

Havant Thicket Reservoir

Environmental Statement Addendum Non-Technical Summary

Client: Future Water (for Portsmouth Water)

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Appendix A – Outline Masterplan

1 Introduction

1.1 Background

- 1.1.1 This document presents a Non-Technical Summary (NTS) of the Addendum to the Environmental Statement (herein referred to as the 'ES Addendum') prepared to accompany the Section 73 (S73) application for the proposed changes to the Havant Thicket Reservoir project (herein referred to as 'the Scheme').
- 1.1.2 The Scheme is being developed by Portsmouth Water to provide a new supply of drinking water in the South East of England, while maximising the community and environmental benefits of a new raw water reservoir. The Scheme comprises a reservoir for water storage and access routes, with a control house, visitor centre and car park, recreational facilities for public amenity and a wetland along the northern shore of the reservoir.
- 1.1.3 An Environmental Statement (ES) (herein referred to as 'the 2020 ES') was submitted for the Scheme in 2020, as part of the planning application in accordance with the Town and Country (Environmental Impact Assessment) Regulations 2017 ('the Environmental Impact Assessment (EIA) Regulations'). The Scheme was granted planning permission subject to conditions in October 2021 by Havant Borough Council (HBC) and East Hampshire District Council (EHDC).
- 1.1.4 Changes to the approved Scheme are proposed as part of the S73 application of the Planning Act 1990. The implications of these changes are considered in the ES Addendum and are summarised in this NTS. An S73 application is a new application for planning permission under the EIA Regulations, and if granted will result in a new planning permission.
- 1.1.5 The ES Addendum describes the proposed changes to the Scheme and whether the EIA presented in the 2020 ES would need to be updated to take into account the proposed changes to the Scheme.
- 1.1.6 The pipeline connecting the reservoir to Bedhampton Springs at the Bedhampton pumping station is not considered within the ES Addendum as no changes are proposed to this element of the original hybrid planning permission as part of the S73 application.

1.2 The Applicant

- 1.2.1 The Applicant for the Scheme is Portsmouth Water, who is an independent water company supplying clean drinking water to an area that covers 868 km².

2 Proposed Changes to the Scheme

2.1 Introduction

2.1.1 The Section 73 applications propose a number of amendments to the design of the main embankment and related infrastructure including:

- Changes to the slope angles, location of the crest line, and footprint of the main reservoir embankment;
- The lengthening of the reservoir culvert;
- The relocation of the valve tower outside of the inner core of the main embankment; and
- The location of the control house.

2.1.2 The proposed changes to the Scheme are illustrated in the Outline Masterplan in Appendix A.

2.2 Main Reservoir Embankment

2.2.1 As a result of further investigations to inform the detailed design of the reservoir, changes to the main reservoir embankment would be necessary to ensure the strength and integrity of the main reservoir embankment over the long-term.

2.2.2 The following changes to the size and alignment of the main reservoir embankment are proposed:

- To facilitate construction of the main embankment, the southern toe of the main embankment would be realigned, which includes:
 - Realignment up to 50 m north at the eastern end of the main embankment;
 - Realignment up to 45 m south at the western end of the main embankment; and
 - Minor realignment of the western embankment.
- The slope angles of the inside and outside embankment faces have been re-designed to be shallower, with the slope angles varying between 1:8 to 1:9, which results in a larger main embankment footprint that extends further north. The slope angles for the section of main embankment adjacent to Staunton County Park would be fixed at 1:8 to 1:9.
- Due to the changes in the realigned embankment and the redesigned slope angles, the crest line of the main embankment would also move by approximately 80 m to the north. The overall length of the main embankment would increase by 30 m to 2,800 m in total.

- 2.2.3 The ES Addendum has considered a greater range of slope angles for the main embankment where they are not fixed, varying between 1:7 to 1:9, to allow for the opportunity to steepen the slope angles in some areas should that opportunity be possible through further engineering design and assessment work. Where the opportunity exists for the slope angles of the main embankment to be steeper, the location of the crest line on the main embankment would move by +/- 20 m and has been considered in the ES Addendum. The crest line for the section of embankment adjacent to Staunton Country Park would be fixed. The height of the embankment crest level of 40.5 m Above Ordnance Datum (AOD) would not change from the 2020 ES.
- 2.2.4 The changes to the main embankment slopes and alignment have been designed to ensure a cut and fill balance and minimal net change in the reservoir volume, in order to maintain the minimum total capacity of 8,700 million litres.

