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HAVANT THICKET RESERVOIR PROJECT

Pipeline Phase 1 (Shaft 1) Planning Conditions

Ecological Mitigation Compensation and Enhancement Measures (Conditions 21 and 22)

Portsmouth Water

March 2024

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This document does not purport to provide legal advice.

This document has 27 pages including the cover.

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Client signoff

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Project	Havant Thicket Reservoir Project
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1. Introduction and Background to the Scheme

- 1.1 This report supports an application to Havant Borough Council (HBC) on behalf of Portsmouth Water for Reserved Matters and the discharge of Planning Conditions relating to Phase 1 (Shaft 1) of the outline planning permission for a Pipeline (Ref. APP/20/00991) (Approved Pipeline Scheme) to transfer water to and from Bedhampton Pumping Station to Havant Thicket Reservoir on land at Havant Thicket, adjacent to Sir George Staunton Country Park and Middle Park Way, Havant. The planning applications for the Pipeline and Reservoir (Ref. APP/20/00990 and 51680/001) were approved in October 2021.
- 1.2 The purpose of this report is to provide HBC with full details of the ecological mitigation, compensation and enhancement measures in relation to Phase 1 (Shaft 1) of the Approved Scheme. This information is required to discharge the Phase-specific pre-commencement ecology conditions that need to be discharged before Phase 1 construction can commence. The Planning Conditions state:

Condition 21: Ecological Mitigation, Compensation and Mitigation Measures

No phase of the development approved under Condition 4 shall commence until full details of all ecological mitigation, compensation and enhancement measures (to be informed as necessary by up-to-date survey and assessment) and on-going monitoring of mitigation measures required for each reserved matters application (including both ecological works directly related to that Development Phase reserved matters area and any works associated with that area but lying outside of the boundary of that area) shall be submitted for approval to the Local Planning Authority. Such details shall be in accordance with the ecological mitigation, compensation and enhancement measures detailed within the Outline Biodiversity Mitigation and Compensation Strategy (ECOSA, September 2020), the Habitats Regulations Assessment (Atkins/Portsmouth Water, September 2020) and the Implementation Plan for Off Site Biodiversity Mitigation and Compensation (Atkins, April 2021). Any such approved measures shall thereafter be implemented in strict accordance with the agreed details and with all measures maintained in perpetuity, unless otherwise agreed in writing by the Local Planning Authority.

Reason: To protect and enhance biodiversity in accordance with the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, Natural Environment & Rural Communities Act 2006 (as amended), National Planning Policy Framework 2023, and Policy CS 11 of the Havant Borough Core Strategy March 2011.

Condition 22: Ecological Clerk of Works

An Ecological Clerk of Works (ECoW) shall be appointed, to be full time onsite during site preparation and clearance and during any works in sensitive areas, and to undertake regular monitoring visits throughout the construction programme.

Reason: To protect and enhance biodiversity in accordance with the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, Natural Environment & Rural Communities Act 2006 (as amended), and Policy CS 11 of the Havant Borough Core Strategy March 2011.

2. Ecological context of Shaft 1

- 2.1 The temporary and permanent works area required for the construction and operation of Shaft 1 is fully within the Approved Pipeline Scheme red line boundary. Detailed design plans of the works are provided in Appendix A.

- 2.2 The Site is located in Bedhampton, Havant at central Ordnance Survey National Grid Reference (OSNGR) SU 7062 0643. There is a railway along the northern boundary of the Site and an industrial area to the east. Part of the industrial area is subject to a separate planning application for housing. To the south and west of the Site is the Bedhampton Pumping Station, which is an operational site owned and managed by Portsmouth Water.
- 2.3 The shaft working area comprises an area of existing hardstanding, with an assemblage of scrub species associated with the fence to the north of the area of hardstanding (Target Note 02) and between the area and Bedhampton Pumping Station (TN04). A new access road will impact an area of grassland and blackthorn scrub within the operational site (TN03). See Appendix C for Target Notes.
- 2.4 Ecological surveys undertaken by AtkinsRéalis in 2023 have been used to obtain the baseline conditions for the Site.
- 2.5 Surveys undertaken relevant to the Site include:
- Vegetation – UK Habitat (UKHab) classification surveys were carried out throughout 2023, with the most recent survey conducted in November 2023¹;
 - Bats – Ground level tree assessments (GLTAs) for bats were undertaken in February 2023². Where PRFs were noted and where safe to do so, trees were subject to aerial inspections. A preliminary roost assessment (PRA) of the Bedhampton pumping station (Building 1) was undertaken in November 2023³;
 - Badger – Badger walkover surveys were carried out throughout 2023, with the most recent survey undertaken in November 2023;
 - Birds – protected species walkovers were undertaken throughout 2023, with the most recent survey undertaken in November 2023. With respect to birds, the surveys identified habitat suitable to support nesting and foraging birds; and
 - Invasive non-native plant species (INNPS) – INNPS walkover surveys were carried out throughout 2023, with the most recent survey undertaken in November 2023.
- 2.6 Further information on the ecological receptors identified during these surveys and from previous ecological data is provided in Table 5-1, Section 5. The UKHab classification survey results are presented in Figure B-1 in Appendix B and a plan of ecological constraints is shown in Figure B-2 in Appendix B.

