

Blue and Green Infrastructure Environmental Measures

Topic Paper

Contents

1. Blue and Green Infrastructure Environmental measures paper	1
1.1 Introduction.....	1
1.2 Purpose of this document	1
1.3 Relationship with the Environmental Information Consultation Document (EICD).....	2
1.4 What is 'Blue and Green Infrastructure' (B&GI)?	2
1.5 Legislation, policy and guidance	3
1.6 Responding to feedback from the 2019 AEC.....	7
1.7 Existing conditions	8
1.8 Changes the Project would bring	17
1.9 Blue infrastructure measures	23
1.10 Green infrastructure measures	33
1.11 Next steps.....	54
1.12 Glossary of terms	55

Figures

Figure 1.1. Policy hierarchy	5
Figure 1.2: Existing watercourses and waterbodies	10
Figure 1.3: Flood Zones 2 and 3.....	12
Figure 1.4: Existing network of formally recognised habitats	14
Figure 1.5: Existing community facilities	16
Figure 1.6: The expanded on-airport area in relation to the existing water environment ...	18
Figure 1.7: The expanded on-airport area in relation to existing habitats and biodiversity	20
Figure 1.8: The expanded on-airport area in relation to existing open space, public rights of way and community facilities	22
Figure 1.9: Blue infrastructure measures – diverted watercourses.....	26
Figure 1.10: Blue infrastructure measures – proposed lakes, waterbodies and flood storage sites	29
Figure 1.11: Blue infrastructure measures – proposed water environment network.....	32
Figure 1.12: Green infrastructure measures – protected species and designated sites provision at the south-west of the airport.....	38

Figure 1.13: Green infrastructure measures – EPS & HRA provision..... 40

Figure 1.14: Green infrastructure measures – proposed active green network
and connectivity..... 42

Figure 1.15: Green infrastructure measures – Green Loop and PROW provision..... 45

Figure 1.16: Green infrastructure measures – noise and visual measures..... 51

Figure 1.17: Green infrastructure measures – green infrastructure network of environmental
measures..... 53

1. Blue and Green Infrastructure environmental measures paper

1.1 Introduction

- 1.1.1 This Blue and Green Infrastructure (B&GI) environmental measures paper document is one of a set of public documents published as part of the 2026 Public Consultation. The 2026 Public Consultation is part of the pre-application stage of the Development Consent Order (DCO) process for Nationally Significant Infrastructure Projects (NSIP).
- 1.1.2 Heathrow expansion (the 'Project') is being promoted by Heathrow. Following the 2019 Airport Expansion Consultation (AEC), Heathrow has reviewed and refined the B&GI proposals and is now consulting on the updated design. Heathrow will continue to develop the B&GI proposals, taking account of design changes, ongoing engagement with relevant stakeholders, and the feedback received from the 2026 Public Consultation.
- 1.1.3 This Paper is supported by **Figure 1.1, Figure 1.2, Figure 1.3, Figure 1.4, Figure 1.5, Figure 1.6, Figure 1.7, Figure 1.8, Figure 1.9, Figure 1.10, Figure 1.11, Figure 1.12, Figure 1.13, Figure 1.14, Figure 1.15, Figure 1.16, Figure 1.17**, and a glossary of terms.

1.2 Purpose of this document

- 1.2.1 B&GI is a core part of the Project. This document links the design set out in the **Preferred Scheme Document** with the environmental measures taken into account in the assessments in the Environmental Information Consultation Document (EICD). It explains how the B&GI network has been shaped by the existing landscape, the effects of the Project and relevant legislative and policy requirements. Setting out this reasoning lets communities give feedback that can inform the ongoing design.
- 1.2.2 This document explains what B&GI is and why it matters, and sets out the legislative and policy context for delivering B&GI. It describes the existing landscape and water setting and the changes the Project would bring. It then sets out the measures that respond to those changes: first blue infrastructure, then green infrastructure. It explains how the measures fit together and the principles for delivering and managing them over the long term.

1.3 Relationship with the Environmental Information Consultation Document (EICD)

- 1.3.1 The Environmental Information Consultation Document (EICD) assesses and reports environmental effects, taking account of the B&GI measures set out in this document and other topic papers.
- 1.3.2 The EICD is organised by environmental aspect, with a separate chapter for each. This document is organised differently: the measures are grouped as blue infrastructure and green infrastructure, reflecting how they are designed and delivered rather than how effects are assessed. Measures set out here are therefore relevant across a number of EICD aspect chapters, and a single measure may respond to changes assessed in more than one aspect.
- 1.3.3 The B&GI measures have been developed to respond to the changes identified through the Preliminary Environmental Information Report (PEIR) and subsequent environmental assessment as the design has progressed. Environmental specialists and designers have worked together from an early stage so measures could be shaped as the design developed rather than added afterwards. The measures also take account of feedback from the 2019 consultation and ongoing engagement with stakeholders and regulators. **Section 1.6: Responding to feedback from the 2019** sets out how we have responded to that feedback.
- 1.3.4 The measures set out in this document would be secured through the DCO.

1.4 What is 'Blue and Green Infrastructure' (B&GI)?

- 1.4.1 Blue and green infrastructure comprises 'a network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and well-being benefits for nature, climate, local and wider communities and prosperity'.
- 1.4.2 For the Project, B&GI brings water, ecology, landscape and recreation measures into a single integrated network. It includes the spaces and routes people could use, supporting access to green space, walking and cycling, and better links between communities and the wider landscape. It could also support physical and mental health and well-being, which can benefit vulnerable groups and help reduce health inequalities.

How B&GI is applied to the Project

- 1.4.3 A coordinated approach to B&GI is needed for two reasons. Water, ecology, landscape and recreation share the same land and only deliver their full value when designed together as one network, rather than separately. This integrated approach also allows the Project to meet the range of legal and policy requirements it must comply with: providing environmental measures under the Habitats Regulations and the Water Framework Directive, avoiding significant harm to designated sites

and protected species and delivering biodiversity net gain. These obligations cannot be met in isolation.

1.4.4 The B&GI approach is guided by seven principles drawn from Natural England's Green Infrastructure Framework, national guidance on how green infrastructure is planned, designed and managed, and which are also consistent with the requirements of the Airports National Policy Statement (ANPS). These principles provide a consistent basis for how B&GI is planned and managed:

- **Multifunctionality:** spaces that deliver several benefits at once, including water management, biodiversity, recreation and landscape quality.
- **Connectivity:** a continuous network supporting wildlife movement, water behaviour and access between communities.
- **Nature recovery:** restoring and enhancing habitats so ecology becomes more resilient over time.
- **Climate resilience:** landscapes and water systems that can cope with future conditions.
- **Place-based character:** responding to local landscape identity.
- **Accessibility:** connected, usable spaces that support health, well-being and everyday movement.
- **Long-term management:** a network that can be maintained and keeps/kept working over time.

1.4.5 This document describes how the measures combine and interact and explains the reasoning behind their development. The measures have been shaped from the outset by early and iterative analysis so that they respond directly to the changes the Project would bring.

1.5 Legislation, policy and guidance

Legislative and policy context

1.5.1 The Project is a NSIP, as defined by the Planning Act 2008. The Project is subject to a range of statutory requirements, shown in **Figure 1.1**. All legislation referred to in this document is as amended. Key legislation includes:

- **Environment Act 2021:** requires at least 10% biodiversity net gain, secured for at least 30 years, and provides for Local Nature Recovery Strategies (LNRS).
- **Planning Act 2008:** governs the Development Consent Order (DCO) process and the rules for replacing Special Category Land.
- **Wildlife and Countryside Act 1981:** protects Sites of Special Scientific Interest (SSSI) and species protected under domestic law, including nesting birds and reptiles.

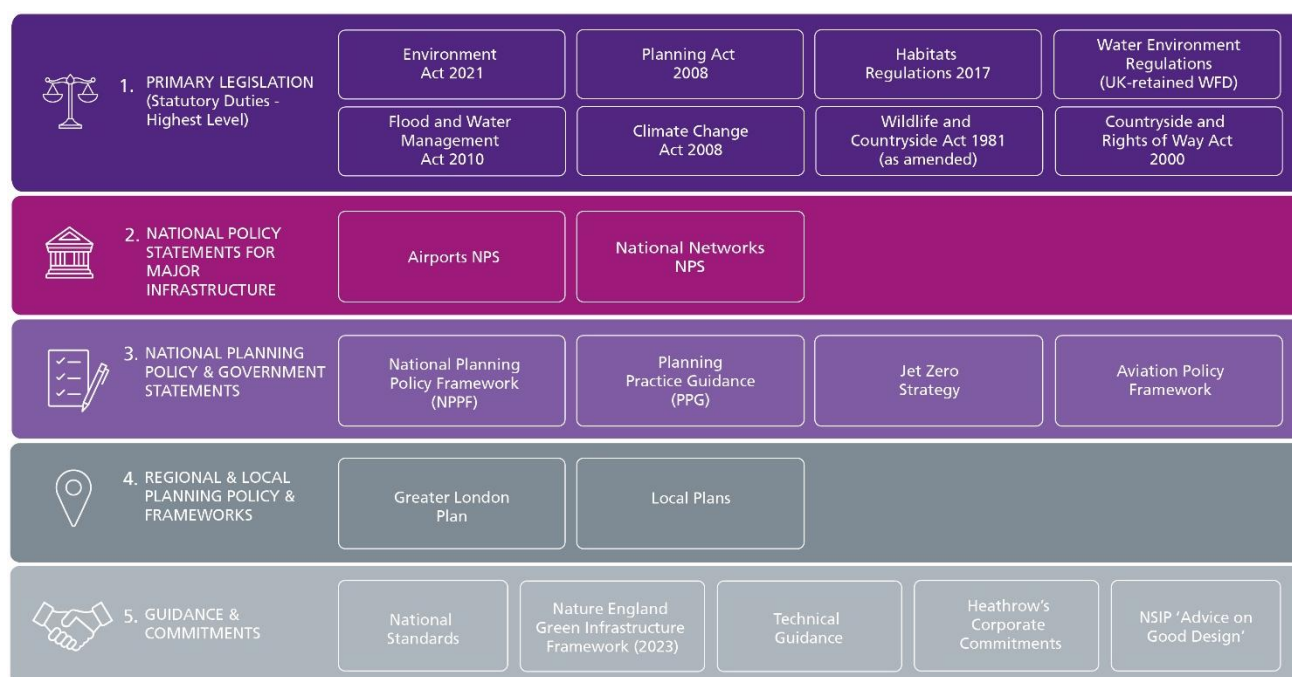
- **Conservation of Habitats and Species Regulations 2017:** require assessment of effects on designated habitat sites and protect European Protected Species (EPS)
- **Water Environment (Water Framework Directive) Regulations 2017 (the Water Environment Regulations):** set obligations for the condition of watercourses and waterbodies, including the River Colne and River Crane.
- **Flood and Water Management Act 2010:** sets responsibilities for managing flood risk.
- **Countryside and Rights of Way Act 2000:** the framework for public rights of way and access to public open space.
- **Climate Change Act 2008:** sets the duty to adapt to future climate conditions.

1.5.2 Support for the principle of the Project is contained in the Airports National Policy Statement (ANPS), designated on 26 June 2018. The ANPS confirms that there is a national need for additional hub airport capacity in the south east of England and that the Heathrow Northwest Runway scheme is the most effective and appropriate way of meeting the needs case. The policies in the ANPS have effect in relation to the Heathrow Northwest Runway scheme, having a runway length of at least 3,500 metres and enabling at least 260,000 air transport movements per annum. Since the publication of the ANPS, the Project is no longer referred to as the Heathrow Northwest Runway scheme. In addition to the ANPS, the National Networks Policy Statement applies to the Project because of the works proposed to the M25.

1.5.3 The Government recently concluded its consultation on proposed amendments to the 2018 ANPS, to be known once amended as the Heathrow Expansion National Policy Statement (HENPS). The Government is now considering consultation feedback, alongside the outcome of parliamentary scrutiny once concluded. Subject to parliamentary approval of the Government's final form of the proposed amendments, the amended form of what will then be the HENPS is expected to be published by the end of 2026. In preparing its consultation materials, Heathrow has reviewed the proposed amendments to the ANPS and is continuing to consider the potential implications for its preferred scheme and accompanying assessments. Where relevant, the requirements of the ANPS are referenced in this document, together with any potential changes arising from the proposed ANPS amendments, recognising that current policy in the ANPS remains the starting point for the consideration of Heathrow expansion until the amendments to the ANPS have been finalised and the amended version published as the HENPS. Once the ANPS has been amended and published as the HENPS, Heathrow will engage with relevant stakeholders on the policy amendments as part of its ongoing programme of pre-application engagement and will also consider if targeted consultation is necessary.

- 1.5.4 The ANPS sets out the policy tests the Government will use to decide the application, and sets clear expectations for how biodiversity, water, landscape, community access and climate resilience are to be planned and delivered. It also recognises that green infrastructure can help the Project deliver positive environmental and economic benefits, which is central to the B&GI approach.

Figure 1.1: Policy hierarchy



- 1.5.5 National planning policy, including such as the National Planning Policy Framework, the Aviation Policy Framework and relevant regional and local plans, provides further context but do not represent the primary policy tests against which the DCO application will be assessed.
- 1.5.6 Natural England's Green Infrastructure Framework provides the basis for the seven guiding principles in **Section 1.4: What is 'Blue and Green Infrastructure' (B&GI)?**, which are consistent with the ANPS.

B&GI as an integrated policy response

- 1.5.7 The B&GI approach is both a practical necessity and a real opportunity. The ANPS recognises that green infrastructure can enable developments to provide positive environmental and economic benefits. The B&GI approach also allows for better integration of social infrastructure, including Reprovided Public Open Space (RPOS), allotments, playing fields and improved recreational routes.
- 1.5.8 The ANPS requirements most relevant to B&GI fall under five themes, each of which the approach to B&GI is designed to address:
- **Biodiversity and nature recovery:** the ANPS states that development should avoid significant harm to biodiversity, build in beneficial biodiversity through good design and establish and improve green infrastructure. The B&GI design approaches this through the connected ecological network described under

Section 1.10: Green infrastructure measures, including habitat creation across the Colne and Crane Valleys, environmental measures for species, and wildlife crossings and ecological corridors. Together these contribute to biodiversity net gain and support the aims of the LNRS and the Environment Act 2021.

- **Water management, drainage and flood risk:** the ANPS states that development should not increase flood risk elsewhere, that surface water drainage arrangements should not increase runoff volumes or peak flow rates, that development should not contribute to water pollution or cause waterbodies to fail their Water Framework Directive objectives and that opportunities should be sought to use public open space for multiple purposes including flood storage. The B&GI design approach through the blue infrastructure measures, including the realigned Colne river system, the flood storage areas, the sustainable drainage systems (SuDS) network and improved waterbodies would be delivered as part of a coherent landscape system.
- **Landscape, design quality and heritage:** the ANPS expects good design, and states that development be designed carefully, taking account of its potential effect on the landscape. Having regard to siting, operational and other relevant constraints, development should aim to avoid or minimise harm to the landscape, including by reasonable environmental measures. The ANPS also recognises that appropriate design and landscaping can minimise adverse landscape and visual effects. The B&GI design approaches this through the Landscape and Visual Integration measures. These include planting, landform, bunds and settlement edge treatment, which help integrate the Project into the Colne and Crane Valleys and the settings of surrounding villages.
- **Public open space, access and community connectivity:** the ANPS states that public open space and recreational land should not be lost unless it is replaced by provision of equivalent or better quantity and quality in a suitable location. Where green infrastructure is affected, it states that the network's functionality and connectivity should be maintained and improved where appropriate. It also recognises that access to high quality open space and the countryside, and opportunities for sport and recreation, can provide necessary environmental measures or compensation. The B&GI design approaches this through the Active Green Network and Public Open Space measures, including RPOS and a network of active travel and recreational routes such as the Green Loop.
- **Climate resilience:** the ANPS states that new development should be planned to avoid increased vulnerability to the effects of climate change and that risks should be managed through suitable adaptation measures, including through the provision of green infrastructure. It anticipates hotter, drier summers, warmer, wetter winters and an increased risk of flooding and intense rainfall. The B&GI design approaches this directly, with landscapes and water systems designed to perform under future as well as current conditions. Adaptation is assessed in **Chapter 18: Climate resilience and adaptation** of the EICD.

