

# **HIF 1 Didcot Garden Town**

## **Planning Application Initial Response - Terrestrial and Aquatic Ecology, Arboriculture, Agriculture and Soils, and Climate Effects and Climate Vulnerability**

**To:** Emily Catcheside

**From:** Environmental Coordinator Atkins on behalf of Oxfordshire County Council

### **Site Location:**

A linear site comprising a corridor between the A34 Milton Interchange and the B4015 north of Clifton Hampden including part of the A4130 east of the A34 Milton Interchange, land between Didcot and the former Didcot A Power Station and the Great Western Mainline, land to the north of Didcot where it crosses a private railway sidings and the River Thames to the west of Appleford-on-Thames before joining the A415 west of Culham Station, land to the south of Culham Science Centre through to a connection with the B4015 north of Clifton Hampden

### **Proposal Detail:**

- The dualling of the A4130 carriageway (A4130 Widening) from the Milton Gate Junction eastwards, including the construction of three roundabouts;
- A road bridge over the Great Western Mainline (Didcot Science Bridge) and realignment of the A4130 north east of the proposed road bridge including the relocation of a lagoon;
- Construction of a new road between Didcot and Culham (Didcot to Culham River Crossing) including the construction of three roundabouts, a road bridge over the Appleford railway sidings and road bridge over the River Thames;
- Construction of a new road between the B4015 and A415 (Clifton Hampden bypass), including the provision of one roundabout and associated junctions; and
- Controlled crossings, footways and cycleways, landscaping, lighting, noise barriers and sustainable drainage systems.

**Application Number:** R3.0138/21

**Date sent:** 20 January 2022

As discussed please see below our initial response for Terrestrial and Aquatic Ecology, Arboriculture, Agriculture and Soils, and Climate Effects and Climate Vulnerability for consideration by and discussion with the applicant. This response outlines the headline issues based on our initial observations at this stage where it would be helpful to have additional information or clarification. It is intended that a note that details our line-specific and other comments will also be made available.

### **Overall headline:**

For each topic it would be helpful to clarify with the applicant what assumptions have been made regarding the existing and future baseline and how this has been assessed.

## 1.0 Terrestrial Ecology

### **1.1 Key Documents Reviewed (not exhaustive list):**

Didcot HIF 1 Environmental Statement Volume 1 Chapter 9 – Biodiversity  
 Didcot HIF1 Biodiversity Net Gain Assessment  
 Didcot HIF1 Appendix 9.1 Preliminary Ecological Appraisal  
 Didcot HIF1 Appendix 9.2 Survey Report for Hedgerows and Arable Plants  
 Didcot HIF1 Appendix 9.3 Terrestrial Invertebrate Survey Report  
 Didcot HIF1 Appendix 9.5: Reptile Survey Report  
 Didcot HIF1 Appendix 9.6: Great Crested Newt Survey Report  
 Didcot HIF1 Appendix 9.7: Breeding Bird Survey Report  
 Didcot HIF1 Appendix 9.8: Wintering Bird Survey Report  
 Didcot HIF1 Appendix 9.9: Bat Survey Report  
 Didcot HIF1 Appendix 9.10: Dormouse Survey Report  
 Didcot HIF1 Appendix 9.11: Otter and Water Vole Survey Report

### **1.2 Further information and/or clarification required:**

#### **Headline Comment:**

The assessment has completed a suite of terrestrial surveys using (species and habitats) using standard methodologies and is considered suitable to support the evaluation of conservation value, impacts and where appropriate mitigation measures.

Whilst overall the assessment is considered suitable to support the planning application there are a number of issues/queries that have been identified and which will require the provision of further information and clarification, and where necessary amendments to the assessment.

In particular, clarification is needed at this stage on why a Habitat Regulations Assessment (HRA) Screening was not undertaken or provided with the planning application with regards to the European designated sites, Cothill Fen Special Area of Conservation (SAC) and Little Wittenham SAC.

The following summarises the key concerns identified, although it must be noted that this list is not exhaustive and other issues and concerns have been identified.

