A417 Missing Link
TR010056

6.7 Environmental Statement - Updates and Errata (Rev 2)

Planning Act 2008

APFP Regulation 5(2)(a)
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Volume 6

February 2022

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A417 Missing Link

Development Consent Order 202[x]

Environmental Statement - Updates and Errata (Rev 2)

Regulation Number:	5(2)(a)
Planning Inspectorate Scheme Reference	TR010056
Application Document Reference	6.7
Author:	A417 Missing Link

Version	Date	Status of Version
C01 C02 C03	May 2021 January 2022 February 2022	Application Submission Deadline 2 Deadline 4

Table of contents

Table of Tables

1 Introduction

1.1 Purpose of this document

1.1.1 This document (Document Reference 6.7) has been prepared to detail updates to and errata in the Environmental Statement (ES) (Document Reference 6.2, APP-032 to APP-049) for the A417 Missing Link (hereafter referred to as 'the scheme'), which was submitted as part of the Development Consent Order (DCO) application in June 2021.

1.1.2 It is intended that during the Examination, further points of clarification or amendments which arise through (but not limited to) the Written Questions, Written Representations and the Issue Specific Hearings would be added to this document which would remain live throughout. It will be submitted, where appropriate, at each of the prescribed Deadlines as set out by the Planning Inspectorate.

1.2 Structure of document

1.2.1 Section 2 of this document provides **updates** to the ES (Document Reference 6.2, APP-032 to APP-049) which have been identified through the Examination and provides updates and amendments as appropriate. These are presented in the following tables:

- Table 2-1 Environmental statement chapter updates – Deadline 1
- Table 2-2 Environmental statement chapter updates – Deadline 2
- Table 2-2 Environmental statement chapter update – Deadline 4

1.2.2 Section 3 of this document provides **corrections** to address any errors or omissions updates to the ES (Document Reference 6.2, APP-032 to APP-049) which have been identified through the Examination. These are presented in the following tables:

- Table 3-1 Environmental statement chapter errata – Deadline 1
- Table 3-2 Environmental statement chapter errata – Deadline 2

2 Environmental Statement Updates

2.1.1 Table 2-1, Table 2-2 and Table 2-3 have been produced to detail any amendments, including updates, to the ES (Document Reference 6.2, APP-032 to APP-049) which have been identified through the Examination and provides updates and amendments as appropriate.

Table 2-1 Environmental statement chapter updates – Deadline 1

Document reference	Reason for amendment to the ES	Amendment to the ES
Volume 6.2 Environmental Statement Chapter 1 Introduction (APP-032)	**Paragraph 1.3.16** of **National Planning Policy Framework** to be updated in line with the revised National Planning Policy Framework published in July 2021.	**Paragraph 1.3.16** of ES Chapter 1 - Introduction is amended to: In addition, the NPPF originally published in March 2012 and most recently updated in July 2021, sets out the government's planning policies for England and provides a framework within which locally prepared plans can be produced. The NPPF is 'an important and relevant' matter to be considered in decision making for NSIPs. The NPPF is supplemented by the Planning Practice Guidance (PPG) web-based resource launched in February 2014. The PPG is updated by the Ministry of Housing, Communities and Local Government as necessary.
Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)	**Paragraph 14.3.3** to be updated for the sixth carbon budget.	**Paragraph 14.3.3** of ES Chapter 14 is amended to: The Climate Change Act 2008 requires that five-yearly carbon budgets are set and not exceeded to ensure that regular progress is made towards the target. The first three carbon budgets were set in 2009, with the fourth and fifth following in 2011 and 2016 respectively, as outlined in Table 14-1. The sixth carbon budget was legislated for in June 2021.
Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)	**Paragraph 14.3.4** to be updated for the Carbon Budget Order 2021.	**Paragraph 14.3.4** of ES Chapter 14 is amended to: The third, fourth and fifth carbon budgets, as set out in the Carbon Budgets Order 2009, the Carbon Budget Order 2011 and the Carbon Budget Order 2016, are based on an 80% reduction as legislated by the Climate Change Act 2008. The sixth carbon budget as set out in the Carbon Budget Order 2021, is based on the target for 100% reduction in emissions by 2050, it requires a 78% reduction in GHG emissions between 1990 and 2035. GHG emissions from the scheme are reported against the legislated carbon budgets, in line with the requirements of DMRB LA 114 and the NPSNN (Paragraph 5.17).

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)</td><td>Table 14-1 of ES Chapter 14 Climate (Document Reference 6.2, APP- 045) to include the sixth carbon budget (2033 - 2037) and to show the reduction below 1990 levels.

Table 14-1 UK third, fourth and fifth carbon budgets (as legislated by the Climate Change Act 2008 and set out in the Carbon Budgets Order 2009, the Carbon Budget Order 2011 and the Carbon Budget Order 2016)</td><td>Table 14-1 of ES Chapter 14 Climate (Document Reference 6.2, APP- 045) is amended to include the 6th carbon budget.

