

Technical Note

Project:	Havant Thicket Reservoir (HTR)		
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Subject:	Implementation Plan for Off Site Biodiversity Mitigation and Compensation		
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1. Introduction

1.1. Purpose

This Implementation Plan sets out the process for how Portsmouth Water will implement *off site* mitigation as part of a bespoke approach to compensation comprising a combination of onsite and offsite woodland and wood pasture creation and enhancement as described in the Havant Thicket Reservoir (HTR) Outline Biodiversity Mitigation and Compensation Strategy. It provides certainty on how the offsite compensation and enhancement measures to mitigate impacts arising from habitat loss on site will be delivered and managed to provide long term ecological benefits, and ensure long-term commitment and partnership working, and funding of third party projects. It is the intention that this Plan will inform the Section 106 Agreement for the reservoir and pipeline, providing the mechanism for review and approval of offsite mitigation measures.

On site mitigation

Biodiversity mitigation measures relating to the Reservoir Site are not covered in this Implementation Plan. Onsite measures include 52 hectares of habitat creation/restoration and are described in the HTR Outline Biodiversity Mitigation and Compensation Strategy and in the Outline Environmental Management Plan. The detailed Biodiversity Mitigation and Compensation Strategy would be created as part of the detailed design and provide a framework for plans linked to the phasing of the works. A Memorandum of Understanding has been signed by the three key landowners (Forestry England, Hampshire County Council and Portsmouth Water) and talks are being progressed in preparation of the signing of the tripartite agreement. Agreements are in place for the commencement of management works in Havant Thicket in line with details set out in the HTR Outline Biodiversity Mitigation and Compensation Strategy.

On site measures relating to the pipeline are described in the Outline Environmental Management Plan, which includes commitment to an Ecological Mitigation Management Plan (EMMP) for the pipeline. The EMMP would be developed as part of detailed design.

2. Outline Biodiversity Mitigation and Compensation Strategy

2.1. Overview

The planning applications for the Havant Thicket Reservoir (APP/20/00990) and Pipeline (APP/20/00991) submitted in October 2020 include the HTR Outline Biodiversity Mitigation and Compensation Strategy (ECOSA 2020) that describes Portsmouth Water's outline proposals for onsite and offsite mitigation, compensation and enhancement.

2.2. Scope

The HTR Outline Biodiversity Mitigation and Compensation Strategy provides a framework for onsite and offsite compensation and enhancement measures to mitigate ecological impacts related to the permanent loss of irreplaceable habitats (ancient woodland, and veteran trees), loss of ephemeral streams and other habitats, and impacts on a range of protected species including hazel dormice *Muscardinus avellanarius* and roosting, foraging and commuting bat species, especially Bechstein's bat *Myotis bechsteinii*.

The strategy includes measures for the:

- Onsite areas comprising the main reservoir site and the ecological enhancement areas that do not form part of the reservoir footprint, i.e. the Forestry England (FE) Havant Thicket woodland to the north and the connected Bell's Copse to the west of the site and Hampshire County Council's (HCC) Staunton Country Park (SCP) to the south; and
- Off-site areas including East Hampshire District Council land north of Havant Thicket, Southleigh Forest that lies to the east of the site and mitigation options being developed with Environment Agency in relation to loss of ephemeral streams.

The strategy was informed by a comprehensive ecological baseline and detailed pre-application discussions between Portsmouth Water, Hampshire County Council, Natural England, Environment Agency and Forestry England and other stakeholder engagement events.

2.3. Objectives

The HTR Outline Biodiversity Mitigation and Compensation Strategy is based on the following core elements:

1. Create an environmentally-led design based on the mitigation hierarchy approach of avoid, minimise, or compensate. As far as practical, compensation will be provided within the site and wider site for the key impacts;
2. Ensure appropriate mitigation and compensation is implemented for protected and notable species. European Protected Species licences will be obtained where required;
3. Create a mosaic of new and high-quality habitats on the site, 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;
4. Land that forms part of the wider site will be enhanced through the delivery of a long-term ecological management plan in partnership with Forestry England and Hampshire County Council;
5. Restoration and creation of off-site high biodiversity value habitats and ecological restoration of Southleigh Forest;
6. Work with the Environment Agency to identify and deliver a reasonable level of habitat mitigation required to offset the impacts of the development on the waterbody (expected to be delivered through a catchment partnership approach); and
7. Support others to enhance and study existing habitats offsite through provision of a Capital Grants Scheme.

2.4. Offsite compensation and enhancement prescriptions

As noted above, the onsite elements of the HTR Outline Biodiversity Mitigation and Compensation Strategy are outside the scope of this document. Offsite measures are broken down into two elements: measures to take place following specific prescriptions; and measures that are not individually specified but would be supported financially through awarding capital grants.

