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Dear Sirs

DEVELOPMENT OF BRISTOL AIRPORT TO ACCOMMODATE 12 MILLION PASSENGERS PER ANNUM: RESPONSE TO FURTHER ENVIRONMENT AGENCY COMMENTS

1. Introduction

This letter provides our response to the consultation response from the Environment Agency (EA) ref. WX/2018/132503/03-L01, dated 28 November 2019. We have responded on a point-by-point basis to the issues raised in their letter. We believe that the points the EA has raised can be satisfactorily addressed through this response and therefore we do not propose to amend or re-issue the groundwater chapter (or any other chapter) of the Environmental Statement (ES).

2. Environment Agency Point 1

2.1 Environment Agency comment:

"From our scoping opinion letter "Despite there being no surface water courses within close proximity to the airport, streams at the edge of Broadfield Down are maintained by groundwater base flow. Any development at the airport has the potential to impact on groundwater quality, which in turn could impact on surface waters. A statement to this effect should be included and the risk appropriately determined".

"The CEMP proposed to mitigate the risk associated with pollution would only cover construction activities. The summary Table 13.13 indicates the introduction of mitigation measures are required to minimise the potential for leaks and spills and limit their effects. Section 13.11 indicates "No additional mitigation measures are proposed". This contradiction should be resolved. "

"Impacts of activities during operational phase should be considered separately from matters to comply with the Environmental Permit. The Environmental Permit should not be considered as part of environmental measures to be implemented and to provide justifications for planning application. "

2.2 Our response

It is recognised in the ES that the airport is in a sensitive location with respect to groundwater and that there are pathways to groundwater at the water table beneath the site and via groundwater to surface water. It is also recognised that there are multiple locations where groundwater feeds surface water. However, the most sensitive receptor is Chelvey



Well, which is used for public water supply and is also likely to receive much of the recharge from the airport site. Much of the proposed development sits within the source protection zone for Chelvey Well. The ES also recognises the potential for rapid transport of contamination from the source to receptors.

The proposed design takes this sensitive setting into account by incorporating a comprehensive range of mitigation measures to protect Chelvey Well (as noted in 2.2.1 below). These measures are also, therefore, protective of all other potential receptors. Mitigation of pollution risk is based on preventing the entry of contamination into the aquifer and is therefore protective of all potential receptors. As a result of this mitigation, all groundwater receptors are protected

Section 13.11 of the ES states that “no additional mitigation measures are proposed”. To confirm, this statement is taking into account the mitigation measures that are already proposed in the design as referenced in 2.2.1 below, i.e., the conclusion is that the mitigation measures that are incorporated into the development are sufficient to mitigate the residual risks posed by the development to groundwater.

2.2.1 Mitigation measures

Mitigation measures to protect groundwater quantity and quality are set out in the Chapter 13 of the ES and these have been reproduced below. The EA has also provided a set of draft conditions to the planning application which are also summarised here. Bristol Airport understands the reasons for these conditions and will be able to comply with them through the proposed design.

Mitigation During construction:

Embedded measures will be included in a Construction Environment Management Plan (CEMP) provided as Appendix 2B of the ES. Specific measures to protect groundwater from pollution are set out below:

- To minimise loss of groundwater resource (anticipated to be limited due to limited duration of construction).
 - Construction will be undertaken in phases
- To minimise turbid water entering the aquifer:
 - Properly contained wheel wash facilities will be used (where required) to isolate sediment rich run-off. Cut-off ditches and/or geotextile silt-fences will be installed around excavations, exposed ground and stockpiles to prevent the uncontrolled release of sediments from the application site. Sediment traps will be required on all surface water drains in the surrounding region. Silty water abstracted during excavations will be discharged to settlement tanks or siltbusters as appropriate. Only clean run-off will be permitted to discharge to ground.
 - The distance from construction sites to the more sensitive receptors will allow for attenuation of any turbid water.
- To minimise leaks or spills of fuels,
 - All equipment brought to site will be required to be in a good state of repair and will be inspected for leaks on a frequent basis (minimum daily) with any leaking equipment repaired immediately. Drip trays would be placed beneath static plant where necessary. Mobile plant with leaks detected would be moved to areas of hardstanding and drip trays placed beneath until repairs have been completed;
 - Vehicles will be stored or parked on hardstanding.
 - Wherever possible, plant and machinery will have drip trays beneath oil tanks, engines, gearboxes or hydraulics which will be checked and emptied regularly and correctly disposed of via a licensed waste disposal operator.
 - Oils and hydrocarbons will be stored in designated locations with specific measures to prevent leakage and release of their contents, including the siting of the storage area away from the drainage system on an impermeable base, with an impermeable bund that has no outflow and is of adequate capacity to contain 110% of the contents.