Table 14-1 UK third, fourth, fifth and sixth carbon budgets (as legislated by the Climate Change Act 2008 and set out in the Carbon Budget Order 2009, the Carbon Budget Order 2011, the Carbon Budget Order 2016 and the Carbon Budget Order 2021)

<table>
<tr><th>Carbon budget</th><th>Carbon budget level
Million tonnes of carbon dioxide equivalents ($MtCO_2e$)</th><th>Reduction below 1990 levels</th></tr>
<tr><td>Third carbon budget (2018 - 2022)</td><td>2,544 $MtCO_2e$</td><td>37% by 2023</td></tr>
<tr><td>Fourth carbon budget (2023 - 2027)</td><td>1,950 $MtCO_2e$</td><td>51% by 2025</td></tr>
<tr><td>Fifth carbon budget (2028 - 2032)</td><td>1,725 $MtCO_2e$</td><td>57% by 2030</td></tr>
<tr><td>Sixth carbon budget (2033 - 2037)</td><td>965 MtCO2e</td><td>78% by 2035</td></tr>
</table>
</td></tr>
</table>

Document reference	Reason for amendment to the ES	Amendment to the ES
Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)	**Decarbonising transport: a better, greener Britain** On 14th July 2021, the Department for Transport (DfT) published Decarbonising transport: a better, greener Britain, a plan to decarbonise the entire transport system in the UK. Section **14.3 Legislative and policy framework** to include new policy.	**14.3 Legislative and policy framework** Add under **National policy** heading. **Decarbonising transport: a better, greener Britain** The decarbonisation plan sets out the Government's commitments and the actions needed to decarbonise the entire transport system in the UK. This plan considers GHG emissions produced from use of the UK's transport system and details how the UK will enhance resilience to climate change risks across road, rail, ports, and aviation, harbour authorities and road and rail organisations. The decarbonisation plan outlines a number of commitments by the Government to remove all emissions from road transport to achieve net zero target by 2050. Commitments that will have a direct impact on road user emissions from the Scheme will include: • An end to the sale of new petrol and diesel cars and vans by 2030 • All new cars and vans to zero emissions at the tailpipe by 2035 • All new L-category vehicles to be fully zero emissions at the tailpipe by 2035 • The end of the sale of all non-zero emissions HGVs by 2040 In addition, the Government is providing support for at least 4,000 zero emission buses and has committed to holding a consultation on a date to end the sale of new non-zero emissions motorbikes. This plan states that major infrastructure projects outlined in the "ambitious roads programme reflects – and will continue to reflect – that in any imaginable circumstances the clear majority of longer journeys, passenger, and freight, will be made by road; and that rural, remote areas will always depend more heavily on roads." This supports the Road Investment Strategy (RIS2) which this project sits within.

Document reference	Reason for amendment to the ES	Amendment to the ES
Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)	**Net zero highways: Our 2030 / 2040 / 2050 plan** On 20th July 2021, National Highways published its Net zero highways: our 2030 / 2040 / 2050 plan. This responds to the government's Decarbonising transport: a better, greener Britain. Section **14.3 Legislative and policy framework** to include new policy.	**14.3 Legislative and policy framework** Add under **National policy** heading. **Net zero highways: Our 2030 / 2040 / 2050 plan** Net zero highways: our 2030 / 2040 / 2050 plan, responds to the Government's Decarbonising Transport: A Better, Greener Britain. The plan sets out how England's motorways and A-roads will be decarbonised, so they can continue to bring significant benefits to people and businesses in a net-zero economy. National Highways recognises that it has a key role in the development and maintenance of a strategic road network that will facilitate the journey to net zero emissions. The plan maps how the company will progress rapidly in this area, focusing on innovation and zero carbon solutions while using offset only as a very last resort. In summary: • **By 2025**: National Highways has made a Greening Government Commitment to reduce its own carbon emissions by 75% compared with the 2017/18 baseline. • **By 2030**: National Highways will be net-zero for its own carbon emissions. This includes switching to light-emitting diode (LED) lighting, changing its vehicle fleet to electric and planting up to 3 million additional trees on its own land next to roads. • **By 2035**: National Highways will bring together best practice and latest technologies to construct the first net-zero road scheme. • **By 2040**: All construction and maintenance activities carried out on the strategic road network will be net-zero. • **By 2050:** The vehicles on the strategic road network will be zero emission.

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)</td><td>Paragraph 14.4.21 to be updated for the sixth carbon budget (2033 - 2037).</td><td>Paragraph 14.4.21 of ES Chapter 14 is updated to include the 6th carbon budget:

An estimate of the likely magnitude of GHG emissions associated with the scheme has been assessed against the legislated national UK carbon budgets. The UK Government has currently passed into law carbon budgets up to 2032:
• The third carbon budget period (2018 to 2022) allows the UK to emit 2,544 $MtCO_2e$.
• The fourth carbon budget (2023 to 2027) allows the UK to emit 1,950 $MtCO_2e$.
• The fifth carbon budget (2028 to 2032) allows the UK to emit 1,725 $MtCO_2e$.
• • The sixth carbon budget (2033 - 2037) allows the UK to emit 965 $MtCO_2e$.</td></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)</td><td>Table 14-18 Assessment of scheme net emissions (up to 2032) against UK Government carbon budgets to reflect the sixth carbon budget is now included in the assessment.</td><td>Table 14-18 Assessment of scheme net emissions (up to 2032 2037) against UK Government carbon budgets
<table>
<tr><th rowspan="2">Project stage</th><th rowspan="2">Estimated total (cumulative) GHG emissions over carbon budgets (tCO_2e) (‘Do-Something’ scenario)</th><th rowspan="2">Net (cumulative) GHG emissions over carbon budgets (tCO_2e) (‘Do-Something’-‘Do-Minimum’)</th><th colspan="4">Net (cumulative) scheme GHG emissions per relevant carbon budget (tCO_2e)</th></tr>
<tr><th>Third (2018 - 2022)</th><th>Fourth (2023 - 2027)</th><th>Fifth (2028 - 2032)</th><th>Sixth (2033 - 2037)</th></tr>
<tr><td>Construction (over a period of 42 months, assumed to commence in early 2023-2026)</td><td>74,144</td><td>74,144</td><td>n/a</td><td>74,144</td><td>n/a</td><td>n/a</td></tr>
<tr><td>Operation (modelled from 2026 through to 2037)</td><td>2,373,212</td><td>152,565</td><td>n/a</td><td>22,158</td><td>61,196</td><td>69,211</td></tr>
<tr><td>Total</td><td>2,447,356</td><td>226,709</td><td>n/a</td><td>96,302</td><td>61,196</td><td>69,211</td></tr>
</table></td></tr>
</table>