3. Environmentally led design

- 3.1 The design of the Shaft 1 works has been developed by a team of environmental specialists and engineers, including landscape architects, ecologists, tree specialists and drainage and highways engineers. During the design process avoiding/mitigating the impacts on environmental receptors has been prioritised as much as possible, and the following elements have been committed to:
- Refinement of working areas to protect high value trees, including ancient, veteran and/or notable trees and trees with potential to support roosting bats.

¹ UKHab is a comprehensive and hierarchical habitat classification system for the UK that has been developed to benefit from recent changes in habitat categorisation, recording and analysis, and is suitable for digitally recording in the field using GIS. It is fully compatible with other major existing classifications, including Priority Habitat types (UKHab Level 4) and Habitats Directive Annex I habitat types (UKHab Level 5).

² Surveys in 2023 followed the published survey guidelines at that time namely: Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London.

³ Surveys in 2024 followed the updated survey guidelines namely: Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

4. Description of Works

- 4.1 The Phase 1 Scheme includes a shaft and a permanent access to the Shaft site. The shaft will be constructed within an area of existing hardstanding, adjacent to the Bedhampton Pumping Station. The permanent footprint resulting from the works will be the new access road required (access to the shaft from the north, east and south will be prevented eventually by the new housing development) and manhole covers to be installed in the slab cover for Shaft 1. The landowner of the site (Bellway Homes) is seeking planning permission to develop the site for residential use, if this is successful the remaining area of the shaft site will be redeveloped (as a parking area for the housing).
- 4.2 The groundwater released from the construction of Shaft 1 will be discharged directly into Hermitage Stream via a silt buster / settlement tank before entering an existing surface water sewer.

5. Mitigation measures specific to Shaft 1

- 5.1 No general measures associated with landscape reinstatement are covered in this document. The remaining mitigation, management and monitoring activities detailed in this section are associated with protected species. Further information on the ecological receptors identified within the Site through survey or from previous ecological data, is provided below in Table 5-1.

Table 5-1 – Overview of ecological baseline and mitigation for habitats and species

Habitat/species	Baseline and potential impact	Mitigation
Hermitage Stream	This modified watercourse has artificial banks and beds throughout much of its length. Despite this modification the Hermitage Stream supports a range of aquatic species and provides local habitat connectivity. No notable aquatic invertebrate species were recorded during survey. There are records of bullhead and European eel. However, despite their respective designations, these species are well distributed throughout Hampshire as indicated by Environment Agency routine monitoring data. Records of the vulnerable plant species opposite leaved pondweed are present within the study area on the Hermitage Stream near to the Bedhampton Springs discharge. It is likely that this species is restricted in distribution to locations immediately adjacent to and downstream of the spring discharge given its habitat requirements for high quality, base-rich water and because of the limited habitat provision elsewhere due to artificial modifications (namely a concrete bed and banks) which reduces substrate availability for the plants' rhizomes. The species is fairly widespread in England but is declining in its occurrence and has disappeared from some areas completely primarily as a result of urbanisation and eutrophication. Subsequently, as a precaution the Hermitage Stream is considered important for the maintenance of the conservation status of this species and potentially other notable aquatic plants within the county. There are potential in-direct impacts on water quality from the discharge of groundwater from construction of shaft 1 into Hermitage Stream (via existing surface water sewers).	The groundwater released from the construction of Shaft 1 will be directed firstly to a silt buster / settlement tank before entering an existing surface water sewer. Water discharged from the settlement tank will require testing prior to discharge to ensure background concentrations of the receiving waterbody are not exceeded. Water samples should be collected upstream and downstream of the proposed discharge point to obtain background concentrations of determinands. Total suspended solids should be monitored as a minimum. This information should be used to complete relevant dilution calculations.

Habitat/species	Baseline and potential impact	Mitigation
Priority habitats	A parcel of coastal and floodplain grazing marsh priority habitat is present immediately adjacent to the Site as shown in Figure B-2 in Appendix B. The field surveys undertaken in 2023 confirmed that the species assemblage and topography of the habitat does not fit the criteria for coastal and floodplain grazing marsh and, therefore, is not anticipated to pose a constraint to the Scheme.	None required
Priority plants	Two priority plants, small-flowered buttercup and wall bedstraw are present approximately 4 m west of the Site (Figure B-2, Appendix B). Wall bedstraw is listed as vulnerable on the Great British⁴ and English⁵ Red Lists. Small-flowered buttercup is listed as 'Least Concern' on the Great British Red List and both plants are listed on the Hampshire Rare Plants Register ⁶. Both plants were identified during a field survey undertaken at Bedhampton in November 2023 and, therefore, it is possible that the plants may cover a broader area during the core growing season (April to September) however conditions within the Site are less favourable as both species prefer areas of short grassland/ disturbed ground. Therefore, the species are unlikely to be present within the footprint of the permanent access track and are not anticipated to pose a constraint to the Scheme.	None required
Nesting birds	Approximately 65 m² of blackthorn scrub will be lost to facilitate the works. The scrub provides nesting and foraging opportunity for breeding birds.	It is recommended that clearance of the scrub is undertaken outside of core nesting bird season, which is typically taken to be from 1st March to 31st August. If this is not possible, an Ecological Clerk of Works (ECoW) will be required to undertake a pre-construction inspection of the