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- On-site provisions will be made to contain a serious spill or leak through the use of spill kits, booms, bunding and absorbent material.
- Valves and trigger guns will be protected from vandalism and kept locked when not in use. A spillage Environmental Response Plan will be produced as part of the CEMP and disseminated to relevant site employees with associated training.

Mitigation During operation

- To minimise loss of groundwater resource all surface water runoff will be infiltrated to ground via soakaways or permeable paving. The Silver Zone Car Park Extension (Phase 2) will use the same Netpave permeable pavement system that has been successfully used in the existing Silver Zone Car Park Extension (Phase 1). This system allows infiltration to ground to continue. Netpave permeable surfacing consists of stone surfacing contained within a hollow interlocking casing. The permeable stone surfacing allows the runoff to infiltrate into the lower sub base layers of the pavement before draining laterally into gravel-filled infiltration trenches.
- To minimise pollution risks:
 - Soakaways will incorporate pollution control measures at the surface. These will comprise of full retention oil:water separators that will be designed to meet or exceed the sizes set out in draft planning condition 2 suggested by the EA. In areas where refuelling takes place, penstocks will be used to impound spills and prevent their entry into the ground; and
 - All potential contaminants will be adequately stored within bunded areas with a minimum of 110% retention capacity and monitored with minimised use and on-site storage of chemicals.
 - Management controls will set out good practice for the handling of fuels and other potential pollutants and these will be updated to include any new infrastructure installed as part of the development;
 - Staff will be trained to ensure that they understand the sensitivity of groundwater, the location and operation of spill responses including spill response kits and the operation of penstocks
 - Ongoing groundwater monitoring will provide early warning of pollution of groundwater prior to it reaching sensitive downgradient receptors.

These systems have been successfully used at the site for a number of years and there is, therefore, a high degree of confidence in their effectiveness. During operation, discharges to groundwater will be subject to compliance with an Environmental Permit which will require that management controls, design and operation are documented.

We note that pollution of a borehole close to the terminal (BH2) by hydrocarbons is due to a spill of hydrocarbons that entered the ground via an inadequately sealed monitoring borehole at the time and was not via drainage infrastructure. This has been remedied by undertaking root cause analysis via spillage records, checking the integrity of the well head and subsequent briefing to ground agents. The borehole has been purged each month since and has seen a fall in hydrocarbon levels. There has also been no noticeable change when considering perimeter and other boreholes in the vicinity from levels previously reported.

Draft planning conditions

The EA has suggested the following planning conditions:

- Any phase of construction shall be preceded by an appropriate site investigation to identify any existing contamination across the airport and to remediate this where appropriate. This work should focus on areas where historic land uses have presented a risk of contamination. The proposed site investigation and remediation or mitigation resulting from this shall be agreed in writing with the Local Planning Authority (LPA) and Environment Agency prior to construction phase of work commencing.
- The airports current monitoring, mitigation and reporting of groundwater level and quality should be reviewed and updated in light of the proposed new development. This should identify any changes to the groundwater monitoring that will be implemented and monitored to address any changing environmental risks associated with the airport to measure any impacts that might result from the development. Monitoring protocols should



be agreed, as well as reporting frequencies and triggers that will be implemented should contaminants be observed.

- The development hereby permitted shall not be commenced until such time as a scheme to dispose of foul and surface water, and install oil and petrol separators, has been submitted to, and approved in writing by, the LPA. The scheme shall be implemented as approved.
- Class 1 Interceptors should be installed in all areas where re-fueling activities take place. These should be of sufficient size to intercept and contain the maximum hydrocarbon/chemical loss that could occur as a result of a release from a fuel supply lorry or release from plane plus 10-20%. This is thought to be around 20,000l plus 2000-4000l. This should be agreed in writing by the LPA and Environment Agency.

