Heathrow

EASTERLY ALTERNATION INFRASTRUCTURE PROJECT

Environmental Impact Assessment
Environmental Statement, Volume II
Chapter 3: Description of the Proposed Development

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Heathrow

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3. Description of the Proposed Development

3.1 Introduction

3.1.1 This Chapter of the Environmental Statement provides a description of the Proposed Development, including a description of how the Proposed Development would be constructed and operated.

3.2 The Cranford Agreement and restrictions on the northern runway

3.2.1 In 1952, a Ministerial undertaking was given to use best endeavours to avoid using the northern runway for departures in an easterly direction over the village of Cranford. This became known as the 'Cranford Agreement'. The reasoning for ending the Cranford Agreement was that it would allow runway alternation to be introduced when the Airport is on easterly operations and, therefore, distribute noise more equitably around the Airport, providing affected communities that surround the Airport predictable periods of relief from arriving and departing aircraft.

3.2.2 The Department for Transport (DfT) published a Consultation Document, Adding Capacity at Heathrow in November 2007, which sought to canvass views on how the Airport could be developed over the next 20 years or more. The document included an assessment by the Environmental Research and Consultancy Department (ERCD) of the UK CAA into the noise effects that would result from ending the Cranford Agreement.

3.2.3 The ERCD study concluded that removing the Cranford Agreement would result in a redistribution of noise exposure to the west of the Airport under the easterly arrival flight paths and also to the east of the Airport under the easterly flight departure paths. The study predicted that in 2015, assuming 480,000 ATMs, the removal of the Cranford Agreement would decrease the population within the 57dBA L_{Aeq} noise contour[1] (described as the onset of community annoyance) by 10,500 due to the transfer of arrival operations away from Windsor and onto the arrivals flight track to Runway 09R. However, it was also predicted that there would be an increase in the number of people living in higher noise exposure areas; with an additional 3,300 people experiencing 63dBA $_{LAeq}$ or more.

3.2.4 To inform the consultation document, the likely significant effects of ending the Cranford Agreement on air quality were also considered. This was also modelled on the basis of 480,000 ATMs in 2015. The results suggested that ending the Cranford Agreement would affect the distribution of nitrogen dioxide (NO_2) concentrations at some receptors around the western end and eastern ends of the Airport.

[1] In the UK, aircraft noise is typically measured using "average" noise contours, which take account of the number of aircraft movements, the amount of noise they make and the duration of those "events" over a set period of time. The measurement period over which the contour is calculated can vary but, in the UK, this traditionally covers the 16 hour summer day (07.00 to 23.00). This type of measure, used by the UK Government, is called "L_{eq}" which stands for equivalent continuous sound level. The areas of equal L_{eq} value are joined together to form a series of contours.

3.2.5 Further to comments received in response to the DfT consultation, the UK Government's policy decision to end the Cranford Agreement was published in the document Adding Capacity at Heathrow: Decisions following Consultation dated 15 January 2009[2]. Paragraphs 74 and 75 of this document state:

> "*Ending the Cranford Agreement would redistribute noise more fairly around the airport…The Secretary of State has therefore decided in the interests of equity to confirm the provisional view set out in the consultation document. Therefore, the operating practice which implements the Cranford Agreement should end as soon as practicably possible. He notes that this would enable runway alternation to be introduced when the airport is operating on easterlies, giving affected communities predictable periods of relief from airport noise.*"[2]

3.2.6 As such, the UK Government decided to end the Cranford Agreement in January 2009. Subsequent to the January 2009 decision, the DfT confirmed this position in a letter dated 17 February 2009, which also clearly specified that implementation of the decision to end the Cranford Agreement is the responsibility of the Airport operator (HAL), who are expected to give effect to the decision as soon as practicably possible. It was also made clear that, "*The Secretary of State does not envisage any further decision by him to be necessary*" on the matter.

3.2.7 On 07 September 2010, the coalition UK Government's Secretary of State for Transport (Theresa Villiers) reaffirmed support for the decision to end the Cranford Agreement in a ministerial statement as follows:

> "*The previous Government's decisions in 2009 also included a commitment to end the Cranford Agreement. This decision was based on the desire to distribute noise more fairly around the airport and extend the benefits of runway alternation to communities under the flight paths during periods of easterly winds. We support that objective and do not intend to re-open the decision… I will look to BAA to ensure that proper consideration is given to appropriate mitigation and compensation measures for those likely to be affected by the proposals.*"[3]

3.2.8 Although the Cranford Agreement has ended, the Airport has not yet implemented runway alternation during easterly operations. This is because ground-based infrastructure (such as new taxiways) is required to allow regular and scheduled departures on the northern runway in an easterly direction. When the Airport is operating close to capacity, the infrastructure serving Runway 09L is insufficient for full runway alternation during easterly operations. The key reason for this is that the existing layout of the Airport has been influenced by the establishment of the Cranford Agreement, and as such the taxiway system for allowing efficient easterly departures from the northern runway (Runway 09L) has not

[2] Department for Transport, (2009). *Adding Capacity at Heathrow: Decisions Following Consultation*. [online] Available at: http://news.bbc.co.uk/1/shared/bsp/hi/pdfs/15_01_09decision_doc.pdf [Accessed: 02 October 2024].

[3] UK Parliament (2010) *Heathrow Operations*. [online] Available at: https://hansard.parliament.uk/commons/2010-09-07/debates/10090735000015/HeathrowOperations [Accessed: 02 October 2024].

been developed. This is particularly well illustrated by comparing the taxiway infrastructure at the western end of the northern runway with that at the western end of the southern runway, and the eastern ends of both runways. There is a lack of infrastructure at the western end of Runway 09L, and in particular a lack of any Runway Access Taxiways (RATs) to facilitate the efficient operation of departures in an easterly direction from the runway. This can be seen in **Graphic 3.1**. Without the implementation of the additional infrastructure described in this Section, the Airport would not be able to facilitate the requisite volume of aircraft departing 09L on a busy day.