⁴ [VP-GBRL_19_02_2021-1.xlsx \(live.com\)](#) [accessed 06/12/2023]

⁵ [England Red List 1.pdf \(bsbi.org\)](#) [accessed 06/12/2023]

⁶ <https://www.hantsplants.uk/> [accessed 06/12/2023]

Habitat/species	Baseline and potential impact	Mitigation
Widespread species of reptile	The ground around the blackthorn scrub is often seasonally inundated (TN03) and, therefore, provides poor suitability for hibernating reptiles. However, it does provide suitability for foraging and commuting reptiles. The adjacent other neutral grassland parcel and hardstanding provides suitability for basking reptiles (TN02). A large spoil heap is present within the compound (TN01) and may provide suitability for sheltering and hibernating reptiles. See Appendix C for Target Notes.	scrub prior to clearance. This will involve an inspection of the scrub within 24 hours prior to the commencement of works. If any nesting birds are identified during the survey, they will be left in situ for their entire nesting period and alternative approaches to the work proposed will need to be found. This is likely to include leaving an exclusion zone around the nests to avoid disturbance whilst works continue. The ECoW will then advise on when works can proceed within the exclusion zone (i.e. after chicks have fledged). All cleared vegetation will be removed from the works area. An ECoW is required to undertake a pre-works check of the scrub and grassland for reptiles prior to clearance. The ECoW will also be required to check the hardstanding within the compound for basking reptiles. If a reptile is encountered during construction activities, all works will cease until the ECoW has safely captured and relocated the reptile to retained habitat away from the Site. If works are undertaken within the reptile hibernation period, which is typically taken to be from 1st October to 31st March, an ECoW will also be required to supervise the dismantling of the spoil pile.
Bats (roosting)	The 'Bedhampton 1' building is located within 10 m of the Site and was assessed as providing high potential to support roosting bats during a survey carried out by AtkinsRéalis in November 2023. Portsmouth Water subsequently confirmed that a bat roost was identified in the building in 2015 with a single common pipistrelle recorded, concluding that the building was likely used as a day roost by pipistrelles. Additionally, there are three trees located within 100 m of the Site that have been assessed as providing low (Tree 99) and moderate (Trees 98 and 100) potential to support roosting bats. The closest of these trees is a dead Norway maple located approximately 30 m southwest of the Site (Tree 98). Due to the distance that trees are away from the	No construction activity to occur during night-time hours, taken to be 30 minutes prior to sunset to 30 minutes after sunrise, to prevent disturbance to bats emerging from/re-entering potential roosts.

Habitat/species	Baseline and potential impact	Mitigation
	works the potential for disturbance is deemed to be minimal. A further four trees assessed as providing moderate (Tree 40) and high (Trees 41, 42 and 43) potential to support roosting bats and a second building assessed as providing moderate (Bedhampton 2) potential to support roosting bats are located within the wider Bedhampton Pumping Station site.	
Bats (foraging and commuting)	Suitable commuting and foraging habitat surrounding the Site comprises woodland, scrub, grassland, the riparian corridor along Hermitage Stream to the south of the Site and the rail corridor along the northern boundary of the Site.	No night-time lighting as defined above will be used during construction, to prevent disturbance to foraging and commuting bats.
Badgers	Badgers were not recorded within the Site during the walkover surveys undertaken in 2023. However, badgers are highly mobile and, therefore, there is potential for badgers to utilise the Site in the future.	A pre-construction survey will be carried out at least six months prior to construction commencing to determine whether any badger setts have been newly created within the Site and whether any further mitigation is required. Badger surveys can be carried out at any time of year, although winter can be advantageous as vegetation has died back meaning holes can be more obvious if present. Potential fox dens and/or rabbit warrens will also be recorded during this survey, to ensure any necessary works are carried out in a sensitive manner and in accordance with the Wild Mammals Act 1996. Precautionary measures such as covering any trenches that are left open overnight or providing ramps to prevent animals falling into the trenches and being trapped will be implemented. Excavations left overnight will also be checked prior to filling and open pipes left overnight will also be covered throughout the construction period.

Habitat/species	Baseline and potential impact	Mitigation
INNPS	Previous records indicate the presence of Japanese knotweed along a fence to the west of the construction compound. However, Japanese knotweed was not recorded during the field surveys undertaken in 2023 (TN04), following treatment and management by Portsmouth Water. Butterfly bush is also present within the blackthorn scrub to the west of the Site.	Whilst no Japanese knotweed is visible above-ground, its rhizomes may still be present within the soil and specialist advice will be sought to ensure robust preventative measures are in place to ensure rhizomes are not spread across the site during construction of Shaft 1. These preventative measures will be detailed in the Biosecurity Management Plan which will be implemented during the construction of shaft 1.

