5 Description of the Development

Preface

This chapter has been updated and revised to reflect the revised proposals which now comprise the Proposed Development. The key changes made since the 2023 ES include:

- **Section 5.2 Overview of the Development -** updated to reflect the revised proposals;
- **Section 5.4 In-Lake Proposals -** includes the revised dredging land reclamation which have been significantly reduced from the 2023 Scheme. Dredging and land reclamation is now focussed in the Eastern Channel only. Proposals for island removal and other in-lake works have also been revised;
- **Section 5.5 Land Based Proposals -** describes the building designs which have been reduced in footprint and scale compared to the 2023 Scheme. Additional images are included to illustrate the proposals. A description of other built structures is included;
- **Section 5.6 Access, Car Parking and Boat Storage -** updated to reflect the reduced car parking and boat parking numbers;
- **Section 5.7 Landscape and Ecology Proposals -** updated to reflect the revised proposals. Tree loss and calculations of biodiversity net gain have been updated. Mitigation and enhancement measures have been more clearly distinguished from one another. A description of site management and governance is also included;
- **Section 5.12 Utilities and Energy Strategy -** updated to reflect the changes to the utilities strategy which now involves underground routing below Grand Union Canal rather than upgrading of the bridge gantry;
- **Section 5.13 Operational Use -** describes the revised types of activities and revised operating procedures and restrictions from the 2023 Scheme which include:
  - Reduced operating hours for HWSFAC users;
  - Reduced land-based activities on the Peninsula with the removal of high ropes, pedal karting and other uses;
  - Reduced maximum number of HWSFAC users permitted on-site; and
  - Reduced zone for water-based activities (non-sailing / windsurfing) which are now confined to the Eastern Channel only rather than the full sailing area.
- **Figures** – Figures 5.1, 5.2 and 5.4 have been updated to reflect the revised proposals. The following additional figures are also provided:
  - Figure 5.3 demonstrates how buildings have been positioned to fit within the area of existing hardstanding;
  - Figure 5.5 illustrates the revised utilities strategy;
  - Figure 5.6 provides a comparison of the existing and proposed sailing area extent;
  - Figure 5.7 shows the extent of land based activities; and

- Figure 5.8 provides a comparison of the existing and proposed angling area extents.

- **Appendix 5.1** - updated to include revised architectural drawings submitted for planning approval;
- **Appendix 5.2** - provides the revised Landscape Strategy;
- **Appendix 5.3** - new appendix which provides an Outline Operational Management Plan (OMP); and
- **Appendix 5.4** - new appendix which provides a schedule of embedded mitigation measures and enhancements.

Further explanation on the revisions to the 2023 Scheme is provided in Chapter 4: Alternatives.

5.1 Introduction

5.1.1 This chapter provides a description of the Proposed Development which forms the basis of the EIA and was written by Quod, based on information provided by the project architects, the Applicant, and other members of the project team.

5.1.2 The Design and Access Statement (DAS) provides further details of the buildings and structures however this description is adequate to identify the likely significant effects of the Proposed Development. A selection of planning application drawings is provided in Appendix 5.1 (see Table 5.1) and the Landscaping Strategy is included as Appendix 5.2.

5.1.3 This chapter is set out as follows:

- Section 5.2 – Overview of the Development
- Section 5.3 – Demolition
- Section 5.4 – In-Lake Proposals
- Section 5.5 – Land Based Proposals
- Section 5.6 – Access, Car Parking and Boat Storage
- Section 5.7 – Landscape and Ecology Proposals
- Section 5.8 – Boundary Treatment and Fencing
- Section 5.9 – Lighting
- Section 5.10 – Waste and Servicing
- Section 5.11 – Flood Risk Mitigation and Drainage Strategy
- Section 5.12 – Utilities and Energy Strategy
- Section 5.13 – Operational Use
- Section 5.14 – Maintenance and Management

5.1.4 The Figures which support this chapter include:

- Figure 5.1: Proposed Development Masterplan

- Figure 5.2: Peninsula Layout
- Figure 5.3: Existing Hardstanding and Proposed Structures
- Figure 5.4: Tree Credit and Loss Overview
- Figure 5.5: Utilities Connection
- Figure 5.6: Existing and Proposed Sailing Area Extents
- Figure 5.7: Extent of Land Based Activities
- Figure 5.8: Existing and Proposed Angling Areas Extents

Table 5.1: Selection of Planning Application Drawings

Drawing Reference	Drawing Title
1329-HAV-Z1-RF-DR-A-S2-1101	Operation Zone - Proposed Roof Plan
1329-HAV-Z1-ZZ-DR-A-S2-1100	Operation Zone - Proposed Ground and First Floor Plans
1329-HAV-Z1-ZZ-DR-A-S2-2100	Operation Zone - Proposed Elevations
1329-HAV-Z1-ZZ-DR-A-S2-2200	Operation Zone - Proposed Sections
1329-HAV-Z2-ZZ-DR-A-S2-1102	Safety Zone - Proposed Ground Floor Plan and Roof Plans
1329-HAV-Z2-ZZ-DR-A-S2-2101	Safety Zone - Proposed Elevations
1329-HAV-Z2-ZZ-DR-A-S2-2201	Safety & Camp Zone Zone - Proposed Sections
1329-HAV-Z3-ZZ-DR-A-S2-1103	Camp Zone - Proposed Ground and Roof Plans
1329-HAV-Z3-ZZ-DR-A-S3-2102	Camp Zone - Proposed Elevations

5.1.5 A description of the anticipated construction programme, phasing and construction activities is provided within Chapter 6: Construction.

5.2 Overview of the Development

5.2.1 The Proposed Development will provide a replacement facility of the former Hillingdon Outdoor Activity Centre (HOAC) ('the former HOAC facility') which is located on Dews Lane, Harefield, UB9 6JN. The charity which previously operated at the former HOAC facility was the Colne Valley Youth & Community Association ('the Association') (Charity number: 1012242). The Association is a Youth Educational Charity which provides outdoor and environmental education for the whole community, but with priority given to young people, particularly those who are disadvantaged or disabled. LB Hillingdon owns the former HOAC facility, which the Association currently manages under a partnership agreement. The background to the Proposed Development is provided in Chapter 1: Introduction.

5.2.2 The replacement facility at Broadwater Lake will be known as the 'Hillingdon Water Sports and Activity Centre' (HWSFAC). The HWSFAC will be owned and operated by LBH (or operated by a third party under lease arrangements). Broadwater Sailing Club (BSC), which currently operates from the northern part of Broadwater Lake would also share use of the HWSFAC facilities. The HWSFAC will provide land and water-based activities for a diverse

range of user groups. A key focus of the facility is to provide accessible opportunities for all users, including those with additional needs or disabilities.

5.2.3 The HSWFAC will provide tailored programmes, expert management and partnership with user groups, to provide a resource for all users. The Facility will be used by schools and other educational establishments for both day trips and overnight stays, children, young people and adults with disabilities and additional needs, local guides and scout groups, families, emergency services and BSC members. Residential trips, summer camps and activities contributing towards the Duke of Edinburgh Award will all be offered at the Facility. The Facility will also offer a range of volunteering opportunities for individuals and within the wider community. Further details of the user groups and how they will benefit from the Proposed Development are provided in the supporting planning documents.

5.2.4 The Applicant's main objectives for the Proposed Development are to:

- Provide a replacement to the former HOAC facility displaced by HS2 designed to modern standards for safety and accessibility;
- Provide equal access to water sports for people of all abilities;
- Promote mental and physical health;
- Provide a safe space for children and young people to build confidence and learn skills for life; and
- Protect the Mid Colne Valley SSSI from damage or deterioration and take positive steps to improve the condition of Broadwater Lake and its special features through design and long-term management and monitoring, addressing existing challenges and those in the future associated with climate change.

5.2.5 The overall masterplan for the Proposed Development is shown in Figure 5.1.

5.2.6 The Applicant is seeking detailed planning permission for the following:

'Redevelopment of the site to create the Hillingdon Watersports Facility and Activity Centre including demolition of existing Broadwater Lake Sailing Club (BSC) clubhouse at the north of the lake and erection of a building including changing facilities, meeting rooms, storage, Workshop and seasonal worker accommodation (sui generis), activity shelters; installation of pontoons and concrete slipways; boat shed; equipment storage huts; boat parking and racking areas; camping area; outdoor activity areas; ecological enhancement throughout the site; new pedestrian routes through the Peninsula; landscaping including new woodland, dense vegetation screens and boundary treatment; new access and access road; localised dredging and land reclamation; relocation of existing Sailing Area and creation of floating reedbeds within the lake; coach drop off and turning area; vehicle parking; cycle parking; and associated works.'