Document reference	Reason for amendment to the ES	Amendment to the ES
Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)	**Paragraph 14.10.12** to reflect the sixth carbon budget is now included in the assessment.	**Paragraph 14.10.12** If the DCO is granted, construction is expected to start in early 2023 and the scheme is expected to be open to traffic in 2026. Therefore, the construction period for the scheme falls wholly within the fourth carbon budget. Operation of the scheme would commence in 2026 and is assessed against the fourth, fifth and sixth carbon budgets, up to 2037.
Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)	**Paragraph 14.10.13** to reflect the sixth carbon budget is now included in the assessment.	**Paragraph 14.10.13** Significant effects The construction and operation phases of the scheme which fall within legislated carbon budget periods are expected to have an insignificant impact on the ability of the UK Government to meet its carbon budgets. Construction of the scheme is estimated to contribute approximately 0.00380% of the fourth carbon budget. Operation of the scheme is estimated to contribute approximately 0.00114% of the fourth carbon budget 0.00355% of the fifth carbon budget and 0.00717% of the sixth carbon budget. It is considered that this magnitude of emissions from the scheme in isolation would not have a material impact on the ability of the UK Government to meet its carbon budgets, and therefore is not anticipated to give rise to a significant effect on climate, in line with the position set out within Section 5.18 of the NPSNN.

Table 2-2 Environmental[GU1] statement chapter updates – Deadline 2

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 5 – Air quality</td><td>Baseline Conditions - Examining Authority’s Written Questions (PD-008) Question 1.2.5
“Can the monitoring results referred to in paragraph 5.4.6 of ES Chapter 5 [APP-036], in relation the PM10 and PM2.5, be published and made available to the Examination?”

Background PM10 concentrations for 2017 the baseline year are shown in Table 1-5 of Environmental Statement (ES) Appendix 5.4 Air quality baseline data (Document Reference 6.4, APP-336).

No further particulate monitoring (PM10 or PM2.5) was included in the ES as the assessment of PM10 and PM2.5 was scoped out at the scoping stage as the total concentrations in the study area are well below the relevant air quality objectives. However, further monitoring results have been submitted as Appendix B in the Response to the Examining Authority’s Written Questions (ExQ1) (Document Reference 8.4, REP1-009).</td><td>Additional Air Quality Monitoring Data as submitted in Appendix B in the Response to the Examining Authority’s Written Questions (ExQ1) (Document Reference 8.4, REP1-009):

Table 1 Details of PM_{10} and $PM_{2.5}$ local authority monitoring sites
<table>
<tr><th rowspan="2">Local Authority and ID</th><th rowspan="2">Site name</th><th rowspan="2">Site Classification</th><th colspan="2">National grid references</th></tr>
<tr><th>X</th><th>Y</th></tr>
<tr><td>Stroud Hardwicke</td><td>Hardwicke</td><td>Surburban</td><td>380203</td><td>212842</td></tr>
<tr><td>Stroud Haresfield</td><td>Haresfield</td><td>Rural</td><td>381324</td><td>210015</td></tr>
</table>
Table 2 Local authority monitoring results for PM_{10}
<table>
<tr><th rowspan="2">Local Authority and ID</th><th rowspan="2">Site name</th><th colspan="5">National grid references</th></tr>
<tr><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th></tr>
<tr><td>Stroud Hardwicke</td><td>Hardwicke</td><td>N/A</td><td>N/A</td><td>N/A</td><td>9.9</td><td>10.1</td></tr>
<tr><td>Stroud Haresfield</td><td>Haresfield</td><td>N/A</td><td>N/A</td><td>N/A</td><td>9.9</td><td>8.6</td></tr>
</table>
Table 3 Local authority monitoring results for $PM_{2.5}$
<table>
<tr><th rowspan="2">Local Authority and ID</th><th rowspan="2">Site name</th><th colspan="5">National grid references</th></tr>
<tr><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th></tr>
<tr><td>Stroud Hardwicke</td><td>Hardwicke</td><td>N/A</td><td>N/A</td><td>N/A</td><td>7.1</td><td>6.4</td></tr>
<tr><td>Stroud Haresfield</td><td>Haresfield</td><td>N/A</td><td>N/A</td><td>N/A</td><td>7.1</td><td>5.8</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 5 – Air quality</td><td></td><td>Table 4 Predicted $PM_{2.5}$ background pollutant concentrations for 2018
<table>
<tr><th rowspan="2">Local Authority ($\mu g/m^3$)</th><th colspan="3">Annual mean $PM_{2.5}$ concentration</th></tr>
<tr><th>Max</th><th>Min</th><th>Average</th></tr>
<tr><td>Cheltenham Borough Council</td><td>10.3</td><td>8.0</td><td>9.2</td></tr>
<tr><td>Cotswold District Council</td><td>10.4</td><td>7.7</td><td>8.4</td></tr>
<tr><td>Gloucester City Council</td><td>11.1</td><td>8.4</td><td>9.8</td></tr>
<tr><td>South Gloucestershire District Council</td><td>10.9</td><td>7.4</td><td>8.2</td></tr>
<tr><td>Stroud District Council</td><td>10.6</td><td>7.5</td><td>8.3</td></tr>
<tr><td>Swindon Borough Council</td><td>11.3</td><td>8.4</td><td>9.4</td></tr>
<tr><td>Tewkesbury Borough Council</td><td>10.7</td><td>7.9</td><td>8.6</td></tr>
<tr><td>West Berkshire Council</td><td>11.5</td><td>8.3</td><td>9.2</td></tr>
<tr><td>West Oxfordshire District Council</td><td>11.1</td><td>8.2</td><td>9.1</td></tr>
<tr><td>Wilshire Council</td><td>11.4</td><td>7.6</td><td>8.4</td></tr>
</table></td></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 5 – Air quality (APP-036)</td><td>Additional paragraph under Section 5.11 Monitoring required to reflect the need for operational monitoring of Ullen Wood Ancient Woodland and Veteran Trees (VT VT13, VT21, VT43 and VT98), in response to the Joint Council's Statement of Common Ground (see Statement of Commonality Appendix A (Document Reference 7.3, REP1-006).</td><td>New Paragraph 5.11.3 added for ES Chapter 5 – Air Quality:
Air quality monitoring would be undertaken at appropriate locations to determine emissions during operation of the scheme and confirm the impact on Ullen Wood Ancient Woodland and veteran trees. Monitoring would be undertaken for 1 year from the first full year of operation. Should monitoring identify poorer air quality, remedial action would be required.</td></tr>
</table>

