

Havant Thicket Reservoir Project

Biodiversity Mitigation and Compensation Strategy

Portsmouth Water Ltd

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Executive Summary

This Biodiversity Mitigation and Compensation Strategy provides an overview of committed biodiversity mitigation, compensation and enhancement measures required for the Havant Thicket Reservoir Scheme. It is a commitment, along with the associated Landscape and Ecology Management Plan (LEMP), under the Section 106 Agreement for the planning permission. It has been produced on behalf of Portsmouth Water in consultation with key environmental stakeholders to be issued along with the LEMP to Havant Borough Council and East Hampshire District Council planning departments for approval.

This Strategy will be adopted by Portsmouth Water, the Principal Contractor, and the other management organisations, including Forestry England (FE) and Hampshire County Council (HCC). It will cover all phases of the Scheme, including construction and aftercare. It provides signposts to other relevant documents and mechanisms for implementation.

The Strategy builds upon the Outline Biodiversity Mitigation and Compensation Strategy produced in 2020 as part of the planning submission, which focussed on the important ecological features identified in The Environmental Statement (ES) for the Scheme (Chapter 9 – Biodiversity).

The primary documents for implementation of the mitigation and compensation measures set out in this Strategy will be the Construction Environmental Management Plan (CEMP), the Landscape and Ecology Management Plan (LEMP), and site-specific management plans and agreements for off-site compensation measures. The detail required for implementation of the Strategy will be included in these separate documents.

The construction of the reservoir is due to start in 2022 and will continue until 2029. Mitigation and compensation works will be implemented throughout the construction phase and beyond as part of the CEMP and LEMP. Responsibilities of implementation are set out in these documents.

The Strategy for biodiversity mitigation, compensation and enhancement measures remains fundamentally the same as agreed for the planning permission, in that it includes habitat creation and restoration within the Site, habitat restoration within Southleigh Forest, creation of to 80 ha of new wood-pasture and neutral grassland through a partnership with local landowners, and a Capital Grants Scheme to provide funding to study and enhance biodiversity locally.

The general objectives are to create an environmentally-led design based on the mitigation hierarchy approach of avoid, minimise, or compensate. Appropriate mitigation and compensation will be implemented for protected and notable species. A mosaic of new and high-quality habitats will be created that will be managed in the long-term through collaboration with FE, HCC and other landowners. Aquatic habitat compensation will be delivered as part of a catchment-wide approach.

Consultation and collaboration with key stakeholders has been undertaken in the planning of this Strategy. Regular stakeholder engagement forums will continue to be held by Portsmouth Water throughout the design and construction phase.

An indicative programme for delivery of the biodiversity mitigation and compensation is provided in Section 10 below, and figures showing the Site location, on-site management areas, and the on-site habitats retained, enhanced and created are provided in Appendix A.

1. Introduction

Purpose of this Document

- 1.1. Portsmouth Water secured planning permission in October 2021 for Havant Thicket Reservoir, a new raw water storage reservoir development located north of Havant, Hampshire (**'the Scheme'**). The new reservoir will have a minimum storage capacity of 8,700 million litres. The extent of the reservoir will be approximately 1.6 km from east to west and 800 m from north to south.
- 1.2. This Biodiversity Mitigation and Compensation Strategy (**'the Strategy'**) provides an overview of committed biodiversity mitigation, compensation and enhancement measures required for the Scheme, and signposts to other relevant documents and mechanisms for implementation. It is a commitment under the Section 106 Agreement for the planning permission. The text contained within the Section 106 Agreement Schedule 1 is provided in Section 3 of this document.
- 1.3. This Strategy been produced on behalf of Portsmouth Water in consultation with key environmental stakeholders to be issued to Havant Borough Council and East Hampshire District Council planning departments for approval.

Aims of the Strategy

- 1.4. This Strategy will be adopted by Portsmouth Water, the Principal Contractor, and the other management organisations, including Forestry England (FE) and Hampshire County Council (HCC). Following its approval, this Strategy will cover all subsequent phases of the Scheme, including construction and aftercare. It is intended to provide an overview for decision makers, and will identify the need for future decisions or works where information is not currently available. It is expected to be made publicly available.
- 1.5. The primary documents for implementation of the biodiversity mitigation and compensation measures set out in this Strategy will be the Construction Environmental Management Plan (CEMP), the Landscape and Ecology Management Plan (LEMP), and site-specific management plans and agreements for off-site compensation measures. The detail required for implementation of the Strategy will be included in these separate documents, which will include prescriptions for management.
- 1.6. **This Strategy document and the LEMP will together fulfil Schedule 1 Part 1 of the Section 106 Agreement.**
- 1.7. This Strategy does not provide detailed design plans or specifications but sets out commitments for biodiversity mitigation and compensation that should inform the detailed design process, and the requirements for post-construction management of landscape and ecology features provided as part of the Scheme. The Phases of the Scheme are summarised in Table 2-1.
- 1.8. This Strategy covers the Application Site (see paragraph 3.5) and associated off-site compensation for the reservoir. It does not cover the pipeline connection to Bedhampton Springs that is being constructed at the same time.
- 1.9. This Strategy builds upon the Outline Biodiversity Mitigation and Compensation Strategy (BMCS) produced in 2020 as part of the planning submission, which focussed on the important ecological features identified in The Environmental Statement (ES) for the Scheme (Chapter 9 – Biodiversity). Further details are provided in Section 3.
- 1.10. The core elements for mitigation and compensation as set out in the Outline BMCS are:
 - Environmentally-led design based on the mitigation hierarchy of avoid, minimise, or compensate;
 - Appropriate mitigation and compensation for protected and notable species;
 - Creation of a mosaic of new and high-quality habitats;
 - Delivery of on-site and off-site compensation as part of a package of measures, including compensation for loss of ancient woodland and a catchment-wide approach for watercourse management; and
 - Collaborative long-term management.

- 1.11. In this document, Section 2 provides a background to the Scheme and the proposed phases of construction. The details of the planning application and environmental assessment are provided in Section 3; and the relationship of this Strategy to other documents and plans is summarised in Section 4. A description of the site and the locations of important ecological features are provided in Section 5. Mitigation, compensation and enhancement measures are described in Sections 6 and 7. Details of the stakeholders involved in the Scheme, the stakeholder engagement plan, and relevant roles and responsibilities, are provided in Section 8. Section 9 sets out the implementation plan and methods of commissioning and sign-off of the mitigation, compensation and management. Finally, an indicative programme is provided in Section 10.
- 1.12. Relevant maps and figures are provided in the appendices.

Definitions

- 1.13. The Strategy refers to this document which is the detailed Biodiversity Mitigation and Compensation Strategy for the Scheme.
- 1.14. The LEMP refers to the Landscape and Ecology Management Plan (document reference: HTR-ATK-ZZ-ZZ-RP-L-0002), which along with this Strategy fulfils Schedule 1 Part 1 of the Section 106 Agreement.
- 1.15. The Scheme refers to the new raw water storage reservoir development located north of Havant, Hampshire that Portsmouth Water secured full planning permission for in October 2021.
- 1.16. The Site refers to the land required for the reservoir construction along with adjacent areas required for mitigation, compensation and enhancement works and corresponds to the Application Site boundary for the current planning permission granted in October 2021 (shown by the Site boundary on Figure A-1 in Appendix A).
- 1.17. The CEMP refers to the Construction Environmental Management Plan produced by the Principal Contractor which sets out how construction impacts on landscape and ecology features will be mitigated during the construction of the Scheme.
- 1.18. The ES refers to the Environmental Statement produced for the Scheme and submitted with the planning application in 2020.
- 1.19. The Outline BMCS refers to the Outline Biodiversity Mitigation and Compensation Strategy produced in 2020 as part of the planning submission (document reference: 20.0016.0005.F0).

2. Background to the Scheme

Need for the Scheme

- 2.1. The Scheme will help meet the region's water supply challenges in the future, in particular relating to abstraction licence changes, predicted population growth, and climate change that will all place pressure on meeting future water supply demand.
- 2.2. The reservoir will be filled with surplus water drawn from springs at the Portsmouth Water Bedhampton Pumping Station when flows are at their highest in winter, via a new pipeline. The reservoir will allow excess water to be stored until needed to supply Portsmouth Water customers. The surplus will be shared with Southern Water customers in west Hampshire, which will go some way to address a forecast deficit in water resources in the Southern Water area due to the reduction of its abstraction licences on the River Test and River Itchen, which is necessary to restore sustainable abstraction of rare chalk stream habitats.

History of the Scheme

- 2.3. Portsmouth Water purchased approximately 160 ha from the Forestry Commission in 1965 and Portsmouth City Council in 1966 for the location of the reservoir. Since its purchase, the land has been improved for agricultural use through the removal of tree stumps, installation of drainage and soil improvement.
- 2.4. Plans for the reservoir were originally drawn up in 1964 and then again in 2008, when they were shared during a public consultation. However, following a review of the strategic water management for the region, a decision was made not to progress with the reservoir proposals at that time.
- 2.5. A large area of the land purchased for the reservoir is part of Staunton Country Park, a designated country park, managed by Hampshire County Council for public recreation and enjoyment of the countryside. The area was formerly part of Leigh Park, which included landscaped gardens and a mansion house, built in 1865, located south of the reservoir site. Although the house is no longer present, the gardens remain and have been redeveloped into a visitor attraction. Staunton Country Park is also used by the local community for walking, cycling, and horse riding, and the open grassland is currently used for grazing.
- 2.6. The reservoir, embankment, operational infrastructure, wetland area, visitor facilities and access routes will all be contained within land owned by Portsmouth Water and purchased for the Scheme.

Proposed Phases of the Scheme

- 2.7. Table 2-1 summarises the indicative phases for construction and operation of the Scheme as assumed in October 2021. A detailed phasing plan will be produced by the Principal Contractor.