5.2.7 Access to the HWFSAC would be via the Access Road from Moorhall Road which would be subject to improvements.

5.2.8 The main built components of the Proposed Development (as illustrated in Figure 5.2) include:

- Main Building - two storey building providing changing facilities, meeting and training rooms, storage, seasonal worker accommodation and an observation deck;
- Equipment Store and Workshop - single storey building including an energy centre;
- Activity shelters;
- Facilities for outdoor land based activities including artificial above-ground caving, zip-line, big swing, bird watching, foraging, pond dipping and environment training and education;
- Areas for boat storage, car and cycle parking, and coach drop-off and turning; and
- A camping area (tents, sheltered camping for disabled children) and toilet facilities.

5.2.9 Broadwater Lake would be used as follows:

- Continued use by BSC within a revised (i.e. slightly reduced) Sailing Area;
- New dinghy sailing and windsurfing use within the revised Sailing Area (No motorised boats would be used. Safety boats would be electric); and
- Use of the Eastern Channel for kayaking / canoeing, dragon boats, stand up paddleboarding and raft building.

5.2.10 Some works within the lake are required to facilitate the development which are described further in Section 5.4 and Chapter 6: Construction. These include localised dredging in the Eastern Channel only, a small area of land reclamation, removal of a small island and three existing pontoons, installation of two new pontoons and slipways, and habitat creation and enhancement including floating reedbeds.

5.2.11 The Applicant is committed to the long-term management of the Site, its wildlife and water environment, including a monitoring programme. Further details are provided in Appendix 5.3: Outline OMP and Appendix 7.9: Outline Mitigation, Enhancements and Management Plan (MEMP).

5.3 Demolition

5.3.1 BSC currently operate from a single-storey club house, associated boat storage area, parking area, storage containers and pontoons on the northern shore of Broadwater Lake. The existing single storey BSC club house (approximately 150 sqm) associated storage containers, tarmac and hardstanding will be demolished and removed from the Site.

5.3.2 Three existing pontoons used by the existing BSC facilities will be relocated and repurposed as floating habitats in the north west of the lake. The one remaining slipway will be retained for emergency access. This work would be undertaken once the new facility at the Peninsula is built and available for use.

5.4 In-Lake Proposals

Dredging

5.4.1 Localised dredging of the lake will be undertaken in the Eastern Channel only, adjacent to the Peninsula, to increase the lake depth up to 2m in order to facilitate sailing uses from

launch locations on the Peninsula and remove fly-tipped construction rubble. The volume of dredged material is estimated to be approximately 7,100m^3.

5.4.2 Details of dredging would be confirmed once a contractor is appointed. Further information on the timing and likely methods of dredging is provided in Chapter 6: Construction.

Land Reclamation

5.4.3 A small area of land reclamation is proposed to extend the north eastern part of the Peninsula to provide an area for boat storage, 'beach' and slipways / pontoons to provide safe and controlled access to the water. The extent of this reclaimed area would be approximately 2,892m^2 and will require c 8,000m^3 of material. Land reclamation would be achieved through the re-use of clean lake dredged material and other clean materials derived from demolition / enabling works, subject to suitable testing.

5.4.4 Land reclamation works would be subject to an Environmental Permit to be secured under the Environmental Permitting (England and Wales) Regulations 2016.

Island Removal

5.4.5 A single island (#07 as shown on Figure 6.1) would be removed to facilitate water-based activities. Island #07 is a part-submerged mound of large mainly waste concrete blocks on the bed of the Eastern Channel. Island #02 would be reshaped to create two shallow bays for ecological purposes. The eastern side of Island #06 would be reshaped to remove land contaminated by the invasive Japanese Giant Knotweed. These works involve would generate approximately 5,652m^3 of material.

Other

5.4.6 Other in-lake works would include:

- Construction of two lake pontoons and two concrete slipways at the Peninsula - two floating pontoons and gangways will be installed along the northern edge of the reclaimed land, providing access to the water. The pontoons will be approximately 20m x 3m. One concrete slipway will also be created on the northern edge of the reclaimed land, and the second would be east of the reclaimed land, for launching boats into the water. These will be a 1 in 12 gradient (4.76 degrees) and approximately 15m x 3m in size.
- Approved clean dredged material would be used to create submerged shelves for ecological purposes along western shores of the lagoon;
- Floating reedbeds and tern rafts would be provided in the bird refuge zone in the south of the lake; and
- Submerged willow planters would be located in an east-west orientation along the southern extent of the main Sailing Area to provide screening between the bird refuge zone and proposed sailing uses.

5.4.7 The Proposed Development will increase the total surface area of open water in the lake by approximately 716m^2.

5.4.8 Tern rafts (floating islands) to be installed by HS2 to the west of the Peninsula will remain in its proposed location (see Figure 5.1) in accordance with HS2 Environmental Minimum Requirements[1].

5.5 Land Based Proposals

Overview

5.5.1 Figure 5.2 shows the proposed layout of the land-based elements of the Proposed Development with buildings all of which will be located on previously developed land which comprises concrete hardstanding (see Figure 5.3).

5.5.2 The Proposed Development would be delivered in three main areas at the Peninsula:

- Operations Zone - comprises the Main Building, a two-storey form with low sloping roofs, that sits below the higher tree canopies. This building provides the key operational spaces, including the main office, seasonal staff accommodation, changing facilities for users and a number of larger congregation spaces which can host a number of functions depending on the users present.
- Safety Zone - comprises the Equipment Store and Workshop, which are single storey buildings separated by a yard. These buildings will provide Workshop spaces, equipment storage including dinghies and the safety boat, buoyancy aids etc. and also accommodate the energy centre; and
- Camp Zone - this comprises a camping area, single story activity shelter and toilet / changing facilities.

5.5.3 A description of the proposed buildings, their design and use is provided below. A schedule of proposed floorspace and building heights is provided in Table 5.2.

Table 5.2: Proposed Floorspace and Building Height

Building / Use	Floorspace Area (sqm) GEA	Floorspace Area (sqm) GIA	Maximum Roof Height (above finished floor level (m))
Operations Zone (Main Building)	2,294	2,062 sqm	11m (two storey)
Safety Zone (Equipment Store and Workshop)	1,280	1,188 sqm	6m (one storey)
Camp Zone	171	157 sqm	5m (one storey)
Total	**3,745 sqm**	**3,407 sqm**	-

Main Building (Operations Zone)

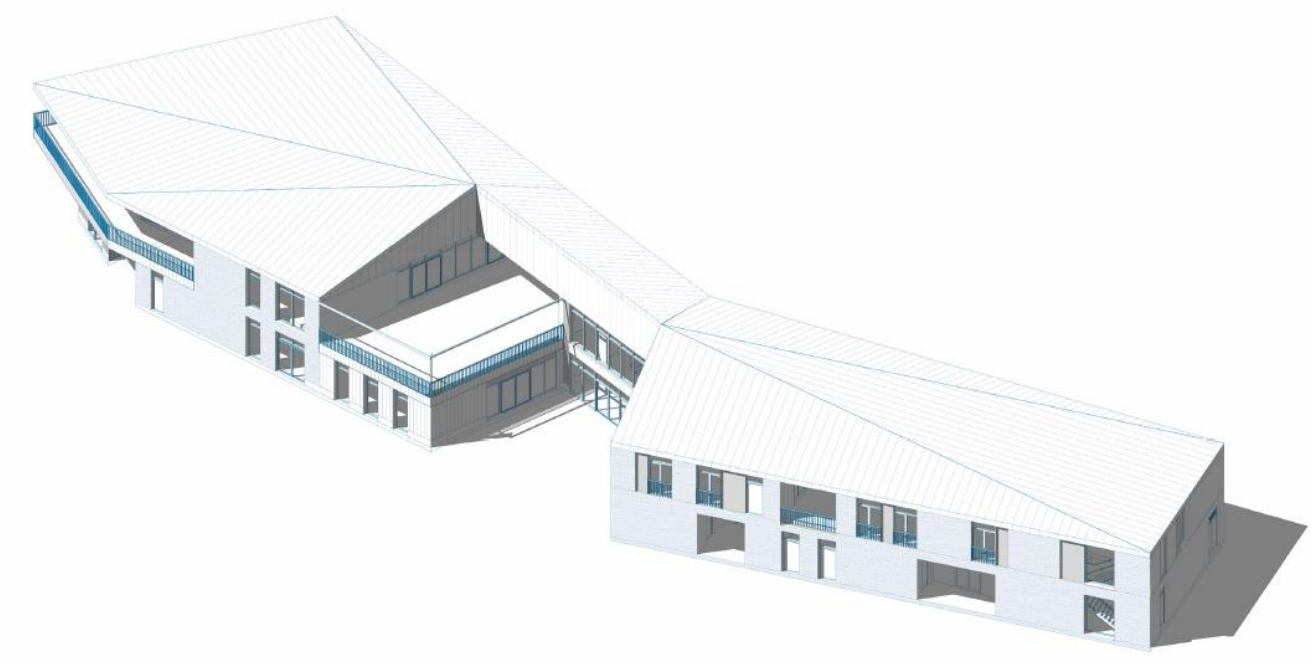
5.5.4 The Main Building will comprise 2,294m^2 GEA and will be sited on the north western side of the Peninsula hardstanding, split across ground and first floor. On the south side, the

ground floor will comprise an accessible camping and activity room, reception, main office, medical treatment room, crew / wellbeing room, laundry room, changing rooms and toilets. Changing rooms, showers and toilets will be provided on the north side of the building. An external covered zone in between will allow large groups to be addressed informally before and after activities.