2.3 Reservoir Culvert

- 2.3.1 The reservoir culvert would provide a route through the main embankment for reservoir raw water to be pumped into the reservoir from Bedhampton Springs, and for supply water to Farlington Water Treatment works via Bedhampton Pumping Station.
- 2.3.2 As a consequence of the main embankment being realigned and the embankment footprint increasing, the overall length of the culvert would increase by approximately 80 m. The reservoir culvert would be located within the embankment structure and would not be visible under normal operating conditions of the reservoir.
- 2.3.3 The primary access to the culvert would be via the control building.

2.4 Valve Tower

- 2.4.1 The valve tower would be relocated outside the inner core of the main embankment, in order to maintain an uninterrupted core along the full length of the embankment.
- 2.4.2 The valve tower would also provide an upper draw off/intake off from the reservoir which would consist of a concrete headwall with a rock lined channel extending to the face of the inner embankment slope. The upper draw off intake structure would not be visible under normal operating conditions of the reservoir.
- 2.4.3 The valve tower would provide a dry area for manual operation, inspection and maintenance of low level draw off valves from the culvert and the high level draw off valves in the valve tower, and would allow valves and pipework to be removed in accordance with scheduled maintenance activities.
- 2.4.4 The valve tower would have an internal diameter of approximately 8 m and would be constructed of concrete with a plain, neutral coloured finish. The upper 1.5 m of the valve tower would protrude above the high waterline, with this potentially increasing by 1.0-2.0 m seasonally, due to variations in the reservoir water level. The top of the valve tower would be slightly higher (+41.10 m AOD) than the embankment crest (+40.5 m AOD).
- 2.4.5 The primary access to the valve tower would be via the control building and the culvert. Internal stairwells in the valve tower would provide access to the high level draw off valves, continuing to the roof of the valve tower accessed through lockable covers. The top of the valve tower would be accessed by boat, pontoon or other non-permanent method as a secondary means of access in the case of an emergency, however, other options may be considered in the future, and if necessary, will be the subject of a future planning application.

2.5 Control House

- 2.5.1 As a consequence of the main embankment being realigned and the embankment footprint increasing, the control house would also move north, but would still be partially incorporated into the main embankment slope. The area required to contain the control house infrastructure has also been increased as a result of detailed design increasing from 430 m² to 567 m².

2.6 Staircase and Viewing Platform

- 2.6.1 The staircase and the viewing platform would also be realigned north and the steps amended to suit the shallower slope angles of the main embankment. The staircase and the viewing platform would remain aligned with the footpath through Staunton Country Park.

2.7 Western Viewing Platform

- 2.7.1 As the main embankment would be realigned, the location of the viewing platform would be relocated slightly to the east and north.

2.8 Gipsies Plain

- 2.8.1 The changes to the main embankment alignment would not change the details for Gipsies Plain.

3 Construction Programme

- 3.1.1 The proposed changes to the Scheme would extend the duration of the construction programme with completion now expected in 2031. Construction of the culvert and valve tower would commence in 2024 and are scheduled for completion in 2025. The main embankment earthworks would commence in 2025 and would be completed in 2028.

4 Environmental Assessment Process, Approach and Methodology

4.1 Introduction

- 4.1.1 The ES Addendum follows the same assessment methodologies presented in the 2020 ES Chapter 5: EIA Process, Approach and Methodology (Vol 2 Chapter 5; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0101). The ES Addendum considers any changes to legislation and guidelines used in the assessment process since publication of the 2020 ES, and an assessment of any new or different significant effects that could result from changes to legislation and changes to the Scheme. Where new or different significant effects have been identified, the same mitigation hierarchy has been used as the 2020 ES.

4.2 Scope

- 4.2.1 A scoping exercise was carried out by specialists to examine which topics could result in new, or different significant effects on the environment arising from the proposed changes to the Scheme.
- 4.2.2 Following the scoping review, the chapter on Vulnerability to Major Accidents and Disasters was scoped out of further assessment, as the proposed changes to the Scheme would not result in any new, or different significant effects.
- 4.2.3 The following topics have been examined in the ES Addendum:
- Chapter 6: Air Quality;
 - Chapter 7: Historic Environment;
 - Chapter 8: Biodiversity;
 - Chapter 9: Ground Conditions;
 - Chapter 10: Landscape and Visual;
 - Chapter 11: Noise and Vibration;
 - Chapter 12: Traffic and Transport;
 - Chapter 13: Material Resources and Waste;
 - Chapter 14: Water;
 - Chapter 15: Effect on Climate;
 - Chapter 16: Vulnerability to Climate Change;
 - Chapter 17: Population and Human Health; and
 - Chapter 18: Cumulative and In-Combination Effects.