3.2.9 Regular and scheduled departures on the northern runway in an easterly direction (Runway 09L) would result in regular and scheduled arrivals occurring on the southern runway (Runway 09R) from the west.

3.2.10 The additional infrastructure would allow the runways to alternate between departures and arrivals on easterly operations (as they do on westerly operations) at 15:00 each day. If, for instance, on easterly operations the morning sees the southern runway being used for departures and the northern runway being used for arrivals, after 15:00 the northern runway will switch to being used for departures and the southern runway would then be used for arrivals.

3.2.11 The environmental effects that result from these operational changes have been identified and assessed as part of the EIA process (as set out in this Environmental Statement).

Graphic 3.1 Taxiway infrastructure at each runway end

Northern runway (western end) 09L

Southern runway (western end) 09R

Northern runway (eastern end) 27R

Southern runway (eastern end) 27L

3.3 Reason for the Proposed Development

3.3.1 The Applicant is aiming to implement the Government's policy decision and to introduce easterly runway alternation by 2028 as set out in Heathrow's Sustainability Strategy, Heathrow 2.0[4]. Easterly alternation would bring predictable periods of respite from aircraft noise to thousands of residents. The introduction of easterly alternation would mean that affected communities would share environmental effects and the benefit of respite fairly and equally, as they do today when the Airport is on westerly operations.

3.3.2 At present during easterly operations all scheduled departures are from Runway 09R and the majority (typically 94%) of easterly arrivals occur to Runway 09L. Runway 09R has a total of six RATs, which are used when the Airport is on easterly operations: N11, N10, N8 and N7 from the north and S11 and S7 from the south. This provides flexibility on the apron and in the routing of taxiing aircraft to the optimum RAT for their departure. It also allows for the re-sequencing of aircraft as required to meet allotted departure times. The current configuration of Runway 09L provides only three RATs for use when on easterly operations (numbered A13, A12 and A11). A11 is rarely used except by the smallest aircraft which need the least runway distance to safely take off. This current configuration does not provide sufficient access to Runway 09L for easterly departures to allow the summer "busy day" schedule to be delivered. The current configuration also offers no flexibility around the sequencing of aircraft, as may be required to ensure that scheduled flights can depart on time.

3.3.3 The proposed additional access taxiways and the introduction of regular departures from Runway 09L in an easterly direction would affect the residents of Longford through increased ground noise from aircraft taxiing onto Runway 09L as well as queuing and holding prior to the start of roll (SOR). To mitigate the effect of increased ground and SOR noise, the Applicant is also seeking permission, as part of this planning application, for the construction of a noise barrier to be located to the south and southeast of Longford village.

3.4 Description of the Proposed Development

3.4.1 During the construction process, existing operations would remain unchanged. The planning application would not generate an increase in ATMs and would remain within the limit of 480,000 movements per-annum (a condition of the Terminal 5 planning decision in 2001[5]).

3.4.2 **Figure 3.1** (**Appendix 3.1: Description of the Proposed Development Figures, Volume III** of the Environmental Statement) shows the spatial extent of the on-airfield development area, and **Figure 2.1** (**Appendix 2.2: Heathrow Airport and its Surrounds Figures,**

[4] Heathrow Airport Limited, (2022). *Heathrow 2.0: Connecting people and planet.* [online] Available at: https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/futher-reading/Heathrow%202.0%20Connecting%20People%20and%20Planet%20FINAL.pdf [Accessed: 02 October 2024].

[5] UK Parliament, (2001). *Heathrow Terminal 5*. [online] Available at: https://api.parliament.uk/historic-hansard/lords/2001/nov/20/heathrow-terminal-5 [Accessed: 02 October 2024].

Volume III of the Environmental Statement) provides an aerial view of the airfield that is the subject of the planning application. The extent of the new infrastructure and other works is relatively limited.

3.4.3 The Applicant is seeking planning permission for the construction of the following components:

- Taxiways and links to comprise a Runway Hold Area at the western end of Runway 09L. This includes:
    - Two new RATs onto Runway 09L;
    - Link 57 realigned and re-provided as a Code F Taxiway with a tie into the existing Taxiway Alpha North, east of Link 58;
    - Link 56 realigned and provided as a Code E Taxiway with a tie into the existing Taxiway Bravo North, east of Link 58;
    - A new Code C Taxilane to serve the stands north of T5a extending to the existing Taxiway Bravo;
    - A new north-south link connecting the realigned Link 56, Link 57 and Code C Taxilane;
    - Construction of underground services to serve the new infrastructure;
- Removal of redundant areas of airfield pavement and reinstatement to grass areas on the northern runway to accommodate the construction of the new taxiway infrastructure listed above;
- Re-grading of airfield grass areas to accommodate the construction of the new taxiway infrastructure listed above;
- To construct a noise barrier to the south of the village of Longford; and
- To break out existing areas of redundant pavement (on the existing airfield).

Airfield Infrastructure

3.4.4 The Site of new airfield infrastructure component of the Proposed Development (**Figure 3.1** in **Appendix 3.1**) would be located at the north-western part of the Airport north of Terminal 5. The two new RATs would be situated within a currently grassed area known as '6a' between existing RATs AB13 and AB12, directly north of Link 57 Code F taxiway and south of the 09L glidepath on the northern runway, as shown on **Figure 2.1** (**Appendix 2.2**).