5.5.5 The first floor will provide multi-functional, social space and accommodation for 14 seasonal workers. The accommodation will comprise a mix of standard and accessible rooms, with associated galley, lounge and training room. An internal observation room and external viewing deck are also included at the north of the building with views towards the lake.

5.5.6 The roof would be raised at a single point in the centre of the building with sloping roofs towards the adjacent tree canopies. A deck-like balcony will run around the east facing elevation. A 3D visualisation of the Main Building is shown in Image 5.1.

Image 5.1: 3D Image of the Main Building



Equipment Store and Workshop (Safety Zone)

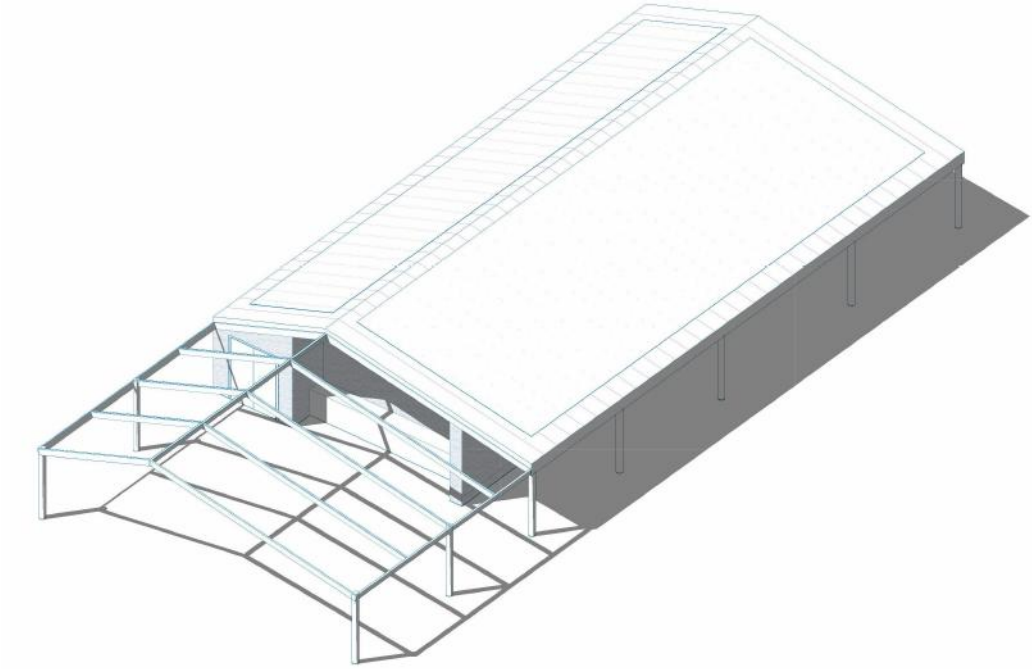
5.5.7 The Safety Zone building will comprise 1,280m^2 GEA and will be sited on the north eastern side of the Peninsula hardstanding. The south side of the building will include the Workshop and an equipment store will be located in the north side. An external covered service yard is included in between the two sides. A 3D image of the Equipment Store and Workshop is shown in Image 5.2.

Image 5.2: 3D Image of the Equipment Store and Workshop

Camp Zone

5.5.8 The Camp Zone is located to the south of the Peninsula and includes a building that extends to 171m^2 GEA. The building will provide changing facilities and toilets and an external main activity shelter. A 3D image of building in the Camp Zone is shown in Image 5.3. The Camping Zone will also include the land-based activities listed in Section 5.13.

Image 5.3: 3D Image of the Camp Zone Building



5.5.9 The above-ground artificial caving system would comprise interconnected corrugated black drainage pipes or similar between c. 600 to 900mm in diameter laid on the ground. Earthworks mounds either side of the pipe are required to stabilise the pipes and create suitable nature habitat. Entry / exit points are likely to be short timber cabins / boxes, or plastic manhole chambers laid flat.

5.5.10 Clean cover systems will be installed to a minimum 600mm thickness in the camping area on the Peninsula and may be reduced to a minimum of 400mm in less sensitive areas based upon proposed land use[1] with details to be agreed with LBH. The clean cover system will comprise verified clean material which is suitable for the proposed use and could include on-site derived tested verified materials or imported material.

Other Structures

5.5.11 Nine other activity shelters (up to 50m^2 GEA in total) are scattered around the Peninsula. Their form varies in size and construction - from two-sided covered roof shelters to sail shades. These shelters allow small groups to gather for activity briefings or during mealtimes. Out of season, some of these shelters may provide shelter to equipment. A bird hide is also provided on the western shore of the Peninsula with a view of the Bird Refuge Zone.

5.5.12 Other activity structures will include a 4 m-high zip line situated on the west side of the peninsula, adjacent to the main access road, extending 60 m and terminating at the main building. Additionally, a large swing, also 4 m in height, will be installed to the south of the

[1] More sensitive areas include camping and soft landscaped areas. Less sensitive areas include parking and access roads.

campsite area.Other structures include a bicycle shelter and refuse store (approximately 50m^2 GEA) located in the car parking area and a storeroom and an angler's store and WC (approximately 20m^2 GEA) located close to the entrance gate.

Materiality

5.5.13 The principal materials used in the proposed buildings are as follows:

- Zinc seamed roof - the geometric sloping roofs are common across all buildings. Its dark brown colour helps to blend the buildings, into the landscape, where it sits amongst tree canopies.
- Flint stone panels at low level, and in prominent areas with high people traffic.
- Exposed concrete - reflecting on the previous use of the Site as a quarry and the left-over concrete remnants on the Site.
- Polycarbonate - used to breakdown the roof forms and to provide a visual break, allowing daylight to penetrate through the shelter, into the centre of the plans.
- Zinc Cladding - all parapets, copings and fascias will be formed from a pre-patinated zinc cladding.
- Metal - perforated and decorative metalwork is proposed across the site, in particular to areas which require good airflow and passive ventilation. This includes rooms such as changing rooms and storage of buoyancy aids and at activity shelters, which need to feel open but do require a degree of shelter.

5.6 Access, Car Parking and Boat Storage

Access

5.6.1 The Proposed Development will be accessed via the Access Road which connects to Moorhall Road in the south. The Access Road will be improved to adoptable standards and used by emergency vehicles, service vehicles, coaches and disabled users as well as cars, cycles and other vehicles. Improvements include:

- Introduction of a 20mph limit up to Harleyford Aggregates. The existing 10mph speed limit will continue north from this point of the Access Road;
- Give way signs will be introduced along the Access Road on the approach to Moorhall Road instructing drivers to give way to incoming vehicles. Convex traffic mirrors will be introduced at bends along the southern part of the Access Road;
- Introduction of a 1.2m-1.5m wide footway along the eastern side of the road up to the intended point of adoption. A 1.2m marked footway will be continued along the eastern side of the Access Road;
- A marked crossing point to proposed at the northern end of the Access Road will connect the proposed footway to the pedestrian entrance to the Site;
- New / refurbished road surfacing; and
- New street lighting.

5.6.2 Users arriving to HWSFAC by vehicle and cycle modes of transport will arrive at a vehicular entrance at the southern end of the Peninsula before arriving at the car park. Visitors arriving

on foot will use a segregated pedestrian footpath access from the gated site entrance that runs parallel to the south west of the car parking area. Visitors arriving by coach will be dropped off and collected within the designated coach drop-off area that will be managed by staff on arrival.