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 18 Glossary (APP-049)</td><td>Clarification on Terminology - Examining Authority’s Written Questions (PD-008) Question 1.1.12:
“There are numerous instances where the phrase “at grade” is utilised. For clarity, what does this term mean and is it the same in all instances where it appears (for example paragraph 6.2.81 of the Case for the Scheme)?”

Addition of ‘At-grade’ within the Applicant’s response in the Response to the Examining Authority’s Written Questions (ExQ1) (Document Reference 8.4, REP1-009).</td><td>Table 18-1 of ES Chapter 18 Glossary is amended to:

Table 18-1 Glossary Table<table><tr><th>Glossary term</th><th>Description</th></tr><tr><td>At grade</td><td>Any element of the scheme, for example roads, crossings or footpaths, that are at the same level as each other.</td></tr></table></td></tr>
</table>

Table 2-3 Environmental statement chapter update – Deadline 4

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td rowspan="11">Volume 6.2 Environmental Statement Chapter 2 The Project (APP-033)</td><td rowspan="11">Table 2-2 updated to include an additional restriction (0m between points S and T on sheet 1 of the Works Plans) to the lateral Limit of Deviation to ensure that the earthworks footprint will remain outside on the existing Flyup car park.</td><td>
Table 2-2 Lateral LoD
<table>
<tr><th>Work No. (Refer to Works Plans (Document reference 2.4))</th><th>Description</th><th>Lateral LoD</th></tr>
<tr><td rowspan="4">1</td><td rowspan="4">A417 mainline</td><td>1.0m between points A and B on sheet 1 of the Works Plans</td></tr>
<tr><td>0m between points C and D on sheet 1 of the Works Plans</td></tr>
<tr><td>0m between points S and T on sheet 1 of the Works Plans</td></tr>
<tr><td>0m between points G and H on sheet 2 of the Works Plans</td></tr>
<tr><td>1k</td><td>Cold Slad Lane</td><td>5.3m between points E and F on sheet 2 of the Works Plans</td></tr>
<tr><td>5</td><td>Gloucestershire Way crossing</td><td>1.0m between points I and J on sheet 2 of the Works Plans</td></tr>
<tr><td rowspan="3">6</td><td rowspan="3">B4070</td><td>0m between points K and L on sheet 3 of the Works Plans</td></tr>
<tr><td>1.0m between points M and N on sheet 3 of the Works Plans</td></tr>
<tr><td>0m between points O and P on sheet 3 of the Works Plans</td></tr>
<tr><td>10</td><td>Cowley junction</td><td>0m between points Q and R on sheet 6 of the Works Plans</td></tr>
</table>
</td></tr>
</table>

3 Environmental Statement Errata

3.1.1 Table 3-1 Environmental statement chapter errata – Deadline 1 and Table 3-2 Environmental statement chapter errata – Deadline 2 ~~has~~ have been produced to detail any errors or omissions within the ES which have been identified through the Examination and provides corrections as appropriate.