3.4.5 The new airfield infrastructure (described above) would allow departing aircraft to safely and smoothly enter the northern runway, therefore improving efficiency and minimising delays and congestion when on easterly operations. The locations of the RATs and links are based on operational noise requirements and the performance characteristics of the aircraft using the Airport.

3.4.6 The new RAT and link taxiway aircraft parking stands will be concrete with an asphalt surface, with inset airfield lighting, drainage, cable ducts and other services as necessary,

including Fixed Electrical Ground Power (FEGP). The timing, form and method of construction of the proposed airfield infrastructure are described in **Section 3.4**.

Pavement to be removed – concrete break out areas

3.4.7 Existing redundant areas of pavement on the airfield will be broken out and returned to grassland. This will ensure that there is no net increase in impermeable surfacing across the Airport that could cause increased run-off and flood volumes, as assessed in the **Flood Risk Assessment**. The total area of the concrete breakout would be 2.32ha (23,200m^2). This would result in an overall net decrease in paved area across the Airport of 1,700m^2. The areas of pavement to be broken out are shown in **Figure 3.3** (**Appendix 3.1**). The area of redundant concrete would be broken out in advance of new taxiway being constructed.

3.4.8 A portion of these works would occur on existing paved areas adjacent to Link S7 which adjoins Code E taxiway AVROE with the southern runway, between grassed areas 17b, 17c, 21d and 21g. A second portion of these works would take place redundant paved areas adjoining link N7, located directly north of the southern runway, directly south of Code F taxiway A and between grassed areas 19, 21a and 21b. The Proposed Development includes removal of a narrow horizontal strip of pavement located within grassed area 21a and 21b itself. These areas are shown in **Figure 2.1** (**Appendix 2.2**).

Noise barrier

3.4.9 The proposed location of the noise barrier (referred to elsewhere in this Environmental Statement as the proposed Longford Noise Barrier) would be north of the Airport and south of Longford. It would extend continuously north eastwards from the point at which the bridge linking Longford Roundabout meets Wright Way, to the north east corner of the Terminal 5 Pod car park, along their respective perimeters. This alignment is shown in **Figure 3.2** (**Appendix 3.1**).

3.4.10 The noise barrier would be constructed in two sections, with a total length of 781m. The western section (Section 1) would be 343m in length and would predominantly follow the alignment of the existing timber noise barrier that is situated between the Wright Way and the Duke of Northumberland River. The eastern section (Section 2) would be 438m in length and would follow the alignment of the existing timber perimeter fence surrounding the Terminal 5 Pod car park up to the north eastern most corner of the car park. It would also extend approximately 36m south along the eastern boundary along the kerb line. This section would also include an access gate to facilitate maintenance to the Duke of Northumberland River. The gap has been assessed to have a negligible effect on the noise attenuation benefit of the barrier (see **Chapter 7: Noise and Vibration**).

3.4.11 The lowest 3 metres (m) of the noise barrier would be constructed from timber and the upper 2-4 m being transparent (for the 5m and 7m sections respectively). The transparent material (likely be Perspex or equivalent) would allow views to the airfield from Longford to be maintained. The transparent section of the barrier will also have measures included on it to reduce the likelihood of bird strike.

3.4.12 The height along the majority of the barrier would be 7m, but some sections are 5m. The height of the noise barrier has considered:

- The effectiveness of the noise reduction;
- The landscape and visual effects (see **Chapter 10: Landscape and Visual Impact Assessment**); and
- Requirements of the Obstacle Limitation Surface (OLS) / Airport Safeguarding (which impose maximum hights along some section of the barrier).

Planning application boundary

3.4.13 The majority of permanent aspects of the Proposed Development, such as the RATs and temporary elements, such as construction compounds and welfare areas (locations on a construction site where everyone has access to toilets and facilities for washing, changing, eating/drinking and rest[6]) are contained within the Airport's ownership boundary. A small area of the noise barrier (and associated construction) crosses an area of unregistered land under the Applicant's control[7]. The Proposed Development lies solely within the planning application boundary as illustrated in **Figure 1.2** (**Appendix 1.1: Introduction Figures, Volume III** of the Environmental Statement).

Building materials

3.4.14 The building materials that will be used for the Proposed Development are shown in **Table 3.1**.

Table 3.1 Building materials used for the airfield infrastructure and noise barrier

Airfield infrastructure	Noise barrier
• Primary aggregate MOT Type 1 crushed stone • Lean concrete • Pavement quality concrete • Roller compacted concrete • Structural concrete – Air entrained C32/40 • Rapid setting concrete – Tarmac Toprock or similar • Stone mastic asphalt • K1-40 bitumen emulsion • Fosroc Concur • Topsoil • QC10 rapid setting mortar • One pack epoxy road paint • Colpor concrete sealant • Ridgiduct cable ducting • AGL electrical cabling • ADB AGL fittings and seating rings • Precast concrete electrical drawpits	• Steel • Timber • Structural concrete – Air entrained C32/40 • Perspex • Primary aggregate MOT Type 1 crushed stone • Topsoil

[6] Health and Safety Executive (n.d.) *Managing construction health risks: Welfare*. [online] Available at: https://www.hse.gov.uk/construction/healthrisks/welfare/index.htm [Accessed: 02 October 2024].

[7] Unregistered land under Heathrow Airport Limited control. An application to register possessory title is pending determination.

Proposed drainage

3.4.15 Surface water runoff from hardstanding areas around the Airport is currently positively drained, with appropriate treatment provided prior to discharge. Given the size of the Airport, airfield drainage is currently split into three separate catchments referred to as the eastern, western, and southern catchments.