Parking

5.6.3 Visitors arriving by car will be able to park within the car park at the southern end of the Peninsula. Visitors arriving by bike will also be able to use secure cycle shelters in the car park area and adjacent to buildings. A small number of car and disabled parking bays and mini bus drop off points are situated immediately adjacent to each of the buildings for accessibility.

5.6.4 A total of 50 car parking spaces are provided across the Site (this includes reprovision of the existing 45 spaces used by BSC). These parking spaces comprise:

- 36 standard parking bays in the southern parking area;
- Six EV charging spaces in the southern parking area; and
- Six blue badge parking bays split between the southern parking are adjacent to the Workshop; and
- Two minibus parking bays in the southern parking area.

5.6.5 The existing Access Road to the northern part of the Site along the eastern edge of Broadwater Lake will be retained for emergency use only.

Boat Storage

5.6.6 An area for dinghy boat storage will be provided on the reclaimed land to the north east of the Peninsula, comprising a total of approximately 214 boat spaces. Boats would also be stored in the Equipment Store (Safety Zone) in racks. The boat storage will be shared by BSC and other users.

5.7 Landscape and Ecology Proposals

Habitat Retention and Removal

5.7.1 The proposed layout has been designed to avoid loss of open water in the lake and minimise the loss of habitats which support breeding birds within the Site. The built development on the Peninsula is therefore focused on areas of hardstanding and other areas which have been previously developed which avoids tree loss. A small number of trees will however be required to be removed to facilitate the development:

- No Category A trees or tree groups;
- 1 no. Category B trees and 6 m^2 tree group canopy;
- 3 no. Category C trees and parts of 5 no. tree groups' canopy; and
- 1 no. Category U trees and no tree groups.

5.7.2 Tree retention and removal is shown on Figure 5.4. Figure 5.4 also shows the trees that will be planted at the Site which will comprise native species including black poplar and fruit trees to create an orchard.

5.7.3 A number of trees will be managed through coppicing, pollarding or pruning, mostly to provide adequate clearance over new road layouts and footpaths, whilst also taking into account sight lines. These works will be carried out by suitably qualified and competent arboricultural contractors to an approved Arboricultural Method Statement.

Habitat Creation and Enhancement

5.7.4 A Landscape Strategy has been developed for the Proposed Development (Appendix 5.2) which has been informed by expert ecologists / ornithologists and feedback from stakeholders. The proposals include a range of ecological mitigation measures and enhancements to protect sensitive areas and enhance areas of lower ecological value.

5.7.5 A detailed description of the key ecological mitigation measures is provided in Figure 5.1 and in the Outline MEMP. In summary they include:

- **Remodelling of Islands #2 and #6** – These islands remodelled with two areas cut away to below the summer water depth and improve 'edge' habitat for wading birds. Giant Knotweed would also be removed from Island #6. These changes will lead to an overall increase in the amount of open standing water within Broadwater Lake, which is beneficial.
- **Removal of Island #7** - This island is to be removed from the Eastern Channel to allow sailing into and out of the Eastern Channel. This will allow the safe departure and arrival of boats either under their own sail or being pulled by the safety vessel. The removal of this island will aid navigation and will also mitigate the loss of open water that will be associated with land reclamation within the Eastern Channel.
- **Creation of Bird Refuge Zone** – A Bird Refuge Zone is proposed in the south west of the lake which will provide a threefold increase in undisturbed open water in this part of the lake (from approximately 3.42ha to 14.72ha of undisturbed water) and a 200m wide buffer between the Bird Refuge Zone area and the Sailing Area. This would be created through:
  - Operational controls which define a slightly reduced sailing area to the existing and prohibiting fishing on the southern lake shore;
  - Sunken willow planting east of the Peninsula demarcating the Sailing Area: There is a ridge that runs east to west from the end of Island #6, this ridge acts as the demarcation for the proposed Sailing Area. Currently sailing occurs to the south of this ridge (up to approximately Island #14). Sunken willows are proposed to act as visual screen on the water surface. These sunken willows will have a 'gappy appearance' so birds will still have a greater line of sight and to not feel enclosed. The physical demarcation will also stop sailing vessels entering the bird refuge and act as a clear natural visual aid to persons on the water. In addition to creating a physical barrier to vessels, additional vegetation within Broadwater Lake will increase the biodiversity present;

- Sunken willow planting between Islands #6 and #8 and east of Peninsula to create additional habitat and provide a visual screen to water-based activities in the Eastern Channel and on the land at the Peninsula; and
- Floating reed beds and tern rafts in open water in the Bird Refuge Zone to increase nesting opportunities for breeding birds.

- **Expansion and enhancement of wet woodland** – A current trackway in the northern part of the Peninsula is to be planted with native broadleaf and fruiting trees. This area would not be accessible to people and would be subject to management which will include willow coppicing and selected felling and planting to increase the diversity of the trees present. Trees which are water tolerant will also be chosen given the wet woodland nature of this area. Duck nesting tubes and bird boxes will also be positioned to increase and enhance the woodland bird assemblage.
- **Woodland living green wall / screen** – a screen is proposed to be installed around the edge of the woodland activity camping zone to provide minimise visual and noise effects from land-based activities and prevent access to the woodland. The screen will be a 'living green wall' to increase biodiversity and will include ground level mammal gates and invertebrate habitats.

5.7.6 The proposed enhancement measures include:

- **Ecological reinstatement of existing BSC site** - The area currently occupied by BSC along the north bank of Broadwater Lake will no longer be required to be used by the BSC when the HWSFAC is constructed and operational. The area currently occupied by the BSC covers a relatively large footprint there are multiple options of enhancements that can be developed. The detail as to which enhancements are progressed will be presented within the detailed MEMP. This area will be enhanced to increase biodiversity by undertaking the following actions:
  - Grassland seeding on gravel surface;
  - Native scrub and tree planting;
  - Creating of earth mounds for reptiles / invertebrates;
  - Shallow scrapes for ruderal ephemeral vegetation;
  - Compost heaps (e.g. from island clearance) and log piles;
  - Wildlife pond;
  - Bee bricks and posts;
  - General bird boxes and bat boxes on suitable structures;
  - Retain marginal vegetation; and
  - Cut back areas of overhanging branches at lake edge.
- **North west corner of Broadwater Lake -** The relocation of BSC to HWSFAC reduces the disturbance within the north of Broadwater Lake. To enhance the area further buoys will be placed within the north west corner which would demark an area of no access. The floating pontoons from BSC will be relocated to this area which is likely to allow breeding terns and / or gulls to make use as has been demonstrated to within the south east corner. In addition to the reused pontoons, additional rafts will be placed alongside floating reedbeds. Overall, this area enhances the diversity of

Broadwater Lake and provides additional options for ground nesting birds in the north of the lake.

- **Annual vegetation management of Island #3 and #4** - Islands #3 and #4 are positioned to the north and centre of Broadwater Lake. Both of these islands are currently (summer 2025) heavily vegetated. In previous years black-headed gull nested on the islands when there was no vegetation. The vegetation will be cleared in October each year to remove any growth over the summer. This removal of vegetation will enhance these islands to increase the scope of ground nesting gulls and terns. The removed vegetation within the old BSC site.
- **Installation of reedbeds in Eastern Channel** - Floating reedbeds act as an ecological system designed to mimic the functions of a natural wetland while floating on the surface of a body of water. The location of these floating reedbeds, within the Eastern Channel is to provide additional habitat for juvenile fish, invertebrates and eventually birds.
- **Woodland management to the east of Broadwater Lake** - A small parcel of woodland to the north of Broadwater Farm and west of St Mary's Close (eastern parcel) will have a woodland management plan produced to increase the biodiversity value of the area.
- **Sensory garden and pond on Peninsula** - An accessible wildlife garden with pond dipping pool will be located near to the campsite. This will enhance peoples experience with nature allowing a hands-on approach to invertebrates and other insects. The wildlife garden will have areas for reptiles (rocky habitat) and insects (insect hotels) as an inspiration of what people can implement in their own gardens.
- **Gravel bank within Eastern Channel** - Some narrow gravel banking will be formed within the Eastern Channel. This will provide loafing habitat for young duck and gulls, as well as species such as wagtails and potentially waders such as little ringed plover and oystercatcher on occasion. This habitat will also encourage aquatic invertebrates which currently have little shallow water habitat due to the steep sides of Broadwater Lake.
- **Habitat creation for breeding birds** - To increase the number of nesting places for breeding birds, additional tern rafts will be placed within the Bird Refuge Zone. Alongside the rafts more floating reedbeds will be installed. The increase in nesting places will enhance the breeding bird assemblage of the Site. Common tern and black-headed gull already nest on pontoons within Broadwater Lake, however these are at capacity. The increase in nesting habitat will contribute to increasing and maintaining the population.
- **Native orchard planting** - Within the area designated for camping native orchard trees will be planted for example apple, pear and cherry. This increases the biodiversity of the area. The introduction of suitable fruiting plants would provide new habitat for a range of fauna. It is anticipated that foraging of the fruit will be used to cater for the people of HWSFAC, however windfall fruit will be kept in situ to stimulate decay and increase biodiversity.
- **Wildlife pond** - Within the area designated for camping and woodland activities a wildlife pond will be installed. This pond will consist of varying depths with aquatic vegetation planting. This pond will be an 'pond-dipping' area with appropriate safety features due to its location. People attended the HWSFAC will be encouraged to interact with this pond to understand the invertebrate life that will inhabit this area.