- 1.5.9 The result is a B&GI network where the same river corridor manages flood risk, supports wildlife movement and, where possible, provides a walking and cycling route alongside the water course; where the same habitat creation delivers BNG, supports environmental measures for species and improves landscape character; and where the same public open space replaces lost community assets and strengthens active travel. This is the intended outcome of applying the principles and it is what allows B&GI to work as an integrated approach.

1.6 Responding to feedback from the 2019 AEC

- 1.6.1 What people told us in the 2019 AEC has shaped these proposals. Below is what we heard and what we changed. The proposals will keep evolving as we take account of assessment and feedback from the 2026 Public Consultation.

Landscape, recreation and access

- 1.6.2 You said:

- Expansion would reduce green space and countryside character.
- You wanted stronger landscape measures.
- You wanted better routes for walking and cycling.

- 1.6.3 We did:

- Expanded and refined the Green Loop, our walking and cycling route of around 25 kilometres around the airport.
- Included more land near Wraysbury Reservoir, Colnbrook, Harmondsworth, Sipson, Stanwell, the River Crane and the Duke of Northumberland River to support B&G Infrastructure.
- Added more connectivity across the Project including crossings, bridges and underpasses to improve safety and keep routes continuous.
- Updated our approach to Reprovided Public Open Space, including at Pippins Park, Harmondsworth and Stanwell.

Biodiversity and Connectivity

- 1.6.4 What you said:

- Expansion could harm wildlife habitats.
- Protected species needed stronger protection.
- Wildlife should be able to move across the landscape.

- 1.6.5 What we did:

- Included additional areas for protected species and other wildlife measures.
- Focused these at Colnbrook, Poyle, Richings Park, Sipson, Harlington, Cranford Country Park, Stanwell and Stanwell Moor.

- Linked habitats through ecological corridors along the Horton Brook, Colne Brook, River Crane and Duke of Northumberland River.
- Removed sites from the measures where the habitat was already of high value, or where better options existed elsewhere.

Water and Flooding

1.6.6 What you said:

- You were concerned about effects on rivers and wetlands.
- Water habitats should be protected and improved.

1.6.7 What we did:

- Added ponds, scrapes and wetland habitats.
- Developed the design of habitats at Richings Park.
- Strengthened the river corridors along the River Crane, the Duke of Northumberland River, Horton Brook and Colne Brook.
- Supported by updated modelling, proposed extra land at Huntsmoor Park for both public open space and flood storage.

Amenity and Quality of Life

1.6.8 What you said:

- You wanted more attractive places to enjoy.
- You were concerned about visual effects and loss of local amenity.

1.6.9 What we did:

- Added landscape improvements and better access to public open spaces.
- Improved walking and cycling environments that connect you to nearby landscapes.

1.7 Existing conditions

- 1.7.1 Heathrow sits in the broad, low-lying Thames Valley, between the Colne Valley to the west and the Crane Valley to the east. These valleys, with their rivers, wetlands, grassland, woodland, lakes and villages, form the landscape and environmental setting of the Project.
- 1.7.2 The area has important environmental and recreational assets: the River Colne, River Crane and their channels, the reservoirs, the Colne Valley Regional Park, Harmondsworth Moor, Bedfont Lakes and Cranford Country Park. These assets have developed separately over time and the connections between them are of variable quality. **Chapter 12: Biodiversity** of the EICD describes a highly urban and fragmented landscape, where fragmentation of habitats makes it harder for wildlife to move between areas. Major roads, including the M4, M25 and A4,

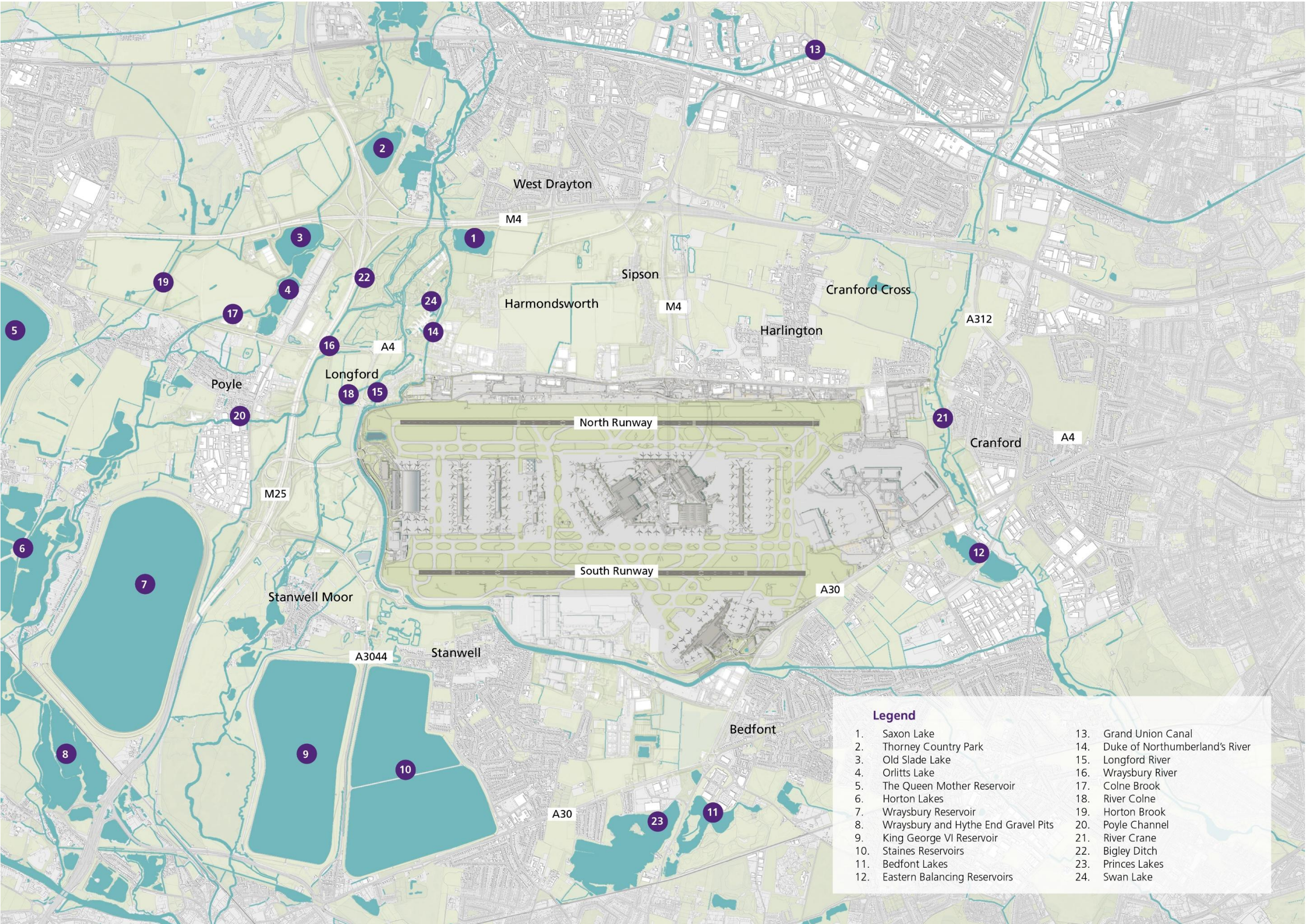
together with the airport itself, form barriers within the landscape. The Project provides an opportunity to strengthen the connections between these assets, for example for wildlife movement and access for people.

- 1.7.3 This is a landscape shaped by extraction. Decades of sand and gravel working created voids that were later infilled or left to flood, forming the gravel-pit lakes seen today, including Old Slade, Horton, Saxon and Princes Lakes. This history explains much of the present landscape and also shapes the opportunities the B&GI network can realise.
- 1.7.4 This is not a pristine landscape. Understanding the existing conditions, and the changes the Project would bring, is the starting point for the B&GI approach.

Water

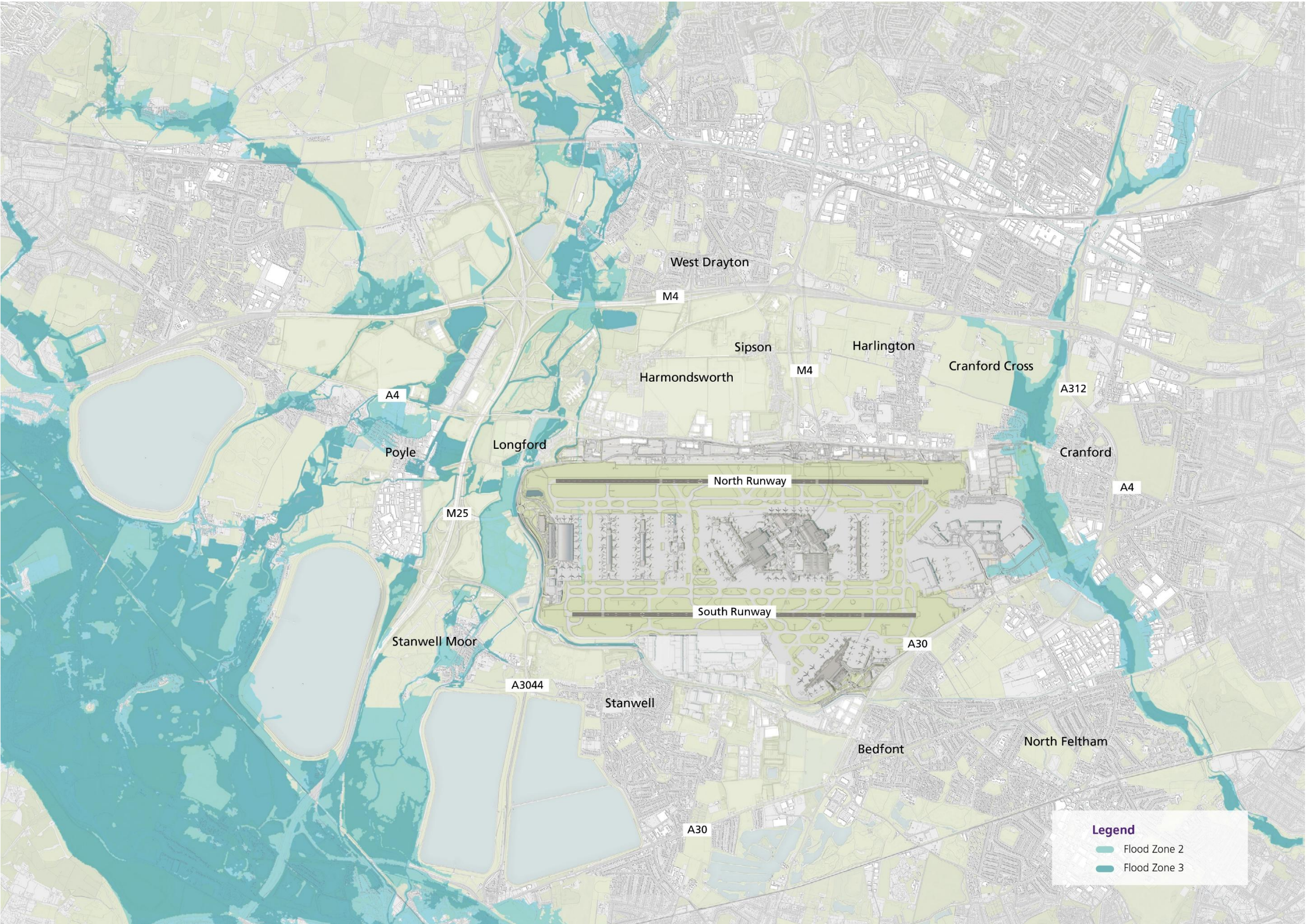
- 1.7.5 The water environment is assessed in **Chapter 13: Water environment** of the EICD. This section summarises the existing conditions relevant to the B&GI approach. The effects of the Project are described in **Section 1.8: Changes the Project would bring** and the measures in **Section 1.9: Blue infrastructure measures**.
- 1.7.6 The water environment around Heathrow is one of the most complicated parts of the Project's setting, spanning rivers, lakes, underground water (groundwater) and engineered drainage across both the Colne and Crane Valleys.
- 1.7.7 **Watercourses.** The River Colne catchment to the west is complex, with a series of connected channels: the River Colne, Wraysbury River, Bigley Ditch, Colne Brook, Longford River, Duke of Northumberland's River and Poyle Channel, together with smaller ditches across the valley floor. To the east, the River Crane links the airport landscape to the wider Thames river system. Both river systems, and several waterbodies, are protected under the Water Environment Regulations.
- 1.7.8 **Standing waterbodies.** There are three types of standing waterbody: reservoirs (the Queen Mother, Wraysbury, King George VI and Staines), which are raised, man-made and largely separate from the underground water; gravel-pit lakes (Old Slade, Horton, Saxon and Princes Lakes), which sit in gravel and are closely linked to the shallow underground water; and working waterbodies such as the reed beds and ponds at Mayfield Farm, which form part of the water treatment works that manage Heathrow's surface water run-off.

Figure 1.2: Existing watercourses and waterbodies



- 1.7.9 **Groundwater and flood risk.** The groundwater is shallow, generally two to five metres below ground, and rises in wet periods, adding to local flooding around Colnbrook and Poyle. Most of the existing airport is at low flood risk (Flood Zone 1), but areas of land outside the draft Order Limits to the west and east are at higher flood risk (Flood Zones 2 and 3).

Figure 1.3: Flood Zones 2 and 3



Ecology and biodiversity

- 1.7.10 Ecology and biodiversity are assessed in **Chapter 12: Biodiversity** of the EICD. This section summarises the existing conditions relevant to the B&GI approach; the effects are described in **Section 1.8** and the measures in **Section 1.10**.
- 1.7.11 Despite the existing Airport and transport uses, the surrounding landscape supports a rich and varied ecological network, with a patchwork of habitats forming the backbone of the wider green infrastructure setting.
- 1.7.12 **Habitats and designations.** These include the Colne Valley Regional Park to the west; the Crane Valley to the east; open water, reservoirs and gravel-pit lakes; woodland, hedgerows and grassland; and habitats of principal importance, such as deciduous woodland, lowland meadows, rivers, ponds, hedgerows and wet woodland.
- 1.7.13 **Statutory and non-statutory sites.** A number of designated sites lie within or next to the draft order limits. These include the south-west London Waterbodies Special Protection Area (SPA) and Ramsar site, designated for wintering waterfowl. Staines Moor Site of Special Scientific Interest (SSSI), supports grassland, river corridors and wetland but is currently in unfavourable and declining condition. There are also several local wildlife sites and Sites of Importance for Nature Conservation (SINCs).