3.4.16 The Proposed Development would install surface water slot drains with silt traps at 50m intervals. This would connect into the existing surface water drainage network. For further information, refer to the **Flood Risk Assessment** (FRA) submitted alongside the Planning Application.

Waste and emissions

3.4.17 The Proposed Development largely comprises shallow excavation, removal of topsoil and groundworks to form the new airfield infrastructure. In addition, redundant areas of concrete will be broken out (see **paragraph 3.4.7**) and a noise barrier will be constructed to the north west of the airfield (see **paragraphs 3.2.3** to **3.2.8**). The proposed construction phase would be undertaken over a period of approximately 18 - 24 months.

3.4.18 The waste hierarchy (as set out in the National Planning Policy for Waste 2014[8]) will be applied and adhered to throughout the construction phase. This would ensure that construction waste is minimised and subsequently recycled and re-used on Site, where possible. In the first instance, material that is suitable for re-use on Site will be used to facilitate groundworks such as fill and reprofiling. Before any material is disposed to a registered landfill, it would be considered for recycling and recovery to a local waste management facility. As such, the amount of waste generated from the proposed operations, which is considered as construction, demolition, and excavation waste (CD&E) is unlikely to have a significant effect on local waste management capacity. Additionally, the proposed activities can be adequately managed through the supporting **Construction Environmental Management Plan** (CEMP) (see **Section 3.4**).

3.4.19 The construction of the taxiways will require the removal of the top metre of the soil profile. The Contractor will carry out testing from stockpiles during construction. The testing will determine whether excavated soils would be suitable for re-using within the redundant pavement areas. Materials that are not recyclable will be disposed at licensed landfill facilities. Additionally, excavated materials that cannot be reused as backfill throughout the construction period will be classified as waste and would be disposed of off-Site to a suitably licensed landfill facility. The estimated quantity of excess soil that will be disposed of via a licensed landfill is approximately 25,000 – 30,000m^3.

[8] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government., (2014). *National planning policy for waste*. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-for-waste [Accessed: 02 October 2024].

3.4.20 Therefore, the Waste Management associated with the Proposed Development will comply with Waste Management Regulations 1994[9] and Duty of Care Regulations 1991[10], and the strategy for dealing with waste will be finalised in consultation with the Environment Agency.

Environmental enhancement

3.4.21 Biodiversity Net Gain (BNG) is the end result of a process applied to development so that overall, there is a positive outcome for biodiversity. This process follows the mitigation hierarchy, which sets out that everything possible must be done to firstly avoid, secondly minimise and thirdly restore/rehabilitate losses of biodiversity on Site. Only as a last resort should residual losses be compensated for through statutory credits, contributing towards local and national policies and strategies for conserving and enhancing biodiversity.

3.4.22 The Environment Act 2021[11] requires 10% BNG to be evidenced for most development types subject to the Town and Country Planning Act 1990 (as amended)[12]. It will require all habitats on or off-Site to be maintained for a minimum of 30 years, by way of a planning condition, obligation or conservation covenant. The Environment Act 2021 also includes measures to strengthen the Natural Environment and Rural Communities Act 2006 (as amended)[13] duty on public bodies to have regard to the purpose of conserving and enhancing biodiversity. In addition, the updated National Planning Policy Framework (NPPF)[14] makes clear the current expectations for development to achieve BNG in England.

3.4.23 The UK Government announced in December 2023 that the use of the Statutory Metric will be mandatory from February 2024. Developments are expected to be required to demonstrate the 10% net gain using this metric from February 2024 onwards. Further information on the approach to BNG is set out in **Chapter 12: Biodiversity**.

Embedded environmental measures

3.4.24 As part of the design process for the Proposed Development, a number of embedded environmental measures have been adopted to reduce the potential for environmental impacts and effects. These embedded environmental measures have evolved over the

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[9] HM Government, (1994). *The Waste Management Licensing Regulations 1994*. [online] Available at: https://www.legislation.gov.uk/uksi/1994/1056/contents/made [Accessed: 02 October 2024].

[10] HM Government (1991) *The Environmental Protection (Duty of Care) Regulations 1991*. [online] Available at: https://www.legislation.gov.uk/uksi/1991/2839/made [Accessed: 02 October 2024].

[11] HM Government, (2021). *Environment Act 2021 (as amended)*. [online] Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents [Accessed: 02 October 2024].

[12] HM Government, (1990). *Town and Country Planning Act 1990*. [Online] Available at: https://www.legislation.gov.uk/ukpga/1990/8/contents [Accessed 18 October 2024].

[13] HM Government, (2006). *Natural Environment and Rural Communities Act 2006 (as amended)*. [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents [Accessed: 02 October 2024].

[14] Department for Levelling Up, Housing and Communities (2023) *National Planning Policy Framework*. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed: 02 October 2024].

design development process and in response to feedback received. **Table 3.2** describes the general embedded environmental design measures that are considered to be an inherent part of the Proposed Development and individual **Chapters 6 to 12** of the Environmental Statement provide further detail on any topic specific environmental measures.

3.4.25 **Chapter 5: Approach to the EIA** explains the approach to embedded environmental measures that has been applied in the Environmental Statement. The environmental assessments presented in **Chapters 6 to 12** of the Environmental Statement provide details of how specific embedded environmental measures are proposed to avoid or reduce environmental effects.