- **Bird hide and information centre** - A fully enclosed bird hide will be installed on the west of the Peninsula overlooking the Bird Refuge Zone. This bird hide will have a screened walkway so no movement would be detected from the water. The type and size of the bird hide is yet to be confirmed however the hide will be accessible to wheelchair uses and will follow the styles from many nature reserves across the country. Within the bird hide there will be information boards which help people identify birds, understand how the populations on Broadwater Lake interact with the European flyway and why it's important to conserve these places for birds.

5.7.7 As part of the HS2 works, tern rafts are to be placed within the Bird Refuge Zone. These were due to be installed in January 2025 by HS2 although were not in place at the time of writing (July 2025).

Biodiversity Net Gain

5.7.8 A Biodiversity Net Gain (BNG) Assessment has been undertaken using the Defra Metric (Appendix 7.10). The BNG assessment was undertaken voluntarily in the original planning submission ahead of the mandatory legal requirement came into force. The Proposed Development is therefore exempt from the BNG Regulations[2] however the Applicant has sought to maximise opportunities to improve and enhance the biodiversity at the Site.

5.7.9 The BNG Assessment indicates that based on the Landscape Masterplan, the Proposed Development would likely achieve the minimum BNG requirements in accordance with the BNG Regulations.

Ecological Management

5.7.10 The Outline MEMP provides a framework conserving and enhancing the Site and maintaining / achieving favourable status for the Mid Colne Valley SSSI and its special features. The Outline MEMP provides a framework for the management and monitoring measures for securing the long-term conservation and enhancement of the SSSI and Broadwater Lake.

5.7.11 Following determination, a detailed MEMP will be developed in collaboration with key stakeholders, including LBH, Natural England and the Environment Agency and will be secured and approved through planning conditions.

5.7.12 An adaptive approach will be followed whereby the management plans will be reviewed and updated regularly, in consultation with key stakeholders, to respond to monitoring data. Regular monitoring and reporting will allow progress to be measured against the aims and objectives of the MEMP so that amendments can be made to the mitigation and enhancement strategy where needed.

Site Management and Governance

5.7.13 The HWSFAC would be owned and managed by LBH, and an Operational Management Plan (OMP) would be prepared in partnership with Natural England and the Environment Agency. LBH, as a public body, will be the responsible body for managing the Site. An Outline OMP (Appendix 5.3) has been prepared which provides a framework for controlling the operational activities of HWSFAC and its users. The Outline OMP sets out operating

and maintenance procedures and a code of conduct that future users will adhere to as part of a detailed OMP in order to prevent pollution, minimise disturbance and ensure the security and safety of users. The detailed OMP will be prepared in accordance with the requirements of the Outline OMP.

5.7.14 The Applicant intends to set up an Advisory Group and / or Management Group to oversee the preparation and implementation of the detailed MEMP and OMP and make recommendations / decisions to ensure the goals of the development are met. LBH, as a public body are experienced with this type of arrangement having set up the Ruislip Woods Management Advisory Group in 1982 to oversee the implementation of a Long-Term Management Plan (LTMP). The Ruislip Woods Advisory Group consists of representatives from the Residents Associations, LBH Green Spaces Team, Ruislip & District Natural History Society, plus representatives from local user groups (Hillingdon Equestrian Advisory Group, Hillingdon Athletics Club). The Advisory Group measures the progress of the management plans and reports back to LBH periodically.

5.7.15 Key stakeholders will be invited to join the Advisory Group and / or Management Board or interested parties can apply to join. Regular meetings will be held where LBH will provide progress updates against the management aims and objectives. The Advisory Group and / or Management Board will allow stakeholders to raise issues with LBH and will act as a forum to discuss issues in relation to the operation of HWSFAC.

5.7.16 Maintenance dredging of the lake is not expected to be required within the lake. This due to the fact that Broadwater Lake is not an 'online' waterbody with regular (or even infrequent) inputs of fluvial sediment. Inputs of solid matter, for example from bird faeces and leaf litter will contribute to organic matter on the lakebed, but this is already occurring and will not be exacerbated by the proposals.

5.8 Boundary Treatments and Fencing

5.8.1 Appropriate boundary treatment around the perimeter of the Site will be provided for safeguarding and security reasons. This will include a small section of bespoke fence which will be located along the Grand Union Canal boundary which will be placed sensitively amongst existing trees and augmented with thorned native planting species depending on light conditions. Sections will include fence panel sections, thorny shrub planting, wire fences and trellises, to infill the open areas and strengthen more permeable vegetation. Derelict hedgerows will also be repairs / replaced with laying / dry hedging techniques dependent on condition and light levels. This approach retains habitat connectivity and desirable existing light levels.

5.9 Lighting

5.9.1 In support of the application, a detailed Lighting Impact Assessment and External Lighting Scheme has been prepared by SMP.

5.9.2 For the avoidance of doubt, ecological survey reports prepared for the Site informed the design by identifying the trees with bat roost potential as well as areas of particular ecological sensitivity. Whilst care has been taken to avoid light leakage onto any vegetated or lake areas, the central woodland has been considered of particularly significance.

5.9.3 The external lighting scheme is limited to the external areas of the development, including entrances into the Site, parking, walkways as well as the main facades of the proposed buildings. The proposed lighting design is simple and unobtrusive given that the key aim is to illuminate the key features and aid wayfinding whilst causing minimum impact on the surrounding environment and neighbouring properties.

5.10 Waste and Servicing

5.10.1 2no. readily serviceable and accessible refuse stores will be provided; one near the Main Building and the other close to the entrance to the Peninsula, near the camping area. The covered and secure compound will provide a holding area for waste until it is collected and taken off-site. It is envisaged that collections will occur twice a week, one for recycled and food waste and another for general waste during the main operating periods. Details of the waste and recycling provisions would be agreed with LBH.

5.11 Flood Risk Mitigation and Drainage Strategy

5.11.1 The Proposed Development has been designed to operate safely and without significantly increasing flood risk either within the Site or elsewhere. A Flood Risk Assessment and Drainage Strategy has been prepared, and this forms Appendix 8.2 of this ES.

5.11.2 The risk of flooding to the existing Peninsula and extended Peninsula area from all sources of flooding will be mitigated by raising levels ground levels maximum modelled in-channel water level for the River Colne during the design flood event (37.89m AOD) in some locations.

5.11.3 The FFL of all proposed buildings will be set at a minimum of 38.23m AOD. This is the maximum modelled in-channel water level for the River Colne during the 0.1% AEP event and 340mm above the maximum water level during the design flood event.

5.11.4 Surface water drainage will continue to discharge into Broadwater Lake as existing, with the exception of new areas of impermeable tarmac which are to drain via trench soakaways, permeable gravel, Grasscrete™ or similar. Application of the SuDS Manual Simple Index Approach demonstrates that the proposed approach provides the required level of quality treatment.

5.11.5 It is proposed to discharge foul flows from the Site to the existing public foul water sewer located in Moorhall Road, approximately 600m south east of the Site.

5.11.6 A Flood Warning and Evacuation Plan will be prepared in consultation with LBH Emergency Planning Team and the Outline OMP (Appendix 5.3) includes provision for the operators to sign up to the Environment Agency flood alert and warning area.

5.12 Utilities and Energy Strategy

5.12.1 Currently, high voltage (HV) electrical intake to the Site crosses the Grand Union Canal on a utility's gantry from the Broadwater Lane substation at the western end of Broadwater Lane. It is proposed that this route is retained for the electrical intake for the Proposed Development as it is the closest point of connection to the HV network.

5.12.2 All new utility services (i.e. electrical, water main, telecoms and fire hydrant) would be routed underground using Horizontal Directional Drilling (HDD) methods below the Grand Union Canal from Broadwater Farm as shown on Figure 5.5. Further details are provided in Chapter 6: Construction.