#### **ES Chapter 9 Biodiversity:**

- 1) There is no clear comparison of what habitats will be lost and what will be replaced/ retained either like for like or as an enhancement therefore it is not clear whether the proposals are likely to be sufficient.
- 2) Para 9.12.29 states that bat activity was generally low across the habitats within the site, however, in the bat activity report (P.57 Section 5.3), it does not use this same terminology. If fact, the bat report talks about moderate levels of activity in many of the locations and categorises the site as County level importance overall for foraging/commuting habitats for four of the species.
- 3) It says that peregrine was breeding outside the survey area, whereas the Breeding Birds Survey Report shows a territory within the survey area (Figure 3C sheets 1 and 2).
- 4) Bird values assigned in Chapter 9 of the Environmental Statement (ES) differ to those assigned in the breeding bird report.

- 5) No mention of red kite, which was said to be of county importance in the wintering bird survey report.
- 6) Will the bird mitigation be effective against the loss of species such as breeding little ringed plover, gadwall, oystercatcher? Also, surely the county population of wintering lapwing are associated with the open arable fields? These have not been mitigated for?
- 7) For birds there may be a net gain in habitats, but will they support the same species that are being lost i.e. farmland and wetland species?
- 8) It is not quite clear if the values assigned in the bird reports have been interpreted clearly. It is also not quite clear if the (absence of) impacts have been fully justified. This could possibly be strengthened with particular relevance to the species and assemblages of county importance.
- 9) In para 9.4.5 the reports stated that the assessment has been undertaken in accordance with Design Manual for Roads and Bridges (DMRB) LA 108, however, the geographical frames of reference set out in para 9.4.17 do not directly align with the guidance in LA 108.
- 10) In para 9.4.1 it states that the assessment has been undertaken in accordance with DMRB LA 108. Whilst LA 108 does not set out the distances to be used for desk study searches other DMRB guidance (LA 115) does provide distances for searches of European sites, the distanced referenced in para 9.4.5 do not align with this.
- 11) No detail of the proposed badger fencing is provided or its exact location.
- 12) To what standard will the badger tunnels be designed.
- 13) With regards to the Cothill Fen SAC and Little Wittenham SAC - these sites are at threat from groundwater pollution and hydrological changes - this is not addressed in the assessment. Can it be justified why HRA Screening was not undertaken especially as the assessment is being undertaken in accordance with DMRB.
- 14) The loss of a species rich established hedgerow is not 'short term'.

#### **Didcot HIF1 Biodiversity Net Gain Assessment (BNG)**

- 1) A key rule of Metric 3.0 is that the three types of biodiversity units are unique and cannot be summed, traded or converted. It is not correct to say "the output with the lowest value is used to determine whether there has been a gain in biodiversity".
- 2) Metric 3.0 takes into account whether habitat creation/enhancement is created in advance or delayed from the timing of impact. Table 7 assumes the standard time to target condition is applied, where is the evidence that compensation will be undertaken within a year of the impact the compensation is addressing?
- 3) Appendix G of the BNG shows that the Scheme does not satisfy the trading rules of Biodiversity Metric 3.0. This is not discussed in the conclusion.

#### **Appendix 9.5: Reptile Survey Report**

- 1) Reptile surveys were conducted on consecutive days 09/09/2020, 10/09/2020, 11/09/2020 and 17/09/2020, 18/09/2020, 19/09/2020. Repeat/daily visits can result in a high level of disturbance of refugia, making them less attractive to reptile species and result in lower counts than might otherwise be expected - this is not listed in the limitations.