Table 3.2 Embedded environmental design measures

Embedded (environmental design) mitigation measure	Description of benefit
Construction a 5-7m high noise barrier to the north west of the airfield	This will reduce the noise effects for some properties in Longford. Further information is set out in **Chapter 7: Noise and Vibration**.
Construct the noise barrier in advance of other construction works on the airfield	This will reduce the construction noise effects on Longford residents by up to approximately 5dB.
Remove redundant concrete areas on the airfield and replant with grass mix	Areas of redundant concrete will be removed and planted with a grass mix. This will avoid increasing the area of hardstanding within the flood catchment area.

3.5 Construction proposals

Programme

3.5.1 In order to manage construction activities whilst maintaining safe Airport operations and avoiding disruption, much of the required construction activities for both the noise barrier and new airfield infrastructure would be undertaken at night. However, some construction activities will be undertaken in the daytime (approximately 30% of the construction programme).

3.5.2 A significant proportion of the construction is anticipated to be carried out during weekdays. However, there may be some weekend and bank holiday working. Dayshifts will occur with works that will be carried out between 07:30 and 17:30, while night shifts would occur with works which will be carried out between 23:00 and 05:30. During night shifts workers will arrive at their designated welfare location at approximately 20:00 and leave at approximately 06:00, with day shift workers arriving from 06:00. The use and locations of welfare areas are set out in **paragraph 3.5.10**.

3.5.3 The construction programme is split into six distinct phases as set out in **Table 3.3**.

Table 3.3 Summary of indicative construction programme of the new airfield infrastructure component of the Proposed Development

Phase		Phase Work Area
Noise Barrier	**Phase 1**	Longford Acoustic Mitigation Barrier
Airfield	**Phase 2**	New 500 Stand Taxi-Lane
Airfield	**Phase 3**	Realignment of Link 56
Airfield	**Phase 4**	Realignment of Link 57
Airfield Phases On Alternation	**Phase 5 E**	Rapid Access Taxi-Lane E
	Phase 5 W	Rapid Access Taxi-Lane W

3.5.4 The indicative construction programme for the noise barrier (Phase 1) is set out in **Table 3.4**. Further information on construction activities is set out in the **Construction Environmental Management Plan**.

3.5.5 The noise barrier construction works are split into six Stages. Stages one to three relate to the construction of Section 1 of the noise barrier and Stages 4 to 6 relate to the construction of Section 2 of the noise barrier.

Table 3.4 Summary of indicative construction programme of the noise barrier component of the Proposed Development (Phase 1)

Stage	Activities	Duration	Day/Night working	Comments
Stage 1	• Site set up Section 1. • Fencing and compound in Pod parking. • Set up traffic management (vehicle restraint system). • Grass cutting. • Reptile fencing.	Approx. 3 days Mid 2025	Day	1 night required to set up traffic management.
Stage 2	• Main works Section 1. • Remove vehicle restraint system. • Remove existing fence and posts. • Install new noise barrier.	Approx. 33 days Mid 2025	Night	Not applicable.
Stage 3	• Reinstatement Section 1. • Landscaping. • Reinstate vehicle restraint system. • Remove reptile fencing.	Approx. 5 days Mid 2025	Days	1 night required to remove traffic management.

Stage	Activities	Duration	Day/Night working	Comments
	• Remove traffic management.			
Stage 4	• Site set up Section 2. • Set up Site fencing. • Grass cutting. • Reptile fencing.	Approx. 3 days Mid 2025	Days	Not applicable.
Stage 5	• Main works Section 2. • Remove vehicle restraint system. • Remove existing fence and posts. • Install new noise barrier.	Approx. 30 days End of 2025	Days	Not applicable.
Stage 6	• Reinstatement Section 2; • Landscaping; • Reinstate vehicle restraint system; • Remove reptile fencing; • Remove fencing; • Demobilise compound.	Approx. 10 days End of 2025	Days	Not applicable.

3.5.6 The indicative construction programme for the new airfield infrastructure (Phases 2-5) is set out in **Table 3.3**. Further information on construction activities is set out in the **Construction Environmental Management Plan** (also known as a CEMP).

Table 3.5 Summary of indicative construction programme of the new airfield infrastructure component of the Proposed Development (Phases 2-5)

Stage	Activities	Duration	Day/Night working	Comments
Stage 1	• Demolition and removal of existing concrete pavement; • Construction of new concrete pavement; • Installation of ducting and drainage and landscaping (filling areas of broken out concrete and re-seeding); and • Erection of airside satellite construction compound.	End of 2025 – mid 2026	All night working	Not applicable.
Stage 2	• Demolition and removal of existing concrete pavement; • Construction of new concrete pavement; and	Mid 2026 – end of 2026	All night working	Not applicable.

Stage	Activities	Duration	Day/Night working	Comments
	• Installation of ducting and drainage and landscaping (filling areas of broken out concrete and re-seeding).			
Stage 3	• Demolition and removal of existing concrete pavement; • Construction of new concrete pavement; • Installation of ducting and drainage and landscaping (filling areas of broken out concrete and re-seeding); and • Removal of airside satellite construction compound.	End of 2026 – mid 2027	Day and night working. Mainly day working.	Work on the airfield infrastructure and concrete breakout will be undertaken during the day and night concurrently during this phase, but as shown in **Figure 1.2**, in geographically separate areas.
On alternation	• Demolition and removal of existing asphalt pavement; • Construction of new asphalt pavement; and • Installation of ducting and drainage and landscaping (filling areas of broken out concrete and re-seeding).	End of 2025 – end of 2026	Entirely under night working	To be completed during 2-week alternation phases[15].

Construction workforce

3.5.7 Construction workforce numbers would vary depending on the stage of construction and certain activities. It is anticipated that the total daily workforce on the Proposed Development would not exceed 57 people[16].

