

## **RESPONSE TO THE AIRPORTS COMMISSION CONSULTATION**

### **DEVELOPER PROPOSALS AND AIRPORTS COMMISSION APPRAISAL**

#### **Summary**

We welcome the opportunity to respond to the Airports Commission consultation on developer proposals for additional runway capacity at Gatwick and Heathrow airports.

We appreciate the working relationship we have with the Airports Commission and look forward to working with you on the detailed mitigation measures to ensure that local environmental gains are realised where possible. We believe it is important that we continue to be involved as the proposals develop further.

We have discussed this response with Natural England. Further detailed comments are appended.

#### **1.0 Introduction**

- 1.1 We acknowledge that this consultation takes into account many of our previously made comments. In general we agree with your consultants' assessments of the promoters' proposals. Our comments, along with further advice and guidance on the mitigation that will be required, are included in a separate appendix under the topic headings below.

Section 1: Water Framework Directive no deterioration principle

Section 2: Flood risk

Section 3: Water quality and water resources

Section 4: Fisheries and biodiversity

Section 5: Groundwater protection and prevention of land contamination

Section 5: Waste

- 1.2 Although these topics are listed individually it should be recognised that there is a degree of interaction between them.

#### **2.0 Potential Residual Impacts**

- 2.1 We believe there appears to be an expectation of environmental deterioration in your consultant's report on 'Water and Flood Risk: Water Quantity and Water Quality Assessment'. The report states that "The three developments: Gatwick 2R; Heathrow NWR; and Heathrow ENR, all have the potential to impact on the water environment, particularly without appropriate mitigation in place. We believe that even with mitigation there is likely to be residual impacts for all three proposals which would be of concern to regulators such as the Environment Agency."

- 2.2 We believe further work is needed to identify the '*residual impacts*', how significant they are and how they can be avoided or mitigated so environmental standards are protected. New infrastructure, including associated developments such as surface access, will need to be resilient to flood risk and extreme weather events and not increase water pollution and flood risk to the surrounding area.

### **3.0 Mitigation**

- 3.1 Effective mitigation is fundamental to ensuring the environmental acceptability of the proposals. Considerable further work will be required as proposals are developed to minimise adverse impacts and to realise enhancement opportunities. This will be needed to ensure that standards are met, in particular those required for flood risk management and by the Water Framework Directive. In some cases we believe that the current assessments may have underestimated the needs for, and costs of, mitigation.
- 3.2 The promoters' mitigation measures should seek to achieve a net environmental gain, for example in line with improved ecological status as set out in the Water Framework Directive.
- 3.3 We suggest that a strategic approach to planning for mitigation and enhancement would help to secure the multiple benefits that well planned environmental infrastructure can offer. We advise that Water Framework Directive assessments including Article 4.7 assessments are likely to be required.
- 3.4 The main points of this response are as follows:
- a) All the proposed options involve making extensive changes to watercourses. This will require engineering and mitigation/compensation schemes of significant scale and complexity to avoid increasing flood risk locally or in the surrounding area and to ensure wider environmental acceptability. Considerable further planning and design work will be required to achieve this.
  - b) Part of the complexity in understanding the impacts and developing mitigation for the Heathrow options comes from the interaction between surface and groundwater. These interactions will need to be properly understood and assessed if these options are progressed. Impacts on flood risk and associated mitigation impacts will need to be tested using thorough and detailed hydraulic modelling to establish confidence in the assessments and the design. We note that not all of the options have utilised the available hydraulic modelling fully at this stage.
  - c) We note that your consultants' assessment states that the Heathrow options would be likely to require an appropriate assessment due to the potential impact on the nearby Special Protected Area (SPA) and the need for increased bird scaring measures. In the approach taken to mitigate for impacts on water bodies, the detail of measures taken to safeguard against bird strikes

will be critical in determining whether appropriate mitigation for biodiversity impacts in respect of the water environment can be provided. As highlighted in the Airport Commission assessment documents, bird strike mitigation measures, such as netting of rivers or changes to channel design, could well result in reduced biodiversity benefit. We believe that the widespread use of netting over watercourses will reduce environmental acceptability. We recommend consideration of alternative approaches in more detail to ensure that Water Framework Directive and other standards and targets can be met.