Table 2-1 - Phases of the Scheme

Phase	Timescale	Activities
0	Autumn 2021 to autumn 2022	Tree clearance from reservoir site. Construction of the B2149 northern access junction.
1	Spring 2022 to summer 2023	Construction of northern and southern access routes. Ground investigation and construction of trial embankment.
2	Spring 2023 to 2026	Construction of embankment and Control House. Construction of supply pipeline. Creation of wetland area.
3	2026 to 2029	Detailed design and construction of visitor centre and facilities.
4	2029 and beyond	Operation of the reservoir

3. Planning Background

Introduction

- 3.1. The current planning permission was secured following a hybrid planning application submitted in 2020 to East Hampshire District Council and Havant Borough Council, the two Local Planning Authorities (LPAs) to the Scheme (the Scheme spans two local authority areas).
- 3.2. In June 2021, East Hampshire District Council's Planning Committee resolved to grant planning permission for the reservoir, following the support given by Havant Borough Council for the reservoir and pipeline in the same month. Full planning permission was granted in October 2021 for the principle of the reservoir and some aspects of detailed design (Havant Borough Council Reference: APP/20/00990/East Hampshire District Council Reference: 51680/001). Additional design aspects are approved in outline subject to Reserved Matters applications. The reservoir is due to be completed and operational by 2029¹.
- 3.3. The current planning permission includes construction of an earth embankment, viewing area, overflow discharge/spillway, new road junctions to facilitate access, and associated works.
- 3.4. Outline planning permission has been granted for the following additional developments, which will be subject to Reserved Matter applications:
 - A Control House partially incorporated within landscaped earth mounding adjacent to the reservoir in the south west;
 - A visitor centre/café, picnic area and children's play area to the north-west of the reservoir;
 - A new visitor car park close to the visitor centre to accommodate over 250 cars, plus spaces for staff, coaches and disabled drivers;
 - Access routes from both junctions to the visitor car park;
 - A permanent wetland area on the northern side of the reservoir that will include new bird hides and screens;
 - A perimeter tracks and a network of bridleways, cycle paths and footpaths;
 - An operational slipway on the western bank of the reservoir.

The Application Site

- 3.5. The Application Site for the current planning permission granted in October 2021 is shown by the red line boundary on Figure A-1 in Appendix A. The Application Site (hereafter referred to as '**the Site**') includes all land required for construction of the reservoir as well as land adjacent to the reservoir required for mitigation, compensation and enhancement works related to the Scheme set out below. The Site does not include the pipeline connection to Bedhampton Springs.

Environmental Impact Assessment

- 3.6. An Environmental Impact Assessment (EIA) was undertaken for the Scheme, which was reported in the ES submitted as part of the planning application in 2020.
- 3.7. Ecological studies and surveys were undertaken between 2005-2009 and 2017-2020 to inform the ES Chapter 9 – Biodiversity. Habitat surveys undertaken included Preliminary Ecological Appraisal, National Vegetation Classification (NVC) survey, River Habitat Survey and Modular River Surveys (to assess river condition). Surveys were also undertaken for the following Priority or legally protected species: bats, hazel dormice, otters, water voles, badgers, breeding and wintering birds, reptiles, great crested newts, terrestrial invertebrates, aquatic invertebrates and Priority plant species. In addition, surveys for invasive non-native species were carried out.
- 3.8. The important ecological features (sites designated for nature conservation², ancient woodland, veteran trees, habitats and species) present or potentially present at the Site are identified in the ES

¹ Portsmouth Water (2021). Available here: <https://www.portsmouthwater.co.uk/new-reservoir/the-reservoir/#background> [Accessed 17/12/2021].

² For instance, Special Areas of Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), Local Nature Reserves (LNR), Sites of Importance for Nature Conservation (SINC), etc.

Chapter 9 – Biodiversity and assigned a value in terms of their importance for nature conservation. This value ranged from internationally important to negligible in accordance with Chartered Institute for Ecology and Environmental Management (CIEEM) guidelines³. An assessment of the impacts of the reservoir development, taking into account both on-site impacts and those occurring adjacent or to more distant ecological features was undertaken. The significance of the effects of the development on important ecological features was then determined. A summary of the evaluation of important ecological features and the significance of the effects of the Scheme is provided in Section 5 of this Strategy.

- 3.9. The ES Chapter 9 – Biodiversity assessed that there would be residual adverse effects of the Scheme that would be significant at a Regional and County level due to direct loss of ancient woodland, habitat within Sites of Importance for Nature Conservation (SINCs), Priority habitats, and watercourses. While suitable compensation will be undertaken, this would still constitute loss of irreplaceable habitat for ancient woodland and veteran trees.
- 3.10. Mitigation, compensation and enhancement measures are set out in the ES Chapter 9 – Biodiversity that are to be incorporated into the design, operation and management of the Scheme to address the effects on important ecological features. With habitat compensation and enhancement measures taken into account, the chapter concluded that in the long-term the residual effects of the construction and operation of the Scheme on ancient woodland, SINCs, Priority habitats, and watercourses would be positive, significant at the County level. Whereas residual effects on Priority and legally protected species would be neutral and not significant, with positive effects assumed for birds due to the creation of the wetland area.

Outline Mitigation and Compensation Proposals

Outline BMCS

- 3.11. An Outline Biodiversity Mitigation and Compensation Strategy (BMCS) was produced in 2020 and submitted with the ES as part of the planning application. It includes measures for mitigation and compensation within the land required for the reservoir construction as well as in within land not owned by Portsmouth Water or required for the reservoir construction (either include within the Site as defined above or not). Works included within the Site are referred to in this Strategy as '**on-Site**' and works to be undertaken at locations away from the Site are referred to as '**off-Site**'.
- 3.12. The Outline BMCS outlined the strategy for delivery of a package of on-Site and off-Site mitigation and compensation measures as identified in the ES, and included proposals for:
 - Up to 52 ha of habitat creation and restoration within the Site, including within Havant Thicket woodland, Bell's Copse and retained woodland around the reservoir;
 - Up to 75 ha of habitat restoration within Southleigh Forest, a Portsmouth Water-owned site located approximately 1.8 km south-east of the Site (see Figure A-1 in Appendix A);
 - Creation of up to 80 ha of new wood-pasture and neutral grassland through a partnership with local landowners; and
 - A Capital Grants Scheme to provide funding to study and enhance biodiversity locally.
- 3.13. Specific mitigation and compensation measures were included in the Outline BMCS for woodland, scattered trees, grassland, watercourses, bats, badgers, hazel dormice, birds, reptiles, great crested newts, terrestrial invertebrates and aquatic ecology. Outline enhancement measures were provided for hedgerows, wetlands and standing water.
- 3.14. The Outline BMCS is a commitment of the planning permission and shall be followed until this Strategy is approved by the LPAs.

On-Site Proposals

- 3.15. Portsmouth Water has entered into agreements with owners of land within the Site but not required for the construction of the reservoir for the purpose of providing the compensation and enhancements measures set out in the Outline BMCS. These include FE, in relation to Havant

³ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.2. Chartered Institute of Ecology and Environmental Management, Romsey.

Thicket woodland and Bell's Copse, in the north and west of the Site, and HCC in relation to a part of Staunton Country Park in the south.

- 3.16. On-Site mitigation and compensation measures are described detail in Section 6.

Off-Site Proposals

- 3.17. Additional compensation and enhancement measures set out in the Outline BMCS shall be carried out at off-Site locations. These are described in more detail in Section 7.
- 3.18. An Implementation Plan for off-Site biodiversity mitigation and compensation was provided to the LPAs as part of the planning application in April 2021 ('the **Implementation Plan**'). This sets out the process for how Portsmouth Water will implement off-Site mitigation as set out in the Outline BMCS.

Section 106 Agreement

- 3.19. Havant Borough Council, East Hampshire District Council, Hampshire County Council, Portsmouth Water, and the Secretary of State for Environment, Food and Rural Affairs (representing Forestry England) have entered into an agreement under Section 106 of the Town and Country Planning Act ('the **Section 106 Agreement**') signed on 15th October 2021.
- 3.20. Schedule 1 Part 1 of the Section 106 Agreement requires the First Owner⁴ to submit a Detailed Biodiversity Mitigation and Compensation Strategy (this Strategy) for approval to Havant Borough Council, East Hampshire District Council and Hampshire County Council, and that the Strategy shall include a Framework Landscape and Ecology Management Plan (LEMP) that will be updated with each Reserved Matters Application.
- 3.21. The Section 106 Agreement also requires Portsmouth Water to deliver the off-Site mitigation and compensation in accordance with the Implementation Plan; and to provide for approval:
- a 10-year woodland management plan for Southleigh Forest;
 - details of the Capital Grant Scheme;
 - details of the commitment to deliver 80 ha of new wood pasture and neutral grassland habitat, including management and maintenance; and
 - details of the commitment to deliver watercourse improvements.

Watercourse Mitigation Measures

- 3.22. Portsmouth Water have committed to providing a catchment-wide package of mitigation measures for the effects of the Scheme on watercourses required under Article 4.7 of the Water Framework Directive and approved by the Environment Agency (EA).

European Protected Species

- 3.23. Mitigation and compensation measures for European Protected Species (EPS) affected by the Scheme, which include bats and hazel dormouse are legally secured under the terms of European Protected Species Mitigation (EPSM) Licences for each species. In addition, Portsmouth Water, Forestry England and Hampshire County Council have entered into an agreement with Natural England under the Natural Environment and Rural Communities (NERC) Act 2006 Section 7 ('the **NERC Act Agreement**') with respect to mitigation and compensation measures for bats, with details provided in a Bat Habitat Management and Maintenance Plan (HMMP) produced in October 2021, which includes on-Site measures and those within Southleigh Forest.

⁴ The First Owner is Portsmouth Water.

4. Relationship to Other Documents

- 4.1. This Strategy provides a summary of the detailed biodiversity mitigation and compensation measures for the Scheme but should not be read in isolation. A key document that accompanies this Strategy is the LEMP. Separate, related documents provide the context behind this Strategy and further details of specific measures and the mechanisms whereby the measures have been committed to, which should be referred to as necessary.
- 4.2. Table 4-1 below provides a summary of related documents and plans relating to the mitigation, compensation or enhancements required as part of the Scheme.

