being for sale. In addition, important population of this species require the designation of Special Areas of Conservation.

4.4.9 In England, freshwater pearl mussels are protected under Annex II of the Habitats Directive and Schedule 5 of the Wildlife and Countryside Act (as amended) 1981. They are also listed under S41 of the NERC Act (2006). The level of protection for freshwater pearl mussel makes it a criminal offence to intentionally kill or injure them, possess or control them (live or dead), intentionally or recklessly damage or destroy any structure or places used for shelter or protection, with animals protected from intentional or reckless disturbance while occupying a structure or place used for shelter or protection. In addition, it is an offence to intentionally or recklessly obstruct access to any structure of place used by freshwater pearl mussel for shelter or protection, with important populations of this species requiring the designation of Special Areas of Conservation.

4.4.10 Although an assessment of the aquatic ecosystem was outside the remit of this report, the soft gravel and bankside vegetation provided some potential for these species. Although no records of these species were provided within the SERC or DBRC desk study areas, absence of records does not necessarily mean absence of a species. Freshwater pearl mussels are under recorded in the south-west, but with a population known on the Rivers Torridge and Taw but based on the current population status/distribution, the potential for this species being present within the Sites was considered negligible. With regard to white-clawed crayfish, isolated populations of this species have been recorded on the Rivers Creedy (Creedy system) and Culm, and although historical records of white-clawed crayfish are known from the River Exe, the potential for this species being present within the Sites was considered negligible based on the current population status/distribution.

4.4.11 Dormice: In England, dormice are fully protected under Annex IV of the Habitats Directive, Schedule 2 of The Conservation of Habitats and Species Regulations (as amended) 2017, Schedule 5 of the Wildlife and Countryside Act (as amended) 1981, and listed under S41 of the NERC Act (2006). Even during the transition period, dormice are still currently referred to as EPS in the UK. In addition, dormice are also listed as UKBAP species.

4.4.12 The protection afforded to dormice is such that the animals and the places they use for rest or shelter are legally protected. It is a criminal offence to deliberately or intentionally take, injure, or kill a dormouse, damage or destroy a place used by dormice for breeding or resting, deliberately or recklessly disturb a dormouse while in its structure or place of

shelter/protection, block access to structures or places of shelter/protection, possess or sell, control or transport a dormouse (dead or alive, whole or in part).

4.4.13 Although no dormouse habitat was present directly within the Site, the woodland and scattered trees noted along the river both up and downstream of both Sites provided suitable habitat with connectivity to the wider landscape. No dormice records were provided by SERC or DBRC within the desk study areas. Therefore, based on the small scale works proposed with no impact to trees, **no further surveys** were considered necessary in this instance although precautionary measures were proposed in Section 5.

4.4.14 Great crested newt: In England, great crested newts are listed under S41 of the NERC Act (2006) and fully protected under Annexes II and IV of the Habitats Directive, the CROW Act (2000), Schedule 5 of The Wildlife and Countryside Act (as amended) 1981 and Schedule 2 of The Conservation of Habitats and Species Regulations (as amended) 2017 and even during the transition period, are still currently referred to as EPS. In addition, great crested newts are also listed under Appendix II of the Bern Convention, as a UKBAP and important population of this species require the designation of Special Areas of Conservation.

4.4.15 The protection afforded to great crested newt is such that the animals and the places they use for rest or shelter are legally protected. It is a criminal offence to deliberately or intentionally take, injure, disturb or kill a great crested newt, damage or destroy their breeding or resting places, deliberately or recklessly block access to structures or places of shelter/protection, possess or sell, control or transport a great crested newt (dead or alive, whole or in part) or take their eggs.

4.4.16 Although ponds were located within 500 m of Bickleigh Bridge Weir, no ponds were located in proximity to Bridgetown Weir, with no great crested newt records provided by SERC or DBRC. In addition, the fast flowing water within both Sites was considered unsuitable for this species. The Sites were considered to provide negligible potential for this species and **no further surveys** were considered necessary.

4.4.17 Invertebrates (excluding crayfish (Atlantic/white-clawed) and freshwater pearl mussel): The habitats within both Sites were likely to support a range of common and widespread invertebrate species, however, it was considered that impacts were likely to be low and **no further surveys** were considered necessary.