5 Assessment of Likely Significant Effects

5.1 Air Quality

Existing Environment

- 5.1.1 Updated air quality baseline monitoring data obtained from HBC and EHDC shows there would be moderate reductions in background air pollutant concentrations between 2019 and 2023 and 2023 and 2027, due to reductions in emissions from road vehicles, industrial, commercial and domestic sources.
- 5.1.2 There are no Air Quality Management Areas within the areas administered by HBC or EHDC.

Construction Effects

- 5.1.3 The proposed changes to the Scheme would extend the duration of the construction programme by approximately two years. Additional material would also be excavated from the site to construct the main reservoir. The dust control measures presented in the 2020 ES Chapter 7: Air Quality (Vol 2 Chapter 7; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0107) would continue to be applied during the extended construction phase. With respect to effects of emissions from construction-generated road traffic, the average daily construction-generated vehicle flows would be no higher than those considered in the 2020 ES. As such, the air quality effects arising from construction dust and construction road traffic emissions would be no greater than those predicted in the 2020 ES.

Operation Effects

- 5.1.4 As there would be no change to the planned operation of the Scheme, the assessment of effects presented in the 2020 ES remain unchanged.

Summary

- 5.1.5 There is no change to the assessment presented in the 2020 ES. With the implementation of mitigation measures, there would be no significant adverse air quality effects on receptors.

5.2 Historic Environment

Existing Environment

- 5.2.1 The 2020 ES Chapter 8: Historic Environment (Vol 2 Chapter 8; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0108) described the designated and non-designated heritage assets of the site and associated study areas, and potential archaeological deposits that may be affected.
- 5.2.2 There are no new designated heritage assets within the study area which could be affected by the proposed changes to the Scheme.
- 5.2.3 A programme of archaeological investigation has commenced at the site to identify and record archaeological remains.

Construction Effects

- 5.2.4 Any direct archaeological impacts arising from ongoing and future construction activities would not materially change from those assessed in the 2020 ES. As such, the planned future archaeological monitoring at the site would remain unchanged.
- 5.2.5 The appearance of the reservoir during construction would change slightly with the amended design of the main embankment and valve tower. Overall, it is not considered that the significance of effects would increase during the extended period of construction. The magnitude of any change to the setting of the Grade II* Leigh Park Registered Park and Garden, the Sir George Staunton Conservation Area and the Listed Buildings during construction would not materially alter, but would remain over the extended period of construction.

Operation Effects

- 5.2.6 The proposed changes to the Scheme would result in some limited change to the assessment of change to setting of designated heritage assets presented in the 2020 ES. These impacts would mainly be limited to the southern and western views of the reservoir.
- 5.2.7 The position of the embankment crest would move further north, away from the Grade II* Leigh Park Registered Park and Garden, the Sir George Staunton Conservation Area and the Listed Buildings. The shallower embankment slopes would result in a more natural incline which would soften the perceptual boundary between parkland and the reservoir, incorporating it into a wider rural landscape. As such, the changes would not alter the impacts presented in the 2020 ES.

- 5.2.8 The relocation of the valve tower would similarly change the appearance of some views from the Sir George Staunton Conservation Area and the Grade II* Leigh Park Registered Park considered in the 2020 ES, but the valve tower would still be seen in the context of the reservoir and embankment and would not result in any change to the setting of the Grade II* Leigh Park Registered Park and Garden, the Sir George Staunton Conservation Area, or the Listed Buildings.

Summary

- 5.2.9 The proposed changes to the Scheme would not result in any change to the significance of effects on heritage assets reported in the 2020 ES.

5.3 Biodiversity

Existing Environment

- 5.3.1 The ecological survey findings that informed the existing environmental conditions in the 2020 ES Chapter 9: Biodiversity (Vol 2 Chapter 9; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0109) remain unchanged.

Construction Effects

- 5.3.2 Since 2020, habitat clearance and tree removals have been carried out on the site. Mitigation measures, including reptile and amphibian translocation have been implemented, in accordance with the measures prescribed in the 2020 ES.
- 5.3.3 Although the construction period of the main reservoir works would be extended for two years due to the proposed Scheme changes, the mitigation measures in place to minimise disturbance on species, including bats, hazel dormouse, badgers and birds will continue to apply during the extended construction phase.

Habitat Creation

- 5.3.4 A greater area of species-rich grassland would be created on the main embankment compared to the 2020 ES, as the shallower slope angles of the amended embankment design would provide a larger area for new habitat.
- 5.3.5 Purple moor-grass and rush pasture to the south-west of the main embankment will be compensated through habitat creation on site, and would remain unchanged from the 2020 ES.

Operation Effects

- 5.3.6 During operation of the reservoir, no adverse effects that would be significant are anticipated with the proposed changes to the Scheme which would remain unchanged from the 2020 ES.