Table 4-1 - Summary of relationship to other documents and plans

Document title	Description
Framework LEMP	Along with this Strategy, the LEMP is a condition of the Section 106 Agreement. The LEMP sets out the long-term management of habitat creation and enhancement areas required as compensation for the effects of the Scheme. Due to the phasing of the design and construction works, certain elements of the design may not be finalised at the time of issue of the LEMP document. Therefore, the LEMP will include a framework for the management proposed which will be updated with each phase of the works and developed as detailed design is submitted for each Reserved Matter. The management of important biodiversity features will be coordinated with other site management requirements, especially with the management of landscape features where there is an overlap of objectives. Therefore, the LEMP will include objectives and management prescriptions for important landscape features as well as biodiversity features. Details of how management success will be monitored and details of any remedial measures that may be required to ensure objectives are met are included. The LEMP sets out the means for delivery of the commitments in this Strategy and will set out the how the management prescriptions will be implemented. It will be provided to the relevant management organisations (see Table 9-1) who will implement the prescriptions included within it. The level of detail provided in the LEMP will be that which is necessary to ensure the effective management of the landscape and biodiversity features present at each phase of the Scheme. Where possible detailed management proposals will be included, and where this is not possible, due to later designs not being finalised, then an outline of management proposals will be included, to be updated at a later date.
ES Volume 2 Chapter 9 – Biodiversity	The ES Volume 2, Chapter 9 – Biodiversity includes an assessment of the effects of the Scheme on biodiversity and was completed in September 2020. The ES was prepared to support the planning application for the Scheme. It outlines the baseline conditions at the Site; and identifies the value and sensitivity of important ecological features, potential impacts and effects on these features, and mitigation, compensation and enhancement measures. These measures will be incorporated into the design, operation and management of the Scheme. The ES Chapter 9 identifies the important ecological features affected by the Scheme, and the measures to mitigate or compensate for significant adverse effects on these features.
Outline BMCS	The Outline BMCS was completed in September 2020 and submitted along with the ES as part of the planning application for the Scheme. This document outlines the proposed on-Site and off-Site habitat and species-specific mitigation and compensation measures and was accepted along with the ES as part of the full planning permission in October 2021. Therefore, the measures included within the Outline BMCS set out the

Document title	Description
	commitments made by Portsmouth Water to mitigate and compensate for the effects of the Scheme on biodiversity. The Outline BMCS provides a framework for the biodiversity mitigation and compensation and the basis for the content that is included in this Strategy.
Biodiversity Metric Report – Report for Terrestrial Habitats	A study was undertaken in 2020 to apply the DEFRA Biodiversity Metric (version 2.01) published by Natural England to the Havant Thicket Reservoir Project, in relation to Biodiversity Net Gain. The report presented (for terrestrial habitats only): • Baseline condition for on-Site habitats and the biodiversity units that will be lost due to the Scheme. • Predicted biodiversity units that will be created on-Site and off-Site through habitat creation and enhancement.
ES Volume 4, Appendix A15.4 – Biodiversity Net Gain for Rivers	This appendix to the ES submitted in 2020 includes an application of the DEFRA Biodiversity Metric (version 2.01) to the Havant Thicket Reservoir Project for linear watercourse habitats similar to that undertaken for terrestrial habitats described above.
ES Volume 4, Appendix 4.2 – Outline Environmental Management Plan	The Outline Environmental Management Plan (OEMP) provides an outline plan to manage the environmental effects of the Scheme and to demonstrate compliance with relevant environmental legislation. The OEMP includes a Record of Environmental Actions and Commitments (REAC) that identifies environmental actions and commitments recorded in the ES that are required to mitigate potential environmental effects of the Scheme. The REAC includes the mitigation, compensation, management and monitoring measures for biodiversity to be implemented during the construction and operation of the Scheme that are carried forward within this Strategy and the LEMP. The LEMP (referred to in the REAC as an Ecological Management Plan – EcMP) is an objective of the REAC. The OEMP provides the framework that can be used to inform the development of the CEMP.
Construction Environmental Management Plan (CEMP)	The CEMP has been prepared for the Scheme by the Principal Contractor and is a 'live' document maintained throughout the construction phases of Scheme. The CEMP includes details of how the following ecological mitigation measures will be implemented during the construction phases: • Protective fencing to prevent accidental encroachment in to adjacent habitats; • Protection of trees in accordance with BS5837⁵, and and Natural England and the Forestry Commission Standing Advice on ancient woodland, ancient trees and veteran trees⁶; • Control of construction lighting to reduce impacts on bats; • Details of continued ecological monitoring for protected species during construction, including badger activity and nesting birds; • Measures to prevent animals, particularly badgers, becoming trapped in excavations; • Precautions during night construction activities to minimise disturbance to badgers and other animals, including toolbox talks and signage (e.g. for badger crossings of access roads) as necessary; • Avoidance of nesting birds during vegetation clearance;

⁵ British Standard (2012) BS 5837 Trees in relation to design, demolition and construction guidance – recommendations. BSI, London.

⁶ Natural England and Forestry Commission (2022) *Guidance - Ancient woodland, ancient trees and veteran trees: advice for making planning decisions*. Online at: <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>.

Document title	Description
	• Improvements to river substrate and appropriate reinstatement of banks at pipeline crossing locations; • Appointment of an Ecological Clerk of Works (ECoW) with appropriate training and experience; and • Provision of training, information, briefings and toolbox talks for on-Site personnel in relation to landscape and ecology features and potential impacts. Where appropriate, the CEMP will refer to method statements set out in the EPSM licences for bats and hazel dormouse. The CEMP will also include Precautionary Methods of Working (PMW) that detail the measures to avoid or minimise impacts on other legally protected species where licences are not required. On completion of construction the CEMP will be finalised and transferred to a Handover Environmental Management Plan (HEMP) in order to pass crucial information on the environmental actions undertaken, important features, and post-construction management requirements to those bodies responsible for future maintenance and operation of the Scheme.
EPS Mitigation Licences and NERC Act Agreement for bats with associated HMMP.	EPSM Licences have been issued by Natural England for bats (NE Reference: 2020-50625-EPS-AD2) and hazel dormouse (NE Reference: 2020-50257-EPS-AD2). The terms and conditions of these licences set out agreed mitigation and compensation measures within the Site and method statements have been prepared for implementation. The licences allow for the felling of trees and clearance of vegetation that may result in the disturbance of bats and hazel dormouse and loss of roosts and places of shelter. The licences relate to specific on-Site locations where impacts will occur agreed with Natural England. The mitigation and compensation for bats is included in the HMMP as part of the bat licence and secured under the NERC Act Agreement. The mitigation and compensation required for bats and hazel dormouse forms part of this Strategy.
Reptile Mitigation Strategy	A detailed reptile mitigation strategy has been prepared by the Principal Contractor, as part of the CEMP, that sets out the methods for avoiding and minimising harm to the four reptiles species found at the Site (adder, grass snake, common lizard and slow-worm). This will include a translocation strategy. An outline of the mitigation measures to be adopted by the Principal Contractor for reptiles are included in this Strategy, as well as compensation measures that will benefit reptile species in the long term.
Access and Recreation Strategy	A Recreation Strategy is being developed by Portsmouth Water that will consider impacts of informal access on biodiversity. It will include measures to manage the potential impacts on protected species, particularly hazel dormouse, such as the creation of marked trails and the introduction of a ranger service. Measures will also be included to encourage dog walking away from sensitive areas, and exclusion areas for dogs, such as the new wetland.
Water Framework Directive (WFD) Article 4.7 Mitigation and Compensation Plan	A compensation package for the loss of 3.7 km of ephemeral streams to the Scheme has been developed that will include aquatic habitat creation and enhancements at on-Site and off-Site locations. This package includes new ponds, restoration of headwater streams and ponds, and river channel enhancements. See Figure A-1 in Appendix A.
WFD Article 4.7 Mitigation Work for Reach 4	An additional Technical Note produced in 2022 detailing the measures to mitigate/compensate relating to Reach 4 for some of the aquatic habitat and species loss that requires delivery prior to construction works starting

Document title	Description
	on Site. The Technical Note provides further detail for mitigation for aquatic macroinvertebrates, aquatic plants (macrophytes), and INNS.
Wetland Concept and Outline Design	A Technical Note (document reference: HTR-ATK-XX-ZZ-RP-Z-0001) produced in 2020 that sets out the decision-marking process behind the development of the wetland Outline Design, and the key wetland design concepts and parameters to form the basis for future design development.
Implementation Plan for Off Site Biodiversity Mitigation and Compensation	The off-Site mitigation areas are detailed in an Implementation Plan for Off Site Biodiversity Mitigation and Compensation submitted as part of the planning application, which sets out the process of how Portsmouth Water will implement off-Site compensation following the approach laid out in the Outline BMCS. This implementation plan informed the s106 Agreement for the reservoir and pipeline.
Southleigh Forest Woodland Management Plan	A 10-year management plan has been prepared on behalf of Portsmouth Water for Southleigh Forest which is undergoing consultation and review by key environmental stakeholders.
Specific Plans for Wood-pasture and Grassland Creation Sites	Site-specific plans will be produced for the delivery and management of wood-pasture and neutral grassland at off-Site locations (totally 80 ha) under agreements with Portsmouth Water and local landowners.
Specific Plans for Watercourse Restoration	Site-specific plans will be produced for the delivery and management of watercourse restoration off-Site locations under agreements with Portsmouth Water and local landowners.
Advance Planting Aftercare and Management Report	A report is being produced on behalf of Portsmouth Water which sets out details of aftercare and management of advance works tree planting at Gipsies Plain and Deerslaughter Plain (Memory Park) within the Site.

5. Site Description

- 5.1. This section provides a definition and overview of the Site at the time of Planning Approval in October 2021. Figure A-1 in Appendix A shows the existing Site prior to the construction of the reservoir.

Site Boundary

- 5.2. The boundary of the Site is the Application Site red line boundary as described in 3.5 above and shown on Figure A-1 in Appendix A. The Site boundary includes all land required for the construction of the reservoir (not including the supply pipeline from Bedhampton Springs), plus land required for on-Site mitigation and compensation works.
- 5.3. The total area of the Site is approximately 296 ha.

Site Location

- 5.4. The Site is located on the northern edge of Havant in Hampshire, centred on Ordnance Survey (OS) grid reference SU 715 097.
- 5.5. It is situated within a mixed urban and suburban setting with dense residential development to the south and south-west (Leigh Park and Warren Park) and the A3(M) road approximately 500 m to the west. To the north of the Site, there is a mix of arable, pasture and woodland (The Holt). To the east of the Site lies the low-density residential area of Rowland's Castle.
- 5.6. To the east of the Site beyond Rowland's Castle is a large area of forest including Stansted Park Estate and Southleigh Forest to the south-east. Langstone Harbour and Chichester Harbour are to the south of the Site approximately 3.6 km at the closest point.