- d) With regard to impacts on water infrastructure (sewage treatment works and sewerage) we have concerns that key stakeholders, in particular relevant Water and Sewerage Companies have not been involved to the extent that they need to be. It is also not clear what additional wastewater flows will need to be treated at sewage treatment works, the permits that will be required to prevent deterioration of the environment, and whether current technology can deliver these levels of treatment. Further consideration is needed of the additional pressures on the environment and its capacity to accommodate these whilst meeting standards, for example, as required by the Water Framework Directive.
- e) There are risks of surface water containing contaminants from the extended hard standing areas entering watercourses. De-icing is a particular potential issue and there is also the potential for pollution arising from the large quantities of chemicals including fuels stored and used on site during both construction and operation. Further planning and design work is needed to ensure that environmental standards are achieved.
- f) We note that the removal and replacement of the Lakeside energy from waste plant would be required as part of the Heathrow north west runway option. We have some concerns about the timing of any replacement facility. It would need a very early start if disruption to strategic contracts is to be avoided.
- g) With regard to the Ecosystems Services Assessment (ESA) carried out, we believe the current ESA is lacking a key stage; it does not present a thorough assessment of the impact on the ecosystem services from the habitat losses outlined before undertaking the monetary valuation stage. On this basis we would urge the Commission to either further refine the ESA or to treat the monetary valuations as highly uncertain.

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## Appendix 1

### **Section 1: Water Framework Directive No Deterioration Principle Water Framework Directive (WFD) Article 4.7**

It is the Environment Agency's responsibility to implement the no deterioration requirements of the Water Framework Directive (2000/60/EC) and fulfil its duty under Regulation 3 of the Water Environment (Water Framework Directive)(England and Wales) Regulations 2003, to exercise its relevant functions so as to secure compliance with the relevant requirements of the Directive. This means that apart from in exceptional circumstances, the deterioration of the 'status' of water bodies in England will not be permitted.

It is expected that Water Framework Directive Assessments will be required to inform the proposals as they develop to assess likely deterioration in WFD elements including groundwaters and surface waters. A failure to prevent deterioration is permitted under certain circumstances if due to new physical modifications or sustainable human development, and derogations may be sought under Article 4.7 of the Directive. To qualify under this exemption the activity must pass all of the tests listed under Article 4.7 and meet the requirements of Article 4.8 and Article 4.9.

Article 4.7 provides that Member States will not be in breach of the WFD when they fail to achieve good groundwater status, good ecological status, or good ecological potential or to prevent deterioration of the status of a surface water body or groundwater, when this is due to physical modifications of surface water bodies or alteration of the level of groundwater. Similarly, Member States will not be in breach when failure to prevent deterioration from high to good status of a surface water body is due to new sustainable developments. *This derogation only applies in each circumstance, however, if all four further conditions are additionally met:* a) all practicable steps are taken to mitigate adverse effects on status; b) reasons for modifications or alterations are specifically set out in the River Basin Management Plan (RBMP); c) reasons for modifications or alterations are for overriding public interest and/or the benefits of the new modifications to society and the environment outweigh those of the WFD objectives; d) the benefit of the new modifications or alterations to the water body cannot be achieved by a better environmental option due to technical infeasibility or disproportionate cost.

When applying the Article 4.7 derogation the Member State must ensure that the application of it does not compromise the achievement of the WFD objectives in other water bodies.

## **Section 2: Flood risk**

All the proposed options involve making extensive changes to watercourses e.g. the Heathrow extended north runway will affect around 7km river and 6.8km of ditches; whilst the Heathrow north west runway will affect 13km. This will require engineering and mitigation/compensation schemes of significant scale and complexity to avoid increasing flood risk locally or in the surrounding area and to ensure wider environmental acceptability. Considerable further planning and design work will be required to achieve this.

Part of the complexity in understanding the impacts and developing mitigation comes from the interaction between surface and groundwater. These interactions will need to be properly understood and assessed if these options are progressed. Impacts on flood risk and associated mitigation impacts will need to be tested using thorough and detailed hydraulic modelling, in order to establish confidence in the assessments and design. We note that not all of the options have utilised the available hydraulic modelling fully at this stage.

There appears to be a good recognition of all sources of flooding and there is an appropriate evidence base outlined in the appraisal framework - although some of the promoters will need to provide further information on their scheme for assessment e.g. in relation to residual risk such as culverts with new infrastructure.