Figure 1.4: Existing network of formally recognised habitats

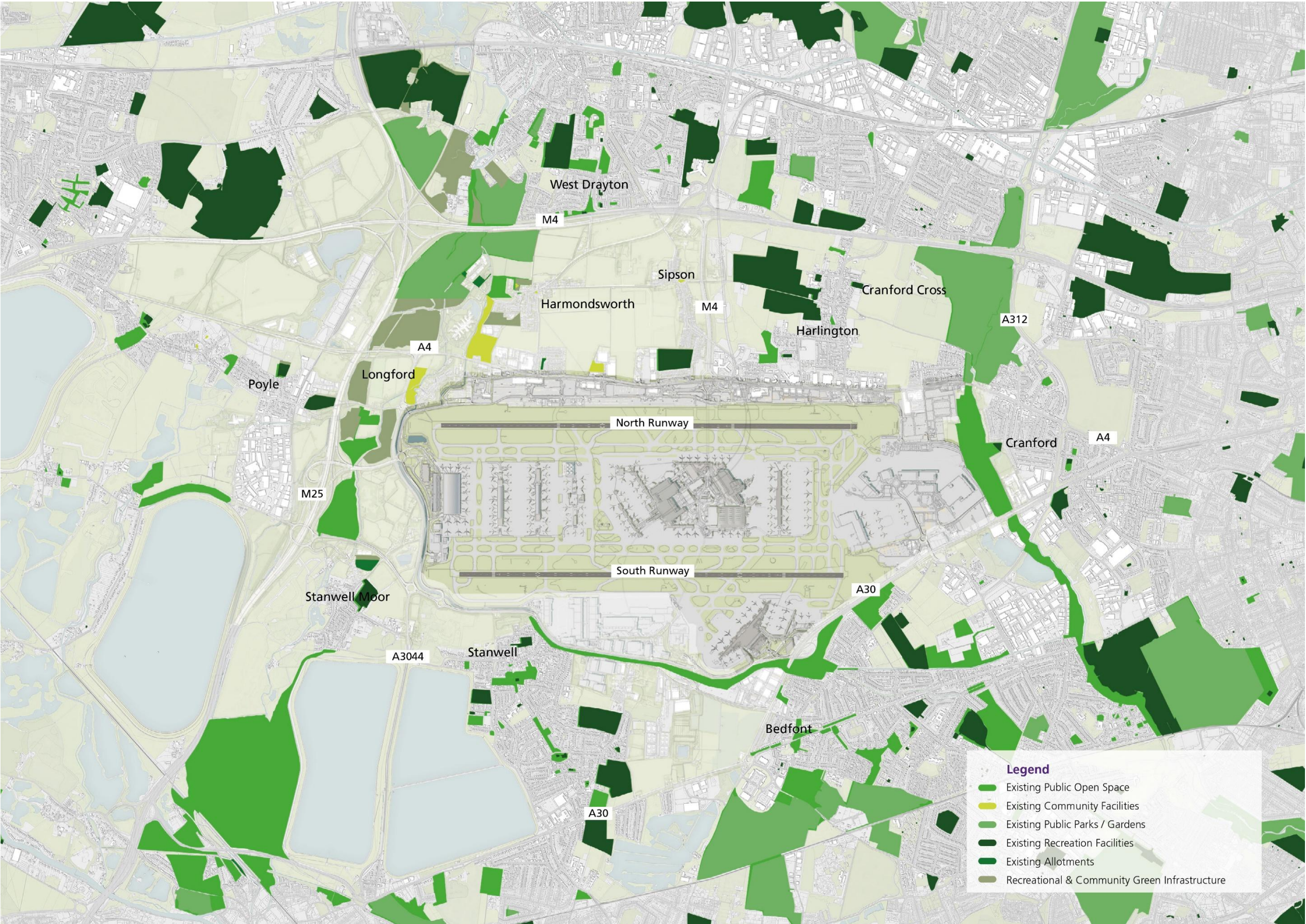


- 1.7.14 **Protected and notable species.** These include wintering waterbirds, the birds for which the SPA and Ramsar site are designated. Eleven species of bat have been recorded, with over 150 roosts identified in buildings and trees at the time of survey, including maternity roosts. Great crested newt was found at three locations: Stanwell Place, Poyle Meadow and Harmondsworth Moor. Otter is present along the River Colne and water vole, badger and reptiles, including slow worm and grass snake, are also recorded. The waterbird populations are central to the Habitats Regulations Assessment, and the B&GI approach would keep a network of retained, improved and new waterbodies within their range. Invasive Non-Native Species (INNS), including Himalayan balsam, Japanese knotweed, American mink and signal crayfish, are also present.

Public open space, access and community

- 1.7.15 Public open space, public rights of way, recreational routes and community facilities are assessed in **Chapter 7: Recreation and amenity** and **Chapter 6: Community** of the EICD. This section summarises the existing conditions relevant to the B&GI approach. The effects are described in **Section 1.6** and the measures in **Section 1.8**.
- 1.7.16 The communities around Heathrow sit between two river valleys. To the west, the Colne Valley Regional Park holds the area's largest public open spaces. To the east, the Crane Valley links communities towards Cranford Country Park and Bedfont Lakes Country Park.
- 1.7.17 Public open space is classified in a hierarchy, from Metropolitan Parks down to small local spaces. Much of the open land around the existing airport is also designated Green Belt. Larger spaces and facilities serving the villages include Harmondsworth Moor, a Metropolitan Park with riverside paths; Little Harlington Playing Fields, Harmondsworth Recreation Ground and Townmead Recreation Ground; allotments at Moor Lane and Pinglestone in Harmondsworth and the Vineries at Stanwell Moor; and smaller parks, play areas and green space.

Figure 1.5: Existing community facilities



- 1.7.18 Recreational routes include the Colne Valley Trail, the London Loop, the Grand Union Canal towpath, the Colne Valley Way and locally promoted walks. The network supports walking, cycling, sport and nature-based recreation, but access is uneven. Major roads, railways and the existing airport boundary separate settlements from the green spaces that serve them and communities, including Sipson and Harlington, have limited direct links to the Colne Valley.

1.8 Changes the Project would bring

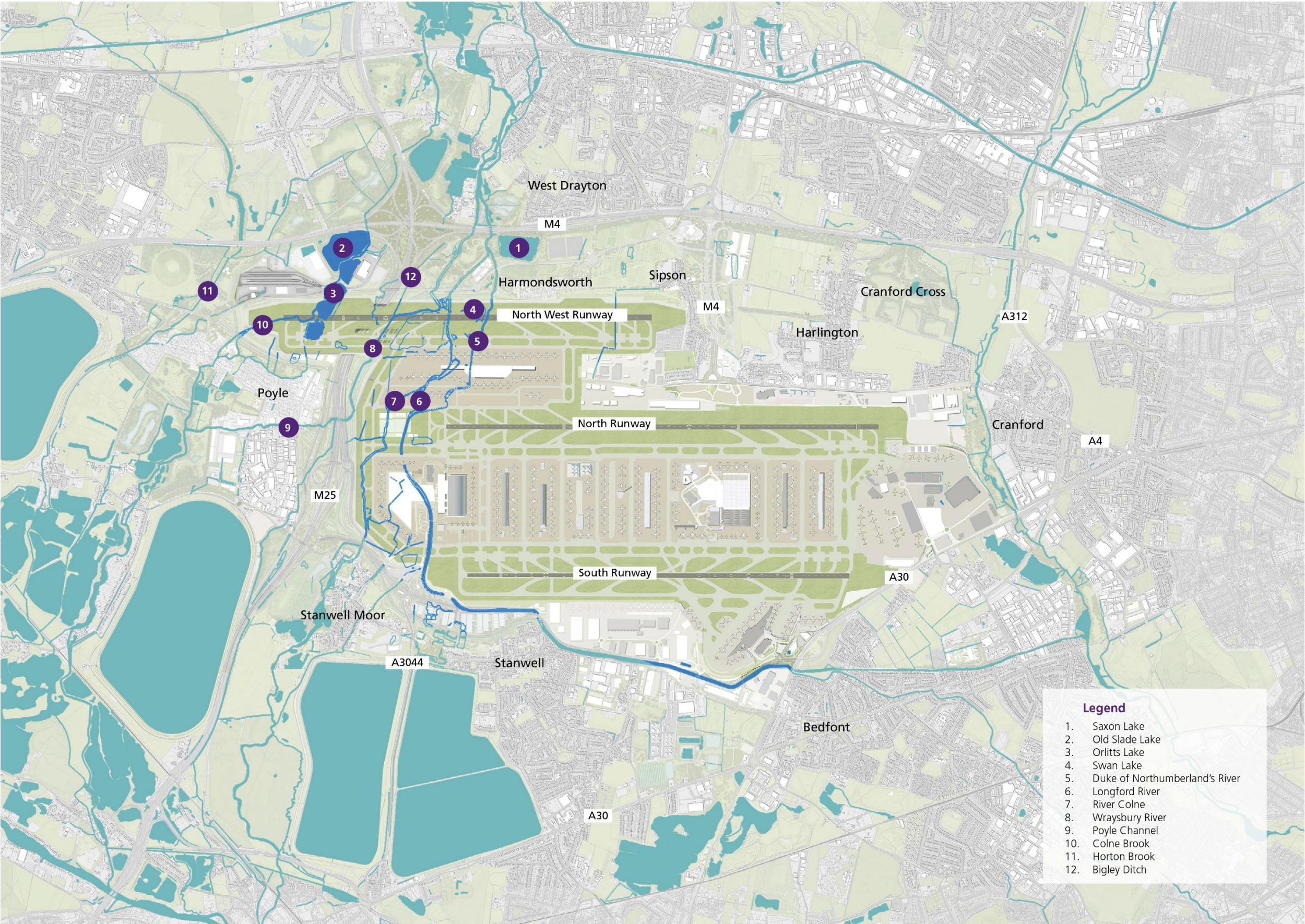
- 1.8.1 This section describes the changes the Project would bring to the existing conditions described in **Section 1.7: Existing conditions**. It is not an assessment of environmental effects. Effects, and their significance, are assessed in the EICD aspect chapters.

Water

- 1.8.2 The main changes are:

- Permanent diversion and reconfiguration of several Colne Valley channels, including the River Colne, Wraysbury River, Bigley Ditch, Colne Brook, Duke of Northumberland's River, Longford River and Poyle Channel. Sections of the combined channels would be carried beneath the realigned Northwest runway in a covered river corridor.
- Loss of waterbodies with Old Slade Lake, Colnbrook North, Colnbrook West, Orlitts Lake and Swan Lake infilled or reduced to make way for the Northwest runway.
- Loss of ponds at Poyle Meadow and along the Colne Brook.
- Reduced floodplain continuity near Stanwell Moor, Poyle and Harmondsworth Moor.
- Altered flow near Staines Moor Site of Special Scientific Interest (SSSI), and changes to where rainwater drains to and the systems that manage it.

Figure 1.6: The expanded on-airport area in relation to the existing water environment

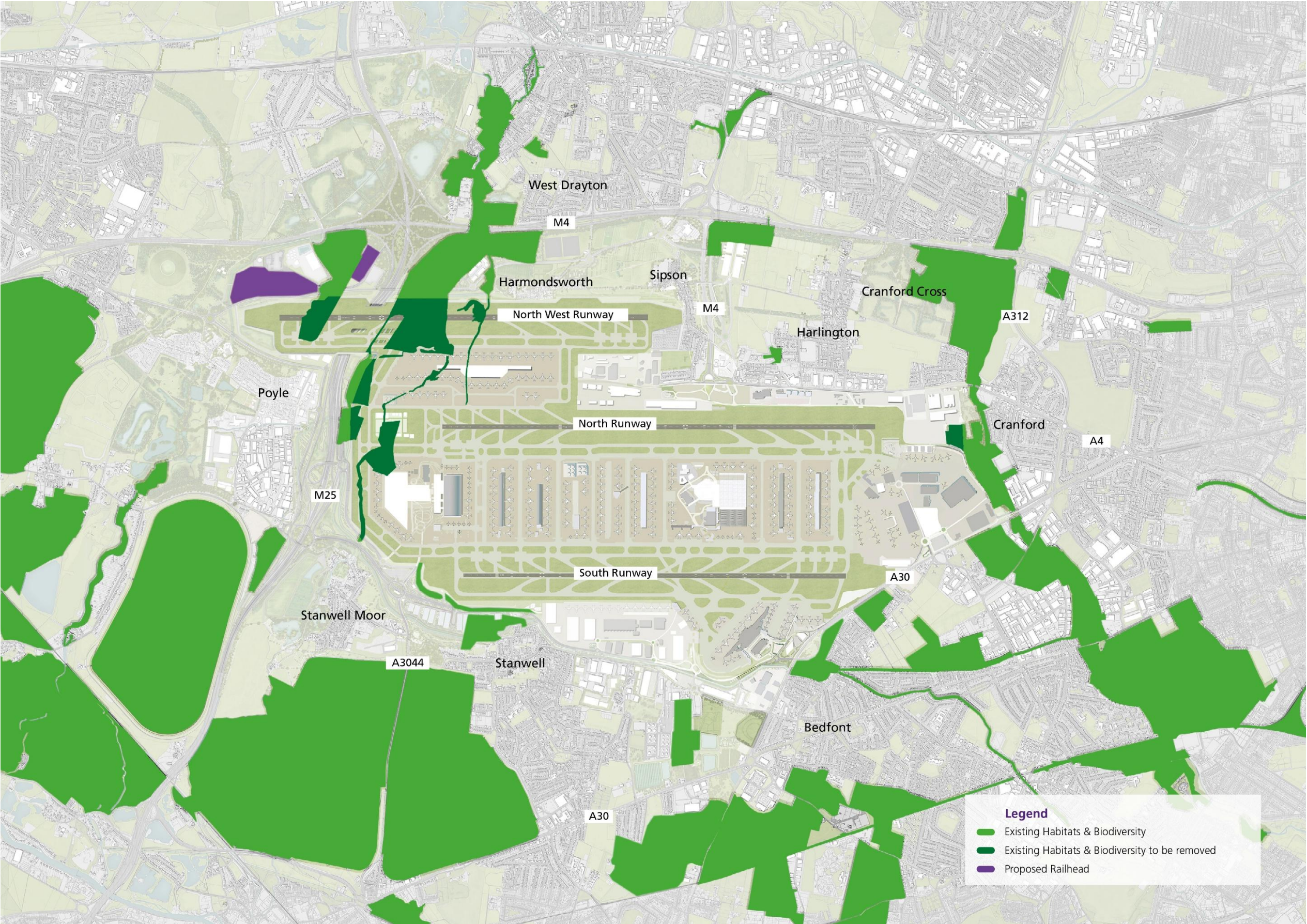


Ecology and biodiversity

1.8.3 The changes to ecology and biodiversity are:

- Loss and degradation of habitat within local wildlife sites, of which 18 lie fully or partly within the draft Order Limits.
- Partial loss of Poyle Meadow, a unit of Staines Moor SSSI, to works at M25 junction 14.
- Loss of grassland and scrub north of Harmondsworth Moor and west of Longford.
- Loss of one of three known brown long-eared bat colonies, where the new Northwest Runway crosses parts of Harmondsworth Moor.
- Loss of bat roosts in buildings and trees, including maternity roosts.
- Disruption to bat commuting routes, including the underpasses beneath the M4 and M25 used to move between feeding and roosting areas.
- Loss of bank habitat and movement routes used by otter along the River Colne.
- Effects on fish, including European eel, bullhead and barbel, in the affected watercourses.
- Loss of rough grassland foraging and nesting habitat used by barn owl across the western and northern areas.
- Disturbance to breeding birds, including kingfisher, which has strict legal protection at active nests.
- Bats, fish and birds would be affected by increased lighting along new roads and infrastructure.
- Removal of riverside vegetation along the River Colne, Wraysbury River, Colne Brook and Longford River.
- Loss of ponds and wet habitats used by great crested newt at Poyle Meadow and Harmondsworth Moor.
- Removal of woodland and hedgerows, including the tree belts around Little Harlington Playing Fields.
- Partial loss of Poyle Meadow, a unit of Staines Moor SSSI, to works at M25 junction 14.
- Interruption of the north-south Colne Valley ecological corridor where the Northwest Runway crosses it, and weaker east-west links between the valleys.
- Indirect effects on the Southwest London Waterbodies SPA through changes to water and disturbance.