4.4.18 Otters: In England, otters are listed under S41 of the NERC Act (2006) and fully protected under Annexes II and IV of the Habitats Directive, the CROW Act (2000), Schedule 5 of The Wildlife and Countryside Act (as amended) 1981 and Schedule 2 of The Conservation of

Habitats and Species Regulations (as amended) 2017 and even during the transition period, are still currently referred to as EPS. In addition, otters are also listed under Appendix II of the Bern Convention, as a UKBAP and important population of this species require the designation of Special Areas of Conservation.

4.4.19 The protection afforded to otters is such that the animals and the places they use for rest or shelter are legally protected. It is a criminal offence to deliberately or intentionally take, injure, disturb or kill otters, damage or destroy their breeding or resting places, deliberately or recklessly block access to structures or places of shelter/protection, possess or sell, control or transport an otter (dead or alive, whole or in part).

4.4.20 At the time of the survey, no confirmed otter holt or direct evidence of otter presence was recorded within either Site. However, 196 records of otters were provided by SERC within the desk study area at Bridgetown Weir with seven at Bickleigh Bridge Weir. Dog otters have a large home range (30 km or more) and therefore based on the potential and records for this species within and adjacent to the Sites, it was considered likely that otters would forage/commute through both Bridgetown Weir and Bickleigh Bridge Weir or utilise features at both Sites. Therefore, precautionary measures should be taken during construction to avoid any potential impacts to otters (and other mammals), as highlighted in Section 5.

4.4.21 Reptiles: In England, the four widespread species of reptiles (common lizard, slow-worm, adder and grass snakes) are listed under S41 of the NERC Act (2006) and protected under Schedule 5 of The Wildlife and Countryside Act (as amended) 1981. In addition, these four species are also listed as UKBAP.

4.4.22 The protection afforded to slow-worms, common lizards, adders and grass snakes is such that the animals are protected from intentional killing or injuring, as well as being sold, offered for sale or held or transported for sale (dead or alive, whole or in part) as well as protected from being published or advertised as being for sale.

4.4.23 No suitable reptile habitat occurred within either Site, with the fast flowing water considered unsuitable with no records provided by SERC or DBRC. Therefore, impacts to reptiles were considered negligible in this instance and reptile presence/likely absence surveys **were not recommended.**

4.4.24 Water vole: In England, water voles are listed under S41 the NERC Act (2006) and protected under Schedule 5 of The Wildlife and Countryside Act (as amended) 1981. In addition, water voles are also listed as UKBAP.

4.4.25 The protection afforded to water voles is such that the animals and the places they use for rest or shelter are legally protected. It is a criminal offence to intentionally take, injure or kill water voles, intentionally or recklessly damage, destroy or block access to their breeding or resting places, intentionally or recklessly disturb them in a place of shelter or protection, possess or sell, control or transport a water vole not bred in captivity (dead or alive, whole or in part).

4.4.26 No evidence of water vole was noted within either Site, with no records provided by SERC or DBRC within the desk study areas. Some suitable habitats were present within the Sites in the form of vegetated bank areas and associated riparian habitats. Based on the ecological assessment conducted, it was considered possible that water vole would forage/commute through both Bridgetown Weir and Bickleigh Bridge Weir. Therefore, as for otters, precautionary measures should be taken during construction to avoid any potential impacts to this species (and other mammals), as highlighted in Section 5.

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5.0 Recommendations

5.1 In accordance with the National Planning Policy Framework (NPPF, revised 2019), consideration should be sought to creating new habitats or features of biodiversity gain within a sustainable development, or managing existing features for ecological and biodiversity gain. However, the proposed fitting of fish passes would be a significant ecological enhancement for fish and overall significant ecological enhancement. However, in order to avoid any adverse impacts to habitats or potential for protected species on and in the vicinity of both Bridgetown Weir and Bickleigh Bridge Weir, the following recommendations were made:

