11 Summary

11.1 Introduction

11.1.1 The EIA process has played a significant role in informing the development of the masterplan and how the Site would be used and managed in the future. The majority of mitigation and enhancement measures are included as part of the physical design of the Proposed Development, as described in Chapter 5: Description of Development and in the Embedded Mitigation sections of the technical chapters (Chapters 7 – 10) of the ES. The design of the Proposed Development also seeks to address identified issues and stressors at the Site, such as anti-social behaviour, lack of management, invasive species and climate change.

11.1.2 For ease of reference a summary of other embedded mitigation measures described within the ES is provided below.

11.1.3 Tables 11.1 and 11.2 provide a summary of additional mitigation measures and monitoring requirements identified within the ES. Tables 11.1 and 11.2 also include significant residual effects identified during the construction phase and from the operational Proposed Development, respectively.

11.2 Embedded Mitigation Commitments

11.2.1 The following measures are those which the Applicant has committed to implement which do not form part of the physical Proposed Development proposals as described within Chapter 5: Description of the Development or detailed on the planning application drawings.

Construction

(General)

- Detailed Construction Method Statement (CMS) to be prepared and agreed with LBH and relevant key stakeholders, including dredging and land reclamation methods;
- Detailed CEMP to be agreed in accordance with the Outline CEMP to include ecological mitigation measures, Dust Management Plan, pollution prevention measures, emergency response, incident reporting etc.
- Adherence to the Framework Construction Logistics Plan (CLP), and details agreed with LBH and TfL.
- Ecological Clerk of Works and Environmental Manager to be in place during the construction phase of works.

Biodiversity

- Timing and phasing of works substantially in accordance with the principles defined in Chapter 6: Construction unless otherwise agreed to avoid adverse effects on ecological receptors.
- Invasive Species Management Plan.

Water Resources and Flood Risk

- (as set out under General)

Ground Conditions and Contamination

- Pre-demolition asbestos survey of remnant buildings and structures.
- Additional site investigation, site monitoring and quantitative risk assessment;
- Remediation Strategy and subsequent Remediation Verification Report.
- Environmental Permits under the Environmental Permitting Regulations (England and Wales) 1996 likely to include Waste Framework Directive (EPR Schedule 9 – Waste operations and materials facilities), the Landfill Directive (EPR Schedule 10 – Landfill), Mining Waste Directive (EPR Schedule 20 – Mining waste operations) and Groundwater activities (EPR Schedule 22 – Groundwater activities).
- CL:AIRE Definition of Waste: Code of Practice (CoP) for the removal/re-use of material from the lake.
- Piling Risk Assessment.
- Materials Management Plan, including earthworks assessment.

Landscape and Visual Impacts

- Tree protection measures implemented in line with BS 5837, 2012 Trees in Relation to Design, Demolition and Construction.
- Colour of hoarding to be recessive, e.g. green/brown.

Completed Development

Biodiversity

- Operational timing of HOAC to 1 April to 31 September.
- Detailed MEMP to be developed in consultation with key stakeholders and implemented by landowner/operator.
- Ongoing management of new/enhanced habitats for period of at least 30 years.
- Detailed lighting design to be developed with ecologist and in line with good practice.
- Operational Management Plan, including lighting controls and management of recreational activities.

Water Resources and Flood Risk

- Detailed LMP to be developed in consultation with key stakeholders and implemented by landowner/operator.
- Detailed design in accordance with measures set out in the ES chapter (Embedded Mitigation), including principles of surface water drainage, flood risk avoidance / resilience and use of clean cover materials.
- Flood Evacuation and Warning Plan.

Ground Conditions and Contamination

- Use of clean cover system in the camping area and use of no-dig layers as required.

Landscape and Visual Impacts

- Details of landscape planting for the lake and peninsula to be agreed with LBH and other key stakeholders.
- Ongoing management of new/enhanced habitats for period of at least 30 years.

Table 11.1: Summary of Significant Construction Phase Residual Effects

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Additional Mitigation and Monitoring	Likely Residual Effect
Biodiversity					
Phase 3 and Phase 4 works in-lake – loss of nest sites through removal of islands and land reclamation and replacement with new islands	SSSI designated assemblages of breeding birds: Mixed: open water, lowland fen, lowland marsh (Borough) Variety of species (Borough)	Permanent	Borough	None required	Moderate Positive
Phase 3A works in-lake – reprofiling island 2 as enhancement	SSSI designated assemblages of breeding birds: Mixed: open water, lowland fen, lowland marsh (Borough) Variety of species (Borough)	Permanent	Borough	None required	Moderate Positive
Phase 3A in-lake works - Loss of habitat and advance replacement	SSSI designated aggregations of non-breeding birds: variety of wintering species (National) Tufted duck (Borough)	Permanent	Local to National	None required	Minor to Major Positive
Phase 4 works in-lake – loss of nest sites through land	SSSI designated aggregations of non-breeding birds: variety of wintering species	Permanent	Local to National	None required	Minor to Major Positive