Landscape and Habitats

- 5.7. The reservoir will be situated within a shallow clay valley and will flood an area currently comprising open grassland used as pasture, broadleaved woodland (including plantation), conifer plantation, ponds, streams and ditches. Substantial areas classified as ancient woodland will be lost to the reservoir from The Avenue, Middle Clearing, Round Wood and a part of Havant Thicket woodland known as the Corsican Pine Plantation (see Figure A-2 in Appendix A). These woodland areas currently provide habitat for a range of bat species, hazel dormouse, birds and invertebrates, amongst other species.
- 5.8. The majority of the reservoir area as of October 2021 is part of Staunton Country Park (see Figure A-1 in Appendix A), managed by Hampshire County Council. Following construction of the reservoir embankment, woodland and wood-pasture and grassland habitats will remain around the periphery of the reservoir.
- 5.9. Havant Thicket woodland in the north of the Site consists of predominately conifer and birch woodland classified as ancient woodland and ancient replanted woodland. In the west of the Site is Bell's Copse, also ancient woodland.
- 5.10. Three unnamed small watercourses run from north to south across the Site, issuing from springs in Havant Thicket woodland and converging to form one stream before flowing into Riders Lane Stream to the south-west.
- 5.11. There are recreational paths used by cyclists, equestrians and walkers that cross the Site.
- 5.12. New habitats will be created as part of the reservoir construction that are not currently present within the Site, notably the reservoir itself, that will provide approximately 100 ha of open water, the embankment that will provide approximately 16 ha of new species-rich grassland that will be given back to Staunton Country Park, and an extensive wetland area (approximately 10 ha), to be created on the northern side of the reservoir.

Management Areas of the Site

- 5.13. The Site can be sub-divided into five Management Areas (compartments) that will be the locations for construction activities, compensation measures and subsequent management. These are shown on Figure A-2 in Appendix A. These Management Areas correspond to the zones where operations

will be undertaken by different management organisations (see Section 9), and where the land is owned and operated currently by those organisations.

- 5.14. Table 5-1 below lists the Management Areas identified that will make up the Site:

Table 5-1 - Management Areas of the Site

Management Area	Size (as of Oct 2021)	Size (on reservoir completion)	Tenure
Reservoir	-	106 ha (top water level)	Portsmouth Water
Embankment and surrounding landscape	167 ha	61 ha	Portsmouth Water Hampshire County Council
Wetland	-	10 ha	Portsmouth Water
Havant Thicket woodland	105 ha	101 ha approx.	Forestry England Portsmouth Water
Bell's Copse	24 ha	24 ha	Forestry England

Evaluation of Features

- 5.15. The important ecological features at the Site include SNCIs, ancient woodland, veteran trees, habitats, assemblages of species, and populations of individual species. Table 5-2 below provides an evaluation, definition and description of the important landscape and ecology features present at the Site, along with the significance of the residual effect of the Scheme on those features once mitigation and compensation is taken into account (as assessed in the ES Chapter 9 – Biodiversity).
- 5.16. Important habitats include Priority habitats⁷ as well as other habitats at the Site considered to be important for wildlife on their own, or that act as a component of a wider landscape important for wildlife. Important species include Priority⁸, Red-Listed⁹, rare or legally protected species.

Table 5-2 - Value of important ecological features and significance of effects

Feature	Description	Value	Significance of Residual Effects of the Scheme
Bats	An assemblage of at least 13 bat species use the Site and surrounding area for roosting, foraging and commuting. Includes species that are qualifying species of Special Areas of Conservation (SAC).	Nationally important	Construction/ operational phases: Neutral and not significant
Ancient woodland	Ancient woodlands are irreplaceable habitats. The Site has six ancient woodlands: The Avenue, Round Wood, Middle Clearing, Cabbagefield Row,	Regionally important	Significant negative effect on ancient woodland and veteran trees during construction.

⁷ Habitats of principal importance listed under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006 (<https://jncc.gov.uk/our-work/uk-bap-priority-habitats>) and local Biodiversity Action Plan (BAP) Priority habitats.

⁸ Species of principal importance under S41 of the NERC Act 2006 (<http://publications.naturalengland.org.uk/publication/4958719460769792>) and local BAP Priority species.

⁹ Species of conservation concern within the UK listed with the Red Data Book (RDB) species (<http://jncc.defra.gov.uk/page-5335>), and Birds of Conservation Concern.

Feature	Description	Value	Significance of Residual Effects of the Scheme
	Havant Thicket and Bell's Copse. Round Wood, Middle Clearing, the Corsican Pine Plantation and Havant Thicket are considered to include relatively recent plantations on ancient woodland soils. Havant Thicket has been subject to alterations through commercial forestry. Bells Copse contains both semi-natural ancient woodland and plantation on ancient woodland soils.		Long-term significant positive effect at County level as enhanced ancient woodland habitat establishes. No significant effects from operation.
Veteran trees	A number of veteran trees that are considered irreplaceable features were recorded within The Avenue.	Regionally important	
Sites of Importance for Nature Conservation (SINC)	There are eight SINCs, selected for their importance for nature conservation within Hampshire, that are wholly or partially within the Site: These are: Middle Clearing SINC, Thicket Bottom SINC, Thicket Bottom Woods and Lake SINC, Havant Thicket SINC, Havant Thicket (South-West Corner) SINC, Idsworth Common SINC, Bell's Copse SINC and Cabbagefield Row SINC. A further seven SINCs are immediately adjacent to the Site.	County importance	Significant negative effect on SINCs during construction. Long-term significant positive effect as new and enhanced habitat establishes. No significant effects from operation.
Priority habitats	Priority habitats that are of principal importance for the purpose of conserving biodiversity in England in relation to Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, and local Biodiversity Action Plan (BAP) Priority habitats. These include lowland mixed deciduous woodland, wet woodland, purple moor-grass and rush pasture, lowland acid grassland and ponds.	County importance	Significant negative effect on deciduous woodland during construction. Long-term significant positive effect as new and enhanced deciduous woodland and wet woodland establishes. No significant effects from operation.

Feature	Description	Value	Significance of Residual Effects of the Scheme
Other terrestrial habitats	Neutral grassland present at the Site that would meet the criteria for selecting SINC in Hampshire and forms part of an ecological network of habitats.	County importance	Significant negative effect during construction due to loss of neutral grassland. Significant positive effect at Local level as new grassland establishes. No significant effects from operation.
Aquatic habitats	Upper Lake and the headwater streams of the Riders Lane catchment within the Site that are importance for wetland and aquatic plant and invertebrate species.	County importance	Significant negative effect on headwater streams from construction. No significant effects on other aquatic habitats from construction or operation
Hazel dormouse	A widespread species in Hampshire, subject to development pressure locally.	County importance	No significant effects from construction or operation.
Breeding birds	An assemblage of breeding birds within the Site including breeding skylark and firecrest, and foraging nightjar.	County importance	No significant effects from construction. Potential for significant positive effect during operation.
Reptiles	An important site for reptile populations, supporting four species of reptiles and providing suitable foraging, shelter and hibernation habitat for these species.	County importance	No significant effects from construction or operation.
Aquatic invertebrates	Aquatic invertebrates present comprise an important assemblage of species including two Nationally Scarce beetles and one nationally Scarce caddisfly.	Regional	No significant effects from construction or operation.
Winter birds	The Site supports an assemblage of overwintering bird species typical of grassland and woodland habitats.	Local importance	No significant effects from construction. Potential for significant positive effect during operation.

Feature	Description	Value	Significance of Residual Effects of the Scheme
Great crested newts	A small population of great crested newts is present within ponds in the east of Havant Thicket woodland and there are large areas of suitable terrestrial habitat within range of the ponds.	Local importance	No significant effects from construction or operation.
Terrestrial invertebrates	The invertebrate assemblage includes some Priority species, but species present are relatively common and widespread within Hampshire.	Local importance	No significant effects from construction or operation.
Badger	This common species is offered legal protection for welfare reasons and therefore should be taken into consideration during construction.	Negligible	No significant effects from construction or operation.
Common amphibian species, including palmate newt	Present in Upper Lake, although not legally protected.	Not specified	No significant effects from construction or operation.
Otter	Otters have not been recorded at the Site, but as a wide-ranging species there is potential for otters to colonise the Site in the future.	Not specified	No significant effects from construction or operation.
Water vole	Water vole has not been recorded at the Site, but there is potential for this species to colonise the Site in the future.	Not specified	No significant effects from construction or operation.

5.17. Other Priority or legally protected species may use the Site in the future so such species will be taken into consideration during monitoring of the Site and included within later iterations of the LEMP. These could include otter, water vole and osprey.

5.18. The following invasive non-native species (INNS)¹⁰ have been recorded at the Site:

- Parrot's feather is present in a number of ponds in the east of Havant Thicket woodland;
- Montbretia and rhododendron have been reported as present within Havant Thicket woodland; and
- Mandarin duck was recorded breeding in Upper Lake within the footprint of the reservoir.

¹⁰ Non-native species considered invasive in England and Wales and subject to legal controls (<http://www.nonnativespecies.org//index.cfm?pageid=67>)

Matrix of Features by Management Area

- 5.19. Table 5-3 overleaf provides a summary of the locations of important ecological features across the Management Areas that make up the Site as of July 2022, including the current or potential use of each area by the important species identified in Table 5-2 above.

Table 5-3 - Matrix of features by location

Features	SINCs	Ancient woodland	Veteran trees	Priority habitats	Aquatic habitats	Other habitats	Bats	Hazel dormouse	Birds	Reptiles	Great crested newt	Terrestrial invertebrates	Badger	Otter	Water vole	INNS
The Reservoir and Embankment					✓	✓	✓		✓					✓	✓	✓
Embankment and surrounding landscape	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Wetland area				✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓
Havant Thicket Woodland	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bell's Copse	✓	✓		✓		✓	✓	✓	✓			✓	✓			

6. On-Site Biodiversity Mitigation and Compensation Measures

Introduction

- 6.1. This section sets out the requirements for the on-Site mitigation and compensation measures as part of this Strategy. These are split into requirements for mitigation during the construction phase (including enabling works) delivered under the CEMP and requirements for compensation which will be delivered under the LEMP.
- 6.2. The objectives for management, and details of how the objectives will be met will be set out in the CEMP and the LEMP. These documents should be consulted for details of how biodiversity mitigation and compensation will be implemented.
- 6.3. Aftercare and ongoing management activities for new features set out in the LEMP and will commence on completion of each phase of construction, therefore there will also be a phased approach to the commencement of aftercare/management activities
- 6.4. An indicative programme of works is provided in Section 10.
- 6.5. Compensation for the loss of designated sites and ancient woodland to the Scheme is provided as a package of measures, including on-Site and off-Site measures, agreed by the local planning authorities and all stakeholders. Ancient woodland within Havant Thicket woodland and Bell's Copse will be subject to habitat restoration and enhancement measures as outlined below. Details of off-Site compensation measures are provided in Section 7.
- 6.6. The locations for retained, created and enhance habitats are shown on Figure A-3, in Appendix A.