5.12.3 A suitably new sized HV transformer substation (installed capacity of c. 500kVA) along with a new LV electrical intake switchgear arrangement will be installed on the Peninsula in the same location as an existing transformer substation that it will replace.

5.12.4 Building mounted PV panels are proposed on rooftop locations of Main Building and the Workshop to provide clean energy for the Proposed Development. The Applicant's aim is for HSWSFAC to be operated as a carbon neutral development with energy demands being met from embedded on-site generation.

5.12.5 An energy centre will be located between in the Equipment Store building and will include all central plant associated with the Proposed Development.

5.12.6 The sewage system will be carefully designed, given its location and proximity to the lake. This system will be an impervious pumped buffer storage system which will contain all the foul water and sewage, hold it, and prevent it from any accidental discharge into the lake or water courses. All sewage would be held in a suitably sized buffer tank until it can be pumped off site during periods of capacity on the local system. The storage tank will be sized with the capacity to hold all the sewage, in the event of pump failure, for a period of at least 24 hours until the system can be repaired. During peak periods of high demand on the main local network the sewage will be held safely until it can be discharged to the sewer system during a period of lesser demand. The point of connection to the public sewerage network would be approximately 100m east of the Site.

5.12.7 Respective utility service providers have been consulted to ensure that the local networks have adequate provision to service the Proposed Development.

5.12.8 A water source heat pump system will be installed drawing water from the lake as an energy source. This is a green technology which is a self-contained system which is ecologically safe and non-polluting as well providing full replenishment, and aeration of lake water. No bore holes will be required, and it would be powered by the PV generator and would provide heating and domestic hot water. The water source heat pump should help prevent lake water stagnation by introducing water circulation and aeration to relatively still sections of the lake, such as the lagoon. In the summer months, cooled water from the system would be returned to the lake. The details of the water source heat pump would be agreed with LBH and relevant stakeholders including Natural England and the Environment Agency.

5.13 Operational Use

5.13.1 This section sets out the operational use of the Proposed Development and the associated reasonable worst-case assumptions which have informed the EIA process. The principles of the future operational use are secured through the Outline OMP.

Operating Periods

5.13.2 The HWSFAC would only be allowed to operate water sports and outdoor activities between 1 April and 31 September. There would therefore be no activities on-land or on water which could disturb wintering birds at the Site. The BSC would operate as they do at present, all year round.

5.13.3 HWSFAC Staff would be present on-Site present between 08:30 and 17:30.

5.13.4 Land and water-based activities would take place between 10:00 and 15:00 throughout the week. Camping will be permitted between Friday and Sunday.

5.13.5 Children would not be undertaking activities for whole time that they are on-Site since there will be considerable time spent using the facilities inside the Main Building (i.e., changing facilities, lunch breaks, receiving instruction etc.) and walking between different activities / facilities.

5.13.6 Angling would only be allowed during late July and August.

Type of Activities

5.13.7 Broadwater Lake is currently used by the BSC for sailing and is also used by anglers from the Gerrards Cross & Uxbridge District Angling Society and British Carp Study Group. The Proposed Development will not change or intensify any of the existing activities on Site and will only seek to relocate their current facilities. The Applicant has advised that there is also currently some unauthorised use (i.e., dog walkers, leisure walking, poaching, dirt bikes) which would be managed by virtue of the installed boundary fencing.

5.13.8 The Proposed Development will support the following land-based activities:

- Indoor fencing (in the Main Building);
- Activity shelters for outdoor team building activities;
- Bird watching;
- Camping; tents, sheltered camping (for disabled children / adults, underneath shelter on hard surface near to toilet facilities) and indoor camping (for disabled children / adults inside Main Building;
- Orchard and foraging;
- Pond dipping;
- Artificial above-ground caving system;
- Zip line;
- Big swing; and
- Environment training and education.

5.13.9 The Proposed Development will support the following water-based activities:

- Maintenance of existing BSC sailing in Sailing Area;
- Dinghy sailing in Sailing Area and occasional windsurfing;

- Kayaking / canoeing (Eastern Channel only);
- Dragon boats (Eastern Channel only);
- Stand up paddleboarding (Eastern Channel only);
- Raft building and use (Eastern Channel only); and
- Angling (also an existing use).

5.13.10 HWSFAC would be available to a range of user groups as set out in paragraph 5.3.3. These will comprise schools, colleges, scout and guides groups mainly from LBH and local schools and residents from the nearby districts of Buckinghamshire and South Bucks. The next largest group would likely be holiday / summer holiday course attendees.

User Assumptions

5.13.11 Table 5.3 sets out the nature of the HWSFAC uses and how many people are likely to be using the facility and activities during peak and average operating periods. The existing levels of use of Broadwater Lake by BSC would remain unchanged as described in Chapter 2: Site and Setting. Angling would also continue at Broadwater Lake although areas available for angling would be amended as shown on Figure 5.8 and as described below.

Table 5.3: HWSFAC Users and User Assumptions

HWSFAC Use	User Assumptions
Total Users	**Peak:** Up to 120 children plus 12 adults and HWSFAC staff on-Site at any one time. Peak periods are likely to occur during summer school term. It will be quieter during school holiday periods. **Average:** 72 children plus 8 adults and HWSFAC staff on-Site at any one time. Children will be split equally between water-based and land-based activities.
Sailing and Windsurfing Use	**Peak:** Up to 12 children in 6 dinghies, plus two adults in a silent electric safety boat. Occasional windsurfing (up to six windsurfers). **Average:** 6 children in 3 dinghies, plus two adults in a silent electric safety boat at any one time. Occasional windsurfing (up to three windsurfers). **Overlap with BSC:** HWSFAC and BSC will not utilise the Sailing Area at the same time.
Other Water Based Activities	**Peak:** 48 children plus six adults and HWSFAC staff **Average:** 30 children plus five adults and HWSFAC staff
Land Based Activities	**Peak:** Up to 60 children plus 6 adults and HWSFAC staff at any one time split across different activities on the Peninsula. **Average:** 36 children plus four adults and HWSFAC staff on-site at any one time split across different activities on the Peninsula
Camping	25-50 children and adults (usually on weekends)

Location of Activities and Uses

5.13.12 The proposed locations of each activity have been carefully designed to avoid and minimise disturbance to breeding birds during the operational months of HWSFAC. The location of most HWSFAC water-based activities has been significantly reduced to that of the 2023 Scheme and is now confined to the Eastern Channel of Broadwater Lake.

5.13.13 The extent of water and land-based activities are shown on Figure 5.6 and Figure 5.7 respectively.

5.13.14 BSC users will continue to use the Sailing Area at Broadwater Lake as shown on Figure 5.2, although boats will be stored and launched from the Peninsula into the Eastern Channel. The Sailing Area is within that approved under planning permission (Ref: ref: 2382Y/86/739 and 2382Z/86/1291) although will be slightly reduced in area from 33.3ha to 29.46ha.

5.13.15 Dinghies and windsurfers associated with HWSFAC will also use the Sailing Area occasionally between 1 April and 31 September only. HWSFAC boats will be stored and launched from the Peninsula into the Eastern Channel.

5.13.16 All other water-based activities listed in paragraph 5.14.9 will only take place in the Eastern Channel only (as shown in the hatched area on Figure 5.6).

5.13.17 Land based activities listed in paragraph 5.14.8 will take place on the Peninsula in the areas shown in Figure 5.6. Access to the woodland on the Peninsula will be prohibited (other than to provide access to the bird hide).

5.13.18 Angling will no longer be permitted on the southern shore of the lake to minimise bird disturbance in this part of the lake. Angling will be allowed on the north east and eastern shores of the lake as shown on Figure 5.5 (which also provides a comparison to the existing situation). Children will be able to fish under adult supervision on the lagoon during July and August only.

5.13.19 The Proposed Development increase the area of undisturbed water at Broadwater Lake by c. 11.3ha compared to existing areas of disturbance (caused by BSC and angling).

Operational Workers

5.13.20 It is expected that the HWSFAC will support six permanent staff, 14 seasonal staff and 10 adult volunteers. Seasonal staff will live on-Site in seasonal accommodation in the Main Building during the summer peak months only (i.e. July and August).

5.14 Maintenance and Management

5.14.1 Maintenance activities will principally relate to vegetation management, equipment maintenance and servicing, and monitoring. It is anticipated that maintenance and servicing would include the inspection, refurbishment, or replacement of faulty or broken equipment to ensure the continued effective operation of HWSFAC.