The habitat and species-specific offsite compensation and enhancement prescriptions relating to terrestrial habitats include:

- Delivery of 80 hectares of substantial new pasture-woodland habitat (including grassland) off-site; and
- Ecological management of Southleigh Forest (an offsite Portsmouth Water owned landholding of mixed woodland) involving the phased replacement of pine plantation with lowland mixed deciduous woodland providing favourable habitat and potential receptor site for protected species.

To mitigate the impact on watercourses, the Strategy indicates that overall Water Framework Directive (WFD) driven compensation works will be developed and agreed by Portsmouth Water, Havant Borough Council, and the Environment Agency.

The long list of practicable measures that was developed to fulfil Article 4.7 condition (a) has now been agreed with the Environment Agency and is deemed sufficient for the purposes of Article 4.7. A short-listing exercise has been undertaken to reduce the full list of practicable measures to generate an agreed package of measures.

2.5. Capital Grants Scheme

Appendix 5 of the HTR Outline Biodiversity Mitigation and Compensation Strategy - Biodiversity Metric Report for Terrestrial Habitats (Atkins 2020) - refers to Chapter 9, Biodiversity, of the Environmental Statement Volume 2 which outlines the Capital Grants Scheme and takes into account application of offsite habitat interventions such as grassland creation and enhancement to compensate for the net loss of grassland onsite:

- “The application of the Capital Grants Scheme will be based on a series of criteria to be developed with Natural England and other stakeholders, to ensure that the funding delivers genuine benefits to biodiversity and the local community. These are likely to include criteria scoring that prioritises the following:
 - *Proximity to the scheme site. In particular, effort should be made to offset habitat losses within the same local planning authority (i.e. Havant Borough Council and East Hampshire District Council) or National Character Area (i.e. South Hampshire Lowlands).*
 - *Value for money and deliverability with suitable match funded projects prioritised.*
 - *Grassland enhancement and creation projects will be prioritised.*
 - *Interventions benefiting bats, including new native woodland and wood pasture planting, and grassland birds will be prioritised.*
- Contribution to local policies and targets for biodiversity. For example, opportunities to contribute to targets set out in the Hampshire Biodiversity Opportunity Areas may be prioritised. In the context of the site’s location, it would be of relevance to explore opportunities within the following BOAs:
 - *Forest of Bere Biodiversity Opportunity Area – e.g. restoration of lowland meadow and lowland dry acid grassland;*
 - *Portsdown Hill Biodiversity Opportunity Area – e.g. restoration of lowland calcareous grassland;*
 - *Chichester/Langstone Harbours and Hayling Island Biodiversity Opportunity Area – e.g. the restoration of PMGRP.”*

3. Implementation Process

3.1. Proposed mechanism

The action plans listed below, and detailed in Appendices 1 to 4, will form the proposed mechanism to agree and implement the compensation activities for offsite areas identified in the HTR Outline Biodiversity Mitigation and Compensation Strategy and to ensure commitment to these measures as part of the Section 106 Agreement.

The mitigation and compensation measures will be delivered over a long period of time and in some instances on land outside of the applicant’s control, Portsmouth Water will therefore be working with willing partners to deliver their aspirations. Each action plan provides clarification on the implementation of the offsite measures in the HTR Outline Biodiversity Mitigation and Compensation Strategy, and mitigation and compensation measures will be designed in consultation with the County Ecologist. Commitments will be clearly set out in the s106 legal agreement, will be enforceable and will be subject to a monitoring strategy in order that the predicted benefits of the mitigation measures can be measured and, where necessary, further actions implemented.

3.2. Action Plans for offsite implementation

1. Creation of 80 hectares of woodland/wood pasture creation (including 20 hectares of neutral grassland)

Portsmouth Water is currently exploring several options, which will be judged against agreed criteria to ensure that the best outcome for biodiversity is achieved. Once the short list has been developed, the options will be discussed with Natural England and the county ecologist for comment/review.

Key principles and timetable for delivery will be agreed and secured through approval of the action plan. The principles will ensure the area(s) of wood pasture creation is maximised in suitably connected locations to not only address the loss of woodland associated with the project, but also to maximise benefits to protected species affected by the proposal, especially Bechstein's bats. Given that these measures are required due to the irreplaceable loss of ancient woodland, agreements should be secured to ensure this land will be appropriately managed for the lifetime of the development.

In order to accurately account for the different habitat types being created for inclusion in the Biodiversity Net Gain metric, the 80 hectares of wood pasture creation comprises 60 hectares woodland and 20 hectares grassland. This habitat will be managed as part of the wood pasture agreement with the delivery partner for that element and further details of the location and long term management will be submitted for approval.

2. Up to 72 hectares of habitat restoration in Southleigh Forest.

The long-term management plan for restoration of this woodland is currently being developed and will be secured via an action plan which will be agreed by the local planning authorities, Natural England and Forestry Commission. An appropriate timetable for the restoration works will be included to avoid excessive disturbance to the area's bat communities.