6. Compensation and enhancement

- 6.1 A comprehensive compensation package has been designed and agreed for the approved pipeline and reservoir schemes. In summary the compensation package includes the following measures:
- A mosaic of new and restored high-quality habitats, including 52 ha of habitat creation and restoration within Havant Thicket woodland, Bell's Copse and Staunton Country Park;
 - A new wetland with a variety of habitats, water depths and vegetation types;
 - Management for biodiversity through collaboration with Forestry England and Hampshire County Council, including a long-term Landscape and Ecological Management Plan (LEMP);
 - On-site aquatic habitat mitigation, compensation and enhancements to ponds and watercourses as part of a catchment-wide approach;
 - Up to 72 ha of habitat restoration and creation will be undertaken within Southleigh Forest in partnership with Hampshire and Isle of Wight Wildlife Trust (HIWWT);
 - Creation of up to 80 ha of new wood pasture and grassland through partnerships between Portsmouth Water and local landowners; and
 - 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.
- 6.2 Furthermore, ecological improvements to Hermitage Stream and Riders Lane Stream, which run adjacent to the pipeline, will be delivered as part of the catchment-wide approach.

7. Project team roles and responsibilities

- 7.1 A full Construction Environment Management Plan (CEMP), has been prepared by the Principal Contractor for the Approved Scheme.
- 7.2 The CEMP will be a live document and will be maintained by the Principal Contractor and updated as required throughout the life of the Approved Scheme.
- 7.3 The CEMP will be developed into the Handover Environmental Management Plan (HEMP) upon completion of the Approved Scheme, to pass crucial environmental information to those bodies responsible for future maintenance and operation of the asset (Portsmouth Water). The Principal Contractor will also be responsible for preparing the Construction Phase Health and Safety Plan alongside the HEMP, for handover to the managing agent.
- 7.4 An ECoW shall be appointed, to be full time on site during site preparation and clearance and during any works in sensitive areas, and to undertake regular monitoring visits throughout the duration of the Approved Scheme. Additional relevant roles and responsibilities are provided in Table 7.1.

Table 7-1 – Role and responsibilities for the Shaft 1 works

Role	Responsibilities
Principal Contractor (Ward & Burke)	Accountable for legal and contractual compliance. Responsible for the provision of adequate resources to maintain legal compliance.
Principal Contractor's Environmental Manager	Responsible for programming and managing activities, e.g. obtaining and maintaining environmental consents and licences. Advising Construction Manager, Site Engineers, Site Supervisors and Site Operatives on requirements of undertaking specialist environmental works and remedial action where necessary.
Principal Contractor's ECoW	Provide support to the Environmental Manager. Provide site induction for other ecologists, tool box talks, organise specialist ecological surveys. Monitor Principal Contractor site ecological compliance, supervising works and construction activities on site, auditing/reviewing works and procedures including method statements as required. Record and report the progress of ecological works. Report any product or service ecological non-conformances
Principal Contractors Arboricultural Consultant	The arboricultural consultant will check that all tree protection measures (such as tree fencing/ground protection for root zones) have been installed correctly and works are being carried out as required.

Post-construction environmental management responsibilities

- 7.5 Portsmouth Water will maintain the infrastructure for its lifetime as part of the infrastructure associated with the new Havant Thicket Reservoir.

8. Timescales

- 8.1 The indicative construction programme for Shaft 1 (including elements of the Approved Scheme for context) is provided below in Table 8-1.

Table 8-1 – Indicative programme of construction activities for Shaft 1

Dates	Key activity/milestone
March 2024	Submission of Shaft 1 reserved matter application.
June to September 2024	Construction period for Shaft 1.
May 2024	Submission of revised pipeline application (Shaft 1 design will be the same within new revised scheme but needs to be installed in advance of this permission).

9. Monitoring

- 9.1 The ECoW will monitor all activities outlined in this document including, but not restricted to: nesting bird checks; relocation of widespread species of reptiles (if present); works within areas where rabbit and fox are present; and works to or within a 30 m buffer of active badger setts (if present).
- 9.2 The ECoW will also liaise with other specialists carrying out monitoring duties during construction, such as any invasive non-native species management specialists, arboricultural consultants and others where necessary.
- 9.3 This is in line with the requirements as set out in the record of environmental actions and commitments (REAC). The REAC (Environmental Statement (ES) Volume 4, Appendix 2) identifies environmental actions and commitments made during the outline design to mitigate the potential environmental effects of the Approved Pipeline Scheme.
- 9.4 The REAC has informed the CEMP and will be updated as Shaft 1 construction progresses. It will be finalised at the end of construction on completion of the Shaft 1 construction activities, when it will be developed into the HEMP. This is the main vehicle for passing essential environmental information to Portsmouth Water and crucially to the bodies responsible for the future ongoing maintenance and operation of the shaft. Ecological actions identified in the REAC that are directly relevant to Shaft 1 are provided in Table 9-1 below.

Table 9-1- REAC: Ecological actions directly relevant to Shaft 1

Ref	ES ref	Objective	Actions/commitments (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P – Pre-construction C – Construction O – Operation A – All
1	CH9	To assist appointed construction contractor in meeting biodiversity requirements	ECoW to be appointed, to be full time on site during site preparation and clearance and during any works in sensitive areas, and to undertake regular monitoring visits throughout construction programme.	ECoW to be appointed by contractor will be suitably qualified and experienced ecologist.	Quarterly ECoW progress reports to be provided to the Local Planning Authority (LPA).	P, C
2	CH9	To protect retained trees, including veteran trees, from harm	All mature trees will be protected through appropriate mitigation measures or through the realignment of the route to avoid trees. Where trees have not been recorded, they are to be assessed by an arboriculturist to inform on any impacts that could occur from the construction of the pipeline. Protection of retained trees following standard practice (i.e. BS 5837:2012 Trees in relation to design, demolition and construction – recommendations). A construction exclusion zone will be established using steel mesh	Stakeholder comments will be obtained from LPA.	Agreement of tree protection strategy by LPA. Quarterly ECoW progress reports to be provided to LPA during construction.	P, C