Summary

- 5.3.7 The proposed changes to the Scheme are not anticipated to cause further direct impacts on ecological receptors. The mitigation measures outlined in the 2020 ES remain robust and no further mitigation is required.

5.4 Ground Conditions**Existing Environment**

- 5.4.1 As part of the preliminary site works, ground breaking activities have been undertaken. No sources of ground contamination have been identified. The change in site conditions would not alter the baseline ground conditions presented in the 2020 ES.

Construction Effects

- 5.4.2 The proposed changes to the Scheme would not change the significance of effects presented in the 2020 ES, as the site conditions remain the same.

Operation Effects

- 5.4.3 The significance of effects on ground conditions during operation of the reservoir would remain unchanged from those presented in the 2020 ES.

Summary

- 5.4.4 The summary assessment presented in the 2020 ES remains unchanged. With the implementation of mitigation measures, there would be no significant effects on receptors during construction or operation of the Scheme.

5.5 Landscape and Visual

Existing Environment

- 5.5.1 Changes to the site conditions since 2020 include the removal of woodland areas and trees to enable construction of the reservoir. Havant Bridleway 120, which extends across the reservoir site from east to west, has been temporarily diverted to the north along Forestry England tracks in Havant Thicket for the duration of the main reservoir construction works. Advance planting has also taken place on Gipsies Plain and Memory Park on Deerslaughter Plain to the east and southwest of the reservoir site to enhance habitat connectivity.

Construction Effects - Landscape

- 5.5.2 There would be no change to the landscape effects during the construction phase from the 2020 ES Chapter 11: Landscape and Visual (Vol 2 Chapter 11; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0111). Although the construction period would be extended by two years due to the proposed Scheme changes, this would not change the significance of effects in the 2020 ES.

Construction Effects – Visual

- 5.5.3 There would be no change to the visual construction effects except for the extension of the construction period of time by two years.

Operation Effects – Landscape

- 5.5.4 The main embankment would continue to be grass covered, with no tree or shrub planting. The shallower slopes of the main embankment would have a more natural appearance, particularly in its context of the woodland to the south, and within the Sir George Staunton Conservation Area and Grade II* Leigh Park Registered Park and Garden. The lower parts of the main embankment to the waterside would be largely submerged with only the highest parts above the high waterline, this being 1.5 m when full and potentially dropping by 1.0 - 2.0 m seasonally.
- 5.5.5 The valve tower would be a small additional element in comparison to the extensive water area within the reservoir and there would be no significant landscape effects. The reservoir culvert would be below ground level and would have no significant landscape effects.

- 5.5.6 The overall effect is no change from the previously predicted level of effects as recorded in the 2020 ES Chapter 11: Landscape and Visual Table 11-18: Likely effects on landscape character (reservoir site and access roads).

Operation Effects – Visual

- 5.5.7 The changes to the main embankment on the landward side would appear less 'engineered' and would benefit pedestrian and other receptor views gained from the south and western sides of the reservoir. There would be some benefits, in more distant pedestrian and other receptor views from the north and northeast where the upper parts of the waterside embankment would similarly be less steep.
- 5.5.8 Although the upper part of the valve tower would be visible from some viewpoints, only at close range would the valve tower appear as a prominent feature, but it would still only appear as a small part of the wider reservoir surface. In most views, it would appear as a minor element in the wider landscape and there would be no significant visual effects from the valve tower.
- 5.5.9 The overall effect is no significant change from the previously predicted level of effects in the 2020 ES Chapter 11: Landscape and Visual Table 11-19: Likely visual effects (reservoir site and access roads).

Summary

Construction

- 5.5.10 There would be no change to the landscape effects during construction from the 2020 ES Chapter 11: Landscape and Visual (Vol 2 Chapter 11; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0111), although the construction period would be extended for two years, which would increase the duration of the effects. There would also be no change to visual effects experienced during construction, except for the extension of the construction period by two years.

Operation

- 5.5.11 The changes to the main embankment slopes would not result in a significant adverse effects on the landscape during operation. The relocation of the valve tower would be a local modification limited to a small area of the overall reservoir footprint. The overall effect would be no change from the previously predicted level of effects in the 2020 ES Chapter 11: Landscape and Visual Table 11-18: Likely effects on landscape character (reservoir site and access roads).

- 5.5.12 The changes to the main embankment slopes would have a locally beneficial visual effect on the landscape of the reservoir site area. Although there would be some minor adverse effects from the relocation of the valve tower, these effects would be limited to a small part of the overall reservoir area. The overall effect is no significant change from the previously predicted level of effects in the 2020 ES Chapter 11: Landscape and Visual, Table 11-19: Likely visual effects (reservoir site and access roads).