#### **Appendix 9.6: Great Crested Newt (GCN) Survey Report**

- 1) WB21 and WB22 state that the 'concrete based waterbody is unsuitable for great crested newt'. GCN are known to breed successfully in concrete lined waterbodies, was the only reason for being assessed as unsuitable for GCN the fact that these two waterbodies are concrete lined? If so, this is not an appropriate reason to exclude these ponds from further survey. If there are additional reasons, these should be listed/ described. No HSI assessment was undertaken to assess the suitability of these waterbodies.
- 2) WB39 states- 'Recent quarry excavation- not suitable for great crested newt'. GCN are known to breed successfully in recent quarry excavations, was the only reason for being assessed as unsuitable for GCN the fact that this waterbody is a recent quarry excavation? If so, this is not an appropriate reason to exclude this pond from further survey. If there are additional reasons,

these should be listed/described. No HSI assessment was undertaken to assess the suitability of this waterbody.

- 3) Pond cluster 3 presence/absence surveys were not adequately spaced out between each survey visit. I.e. survey 1 (14th May), 2 (18th May), 3 (18th/20th May) and 4 (20th May). Although the 2001 GCN mitigation guidance does not specify the duration of time to be left between survey visits, good practice would be to leave at least a week between survey visits. In this instance, all four survey visits took place within a six day period.

#### **Appendix 9.8: Wintering Bird Survey Report**

- 1) If each winter bird survey visit took 2-4 days due to extent, then how was it possible to do the same survey area (site +100m buffer) in a single visit for the breeding bird surveys?

#### **Appendix 9.11: Otter and Water Vole Survey Report**

- 1) Three potential Otter resting sites were found on the banks of WB10. Along with ample otter evidence. It is not stated how far these features are from the proposed works or whether they pose a constraint to the Scheme. The report states that only one potential holt along WB10 was subject to camera trap survey (which showed utilisation of the feature by a fox). Why haven't all three potential otter resting places identified along WB10 been subject to camera trap survey, what is the reason for only subjecting one potential holt site to further survey by camera trap? Is it because the other two features are considered to be too far away to be significantly impacted? Only two of the three potential resting sites are shown on Figure 3A.

## **2.0 Aquatic Ecology**

### **2.1 Key Documents Reviewed (not exhaustive list):**

Environmental Statement Volume 1 Chapter 9 – Biodiversity  
Appendix 9.1 Preliminary Ecological Appraisal Report  
Appendix 9.4 Aquatic Ecology Survey Report  
Didcot HIF1 Biodiversity Net Gain Assessment

### **2.2 Further information and/or clarification required**

**Note:** *comments made here are specific to aquatic ecology and do not repeat the more general comments on the ES Biodiversity Chapter 9 made in the terrestrial ecology Section 1.0 Terrestrial Ecology above.*

#### **Headline comment:**

The assessment has considered the likely impact to aquatic habitats and associated species (namely aquatic macroinvertebrates, macrophytes and fish) which is welcome. Baseline surveys have been undertaken typically using standard methodologies and is therefore considered to be adequate to provide information on the species/habitats present and subsequent conservation value for the receptors surveyed.

A number of issues/queries have been identified that will require the provision of further information and clarification, and where necessary amendments to the assessment. In particular, clarification is needed at this stage on the justification for screening certain waterbodies in and out of the survey/assessment in the Environmental Statement (ES).

There does not appear to be a clear justification as to why some features were not surveyed and assessed within the ES. Table 23 (summary of recommended aquatic surveys) in the Preliminary Ecological Appraisal sheds some light on why certain features would not be taken forward for assessment e.g. they were dry, but it is not explicit about the approach used. Clarification on why aquatic features were screened in or not is required.

The following summarises the key concerns identified:

**ES Chapter 9 Biodiversity:**

- 1) Further clarification on the importance valuation of Hairlike pond weed and Nitella (stonewort sp.), depressed river mussel and fish would be beneficial in Table 9.9.
- 2) Whilst no significant effects were identified, it is difficult to see a clear comparison of what habitats will be lost/impacted and what will be replaced given the target for no-net loss. May have been useful to have embedded mitigation listed in Table 9.14, although it is noted that it is outlined in 9.10.

**Appendix 9.4 Aquatic Ecology Survey Report:**

- 1) As listed in the headline comments, the justification for why certain waterbodies were surveyed and others were not needs additional clarification.