Table 3-1 Environmental statement chapter errata – Deadline 1

Document reference	Reason for amendment to the ES	Amendment to the ES
Volume 6.2 Environmental Statement Chapter 2 – The Project (APP-033)	**Paragraphs 2.5.7 to 2.5.10** provides detail on the expected future baseline scenario, including expected changes to landscape, ecological and heritage assets, and climate change. However, there is no mention of the future baseline of flood risk, although this is assessed within ES Chapter 13 Road Drainage and the Water Environment (Document Reference 6.2, APP-044).	**Paragraph 2.5.10** of ES Chapter 2 – The Project is amended to: Based on the current land use, the future baseline in the absence of the scheme is unlikely to change significantly by 2041. Subtle changes are expected due to climate change, such as some movements of certain species and local population changes; however, the overall habitats and species composition in the study area (as defined in ES Chapter 4 Environmental Assessment Methodology (Document Reference 6.2)) are expected to be broadly similar to that of the existing baseline. Potential changes to road drainage and water environment receptors in the future would not be noticeable, as discussed in Chapter 13 Road Drainage and the Water Environment (Document Reference 6.2) Therefore, the future baseline would remain the same as set out in the existing baseline.
Volume 6.2 Environmental Statement Chapter 5 Air Quality (APP-APP-036)	**Paragraph 5.10.30** erroneously reports that Receptor 17 has the largest increase in concentration as 0.6 ug/m^3, instead of 0.9 ug/m^3.	**Paragraph 5.10.30** of ES Chapter 5 is amended to: Receptors 17, 19 and 22 are located in the Cheltenham AQMA. Receptor 17 has the largest increase in concentration (0.9 µg/m^3) as a result of the scheme. The highest predicted concentration due to the scheme in the Cheltenham AQMA is at receptor 22 (31.6µg/m^3). There are no modelled exceedances in the Cheltenham AQMA.
Volume 6.2 Environmental Statement Chapter 5 Air Quality (APP-APP-036)	**Paragraph 5.10.24 -** omission of Receptor 71 from discussion of results.	**Paragraph 5.10.24** of ES Chapter 5 is amended to: In this discussion region nine receptors (see Table 5-6) have been selected to represent the scale of impacts associated with the scheme. Scheme-specific and local authority monitoring showed that roadside concentrations of annual mean NO2 in the Birdlip AQMA were above the AQO. A maximum monitored concentration of 61µg/m3 was recorded at the roadside of the Air Balloon roundabout. It is not representative of receptor exposure in this location as properties are set back further from the road. There are no predicted exceedances of the NO2 annual mean objective in the baseline scenario at any of the receptor locations. There are two receptors at risk of exceedance at the Air Balloon Cottages (receptors 50 and 51). Receptor 71 shows a high rate of change (2.7 ug/m3). Although the annual mean NO2 concentrations still remain below the relevant air quality threshold and therefore there is no likely significant effect in accordance with DMRB LA105.
Volume 6.2 Environmental Statement Chapter 5 Air Quality (APP-APP-036)	**Table 5-6 NO_2 concentrations at selected receptors – discussion region 1** Omission of Receptor 71 from Table 5-6.	Receptor 71 of ES Chapter 5 is added to Table 5-6. **Table 5-6 NO_2 concentrations at selected receptors – discussion region 1**

Receptor	Grid Reference (m)		Figure sheet reference	Annual mean NO2 (µg/m3)			Change (DS-DM) (µg/m3)	AADT change
	X	Y		2016 Base	2026 DM	2026 DS		
46	394545	213635	20	25.7	22.9	12.6	-10.4	-16,448
50	393450	216124	9	43.2	39.9	23.6	-16.4	8,286
51	393457	216129	9	42.7	39.1	22.8	-16.3	8,286
53	393752	215136	9	10.7	8.6	9.5	0.8	2,235
55	393391	215756	9	23.1	19.5	13.6	-5.9	-14,681
71	393869	215412	9	10.7	8.6	11.3	2.7	45,149
73	394208	215344	9	10.1	8.2	10.2	2.0	43,054
96	392879	215807	9	25.3	22.8	22.4	-0.4	8,286
99	392968	215759	9	17.7	15.3	17.2	1.9	8,286

Volume 6.2 Environmental Statement Chapter 6 – Cultural Heritage (APP-037)	**Paragraph 6.7.2** states an erroneous distance of 70m between the proposed scheme and Emma's Grove. This should be 50m.	**Paragraph 6.7.2** of ES Chapter 6 is amended to: One designated resource lies within the DCO Boundary, but outside of the footprint of the scheme. This scheduled monument consists of a group of three round barrows, known collectively as Emma's Grove (NHLE 1017079). This resource is located approximately 50m to the south of the scheme at its closest point.

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 6 – Cultural Heritage (APP-037)</td><td>Table 6-6 Scheduled monuments (high value)
Table 6-6 states an erroneous distance of 80m between the proposed scheme and Emma’s Grove. This should be 50m.</td><td>Row 10 of Table 6-6 of ES Chapter 6 is amended as follows.
Table 6-6 Scheduled monuments (high value)
<table>
<tr><th>NHLE No.</th><th>Name</th><th>Distance from scheme</th><th>Setting</th><th>Nature of impact</th><th>Magnitude of impact</th><th>Significance of effect</th></tr>
<tr><td>1017079</td><td>Three bowl barrows, known as Emma's Grove barrows</td><td>50m</td><td>The barrows are located immediately to the east of the ‘Air Balloon’ roundabout and are hidden within a small copse. The wider setting of the barrows comprises an undulating rural landscape, featuring a mixture of historic and modern fields, boundaries, tracks and woodlands. The topography is such that long distance views are rare and this sense of hiddenness and discovery as an observer moves through the landscape, encountering other contemporary prehistoric monuments as they appear in view, is a key aspect of setting that adds to its significance. This ‘mind visibility’ is likely to have been important to the builders of the barrow, and therefore the significance of the barrow is sensitive to changes to the landform within this setting, regardless of whether these changes are visible.</td><td>Passing approximately 50m to the north of these barrows, the scheme would alter the immediate setting of the barrows, although this would be ameliorated slightly by the removal of the Existing A417 immediately to the west. The scheme would represent a modern alteration to the wider rural landscape within which these barrows sit. This wider rural setting, which contains a number of other prehistoric funerary monuments, provides context to the barrow, of which the concept of movement through the landscape is a key aspect. The scheme would create a physical barrier in the landscape that would be highly intrusive in the setting of the barrows and as a result adversely affect the significance of the resource. This would equate to a moderate adverse effect according to the criteria in Table 6-4.</td><td>Minor adverse</td><td>Moderate adverse (significant effect)</td></tr>
</table></td></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 8 Biodiversity (APP-039)</td><td>Paragraph 8.9.32 requires revision as it understates the total amount of woodland created by the scheme.</td><td>The text refers to a specific area only (the main area of woodland loss).
Paragraph 8.9.32 of ES Chapter 8 is amended to:
Approximately 7.5ha of new broadleaved woodland species of native variety characteristic of existing woodland would be planted along the southern verge of the new A417 from Brockworth to the Crickley Hill area to replace woodland lost during construction and to ensure continuity of woodland habitat along this section of the scheme for the benefit of bat species. Mixed broadleaved woodland and a buffer of scrub species of approximately 5ha in area would also be planted round the borders of a field to the south of Ullen Wood. This would provide a woodland edge buffer for the ancient woodland. Similarly, additional trees and scrub would be planted on the eastern and northern edge of Emma’s Grove to create a tiered buffer of vegetation including hazel scrub and small trees.</td></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 8 Biodiversity (APP-039)</td><td>Table 8-6 Summary of field survey methods used for each type of biodiversity resource relevant to the scheme
Table 8-6 should clarify what time of year the Extended Phase 1 Habitat survey was undertaken.</td><td>Row 1 of Table 8-6 is amended as follows.
Table 8-6 Summary of field survey methods used for each type of biodiversity resource relevant to the scheme
<table>
<tr><th>Biodiversity survey</th><th>Field survey methods</th><th>Dates of survey</th><th>Reference/ Appendix</th></tr>
<tr><td>Extended Phase 1 habitat survey</td><td>Habitats within the study area were mapped, and potential for protected and notable species established following the standard JNCC methodology[23].</td><td>May and June 2017, and localised updates in various summer months in 2019, 2020 and 2021.</td><td>ES Appendix 8.1 (Document Reference 6.4), and the 2017 Preliminary Ecological Appraisal report[24].</td></tr>
</table></td></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 9 – Geology and Soils (APP-040)</td><td>Paragraphs 9.10.25 and 9.10.33 contain an error where the significance of effect on surface water is reported as ‘neutral and permanent slight adverse’, when it should have been reported as ‘permanent slight adverse’.</td><td>Paragraph 9.10.25 of ES Chapter 9 is amended to:
Although the Tier 2: GQRA have identified localised areas where elevated contamination levels may pose a risk to the controlled water receptors during construction, on application of essential mitigation no significant effects on controlled waters during construction have been identified. Therefore, overall the effect of the scheme on risks from contamination on groundwater during construction is assessed as neutral and slight adverse and not significant. For surface water this is assessed as permanent slight adverse and not significant.</td></tr>
</table>