5.6 Noise and Vibration

Existing Environment

- 5.6.1 The noise sensitive receptors likely to be affected by the proposed changes to the Scheme remain the same as those identified in Chapter 12: Noise and Vibration of the 2020 ES (Vol 2 Chapter 12; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0112).

Construction Effects

- 5.6.2 Noise and vibration from construction works associated with the proposed changes to the Scheme would not result in adverse effects that would be significant during daytime hours with the implementation of mitigation measures. As such, the assessment presented in the 2020 ES remains unchanged.

Operation Effects

- 5.6.3 The assessment of noise and vibration effects during operation remains unchanged from the 2020 ES and there would be no significant adverse effects.

Summary

- 5.6.4 Review of the baseline and assessment presented in the 2020 ES Chapter 12: Noise and Vibration has demonstrated that the effects of the amendments to the main embankment and valve tower would result in effects that are no greater than those reported in the 2020 ES.
- 5.6.5 The mitigation agreed for the consented scheme would remain appropriate to the Scheme changes.

5.7 Traffic and Transport

Existing Environment

- 5.7.1 Changes to the site conditions since 2020 include the construction of the Northern Access Route and a new junction on the B2149 to allow vehicles to safely enter and leave the site.
- 5.7.2 The traffic survey and collision data used in the 2020 ES Chapter 13: Traffic and Transport (Vol 2 Chapter 13; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0113) remains valid.

Construction Effects

- 5.7.3 There would be a need to import a greater quantity of aggregate and sand for the construction of the main reservoir works, however, the daily maximum number of heavy goods vehicles arriving and departing the construction site would remain unchanged. Similarly, the daily maximum number of cars arriving and departing the reservoir construction site would remain unchanged. As such, there would be no significant change in effects resulting from construction related activities with the proposed changes to the Scheme.
- 5.7.4 The implementation of the site Construction Traffic Management Plan would ensure any traffic related effects are minimised during the construction works.

Operation Effects

- 5.7.5 No changes are proposed to vehicular access or parking provision during operation. As such, the findings of the traffic and transport assessment in the 2020 ES remain unchanged and there would be no significant adverse effects during the operation phase.
- 5.7.6 As the position of the main embankment would change, the route of the diverted Bridleway Havant 120 to the south of the reservoir would alter to reflect the revised position of the main embankment, however the bridleway would retain the same connections described in the 2020 ES. The realignment of Bridleway Havant 120 would have a negligible impact on users of the route.

Summary

- 5.7.7 There is no change to the assessment presented in the 2020 ES for the construction and operation phases of the Scheme and the mitigation agreed for the consented scheme would remain appropriate to the Scheme changes. The traffic survey and collision data used in the 2020 ES remains robust.

5.8 Material Resources and Waste

Existing Environment

- 5.8.1 There is no change to the existing environmental conditions for the material resources and waste assessment in the 2020 ES Chapter 14: Material Resources and Waste (Vol 2 Chapter 14; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0114).

Construction Effects

- 5.8.2 Material for the construction of the main embankment would be largely sourced from the site. Other construction materials such as aggregate, sand, concrete and steel would be imported to the site. A greater quantity of aggregate and sand would need to be imported, compared to the quantities assessed in the 2020 ES, as a result of the proposed changes to the Scheme and further ground investigations. A greater quantity of fill material would also be sourced from within the reservoir site to build the larger footprint of the main embankment and for landscaping.
- 5.8.3 The design, mitigation and enhancement measures included in the 2020 ES remain appropriate and no further mitigation measures are required. The significance of effects has not changed since the 2020 ES, therefore the classification presented in the 2020 ES assessment remains valid based on the materials.

Operation Effects

- 5.8.4 The 2020 ES concluded that the quantity of materials required for routine maintenance of the reservoir were not considered significant. There are no changes to the quantity of materials required for the routine maintenance of the reservoir and therefore the assessment remains valid.

Summary

- 5.8.5 The assessment of materials and waste presented in the 2020 ES is still relevant and appropriate in relation to the proposed changes to the Scheme.

5.9 Water

Existing Environment

- 5.9.1 The Water Framework Directive classifications for surface water bodies have been updated since the publication of Chapter 15: Water of the 2020 ES (Vol 2 Chapter 14; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0115). For all surface water bodies, the overall baseline ecological status has remained the same between 2016 and 2022.
- 5.9.2 The only change in baseline conditions for the three groundwater bodies examined in the 2020 ES is in the East Hants Lambeth Group where the status has improved from Poor in 2016 to Good in 2019.