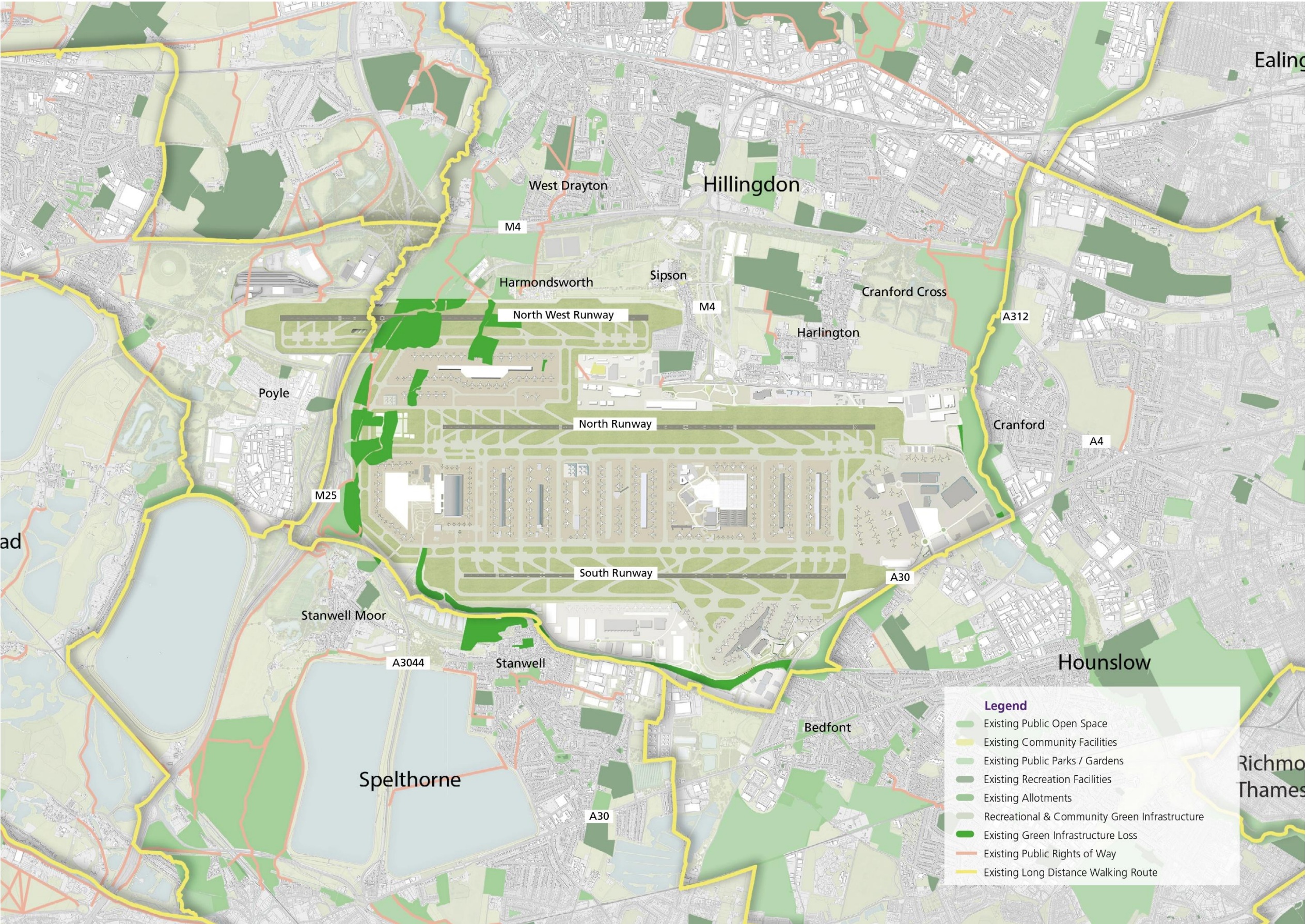
Figure 1.7: The expanded on-airport area in relation to existing habitats and biodiversity



Public open space, access and community

- 1.8.4 The public open spaces and outdoor facilities that form part of the green infrastructure network, and which would be directly affected by the works, are:
- Longford Moor and parts of Harmondsworth Moor, which are among the largest losses of public open space.
 - Cranford Country Park, , Crane Meadows and Crane Bank, which would be disturbed during construction but retained, with their quality and accessibility improved over time.
 - Amendments to Thorney Country Park to increase flood storage at the lake, and the green space along the Longford River.
 - Poyle Poplars.
 - Moor Lane and Pinglestone Allotments (Harmondsworth), affected by construction.
 - Vineries Allotments (Spelthorne), where most of the land meets floodplain and infrastructure works.
 - Little Harlington Playing Fields, with pitches and belts of trees overlapped by works.
 - Harmondsworth Recreation Ground, partly within the development boundary.
 - Pippins Park (Colnbrook), affected by highway realignment and landform changes.
 - Townmead Recreation Ground (West Drayton), with its southern part required for floodplain works.
 - Thorney Park Golf Course, displaced by flood storage works.
 - A number of smaller local public open spaces, pocket parks and playgrounds across the Community Areas.
- 1.8.5 Public rights of way and recreational paths are also affected by the new north-west Runway, railhead and earthworks, including routes across Harmondsworth Moor and links between Longford, Harmondsworth and Sipson. Some routes would also be severed, cutting off connections between communities and the spaces around them.

Figure 1.8: The expanded on-airport area in relation to existing open space, public rights of way and community facilities



Landscape and visual

1.8.6 The main changes are:

- Changes to the landscape and views experienced across communities including Harmondsworth, Sipson, Longford, Poyle, Harlington, Cranford Cross, Cranford, Feltham North, Bedfont, Stanwell Moor, Stanwell, Colnbrook, Brands Hill and East Langley.
- New infrastructure introduced into existing views, including the new Northwest Runway, taxiways, terminal buildings and the realigned M25 and A4.
- Loss of vegetation, hedgerows and tree belts that currently screen and enclose views from the surrounding villages.
- Changes to landform, with large volumes of material excavated and moved during construction.
- Reduced separation between the existing airport and the settlements around it, particularly at Harmondsworth, Sipson, Harlington and Stanwell.
- Changes to tranquillity, through both the visual presence of new infrastructure and the movement of aircraft and vehicles.
- Temporary changes during construction, including compounds, cranes, stockpiles, plant and lighting.

1.9 Blue infrastructure measures

- 1.9.1 Blue infrastructure measures would be designed and managed as a connected network, bringing together watercourse diversions, flood storage, waterbodies and drainage. This includes protecting communities from flood and safety risks and, where suitable, providing access to water that supports health and well-being.
- 1.9.2 The measures are described from the major structural works to the smaller features that complete the network: realigned watercourses, flood management and storage, lakes and waterbodies, groundwater, and surface water drainage and sustainable drainage systems (SuDS). Each is described in terms of what is provided, where and why.

Watercourses

- 1.9.3 Heathrow sits within the Colne and Crane catchments, with the River Colne and its smaller streams to the west and the River Crane to the east. These rivers shape the landscape and form the main wildlife routes linking the Colne Valley Regional Park to the wider network. Many of the channels have been straightened and deepened over time, but they still provide important habitat, supporting fish such as European eel, bullhead and barbel.

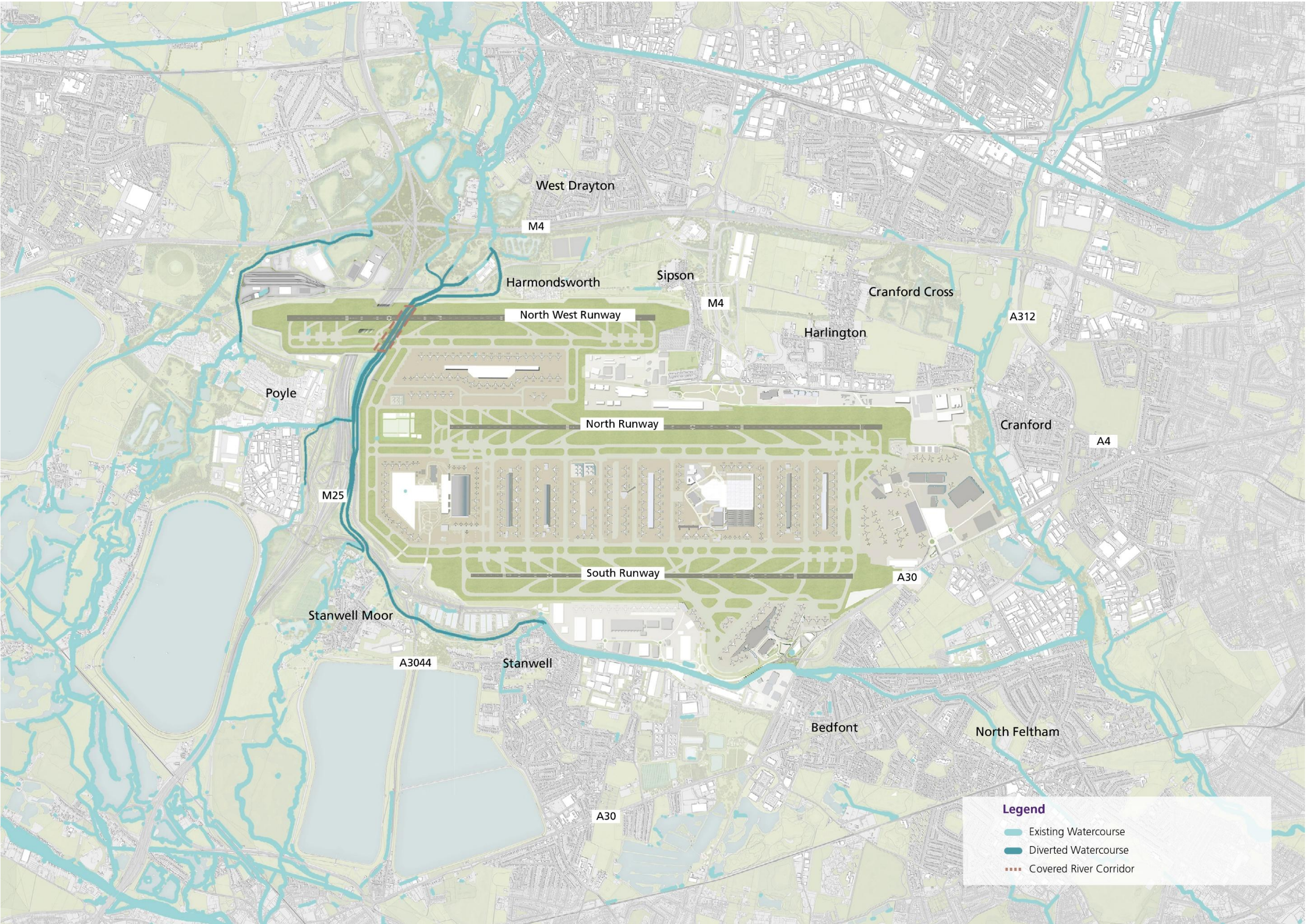
- 1.9.4 **Proposed watercourse diversions (River Colne System).** The Project would permanently divert and reconfigure several principal watercourses west of Heathrow. The River Colne, Wraysbury River, Bigley Ditch, Duke of Northumberland's River and Longford River would be combined north of the existing airport and would pass beneath the new Northwest Runway within the covered river corridor. South of the covered river corridor, the rivers would separate in stages and return to their own alignments. The Wraysbury River would separate first, followed by the River Colne. Downstream flows would be maintained to match existing conditions, protecting the receiving watercourses.
- 1.9.5 The River Colne, Wraysbury River and Bigley Ditch would combine near Harmondsworth Moor before entering the covered river corridor.
- 1.9.6 The Duke of Northumberland's River and Longford River, which currently run as straight, artificial channels through Stanwell Moor, would merge north of Heathrow and pass through the covered river corridor before rejoining their original courses.
- 1.9.7 In all cases, downstream flows would be maintained to match existing conditions, protecting the receiving watercourses.
- 1.9.8 The covered river corridor would contain the combined channels beneath the realigned Northwest Runway. It would include a riverside zone, around 80 to 85 metres across where space allows. Because it sits beneath the runway, the number of plants that can grow there is limited. Where the ground level changes sharply where the realigned M25 meets the Covered River Corridor, west of Stanwell Moor, concrete retaining walls would be needed, as they also support the Northwest Runway. Because the covered river corridor sits beneath the runway and within the flight paths, the design of its open water section would include measures to reduce the risk of bird strike, such as netting.
- 1.9.9 The Duke of Northumberland's River and the Longford River, which currently run as straight engineered channels would continue south together after the other rivers have separated. They would be moved away from the expanded airport, between the Southern Parkway and out towards the edge of Stanwell in a new channel before rejoining their existing alignment slightly further east. This new channel would be designed as a natural-looking, wildlife-rich river, with a channel wide enough to include features such as backwaters, planted banks on each side with trees and riverside planting and wetlands alongside that improve water quality. East of this point the two rivers would remain in their existing channels and would not be altered. Features within the river, such as otter holts, are described in **Section 1.10**.
- 1.9.10 To the north, the Colne Brook would be moved around the proposed railhead at Colnbrook and rebuilt as a naturalised channel through the Colne Valley. Near Colnbrook and Poyle, the Colne Brook, Horton Brook and Poyle Channel would remain as main watercourses south of the M4.
- 1.9.11 To the east, the River Crane through Hatton, Cranford and Feltham, and the Duke of Northumberland's River through Hatton Cross, would not be diverted. Mature trees along the roads would be retained and improved, where possible, to support bat routes. Species provision along these routes is described in **Section 1.10**.

1.9.12 Where rivers are moved or reshaped in the west and north, the design follows these principles:

- Natural-looking channels that would gently wind, with varied shapes, backwaters and shallow edges to create different habitats and flows, rather than straight artificial channels.
- Where work takes place near old landfill, the design would protect the cap that seals the waste, cutting through it only where needed to form the channel. Where the channel crosses landfill, its base would be lined with an impermeable barrier so that water does not come into contact with the waste.
- Reusing riverbed material where suitable, and choosing any new material equivalent to the natural riverbed of the area, to support river habitat for plants, invertebrates and fish.
- Riverside planting to add shade, habitat and stable banks, within wider river corridors than the old straightened channels allowed.
- Keeping fish able to move along the rivers and keeping the rivers connected to their floodplains. These measures are being developed as we continue to engage with the Environment Agency.

1.9.13 **Design principles.** Connection is a guiding principle throughout. The moved and improved rivers would be designed as continuous routes for wildlife and (where suitable) people, rather than cut-off engineered stretches. Each change would be taken as a chance to create healthier, better-connected habitats.