1. **Badgers:** During construction, any open dug trenches will be covered overnight to prevent any badgers (or other mammals) from being trapped. If this was not possible, suitable mammal ladders, in the form of simple wooden planks with a maximum gradient of 1:2, must be provided. In addition, any piping with the potential to entrap badgers will be capped at the end of each working day. The contractor shall implement an auditing system, documenting mammal ladder installation or the capping of pipes. Details should be made available to an ecologist on request, although monitoring during or post construction was not proposed;
2. **Bat foraging:** If external lighting was required during construction, this will be kept to a minimum and consist of LED luminaries, ideally of a warm white spectrum (< 2,700 Kelvin), upward light ratio of 0 % and with good optical control, with any external security lighting to be set on motion-sensors and short (1 minute) timers (Institution of Lighting Professionals and Bat Conservation Trust, 2018). **No lighting onto the River Exe and/or the adjacent habitats or any permanent lighting permitted post construction.** No long-term lighting was proposed, with no increase compared to that already existing, therefore, no post construction monitoring was necessary;
3. **Bat roosts:** Should the tree of 'Moderate' potential at Bickleigh Weir Bridge require removal, a qualified (and bat licensed) ecologist (or arborist under the instruction of a bat licensed ecologist) will undertake an initial aerial inspection of the tree in order to thoroughly inspect any potential roost feature (PRF). This may be useful to confirm suitability of the identified PRFs, which were either too high or concealed during the ground level assessment to be fully evaluated.
 - Should the PRF have 'Moderate' to 'High' potential once closely inspected, then further aerial inspection and/or bat activity surveys would be required. Bat activity surveys would also be required should the PRF not be fully accessible, for example the feature is too long for an endoscope or on a dead branch likely to break under force. It should be noted that bat activity surveys are only possible between the months of May – August/September, should they be required;

- Any PRF inspected closely from height as having 'No/Negligible' or 'Low' potential **would not require further surveys** and the tree would be downgraded to 'No/Negligible' or 'Low' potential; and
 - If a bat roost was identified and the tree still required removal to facilitate works, a derogation EPSL form Natural England will be required to permit legal destruction of a roost.
4. Breeding birds: Should any suitable breeding bird habitat within or in close proximity to the Sites require removal to facilitate works (i.e. scrub, woodland, trees) during the bird breeding season of 1st March – 31st August inclusive, a suitably qualified individual would need to undertake an inspection for breeding birds prior to any clearance. If breeding birds were identified, these must remain in place until breeding has ceased with a suitable exclusion zone implemented where necessary. No inspection or supervised clearance would be required for removal of breeding birds habitat between 1st September – 28th February (or 29th in any leap year). No potential for breeding kingfisher was recorded with the zones of impact at either Bridgetown Weir or Bickleigh Bridge Weir, and therefore no additional precautionary methods (other than those outlined) were proposed; and
5. Otters and water vole: A pre-construction otter and water vole presence/likely absence survey must be implemented at both Bridgetown Weir and Bickleigh Bridge Weir by a suitably qualified ecologist before any development works can commence. Depending on any evidence of otter or water vole found within the Site, construction activity may need to cease immediately and where necessary, further surveys and/or an EPSL application (for otter) may be required.

5.2 The following general site mitigation/development precautions were proposed:

1. Contractors must work in accordance with the Environment Agency pollution prevention for businesses guidance (Defra and Environment Agency, 2016) and follow guidelines for preventing adverse dust levels, minimising run off and using bunded storage, for example when refuelling vehicles and storing oil and fuel. In addition, no fuel or potential pollutants shall be stored in close proximity to the water. Any heavy machinery will not be left in close proximity to the Sites overnight, especially during periods where heavy rain or potential flooding events may occur. Contractors shall be made aware of the potential that pollution incidents may occur, with spill kits to remain on each Site for the duration of the development and where necessary, tool box talks to be given. It is the responsibility of the applicant and their contractors to supply appropriate information and monitoring for the LPA to review. Any proposed works should incorporate suitable precautionary measures to prevent any run off and silt accumulation. Silt traps should be implemented where appropriate;

2. It is the responsibility of the applicant and their contractors to supply appropriate information in relation to preventing the spread/disturbance of any invasive botanical species such as Indian balsam or Japanese knotweed. Guidance within the Environment Agency *'Managing Invasive Non-Native Plants'* (Environment Agency, 2010) must be followed and where necessary, a specific mitigation strategy employing biosecurity measures provided by a suitable experienced invasive species specialist. This may comprise *'No go'* areas and all contractors made aware of the risks of spreading these invasive species. This report does not provide information in relation to invasive species method statements; and
3. In order to prevent any ground works exposing tree roots of retained trees/hedgerows, a tree root protection zone will be implemented in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction. The tree root protection zone(s) will be monitored throughout the construction phase and with appropriate signage in place. In addition, any trees that require pruning to facilitate works or the delivery/removal of materials should be carried out following good silvicultural practices, following consultation with a qualified arboriculturist where appropriate and only where the lack of any Tree Preservation Order has been confirmed.