**Biodiversity Net Gain Assessment (BNG):**

- 1) MoRPh survey not undertaken on some watercourses and RHS data used instead. This is not a standard approach. Further justification needed.
- 2) It is unclear when (seasonally) ditches were surveyed to determine if they were dry and therefore screened out of the rivers and streams component of the BNG assessment. The Biodiversity Metric definition of a ditch is fairly loose so it is recognised that professional judgement is required to determine if a ditch should be included in the ditch component of the rivers and streams metric of not. However, further clarification (including perhaps photos) on why various ditches were not assessed within the rivers and streams assessment would be helpful.
- 3) The net gain achieved in river units is a total figure for the three different river types (other rivers and streams, culverts and ditches). The Biodiversity Metric 3.0 calculates one total score for river units in this way, but assessment is needed to determine that there is no trading down in habitat distinctiveness. It is unclear if this has been completed.

## **3.0 Arboriculture**

### **3.1 Key Documents Reviewed (not exhaustive list):**

Arboricultural Impact Assessment

Tree Constraints Plans: GEN\_PD-ACM-ELS-SW\_ZZ\_ZZ\_ZZ\_DR\_AB-001 to GEN\_PD-ACM-ELS-SW\_ZZ\_ZZ\_ZZ\_DR\_AB-060

Tree Protection Plans: GEN\_PD-ACM-ELS-SW\_ZZ\_ZZ\_ZZ\_DR\_AB-061 to GEN\_PD-ACM-ELS-SW\_ZZ\_ZZ\_ZZ\_DR\_AB-120

Arboricultural Impact Assessment: Appendix B – Tree Survey Schedule

Arboricultural Impact Assessment: Appendix C – Site Photography

Arboricultural Impact Assessment: Appendix E – Outline Tree Protection Measures

Arboricultural Impact Assessment: Appendix F – Tree Protection Signage (example)

Arboricultural Impact Assessment: Appendix G – Loss of Companion Shelter Assessment Process

### 3.2 Further information and/or clarification required

#### Headline comment:

The planning application includes an Arboricultural Impact Assessment. Whilst the assessment is considered suitable to support the planning application there are a number of issues/queries that have been identified at this stage which require the provision of further information and clarification, and where necessary amendments to the assessment.

In particular, there are discrepancies identified between trees and hedges shown on the scheme drawings compared with onsite features and in some case aerial photography.

It is also considered that without a summary of the total tree losses in area compared against the areas and identified for replacement planting a definitive judgement on the arboricultural impacts is not possible at this stage.

Additional Information is therefore required to demonstrate whether the new planting can adequately compensate for the loss of existing trees and hedges within the current redline boundary. The provision of this information is an important consideration in the assessment of impacts on trees.

The following summarises the key concerns identified, although it must be noted that this list is not exhaustive and other issues and concerns have been identified:

Proposed removals of individual trees are quantified in the report, together with tree groups, which are identified singularly but could include many 10s or even 100s of trees. A common metric of square metreage canopy loss for both individual trees and groups (all readily measurable from the CAD drawings) would provide a better sense of scale of the impacts of the scheme on the tree cover. Hedges should be measured in linear metres

A comparison of the extent of removals against existing retained features, would enable losses to be considered in overall percentage terms of existing cover. If recorded with a breakdown by category on a table such as below, the quality of the trees being lost could be assessed.