All three schemes would benefit from sustainable urban drainage systems to manage surface water drainage. Guidance is available from Construction Industry Research and Information Association (CIRIA). We would expect this to be incorporated as part of the detailed design. Advice should also be sought from the relevant lead local flood authorities.

### **Climate Change**

We note that climate change estimations have been used based upon UK Climate Projections 09 (UKCP09). The promoter is advised to consider a range of climate change scenarios when progressing with detailed design. The approach to resilient design and mitigation should be considered using precautionary predictions of climate change.

### **Proposed River Thames Flood Alleviation Scheme**

The Heathrow options are likely to include works near the proposed route for the River Thames Scheme. The scheme will reduce flood risk in communities close to the River Thames between Datchet and Shepperton, including Wraysbury, Egham, Staines and Chertsey. It consists of large scale engineering work to construct a flood channel in three sections, between 30 and 60 metres wide, to a total length of 17 kilometres; improvements to three of the existing weirs, and the widening of the Desborough Cut. The scheme also includes the installation of property level products for up to 1,600 homes and improved flood incident response plans.

We understand that one of the key areas for mitigation measures for the Heathrow north west runway option may be near where we are planning new flood alleviation schemes in the vicinity of Horton Lakes and Wraysbury Reservoir. Our capital flood

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scheme will be multi-functional and aim to secure biodiversity gains, i.e. support wintering wildfowl and breeding waders.

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### Section 3: Water resources and water quality

We are pleased to see that the effects of future pressures such as population and climate change have been considered. For example it is recognised that the ‘*water bodies within the Heathrow Airport NWR Study Area are likely to be put under considerable pressure within the next century.*’ (9: Water and Flood Risk: Baseline page 68). However, no assessment has been made to quantify impacts on the environment or infrastructure.

With regard to impacts on water infrastructure (sewage treatment works and sewerage):

- We cannot see evidence that key stakeholders have to date been involved to the extent that they need to be, in particular relevant water and sewerage companies.
- It is not clear what additional wastewater flows will need to be treated at sewage treatment works and what quality (permit) limits will be required to prevent deterioration of the environment and whether current technology can deliver these levels of treatment.
- It is clear that infrastructure capacity will need to be increased and the reports anticipate that this can be achieved (although without detailed evidence). However, evidence based consideration is also required on additional pressures on the environment and its capacity to accommodate these whilst meeting standards such as those required by the WFD.

There is a need to refer to up-to-date water company Water Resource Management Plans (WRMPs). Final plans for all companies in the south east are now available:

- Gatwick – Sutton and East Surrey Water
- Heathrow – Affinity Water

The promoters should be aware of potential implications of changes to the water industry through the Ofwat market reform programme. In 2017 there will be a competitive market for non-household water and sewerage retail services, so the companies currently supplying Heathrow and Gatwick could change.

<http://www.open-water.org.uk/>. Also, abstraction reform may (or may not) change a water company position in terms of available licensed water.

<https://www.gov.uk/government/consultations/reforming-the-water-abstraction-management-system-making-the-most-of-every-drop>

There are risks of surface water containing contaminants from the extended hard standing areas entering watercourses. De-icing is a particular issue and there is also the potential for pollution arising from the large quantities of chemicals including fuels stored and used on site during construction and operation. Further planning and design work is needed to ensure that environmental standards are achieved.

We are pleased to see reference to mitigation measures and best practice guidelines relevant to reducing impacts on water quality. We recognise that the pollution control measures and best practice advice would offer a reasonable level of mitigation. However, it is well documented that contaminants such as de-icers can reach receiving watercourses, even with such measures in place. It is now recognised that

sewage fungus blooms, such as those caused by nutrient enrichment from the release of de-icers, impact macro-invertebrate communities and can affect WFD water body classification. As such, we consider that any further submission and assessment should also consider the following mitigation measures:

- regular water quality monitoring including WFD physicochemical parameters (phosphate, pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), ammonia and temperature)
- the pollution prevention hierarchy should be applied and measures to control surface water contamination assessed at source. For example incorporating designated areas for wash-down and de-icing activities, thereby reducing the pressure on existing attenuation and treatment features
- wherever possible measures to improve the chemical quality of surface water run-off leaving site should be employed.

The documents should acknowledge that the Water Framework Directive covers water bodies within a given area, not just all linear river lines. The polygon data/names for the WFD water bodies should be used.