3. Compensation for the loss of 3.7km of ephemeral stream

A package of mitigation and compensation measures has been developed and agreed with the Environment Agency, on 05/03/21, to off-set the loss of 3.7km of watercourses that will be directly lost due to the Scheme's embankment construction activity, some of which is considered to be high quality habitat. Package no.2, details a plan for the water environment which includes both on-site and off-site mitigation and compensation totalling up to 5.5km of watercourse improvement. The process to reach the agreed mitigation and compensation package involved the development of a short-listing process which used the long-list of practicable measures derived for the Water Framework Directive Article 4.7 derogation as a starting point. The process was agreed with the Environment Agency at a series of expert workshops. The short listing process reduces the full list of practicable measures to a short list of deliverable options.

The agreed package no.2 will be examined in detail through more site-specific analyses to develop conceptual designs for the shortlisted measures. This will include, amongst others, further detail on site specific constraints and opportunities along with a cost-effectiveness analyses. The package no.2 identifies a set of measures which can be delivered as part of the overall mitigation and compensation strategy for the scheme. The agreed package no.2 forms the basis of the s106 agreement.

4. Capital Grants Scheme to provide funding to study and enhance biodiversity locally.

Portsmouth Water is currently working on the criteria, but it will be designed to prioritise species and habitats that have been lost or displaced by the project. The proposal is to commence the scheme in 2029, or upon commencement of the operation of the reservoir, with a sum of £40,000 provided per annum for local conservation projects over a 30 year period.

Discussions are being held with key landowners and stakeholders e.g. local wildlife groups, farmer clusters / other land owners, local planning authorities, to scope out projects that can secure wider gains for wildlife.

Table 3.1 Summary of Action Plans

Action plans for offsite implementation	Description
Creation of 80 hectares of new wood pasture and neutral grassland habitat	Creation of 80 ha of new wood pasture (60 hectares) and neutral grassland habitat (20 hectares) through a partnership. The location of this area is currently still in discussion and will be subject to land availability. The project will be delivered as one large unit of land if possible, but if that is not, smaller parcels of land will be acquired, ideally next to existing parcels of woodland.
Up to 72 hectares of habitat restoration in Southleigh Forest	Up to 72 hectares of habitat restoration within Southleigh Forest: a mixed species plantation will be brought into positive ecological management. A detailed management plan will be prepared for the woodland to include the gradual felling of plantation woodland and restoration to a more semi-natural woodland over a 30 year period.
Compensation and enhancement package for the loss of 3.7km of ephemeral stream	The Water Framework Directive Article 4.7 paper informs the mitigation and compensation plan. A long list of practicable measures for the Hermitage Stream catchment has been developed in consultation with the Environment Agency. This was followed by a short-listing exercise which enabled the full list of practicable measures to be reduced to a short list of deliverable options. The agreed package no.2 (agreed with the Environment Agency on 05/03/21) totals up to 5.5km of watercourse improvement and will be delivered as part of the overall mitigation and compensation strategy for the scheme. Within the Riders Lane Stream catchment, the scheme has provision for a new compensation flow channel and additional ditch habitat to the east of the scheme. Portsmouth Water is in the process of agreeing a suitable compensation flow regime for the Riders Lane Stream.
Capital Grants Scheme to fund biodiversity enhancements	A Capital Grants Scheme to provide funding to study and enhance biodiversity to improve ecological networks and corridors and a biodiversity strategy for the area's Bechstein's bat population. The scheme will commence in 2029 and will run for a minimum 30 year period.

The four action plans are included within **Appendices 1 to 4**. Each action plan is structured to provide:

- An overview of the offsite habitat and species-specific compensation and enhancement prescribed in HTR Outline Biodiversity Mitigation and Compensation Strategy;
- Location of offsite habitat and species-specific compensation and enhancement;
- Baseline conditions;
- Aims and objectives;
- Roles and responsibilities;
- Offsite planning and preparation;
- Delivery prescription;
- Programme of works; and
- Reporting and review measures.

3.3. s106 Agreement commitments

It is proposed that the action plans will form the mechanism to ensure commitment to, and implementation of, the offsite mitigation and compensation set out in the HTR Outline Biodiversity Mitigation and Compensation Strategy. This document will be appended to the s106 agreement and the following key commitments within the action plans would be incorporated into the s106 Agreement:

1. Creation of 80 hectares of new wood pasture and neutral grassland habitat

- Portsmouth Water will set up a Project Team prior to commencement of development which will include the County Ecologist and Natural England.
- The Project Team will identify suitable sites for delivering new woodland and wood pasture and develop a programme of works.
- Where land is owned by Portsmouth Water, they will be responsible for the delivery and long-term management of the new habitats, unless that responsibility is taken on by a project partner. Legal agreements will be drawn up between partners to ensure delivery.
- Where Portsmouth Water do not own the land, they will sign long-term agreements with project partners to ensure the delivery of woodland/wood pasture. Where such agreements are in place, it will be the responsibility of those partners to deliver the new woodland.