Construction Effects

- 5.9.3 The 2020 ES included compensation and mitigation measures which would be implemented for the impacted water body of Riders Lane Stream. The proposed changes to the Scheme would not alter the findings of the 2020 Water Framework Directive assessment and therefore no additional mitigation would be required as part of the ongoing package of compensation and mitigation measures. Since 2020, a package of river restoration compensation measures has been agreed with the Environment Agency for Riders Lane Stream which is part of the Hermitage Stream water body.
- 5.9.4 The effects on flood risk from the proposed changes to Scheme would be no greater than those predicted in the 2020 Flood Risk Assessment.

Operation Effects

- 5.9.5 The significance of effects during operation impacts remains unchanged from the 2020 ES. The proposed changes to the Scheme would not result in any additional effects on Riders Lane Stream.

Summary

- 5.9.6 The overall assessment of effects on the water environment during construction and operation remains unchanged from the 2020 ES.

- 5.9.7 The water baseline and receptor importance remain unchanged since 2020. The proposed changes to the main embankment would not result in any additional loss of the physical character or water content elements of Riders Lane Stream, as the longer section of watercourse would have been lost below the reservoir in the Scheme assessed in the 2020 ES. Similarly, the proposed changes to the main embankment would not result in any changes to impacts from controlled compensation flows through the culverted section of Riders Lane Stream.
- 5.9.8 The proposed changes to the Scheme are not considered to alter the findings of the 2020 Water Framework Directive assessment and do not require additional mitigation.

5.10 Effects on Climate

Existing Environment

- 5.10.1 The most recent available annual greenhouse gas emissions figures for the UK are for the year 2022, where net territorial greenhouse gas emissions were estimated to be 406.2 million tonnes carbon dioxide equivalent (CO₂e), which is a 3.5% reduction compared to 2021 emissions. Over the operational lifespan of the Scheme, national UK emissions are expected to decrease as many sectors in the UK decarbonise.

Construction Effects

- 5.10.2 The construction of the reservoir will generate approximately 83,890 tonnes CO₂e, which represents a decrease in emissions compared to the 2020 ES, as the sourcing of embankment and wetland materials would occur mostly from within the site. Greenhouse gas emissions would be generated by raw material extraction and product manufacturing, the transport of materials and workforce to the site, energy and water use during construction, waste management, and plant and equipment use. Assuming construction emissions are spread evenly across the construction period, the construction of the Scheme would contribute 0.003% and 0.001% to the fourth and fifth carbon budget periods respectively.
- 5.10.3 The key design enhancement measures outlined in the 2020 ES remain unchanged. Materials to be used in the embankments will be sourced from the site as far as possible. Importing of materials not found on site will be minimised as much as possible using local sources.

Operation Effects

- 5.10.4 The assessment of the emissions associated with the operation of the Scheme in the 2020 ES remains unchanged.
- 5.10.5 The operational phase of the Scheme is expected to commence in 2032, with annual emissions of 716 tonnes CO₂e. This will contribute 0.00004% to the fifth carbon budget period. Emissions over the following five years will result in approximately 3,580 tonnes CO₂e, which contributes 0.0004% of the sixth carbon period.

Summary

- 5.10.6 Overall, the total emissions during construction would decrease compared to the 2020 ES, and there would be no change to emissions during operation. This supports the assessment that the Scheme is anticipated to make a small contribution to national emissions, and supports the 2020 ES conclusion that the Scheme is unlikely to cause a significant effect on climate change.

5.11 Vulnerability to Climate Change**Existing Environment**

- 5.11.1 The existing environmental conditions presented in Chapter 17: Vulnerability to Climate Change of the 2020 ES (Vol 2 Chapter 17; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0117) remain unchanged. On average, the study area is likely to experience hotter and drier summers and warmer and wetter winters.

Construction Effects

- 5.11.2 The significant effects assessed during construction of the reservoir, such as the likelihood for extreme weather events presented in the 2020 ES, remain unchanged.

Operation Effects

- 5.11.3 The significant effects assessed during operation of the reservoir, as presented in the 2020 ES, remain unchanged.

Summary

- 5.11.4 The summary assessment presented in the 2020 ES remains unchanged. With embedded mitigation, none of the potential climate vulnerability impacts would have adverse effects that would be significant.

5.12 Population and Human Health

Existing Environment

- 5.12.1 There is no change to access to open space and opportunities for recreation and leisure from Chapter 18: Population and Human Health (Vol 2 Chapter 18; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0116) of the 2020 ES. Mitigation measures have been carried out as part of the enabling works for the Scheme for the planned temporary closure and diversion of public rights of way.
- 5.12.2 The public health profile shows that in Havant Borough, East Hampshire and all wards, the population of under 15s and over 65s have increased. There is no change the trends of general health of the population compared to the average for England from the 2020 ES.