The Water Quality Assessment states (page 18) that the development at Gatwick Airport Limited (GAL) would probably need to progress through an Article 4.7 assessment due to the channel realignment and the weir. We believe this need not necessarily be the case. If the watercourses were to include an adequate valley with riparian vegetation and the step weir is carefully designed, it is likely that the watercourse could be improved in terms of the WFD. We believe that the most likely reason for invoking Article 4.7 would be were netting to be used over all watercourses which would prevent access by birds.



## **Section 4: Fisheries and biodiversity**

The approach to the biodiversity 'topic' of the Appraisal Framework has not been consistently applied by the scheme promoters. Your consultants' Biodiversity Assessment found that the biodiversity impacts and proposed mitigation were frequently 'not specified' by promoters in their assessments. This indicates that the impact was discussed within the promoter's submission, but not necessarily quantified in the manner stated in the Appraisal Framework. This has resulted in gaps in information and some generalised assumptions being proposed by the developers regarding the scale of proposed mitigation.

For example, for the extended northern runway at Heathrow, the Airport Commission has assumed 263.9ha or 282.5ha of mitigation will be needed (including a 10% contingency for indirect impacts). Heathrow Hub Ltd, the schemes promoters, have assumed only 106.8ha of land take mitigation is required (largely due to different assumptions from the Commission on the extent of the area where biodiversity would be affected). Conversely, Heathrow Airport Limited, promoters of the Heathrow Airport north west runway, have proposed twice the amount of mitigation proposed by the Airports Commission which raises issues of consistency of approach to assessing impacts/mitigation

Whilst recognising that by necessity the approach is high level and strategic at this stage, we nevertheless recommend that the promoters should be more specific in terms of quantifying biodiversity impacts and calculating biodiversity mitigation requirements to enable a more robust sustainability appraisal to be undertaken.

The methodology used by the scheme promoters has in some instances differed from that used in the Airports Commission's Biodiversity Assessment i.e. the use of buffers: your consultants have used a 15km search zone around the airport scheme boundary outline, whereas the promoter's submission for Gatwick 2<sup>nd</sup> runway uses a 15km radius circle centred on the central Aerodrome Reference Point (ARP).

The schemes promoters have not all used the same approach to the Ecosystems Services Appraisal e.g. the Heathrow Hub proposal describes a number of mitigation measures but these largely fall short of the level of mitigation proposed by your consultants. This results in differences in ecosystem services calculations.

We advise that the Biodiversity 2020: A strategy for England's wildlife and ecosystem services 2020 Defra 2011 should be referred to as a framework for considering biodiversity impacts, options and mitigation.

### **Baseline Assessments**

The assessment of protected species and NERC S41 species of Principal Importance could be significantly improved using Local Record Centre data. Although we believe that the overall assessments are substantially correct, a further review of the species likely to be present would improve understanding of the development of mitigation. For instance, we are aware of several important fish species that could be impacted by changes in water quality/quantity and habitat.

We also recommend that better cross referencing should be carried out of biodiversity with the Water Quality and Quantity Assessment, in particular to understand more precisely Water Framework Directive implications. There is a lack of information on the quality/sensitivity of Water Framework Directive water bodies. Greater reference should also be made to the Thames River Basin Management Plan.

### **Assessment of Impacts**

There is a lack of detail to substantiate the conclusions. For example, for Gatwick the assessment of 'low impact' from changes in air quality is an area which would need further explanation. This should incorporate existing understanding of critical levels, background quality, and changes arising from operation including increased traffic.

### **Mitigation and Compensation**

We recommend that there should be some reference to evidence bases that exist on mitigation measures (e.g. those held by the Environment Agency and others) to inform mitigation and compensations measures, i.e. Biodiversity Opportunity Areas.

### **Bird strike mitigation**

The issue of bird strike is a critical one. The proposed approach to minimise the bird strike hazard<sup>1</sup> is likely to reduce potentially significantly its effectiveness as biodiversity mitigation. Therefore, any operational limitations (such as netting of watercourses on proposed mitigation or increased need for bird scaring measures) must be tested against the Appraisal Framework biodiversity objective 'to protect and maintain natural habitat and biodiversity' to enable a robust appraisal in addition to fulfilling any statutory requirements

We support the earliest consultation with Aerodrome Safeguarding Teams, Natural England and ornithological interests regarding the bird strike hazard issue and mitigation options.