5.14.2 Monitoring and reporting will be undertaken for the duration of the operational phase in order to demonstrate the effectiveness of the measures set out in the detailed OMP(s) and

allow for corrective action to be taken where necessary. As part of the monitoring process, a designated Site Manager will observe site activities and report any deviations from the OMP(s) in a logbook, along with the action taken and general conditions at the time. In addition, the Site Manager will conduct regular walkover surveys which will be documented and arrange regular formal inspections to ensure the requirements of the OMP(s) are being met. The Site Manager would also act as day-to-day contact with operators and regulatory bodies such as Natural England and the Environment Agency.

Figure 5.1: Proposed Development Masterplan

KEY

Site

- Application boundary
- Existing shoreline
- Existing woodland to be protected (exempt from use / access) 30,199 m²
- Existing tree cover
- Existing waterbody
- Sailing zone
- Buffer zone, no sailing
- Wildlife refuge area, no sailing
- Proposed native tree planting
- Native shrub planting 12,779 m²
- Ecological reinstatement of Broadwater Sailing Club
- 2.0m high living acoustic barrier (Gramm EcoSoundBlok) 276 m

Note: Mitigation proposals are identified with - **M**
All other proposals would be enhancements.

1. Ecological reinstatement of Broadwater Sailing Club with :
   - Native grassland seeding on existing gravel surface
   - Native scrub planting to define linear features for habitat creation
   - Native tree planting within existing car park and throughout site
   - New earth mounds to create south facing banks as reptiles/ invertebrates basking and egg laying habitat
   - Shallow scrapes to allow ruderal ephemeral vegetation to colonise
   - Brash compost and log piles
   - Enhancements for invertebrates (sandy piles, bare rocks, flowering herbs and shrubs)
   - Bee bricks and posts for a range of solitary bees
   - Generalist bird boxes and bat boxes to existing trees
   - Retain existing marginal vegetation and concrete slipway
   - Cut back areas of overhanging branches to lake edge to allow more emergent vegetation to flourish
2. Bay with no sailing as defined by a row of buoys to create quiet bay for birds to include :
   - 3 no. anchored floating reed beds with inbuilt nest platforms and underside aquatic enhancements
   - 4 no. tern rafts relocated pontoons from Broadwater Sailing Club for bird roosting / nesting
3. Remodel existing island 2 to :
   - Create 2 no. bays to significantly increase the shore to land area ratio. These would be 500mm below Summer water level for natural fen regeneration
   - Avoid 4 no. existing trees' root protection areas
   - Form one layered sandy bank as artificial Sand Martin habitat on the island to increase species richness
   - Increase the net area of open water - **M**
4. Annual management to remove vegetation in September/October on islands 3 and 4 for ground nesting birds. All vegetation removed by hand/mechanical means, no herbicides.
5. Proposed native Willows planted in underwater planters (Ø 3.6m) to delineate northern boundary of the refuge and provide a gappy visual barrier that maintains long sight lines - **M**
6. Invasive Giant Knotweed to be removed from island 6 - **M**
7. Proposed native willows planted within underwater planters (Ø 3.6m)
8. 3m wide floating reedbeds anchored off the eastern shore of the east channel
9. Woodland management of 'triangle site'
10. Remove island 7, excavating to 1.5m Summer water depth, thus creating an increase in open water - **M**
11. Location of floating reedbeds to create a screen for existing island 4 group
12. 200m wide open water zone between refuge and sailing
13. Reclaimed land for dinghy storage and water access (with marginal planting for macro-invertebrates), part submerged in Winter
14. Sensory garden with wildlife pond surrounded by native mixed hedgerow
15. HS2 mitigation: 5 no. floating gravel tern rafts
16. New wet wooded planting to infill former access track on peninsula. To include generalist bird boxes (open and cavity nesting) and duck nest tubes - **M**
17. Bare gravelly beach - 200mm below Summer water level for macro-invertebrates
18. Habitat creation within the refuge - east
    - 3 no. floating reed beds
    - 3 no. tern rafts within open water
19. Habitat creation within the refuge - west
    - 4 no. floating reed beds - **M**
    - 4 no. tern rafts within open water - **M**
20. Proposed native orchard trees to increase biodiversity - **M**
21. Wildlife pond
22. Living green acoustic and movement screening fence, 2m high planted with native species appropriate to the woodland floor and edge in locations that minimise shading of woodland floor
23. Bird hide. Visually screened walkway to not disturb the open water, Information boards as to the species that are likely to be present.

Rev	Amendments	Date	Drwn	Chkd
28	Buildings layout amended	17.11.25	JR	PO
27	Zip line, Big Swing included & New buildings	14.11.25	JR	PO
26	Zip line, Big Swing & Sand Martin habitat in-included	29.09.25	DB	PO
25	Zip line omitted	14.08.25	JR	DB
24	Updated to latest layout	14.07.25	DB	PO
23	Annotations updated to Ecologist comments	03.07.25	DB	PO
22	Green wall location corrected	30.06.25	DB	PO
21	Updated to Ecologist comments	25.06.25	DB	PO
20	Revised acoustic barrier layout	20.11.24	TK	PO
19	Changed drawing scale and format (A0)	31.10.24	TK	PO
18	Updated layout	25.09.24	TK	PO
17	Updated layout	18.09.24	TK	PO
16	Updated following comments	21.08.24	TK	PO
15	Updated following comments	10.11.23	OB	PO
14	Development of ecological mitigation and enhancement	29.09.23	JR	PO
13	Annotation amended	26.09.23	AH	PO
12	Layout amended	11.09.23	JR	PO
11	Floating reedsbed and island layout amended	24.08.23	JR	PO
10	Updated following comments	22.08.23	DB	PO
09	Updated following comments	16.08.23	DB	PO
08	Updated following workshop on 28.07.23 at LBH, Uxbridge	08.08.23	DB	PO
07	Final QA	22.06.23	JR	PO
06	Amendments to the masterplan	21.06.23	JR	PO
05	Amendments to the masterplan	15.06.23	JR	PO
04	Amendments to the masterplan	30.05.23	JR	PO
03	Amendments to the key	23.03.23	JR	PO
02	Amendments to the key	22.03.23	JR	PO
01	First Issue	16.03.23	TK	PO

Project
HWSFAC - Broadwater Lake

Drawing Title
Ecological mitigation and enhancement

Project No.
2121

Scale @ A0
1:1500

Project Status
RIBA Stage 3

Drawing No.
HWSFAC-COL-00-XX-DR-L-1010

Revision
28

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London 0203 92 49 888
Newcastle 0191 24 24 224
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colour

0 5 30 45 60 90 120 150m

Figure 5.2: Peninsula Layout

KEY

Site

- Application boundary
- Existing waterbody
- Existing woodland to be protected (exempt from use / access)
- Sporadic tree groups on hard standing
- Existing tree cover (blue dashed = root protection zone blue dashed line)
- Existing native groundcover shrubs on top of existing hardstanding
- Exposed existing concrete hardstanding to be used as driveway, car parking, footpath and pedal karting track surface

Hardworks

- Vehicular Tarmac / Blacktop
- Pedestrian Tarmac / Blacktop
- Pedestrian coloured Tarmac / Buff
- Vehicular coloured Tarmac / Buff
- Grass-concrete paving (Grasscrete)
- Gravel surface with native wildflower overseeding for dinghy parking and rigging
- In-situ concrete surface around the camp zone building and under the main activity shelter
- 2.0m high living acoustic barrier (Gramm EcoSoundBlok)
- 1.2m high chestnut paling fence
- 1.8m high V-mesh security fencing
- 1.2m high & 1.0m wide dry hedge with shrub planting alongside to close gaps in existing vegetation barrier
- 1.5m high hazel hurdle panels attached to dry hedge

Softworks

- Native tree planting
- Willow planting in submerged planters
- Native hedge planting
- Woven willow barriers
- Native shrub planting
- Other neutral grassland seeding
- Lowland meadow seeding
- Woodland improvement planting
- Floating reedbeds
- Big swing to be micro-located so as to avoid existing vegetation