Didcot HIF 1 - AIA														
Summary Impacts Table														
	Cat A		Cat B		Cat C		Cat D		Total surveyed		Removals			
<b>Individual trees</b>	Qty	Total area	Qty	Total area	Qty	Total area	Qty	Total area	Qty	Area	Qty	Total area	% of Total area	
Total surveyed	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	
Proposed removals	1	xx	82	xx	69	xx	8	xx	160	xx	xx	xx	xx	
Works within CEZ	5	xx	40	xx	6	xx	xx	xx	51	xx	xx	xx	xx	
<b>Totals</b>	<b>6</b>	<b>0</b>	<b>122</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>211</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>Tree groups</b>		Total area		Total area		Total area		Total area		Total area		Total area	% of Total area	
Total surveyed		xx		xx		xx		xx		xx		xx	xx	
Proposed removals		xx		xx		xx		xx		xx		xx	xx	
Works within CEZ		xx		xx		xx		xx		xx		xx	xx	
<b>Totals</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	<b>0</b>	
<b>Individual trees and groups combined</b>		Total area		Total area		Total area		Total area		Total area		Total area	% of Total area	
<b>Totals</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	<b>0</b>	
<b>Hedges</b>	Qty	Total length	Qty	Total length	Qty	Total length	Qty	Total length	Qty	Total length	Qty	Total length	% of Total length	
Total surveyed	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	
Proposed removals	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	
Works within CEZ		xx		xx		xx		xx		xx		xx	xx	
<b>Totals</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	<b>0</b>	

Table 4-1: Example of table for arboricultural impacts

Furthermore, the areas of compensation planting should be provided (possibly included in the landscape design proposals) to enable an overall comparison between the current tree and hedge cover without the scheme, the existing planting lost as a result of the scheme, and the replanted built scheme.

The applicant needs to demonstrate whether the new planting can adequately compensate for the loss of existing trees and hedges within the current redline boundary noting that Oxfordshire County Council aspire to replace all lost trees by a factor of 2x.

#### **Tree Constraints Plans and Tree Protection Plans**

Observations include:

- 1) Low visual prominence of site boundary on Tree Constraints Plans.
- 2) Low visual prominence of trees to be removed on Tree Protection Plans.
- 3) Inconsistencies between key and comparable elements on drawings.
- 4) Discrepancies, e.g. T424 category A in report, B on drawing. This is also a veteran tree but not identified as such on the drawings.
- 5) Base mapping is out-of-date in several areas.
- 6) 1:500 drawing scale means 59 drawings / set x 2 sets, which are generally tight to the scheme boundary and showing minimal coverage of off-site context. For greater clarity and assessment of impacts on trees, suggest supplementary 1:1000 scale drawing set (total 10-15 drawings?) to more clearly show tree and hedge retention and removals and to include the scheme design in outline only.

#### **Discrepancies based on site walkover**

- 1) Following a walkover undertaken in December 2021 it was noted that there are some discrepancies between trees and hedges shown on drawings compared with onsite features and in some case aerial photography. Some drawings show features that have been removed (possibly since the tree survey?) and others do not include features that are present.

## **4.0 Agriculture and Soils**

### **4.1 Key Documents Reviewed (not exhaustive list):**

Environmental Statement Volume 1 Chapter 11 Geology and Soils  
Environmental Statement Volume 2 Chapter 11 Geology and Soils Figures  
Environmental Statement Volume 1 Chapter 13 Population and Human Health  
Environmental Statement Appendix 13.1 Agricultural Circumstances

### **4.2 Further information and/or clarification required**

#### **Headline Comment:**

Whilst there are a number of comments associated with the documents it is not considered that there are significant issues with the information submitted or approach taken at this stage.

There are however a number of issues that have been identified where clarification would be helpful. Of note it is considered that the significance of effect for farmholdings maybe overstated. In



addition there appears to be no explanation of how the scheme design has sought to minimise the loss of Best and Most Versatile (BMV) land.

The following summarises the key concerns identified:

**Environmental Statement Volume 1 Chapter 11 Geology and Soils:**

Embedded mitigation: It would be helpful to provide clarification to explain how the design team have attempted to minimise the loss of Best and Most Versatile (BMV) land and whether further design tweaks are possible to assist with this objective.