2. Up to 72 hectares of habitat restoration in Southleigh Forest

- A 10 year woodland management plan will be submitted to the Local Planning Authorities and County Ecologist prior to commencement of reservoir development.
- Monitoring reports will be provided to the Local Planning Authorities and County Ecologist at 5 year intervals.

3. Compensation and enhancement package for the loss of 3.7km of ephemeral stream

- Implementation of 'Package 2', agreed on-site and off-site mitigation and compensation, totalling up to 5.5km of watercourse improvement.

4. A Capital Grant Scheme to fund biodiversity enhancements

- A Capital Grants Scheme will be set up to provide funding for conservation projects in the local area. The Scheme will commence upon completion of the Havant Thicket Reservoir scheme and will run for a minimum 30 year period, or once the grant fund has been used. The total fund available for the Grants Scheme is £1.2m. 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 should 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.
- 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.

Appendix 1 Woodland Creation

Action plan structure	Description
Overview	This long-term project will see the creation of up to 80 hectares of woodland/wood pasture (60ha woodland 20ha grassland). The ambition is to deliver as much as possible in the local area, to compensate for on-site woodland loss. The new woodland would be planted over a maximum 15 year period, in order to ensure variability in the structure of the new habitat. Original proposals were worked up in partnership with the Hampshire and Isle of Wight Wildlife Trust (HIWWT), but difficulties in them acquiring land have meant that other options are now being explored. Portsmouth Water has since been liaising with several potential partners to deliver the woodland as part of a wider project to revert agricultural land to woodland or wood pasture and improve connectivity across the landscape.
Location of offsite habitat and species-specific compensation and enhancement.	It is not currently possible to confirm exactly where the woodland creation will be, but Portsmouth Water has been having detailed conversations with several landowners and project leads. We are currently reviewing a long list of options covering over 600ha spread over c10 broad locations. Locality is particularly important, not just because we are looking to address the woodland losses locally, but also to ensure that the habitat connectivity in the local area is enhanced. This is particularly important given the existing woodland blocks present and the benefit that linking those blocks would have for contributing to the Nature Recovery Network. In addition, local woodland planting would help re-enforce foraging and commuting opportunities for bats, in particular Bechstein's <i>Myotis bechsteinii</i>. Recent opportunities that are being discussed involve a partnership project that could deliver a landscape scale scheme east of Southleigh Forest and extending to Kingley Vale National Nature Reserve.
Baseline conditions	It is not possible to determine baseline conditions at present, but the aspiration is to create new woodland/wood pasture on agricultural land since this would be beneficial for water source protection as well as woodland creation. Portsmouth Water's aim is to develop the new woodland habitat over a maximum 15 years period, in order to provide variability in its structure. Initially some standard trees would be planted at low density, and the woodland would be allowed to develop over time, thereby creating different habitats as it develops. Grazing would be used to mimic natural processes as the woodland develops, but essentially the habitats would be allowed to naturally develop with minimal interventions. The primary purpose will be to create semi-natural woodland rather than a plantation woodland.
Aims and objectives	The overall aim of this project will be to create new woodland/wood pasture habitat with a varied structure. Ideally the selected site will be situated locally and link up existing woodland habitats and thereby contribute to the Nature Recovery Network.

	In addition to the woodland creation, the development of this new habitat will be beneficial for a variety of species, including some that have been impacted by the reservoir proposals. For example, linking up woodland corridors between the proposed reservoir site, Southleigh and Stansted Forests and further east, could strengthen and/or enhance commuting/foraging routes for bats and provide better habitat connectivity for less mobile species, such as the hazel dormouse <i>Muscardinus avellanarius</i>.
Roles and responsibilities	It will be the responsibility of Portsmouth Water to secure land for the project that meets the aims and objectives. A project team will be set up to help source and secure any land not owned by Portsmouth Water. The team will comprise HTR environmental team and key stakeholders / partners who can optimise delivery of the project. We would be inviting expertise from the Local Planning Authority (LPA), in consultation with Hampshire County Council Ecology Team and Natural England. Where land is owned by Portsmouth Water, they will be responsible for the delivery and long-term management of the new habitats, unless that responsibility is taken on by a project partner. Legal agreements will be drawn up between partners to ensure delivery. Where Portsmouth Water do not own the land, they will sign long-term agreements with project partners, minimum 80 years, to ensure the delivery of woodland/wood pasture. Where such agreements are in place, it will be the responsibility of those partners to deliver the new woodland for the duration of the scheme.
Offsite planning/preparation	Portsmouth Water is currently in discussion with several potential partners with a view to deliver a landscape scale project aimed at delivering new woodland/wood pasture, reducing nitrate inputs at source and improving connectivity for wildlife across the wider landscape. We are proposing to set up a steering group (project team and selection committee) who will make recommendations, to be agreed by the LPA.
Delivery prescription	Delivery prescriptions will be detailed once the site/s have been selected and a long term management plan will be prepared. It will be important to ensure that management prescriptions align with adjoining land in order to ensure continuity. Proposals will aim to provide a matrix of habitats that will provide the opportunity to support species that have been displaced by the HTR proposals.
Programme of works	At this time, it is not possible to provide a programme of works since that will be determined by the availability of land and where it is located. There are several pressing deadlines for the project team; for Portsmouth Water the most pressing of these is the need to secure this long-term project and provide assurance that the project will be delivered. It is anticipated that at least some of the land will become available within 2021, and at that point a programme of works will be provided. For the initiation phase we provide the following programme; • Spring 2021 set up project team and site selection committee; • Spring – Summer 2021 establish outline criteria for land selection; and • Summer - Autumn 2021, contact landowners to discuss options; • Establish legal agreements and design of habitat creation;