Ref	ES ref	Objective	Actions/commitments (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P – Pre-construction C – Construction O – Operation A – All
			panel fencing, or similar, around retained trees where works are not limited by the existing roads or other associated hard infrastructure that could be protecting underlying tree roots.			
3	CH9, CH15	To protect watercourses from construction related pollution risk	The Principal Contractor will adopt best practice to avoid pollution of watercourses. This is to include, but is not limited to, adherence to Guidelines for Pollution Prevention (GPP), latest Environment Agency pollution guidance available from data.gov, and Construction Industry Research and Information Associated (CIRIA) guidance on the control of water pollution from construction sites.	Contractual responsibilities between Portsmouth Water and Principal Contractor.	No reportable incidents of construction related watercourse pollution above thresholds set within the water quality monitoring strategy.	P, C
4	CH9, CH15	Protection of retained watercourses and associated flora and fauna	Discharges to surface water drainage or watercourses associated with shaft construction, and non-emergency washout valve testing will require environmental permitting. A management plan will be implemented to ensure appropriate treatment prior to	There will be a requirement to manage potential of pollution and silt propagation.	No reportable incidents of construction related watercourse pollution above thresholds set within the water	P, C

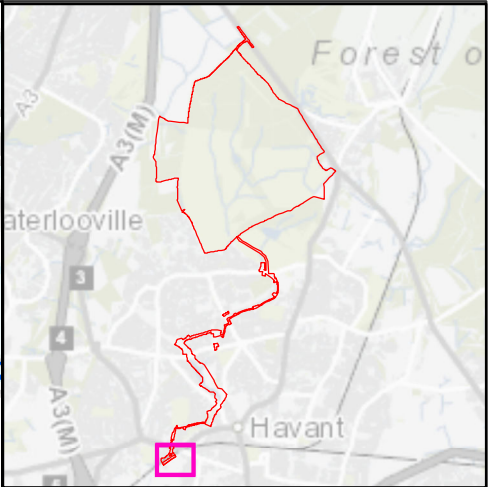
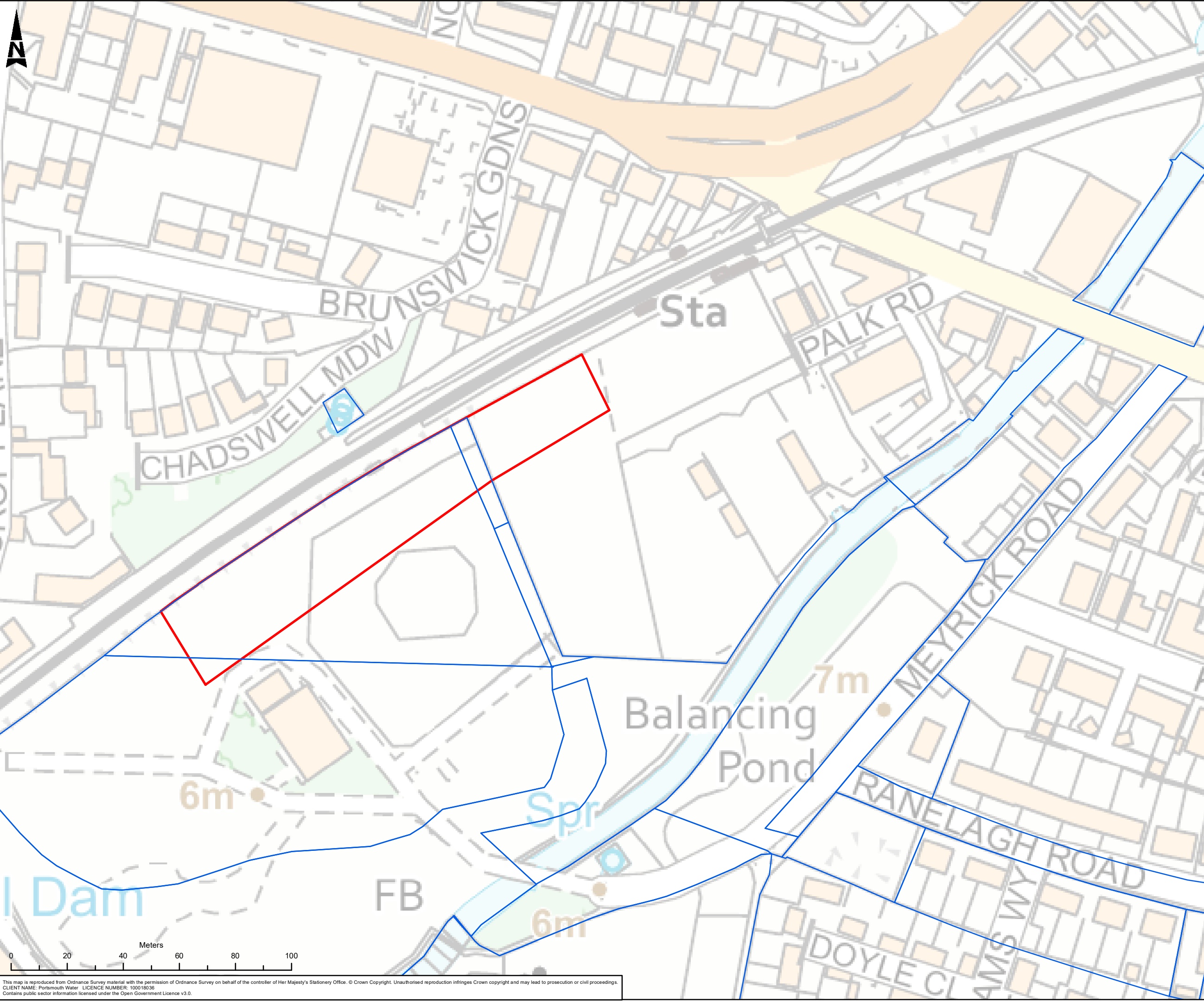
Ref	ES ref	Objective	Actions/commitments (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P – Pre-construction C – Construction O – Operation A – All
			discharge to any existing surface water drainage or watercourses.		quality monitoring strategy. Quarterly ECoW progress reports to be provided to LPA during construction.	
5	CH9	Protection of bats from indirect harm	Mitigation will be provided for lighting during construction. Any temporary lighting required during construction will be designed to minimise light spill, and to avoid light spill of more than 0.5 Lux on retained woodland areas. Tool box talk on adjacent trees with bat roost potential. Buffer maintained around trees and buildings during construction.	Temporary construction lighting plan to be included within the CEMP for Shaft 1 (if required).	If temporary lighting is required, updates will be included in ECoW's quarterly progress reports to be provided to LPA during construction.	P, C
6	CH9	Protection of badgers	Precautionary pre-clearance survey will be undertaken at areas of suitable habitat. Vegetation	A licence will be obtained if badgers colonise the Site and a sett requires closure.	Quarterly ECoW progress	P, C