Figure 1.9: Blue infrastructure measures – diverted watercourses



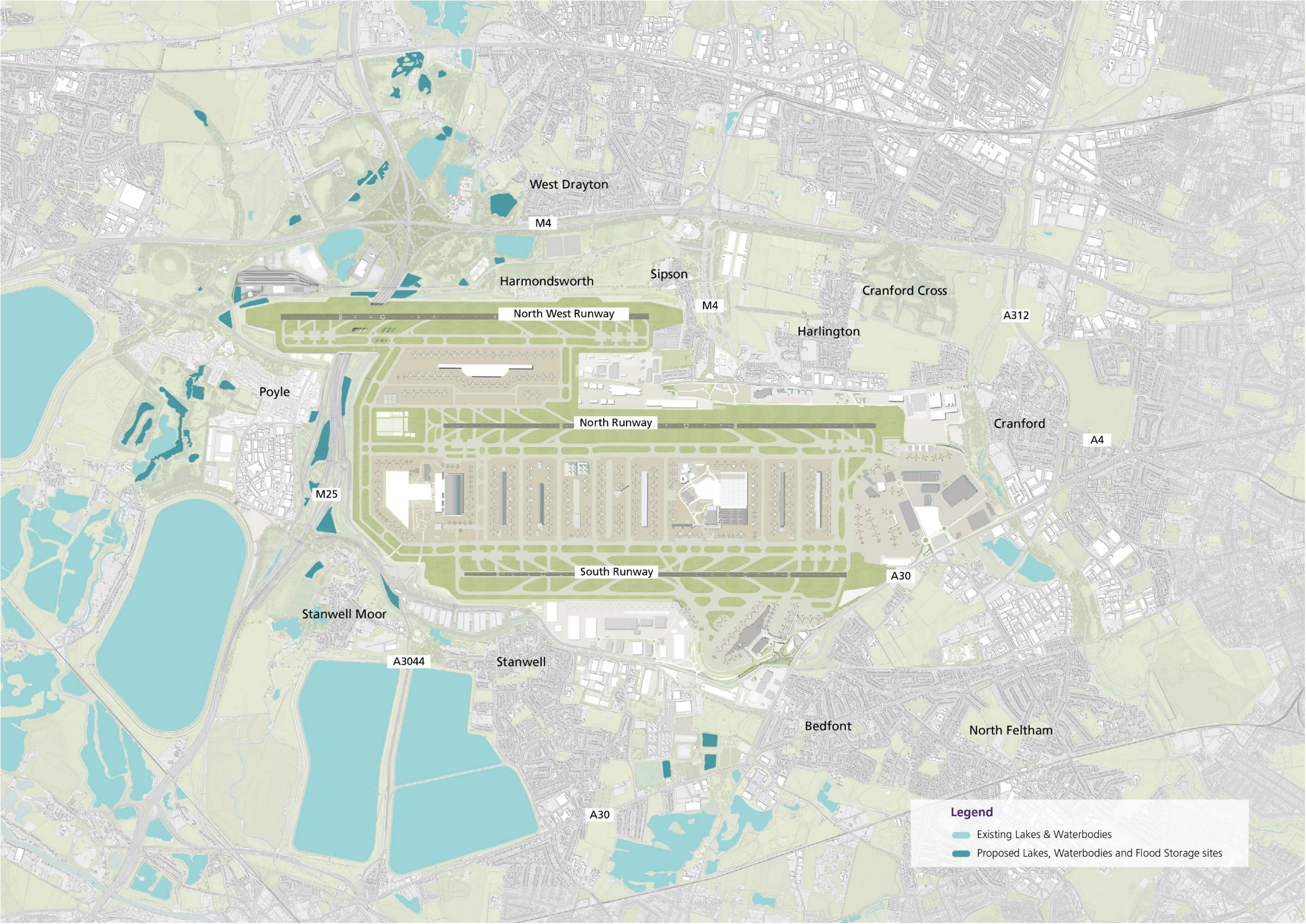
River flooding and flood storage

- 1.9.14 The Project extends into low-lying areas of the Colne Valley that naturally flood (the floodplain). Where floodplain is lost, it must be replaced so that flood risk is not increased onsite, downstream or for nearby communities. This reflects the requirements of national policy, including the Airports National Policy Statement (ANPS) and applicable flood risk legislation.
- 1.9.15 The proposed flood storage would be provided across a group of sites in the Colne Valley, placed so that the replacement storage would stay within the same river system and as close to the affected area as practicable, while protecting sensitive sites such as Staines Moor Site of Special Scientific Interest (SSSI). The sites are:
- **The M25 south of the covered river corridor**, west of Stanwell Moor, holding flood water between the moved motorway and the river as part of a continuous riverside landscape.
 - **Long Mead**, paired with Huntsmoor, designed around existing trees to keep mature landscape and habitat value.
 - **Thorney Park Golf Course**, providing flood storage and European Protected Species (EPS) environmental measures, designed as wet woodland that keeps the existing trees and adds varied planting.
 - **Huntsmoor Park**, flood storage and species environmental measures, keeping existing public paths and the oldest, most valuable trees.
 - **The Poynings (Borrow Pit 4)**, multifunctional flood storage, with EPS environmental measures and re-provided public open space. The attenuation area would be created from an existing gravel pit on the site, established as wet woodland with densely vegetated pond edges.
 - **Thorney Park Lake**, within Thorney Country Park near Iver, where the existing lake would be bunded to provide additional flood storage capacity, increasing the depth of water held during extreme events while retaining the lake as a publicly accessible open water habitat.
- 1.9.16 These sites would be publicly accessible and add to the Colne Valley Regional Park network. The Colne Valley Trail would be rerouted through the Poynings site on a raised causeway across the new wetland landscape. The habitats that would be created within the storage areas, including species environmental measures, are described in **Section 1.10**.
- 1.9.17 **Design principles**. Across the Project, flood storage areas would be designed to do more than hold water. During normal conditions they could contribute to landscape, biodiversity and, where suitable, public access, rather than being isolated engineered ponds.

Lakes and waterbodies

- 1.9.18 The Project would retain and create a range of lakes and waterbodies that would help manage water, alongside the flood storage areas described above. Some are existing waterbodies connected into the diverted river system; others would be new features in the surface water and treatment network.
- 1.9.19 **New waterbodies.** These would range from large ponds that hold back rainwater to reed beds and wetlands that treat surface water:
- **At Bedfont and Mayfield Farm**, a former gravel site would become reed beds and balancing ponds, treating surface water;
 - **West of Stanwell Moor**, reed beds and holding ponds at the Brett Quarry site would follow the same approach;
 - **Along the Duke of Northumberland River and Longford River**, constructed wetlands would treat water quality as part of the combined river system; and
 - **North of the M4 near Thorney and Iwer**, new waterbodies within the flood storage areas would combine, holding back rainwater with the wider network, and an existing Airport pond would be reshaped as a more prominent landscape waterbody.
- 1.9.20 Further ponds and constructed wetlands would be created as habitat for protected species; these are described in **Section 1.10**.
- 1.9.21 **Design Principles.** Across the Project, new and improved waterbodies would be designed as part of the connected network rather than isolated features, combining open water with reed beds, varied depths and planting along the edges where possible to add habitat alongside their water function.

Figure 1.10: Blue infrastructure measures – proposed lakes, waterbodies and flood storage sites



Groundwater

- 1.9.22 Groundwater in the Colne Valley is shallow and closely connected to the rivers and lakes so changes to one can affect the others. The Project would manage groundwater through careful planning, river design and construction methods so that it does not create new routes for pollution or unacceptable changes to how water moves underground. Key measures include:
- Where the ground is not contaminated, allowing the natural interaction between rivers and groundwater to continue (rather than sealing the channel) which would support water quality and wildlife. Avoiding harmful changes to the groundwater that feeds protected sites such as Staines Moor SSSI.
 - Designing underground spaces and tunnels to manage water during building work and afterwards.
 - A plan to control pollution, including walled-off storage for fuel and aircraft de-icing fluid.
 - Placing ponds, wetlands and drainage where groundwater levels suit them rather than relying on water soaking away where the ground is unsuitable.
- 1.9.23 Features would be placed to work with the shallow, moving groundwater, keeping the natural links between groundwater and rivers where the ground is clean and protecting groundwater quality where there is old landfill.

Surface water drainage and sustainable drainage systems (SuDS)

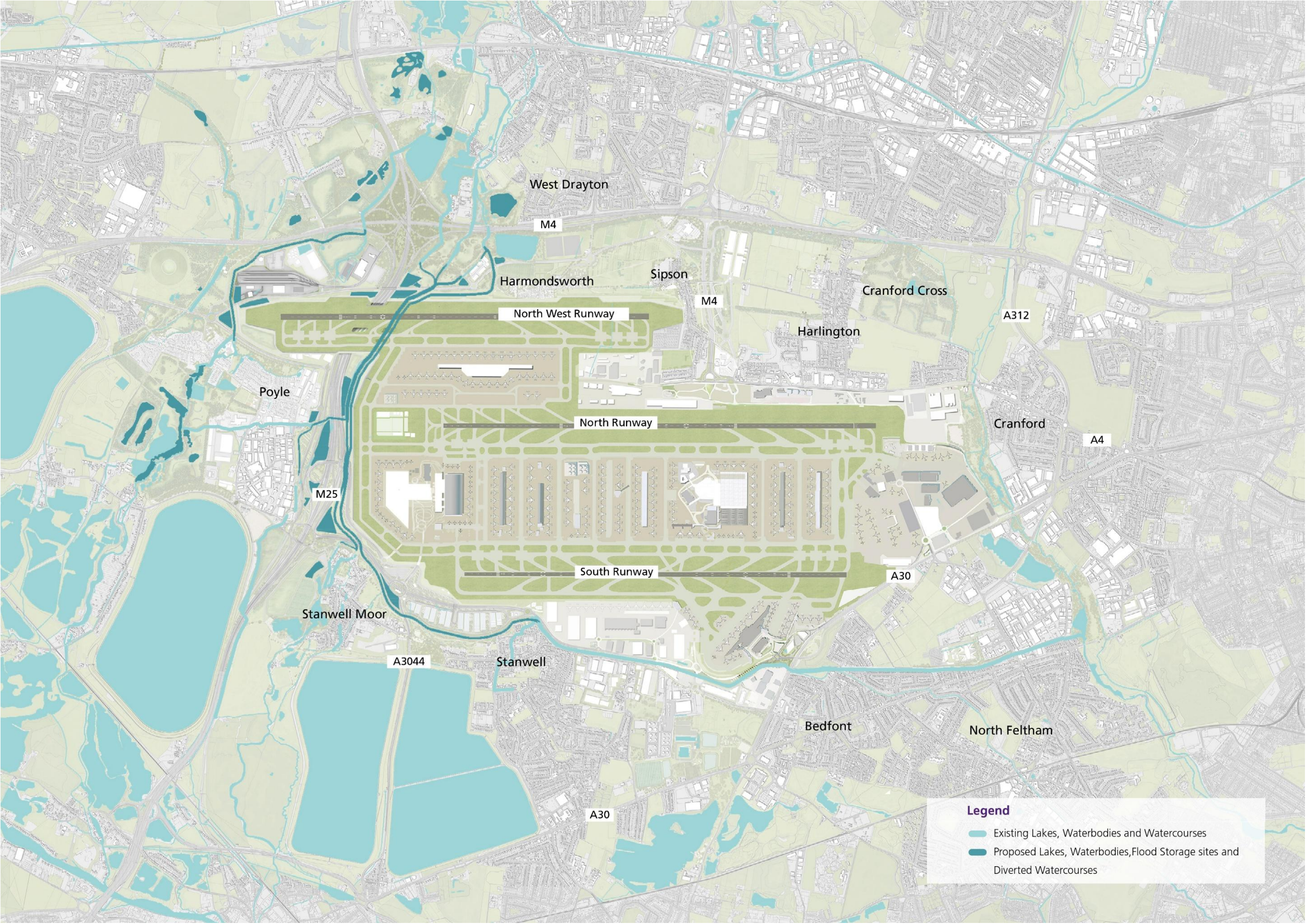
- 1.9.24 Surface water would be managed using sustainable drainage systems (SuDS), dealing with rainwater close to where it falls and moving it through natural surface features rather than pipes. Because the groundwater is shallow, and because allowing rainwater to soak into contaminated ground could allow pollution downwards, infiltration would be limited in many areas. Instead, surface water would be held in attenuation features and released to the adjacent watercourses at a controlled rate, with treatment provided where runoff may carry more pollutants.
- 1.9.25 The drainage is designed for the different parts of the Project:
- **Airport surface water.** Runoff from the airfield and operational areas would be captured, attenuated, treated and released at a controlled rate, using SuDS features such as ponds and reed beds. This approach is already in use at Heathrow at the existing reed beds and ponds at Mayfield Farm.
 - **Roads and junctions.** Drainage for the realigned M25, the A4 and local roads would follow highway design standards, with surface capture, roadside SuDS basins and ponds where space allows, treatment of road pollutants, and controlled outfalls to the watercourses. North of Sipson, small waterbodies fed by runoff from the Northern Parkway would be built into the wildlife corridor

along the M4, serving drainage and habitat together. Where roads pass through underpasses or tunnels, drainage would be pumped.

- **The covered river corridor.** Because it sits beneath the Northwest Runway, the corridor would need pumped drainage for the tunnel, with separate handling of any groundwater seepage.
- **Pollution control.** Fuels, chemicals and aircraft de-icing fluid would be stored in bunded areas, kept within the lowest flood risk zones and set back from watercourses and boreholes so that spills cannot reach the water environment.

1.9.26 Across the Project, drainage features would be designed as active parts of the blue infrastructure network, adding to water quality, habitat, landscape and, where suitable, access.

Figure 1.11: Blue infrastructure measures – proposed water environment network



1.10 Green infrastructure measures

- 1.10.1 The changes the Project would bring to habitats, species, public open space, recreational routes, community facilities, the historic environment and landscape are assessed in the relevant EICD chapters. **Section 1.8** describes the changes that the green infrastructure measures respond to. This section describes how the green infrastructure network would respond to those changes – spatially, ecologically and for the communities alongside the Project, setting out what would be provided, where and why.
- 1.10.2 Green infrastructure at Heathrow serves two purposes that cannot be separated:
- It provides habitat, and the ecological corridors that let wildlife move through the landscape, meeting policy requirements to protect and support nature.
 - It provides the public open space, recreational routes, community assets and landscape that respond to the changes affecting people.
- 1.10.3 These share the same land and often the same features. The green bridge near Colnbrook would provide a route for both bats and cyclists. The ecological corridors through Sipson and Harlington would serve the same dual role.
- 1.10.4 The approach would support safe and inclusive access to green infrastructure, promoting health and wellbeing for people of all ages, including those with mobility, sensory or other needs. This forms part of the B&GI approach in relation to the effects of the Project on health, which are assessed in the **EICD Chapter 11: Health**.
- 1.10.5 The section includes the following components:
- **Habitats and ecological network:** the habitat creation, improvement and connectivity that underpins biodiversity net gain.
 - **European protected species and habitats regulations assessment:** the species and designated-site measures required by law.
 - **Active green network and connectivity:** the walking, cycling and active travel network, including the Green Loop and re-provided rights of way.
 - **Public open space and recreation:** replaced and improved public open space to meet the Airports National Policy Statement (ANPS) requirement that lost public open space is replaced with space that is as good or better.
 - **Community assets:** the re-provision of community facilities, including allotments and sports facilities.
 - **Landscape and visual integration:** the planting, landform, landscaped earth banks (known as bunds) and design that integrate the Project into its setting.

Habitats and ecological network

- 1.10.6 This part of the network is about creating and connecting habitat. As the Project changes the landscape, new habitat would be created and existing habitat improved, contributing to the biodiversity net gain the Project would deliver. Just as important as the habitats themselves are the connections between them, letting wildlife move through a landscape divided by roads, the Northwest Runway and the built-up areas. The Environment Act 2021 requires at least 10% biodiversity net gain to be delivered and secured for at least 30 years. The Project would deliver this requirement.
- 1.10.7 **Habitat creation.** New and improved habitats would be created across the Project, structured around the Colne and Crane Valleys:
- Wet woodland at Poynings, Thorney Park and the northern flood storage areas near Thorney and Iver, where the habitat would be suited to these wetter sites. At Old Slade Farm, new woodland would link the retained ancient woodland at Old Wood to the wider network.
 - Species-rich grassland and meadow across open areas, including the flood storage zones north of the M4, the ecological corridor near Sipson and Harlington and the ground around the scheduled monuments at Mayfield Farm, would be designed to maximise value for pollinators and invertebrates.
 - Woodland, scrub and hedgerow networks would be strengthened throughout, including new birch woodland around the Mayfield Farm monuments, planting along realigned roads through Harmondsworth and Sipson, and improved woodland near Colnbrook.
 - A patchwork of bare ground, scattered scrub and varied grassland on former quarry and landfill ground around Colnbrook, which would support a wide range of insects.
 - Riverside and marginal habitats throughout the diverted and improved river corridors, with native planting, reed fringes, backwaters and varied banks along the Colne, the Duke of Northumberland River and Longford River, the Crane and their channels.
 - Improvements to the Eric Mortimer Rayner Memorial Lakes near Colnbrook, next to the Arthur Jacobs Local Nature Reserve, through shallow pools and edge planting to support waterbirds, replacing an earlier proposal for new small lakes with this more targeted approach.
- 1.10.8 **Habitat connectivity.** The Project would connect the Colne and Crane valleys to each other. An east to west link would run through Cranford and Harlington, across the ecological corridor near Sipson and through Harmondsworth toward the Colne, providing a continuous east to west connection across this landscape and connectivity for bats, otters, great crested newts and other species.

- 1.10.9 Where these routes cross road and rail infrastructure at the M25, the M4 and the realigned A4 and Bath Road, wildlife crossings would be provided. These would include a green bridge over the realigned Bath Road near Colnbrook, a small mammal tunnel beneath the realigned A4 at Harmondsworth and underpasses for wildlife at points across the Project, making use of both new and existing crossings.
- 1.10.10 Habitats would be designed for long-term function rather than immediate effect, with species chosen to suit local conditions and to perform under future temperature and rainfall conditions, consistent with **Chapter 18: Climate resilience and adaptation** of the EICD. The 30-year management and monitoring framework required for Biodiversity Net Gain allows the management to be adjusted as the habitats establish, with ecological design integrated with flood storage, river corridors and public open space from the outset.

Protected species

European Protected Species

- 1.10.11 This element of B&GI provides the measures for EPS and internationally designated wildlife sites. This section describes the measures that would be delivered to mitigate the effects on EPS and designated sites in accordance with legal requirements: what is lost, where the reprovion goes, and why.
- 1.10.12 The Conservation of Habitats and Species Regulations 2017 place strict obligations on development affecting EPS. Where their habitats would be disturbed or removed, a licence from Natural England is required, granted only where three tests are met:
- there is a strong public-interest reason for the work,
 - there is no reasonable alternative,
 - and the species can still be kept in a healthy state overall.
- 1.10.13 The measures below are designed to meet those tests. They are legal requirements, not optional improvements, and reprovion locations are chosen because they are right ecologically and are informed by survey and tracking evidence so that provision is placed where the affected populations breed, forage and move. Baseline surveys between 2017 and 2019 confirmed bats, great crested newts, otters, badgers and reptiles in the vicinity of the Project. Water vole, hazel dormouse and white-clawed crayfish were surveyed and not found so no licence would be required for these species. Further surveys are being undertaken to validate previous surveys.
- 1.10.14 **Great Crested Newts** are present at Stanwell, where ponds would be affected by construction and currently provide breeding and foraging habitat. Some ponds would be removed by the river diversions, and others affected by changes to the land and water. A licence from Natural England would be needed.