	Establish long-term management and monitoring strategy.
Reporting and Review	Monitoring activities will involve selected key species and/or habitats to establish change over time. Monitoring will commence with habitats surveys, with species selected as the habitats develop. The following species groups are suggested in the first instance, but other species groups may be included over time. - Vegetation – the structure and diversity would be monitored as it develops. - Bats – targeted bat surveys will be carried out on a five year basis. Typical surveys will include bat box checks, remote detector, transects and capture. - Hazel Dormouse – monitoring surveys will be used to establish presence and breeding success. - Breeding bird – surveys will be used to establish changes in species over time. - Invertebrate – selected surveys will be carried out for targeted species groups, likely to involve butterfly transects, moth trapping and Coleoptera surveys. Monitoring will be varied depending on species, and as habitats develop and change over time. Reports would be submitted on a five year intervals.

Appendix 2 Southleigh Forest

Action plan structure	Description
Overview	This long term project will see the Portsmouth Water owned woodland brought back into a favourable condition through the implementation of an 80 year management plan (reviewed and submitted on a 10 year basis), thereby restoring a plantation woodland to one that is more semi-natural. A variety of species, including bats, hazel dormouse, woodland birds and invertebrate species will benefit. In addition, partnership working with neighbouring landowners could see the large woodland blocks of Southleigh and Stansted Forests linked up, thereby contributing to the Nature Recovery Network.
Location of offsite habitat and species-specific compensation and enhancement	Southleigh Forest comprises a c.72 ha woodland located c.2km south-east of the proposed reservoir site. The woodland is centred at National Grid Reference SU 744 090 and forms part of a larger woodland block that extends to the north, south, east and west. The woodland straddles the Hampshire/Sussex border with c.25ha located in West Sussex. It is bordered on its southern boundary by Emsworth Common Road and on its western boundary by Woodberry Lane. It is situated in an area that appears to be a local stronghold for Bechstein's bat <i>Myotis bechsteinii</i> and as such its restoration would be extremely beneficial for this species, as well as other bat species.
Baseline conditions	The site comprises a c.72ha lowland mixed deciduous woodland, with the majority of it included on the Ancient Woodland Inventory as Plantation on an Ancient Woodland Site (PAWS). Two smaller areas along the northern edge are included as Ancient Semi-natural Woodland (ASNW), the remainder is not included on the inventory. Given its status and ASNW and PAWS, much of the site is designated for its nature conservation value at county level and as such a Site of Importance for Nature Conservation (SINC). The woodland was previously managed under a woodland grant, submitted in 1997, but management has long since ceased. As such the woodland is now overstood and would benefit from management interventions and a long-term management plan. The woodland supports 32 Ancient Woodland Vascular Plant species. Three species are considered notable Wild Strawberry <i>Fragaria vesca</i>, Wood-sorrel <i>Oxalis acetosella</i> and Tormentil <i>Potentilla erecta</i>. Species data is limited but detailed bat survey work carried out by the Portsmouth Water survey team and Hampshire Bat Group, has resulted in at least 12 species recorded within a 1km radius of the woodland: brown long-eared <i>Plecotus auritus</i> and Natterer's <i>M. nattereri</i> bats have been captured within Southleigh Forest. A badger sett <i>Meles meles</i> is located in the extreme north of the site, and several bird species typical of woodland habitat have been recorded, including the Firecrest <i>Regulus ignicapilla</i>, which is included on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). During walkover surveys in 2020 the silver-washed fritillary <i>Argynnis paphia</i> butterfly was recorded. This is a UK Biodiversity Action Plan species of conservation concern.