3.5.8 A range of between 12 to 24 people would be anticipated for the construction of the noise barrier and 20 to 57 people for the new airfield infrastructure.

Construction access, haulage routes, compounds and parking

3.5.9 The aim is to minimise the number of vehicle movements generated by the construction works, thereby reducing the potential for road traffic congestion and road-user conflicts on the surrounding road network. This would be managed by adherence to a Construction Traffic Management Plan (CTMP) which would be produced by the Contractor. Where possible, materials will be reused on Site to reduce the number of vehicle movements

[15] Two week alternation phases describe work which is undertaken on Friday and Saturday nights for two weeks, followed by two weeks of no Friday and Saturday night working. This process is then repeated throughout the phase's period.

[16] Noted some staff are based off-site or visiting.

associated with material and waste management, as outlined in the **Construction Environmental Management Plan** and **Circular Economy Statement** submitted as part of this planning application.

3.5.10 During construction of the Proposed Development, the construction workforce would utilise existing welfare facilities in the south of the Airport and a second welfare location would be set up within the car park at Terminal 5 Heathrow Pod Parking. This would be used by workers constructing the noise barrier.

3.5.11 For the new airfield infrastructure, the majority of construction vehicles and heavy goods vehicles (HGVs) would access the area in the red line boundary, within which the works will be undertaken (the 'Site') via Wagtail Road and Control Post 18 on the western perimeter near Terminal 5 of the Airport, as shown in **Figure 3.1** (**Appendix 3.1**). When constructing the noise barrier, contractors would then use the airside road network within the Airport boundary to reach the Proposed Development. A site compound, parking facilities and welfare station would be situated in the car park at Heathrow Terminal 5 Pod Parking (National Grid Reference: TQ 05116 76721). Appropriate car parking provisions for construction workers driving to and from the Airport would be made by the Contractor, in consultation with the Applicant, and detailed in the CEMP that would be developed by the Contractor in consultation with the Applicant. Use of public transport would be encouraged where possible.

3.5.12 Existing asphalt and concrete batching plants are located to the south of the Airport close to the perimeter approximately 500m due east of Terminal 4. These will be accessed by the Tunnel Link Road. HGVs will use the Southern Perimeter Road, the Western Perimeter Road and Wayfair Road to access the Site for the proposed new airfield infrastructure works.

3.5.13 Construction plant and equipment local to the works would be used for the development of the new airfield infrastructure component of the Proposed Development and would be stored within the Airport boundary shown in **Figure 2.1** (**Appendix 2.2**). This is likely to be a grassed area of 2,870m^2, north west of Terminal 5, between Wagtail Road and Link 57/Link 58 taxiway, as shown in **Figure 2.1** (**Appendix 2.2**). Construction vehicles would access the Site via airside roads. This would be covered in a granular fill for the duration of the construction programme and will be fully reinstated to its original condition on completion of the works.

3.5.14 For the noise barrier, all construction vehicles will access the Site via Wright Way. For this element of the Proposed Development a site compound, parking facilities and welfare station would be located in the Heathrow Terminal 5 Pod car park.

3.5.15 Daily construction HGV movements (a movement relates to one lorry entering then leaving the Site and/or operating within the Airport boundaries) associated with the works are estimated to average approximately 60 per day across the construction phase or around 23,170 movements in total. At peak, which would occur in during Phase 2, HGV movements would be approximately 120 per day, split roughly equally between day and night shifts.

3.5.16 HGV movements on public highways would occur between the concrete batching plant and Control Post 18 for the Airfield infrastructure, and between the concrete batching plant and Wright Way for the noise barrier.

Construction of the noise barrier

3.5.17 During construction of the noise barrier, construction equipment will be stored on existing hardstanding within the Heathrow Terminal 5 Pod car park. The plant and equipment required during the construction of the noise barrier is summarised in **Table 3.4**.

Temporary Traffic Measures

3.5.18 To facilitate the construction of the noise barrier, the Proposed Development will require the temporary closure of a western section of Wright Way for up to eight weeks.

3.5.19 A temporary diversion of vehicles so that the Western Perimeter Road will be used as an alternative to Wright Way and continue to allow for access to Heathrow Terminal 5 Pod Parking and the secondary entrance to the Thistle Hotel.

Site clearance and vegetation removal

3.5.20 No major Site clearance or vegetation removal will be necessary for the Proposed Development. The noise barrier component would result in the removal of a total of ten arboricultural features to allow for construction. Removals would consist of seven low quality trees, one very low quality tree, one moderate quality group and two low quality groups (see **Appendix 12.6: Arboricultural Impact Assessment**). These trees are not protected by a Tree Preservation Order (TPO) nor do they fall within a Conservation Area. The Arboricultural survey also found no records of ancient or veteran trees, traditional orchards or ancient woodlands within the area. Some strimming of vegetation will also be necessary.

3.5.21 A width of 2m to 3m either side of the noise barrier would be required for access and its construction.

Extent of proposed excavation

3.5.22 It is likely that the maximum excavation depth would be 2m for drainage connections for the development of new airfield infrastructure component of the Proposed Development. The installation of new pavement quality concrete would be approximately 1m deep. No piling will be necessary for the development of airfield infrastructure. A maximum piling depth of 2.5m for the posts would be necessary for the noise barrier component of the Proposed Development along its length and there would be no foundations necessary between the posts.