- 1.10.15 Where possible, newts would be kept close to where they are now. New ponds would be created near Stanwell, next to the existing ones, in clusters, with the depth and edges newts need and a winter shelter at each. Where newts cannot be kept close to their existing ponds, they would be moved a short distance to new ponds at Princes Lakes, between Bedfont and the A30. Princes Lakes is chosen because it adjoins Bedfont Lakes Country Park, linking to an established set of lakes, and has no public access while the newts settle in.
- 1.10.16 Across both sites, ponds would be replaced at a ratio of at least two new ponds for each one lost.
- 1.10.17 **Bats.** Bat boxes, houses and foraging habitats would be provided.
- 1.10.18 Where bat routes cross new roads, sensitive lighting design (directional, low-level, avoiding ultraviolet) would reduce the barrier effect.
- 1.10.19 **Otters** are recorded along the River Colne, where bank habitat and movement routes would be affected by the diversions. Resting sites and holts would be provided at regular intervals along the affected river corridors, informed by survey evidence. Each would be set within scrub planting, away from paths.
- 1.10.20 **Badgers.** Where badger setts would be affected, they would be closed under licence and replaced with artificial setts and crossing points such as small mammal tunnels would be provided where new roads would otherwise cut across badger movement.
- 1.10.21 **Fish.** European eel, bullhead and barbel are present in the affected watercourses and all three are protected. Measures for fish would be provided through the river design described in **Section 1.9**, including helping fish move along the rivers past new structures and keeping the rivers connected to their floodplains.

Other protected species

- 1.10.22 The species below are protected under the Wildlife and Countryside Act 1981 but are not EPS and a licence in relation to disturbance of such species is not required. The Project would take reasonable precautions to avoid harm during construction and would provide replacement habitat and features to support these species where required.
- 1.10.23 **Reptiles.** Grass snake and slow worm are recorded across the area. Winter shelters would be provided, giving the cool, stable conditions reptiles need to get through winter with south-facing banks beside them where reptiles can warm up in the sun, and piles of brash, logs and tree stumps for shelter and foraging. Most of this provision would be in the Colnbrook and Poyle area and at the northern flood storage sites near Poynings and Thorney, where large areas of rough grassland, scrub and open ground would be created on the kind of poor soils reptiles like.
- 1.10.24 **Breeding birds.** Kingfisher is a Schedule 1 breeding bird with strict protection at active nests, Cetti's Warbler is a notable species found within dense waterside vegetation, and Skylark is a farmland bird of conservation concern. Each would benefit from habitat created across the Project: open grassland at Poynings managed for Skylark; nesting banks for Kingfisher at Thorney Country Park Lake,

Huntsmoor Park, Thorney Park Golf Course, Mayfield Lakes, Hithermoor Lake and along the Crane Valley; and dense bankside vegetation for Cetti's Warbler at Poynings, the Stanwell Moor wetlands and along the Crane Valley. This habitat would provide a functioning grassland and wetland network across the area to support breeding birds.

- 1.10.25 **Barn owl.** Nest boxes would be provided within the retained and created grassland at Stanwell Place and grassland at Poynings would be managed for barn owl foraging alongside Skylark, re-establishing nesting and hunting opportunity as the grassland matures.

Staines Moor Site of Special Scientific Interest (SSSI) and Habitats Regulations Assessment

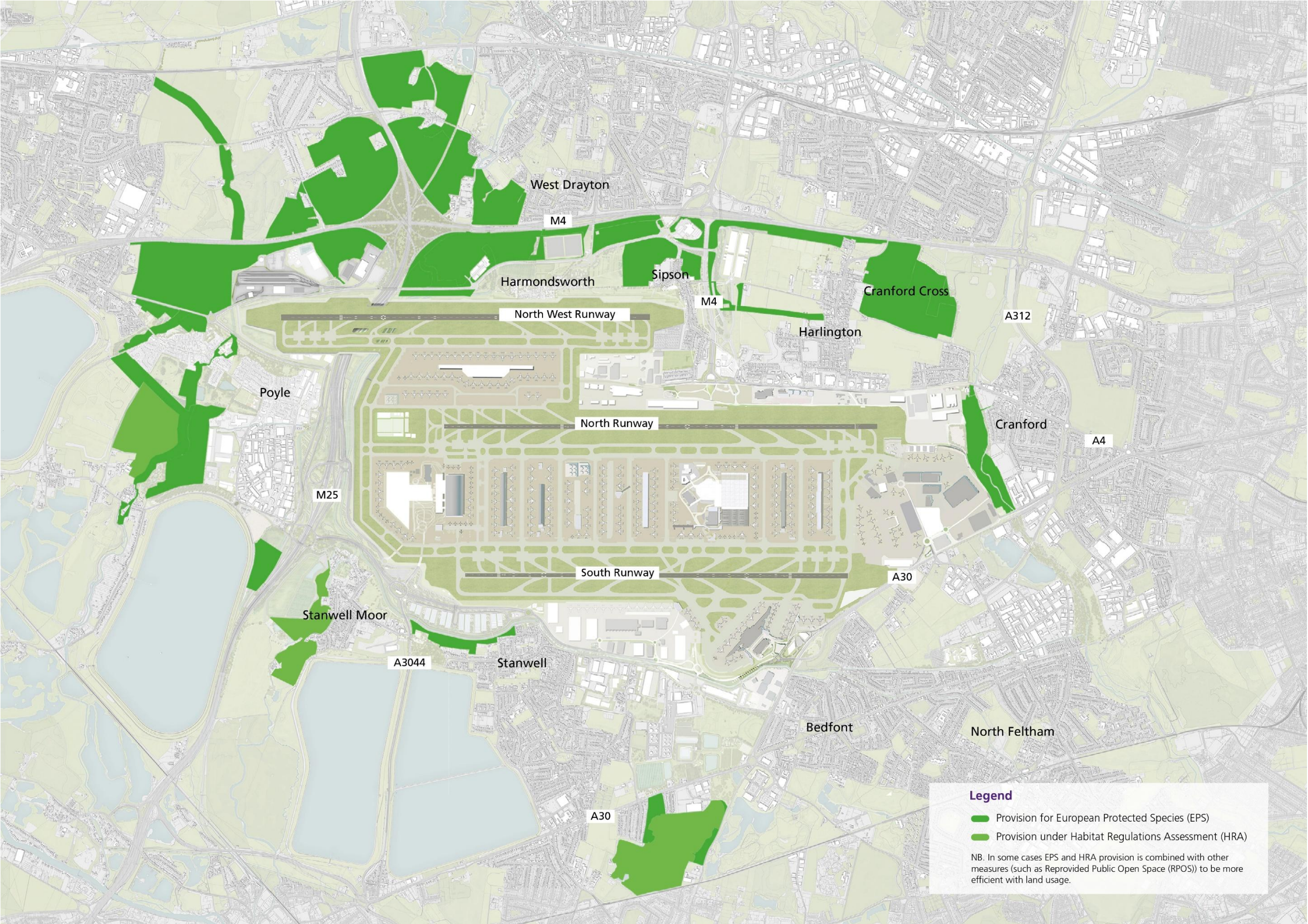
- 1.10.26 In addition to the tests for species licensing, the Habitats Regulations require an assessment to be undertaken to determine whether the Project could have an adverse effect on the integrity of any designated site. Two designations are relevant.
- 1.10.27 **Poyle Meadow**, a unit of Staines Moor SSSI and part of the wider Ramsar complex, would be partly lost to works at M25 junction 14, which would be a direct and permanent loss of grassland within the designated site. The approach to replacement, informed by engagement with Natural England, would be likely to combine improvement of the retained part of the SSSI unit, improvements to grassland elsewhere within Staines Moor and creation of similar grassland nearby, with parts of Huntsmoor Park a likely location, subject to the final flood storage design.

Figure 1.12: Green infrastructure measures – protected species and designated sites provision at the south-west of the airport



- 1.10.28 **The South West London Waterbodies SPA**, designated for waterbird populations including gadwall and shoveler, could be affected by changes to the lakes west of Heathrow and by disturbance during construction. Princes Lakes, between Bedfont and the A30, would be brought within the draft Order limits and managed to provide an undisturbed refuge where these waterbirds can shelter. Princes Lakes is chosen because it is far enough from the works to avoid disturbance, is large enough to support the waterbirds that use the affected lakes and connects to Bedfont Lakes Country Park.
- 1.10.29 Across the Project, species measures and the measures for designated sites would be designed together and with the wider network. Where possible the same land delivers several requirements. For example, Princes Lakes serving both the waterbird refuge and the newt ponds and the ecological connections serving both bat movement and the wider network. This uses land efficiently and delivers a more coherent network than single-purpose parcels would.

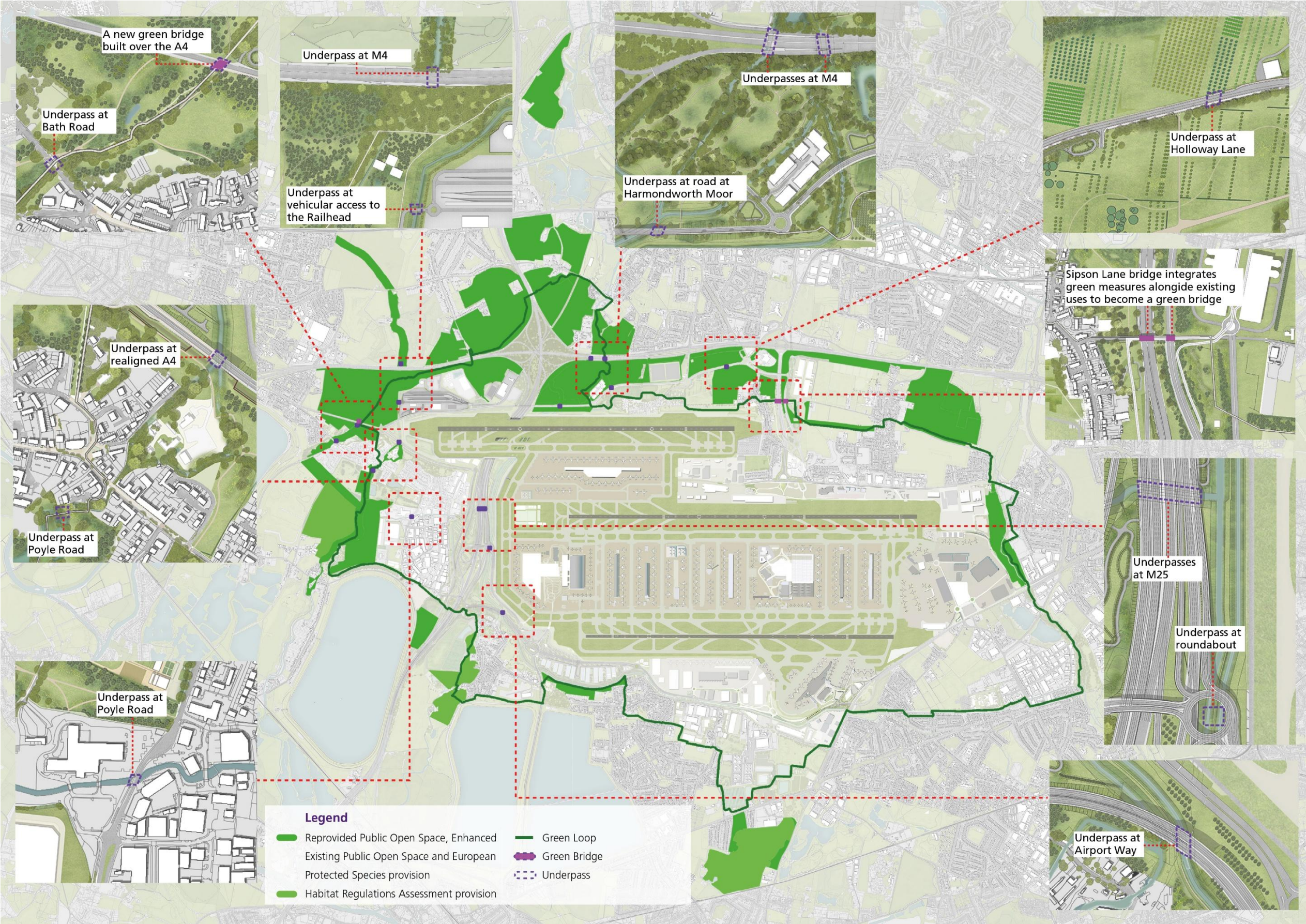
Figure 1.13: Green infrastructure measures – EPS & HRA provision



Active green network and connectivity

- 1.10.30 This component of the green infrastructure is about keeping people moving through the landscape on foot, by bike and on horseback. As the Project changes the area, walking and cycling routes, bridleways and public rights of way would be maintained, diverted and re-provided and connected into continuous routes, including the Green Loop and links to regional trails such as the London Loop and the Colne Valley Trail.
- 1.10.31 The ecological corridors in **Section 1.9: Blue infrastructure measures** and the Active Green Network share the same space across much of the Project. A green bridge over the realigned Bath Road would provide a route for both bats and cyclists and underpasses would serve both wildlife and people. The same ecological corridors through Sipson and Harlington are also the routes by which people reach the countryside.

Figure 1.14: Green infrastructure measures – proposed active green network and connectivity



1.10.32 The routes would also improve access to the wider landscape, including the Colne and Crane floodplains and the area around the scheduled monuments at Mayfield Farm.

1.10.33 **Reprovision of public rights of way.** Affected public rights of way would be maintained through temporary diversions during construction, and reprovided where they continue to serve a recreational function and would be reopened as early as reasonably practicable and linked into the Green Loop. Broad routes are shown at this stage, with detailed alignments to follow at the detailed design stage.

1.10.34 Early alignment studies have identified potential options for how some routes could be reprovided. These will be developed further through engagement with the local highways authorities. They include:

- The Harmondsworth Moor walk and Hillingdon right of way Y8, which could be rerouted through improved public open space rather than around the works.
- The Colne Valley Trail, which could be rerouted across the Poynings flood storage site on a raised causeway through a new wetland landscape - a more rural setting than the current route alongside the M25.
- The London Loop, which could be rerouted via a new 70-metre bridge over the A30 at the Crane Valley, addressing a long-standing break in the route.
- The Colne Valley Way, which could be rerouted via the green bridge over the realigned Bath Road, linking into the Green Loop.

The Green Loop. The main active connectivity measure is the Green Loop, a circular route of around 25 kilometres around the existing airport, connecting communities, public open spaces and biodiversity sites. It would be suitable for disabled access throughout, widening on shared walking and cycling sections. As well as reproviding routes affected by the Project, it would create new connections to link communities to public open spaces and to each other around the existing airport. The effects on users of recreational routes, including those reprovided as part of the Green Loop, are assessed in **Chapter 7: Recreation and Amenity**.

- From Stanwell and Stanwell Moor, east-west along the upgraded route between the Twin Rivers, with two pedestrian bridges to the Southern Parkway and transport hubs, continuing west towards the Colne Valley.
- Through Mayfield Farm, passing the reed beds and ponds and opening access to two scheduled monuments, a Neolithic causewayed enclosure and a Romano-British farmstead.
- Through Harmondsworth, along the High Street and through Harmondsworth Moor, connecting the village core to the wider network, running along the crest of the noise bund where the route passes close to new infrastructure.
- Through Sipson and Harlington, along the ecological corridor south of the M4, providing the east-west connection between the Colne and Crane Valleys that does not currently exist, following ecological corridors that also serve bats, otters and newts.

- Through Colnbrook and Poyle, connecting the villages via the Green Loop.
- Along the Crane Valley through Cranford and Harlington, connecting to Cranford Country Park and Avenue Park, with the new 70-metre bridge over the A30 carrying the Green Loop and London Loop and fixing the current break in the route.