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 9 – Geology and Soils (APP-040)</td><td>Table 9-9 Summary of effects during construction
Table 9-9 contains an error where the receptor sensitivity of the Tributary of Norman’s Brook was reported as ‘medium’, when it should have been reported as ‘high’.
Table 9-9 contains an error where the residual significance of effect was reported as ‘neutral’ for the Tributary of Horsbere Brook, Tributary of Norman’s Brook and the Tributary of River Churn, when it should have been reported as ‘slight adverse’.</td><td>Table 9-9 of ES Chapter 9 is amended as follows.
Table 9-9 Summary of effects during construction
<table>
<tr><th>Potential impact</th><th>Receptor</th><th>Description</th><th>Receptor sensitivity</th><th>Design and mitigation measures</th><th>Magnitude of impact</th><th>Residual significance of effect</th></tr>
<tr><td rowspan="8">Contaminated soil, leachate/ groundwater/ direct discharge and pollution of aquifers

Vertical and lateral migration of leachate/ groundwater contamination and/or direct contact with soil contamination

Contaminated soil, leachate/ groundwater/ direct discharge and impact on surface watercourses

Pollution migration through new drainage installed as part of slope stabilisation measures

Pollution migration along piles/ underground structures</td><td rowspan="3">Groundwater</td><td>Inferior Oolite and Great Oolite - Principal Aquifers</td><td>High</td><td rowspan="8">Tier 1: Preliminary Risk Assessment and Tier 2: GQRA, informed by available information on potential sources including desk study, and ground investigations (e.g. evidence of contamination and/or soil and groundwater chemical testing) have been completed. Areas of concern have been identified, subject to additional investigations and site specific assessments, remediation measures may be required. This would be presented in a remediation strategy.

The impact would be controlled through measures set out in the EMP (ES Appendix 2.1 EMP (Document Reference 6.4)) including appropriate hazardous materials storage and handling, pollution response and environmental management, materials management and dealing with known and unexpected contamination. Pollution control systems would be targeting areas of concern identified through the risk assessments.

The drainage design would prevent/reduce the risk of discharging pollutants into the aquifers via drainage pathways and control surface water runoff at its source. Further details on the drainage design are reported in Appendix 13.10 Drainage report (Document Reference 6.4).

Materials reused within the scheme in accordance with EMP and associated MMP (ES Appendix 2.1 Environmental Management Plan (Document Reference 6.4)) and therefore only materials suitable for end use, i.e. those that would not pose an unacceptable risk to controlled waters, would be reused.