Construction Effects

- 5.12.3 Access to open space would be temporarily restricted for an additional two years during construction which would have an adverse effect on the local population. However, this would be mitigated by clearly communicating proposals to divert access routes for the duration of the construction works, in order to maintaining safe access for the public wherever possible. With the implementation of mitigation, all construction phase residual effects on health determinants remain unchanged from the 2020 ES.

Operation Effects

- 5.12.4 The likely significant effects assessed during operation of the reservoir, as presented in the 2020 ES, remain unchanged.

Summary

- 5.12.5 With mitigation, there would be no changes to the effects on population and human health to those presented in the 2020 ES.

5.13 Cumulative and In-Combination Effects

Existing Environment

- 5.13.1 Chapter 19: Cumulative and In-Combination Effects of the 2020 ES (Vol 2 Chapter 19; Document Reference: HTR-ATK-ZZ-ZZ-RP-Z-0119) identified committed developments in proximity to the Scheme comprising proposals for residential, commercial or mixed-use development which could have the potential to cause cumulative effects. Some developments listed in the 2020 ES have now been completed and have not been considered for the proposed changes to the Scheme. One additional committed development has been identified since the publication of the 2020 ES.
- 5.13.2 The assessment of cumulative impacts considers the combined effects of several different projects, in combination with the proposed changes to the Scheme.
- 5.13.3 The assessment of in-combination effects considers impact interactions associated with the proposed changes to the Scheme on key environmental receptors.

Construction Effects

Cumulative Effects

- 5.13.4 No change to the cumulative effects considered in the 2020 ES have been identified for air quality, the historic environment, biodiversity, ground conditions, landscape and visual, noise and vibration, material resources and waste, water environment or population and human health topics.

In-Combination Effects

- 5.13.5 The assessment of in-combination effects during construction on human receptors, ecological receptors, the water environment, heritage assets, ground conditions and landscape receptors remains unchanged from the 2020 ES.

Operation Effects

Cumulative Effects

- 5.13.6 No change to the cumulative effects considered in the 2020 ES have been identified for air quality, the historic environment, biodiversity, ground conditions, landscape and visual, noise and vibration, material resources and waste, water environment, population and human health topics.

In-Combination Effects

- 5.13.7 During operation, the assessment of in-combination effects on human receptors, ecological receptors, the water environment, heritage assets, ground conditions and landscape receptors remains unchanged from the 2020 ES.

Summary

Cumulative Effects

- 5.13.8 The assessment of cumulative effects on air quality, the historic environment, biodiversity, ground conditions, landscape and visual, noise and vibration, material resources and waste, water and population and human health remains unchanged from the 2020 ES.