General Objectives

- 6.7. This Strategy is based on the following core elements for on-Site mitigation and compensation set out in the Outline BMCS and therefore commitments of the planning permission:
 - Create an environmentally-led design based on the mitigation hierarchy approach of avoid, minimise, or compensate. As far as practical, compensation will be provided on-Site for the key impacts;
 - Ensure appropriate mitigation and compensation is implemented for protected and notable species. European Protected Species licences will be obtained where required;
 - Create a mosaic of new and high-quality habitats, including a new open waterbody with a retained wetland offering variable water depths, a variety of vegetation types and islands for added habitat complexity and to act as for roosting and nesting sites for birds;
 - Long-term management for biodiversity through collaboration with FE and HCC, including a long-term LEMP; and
 - Deliver on-Site aquatic habitat mitigation, compensation and enhancements to ponds and watercourses as part of a catchment-wide approach.

SINCs, Ancient Woodland and Habitats

- 6.8. The mitigation and compensation for SINCs, ancient woodland and habitats is set out below. This is considered together due to the general mitigation and compensation measures provided which cover all these features.

Pre-construction Compensation

- 6.9. New native woodland and wood pasture/parkland created at Gipsies Plain and Memory Park (at Deerslaughter Plain), as well as additional woodland planting provided during construction of the reservoir, will partly compensate for the loss of woodland and grassland habitats to the Scheme.
- 6.10. Woodland planting at Gipsies Plain in the south-east of the Site has been provided as compensation for the loss of habitat connectivity between Staunton Country Park and Havant Thicket woodland provided by The Avenue. In total a 0.76 ha strip of broadleaved woodland has been created and hedgerows on the eastern boundary of the Site have been restocked with new

planting to improve habitat connectivity. These measures will form a new woodland corridor on the eastern side of the reservoir, which will mitigate for the loss of habitat connectivity.

- 6.11. An additional 1.38 ha of woodland has been planted at Memory Park in the south-west of the Site.
- 6.12. A total of 1.84 ha of parkland with groups of trees has been created during pre-construction works, at Gipsies Plain and Deerslaughter Plain, to form wood-pasture.

Mitigation during Construction

- 6.13. Areas of SINC and ancient woodland adjacent to the construction area will be protected from damage and accidental incursion through the adoption of habitat protection measures, such as suitable protective fencing. Any additional loss of designated sites or ancient woodland will be avoided.
- 6.14. Retained habitats (including Priority habitats) that are adjacent to the construction area will be protected from damage and accidental incursion through the adoption of protection measures, such as suitable protective fencing. Any additional loss of such habitats will be avoided.
- 6.15. All areas of landscape and natural habitat temporarily disturbed during the construction works will be reinstated.

Compensation Measures

Embankment and Surrounding Landscape

Woodland and Wood Pasture Creation

- 6.16. A total of 0.3 ha of extra woodland planting will be provided during construction of the reservoir.
- 6.17. Compensation planting at Gipsies Plain and Memory Park will be subject to at least five years aftercare management to ensure successful establishment as set out in the Advance Planting Aftercare and Management Report. Wood-pasture will be grazed as part of the future management of the compartment of the Site that will be returned to Staunton Country Park on completion of construction.

Retained Woodland Management

- 6.18. Woodland management will be undertaken within retained woodland areas of The Avenue, Cabbagefield Row, Round Wood, and Swanmore Road shelterbelt to enhance these habitats in the long term for biodiversity by providing more varied woodland structure and rotational open glades. More long-term open glades will also be created in these woodlands where appropriate.

Hedgerow Creation and Restoration

- 6.19. New hedgerows will be created and lengths of existing hedgerow will be restored to improve habitat connectivity and compensate for loss of scrub and linear vegetation. Existing hedgerows will be restored to improved their value for biodiversity through gap filling and management to maintain a dense, continuous structure.

Grassland Creation and Enhancement

- 6.20. In total 36.71 ha of new or enhanced species-rich grassland will be created as compensation for loss of dry neutral and acid grassland to the Scheme. A large expanse of species-rich grassland will be created on the slopes of the new embankment using low-nutrient soils. In addition, grassland outside of the construction footprint will be retained or reinstated and managed as part of the overall grassland areas around the reservoir.
- 6.21. Management of the new and retained grassland will be undertaken to provide a varied sward height and graded edges where at the interface with scrub and woodland to increase structural and species diversity.
- 6.22. Grassland will be managed long-term by grazing as much as possible, and suitable fencing and gates to retain grazing stock as well as provide visitor access will be installed and maintained. Where grazing is not feasible, small areas will be managed by annual hay cut. The Access and Recreation Strategy being produced by Portsmouth Water for the Scheme will include measures to protect grazing stock and sensitive areas for disturbance by dogs and dog walkers.

Rush Pasture Enhancement

- 6.23. To compensate for the loss of damp to wet grassland (including Purple Moor-grass and Rush Pastures Priority habitat), species-poor marshy grassland and neutral grassland habitat in the south-west of the Site will be enhanced and the hydrology of the area managed through supply of overflow from the reservoir drainage system. This will create conditions suitable for rush pasture habitat to develop.

Havant Thicket Woodland

Conifer Clear-fell and Replanting

- 6.24. As part of habitat creation and restoration works within Havant Thicket woodland, felling and clearance of pine plantation has been undertaken, and subsequent planting of native broadleaved trees will be undertaken at locations shown on Figure A-3, in Appendix A. Species to be planted will include pedunculate oak and hazel, and natural regeneration of native broadleaved trees will be encouraged.

Birch Clearings and Replanting

- 6.25. Linear clearances (also referred to as racks), specifically for improving biodiversity, will be created through birch-dominated woodland in Havant Thicket woodland, to encourage regeneration growth of a greater diversity of broadleaved trees. During clearance, selected species, such as pedunculate oak and yew, and selected Scots pine and mature birch, will be retained. In addition, where appropriate, new broadleaved tree species (such as pedunculate oak, yew, beech, hornbeam and hazel) will be planted. Some clearings will be left unplanted to regenerate naturally.

Ride Management

- 6.26. Management of existing paths and rides in Havant Thicket woodland will be undertaken, to create 2-zone and 3-zone rides with scallops, which will provide more graded habitat edges and variety of vegetation structure and height. This will be attained through rotational management.

Forest Glades¹¹

- 6.27. Within two areas of Havant Thicket woodland previously clear-felled, a series of glades will be opened up and managed to create rotational open space with graded edges. Damp acid grassland with purple moor-grass and scattered scrub will be allowed to develop and bracken will be suppressed.
- 6.28. The creation of forest glades will compensate for the loss of dry neutral to acid grassland, damp to wet grassland and rush pastures (including Purple Moor-grass and Rush Pastures Priority habitat), and species-poor rush pasture lost to the reservoir. The management will enhance the biodiversity value of the woodland by providing structural diversity within dense woodland blocks, while retaining the ancient woodland context.

Scrub Edge

- 6.29. To compensate for losses of scrub and hedgerow, 0.37 ha of scrub edge habitat on the south-eastern edge of Havant Thicket woodland, which is formed of mainly grey willow shrubs, will be retained and enhanced. This will include rotational management of the hedgerow on the boundary and creation of an area of managed scrub at least 4 m in width with a sinuous edge within the adjacent retained grassland to the south to provide a graded edge habitat.

Bell's Copse

Coppicing

- 6.30. Coppicing will be established as a form of long-term management of a proportion of Bell's Copse. Hazel and other understorey trees will be coppiced on rotation. This will provide compensation for loss of broadleaved woodland and increase structural diversity.

¹¹ The Section 106 Agreement includes a reference to 'forest meadows'. In this Strategy, these are referred to as 'forest glades' as this is a more correct management term.

Scrub Mosaic

- 6.31. Rotational management of grassland and scrub will be undertaken along the wayleave in the north-west of Bell's Copse to create a mosaic of scrub and grassland to provide compensation for the loss of willow treelines.

Aquatic Habitats

Mitigation during Construction

- 6.32. Retained ponds and watercourses and associated flora and fauna will be protected from damage and construction-related pollution risk. In particular, existing fish populations will be protected from construction-related impacts.
- 6.33. A small number of notable plants will be translocated from on-Site standing water, watercourses and ditches to suitable habitats within Havant Thicket woodland. Such species include marsh St. John's-wort, floating club-rush and lesser skullcap. Small ponds created on headwater streams as well as existing ponds within Havant Thicket woodland will act as receptor sites for the translocation.
- 6.34. Measures will be undertaken to remove the invasive non-native plant parrot's feather from ponds within Havant Thicket woodland. Biosecurity measures during construction will be included in the CEMP.
- 6.35. Mitigation measures for amphibian, including great crested newts are provided below.

Compensation Measures

Ponds and Watercourses

- 6.36. A compensation package for the loss of watercourses and ponds (including Upper Lake) to the Scheme will be implemented, which contains:
- Three headwater streams, and one associated pond within Havant Thicket woodland (Reaches 1-3) will be opened up through removal of trees and scrub to create open stream corridors and glades and a graded vegetation structure at the woodland edge, maintained by ongoing rotational management.
 - Five new ponds will be excavated at locations on Reaches 1-3 watercourses within Havant Thicket woodland. Woody debris and other natural materials will be installed on the ponds to create 'leaky dams' that back-up water flow behind. These ponds will slow water flow and reduce inputs from sediments, nutrient run-off and pesticides flowing into the reservoir and wetland area from these streams.
 - Conifer trees will be removed from around ponds in the east of Havant Thicket woodland (Reach 4) to allow more light to enter area and increase riparian vegetation.
 - Two new ephemeral waterbodies have been created in the south-east of the Site at Gipsies Plain within new woodland. A new ditch channel (Reach 5) will be also created in this area.
 - The new compensation flow channel (Reach 8) to be built between the reservoir and the Riders Lane Stream will provide 250 m of new aquatic habitat that will be designed to have natural, vegetated banks and a suitable flow regime to benefit wildlife.
 - Specific measures for on-going control of Invasive Non-native Species (INNS) at the Site will be included in the LEMP.