Plant and equipment summary

Table 3.6 Summary of plant and equipment to be used throughout the construction programme

Element of Proposed Development	Plant equipment	Number of units	Time on Site (% of total programme)
Noise barrier	7.5 tonne Lorry mounted crane	1	70%
	9 tonne Articulated dump truck	1	50%
	Auger rig to suit excavator	1	15%
	Hand tools	Multiple	100%
	Liebherr 8m^3 Concrete Truck Mixer	1	15%
	Low loader	1	100%
	MEWP	2	70%
	3t rubber tracked 360 excavator	1	100%
	14t rubber tracked 360 excavator	1	70%
	Small vans	Multiple	100%
	Tower lights	Multiple	50%
	Traffic management 7.5t lorry	1	10%
	Traffic management transit van	1	100%
	Transit tipper	1	100%
Airfield infrastructure	9t articulated dump truck	2	100%
	BOMAG 120 roller	2	30%
	BOMAG 14t single drum roller (BW213)	1	5%
	Cable drum trailer	1	10%
	Cable pulling winch trailer	1	10%
	Gomaco Commander 3 slip form paver	1	20%
	Hydraulic breakers to suit excavator	1	30%

Element of Proposed Development	Plant equipment	Number of units	Time on Site (% of total programme)
	Liebherr 8m^3 Concrete Truck Mixer	4	20%
	Line marking lorry	1	10%
	Long wheelbase Transit vans	2	20%
	900mm road saw	2	25%
	Small vans	Multiple	100%
	20t tracked excavator	2	50%
	Tower lights	Multiple	100%
	Trailer mounted diamond coring rig	2	20%
	Transit tipper	2	100%
	Vogele Super 1700 paving machine	1	20%
	Volumetric concrete mixer truck	1	15%
	14t wheeled excavator	2	100%
	20t eight wheeled lorries	4	40%

Construction Environmental Management

3.5.23 In accordance with best practice standards, a **Construction Environmental Management Plan** has been prepared to set out the overarching principles for environmental management that shall be applied by the Contractor(s) during the construction works. It incorporates a series of best practice procedures for controlling construction effects, with reference to British Standards, Codes of Practice and the specific mitigation measures identified in the Environmental Statement. Its primary purpose is to maintain safe and legally compliant operations throughout the works; to reduce the risk of potential harm to human and environmental receptors; and to minimise disturbance to passengers, Airport staff and the neighbouring community.

3.5.24 The **Construction Environmental Management Plan** sets out specific procedures to be implemented to monitor, maintain and report on environmental compliance; to respond immediately to any emergency situation or accidental spillages that arise; and, to take appropriate corrective actions to address any identified non-conformances.

3.5.25 The **Construction Environmental Management Plan** is a practical and iterative plan for the management of environmental performance throughout the entire construction phase. The **Construction Environmental Management Plan** contains a series of organisational (governance) and Site-based procedures. Ultimately, it will be responsibility of the

Contractor and their sub-contractors to ensure that appropriate actions are documented, implemented, monitored, reported and reviewed.

3.5.26 The **Construction Environmental Management Plan** will be a live document which will be updated as an when there are changes to the project team or when additional information becomes available (for example through detailed design, additional data supply or pre-construction surveys). The **Construction Environmental Management Plan** is provided as part of the Planning Application which has been approved by the Applicant and will become contractually binding on both the Contractor and their sub-contractors. The **Construction Environmental Management Plan** is referred to where appropriate within the Environmental Statement.

3.6 Reasonable Alternatives considered

Introduction

3.6.1 Regulation 18(3)(d) of the EIA Regulations[17] provides that the Environmental Statement must include:

> "*A description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment*".

3.6.2 Schedule 4(2) of the EIA Regulations[17] provides further specification of the information on alternatives to be included in an Environmental Statement:

> "*A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*".

3.6.3 As such, this chapter describes the reasonable alternatives considered by the Applicant, which are relevant to the Proposed Development and its specific characteristics and provides an indication of the main reasons for the option chosen, taking into account the effects of the Proposed Development on the environment.

Do-nothing

3.6.4 The then Secretaries of State for Transport (Geoff Hoon) and Communities & Local Government (Hazel Blears) directed that the Cranford Agreement be ended in 2009. In 2013, the Applicant submitted a planning application to the LBH (41573/APP/2013/1288) to

[17] HM Government (2017) *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017*. [Online] Available at: https://www.legislation.gov.uk/uksi/2017/571/contents [Accessed: 02 October 2024].

construct an additional taxiway at the western end of the northern runway to enable full runway alternation on easterly operations.

3.6.5 Planning permission was granted on appeal by the Secretary of State in February 2017. However, the Applicant did not proceed given the need to address the implications of the Airports National Policy Statement[18] (ANPS), which was published in 2018 and which supports the development of a third runway at the Airport. However, the Applicant has committed to implementing the necessary infrastructure to achieve full runway alternation by 2028 in the Applicant's sustainability strategy, Heathrow 2.0: Connecting people and planet[4].

3.6.6 The Applicant has reviewed the requirements for the infrastructure necessary to enable runway alternation on easterly operations and that exercise has resulted in some changes to the layout of the physical infrastructure proposed in the previous planning application, although all ground works are contained within the Airport boundary. The Applicant is therefore seeking to undertake the necessary airfield infrastructure works as soon practicably possible, to allow full runway alternation during easterly operations. The 'do nothing' alternative would mean that the UK Government's decision to end the Cranford Agreement (outlined in **Section 3.2**) could not be realised as the existing airfield configuration would not permit regular and scheduled departures from Runway 09L. This alternative has therefore not been considered any further.

Alternative Sites

3.6.7 No consideration has been given to using alternative sites for the Proposed Development as it relates solely to the Applicant's operation at the Airport as described in **Chapter 2: Heathrow Airport and its Surrounds, Volume II** of the Environmental Statement and the necessary works can only be effective at the western end of the northern runway.