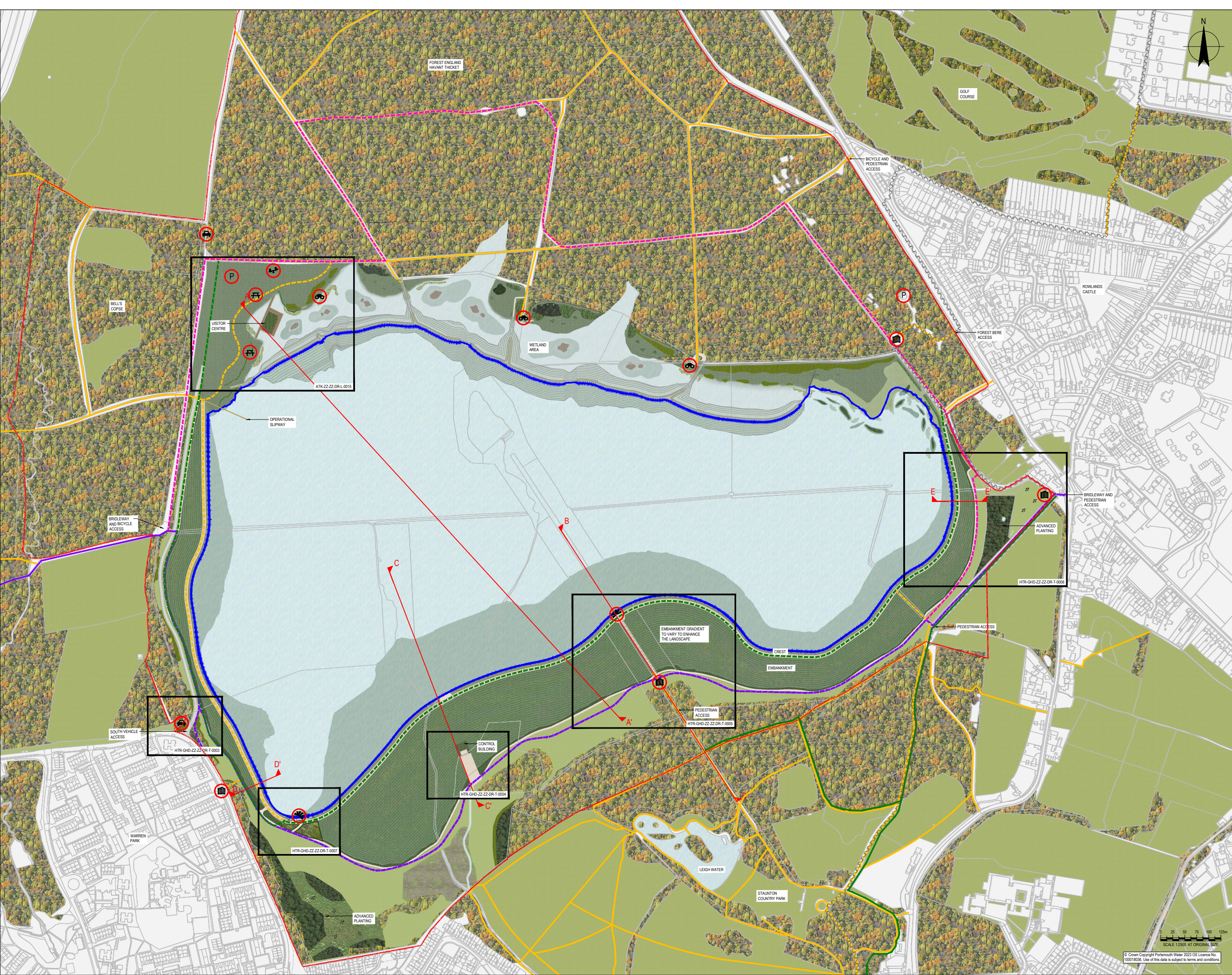
In-Combination Effects

- 5.13.9 The assessment of in-combination effects on receptors remains unchanged from the 2020 ES.

6 Conclusion

- 6.1.1 The ES Addendum has been prepared to examine the proposed changes to the Scheme which was granted planning permission subject to conditions in October 2021.
- 6.1.2 Design changes have been proposed following the granting of planning permission. To seek approval for these changes, applications under Section 73 of the Town and Country Planning Act 1990 have been submitted.
- 6.1.3 Following the assessment of impacts of the proposed changes to the Scheme, it is concluded that there are no new or materially different significant effects to those identified in the 2020 ES.

Appendix A – Outline Masterplan



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE (UNO).
2. ALL LEVELS ARE IN METRES TO ORDNANCE DATUM UNO.
3. TWL = TOP OF WATER LEVEL.

Key

Application boundary

39.5 contour - top water level for main reservoir

Existing

- Woodland
- Permissive path - pedestrian use
- Bridleway - pedestrian, cycle and equestrian use
- Long distance path
- Cycle path

Proposed

- Permissive path - pedestrian use
- Bridleway - pedestrian, cycle and equestrian use
- Path - pedestrian and cycle use
- Temporary bridleway diversion
- Bird watching
- Children's playground
- Picnic area
- Viewing Point
- Car park
- Vehicle access point
- Entrance point
- Woodland
- Wet woodland
- Scrub regeneration
- Native hedgerows
- Wet grassland
- Wildflower grassland
- Rush pasture
- Wetlands
- Reservoir

REFERENCE DOCUMENTS AND DRAWINGS

PLEASE REFER TO:

- HTR-GHD-ZZ-ZZ-DR-T-0004 - LANDSCAPE PLAN - CONTROL HOUSE
- HTR-GHD-ZZ-ZZ-DR-T-0005 - LANDSCAPE PLAN - AVENUE
- HTR-GHD-ZZ-ZZ-DR-T-0006 - LANDSCAPE PLAN - GIPSES PLAIN
- HTR-GHD-ZZ-ZZ-DR-T-0007 - LANDSCAPE PLAN - VIEWING PLATFORM
- HTR-GHD-ZZ-ZZ-DR-T-0008 - 0010 - MAIN EMBANKMENT SECTIONS AA TO E-E

Rev	Description	Author	Designer	Drafting	Check	ST	Checked	Approved	Date
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Future Water
MJJV Ltd

GHD

Project No. 12547181

Client: PORTSMOUTH WATER

Project: HAVANT THICKET RESERVOIR

Status: FOR APPROVAL

Drawing Title: RESERVOIR OUTLINE MASTERPLAN

Scale: 1:2500 AT ORIGINAL SIZE

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Scale: 1:2500 AT ORIGINAL SIZE

0 25 50 75 100 125m

Rev P02

Size A0