Ref	ES ref	Objective	Actions/commitments (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P – Pre-construction C – Construction O – Operation A – All
			clearance in these areas will follow Precautionary Method of Working – to include precautionary measures such as covering any trenches that are left open overnight or provide ramps to prevent animals falling into the trenches and being trapped. Excavations left overnight will also be checked prior to filling. Any open pipes left overnight will also be covered.		reports to be provided to LPA during construction.	
7	CH9	Protection of nesting birds	Precautionary pre-clearance survey will be undertaken at areas of suitable habitat if clearance is required in the nesting season (typically March to August). Vegetation clearance in these areas will follow Precautionary Method of Working.		Quarterly ECoW progress reports to be provided to LPA during construction.	P, C

Ref	ES ref	Objective	Actions/commitments (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements	When P – Pre-construction C – Construction O – Operation A – All
8	CH9	Protection of reptiles	Retained vegetation will be protected for use as receptor sites. Clearance of suitable habitat will follow a Precautionary Method of Works. This is likely to involve displacement of animals into adjacent retained habitat. The PMW will set out the season and method of clearance.	N/A	Quarterly ECoW progress reports to be provided to LPA during construction.	P, C
9	CH9	Avoid spread of invasive non-native species	CEMP (which will contain the invasive species management plan) will include detailed methods to minimise risks of spreading invasive non-native species by managing risks and removing them.	N/A	Agreement of CEMP by LPA.	P, C

APPENDICES

A. Phase 1 Scheme



- ▬ Phase 1 Scheme (Shaft 1) Red Line Boundary
- ▬ Portsmouth Water Owned Land

P00	MMN	NW	AR	JF	PUBLISHED	12/02/2024
Rev.	Dm By	Cld By	Rev By	Auth By	Description	Date



Aztec West
500 Park Avenue
Almondsbury
Bristol
BS32 4RZ

Tel: +44 (0) 1454 6620000
Fax: +44 (0) 1454 663333
www.atkinsrealis.com

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Project Originator Volume Location Type Role Number

Telephone: Havant (023) 9249 9888
Fax: Havant (023) 9245 3632
Website: www.portsmouthwater.co.uk
Registered Office: PO Box 8 West Street
Havant Hampshire PO9 1LG
REGISTERED IN ENGLAND No. 2536455