3. Environment Agency Point 2

3.1 Environment Agency comment

The EA state:

"Groundwater fed springs are supported by the recharge area from the proposed sites. They include headwaters to the following main rivers: Congresbury Yeo, Blackditch Rhyne and River Kenn, Land Yeo and Winford Brook upstream of River Chew.

Detailed assessment of flow and Conceptual Site model have been undertaken for this site and should be used to inform the qualitative evaluation presented in Table 13.4. A more comprehensive list of receptor potentially impacted by the proposed development should be assessed. All the main rivers should be considered in the Environmental Statement and a full water interest survey should be undertaken to cover potential downgradient water users. There is no justification provided for the 1km, 2km buffer applied in the Environment Statement. The zone of influence from the Carboniferous limestone should be based on agreed Conceptual Site Model and is unlikely to be limited to the outcrop of the Carboniferous Limestone. "

3.2 Our Response

The conceptual model for the site has been developed by Bristol Airport over a number of years using information collected by Bristol Airport, nearby quarries and the EA. This conceptual understanding has been taken into account in developing the groundwater and surface water chapters of the ES (Chapters 12 and 13).

In Chapter 13 of the ES, the Zone of Influence (ZoI) shown on Figure 13.2 includes Winford Brook and Chelvey Well and any receptors could be impacted if there was any significant incident. There is no reference to buffer zones. A 3km radius has been used to identify groundwater abstractions, springs and discharges to ground. This search radius extends beyond the outcrop of Bristol Airport Carboniferous Limestone in most directions. The small parts of the groundwater body not within the search area are distant from the site and any receptors in those areas are unlikely to be at risk since the distance between point entries of pollution and receptor is such that concentrations and quantities would be much reduced by the time they reach this receptor.

Chapter 13 of the ES also lists all the rivers likely to receive groundwater baseflow from beneath the site in Table 13.4, i.e. it has been recognised that these are potential receptors. The assessment has focussed on the potential impacts on more sensitive receptors and has addressed risks through mitigation measures that are protective of the sensitive receptors. As a result, impacts on other less sensitive receptors will also be mitigated. Therefore, the design construction and design mitigation measures are considered to be protective of the identified water features and any water feature which has not been identified.

4. Environment Agency Point 3

4.1 Environment Agency comment

"The airport should be designed so as to reduce the risk to water resources. The "incremental increase" and "experience to date" indicate risk to pollute groundwater are high. The assessment of the risk to "no change" is therefore not appropriate. "



4.2 Our Response

We agree that the design of the proposed development should seek to reduce the risk to water resources. The design, construction and operation of the development will include a set of mitigation measures that reduce risk and these are summarised in section 2.2 of this letter.

5. EA Point 4

5.1 Environment Agency comment

"Paragraph 13.9.7 present Table 13.12 and indicate a level of effect of major/moderate or greater is of most importance to the decision-maker, and so these effects are generally considered significant. Paragraph 13.10.1 indicates Chelvey source has a very high sensitivity correctly as it is a regionally important water resources. Table 13.13 sensitivity for Chelvey Source is downgraded to high with no justifications.

Similarly, the significance of a pollution of groundwater potentially affecting the Water Framework Directive status of groundwater or surface water bodies and the operation of a public water source of supply indicates the magnitude of change should be either high or medium. The results of the assessment presented in Table 13.13 is therefore inconsistent with the methodology presented. The mitigations measures presented should be commensurate with the significance of the risk during both the construction and the operational phase. "

5.2 Our response

We agree that there is an inconsistency and that Chelvey should have a "very high" sensitivity in Table 13.13 but the magnitude of change remains at Very Low and therefore the significance is moderate.

The magnitude of change is very low for groundwater resources risks because recharge is maintained and for pollution risks because the mitigation measures as outlined will protect groundwater quality.

The mitigation measures are based on the understanding of risk and are comprehensive and commensurate with the level of risk.

6. Conclusion

We trust that we have addressed the EA's comments satisfactorily and therefore that there is no requirement for further assessment.

Yours faithfully

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