New Wetland/Wet Woodland

- 6.37. To compensate for loss of wetland, wet woodland, and other habitats, a 10.2 ha wetland area, with a mosaic of habitats will be created on the northern edge of the reservoir. This area will include pools with islands and variable water depths, reedbed, marshy grassland, wet woodland, and scrub.
- 6.38. The wetland area is a Reserved Matter element currently in outline, which will be subject to later detailed design. Full details will be provided in the detailed design to be submitted with the wetland Reserved Matter application.
- 6.39. The wetland area will be fed by the three headwater streams (Reaches 1-3), and water will be retained by a structure that will retain natural levels, even when the reservoir is low.

- 6.40. An area of conifer plantation in the south of Havant Thicket woodland will be felled and suitable areas replanted with wet woodland tree species prior to the flooding of the area.

Shoreline Habitat

- 6.41. A shallow shoreline will be formed on the north-eastern side of the reservoir to create habitat suitable for typically ephemeral populations of plant species adapted to the open shallow edges of freshwater lakes. Partially submerged dead wood features will be installed using timber felled on-Site during the woodland clearance for the reservoir.
- 6.42. Methods will be developed at a later phase of the Scheme to mitigate for the potential effects on aquatic species associated with routine reservoir drawdown events.

Trees (including Veteran Trees)

Mitigation during Construction

- 6.43. Retained trees (including veteran trees), scrub and hedgerows will be protected in line with British Standard BS 5837 and Standing Advice on Ancient Woodland, Ancient Trees and Veteran Trees.

Compensation Measures

- 6.44. The new native woodland and wood pasture/parkland created at Gipsies Plain and Memory Park, as well as additional woodland planting provided during construction of the reservoir, will partly compensate for the loss of trees to the Scheme.
- 6.45. To compensate for the loss of veteran trees, selected retained trees have been subject to measures to promote the formation of features found on veteran trees ('veteranisation'). These included creating artificial woodpecker holes, artificial damage to trunks and branches, and cutting into wood to encourage rot to begin forming areas for rot to begin in some retained trees. In addition, some retained non-native trees will be ring-barked to create standing dead-wood.
- 6.46. Timber felled on-Site during woodland clearance for the reservoir will be re-used on-Site as dead wood features (see paragraph 6.72).

Bats

Pre-construction Mitigation

- 6.47. Woodland planting at Gipsies Plain and hedgerow restoration in the east of the Site will mitigate for the loss of habitat connectivity between Staunton Country Park and Havant Thicket woodland provided by The Avenue; and will create a new woodland corridor on the eastern side of the reservoir.
- 6.48. Bat boxes have been provided in retained woodland at Havant Thicket woodland and Staunton Country Park.

Mitigation during Construction

- 6.49. A EPSM licence has been obtained for impacts of the Scheme on bats. The Scheme will affect roosting, foraging and commuting bat species. Measures to protect bats from harm and disturbance, and to protect their roosts from damage or disturbance, are set out in the EPSM licence (and associated NERC Act Agreement and HMMP), which is the mechanism for implementation of the mitigation and reporting of licensable activities, and the licence measures will be implemented during construction as part of the CEMP. Tree clearances as part of the enabling works are being undertaken under licence.

Compensation Measures

- 6.50. Measures undertaken within Havant Thicket woodland will compensate for loss of habitat and roosting opportunities for bats, such as conifer clear-fell and replanting, birch clearings and replanting, ride management, forest glades and stream and pond enhancements.

- 6.51. The forest glades and managed rides will provide habitat for foraging bats, especially edge-feeding species, as compensation for the loss of habitat for Bechstein's bat, Natterer's bat and other commoner bat species.
- 6.52. Natural roost features have been created (see paragraph 6.45) and selected roosting features removed from woodland at the site during felling will be re-erected. Further details are on Figure E3c of the bat licence.
- 6.53. These measures are commitments under the NERC Act Agreement and set out in the HMMP.

Hazel Dormouse

Pre-construction Mitigation

- 6.54. Woodland planting at Gipsies Plain and hedgerow restoration in the east of the Site will mitigate for the loss of habitat connectivity between Staunton Country Park and Havant Thicket woodland provided by The Avenue; and will create a new woodland corridor on the eastern side of the reservoir.
- 6.55. Dormouse nest boxes have been provided in retained woodland at Havant Thicket woodland and Bell's Copse.

Mitigation during Construction

- 6.56. A EPSM licence has been obtained for impacts of the Scheme on hazel dormice and their habitat. Measures to protect hazel dormice from harm and disturbance, and to protect their habitat from damage or disturbance, are set out in the EPSM licence, which is the mechanism for implementation of the mitigation and reporting of licensable activities, and the licence measures will be implemented during construction as part of the CEMP.

Compensation Measures

- 6.57. New woodland and scrub will provide habitat for hazel dormouse. Measures undertaken within Havant Thicket woodland will enhance the habitat for hazel dormouse by encouraging regeneration of native broadleaved species and creating new vegetation structure and graded edge habitats.

Birds

Mitigation during Construction

- 6.58. A Precautionary Method of Working (PMW) will be adopted during construction to protect nesting birds from harm or disturbance, which will be implemented as part of the CEMP.

Compensation Measures

- 6.59. New wetland, grassland, woodland and scrub will provide foraging and nesting habitat for birds. Measures undertaken within Havant Thicket woodland will compensate for loss of habitat and nesting opportunities for birds, such as conifer clear-fell and replanting, birch clearings and replanting, ride management, forest glades and stream and pond enhancements.
- 6.60. Creation of forest glades will increase the suitability of habitat within Havant Thicket woodland for birds such as nightjar. The wetland will provide roosting and nesting sites for a variety of birds.
- 6.61. Management of retained and new grassland (including scrub edge interfaces) will create a varied sward height that will provide new opportunities for territories for skylark and meadow pipit, and foraging habitat for kestrel.

Reptiles

Pre-construction Mitigation

- 6.62. Clearance of eight areas (0.25 ha each) of birch-dominated woodland have been carried out within Havant Thicket woodland to provide reptile receptor areas for reptiles captured during translocation. Reptile hibernacula have been provided. Some of these clearances are in the compartments

allocated for creation of forest glades as described above and will be integrated into the forest glade management.

Mitigation during Construction

- 6.63. Reptiles will be protected from harm during the construction, and in order to facilitate this, reptile species will be translocated away from the works area to suitable receptor sites in Havant Thicket woodland and retained habitats around the reservoir including the eight birch clearance areas, conifer clear-fell areas, forest glades and suitable habitat outside the works area, prior to the start of construction.
- 6.64. In order to increase carrying capacity of receptor areas, management will be undertaken where necessary and new hibernacula and log piles will be installed.
- 6.65. New log piles will be installed within Havant Thicket woodland as part of the re-use of dead wood (see paragraph 6.72), such as in the conifer clear-fell areas and forest glades. The area around new waterbodies in the south-east of the Site at Gipsies Plain will also be enhanced for reptiles through provision of hibernacula.
- 6.66. In order to protect any reptiles that remain within the working area from harm during construction, a PMW will be adopted which will be implemented as part of the CEMP.

Compensation Measures

- 6.67. New wetland, grassland and scrub edge habitat will provide foraging, basking and hibernating opportunities for reptiles. Measures undertaken within Havant Thicket woodland will provide new habitat suitable for reptiles, such as conifer clear-fell areas, ride edges and forest glades.
- 6.68. Management of the new and retained grassland will be undertaken to provide a varied sward height and graded edges where at the interface with scrub and woodland to increase structural and species diversity. This will provide suitable habitat for reptiles. Creation of scrub edge will increase the suitability of habitat around the reservoir for reptiles.

Amphibians

Mitigation during Construction

- 6.69. A PMW will be adopted during construction to protect great crested newts from harm or disturbance, which will be implemented as part of the CEMP.
- 6.70. The population of common amphibians in the Upper Lake, including palmate newt, will be translocated away from the development footprint using a capture and translocation exercise.

Compensation Measures

- 6.71. New wetland pools, grassland and woodland will provide suitable locations for breeding, foraging and hibernating for great crested newts. Measures undertaken within Havant Thicket woodland will provide enhanced terrestrial habitat, such as conifer clear-fell areas, ride edges and forest glades.

Terrestrial Invertebrates

Mitigation during Construction

- 6.72. Deadwood, particularly large limbs, will be moved from woodland within the reservoir footprint to retained woodland to provide habitat for saproxylic invertebrates. This will include re-location of selected felled oak standards to retained areas to be erected to form dead-wood 'monoliths', provision off dead hedging and strategically placed large horizontal limbs and log piles.
- 6.73. The re-use/re-location of dead wood will aim to provide a range of forms, structures and environmental conditions in which the wood will degenerate over time. These will include:
 - Standing deadwood
 - Lying whole trunks and/or large branches
 - Log piles; and
 - Dead hedges

- 6.74. A range of locations will be selected, providing shaded, sunny, wet and dry conditions to maximise the benefits to a range of invertebrates, as well as fungi and lichens.

Compensation Measures

- 6.75. New wetland, grassland, woodland and scrub habitat will provide suitable habitat for a range of invertebrates. Measures undertaken within Havant Thicket woodland will enhance the habitat for invertebrates, in particular through conifer clear-fell and replanting, ride management, forest glades, and pond and stream enhancements.
- 6.76. Creation of forest glades will increase the suitability of habitat within Havant Thicket woodland for invertebrates such as white admiral, silver-washed fritillary and glow worm.

Aquatic Invertebrates

Mitigation during Construction

- 6.77. Notable aquatic invertebrate communities will be translocated from on-Site watercourses with some of the highest diversity to suitable watercourses within Southleigh Forest.

Compensation Measures

- 6.78. Measures undertaken on the headwater streams and ponds within Havant Thicket woodland will enhance the habitat for aquatic invertebrates, in particular through removal of trees and scrub to create more open stream corridors and ponds, maintained by ongoing rotational management.