**Environmental Statement Volume 2 Chapter 11 Geology and Soils Figures:**

Figure 11.2. Agricultural Land Classification (ALC) : colours are incorrect. The correct colours are used in Appendix 11.2

**Environmental Statement Volume 1 Chapter 13 Population and Human Health:**

Tables 13.29 and 30: The Disruptive Effects for Zouch Farm and Fullamore Farm may be overstated (see Appendix 13.1 Agricultural Circumstances, below)

**Environmental Statement Appendix 13.1 Agricultural Circumstances:**

It is considered that the significance of effect may be overstated for the following farmholdings. It would be helpful for the level of assessment in Table 13.30 of Environmental Statement (ES) Chapter 13 to be given further consideration for these farmholdings given that a threshold of 40 m is widely regarded on other schemes as the point at which housed livestock might be disturbed by noise:

Zouch Farm: The new road will pass within 50 m of the pig unit. In addition to reassessing the Level of Significance in Table 13.30 of ES Chapter 13, it would be helpful for clarification to be provided to explain the disturbance threshold used, how noise is considered to be a concern and what mitigation has been considered.

Fullamore Farm: The very large disruptive effect on the pig unit seems overstated, given construction will be 100m away. In addition to reassessing the Level of Significance in Table 13.30 of ES Chapter 13, it would be helpful for clarification to be provided to explain the disturbance threshold used, how noise is considered to be a concern and what mitigation has been considered. In addition, it would also be helpful to clarify how farm vehicle movements will be impeded for this farmholding, as it is unlikely access to the main road will be closed, even temporarily, without a diversion.

## **5.0 Climate Effects**

### **5.1 Key Documents Reviewed (not exhaustive list):**

Environmental Statement Volume 1 Chapter 15 Climate  
Environmental Statement Volume 1 Chapter 11 Geology and Soil (section 11.9)  
Scoping Report  
Non-Technical Summary  
Outline Environmental Management Plan



## 5.2 Further information and/or clarification required

### Headline Comment:

A number of omissions and gaps in information provided has been identified at this stage that require clarification. This means that the Greenhouse Gases (GHG) assessment including chapter text requires revision based on the review of Chapter 15 and supporting calculation files.

The following summarises the key observations and issues are identified below:

- 1) Assessment of existing and future soil carbon resources: Section 11.9 does not cover scoping opinion requirement. Further information is needed to update this section. GHG assessment (Environmental Statement (ES) Chapter 15) does not cover details related to soil. Background /supporting calculation is needed to review this further.

Table 15.1: Scoping Opinion and responses

<b>OCC (Environment Strategy)- Received 9 June 2020</b>	
Climate Change and Soils GHG assessment to include all existing and future soil carbon resources. In alignment with the requirements of the NPPF, the ES should consider the wider natural capital and ecosystem service function of the soil resource.	See Section 11.9 of ES Chapter 11: Geology and Soils

- 2) Road use carbon calculations: supporting calculation (road use carbon calculation) documents are needed to confirm following Scoping Opinion. Air Quality (AQ) chapter does not cover relevant calculation details.

<b>Culham Parish Council – Received 10 June 2020</b>	
GHG Assessment Consideration should be given to the GHGs from vehicles as a result of the long-term operation of the Didcot to Culham River Crossing and a comparison made with alternative solutions to the development of	Data from ES Chapter 6: Air Quality has been used in the assessment of GHG emissions from vehicles using the Didcot to Culham River Crossing.

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Didcot Garden Town HIF 1 Scheme  
Environmental Statement – Volume 1  
Chapter 15: Climate

<b>Scoping Opinion</b>	<b>Where addressed within the ES</b>
a new road (e.g. expansion of public transport options).  Consideration should also be given to Scheme's contribution to the national net zero target in 2050, the implications of High Court Decision of the third runway at Heathrow Airport.	Improvements to public transport (as well as walking and cycling facilities) form part of the transport strategy for Didcot. However, public transport enhancements alone will not mitigate the impact of the proposed growth in the area as set out in the Local Plan. See Section 3.3 of ES Chapter 3: Assessment of Alternatives. Section 15.10 of this chapter addresses this point.

- 3) Scoping report (of April 2020) mentions the use of Highways England Carbon Tool, it would be helpful to clarify why ES Section 15.4 does not refer to use of Highways England Carbon Tool.