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6.0 Conclusion

- 6.1 A PEA was carried out on the River Exe at Bridgetown Weir, Somerset and Bickleigh Bridge Weir in Devon, to assess impacts from the proposed fitting of fish passes. During the PEA, no rare or nationally scarce botanical species were identified at either Site.
- 6.2 All habitat types have been mapped, with both Sites dominated by the weirs and running water (River Exe). Additional adjacent habitats included broad-leaved woodland, dense scrub, scattered trees, semi-improved and improved grasslands, and bare ground (gravel deposit) at Bridgetown Weir, with broad-leaved woodland, scattered trees, inundation vegetation, amenity grassland, and bare ground (gravel deposit) at Bickleigh Bridge Weir. Based on the footprint of the developments being restricted to small working areas, ecological impacts were considered minimal. However, suitable precautionary methods have been recommended and will be adopted in relation to the potential for impacting any protected fauna and flora. In addition, general development best practices have been suggested, along with ecological mitigation considered suitable for the scale of development proposed.

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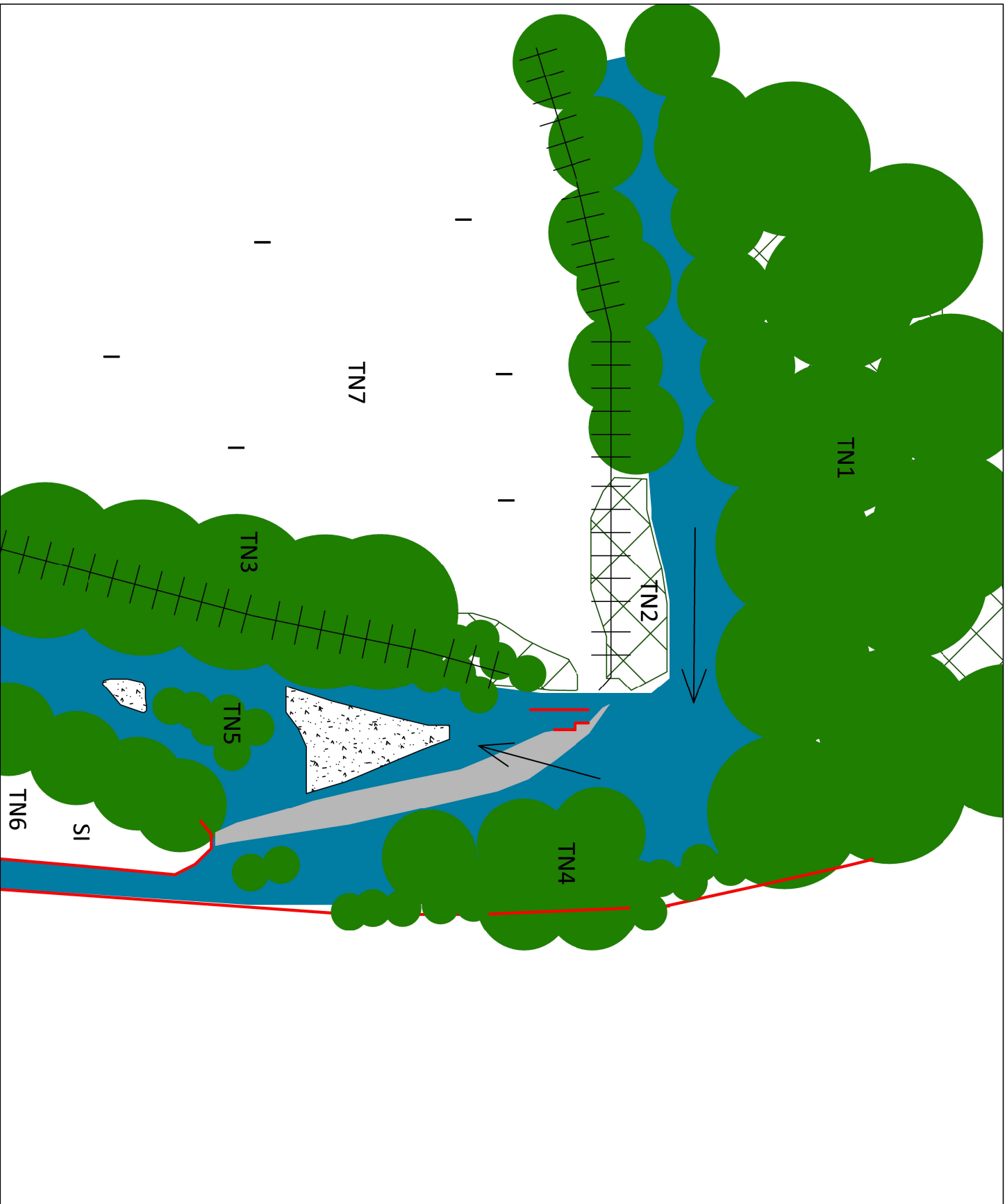
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Figures