FWRA to be completed for individual structures where deep foundations or ground improvement works are proposed, to be confirmed subject to the design at detailed design stage.</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>Superficial deposits - Secondary A aquifer</td><td>Medium</td><td>Negligible</td><td>Neutral</td></tr>
<tr><td>Lias Group - Secondary (undifferentiated) aquifer</td><td>Low</td><td>Negligible</td><td>Neutral</td></tr>
<tr><td rowspan="5">Surface water</td><td>Tributary of Horsbere Brook</td><td>Medium</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>Tributary of Norman’s Brook</td><td>High</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>River Frome and its tributaries</td><td>High</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>Tributary of River Churn</td><td>Medium</td><td>Negligible</td><td>Slight adverse</td></tr>
</table></td></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 9 – Geology and Soils (APP-040)</td><td>Table 9-10 Summary of effects during operation
Table 9-10 erroneously omitted “Superficial deposits – Secondary A aquifer” and “Lias Group – Secondary (undifferentiated aquifer)” as groundwater receptors during the operational phase of the scheme.
Table 9-10 contains an error where the receptor sensitivity of the Tributary of Norman’s Brook was reported as ‘medium’, when it should have been reported as ‘high’.
Table 9-10 contains an error where the residual significance of effect was reported as ‘neutral’ for the Tributary of Horsbere Brook, Tributary of Norman’s Brook and the Tributary of River Churn, when it should have been reported as ‘slight adverse’.</td><td>Table 9-10 of ES Chapter 9 is amended as follows.
Table 9-10 Summary of effects during operation
<table>
<tr><th>Potential impact</th><th>Receptor</th><th>Description</th><th>Receptor sensitivity</th><th>Design and Mitigation measures</th><th>Magnitude of impact</th><th>Residual significance of effect</th></tr>
<tr><td rowspan="4">Exposure to soil contamination</td><td rowspan="2">On-site users</td><td>Maintenance workers</td><td>Medium</td><td rowspan="4">N/A</td><td>Negligible</td><td>Slight beneficial</td></tr>
<tr><td>Highway users</td><td>Low</td><td>No change</td><td>Neutral</td></tr>
<tr><td rowspan="2">Off-site users</td><td>Residents of nearby properties</td><td>Very High</td><td>No change</td><td>Neutral</td></tr>
<tr><td>WCH (Public open space users)</td><td>High</td><td>Negligible</td><td>Slight beneficial</td></tr>
<tr><td rowspan="8">Leaching and migration of contaminates due to rainwater infiltration from soils used in construction to groundwater and lateral migration to surface water in areas of landscaping
Surface run-off to surface water in areas of landscaping from soils used in construction</td><td rowspan="3">Groundwater</td><td>Inferior Oolite and Great Oolite – Principal Aquifer</td><td>High</td><td rowspan="8">N/A</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>Superficial deposits – Secondary A aquifer</td><td>Medium</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>Lias Group – Secondary (undifferentiated aquifer)</td><td>Low</td><td>Negligible</td><td>Neutral</td></tr>
<tr><td rowspan="4">Surface water</td><td>Tributary of Horsebere Brook</td><td>Medium</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>Tributary of Norman’s Brook</td><td>Medium</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>River Frome and its tributaries</td><td>High</td><td>Negligible</td><td>Slight adverse</td></tr>
<tr><td>Tributary of River Churn</td><td>Medium</td><td>Negligible</td><td>Slight adverse</td></tr>
</table></td></tr>
</table>

Document reference	Reason for amendment to the ES	Amendment to the ES
Volume 6.2 Environmental Statement Chapter 13 Road Drainage and the Water Environment (APP-044)	**Paragraphs 13.5.7** omitted to include the nine months of surface water quality and flow data, between August 2020 and April 2021.	**Paragraphs 13.5.7** of ES Chapter 13 is amended to: The findings presented in this chapter are based upon the data available at the time of writing including data collected to end of October 2020 for groundwater and December 2020 for surface water and springs and nine months of surface water quality and flow data, between August 2020 and April 2021 Any data collected following these dates would be used to refine the conceptual models to support the detailed design phase and would form part of the ongoing dialogue with the EA and others.
Volume 6.2 Environmental Statement Chapter 13 Road Drainage and the Water Environment (APP-044)	**Paragraph 13.5.13** requires revision to provide clarity that the determination of groundwater conditions across the scheme is with exception of two areas, Ch.0+000 to CH. 0+500 and CH.2+100 to 2+600.	**Paragraph 13.5.13** of ES Chapter 13 is amended to: The intrusive ground investigations field work to determine the site-specific ground conditions across the majority of the scheme have now been completed and groundwater monitoring is currently ongoing, due for completion by end of June 2021. These are described in section 13.7 Baseline conditions. Groundwater monitoring was not completed in two sections of the scheme alignment: Ch.0+000 to CH. 0+500 and CH.2+100 to 2+600. Ch. 0+000 to Ch. 0+500 was not monitored as the scheme does not require significant excavations in this section (see para 13.5.14 for further details) Ch. 2+100 to 2+600 was not monitored due to no land access granted at the time of the field works. Ground investigations commenced in February 2021 and were completed in March 2021. Subsequent groundwater monitoring will continue until March 2022. Information obtained from these investigations will be considered at detailed design. Based on the hydrogeological conceptual model derived for the scheme informed by groundwater monitoring data obtained from scheme sections located on either end of the non-investigated section, the scheme would not intercept groundwater as the groundwater table is at least 30m below the scheme. Therefore, the available information on groundwater levels is considered sufficient to inform the assessments.
Volume 6.2 Environmental Statement Chapter 13 Road Drainage and the Water Environment (APP-044)	**Paragraph 13.10.14** requires clarity as to the reason behind reporting the sensitivity of Tributary of Norman's Brook as 'high', instead of 'medium' value, even though it is not designated as a WFD catchment.	**Paragraph 13.10.14** of ES Chapter 13 is amended to: *With the sensitivity of the receptor being high, and magnitude of impacts of negligible, the effect would be slight adverse and not significant. A precautionary approach has been taken, assigning the watercourse a value of high based on the potential for species protected under legislation.*