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Additional Mitigation and Monitoring	Likely Residual Effect
reclamation and advance replacement	(National) Tufted duck (Borough)				
Water Resources and Flood Risk					
No significant residual effects					
Ground Contamination					
No significant residual effects					
Landscape and Visual					
Operations to remove two islands for sailing and formation of six for ecological mitigation.	Islands within Broadwater Lake (High-Medium)	Local	Temporary and short term.	None required	Moderate adverse
Construction operations to remove concrete surfaces would be intrusive but implemented under the guidance of a very controlled method statement. Impacts would be the loss of unstable semi-mature vegetation which would be mitigated by the planting of new native trees of long	Remnant hard surface with pioneer vegetation (Low)	Local	Temporary, short term	None required	Moderate adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Additional Mitigation and Monitoring	Likely Residual Effect
term benefit and stability.					
Operations within open water to remove two islands for sailing and formation of six for ecological mitigation.	Broadwater Lake (Medium)	Local	Temporary and short term	None required	Moderate adverse
Visibility of construction of the uppermost parts of the main building, dredging activities and island formation in the southwest of the lake.	Users of Hillingdon Trail and associated footpaths elevated on the valley side to the northeast of the lake in the location of VP03. (High)	Local	Short term and temporary. Highly limited in extent within the vista.	None required	Moderate adverse
Visibility of construction of part of the rowing building, the upper level of the main building, some of the land reclamation of the peninsula extension, dredging activities and island formation	Visitors to the Old Orchard Inn elevated on the valley side to the northeast of the lake as illustrated by VP15. (Medium – high)	Local	Short term and temporary. Limited in extent within the vista.	None required	Moderate adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Additional Mitigation and Monitoring	Likely Residual Effect
in the southwest of the lake.					
Views of construction operations close to the house, around the lagoon, erection of boundary fence and construction traffic entering the Site.	Existing property adjacent to site entrance (High)	Local;	Short term and temporary	None required	Major adverse

Table 11.2: Summary of Significant Completed Development Residual Effects

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Biodiversity					
Enhancement of lake condition	Designated feature of Mid Colne Valley SSSI: Open standing water – (Regional)	Regional	Permanent	None	Moderate Positive
Operation of HOAC; relocation of BSC during the breeding bird season	SSSI designated assemblages of breeding birds: Mixed: open water, lowland fen, lowland marsh (Borough) Variety of species (Borough)	Local to Regional	Permanent	None	Minor to Moderate Positive
Relocation and operation of BSC during the wintering bird season – reduction of disturbance baseline	SSSI designated aggregations of non-breeding birds: variety of wintering species (National) Tufted duck (Borough)	Up to National	Permanent	None	Major Positive
Operation of the Proposed Development – effect of habitat management and enhancement	Bats (foraging) (Borough)	Borough	Permanent	None	Moderate Positive

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Operation of the Proposed Development – provision of bat boxes	Bats (roosting) (Borough)	Borough	Permanent	None	Moderate Positive
Operation of the Proposed Development – effect of habitat management and enhancement	Black poplar (Borough)	Local to Borough	Permanent	None	Minor to Moderate Positive
Operation of the Proposed Development – long-term management	Terrestrial and aquatic INNS	Borough	Permanent	None	Moderate Positive
Water Resources and Flood Risk					
Surface Water – Lake Morphology	Broadwater Lake (Very High)	Local	Permanent	None	Moderate beneficial
Ground Contamination					
No significant residual effects					
Landscape and Visual Assessment					
Benefits of tree management to enhance the condition of woodland.	Wet woodland within the peninsula (High)	Local	Permanent and enhancing with maturation of proposed landscape over time.	Periodic landscape management operations	Moderate beneficial

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Benefits of management on existing trees and replanting of new suitable species of native trees, shrubs, understorey and meadows.	Incidental woodland and vegetation on site (Medium)	Local	Permanent and enhancing with maturation of proposed landscape over time.	Periodic landscape management operations	Moderate beneficial
Benefits of tree management on existing trees and replanting of new suitable species of native trees, shrubs, understorey, native grassland and meadows on topsoil rather than concrete surface.	Remnant hard surface with pioneer vegetation (Low)	Local	Permanent and enhancing with maturation of proposed landscape over time.	Periodic landscape management operations	Major beneficial

11.3 Monitoring Programme

11.3.1 The ES proposes that a comprehensive programme of monitoring is undertaken for the construction and operation of the Proposed Development, although it should be noted that this is not in response to significant adverse effects being identified.

11.3.2 A comprehensive long-term monitoring programme for water quality has been proposed. This is designed to measure the changes to water quality and inform further interventions in the future as issues arise, or as long-term trends become clearer. Further details are provided in Chapter 8: Water Resources and Flood Risk and Appendix 8.7: Lake Management Plan.

11.3.3 The existing habitats on-site (SSSI designated habitats being woodland and open water), and the enhancements provided by the Proposed Development (aquatic planting, floating reedbeds and new islands), will be monitored to ensure they remain in a good condition, developing and functioning as planned. Further details are provided in Chapter 7: Biodiversity and the MEMP provided in Appendices 7.4 and 7.5.

11.3.4 Ongoing management will be informed by the results of the monitoring. The programme of monitoring and assessment would therefore allow adaptive management of the SSSI. Monitoring will be designed to help ensure that the MEMP, LMP and Operational Management Plan are effective management tools in the face of dynamic change. This will be particularly important as the effects of climate change on the Broadwater Lake intensify and will help ensure the Applicant achieve their objectives of conserving and enhancing the value of the SSSI, its designated features in the long-term. Details of the monitoring programme will be further developed in consultation with key stakeholders.

11.3.5 Monitoring could also inform the need for remedial measures should adverse effects be identified that were not included within the ES.

11.4 Further Consents and Requirements

11.4.1 There are a number of further consents and plans required for the HSWFAC project which include:

Natural England:

- Agreement on the SSSI Assessment for the project and MEMP.
- Protected species licences.

Environment Agency:

- Environmental Permits, as required.
- Flood Risk Activity Permit (FRAP) for works within 8m of the River Colne (required for the demolition of the existing BSC building).
- Temporary / permanent surface water discharge consent.

Canal and Rivers Trust:

- Agreement for works to Grand Union Canal bridge (No. 179).

HS2:

- Agreement to proposed access arrangements and ecological mitigation works.

LBH/TfL

- Temporary closure diversion to the London Loop during works to the canal bridge

11.4.2 The above list would be further developed in consultation with key stakeholders.