Rev	Amendments	Date	Drwn	Chkd
18	Updated building layout	17.11.25	KH	PO
17	Updated Red Line Boundary and layout	14.11.25	KH	PO
16	Updated layout	10.11.25	JR	PO
15	Building location updated	05.11.25	kh	PO
14	Bid swing location updated	25.09.25	JR	PO
13	Zip line omitted	14.08.25	JR	DB
12	Updated to Client comments	04.08.25	DB	PO
11	Updated layout	16.06.25	DB	PO
10	Removed activity structures, amended acoustic barrier	15.01.25	TK	PO
09	Amended woodland activity/ camping area	19.11.24	TK	PO
08	Amended zip line and boat wash locations	06.11.24	TK	PO
07	Amended building locations	31.10.24	TK	-
06	Amended EV charging parking bays	28.10.24	TK	PO
05	Amended car parking & coach reversing	25.10.24	TK	PO
04	Added woodland planting	10.10.24	TK	PO
03	Relocated Tarp Shelter	01.10.24	TK	PO
02	Updated layout	23.09.24	TK	PO
01	First Issue	17.09.24	TK	PO

Project
HWSFAC - Broadwater Lake

Drawing Title
Proposed Landscape Layout
Part 2 of 2 : Peninsula

Project No. 2121
Scale @ A0 1:500
Project Status RIBA stage 3
Drawing No. HWSFAC-COL-XX-XX-DR-L-1120
Revision 18

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London 0203 92 49 888
Newcastle 0191 24 24 224
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Figure 5.3: Existing Hardstanding (purple lines) and Proposed Structures

Figure 5.4: Tree Credit and Loss Overview

Figure 5.5: Utilities Connection Plan

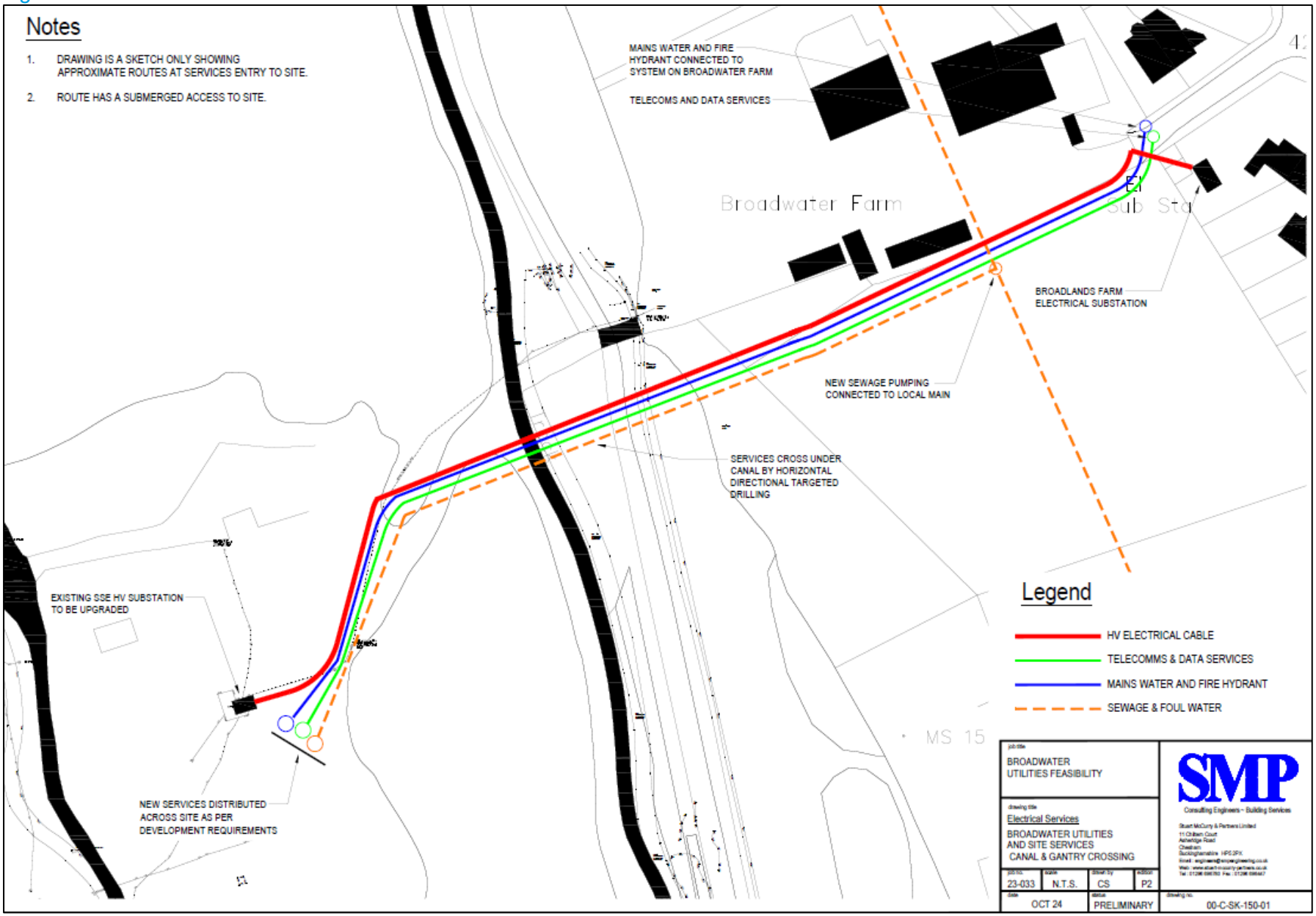

Figure 5.6: Existing and Proposed Sailing Area Extents

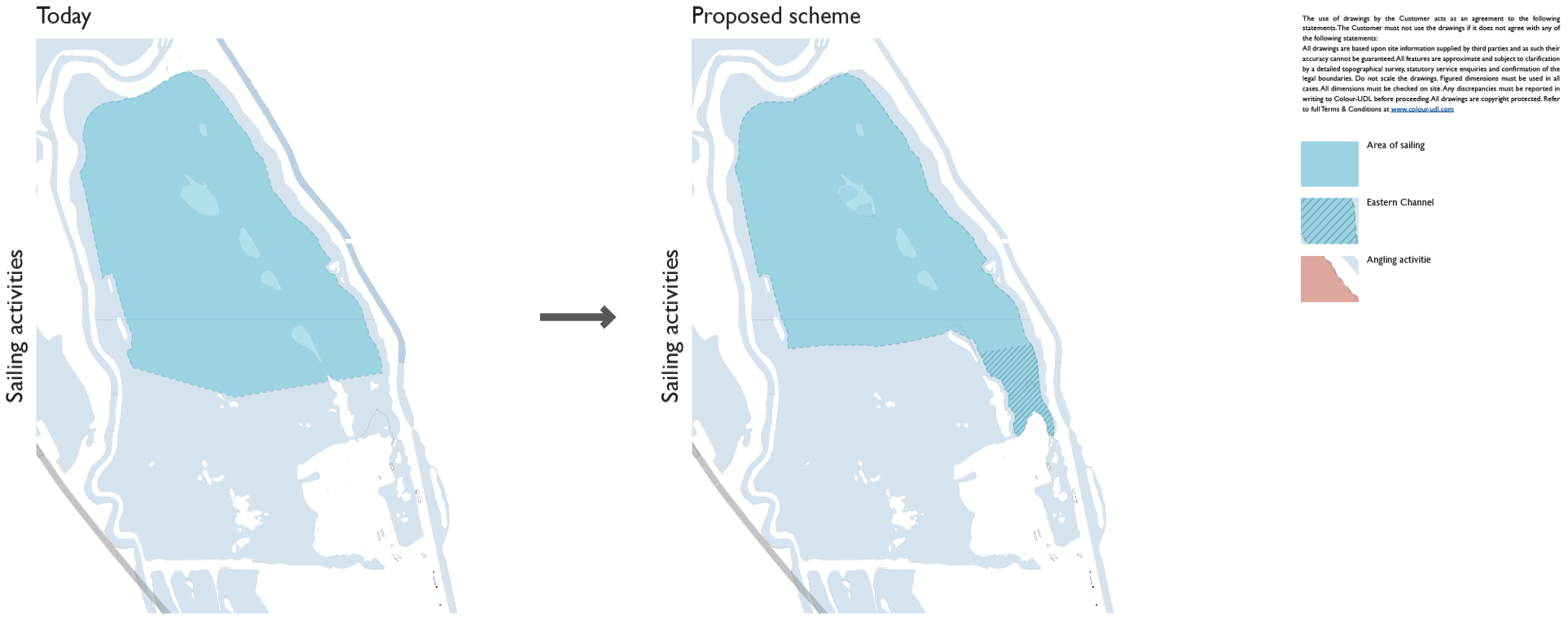

Figure 5.7: Extent of Land Based Activities (Orange Hatch)

Figure 5.8: Existing and Proposed Angling Area Extents

References

[1] HS2 (2013), Environmental minimum requirements for HS2 Phase One. https://www.gov.uk/government/publications/environmental-minimum-requirements
[2] The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) (England) Regulations 2024