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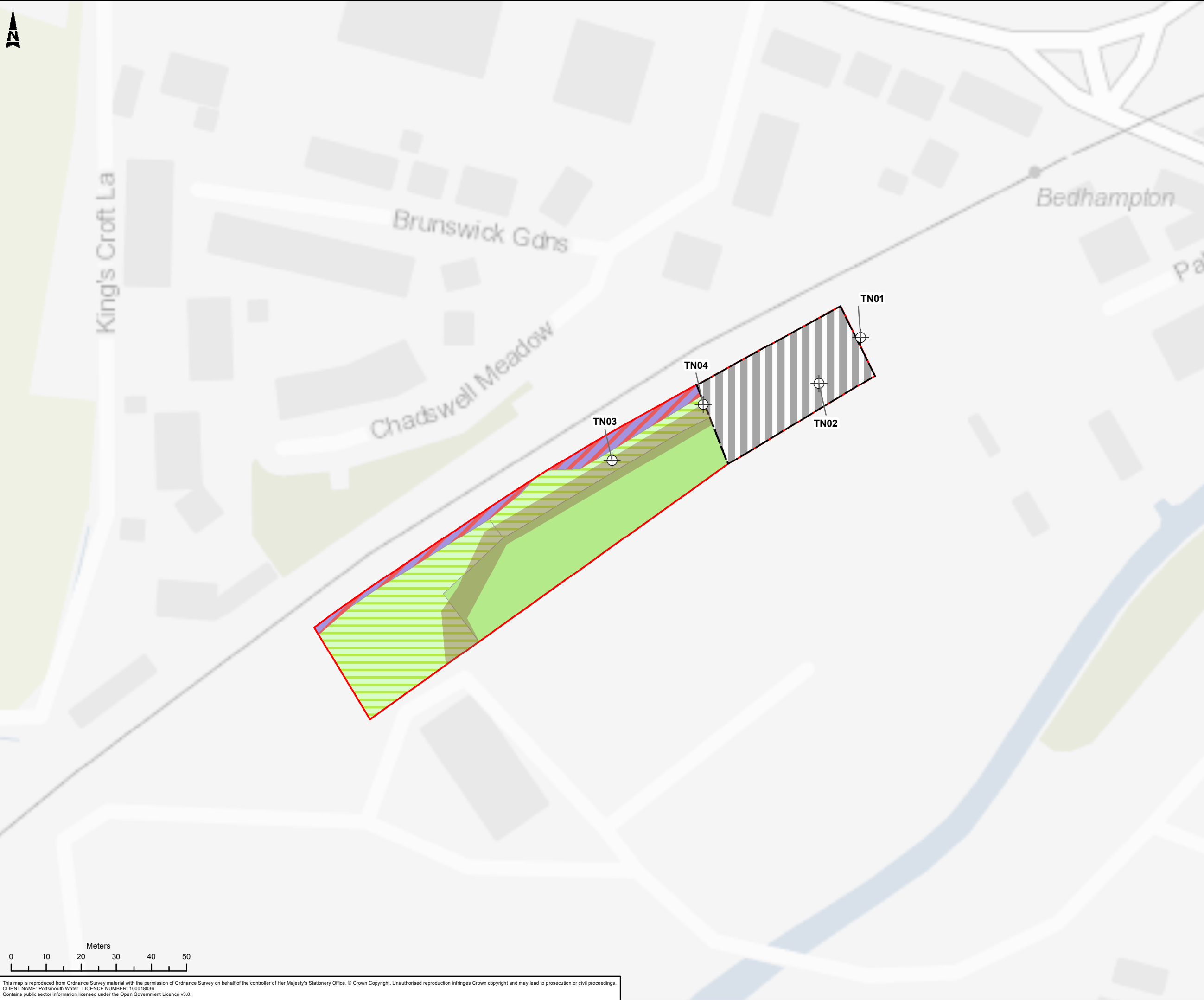
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HAVANT THICKET RESERVOIR

Drawing Title
PHASE ONE RED LINE BOUNDARY PLAN

Portsmouth Water Drawing Number	Rev
	P00

B. UK Habitat (UKHab) Classification Map and Ecological Constraints Plan

Figure B-1 UK Habitat (UKHab) Classification Map



RMA Red Line Boundary

Site Compound

Site Compound Access

Target Note

Habitats (UKHab Classification)

g - Grassland

g3c - Other Neutral Grassland

h3 - Dense Scrub

u1b - Developed Land, Sealed Surface

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Aztec West

500 Park Avenue

Almondsbury

Bristol

BS32 4RZ

Tel: +44 (0) 1454 6620000

Fax: +44 (0) 1454 663333

www.atkinsrealis.com

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Telephone: Havant (023) 9249 9888
Fax: Havant (023) 9245 3632
Website: www.portsmouthwater.co.uk
Registered Office: PO Box 8 West Street
Havant Hampshire PO9 1LG
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Portsmouth Water