Badgers

Mitigation during Construction

- 6.79. A PMW will be adopted during construction to protect badgers from harm or disturbance that will be implemented as part of the CEMP. This will include measures to prevent badgers becoming trapped in excavations and precautions during night construction activities to minimise disturbance to badgers. (e.g. signage at known badger crossings of access roads for construction traffic).
- 6.80. There will be closure of any badger setts within the construction area under licence.

Compensation Measures

- 6.81. Created and enhanced grassland, woodland and scrub habitat will provide badgers new foraging opportunities and locations for sett building. Measures undertaken within Havant Thicket woodland will also benefit badgers by opening up new foraging areas.

Invasive Non-native Species

- 6.82. The spread of invasive non-native species (INNS) due to construction activities will be prevented through biosecurity measures implemented as part of the CEMP and LEMP. Aquatic features, such as ponds and watercourses will be protected from the establishment of INNS, such as parrot's feather, by carrying out a policy to eradicate INNS where present and minimising spread, both within the works area and elsewhere on the Site.
- 6.83. Measures will be implemented to raise public awareness of INNS.

Monitoring

- 6.84. Following the implementation of mitigation and compensation measures for important ecological features, it will be necessary to monitor their effectiveness against the specific objectives for each feature.
- 6.85. A programme of monitoring of habitats and species will be set up to provide the survey information required to measure the success of management and inform decisions to make appropriate changes. This will include:
- Monitoring of potential impacts on important ecological features during construction, particularly new impacts or changes in the level of significance of effects identified in the ES;

- A record of actions/operations undertaken to provide biodiversity mitigation and compensation as set out in this Strategy, including dates and who carried out the action/operation;
- Monitoring of the successful establishment of planted trees and shrubs, newly seeded grassland, and planted wetland areas;
- Monitoring of the presence of INNS;
- Annual surveys of the Site to establish the status of habitats and species populations in relation to targets for management success set out in the LEMP and site-specific management plans (surveys will be undertaken by specialists as necessary); and
- Monitoring in accordance with the EPSM licence conditions.

- 6.86. Species monitoring surveys will be required for bats, hazel dormouse, breeding birds, over-wintering birds, reptiles, great crested newt and terrestrial invertebrates. For aquatic habitats, surveys are required for translocated macrophytes and aquatic invertebrates.
- 6.87. Bat and dormouse boxes are provided in Havant Thicket woodland and Staunton Country Park which require monitoring.
- 6.88. Management changes would be required if specific measures are unlikely to meet their objectives, including timescales.

7. Off-Site Compensation Projects

Introduction

- 7.1. The measures that will be provided at off-Site locations as part of the agreed compensation package for the loss of designated sites and ancient woodland to the Scheme are summarised in this section.
- 7.2. The objectives for management, and details of how the objectives will be met will be set out in site-specific delivery and management plans.

General Objectives

- 7.3. Off-Site compensation measures for the loss of designated sites and ancient woodland include restoration and enhancement of up to 72 ha of Southleigh Forest, and 80 ha of new wood pasture and grassland created from existing farmland to the east of the Site.
- 7.4. This Strategy is based on the following core elements for off-Site compensation set out in the Outline BMCS and the Implementation Plan submitted as part of the planning application:
 - Restoration and creation of off-Site high biodiversity value habitats through partnership with a suitable alternative partner and ecological restoration of Southleigh Forest;
 - Work with the EA to identify, agree and deliver a habitat compensation required to offset the impacts of the development on the watercourses (expected to be delivered through a catchment partnership approach); and
 - Support others to enhance and study existing habitats offsite through provision of a Capital Grants Scheme.

Southleigh Forest

- 7.5. Up to 72 ha of habitat restoration and creation will be undertaken within Southleigh Forest in partnership with a suitable partner. Southleigh Forest is currently a mixed species plantation which will be brought into positive ecological management. A detailed 10-year management plan has been prepared for the woodland which includes the gradual felling of plantation woodland and restoration to a more semi-natural woodland. Southleigh Forest management is a requirement of the NERC Act Agreement and HMMT for bats.

Wood Pasture and Grassland Creation

- 7.6. Up to 80 ha of new wood pasture and neutral grassland habitat will be created off site through partnerships between Portsmouth Water and local landowners. Portsmouth Water is currently going through the process of setting up agreements with landowners for the implementation of this compensation. The compensation will be delivered within one or more parcels of land, ideally next to existing woodland.
- 7.7. The design of this habitat will include features to improve habitat for the area's Bechstein's bat population and provide specific compensation for skylarks.

River Catchment Watercourse Enhancements

- 7.8. To meet WFD Article 4.7 requirements, a long list of practicable measures for the Hermitage Stream catchment was developed in consultation with the EA. This was followed by a short-listing exercise which resulted in a short list of deliverable options. A package of measures was agreed with the EA in March 2021 which totals up to 5.5 km of watercourse improvement and will be delivered as part of the overall mitigation and compensation strategy for the Scheme. This includes on-Site measures described above under Ponds and Watercourses, plus off-Site restoration and enhancements:
 - On the headwaters of Riders Lane Stream within Staunton Country Park, downstream of the Site (Reach 7);
 - On the headwaters of Park Lane Stream within Waterloooville golf course (Reach 15);

- On the headwaters of Hermitage Stream within The Queen's Enclosure woodland (Reach 23); and
- On the lower Hermitage Stream through Havant (Reaches 26 to 30).

Capital Grants Scheme

- 7.9. A Capital Grants Scheme will be set up to provide funding to study and enhance biodiversity locally and to improve ecological networks and corridors off-Site. The Capital Grants Scheme will commence in 2029 and will run for a minimum 30 year period.
- 7.10. The application of funding as part of the Capital Grants Scheme will be based on a series of criteria that ensure that genuine benefits to biodiversity and the local community are delivered. Priority will be given to projects with the following attributes (subject to confirmation following additional consultation with Natural England and other stakeholders):
- Proximity to the Site;
 - Value for money and deliverability;
 - Benefits to species and habitats that are adversely affected by the scheme such as bats, birds and grassland habitat;
 - Contributions to local policies and targets, such as for Hampshire Biodiversity Opportunity Areas (BOAs).
- 7.11. The proposal is to commence the scheme in 2029, or upon commencement of the operation of the reservoir. The fund will be set at a cap of £1.2m for the duration of the project, with a maximum fund of £40,000 per annum (p.a) available for 30 years. If the fund is not fully spent in any year it will be rolled over to be spent in future years (or paid to the Local Planning Authorities for the same purpose) on recommendations from the steering group.
- 7.12. A Capital Grants Scheme Committee will be set up to assess projects against the set criteria and successful applicants will have the sole responsibility of delivering their projects.

8. Stakeholders

Key Stakeholders

- 8.1. Consultation and collaboration with key stakeholders has been fundamental to the project for several years and it continues to be a fundamental element of the planning of strategies and plans for the designs and construction phases of the Scheme.
- 8.2. Regular stakeholder engagement forums are being held by Portsmouth Water throughout the design and construction phase. These consist of two forum groups and various sub groups:
 - A Strategic Forum, which includes the key stakeholder organisations listed above, excluding the Principal Contractor prior to their appointment;
 - A Community Forum, which is made up of local community group members; and
 - Sub-groups, which have been set up to consult with Portsmouth Water on specific aspects. Most relevant to this Strategy is the Environment Sub-Group.
- 8.3. The key stakeholders in the preparation and delivery of this Strategy include:
 - Portsmouth Water
 - The Reservoir Principal Contractor
 - Hampshire County Council
 - Forestry England¹²
 - Natural England
 - Forestry Commission¹³
 - Environment Agency
 - The Environmental Sub-Group

Role and Responsibilities

- 8.4. The Principal Contractor will be responsible for overseeing the construction of the project.
- 8.5. The Principal Contractor is responsible for adhering to and complying with the Scheme objectives, Scheme environmental policy, relevant environmental legislation, bylaws and regulations. It is a requirement that all site personnel are made aware of their duty of care to the environment, including local communities, and will be provided with adequate training, supervision or instruction in the form of toolbox talks, site induction modules and specific method statements as necessary.
- 8.6. The key environmental management roles and responsibilities will be identified and defined in the CEMP prior to the commencement of construction. The Principal Contractor will appoint an Ecological Clerk of Works (EcoW) to be in position for the duration of the construction period.
- 8.7. Table 8-1 overleaf provides a summary of roles and responsibilities of the identified stakeholders.

¹² Forestry England manage the Public Forest Estate.

¹³ Forestry Commission are the government department responsible for protecting, expanding and promoting sustainable management of woodlands.

Table 8-1 - Table of roles and responsibilities

Stakeholder	Role	General responsibilities, especially in relation to this Strategy	Management Areas	Phase
Portsmouth Water	Client	Responsibility for production of this Strategy.	Reservoir Embankment and Surrounding Landscape Wetland	All phases
		Manage the project.		Construction
		Appoint Principal Contractor, to design and build the Scheme.		
		Appoint enabling works contractors as required.		
		Provide engineering and environmental advice to Site.		
	Management organisation	Set up Site Management Board to oversee the long-term management and monitoring of the Site.	All areas of the Site	Post-construction
		Appoint Technical Advisor to oversee implementation of biodiversity mitigation and compensation.		All phases
	EPSM licence holder	Legal responsibility for ensuring that works adhere to the conditions of the licences for bats and hazel dormouse, with support from their ecological consultant (named in the licences), ECOSA.	All areas of the Site Southleigh Forest	All phases
Principal Contractor	Principal Contractor	Responsibility for delivery of the Scheme during the construction phase.	Reservoir Embankment and Surrounding Landscape Wetland	Construction
		Appoint sub-contractors as required.		
		Prepare and implement CEMP.		
		Prepare Site Management Plan.		
		Plan, manage, monitor and coordinate health and safety.		
		Provide adequate training, supervision or instruction to all site personnel on their duty of care to the environment and local communities, in the form of toolbox talks, site induction modules and specific method statements as necessary.		