1.10.35 Crossing infrastructure. The biggest constraint on connectivity is not distance but the road and motorway barriers between places. The network addresses these through crossings, each designed to serve people, wildlife, or both. There would be:

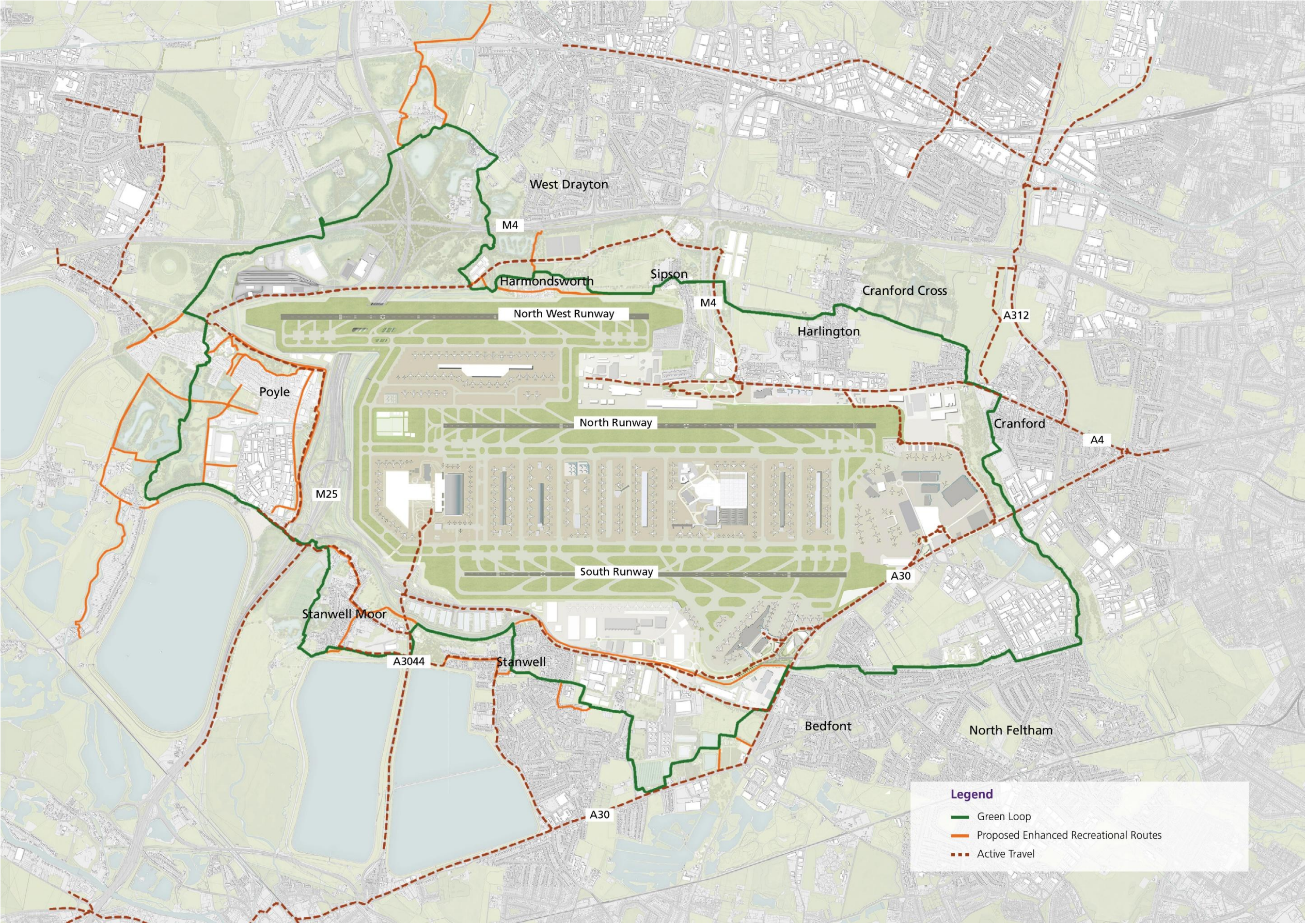
- A green bridge over the realigned Bath Road near Colnbrook, providing a shared crossing for the Green Loop, the Colne Valley Way and bats.
- A bridge at M25 junction 14, a combined people and wildlife crossing linking Staines Moor southward to the Thames path network and northward to the Colne Valley.
- The Sipson Lane green bridge over the M4 spur, providing east-west connectivity between the Sipson and the Harlington and Cranford network.
- The new 70-metre bridge over the A30 at the Crane Valley, fixing the break in the London Loop and anchoring the Crane Valley walking and cycling route.
- A small mammal tunnel beneath the realigned A4 at Harmondsworth, with wildlife hop-overs guiding bats and other species over roads.
- Underpasses beneath the realigned road network, designed to work for both pedestrian access and wildlife movement.

1.10.36 The Colne Valley Trail, the long-distance route through the Colne Valley Regional Park, would be rerouted across the Poynings flood storage site on a more direct alignment than the current route alongside the M25. A raised causeway would provide access for the combined Green Loop and Trail above the storage water level, with woodland to either side, taking walkers and cyclists through a new wetland landscape before connecting to the bridge over the M4 to the north.

1.10.37 Active travel. Separate from the Green Loop, a network of direct active travel routes would connect communities to Heathrow for everyday journeys, designed for cycling and walking, with priority and direct alignment. Key connections serve Stanwell, Harmondsworth, Sipson, Harlington and Cranford, integrating with the wider cycling network and transport hubs at the Southern Parkway.

1.10.38 The Active Green Network would be designed to the same standard of permanence and accessibility as the road and rail network. Routes would be inclusive, with surfaces, width and gradient suitable for all users including wheelchairs and pushchairs. Where routes would pass through ecological corridors, the design would balance access with wildlife needs. The Active Green Network would maintain public open space and active travel connections through construction and into operation. By making it easier to walk and cycle, it would support people's health and a shift away from vehicle journeys. Where practicable, reprieved rights of way would open at the same time as, or before, existing routes are closed.

Figure 1.15: Green infrastructure measures – Green Loop and PROW provision



Public open space and recreation

1.10.39 This component of green infrastructure re-provides the public open space and recreation affected by the Project. Where public open space would be lost, the ANPS requires it to be replaced with space that is at least as good in size, usefulness, attractiveness, quality and accessibility, so people keep their access to places for recreation. The re-provided public open space would be designed to meet this standard.

1.10.40 **The re-provision standard.** Every Reprovided Public Open Space (RPOS) site is assessed against the same criteria:

- **Quantity:** the area matches or exceeds the area lost, confirmed site by site through the Open Space Assessment.
- **Quality:** new spaces are designed to Green Flag Award standard.
- **Accessibility:** analysis ensures RPOS serve the same communities, with safe and convenient access.
- **Facilities:** play areas, sports courts and seating are replaced like-for-like.
- **Timing:** the aim would be to re-provide ahead of the loss of existing spaces so that provision is maintained throughout construction, as far as practicable.

1.10.41 **Reprovision by Community Area.** The strategy is organised around the communities most affected:

- **Longford:** Longford Moor, a district park, would be re-provided nearby at the Rayners Estate and Hithermoor Quarry, combining open grassland, habitat ponds and new river landscape. The re-provided space would be dual-purpose, providing public open space alongside habitat for EPS.
- **Harmondsworth:** the existing Harmondsworth Moor west of the village would be retained and developed as the Colne and Wraysbury floodplain landscape. Around, and to the east and north of the village, new and improved public open space would form Harmondsworth Metropolitan Park, linking through to the retained Moor and north to Sipson, with precise phasing still in progress.
- **Sipson, Harlington and the east:** Little Harlington Playing Fields and Harmondsworth Recreation Ground would be affected and re-provided, with sports facilities replaced like-for-like. Townmead Recreation Ground, partly affected by floodplain works, would be re-provided immediately to the north;
- **Cranford Country Park and the Crane:** the public open spaces along the Crane, including Crane Meadows and Crane Bank, would be disturbed during construction but largely retained, with their setting, accessibility and condition improved over time. A small area of public open space would be re-provided nearby, and Crane Bank Local Nature Reserve would be retained. These spaces connect to the London Loop and the wider active travel and ecological connections.

- **Pippins Park, Colnbrook:** a noise and visual bund would be built along its northern edge, reducing noise from taxiing aircraft and screening them from view. The strip of land taken for the bund would be reprovided to the east as public open space that also delivers species habitat and the park would be retained as public open space for Colnbrook.
- **Colnbrook and Poyle:** new public open space would be provided alongside the ecological corridors and the green envelope around the villages, with dual-purpose land delivering both RPOS and EPS. New woodland and tree planting would improve the setting of Colnbrook.

1.10.42 Improved retained public open space. Where spaces are affected but not fully lost, they would be kept and improved. A key element is the use of noise bunds and walls along the draft Order Limits to protect adjacent public open spaces from the noise of taxiing aircraft, a ground-level source that, unlike aircraft in flight, can be reduced through physical measures:

- **Harmondsworth Moor Metropolitan Park:** along the southern boundary, a noise wall and bund would be built, using materials reclaimed from buildings that are demolished, creating a series of walled garden spaces. The Green Loop would run along the top of the bund, giving elevated views.
- **Mayfield Farm,** open space currently within the draft Order Limits becomes publicly accessible through the Green Loop. The site contains two scheduled monuments, which would be retained in place and conserved. New birch woodland would enclose the monuments and soften views of the expanded airport and the route would be designed so the site can be understood and enjoyed as part of the public open space network.

1.10.43 **Play, sport and recreation.** Community sports facilities would be reprovided in line with Sport England guidance, following the latest Playing Pitch Strategy guidance or an approved alternative and located according to the type of public open space they come from. As the affected facilities are in small or local open spaces, they would be reprovided close to their existing location. Playing fields would be reprovided in the Stanwell Moor and Harmondsworth areas, designed with species-rich hedgerows around pitch boundaries and play areas would be replaced like-for-like.

1.10.44 RPOS across the Project would be aligned with ecological corridors, active travel routes and habitat creation, connecting communities into the wider landscape rather than providing isolated parks. Where suitable, sites include SuDS, wetland habitats and species-rich grassland that add biodiversity and water quality alongside their recreational value, designed so these features add to, rather than reduce, the quality of the space for people.

Community facilities

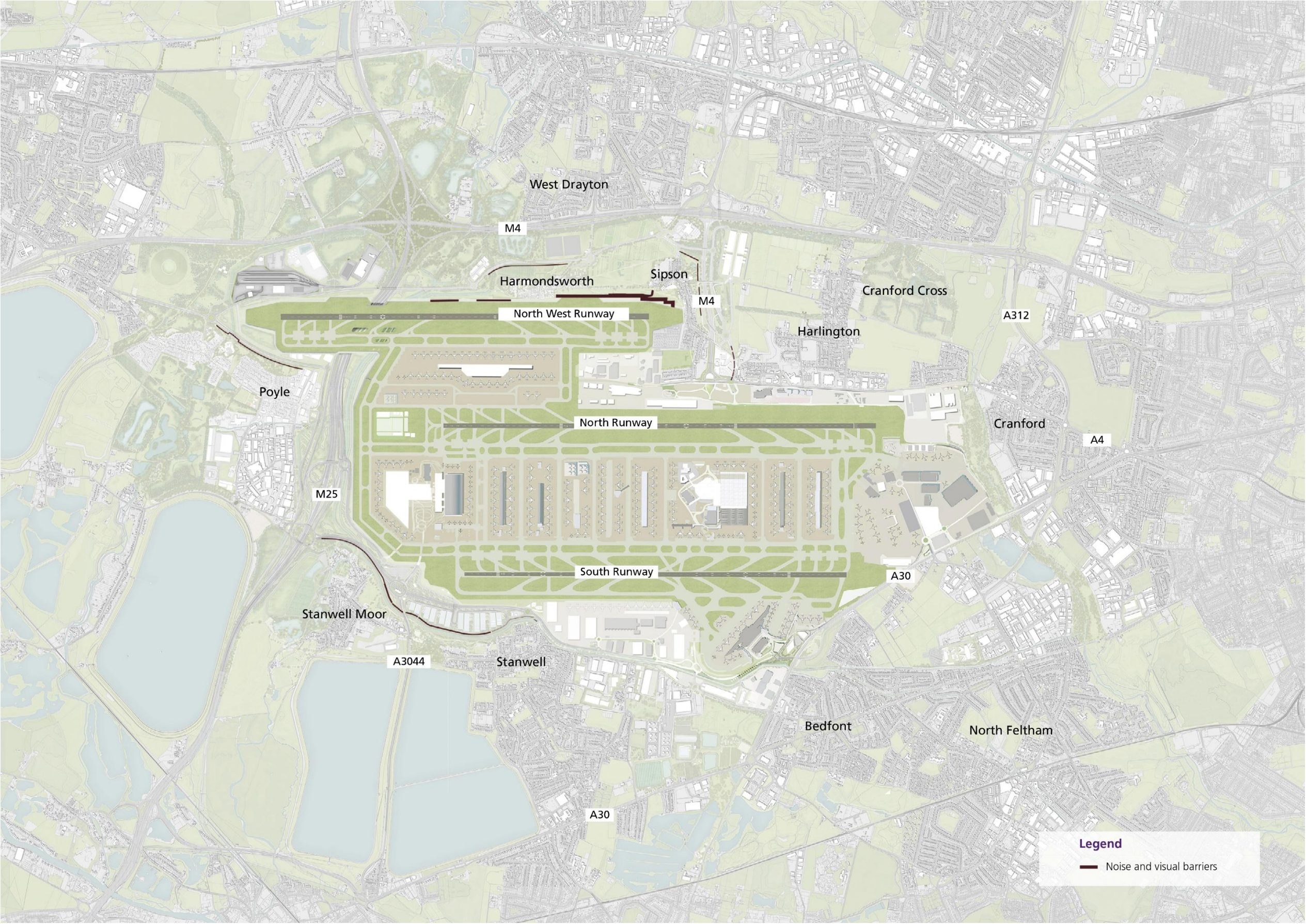
- 1.10.45 This element of green infrastructure re-provides the recreational community facilities that the Project changes, including allotments and sports facilities. For built community facilities, including schools, nurseries, community halls and places of worship, see the **Built Environment Topic Paper**.
- 1.10.46 Across all displaced assets, public open space and recreational provision would be re-provided to an equivalent or better standard in an equally accessible location and, where practicable, phased so new provision is available before existing facilities are lost.
- 1.10.47 **Allotments.** Three allotment sites would be displaced. Allotments are protected under the Small Holdings and Allotments Act 1908 and the Allotments Acts 1925 and 1950, and policy requires displaced land to be replaced with equivalent, equally accessible provision. Preferred re-provision sites are identified for all three:
- **Moor Lane and Pinglestone Allotments**, both displaced at Harmondsworth, re-provided immediately to the north-east within the new Harmondsworth Metropolitan Park.
 - **Vineries Allotments**, re-provided to the south of the existing provision within Stanwell Moor village, keeping the connection to the community with no reduction in plots, with soil prepared so plots are ready for use.
- 1.10.48 **Sports and recreation.** Community sports facilities would be re-provided within the wider public open space programme described in **Public Open Space and Recreation**, in line with Sport England guidance, close to their existing location:
- **Little Harlington Playing Fields** (football pitches, cricket facilities and pavilion) would be re-provided immediately to the east within the Harlington area.
 - **Harmondsworth Recreation Ground** (football pitch, outdoor gym, playground and tennis court) would be affected by construction and re-provided, including its sports facilities.
 - **Townmead Recreation Ground** (football pitch provision) would be re-provided immediately to the north-west.
 - **Thorney Park Golf Course** would be displaced and not re-provided as a golf facility. The land would be retained within the network, delivering flood storage, habitat and species environmental measures.
 - **Pippins Park** tennis and basketball courts would not be displaced. They would be relocated to the eastern side of the park, away from the noise bund.
- 1.10.49 Community facilities would be re-provided as part of the wider network, located within or next to RPOS where possible, connecting them to the Green Loop and active travel network.