- 4) Early Contractor Involvement (ECI) information is needed to review quantities provided in Section 15.5. Further input/clarification is needed to justify why the quantity of soil required has not been considered in the GHG assessment.
- 5) Refer to Table 15.15 and 15.16 - Input data and calculation supporting the total GHG emissions (construction and operation phase) are not presented in the chapter or available in an appendix. Whilst operation phase data calculation files were provided by the applicant in December 2021 for review. Supporting calculations or outputs report/appendix or file for climate/carbon for the construction phase remain outstanding and are needed to review the methodology, calculation and final output.
- 6) Table 15.15 and Table 15.16 present minor differences in the total construction Carbon Dioxide (CO<sub>2</sub>) emissions values. It would be helpful to clarify if this is a typing error.

**Table 15.15: Net GHG Emissions against relevant carbon budgets**

Carbon budget	Years	UK Carbon budget Mt CO <sub>2e</sub>	Domestic Transport Budget Allocations Mt CO <sub>2e</sub>	Construction t CO <sub>2e</sub>	Operation t CO <sub>2e</sub>	Total t CO <sub>2e</sub>	% of UK carbon budget	% of Domestic Transport Budget Allocation
4th Carbon Budget	2023 - 2027	1,950	395	154,842	-4,601	150,241	0.0077%	0.03804%
5th Carbon Budget	2028 - 2032	1,765	325	-	-5,752	-5,752	-0.00033%	-0.00177%
6th Carbon Budget	2033 - 2037	965	178 <sup>9</sup>	-	-5,752	-5,752	-0.00060%	-0.00324%

**Table 15.16: GHG emissions breakdown by construction activity**

Reporting category	Emissions (tCO <sub>2e</sub> ) (approximate)	% construction emissions <sup>11</sup>
Land clearance (loss of carbon sink)	4,720	3
Embodied carbon in raw materials <sup>12</sup>	129,180	83
Fuel used on site	11540	7
Worker travel	1,210	1
Transport of construction materials and waste	4,440	3
Disposal of construction waste	3,750	2
<b>Total</b>	<b>154,840</b>	<b>100</b>

- 7) Table 15.17 needs to be updated to include 60 years emission details – as per Table 3.11.1 of DMRB LA 114 (June 2021 ) “Operation ('use-stage') (to extend 60yrs in line with appraisal period)”.

- 7) Table 15.13: Mitigation measures for construction phase appear to be generic, it would be helpful for any proposed project specific measures to be included with justification.

## **6.0 Climate Vulnerability**

### **6.1 Key Documents Reviewed (not exhaustive list):**

Environmental Statement Volume I Chapter 15 – Climate - Climate vulnerability assessment

### **6.2 Further information and/or clarification required**

#### **Headline Comment:**

The assessment does not cover at this stage the full range of potential climate vulnerability impacts that could affect the scheme or provide sufficient detail to justify the conclusions. Although updates are unlikely to affect the assessment outcome further evidence is required at this stage to provide justification for not considering or screening out various impacts.

Further information and/or clarifications are set out in the detailed review. They include:

- 1) Improvements to the structure of the assessment.
- 2) The LA 114 assessment method referenced is out of date. There is a 2021 update that contains some requirements not included in this chapter.
- 3) Are there any opportunities / benefits?
- 4) What consultation has there been?
- 5) Some improvements to the baseline would be beneficial. Including: clarifications of which representative concentration pathway (RCP) is used and new graphs to make the presentation of trends more clear.
- 6) More than three potential climate vulnerability impacts would be expected for this type of scheme (see detailed comments for examples).
- 7) There are very few mitigations for climate vulnerability and some refer to impacts that have been scoped out without justification? Is everything, including those embedded into the design, included here?
- 8) A summary list of potential climate vulnerability impacts is missing. Like is done for effects.
- 9) There is no monitoring section for climate vulnerability?
- 10) What was the outcome of the In-combination Climate Change Impact (ICCI) assessment, can it be summarised in this chapter?