Key

- Scattered deciduous trees
- Running water
- Improved grassland
- Fence
- Target note
- Bare ground
- Weir
- Wall
- Dense scrub
- SI poor grassland
- Broad-leaved woodland

revision	description	date	produced by



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Project: Strategic Exe Weirs

Title: Bridgetown Weir

STATUS					
revision	date	drawn	checked	figure 1	
01	09/10/20				
02	09/10/20				

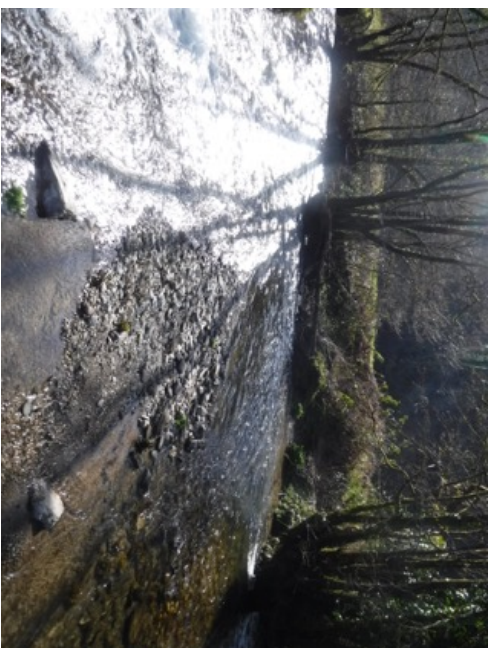
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Figure 3: Annotated photographs

Weir looking upstream



Area of gravel deposits immediately below weir with true right bank in background