Aims and objectives	The overarching plan is to restore the PAWS woodland to one that is more semi-natural. This will include the provision of woodland clearings and rides for the benefit of foraging bats and invertebrates. Bringing the woodland back into regular management will provide a variety of different habitats and allow the under-storey to develop and that will provide improved habitat for hazel dormouse. Ephemeral streams and ponds are present, allowing more light to these waterbodies will be beneficial for aquatic macro-invertebrate species. The long-term objective is to deliver a PAWS restoration returning the woodland to native lowland deciduous woodland. Management prescriptions will be necessarily vague to allow for changes as habitats develop and will be delivered over the long-term to ensure diversity in the age and structure of the woodland. Dead wood will be left standing where it is safe to do so, but otherwise will be felled and left in-situ for the benefit of saproxylic invertebrates.
Roles and responsibilities	The Head of Water Resources, Leakage and Smart Meters (who manages the Catchment and Biodiversity team) at Portsmouth Water holds responsibility for the delivery of the woodland management plan, but the works will be outsourced to a delivery partner. If the woodland is transferred to a delivery partner, that partner will take on the legal obligation to manage the woodland for biodiversity. Appropriate funding will be provided by Portsmouth Water to enable the delivery of the long term management plan.
Offsite planning/preparation	A 10 year woodland management plan will be prepared by Hampshire and Isle of Wight Wildlife Trust (HIWWT), and shared with Natural England and the County Ecologist for review and comment. Once agreed it will be submitted to Forest Services for approval. This will provide the appropriate permissions to commence with the woodland restoration works. As the land owner, Portsmouth Water will not have to seek additional permissions to carry out the proposed works, aside from the need to review and update the management plan on a 10 year basis. The initial woodland management plan will also provide an overview of the longer term management of the woodland; covering 80 years demonstrating how the site will be restored and managed over this time period. Although, beyond the initial 10 years these will be high level aspirations with no legal standing.
Delivery prescription	Delivery prescriptions will be detailed in the 10 year management plan being prepared by HIWWT. These prescriptions will be reviewed every five years and adapted as required. A long-term delivery partner will be sought for the on-going management and monitoring requirements. There is an aspiration to link the management of Southleigh Forest with other local woodlands, discussions are on-going.
Programme of works	The management plan will be written and submitted in 2021, with the aim of commencing management works in the autumn of 2021, assuming all permissions are received. Anticipated programme of works: • Spring 2021 preparation of 10 year woodland management plan by HIWWT and submit felling license; • Spring – Summer 2021 establish outline actions for long term management and delivery partner/s; and

	• Autumn 2021, commencement of restoration works; • 2022 onwards: deliver long-term management and monitoring strategy of indicator species/habitats.
Reporting and Review	Monitoring activities will involve selected key species and/or habitats to establish change over time. Initial thoughts will be to monitor species that have been displaced by the reservoir project; • Vegetation – composition of woodland and variety of woodland flora. • Bats – targeted bat surveys will be carried out on a five year basis. Typical surveys will include bat box checks, remote detector, transects and capture surveys. • Hazel Dormouse – monitoring surveys will be used to establish presence and breeding success. • Breeding bird – surveys will be used to establish changes in species over time. • Invertebrate – selected surveys will be carried out for targeted species groups, likely to involve butterfly transects, moth trapping and saproxylic species. • Aquatic macro-invertebrate – monitoring of species assemblages within ephemeral water courses and ponds. Monitoring will be varied depending on species, for example butterfly transects would be annual, nesting birds annual/bi-annual whereas bat and dormouse surveys would be carried out at five year intervals. Reports would be submitted on a five year intervals.

Appendix 3 Ephemeral Streams

Action plan structure	Description
Overview	This proposal for the HTR will see mitigation and compensation delivered for the loss of 3.7km of watercourses that will be directly lost due to the Scheme's embankment construction activity, some of which is considered to be high quality habitat. The Scheme is located in the Riders Lane Stream which is a sub-catchment of the Hermitage Stream water body. The mitigation and compensation 'package no. 2', will provide a mixture of on-site and off-site improvements and aims to create, or improve, riverine habitat through a range of different techniques.
Location of offsite habitat and species-specific compensation and enhancement	The agreed package, no.2, for the water environment includes both on-site and off-site mitigation and compensation totalling up to 5.5km of watercourse improvement. The on-site mitigation and compensation plan (approximately 1.57km) concentrates efforts in the headwater streams upstream of the reservoir. Off-site mitigation and compensation is spread across the wider catchment and includes measures on other reaches of the Riders Lane Stream (part of the Lake Stream) (approximately 0.45km), Hermitage Stream (approximately 2.99km) and Park Lane Stream (approximately 0.47km). Improvements along Lake Stream will provide mitigation for distinct species lost under the Scheme's footprint. Specifically, the measures seek to do the following work at each of the numbered items: • Measure no. 8. New compensation flow channel (0.25km) – new compensation flow channel from reservoir to Riders Lane Stream. • Measure no. 27. Hermitage Stream (0.41km) - Park House Farm Way to Middle Park Way (Reach C) – Restore the channel, where possible removing bed and bank protection and re-naturalisation of the channel accordingly. • Measure no. 29. Hermitage Stream (0.57km) - Riders Lane Stream to Barncroft Way (Reach D) - Restore the channel, where possible removing bed and bank protection and re-naturalisation of the channel accordingly. • Measure no. 5. Riders Lane Stream (0.14km) – New channel near Rowlands Castle – new channel connecting wetland scrapes and field drains • Measure no. 26. Hermitage Stream (0.42km) - Bushey Lease to Park House Farm Way (Reach B) - Restore the channel, where possible removing bed and bank protection and re-naturalisation of the channel accordingly. • Measure no. 7. Riders Lane Stream (0.45km) - The Lake Stream - macrophyte work – improvements to stream profile, creation of on-line ponds and developing areas that are suitable for macrophyte translocation. • Measure no. 28. Hermitage Stream (0.69km) - Middle Park Way to Riders Lane Stream (previously restored) - Enhance the existing channel through the removal of bed protection where deemed feasible and required. • Measure no. 30. Hermitage Stream (0.34km) - Barncroft Way to New Road (Reach E) - Restore the channel, where possible