### **Biodiversity – Heathrow general**

Mitigation has been correctly identified within the documents for impacts on water courses. Suggested lengths of 20 km and 24 km are proposed, though the ability to mitigate in this area to the required specification will be limited by issues with bird strike (acknowledged in the report) and costs. Bird Strike issues will restrict the complexity of wetland/riverine habitat that can be created and would not allow like for like mitigation in most instances. The costs assigned for mitigation within the document are for land purchase and management. This does not reflect the complexity and cost involved in a river restoration scheme. For example, 1.2 km of river realignment/restoration in East London cost £750k (2011). Future management costs, such as river maintenance, should also be scoped in. We suggest therefore that the costs within the report may be misleading.

In general, the location of suggested wetland restoration (to compensate for the loss of Staines Moor SSSI) would again be subject to restrictions due to bird strike and may conflict with the aspirations of the River Thames Scheme (Environment Agency

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<sup>1</sup> CAA Guidelines: CAP 772 Bird Strike Guidelines

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led flood risk management scheme). It will be challenging to mitigate the impacts on river/wetland mitigation as it potentially could not be in this area.

We advise that the potential cumulative impact of HS2 and the airport proposals on the SW London water bodies SPA needs to be considered.

## **Section 5: Groundwater protection and prevention of land contamination**

Although we are supportive of the conclusions of your consultants' report there are a number of areas which are lacking within the assessment which will need to be considered for future assessment and mitigation. Most notably a Contamination Risk Assessment will need to be undertaken.

The Heathrow site is underlain by the Taplow Gravels which are designated a Principal Aquifer, a resource of high value. Sands and gravels have a high transmissivity<sup>2</sup>; therefore any contamination can flow rapidly to receptors.

Please note that we are aware of significant interaction between surface water bodies and the groundwater in this area. This includes both chemical and physical interaction. The groundwater in this location is not far beneath the surface, therefore could be easily and quickly affected by polluting discharges at ground level / above the water table.

There are also several public and private abstractions used for agriculture from the gravels. These may be seasonal abstractions which could therefore have variable influences on groundwater flows.

There are many potential sources of land contamination near the proposed developments which present a risk to the water environment. A number of these have been identified in the promoter's reports.

There are both historic and active landfills in the Heathrow area, which extend below the water table. For the historic landfills there is uncertainty and a lack of information over the nature of the wastes deposited in them. A proportion of this waste is likely to have been hazardous and so excavation and disturbance of these sites may mobilise contamination posing a risk to groundwater and human health receptors.

Active landfill sites, regulated by the Environment Agency, may have containment structures to prevent pollution of the environment or extraction systems for landfill gas and leachate. These systems could be impacted by excavation or disturbance of these sites.

Land use associated with current and historic airport activity may also have left a legacy of contamination.

We would expect these issues to be considered and addressed as part of a Hydrogeological and Land Contamination Risk Assessment in due course.

We would strongly advise against the storage of hazardous substances, such as fuel oils, below the water table of the principal (gravel) aquifer, given the risk it would present to the aquifer. There is a groundwater protection policy relating to such storage that promoter's would need to be aware of and follow should any of these options be progressed.

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<sup>2</sup> the rate which groundwater flows horizontally through an aquifer

## **Section 6: Waste**

We note that the removal and replacement of the Lakeside Energy from Waste plant would be required as part of the Heathrow north west runway option. We have some concerns about the timing of any replacement facility. It would need a very early start if disruption to strategic contracts is to be avoided.

We also note that the Gatwick option includes a possible new energy from waste plant. Energy from waste is an option within the waste hierarchy.

Major waste infrastructure proposals such as those above would be taken forward through the Town and Country Planning system through which we would advise as a statutory consultee. We would also have a permitting role. We would like to continue to be engaged as thinking evolves.

We urge that best practice e.g. in terms of the waste management hierarchy and proximity principle, is followed.

Waste material produced as a result of construction/development must be handled in accordance with Environmental Permitting Regulations 2010 (EPR 2010).

A registered waste carrier must be used to convey any waste material off site to a suitably permitted facility. It is important that available capacity is identified early and if it is not available suitable lead-in times need to be planned in to secure planning and permitting requirements.

If any waste is to be used on site, the applicant will be required to obtain the appropriate waste exemption or permit from us.