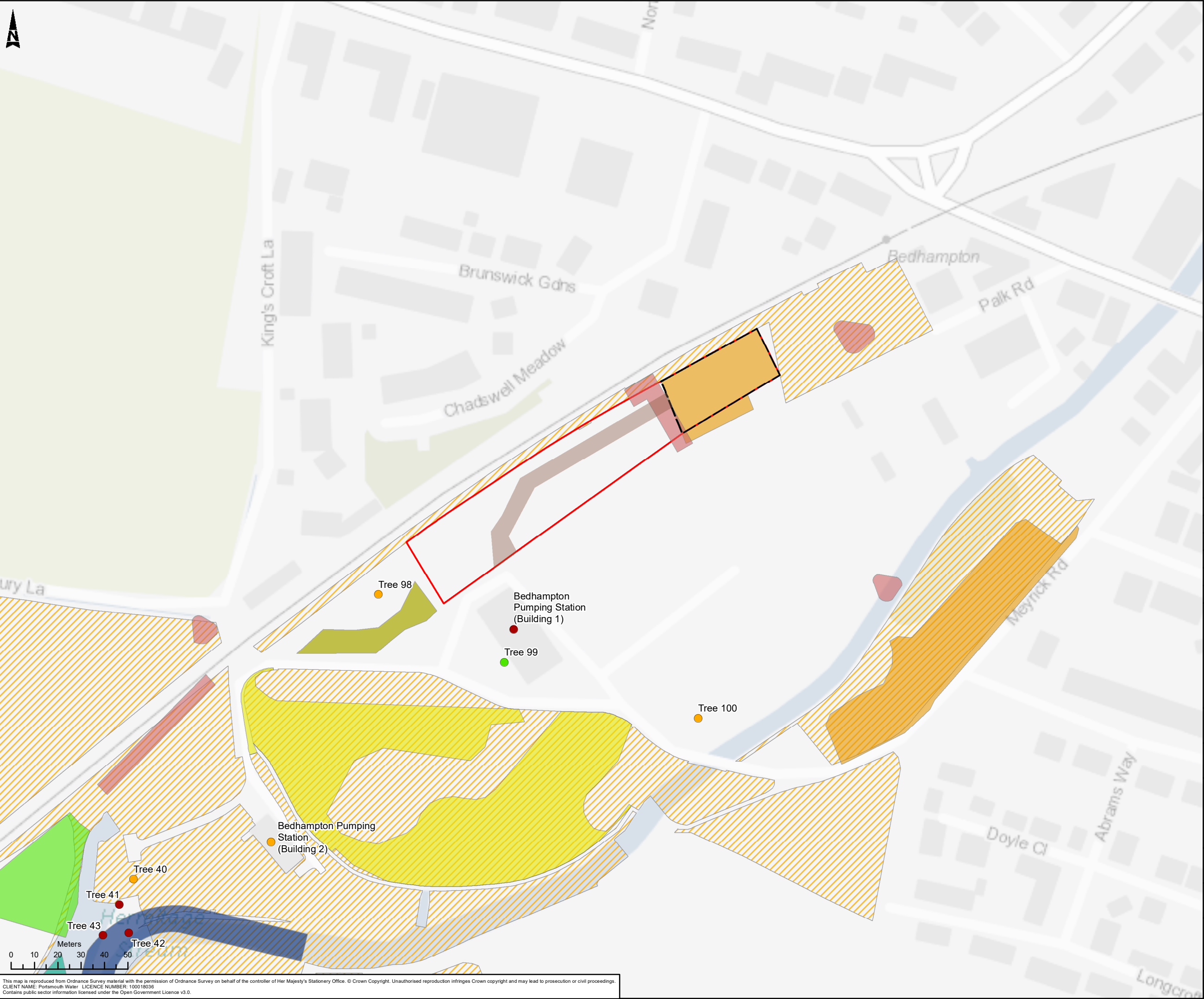
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Project Title
HAVANT THICKET RESERVOIR

Drawing Title
FIGURE B-1 UK HABITAT CLASSIFICATION (UKHAB) SURVEY

Portsmouth Water Drawing Number	Rev
	P00

Figure B-2 Ecological Constraints Plan



RMA Red Line Boundary

Site Compound

Site Compound Access

Preliminary Roost Assessment for Bats (Trees and Buildings)

High Suitability

Moderate Suitability

Low Suitability

Priority Habitats

Coastal and Floodplain Grazing Marsh

Priority Plants

Small-flowered Buttercup and Wall Bedstraw

Invasive Non-native Plant Species

Butterfly Bush - Recorded by AtkinsRéalís in 2023

Himalayan Balsam

Japanese Knotweed - Previously recorded by Portsmouth Water

New Zealand Pygmyweed

Habitat Suitability Assessment for Widespread Species of Reptile

Optimal Suitability

Sub-Optimal Suitability

P00	MMN	NW	AR	JF	PUBLISHED	16/01/2024
Rev.	Dwn By	Ckd By	Rev By	Auth By	Description	Date

AtkinsRéalís

Aztec West
500 Park Avenue
Almondsbury
Bristol
BS32 4RZ

Tel: +44 (0) 1454 6620000
Fax: +44 (0) 1454 663333
www.atkinsrealis.com

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Drawing Suitability

PUBLISHED

Status

A1

Contractors Drawing Number:

HTR - ATK - ZZ - ZZ - GS - Z - 187

Project | Originator | Volume | Location | Type | Role | Number

Telephone: Havant (023) 9249 9888
Fax: Havant (023) 9245 3632
Website: www.portsmouthwater.co.uk
Registered Office: PO Box 8 West Street
Havant Hampshire PO9 1LG
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Portsmouth Water

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FIGURE B-2 ECOLOGICAL CONSTRAINTS

Portsmouth Water Drawing Number

P00

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C. Target Notes

Table C2 - Target notes (TNs)

Target note ID	Description	Evidence
TN 01	Spoil pile within area of hardstanding provides suitability as a reptile hibernacula.	
TN 02	Area of hardstanding where the shaft chamber will be located. The hardstanding provides suitability for basking reptiles, and is adjacent to scrub habitat to the north and west of the compound, which is suitable for foraging and commuting reptiles.	

Target note ID	Description	Evidence
TN 03	Inundation of the grassland and scrub to the west of the Site in January 2023. The topography of the land lends itself to seasonal inundation, and, therefore, provides poor suitability for hibernating reptiles.	 

Target note ID	Description	Evidence
TN 04	Surveyors identified no Japanese knotweed along the western fence during an update survey in November 2023. However presence of persisting rhizomes below ground cannot be ruled out.	

AtkinsRéalis
AtkinsRéalis Office
Woodcote Grove
Epsom
KT18 5BW

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