	removing bed and bank protection and re-naturalisation of the channel accordingly. • Measure no. 2. Riders Lane Stream (0.55km) - Headwater Stream 2 (HS2) - improvements to stream profile, creating on-line ponds, improvements to existing ponds, river restoration, natural flood management and development of areas that are suitable for macrophyte translocation. • Measure no. 3. Riders Lane Stream (0.08km) - Headwater Stream 3 (HS3) improvements to stream profile, creating on-line ponds, improvements to existing ponds, river restoration, natural flood management and development of areas that are suitable for macrophyte translocation. • Measure no. 1. Riders Lane Stream (0.43km) - Headwater Stream 1 (HS1) improvements to stream profile, creating on-line ponds, improvements to existing ponds, river restoration, natural flood management and development of areas that are suitable for macrophyte translocation. • Measure no. 23. Hermitage Stream (0.56km) - Queen's Inclosure to Burnside (road) – Opening up of the channel, restoration and natural flood management. • Measure no. 4. Riders Lane Stream (0.13km) - Ponds in Long Wood - improvements to existing pond network and treatment of invasives • Measure no. 15. Park Lane Stream (0.47km) - Tributary north golf course- river restoration through removal of bed and bank protection and re-naturalisation of channel profile. Total length of improvement 5.49km
Baseline conditions	The existing watercourses under the scheme's footprint are small, previously modified, ephemeral watercourses. The channels while relatively homogenous were found to support a diverse range of invertebrate species including Nationally Scarce taxa and taxa indicative of groundwater upwelling. There is also a pond within the reservoir footprint which contains a macrophyte community indicative of acidic undisturbed conditions. Works across the wider Riders Lane Stream include improvements on similar watercourses whilst improvements to the middle to lower Hermitage Stream focus on wider, very modified, reaches which are largely lined with concrete on both bed and banks. Proposed works on the headwaters to Hermitage and Park Lane Stream are focused on improvements to small, modified watercourses.
Aims and objectives	The overarching package of works aims to provide improvements to the water environment across the wider Hermitage Stream Catchment. The package of works (package no.2) will provide sufficient length of watercourse improvement and an appropriate balance of measures to satisfy Biodiversity Net Gain commitments as agreed with Environment Agency on 05/03/21. It will also enable a joined-up network of quality habitat improvements that will mitigate against the high conservation habitat lost from the scheme. The works aim to provide a re-naturalisation of a significant proportion of the wider Hermitage Stream catchment enabling both improved connectivity and ecological resilience to be achieved. Some measures focus on relocating the more unique macroinvertebrate and macrophyte communities under the reservoir footprint and create habitat conditions to support these species.

	The success of the works package will be judged by the extent to which the improvements can improve the ecological and geomorphological functioning of the water environment. This is both on a reach-by-reach basis as well as an overall catchment improvement.
Roles and responsibilities	The Head of Water Resources, Leakage and Smart Meters (who manages the Catchment and Biodiversity team) at Portsmouth Water holds responsibility for the delivery of the mitigation and compensation plan for the water environment, but work will be outsourced to a delivery partners.
Offsite planning/preparation	Portsmouth Water will need to identify delivery partners who can support in the development and delivery of the package of works. Before then, each of the design concepts will need to be furthered following a review of practical constraints and opportunities. Concepts will need to be agreed with respective landowners and stakeholders. Any refinement to the list of measures in package no.2 will need to be undertaken at this stage. Any refinement will need to be based on whether any factors are identified which will impact the delivery of any of the measures that would either make them technical infeasible or disproportionately costly. In the event of this happening, an alternative measure would need to be considered from the long-list that could be delivered and match, as closely as possible, the objectives of the measure that was being removed. This would need to be mirrored by the length of improvement gained. This process would need to be agreed with the Environment Agency. Once the measures and concepts are confirmed, outline and detailed design will be developed along with all necessary work to fulfil consenting requirements. Management plans will also need to be developed and agreed. Consenting and construction would follow. Ongoing consultation with all stakeholders is seen as a priority for delivering the package of works.
Delivery prescription	Delivery prescriptions will be detailed once the sites have been selected, designs developed, and a management plan prepared. It will be important to ensure that management prescriptions align with adjoining land to ensure continuity. A long-term delivery partner will be sought for any on-going management and monitoring requirements.
Programme of works	At this time, it is not possible to provide a programme of works since it will be determined by the availability of land and where it is located. Once Portsmouth Water has the assurance that the project will be delivered mitigation and compensation can be planned accordingly. From the water environment perspective, this should be split into two phases. The first, is within Phase 1 of the programme which involves site clearance. In this phase, mitigation needs to be delivered where it is required to off-set key habitats impacted by the scheme. This will need to be delivered in the vicinity of the site to enable translocation of key species into these areas prior to the watercourses within the footprint of the scheme being impacted. The second part of the programme will include the remainder of the mitigation and compensation package which will largely consist of off-site works and can be delivered any time after the design phase of the project commences. Timing of these works will be dependent on a range of factors which include landowner and stakeholder agreements as well as the whole design consenting and delivery process. A programme for the mitigation and compensation works will be developed once Portsmouth Water have assurance that the scheme can go forward. This will also include a monitoring and management programme following the implementation of any measures.