Stakeholder	Role	General responsibilities, especially in relation to this Strategy	Management Areas	Phase
		Appoint personnel responsible for implementation, reporting and monitoring of environmental mitigation commitments during construction. Consult with environmental specialists as required for advice on specific issues or site activities. Appoint Ecological Clerk of Works (EcoW). Undertake regular monitoring of environmental mitigation activities and potential impacts during construction. Prepare HEMP and Construction Phase Health and Safety Plan on completion of construction, for handover to the managing organisations.		
Hampshire County Council	Management organisation	Undertake management operations in accordance with the LEMP under agreement with Portsmouth Water.	Embankment and Surrounding Landscape Wetland	Post-construction
Forestry England	Management organisation	Undertake management operations in accordance with the LEMP under agreement with Portsmouth Water.	Havant Thicket Woodland and Bell's Copse	
Natural England	Consultee – Strategic Forum	Provide advice as part of Strategic Forum. Comment on assessments, strategies and plans as required. Issue protected species licences.	N/A	All phases
Forestry Commission	Consultee – Strategic Forum	Provide advice as part of Strategic Forum. Comment on assessments, strategies and plans as required.		
Environment Agency	Consultee – Strategic Forum	Provide advice as part of Strategic Forum. Comment on assessments, strategies and plans as required. Issue consents in relation to works to watercourses and catchment level management activities.		
Havant Borough Council	Consultee – Strategic Forum	Provide advice as part of Strategic Forum. Review and approve Reserved Matters applications and requirements of planning conditions.		

Stakeholder	Role	General responsibilities, especially in relation to this Strategy	Management Areas	Phase
East Hampshire District Council	Consultee – Strategic Forum	Provide advice as part of Strategic Forum. Review and approve Reserved Matters applications and requirements of planning conditions.		
Community groups	Consultee – Community Forum	Provide feedback as part of Community Forum. Comment on assessments, strategies and plans as required.		

9. Delivery of Mitigation and Compensation

Implementation

On-Site

- 9.1. The Principal Contractor will produce a Site Management Plan for the Site, which is a requirement of the Section 106 Agreement, and which is to be approved by Havant Borough Council, East Hampshire District Council and Hampshire County Council. The Site Management Plan will confirm roles and responsibilities for the management and maintenance of the Site for as long as the Scheme remains open and operational.
- 9.2. The Recreational Facilities and the compensation and mitigation measures set out in this Strategy shall be managed and maintained in accordance with the approved Site Management Plan, which will also include details of how management and maintenance integrates with Staunton Country Park and Havant Thicket woodland.
- 9.3. The delivery of HMMP for bats has been secured through the EPS Licence NERC Act Agreement. The habitat compensations measures for bats set out in the HMMP are included in this Strategy and provide a wide range of benefits to different species.
- 9.4. This Strategy shall be managed and maintained in accordance with the Site Management Plan, which will also provide a mechanism for implementation of the LEMP.
- 9.5. A Site Management Board will be set up by Portsmouth Water. The Site Management Board will appoint a Technical Advisor to oversee the work carried out as part of this Strategy.
- 9.6. Portsmouth Water will in-perpetuity (and for the avoidance of doubt as long as the Reservoir is in situ and mitigation required) fund the implementation, management and maintenance of mitigation and compensation measure set out in this Strategy. Funding has been secured through Portsmouth Water Economic regulatory framework and has been agreed and signed off by Ofwat. This funding includes both costs to cover the operational assets but also cost required to mitigate the impact of the Havant Thicket Reservoir and Pipeline Scheme.
- 9.7. Portsmouth Water shall be responsible for undertaking and managing the requirements for mitigation and compensation set out in this Strategy on the land in its ownership and responsible for its costs. In addition, Portsmouth Water shall be responsible for undertaking and managing (or procuring the undertaking and management) the requirements set out in this Strategy on Forestry England land and Hampshire County Council land, unless Forestry England or Hampshire County Council advise Portsmouth Water that their shall undertake and or manage any specific element of the requirements in respect to their land, which in all respects shall be at the cost of Portsmouth Water.

Off-Site Projects

- 9.8. Portsmouth Water will work with willing partners to deliver the off-Site mitigation measures in accordance with the Implementation Plan submitted with the planning application. Commitments are set out in the Section 106 Agreement, under which Portsmouth Water will submit evidence to Havant Borough Council, East Hampshire District Council and Hampshire County Council of the implementation of off-Site measures.
- 9.9. In addition, the delivery of compensation measures for bats at Southleigh Forest set out in the HMMP has been secured through the EPS Licence NERC Act Agreement.

Technical Audit

- 9.10. Technical audit of the mitigation and compensation measures carried out during construction and post-construction will be undertaken by a Technical Advisor appointed by Portsmouth Water. When it is determined that projects are complete, this will be agreed with the Technical Advisor. Completion of annual work schedules will also be agreed with the Technical Advisor.

Summary of Mechanisms for Delivery of Mitigation and Compensation

- 9.11. Table 9-1 provides a summary of the mechanisms for delivery of the on-Site and off-Site biodiversity mitigation and compensation for the Scheme.
- 9.12. Responsibilities for delivery of on-Site biodiversity mitigation and compensation are set out in the LEMP. Responsibility for delivery of site-specific management plans referred to in table 9-1 (other than the LEMP) will be agreed between Portsmouth Water and relevant landowners/partners.

Table 9-1 - Summary of delivery mechanisms

Mitigation or compensation	Management Area	Mechanism for delivery
Retained habitat and tree protection	Embankment and Surrounding Landscape Havant Thicket Woodland	CEMP
Woodland planting, aftercare and maintenance	Embankment and Surrounding Landscape	Detailed design LEMP
Hedgerow creation, restoration, aftercare and maintenance	Embankment and Surrounding Landscape Havant Thicket Woodland	Detailed design LEMP
Grassland creation, aftercare and maintenance	Embankment and Surrounding Landscape	Detailed design LEMP
Scrub edge enhancement	Embankment and Surrounding Landscape Havant Thicket Woodland	LEMP
Veteranisation of trees	Embankment and Surrounding Landscape	LEMP
Wetland creation	Wetland	Detailed design LEMP
Shoreline habitat creation	Reservoir	Detailed design LEMP
Pond maintenance	Embankment and Surrounding Landscape	LEMP
On-Site stream creation	Embankment and Surrounding Landscape	Detailed design LEMP
Pond enhancements	Havant Thicket Woodland	LEMP
Headwater stream restoration	Havant Thicket Woodland	LEMP
River and stream restoration (off-Site)	WFD catchment-level restoration agreed locations (Package 2)	Site-specific management plans
Aquatic plant (macrophyte) translocation	Reservoir to Havant Thicket Woodland	CEMP
Aquatic invertebrate translocation	Reservoir to Havant Thicket Woodland	CEMP
INNS biosecurity	Reservoir	CEMP LEMP
Conifer clear-fell and replanting	Havant Thicket Woodland	LEMP
Birch clearings and replanting	Havant Thicket Woodland	LEMP

Mitigation or compensation	Management Area	Mechanism for delivery
Ride management	Havant Thicket Woodland	LEMP
Coppice management	Bell's Copse	LEMP
Woodland management	Embankment and Surrounding Landscape	LEMP
Forest glade creation and rotational management	Havant Thicket Woodland	LEMP
Scrub mosaic management	Bell's Copse	LEMP
Grassland enhancement	Embankment and Surrounding Landscape	LEMP
Rush pasture enhancement	Embankment and Surrounding Landscape	LEMP
Reptile translocation	Reservoir to Havant Thicket Woodland and Embankment and Surrounding Landscape	CEMP
Common amphibian translocation	Reservoir to Havant Thicket Woodland	CEMP
Dead wood translocation	Reservoir to Havant Thicket Woodland and Embankment and Surrounding Landscape	CEMP
Precautionary methods of working for protected species during construction	Reservoir Embankment and Surrounding Landscape	CEMP
Management of Southleigh Forest (off-Site)	Southleigh Forest	Site-specific management plan
Wood-pasture management (off-Site)	Wood-pasture Sites	Site-specific management plans

10. Indicative Programme

Table 10-1 - Indicative programme of on-Site mitigation and compensation works (tick = done)

Phase	Action	Year														
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Pre-construction	Woodland and wood-pasture creation at Gipsies Plain and MemoryPark	✓														
	Restocking of hedgerows adjacent to Gipsies Plain	✓														
	Pre-construction grazing of grassland to reduce suitability for reptiles	✓														
	Creation of reptile receptor sites (8 clearings) and hibernacula in Havant Thicket woodland	✓														
	EPSM Licence application for bats	✓														
	EPSM Licence application for hazel dormouse	✓														
	Provision of bat boxes in off-Site areas	✓														
	Provision of bat and dormouse boxes in retained woodland	✓														
	Pre-felling checks for bats	✓														
	Felling of woodland within reservoir footprint under EPSM licences	✓														

Phase	Action	Year														
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Conifer clear-fell and replanting in Havant Thicket woodland		✓													
	Felling of trees for Northern Access junction and route under licence.		✓													
	Pond enhancement in Havant Thicket woodland															
	Translocation of notable plants from Upper Lake to ponds in Havant Thicket woodland															
	Translocation of notable invertebrates from streams within Southleigh Woodland															
	Provision of bird boxes in retained woodland															
	Pre-construction survey for badgers															
	Installation of reptile fencing															
	Translocation of reptiles to receptor areas in Havant Thicket woodland															
	Reassessment of potential impacts on great crested newts															
Construction	Ecological mitigation measures under CEMP															
	Translocation of dead wood															
	Translocation of amphibians															

Phase	Action	Year														
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Birch clearings and replanting in Havant Thicket woodland															
	Scrub mosaic management in Bell's Copse															
	Ride management in Havant Thicket woodland															
	Rotational coppicing within Bell's Copse															
	Rotational clearance of glades in Havant Thicket woodland															
	Design and construction of wetland retaining structure															
	Planting of wetland area															
	Filling of wetland area with water from streams															
	Reservoir embankment construction															
	Design and construction of compensation flow channel															
	Design and implementation of rush pasture hydrology management															
	Design and implementation of shoreline habitat															
	Design and construction of visitor facilities															

Phase	Action	Year														
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Provision of fencing and gates															
	Woodland planting (after 5 years)															
	Creation of species-rich grassland on embankment															
	Filling of reservoir with water															
	New woodland establishment and aftercare															
Post-construction	Management of retained woodland around the reservoir															
	New grassland establishment and aftercare															
	Grazing of retained and enhanced grassland															

Key:

Pre-enabling phase works	
Enabling phase works	
Construction phase works	
Post-construction phase works	
Works not restricted to any phase	

Appendices

Appendix A. Figures

A.1. Figure A-1 - Site Location

A.2. Figure A-2 - On-Site Management Areas (see Part 2)