Landscape and visual integration

- 1.10.50 This element of the green infrastructure integrates the Project into the surrounding landscape, softening its visual effect on nearby communities. It includes planting, landform, landscape earth banks known as bunds, highway planting and design that respond to the changes in the landscape and views described in **Section Habitats and ecological network**, and **Chapter 15: Landscape and visual** of the EICD.
- 1.10.51 These landscape measures are built into the design, so the effect of the Project on the landscape and views is assessed with them already in place. They would reduce the visual prominence of new infrastructure as planting matures and create a more coherent landscape over time.
- 1.10.52 **Managing landscape change during construction.** Construction would take place over an extended period, with compounds, earthworks, cranes and plant present across a wide area. Two types of measures would manage the temporary landscape and visual change: temporary screening and hoarding at Order Limit boundaries, serving both a visual and an acoustic function; and early establishment of structural planting along key boundaries and highways so that, where practicable, planting begins to establish before the Northwest Runway opens.
- 1.10.53 **Settlement edge integration.** Where the operational boundary meets homes and public open spaces, a combination of landform, bunding, noise walls and planting would manage the transition, shaped as part of the landscape to avoid harsh or intrusive edges where operational constraints allow. Proposed measures by area include:
- **Harmondsworth:** a noise wall and bund along the southern boundary, where space is constrained, designed as a series of walled gardens using materials reclaimed from demolished village buildings to reduce its visual mass. Further east, where space allows, the Green Loop would run along the crest of a landscape bund. Vegetated embankments would retain the elevated A4 where it crosses the Duke of Northumberland's River, with planting softening the road above the village edge.
 - **Stanwell and Stanwell Moor:** a landscape bund north of the Duke of Northumberland and Longford rivers integrates the Southern Parkway, with a naturalistic profile so it reads as landform, and tree planting creating enclosure. Existing trees along the Stanwell residential edge are retained and supplemented at Oaks Road.
 - **Colnbrook and Poyle:** a green envelope of strengthened tree planting around the villages, a planted embankment alongside the realigned A3044 with hedging and trees screening airport-related facilities and a bund and acoustic fence along the boundary, consistent with Harmondsworth.
 - **Harlington and Cranford:** screen and highway planting alongside the realigned A4 Bath Road, and the ecological corridor along the southern edge of the M4 providing a continuous band of planting that is both habitat and visual structure between Sipson and Harlington.

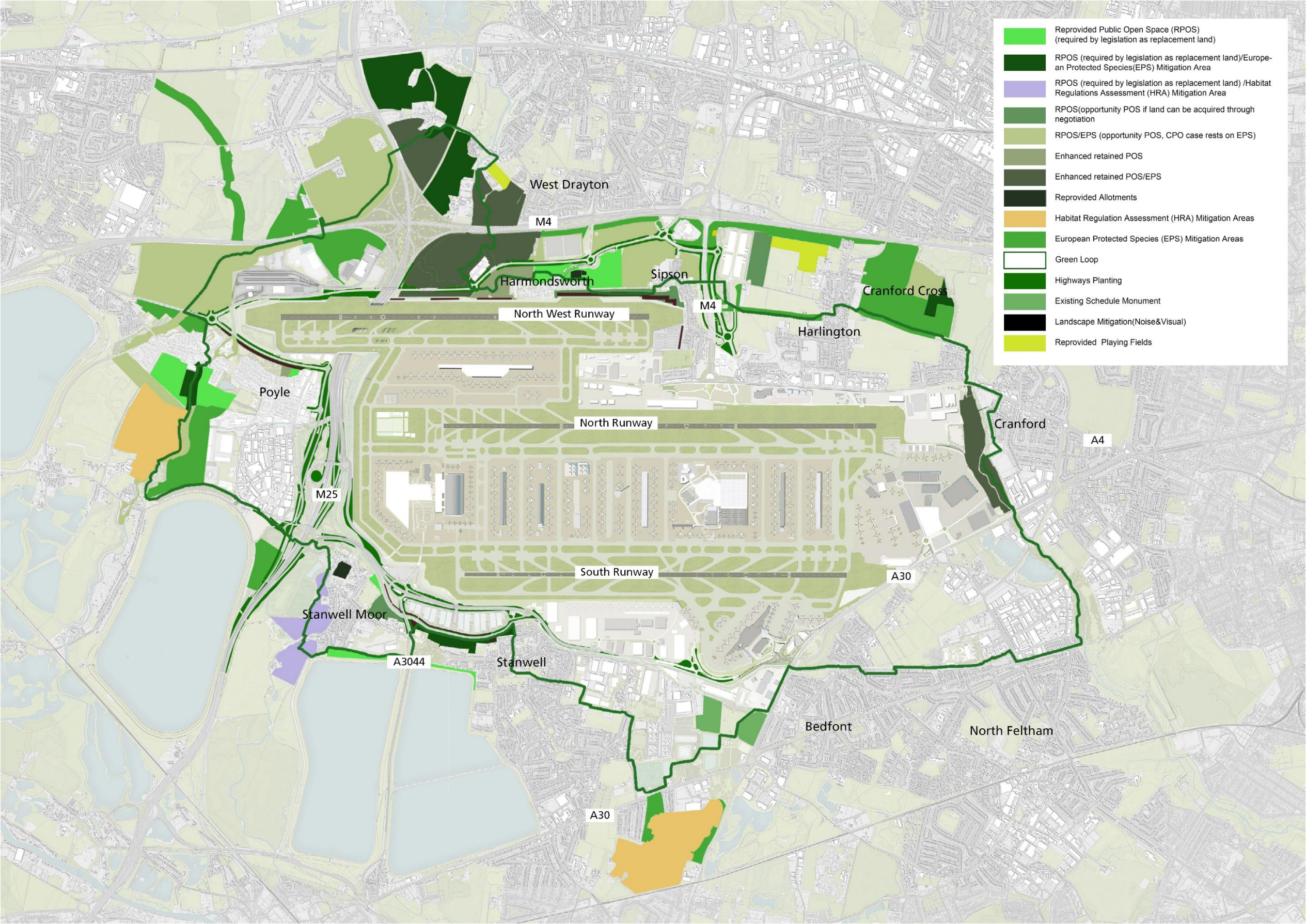
1.10.54 The landscape bunds and barriers work alongside the noise insulation scheme: the physical measures reduce noise at the settlement edge, while insulation manages noise inside buildings. Planting and earth banks trap a small amount of dust near the boundary, though they make little difference to air quality overall, which is addressed through other measures.

Figure 1.16: Green infrastructure measures – noise and visual measures



- 1.10.55 **Earthworks and material reuse.** The Project would generate large volumes of excavated material from earthworks, river diversions, road realignments and demolition. Where suitable, this material would be reused in the context of B&GI, reducing the need to import or export material. The landscape and noise measures, including the landscape bunds required for visual and acoustic purposes, are designed making use of this material.
- 1.10.56 Topsoil and subsoil are stored and reused within the Project, including to reprovide allotments and public open space such as Vineries, Moor Lane, Pinglestone and Accommodation Road, managed through the Materials Management Strategy.
- 1.10.57 **Highway and infrastructure planting.** New and realigned roads, including the M25, the realigned A4, the Southern Parkway, the A3044 Colnbrook Bypass and junctions, would be integrated through a consistent programme of highway planting drawing on the character of the Colne Valley, Crane Valley and surrounding countryside. At the M25 west of Stanwell Moor, retaining structures are integrated with planted embankments and green walls; along the realigned A4 and Southern Parkway, there would be native planting; and at M25 junction 14, landscaping would soften the enlarged roundabout.
- 1.10.58 **Design principles.** The landscape integration strategy is governed by five principles:
- **Protecting the most sensitive places and people:** measures would focus on the villages, paths and community spaces identified as most sensitive with Harmondsworth, Sipson, Colnbrook and Poyle the primary focus.
 - **Integration of bunds, screens and planting:** combinations of earth bunds, acoustic fences and walls would be shaped as part of the landscape to avoid harsh edges where operational constraints allow.
 - **Coherent existing airport perimeter:** perimeter woodland, hedgerows and planting would unify the edge and provide a legible backdrop.
 - **Respecting operational constraints:** all the landscape work would follow the rules that keep aircraft safe, including height limits around the Northwest Runway and public safety zones. Habitats are designed to avoid attracting birds that could be a hazard to aircraft.
 - **Reinforcing local character:** planting, landform and edge treatments would draw on the character of the Colne Valley, Crane Valley and adjacent countryside.
- 1.10.59 The landscape, public open space, ecological and active travel networks would also support people's health, by making it easier to reach green space and to walk and cycle.

Figure 1.17: Green infrastructure measures – green infrastructure network of environmental measures



1.11 Next steps

- 1.11.1 This document presents the B&GI approach as it stands at the 2026 Public Consultation. The B&GI network described here is not a finished design. It will continue to develop as the design matures, as the environmental assessment progresses, and as feedback from the 2026 Public Consultation is taken into account. This section explains how that work will move forward.

Ongoing design development

- 1.11.2 The measures in this document reflect the iterative work of the design and environmental teams. As the design is further refined, the B&GI measures will be developed in more detail, and their locations, extents and form confirmed. Feedback from the 2026 Public Consultation will inform this work, alongside continuing technical studies and discussions with stakeholders including the Environment Agency, Natural England and the local authorities.

1.12 Glossary of terms

Term	Definition
Active Green Network	The connected set of walking and cycling routes, paths and green spaces created around the airport, designed for people to move between communities and the countryside.
Active travel	Getting around by walking, cycling or wheeling rather than by car.
Airports National Policy Statement (ANPS)	The Government's main policy document for airport expansion in the south-east. It sets out the policy tests the application is judged against.
Ancient woodland	Woodland that has existed continuously since at least the year 1600. It is valued because its soils and wildlife have built up over centuries and cannot be quickly replaced.
Attenuation	Holding rainwater back for a time and releasing it slowly, so that drains and rivers are not overwhelmed during heavy rain.
Backwater	A quiet pocket of slow-moving or still water away from the main part of a river, which gives shelter and habitat for fish and other wildlife.
Balancing pond	A pond that collects rainwater run-off and releases it slowly, helping to manage flooding.
Biodiversity Net Gain	An approach that leaves biodiversity in a measurably better state than before, through a net increase in habitat value. For the Project, at least a 10% net gain in biodiversity must be achieved and maintained for at least 30 years.
Borrow pit	A place where earth or gravel is dug out for use in construction, which can later be reshaped for flood storage, habitat or open space.
Bund	A landscaped bank of earth, used to screen views, reduce noise, or hold back water.
Colne Valley Regional Park	A large, protected area of countryside, rivers, lakes and open space to the west of the airport, used for recreation and valued for wildlife.
Constructed wetland	A purpose-built wetland, using reeds and shallow water to treat water naturally and provide wildlife habitat.
Covered River Corridor	The structure through which rivers flow in channels beneath the new runway, allowing them to keep flowing where the runway crosses their route.
Development Consent Order (DCO)	The form of planning permission needed for major national projects like airport expansion.
Environmental Commitments Register	The document that lists all the commitments the project is making to manage and reduce its environmental effects.

Term	Definition
Environmental Information Consultation Document (EICD)	The document, made up of topic chapters, that sets out the likely environmental effects of the project for people to comment on.
Environmental measures	The actions built into the project's design to avoid, reduce or make up for effects on the environment.
European Protected Species (EPS)	Animals and plants given the highest level of legal protection, such as certain bats, great crested newts and otters. Work that affects them needs a licence.
Flood storage	Areas set aside to hold flood water safely during heavy rain, so that flooding is not made worse elsewhere.
Floodplain	Low-lying land next to a river that naturally floods when water levels are high.
Gravel pit	A former sand and gravel working. Many have since filled with water to form the lakes seen around the airport today.
Green Belt	Open land around a large built-up area that is protected from most development to keep it open and limit urban sprawl.
Green Flag Award standard	A national quality standard for parks and green spaces. New public open spaces are designed to meet it.
Green bridge	A bridge planted with vegetation that provides a safe crossing for wildlife, and sometimes people, safely over a road or other barrier.
Green Loop	A continuous circular route of around 25 kilometres around the airport, connecting communities, public open spaces and wildlife areas, for walking and cycling.
Habitats of principal importance	Types of habitat identified in law as especially important for wildlife in England, such as wet woodland, lowland meadows and ponds.
Habitats Regulations	The law that protects the most important wildlife sites and species. A Habitats Regulations Assessment evaluates whether a project could harm them.
Invasive species	Plants or animals not native to the area that spread quickly and harm local wildlife, such as Himalayan balsam and American mink.
Local Nature Recovery Strategies	A plan prepared by a local authority setting out where nature can best be recovered in its area, and what should be done there.
Materials Management Strategy	The plan for handling the large amounts of soil and material dug up during construction, aiming to reuse as much as possible on site.
Metropolitan Park	A large park serving a wide area, near the top of the scale used to classify public open spaces.
Nationally Significant Infrastructure Project	A large-scale development, such as an airport, road or power station, that is decided by the Government rather than the local council.

Term	Definition
Neolithic causewayed enclosure	An early prehistoric site formed of ditches broken by gaps, or causeways. Among the earliest built monuments in Britain, thought to have been used for gatherings.
Northern Parkway / Southern Parkway	New road and transport routes and parking facilities planned to the north and south of the airport.
Open Space Assessment	The study that checks each replacement public open space against what was lost, for size, quality and ease of access.
Order Limits	The boundary of the land within which the project would be built, and the powers of the Development Consent Order would apply.
Otter holt	A sheltered resting or breeding place for otters, on a riverbank.
Preferred Scheme Document	The document setting out the design of the Project that is being consulted on.
Preliminary Environmental Infrastructure Project (PEIR)	The report published for an earlier consultation, setting out the likely environmental effects of the project as they were understood at that time.
Public open space	Open space that is freely available for the public to use, such as parks, greens and recreation grounds.
Public right of way	A path the public has a legal right to use, such as a footpath or bridleway.
Public safety zone	An area at each end of a runway where development is restricted, to keep the number of people on the ground there low for safety.
Ramsar site	A wetland of international importance, protected under an international agreement, usually for the birds and other wildlife it supports.
Reed bed	An area of shallow water planted with reeds, which treats water naturally and provides wildlife habitat.
Reprovided public open space (RPOS)	Public open space created to replace public open space lost to the project, designed to be at least as good in size, quality and ease of access.
Romano-British farmstead	The remains of a farm worked during the Roman period in Britain, typically a small group of buildings and enclosures with its fields.
Schedule 1 bird	A bird given special legal protection at its nest, listed under wildlife law. Kingfisher is one example.
Scheduled monument	A nationally important archaeological site given legal protection.
Scrub	Land covered with shrubs, bushes and small trees, which provides cover and food for wildlife.
Site of Importance for Nature Conservation (SINC)	A site recognised locally for its value to wildlife. (local wildlife site means the same thing.)

Term	Definition
Site of Special Scientific Interest (SSSI)	A site protected by law for its nationally important wildlife, geology or landform.
Special category land	Certain protected land, such as common land or public open space, that has special rules when it is taken for a project and must usually be replaced.
Species environmental measures	Measures taken to protect a particular animal from harm, such as creating new habitat before the old habitat is affected.
Special Protection Area (SPA)	A site protected by law for rare or vulnerable wild birds and the habitats they depend on.
Species-rich grassland	Grassland that supports a wide variety of wildflowers and grasses, valuable for insects and other wildlife.
Surface water	Rainwater that runs off the ground, roofs and roads, rather than soaking in.
Sustainable drainage (SuDS)	A way of managing rainwater using ponds, reed beds and planted channels rather than underground pipes, so the water is slowed, treated naturally and released safely.
Twin Rivers	The combined and re-routed channel for the Duke of Northumberland's River and the Longford River, designed as a natural-looking, wildlife-rich river corridor.
Underground water (groundwater)	Water held in the soil and rock beneath the ground, which supports water supplies and can flow into rivers.
Watercourse	Any channel that water flows along, such as a river, stream or ditch.
Waterbodies	Areas of water such as lakes, ponds and reservoirs.
Water Framework Directive	The law setting standards for the health of rivers, lakes and groundwater, covering both the amount of water and its quality.
Water quality	How clean water is, judged by its chemical and biological condition.
Wet woodland	Woodland growing on wet or waterlogged ground, a habitat of particular value for wildlife.
Wildlife hop-overs	Planting or structures beside a road that lift bats and other flying species over the traffic, so they cross safely.
Winter shelter	A sheltered, frost-free space made for animals such as reptiles and amphibians to survive the winter.
Wintering waterbirds	Ducks, geese, swans and similar birds that spend the winter on the area's lakes and reservoirs. Some are the reason those sites are legally protected.