Reporting and Review

Monitoring activities will involve selected key species and/or habitats to establish change over time. Monitoring will commence with habitats surveys, with species-specific surveys undertaken alongside and as the habitats develop.

- Fluvial geomorphology - MoRPh surveys to assess habitat development assess before and after implementation
- Macrophytes - the structure and diversity would be monitored before and after implementation
- Invertebrates - selected surveys will be carried out for targeted species groups before and after implementation
- Protected species - selected surveys will be carried out for protective species before and after implementation

Monitoring will be varied depending on species, and as habitats develop and change over time. Reports would be submitted on a five-year intervals.

Appendix 4 Capital Grants Scheme

Action plan structure	Description
Overview	The proposal for the HTR will see the majority of the 160 hectare site developed, and therefore the on-site space available for mitigation and compensation measures is limited. Where habitats will remain unaffected by the proposals, such as the extreme east of Gipsies Plain or south west corner of the site at Gammon's Hill, advance planting has already taken place. Other on-site mitigation/compensation measures, such as the new 10ha wetland, will be delivered during and post construction. In order to provide robust mitigation and compensation measures and ensure that biodiversity net gain is delivered on the ground, Portsmouth Water will fund a long term Capital Grants Scheme.
Location of offsite habitat and species-specific compensation and enhancement	At this time it is not possible to detail the location of accepted grant applications, however, set criteria will be developed and these will prioritise projects in the local area, and for species that have been impacted by the HTR proposals. However, it is important not to be too prescriptive with the criteria as some projects that are further away from the HTR may be particularly beneficial for a certain species.
Capital Grant Scheme provision	The Capital Grants Scheme fund will be set at a cap of £1.2m for the duration of the project, which would be equivalent to providing a £15,000 sum for 80 years. However, the project fund will be delivered over a 30 year period, thereby providing £40,000 per annum for that period. If the fund is not fully spent in any year it should 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.
Aims and objectives	The objectives of the grants scheme will be to provide funding for conservation projects in the local area. These will ultimately be determined by the steering group but broadly they will seek to achieve the following: • Enhancement or creation of new habitats, such as woodland, grassland or wetland habitats. These will be particularly beneficial where they link up existing habitats thereby contributing to the Nature Recovery Network; • Species specific studies aimed at furthering the knowledge base for priority species, such as bats (e.g. Bechstein's and Alcahoe), hazel dormouse and aquatic macro-invertebrates; • Survey equipment for the use of knowledge enhancement in the local area.
Roles and responsibilities	The overall project owner will be Portsmouth Water, but a Capital Grants Scheme Steering Group will be set up to assess projects against the set criteria. Successful applicants will have the sole responsibility of delivering their projects.
Offsite planning/preparation	It is not possible to detail the planning and preparation scope at this time since these will be determined by the steering group and will be dependent on the scope of each project.

Delivery prescription	It is not possible to detail delivery prescriptions at this time since these will be determined by the steering group and will be dependent on the scope of each project.
Programme of works	The Capital Grants Scheme will commence upon completion of the HTR in 2029 and will run for a maximum period of 80 years, or once the grant fund has been used. The total fund available for the Grants Scheme is £1m. Anticipated programme of works: • 1st Quarter 2027 – establishment of steering group; • 2nd – 3rd Quarter 2027 – set scheme criteria; • 2nd Quarter 2029 and annually – commencement of Capital Grants Scheme, applications invited from April to June annually; • 3rd Quarter 2029 and annually – evaluation of applications during July and August; • 3rd Quarter 2029 and annually – award to successful applicants in September. • Monitoring and reporting as required thereafter.
Reporting and Review	Successful applicants will be required to monitor the outcomes of their projects against their specific objectives and report on an appropriate basis, which will be determined by the project scope e.g. annually, bi-annually.