Weir looking south to area of SI grassland and sluice gate



Downstream of weir



Additional photo downstream from weir, with bankside trees



Adjacent improved grassland with poor botanical species composition

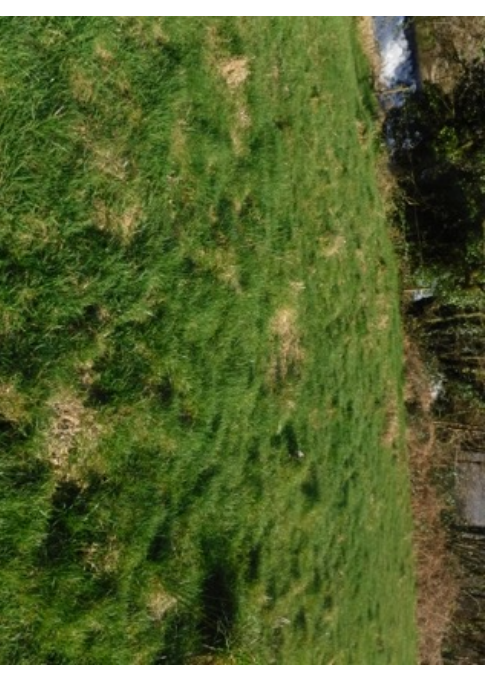


Figure 4: Annotated photographs

Downstream from weir, with gravel deposits on true left bank



View of weir from true right bank



Additional view of weir, with Bickleigh Bridge beyond



Amenity grassland within beer garden of public house



Tree (downstream of weir) with hazard beam and 'moderate' bat roost potential



Area of broad-leaved woodland adjacent to true left bank



Appendices

Appendix 1 - List of Indicative Fauna and Flora Latin Names

Fauna

Adder	<i>Vipera berus</i>
Badger	<i>Meles meles</i>
Barbastelle	<i>Barbastella barbastellus</i>
Bechstein	<i>Myotis bechsteini</i>
Brandt	<i>Myotis brandtii</i>
Brown long-eared	<i>Plecotus auritus</i>
Common frog	<i>Rana temporaria</i>
Common lizard	<i>Zootoca vivipara</i>
Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Common toad	<i>Bufo bufo</i>
Daubenton	<i>Myotis daubentonii</i>
Dormouse	<i>Muscardinus avellanarius</i>
Grass snake	<i>Natrix natrix</i>
Great crested newt	<i>Triturus cristatus</i>
Greater horseshoe	<i>Rhinolophus ferrumequinum</i>
Grey long-eared	<i>Plecotus austriacus</i>
Leisler	<i>Myctalus leisleri</i>
Lesser horseshoe	<i>Rhinolophus hipposideros</i>
Nathusius pipistrelle	<i>Pipistrellus nathusii</i>
Natterer	<i>Myotis nattereri</i>
Noctule	<i>Myctalus noctula</i>
Otter	<i>Lutra lutra</i>
Palmate newt	<i>Triturus helveticus</i>
Serotine	<i>Eptesirus serotinus</i>
Slow worm	<i>Anguis fragilis</i>
Smooth newt	<i>Triturus vulgaris</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Water vole	<i>Arvicola amphibius</i>
Whiskered	<i>Myotis mystacinus</i>

Flora

Agrimony	<i>Agrimonia sp</i>
Alder	<i>Alnus glutinosa</i>
Annual meadow-grass	<i>Poa annua</i>
Apple	<i>Malus domestica</i>
Ash	<i>Fraxinus excelsior</i>
Aspen	<i>Populus tremula</i>
Bay laurel	<i>Laurel nobilis</i>
Beech	<i>Fagus sylvatica</i>
Bell heather	<i>Erica cinerea</i>