Implementing the Proposed Development (without providing any additional taxiways)

3.6.8 Regular and scheduled departures on the northern runway in an easterly direction (Runway 09L) would not be possible without any additional taxiways. Easterly alternation would not be viable without the Proposed Development due to the delays caused to aircraft waiting to depart from Runway 09L.

Scheme Design Alternatives

3.6.9 In developing the preferred design and precise location of the required airfield infrastructure, various operational alternatives were considered. These design options were tested against a range of considerations that included:

[18] Department for Transport, (2018). *Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England*. [online] Available at: https://assets.publishing.service.gov.uk/media/5e2054fc40f0b65dbed71467/airports-nps-new-runway-capacity-and-infrastructure-at-airports-in-the-south-east-of-england-web-version.pdf [Accessed: 02 October 2024].

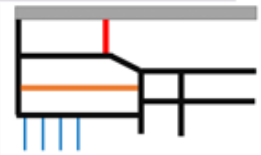
- Operations;
- Delivery;
- Business case;
- Environment, sustainability and community; and
- Planning.

3.6.10 Six different airfield layout options were considered for evaluation, all of which have proposed new taxiway infrastructure within the 09L Runway Hold Area (RHA). The following key components varied between the six options:

- Should one or two new RATs be constructed?
- Should the RAT be in the east or west position?
- Should a link (referred to as Link 70) be provided between the parallel taxiways?

3.6.11 The six options are represented in **Table 3.7** .

Table 3.7 Airfield layout options considered for evaluation.

Option No.	Link 70	RAT–W	RAT–E	Schematic
01	✓	✓	✓	
02	✓	✓	✗	
03	✓	✗	✓	
04	✗	✓	✓	
05	✗	✓	✗	
06	✗	✗	✓	

3.6.12 All options performed better than a Do-Nothing scenario. However, the evaluation of the options demonstrated a strong operational preference for the comprehensive “do maximum” infrastructure of Option 1.

3.6.13 Option 1 scores best for flexibility, resilience and for shortest taxi time / least overall delay. It is also the most comparable to other runway end infrastructure, enabling performance to come closest to equivalence with Runway 09R. The new Link 70 also offered operational flexibility benefits. Option 03 performed second best in terms of the majority of analysed metrics, outperforming Option 02.

3.6.14 Whilst Option 1 is the most expensive, it was nevertheless preferred from a Business Case perspective given its operational efficiency and resilience benefits. Cost is not a material planning consideration, but the additional hardstanding would generate more carbon during construction, which is a material consideration. However, it was considered the reduced taxi times provide an annual carbon saving, which ‘pays back’ the embedded carbon relatively quickly, make Option 1 also the best overall carbon option.

3.6.15 The overall environmental and community score favoured Option 1 taking account of its greater efficiency which brings relative carbon savings and less risk of scheduling delays, which could risk adverse noise effects. Options with a western RAT have the potential to score best for air noise. Options with an eastern RAT score best for ground noise and air quality but the differences are small and ground noise can also be addressed with a noise barrier. Therefore, Option 1 was preferred and taken forward in this Planning Application.

Noise barrier

3.6.16 The alternative of no noise barrier was considered. Not providing a noise barrier would reduce construction costs, reduce adverse visual effects as well as avoid the loss of a small number of trees. However, the noise barrier also provides valuable noise reduction benefits for residents of Longford. Therefore, the noise barrier has been included as part of the design of the Proposed Development.

3.6.17 Further refinement was then undertaken in relation to the design of the noise barrier. This included consideration of a range of alternatives in relation to the length and height of the noise barrier along the eastern extent of the Heathrow Terminal 5 Pod car park, including:

- Option 1 – no extension of the noise barrier;
- Option 2 – extension of 36m at 7m in height;
- Option 3 – extension of 36m at 7m in height and 60m at 5m height;
- Option 4 – extension of 96m at 7m height; and
- Option 5 – extension of 96m at 5m height.

3.6.18 The preferred option was Option 2 for the eastern extent of the noise barrier to end to the south of Littlebrook Nursery and in a southerly direction along the eastern boundary of the Heathrow Terminal 5 Pod car park. This would provide noise reduction benefits to the nursery and a residential apartment building at 460-462 Bath Road, that would outweigh any loss of vegetation adverse visual effects. The western extent would end at the bridge connecting Wright Way and the Longford Roundabout, in order to provide noise reduction benefits to Heathrow Special Needs Centre on Bath Road.

3.6.19 Following engagement (**Appendix 5.1: Longford Engagement Letter and Survey, Volume III** of the Environmental Statement) the preferred option which is included in the Planning Application was to provide a noise barrier 781m long and up to 7m in height. This is described fully in **Section 3.4** and shown in **Figure 3.2** (**Appendix 3.1**).

Noise barrier – Construction alternatives

3.6.20 There are two main options relating to the construction of the noise barrier. It could be either constructed in advance of the works on the new airfield infrastructure or following the works.

3.6.21 The noise barrier would be built in advance of the airfield construction activities, as this will help in reducing the potential noise effects on residents of Longford during the construction phase. This is further assessed in **Chapter 7: Noise and Vibration, Volume II** and **Appendix 7.4: Construction Noise and Vibration, Volume III** of the Environmental Statement.

Summary and conclusion

3.6.22 A number of alternatives have been studied by the Applicant. In doing so, the design/parameters of the Proposed Development have been strongly influenced by environmental considerations, which have been integrated into the design of the Proposed Development. By doing this, a number of likely significant environmental effects have been reduced and therefore, are excluded from consideration in the technical Chapters.