Flora

Bindweed	<i>Calystegia sepium</i>	Goose grass	<i>Galium aparine</i>
Bird's-foot-trefoil	<i>Lotus corniculatus</i>	Greater birds-foot trefoil	<i>Lotus pedunculatus</i>
Blackthorn	<i>Prunus spinosa</i>	Greater burdock	<i>Arctium lappa</i>
Bluebell	<i>Hyacinthoides non-scripta</i>	Ground ivy	<i>Glechoma hederacea</i>
Borage	<i>Borago officinalis</i>	Guilder rose	<i>Viburnum opulus</i>
Bracken	<i>Pteridium aquilinum</i>	Hart's tongue fern	<i>Asplenium scolopendrium</i>
Bramble	<i>Rubus fruticosus sp. agg.</i>	Hawkbitt	<i>Leontodon sp.</i>
Bugle	<i>Ajuga reptans</i>	Hawthorn	<i>Crataegus monogyna</i>
Buttercup	<i>Ranunculus sp</i>	Hazel	<i>Corylus avellana</i>
Butterfly bush	<i>Buddleia davidii</i>	Hemlock water-dropwort	<i>Oenanthe crocata</i>
Camomile	<i>Matricaria chamomilla</i>	Hemp-agrimony	<i>Eupatorium cannabinum</i>
Canadian pondweed	<i>Elodea canadensis</i>	Herb Robert	<i>Geranium robertianum</i>
Chickweed	<i>Stellaria media</i>	Himalayan balsam	<i>Impatiens glandulifera</i>
Cleavers	<i>Galium aparine</i>	Hogweed	<i>Heraclium sphondylium</i>
Clover species	<i>Trifolium</i>	Holly	<i>Ilex aquifolium</i>
Cob nut	<i>Corylus species</i>	Honeysuckle	<i>Lonicera periclymenum</i>
Cock's-foot	<i>Dactylis glomerata</i>	Horse chestnut	<i>Aesculus x carnea</i>
Comfrey	<i>Symphytum officinale</i>	Ivy	<i>Hedera helix</i>
Common chickweed	<i>Stellaria media</i>	Japanese knotweed	<i>Fallopia japonica</i>
Common marsh-bedstraw	<i>Galium palustre</i>	Laurel	<i>Lauraceae</i>
Common nettle	<i>Urtica dioica</i>	Lavender	<i>Lavandula officinalis</i>
Common sorrel	<i>Rumex acetosa</i>	Lesser bulrush	<i>Typha angustifolia</i>
Common violet	<i>Viola riviniana</i>	Leyland cypress	<i>Leylandii sp</i>
Cottonaster	<i>Cottonaster sp</i>	Lime	<i>Tilia sp.</i>
Cottongrass	<i>Eriophorum angustifolium</i>	March marigold	<i>Caltha palustris</i>
Cow parsley	<i>Anthriscus sylvestris</i>	Meadow buttercup	<i>Ranunculus acris</i>
Creeping bent	<i>Agrostis stolonifera</i>	Meadow fescue	<i>Festuca pratensis</i>
Creeping buttercup	<i>Ranunculus repens</i>	Meadow foxtail	<i>Alopecurus pratensis</i>
Crested Dogstail	<i>Cynosurus cristatus</i>	Meadow sweet	<i>Filipendula ulmaria</i>
Daisy	<i>Bellis perennis</i>	Navelwort	<i>Umbilicus rupestris</i>
Dandelion	<i>Taraxacum officinale agg.</i>	New Zealand pigmy weed	<i>Crassula helmsii</i>
Dock sp	<i>Rumex sp</i>	Oxeye daisy	<i>Leucanthemum vulgare</i>
Dog rose	<i>Rosa canina</i>	Pedunculate oak	<i>Quercus robur</i>
Dog's mercury	<i>Mercurialis perennis</i>	Perennial rye-grass	<i>Lolium perenne</i>
Elder	<i>Sambucus nigra</i>	Periwinkle	<i>Vioca sp.</i>
Elm	<i>Ulmus minor var. vulgaris</i>	Pine	<i>Pinus species</i>
Field bindweed	<i>Convolvulus arvensis</i>	Pond weed	<i>Potamogeton</i>
Field maple	<i>Acer campestre</i>	Poplar species	<i>Populus sp</i>
Forget-me-not	<i>Myosotis scorpioides</i>	Poppy	<i>Papaver species</i>
Foxglove	<i>Digitalis purpurea</i>	Privet	<i>Ligustrum sp</i>
Germaner speedwell	<i>Veronica chamaedrys</i>	Purple loosestrife	<i>Lythrum salicaria</i>

Ragwort	<i>Senecio jacobae</i>
Red campion	<i>Silene dioica</i>
Red clover	<i>Trifolium pratense</i>
Reed canary grass	<i>Phalaris arundinacea</i>
Reed sweet grass	<i>Glyceria maxima</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Rosemary	<i>Rosmarinus officinalis</i>
Rough hawkbit	<i>Leontodon hispidus</i>
Rough meadowgrass	<i>Poa trivialis</i>
Russian vine	<i>Fallopia bauldschuanica</i>
Silver birch	<i>Betula pendula</i>
Silverweed	<i>Potentilla anserina</i>
Soft rush	<i>Juncus effusus</i>
Stinking iris	<i>Iris foetidissima</i>
Spindle	<i>Euonymus europaeus</i>
Sumac	<i>Rhus sp.</i>
Sycamore	<i>Acer pseudoplatanus</i>
Teasel sp	<i>Dipsacus sp</i>
Thistle sp	<i>Cirsium sp</i>
Timothy	<i>Phleum pratense</i>
Walnut	<i>Juglans regia</i>
Water crowfoot	<i>Ranunculus aquatilis</i>
Water forget-me-not	<i>Myosotis scorpiodes</i>
Water mint	<i>Menta aquatica</i>
Water plantain	<i>Alisma plantago-aquatica</i>
Wayfaring-tree	<i>Viburnum lantana</i>
White campion	<i>Silene latifolia</i>
White clover	<i>Trifolium repens</i>
White deadnettle	<i>Lamium album</i>
White mellilot	<i>Melilotus albus</i>
Wild geraniums	<i>Geranium maculatum</i>
Willow herb	<i>Epilobium species</i>
Willow species	<i>Salix species</i>
Wood sorrel	<i>Oxalis acetosella</i>
Wood spurge	<i>Euphorbia amygdaloides</i>
Wood mellick	<i>Melica uniflora</i>
Woundworts	<i>Stachys species</i>
Wych elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>



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