Table 3-2 Environmental statement chapter errata – Deadline 2

Document reference	Reason for amendment to the ES	Amendment to the ES
Volume 6.2 Environmental Statement Chapter 5 – Air quality (APP-036)	**Paragraph 5.1.1** **Paragraph 5.1.1** under **Section 5.11 Monitoring** should be labelled correctly as **5.11.2.**	**Paragraph 5.1.1** of ES Chapter 5 – Air Quality is amended to: **Paragraph 5.1.2.**
Volume 6.2 Environmental Statement Chapter 6 – Cultural heritage (APP-037)	**Paleoenvironmental Deposits**- Examining Authority's Written Questions (PD-008) Question 1.7.8: "*In paragraph 6.8.7 of ES Chapter 6 [APP-037] there is reference to paleoenvironmental deposits being affected by hydrological changes. There are however no further references to this within the context of this ES Chapter (other than a brief mention at 6.10.17 discounting any effect). Why is this considered sufficient consideration of the matter and please explain any effects?"* The reference to impacts to paleoenvironmental deposits in Chapter 6 Cultural heritage -paragraph 6.8.7 is erroneous, as confirmed within the Response to the Examining Authority's Written Questions (ExQ1) (Document Reference 8.4, REP1-009).	**Paragraph 6.8.7** of ES Chapter 6 – Cultural Heritage is amended to: Construction of the scheme has the potential for adverse impacts upon cultural heritage resources, including: • partial or total removal of heritage resources, including archaeological • remains, within the scheme footprint • compaction of archaeological deposits by construction traffic and structures • temporary impacts upon the settings of heritage resources • permanent impacts upon the setting of heritage resources • changes to key views and sight lines
Volume 6.2 Environmental Statement Chapter 6 – Cultural heritage (APP-037)	**Site missing from Archaeological Assessment -** Womble Bond Dickinson (UK) LLP on behalf of Historic England, Responses to Examining Authority's Written Questions (REP1-139) Question 1.7.9: **"***Sites missing from the Archaeological Assessment (Appendix 6.2) include:* *… 253 Iron Age Enclosure, linear and pits (GHER 4698)"* The Iron Age Enclosure was erroneously omitted from paragraph 6.10.12 of ES Chapter 6 – Cultural Heritage (APP-037). The Iron Age Enclosure was assessed in ES Appendix 6.2 Archaeological Assessment (Document Reference 6.4, APP-341)	**Paragraph 6.10.12** of ES Chapter 6 – Cultural heritage is amended to: The following non-designated resources that lie within or partially within the DCO Boundary coincide with features confirmed and investigated by geophysical survey and trial trenching. These are therefore considered as a component of buried archaeological remains, below. • 21- ridge and furrow • 116 - elongated mound (possible barrow) • 120 - linear earthwork bank • 132 – cropmark of late prehistoric and Roman trackways • 175 – rectilinear cropmark • 246 – ridge and furrow, circular enclosure and trackways • 248 – cropmarks south west of Harding's Barn, Cowley • 253 - Iron Age Enclosure, linear and pits

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 6 – Cultural heritage (APP-037)</td><td>Non-Designated Heritage Assets – Womble Bond Dickinson (UK) LLP on behalf of Historic England, Responses to Examining Authority’s Written Questions (REP1-139) Question 1.7.10:

“The numbers in the ES appear to be incorrect as there are only 11 sites listed in Table 6-8 not 18. “

“The Plans in ES 2.12 Heritage Designation Plans is to a legible scale and the heritage resources are clearly marked and they are numbered. Although 36 resources are identified in Chapter 6 there are 37 resource marked within the DCO boundary on the plans. It is unclear where or what the other 79 resources are that are said to be within the DCO boundary.”

“Table 6-8 also does not include Cowley Roman Settlement (GHER 5758) or a Prehistoric enclosure north east of Emma’s Grove (GHER 22451/ 3815) These were omitted from the Archaeological Assessment and previous versions of the PEIR. During pre-application consultation Historic England raised both sites as being potentially important. This omission was identified by us in our response to the PEIR consultations on 8 November 2019 and 12 November 2020 and also through discussions and e-mail correspondence. Cowley Roman site is mentioned in the ES Chapter at 6.10.14 bullet point 3, but this is a brief summary of the evaluation and not an assessment of its significance”

The references to 11 and 18 resources in Chapter 6 Cultural Heritage paragraph 6.10.7 and Table 6-8 are erroneous. Both instances should state 12 resources, as Prehistoric enclosure north east of Emma’s Grove was erroneously omitted.</td><td>Paragraph 6.10.7 and Table 6-8 of ES Chapter 6 – Cultural Heritage is amended to:
Paragraph 6.10.7
Of the 36 resources that lie within the DCO Boundary described in ES Appendix 6.2 Archaeological assessment (Document Reference 6.4), 18 would be directly impacted by the scheme in their entirety. These are listed in Table 6-8.

Table 6-8 Permanent direct impacts on non-designated resources within DCO Boundary
<table>
<tr><th>Archaeological Assessment Ref no.</th><th>Description</th><th>Period</th><th>Type</th><th>Value</th><th>Nature of impact</th><th>Magnitude of impact</th><th>Significance of effect</th></tr>
<tr><td>22451/5815</td><td>Prehistoric enclosure north east of Emma’s Grove</td><td>Iron Age</td><td>Buried archaeological remains</td><td>Medium</td><td>The resource would be removed entirely by construction activities within the DCO Boundary.</td><td>Major adverse</td><td>Slight adverse due to the total loss of a low value resource, mitigated by preservation by record.</td></tr>
</table></td></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 6 – Cultural heritage (APP-037)</td><td>Heritage Resources – Womble Bond Dickinson (UK) LLP on behalf of Historic England, Responses to Examining Authority’s Written Questions (REP1-139) Question 1.7.10:

“At 6.7.10 the ES Chapter 6 states there are 116 heritage resources within the DCO boundary. These 116 sites are not identified anywhere in the Chapter or its appendices.”

The reference to 116 heritage resources is erroneous. This should state 36.</td><td>Paragraph 6.7.10 of ES Chapter 6 – Cultural Heritage is amended to:
255 non-designated heritage resources are present within the study area, of which 116 lie within the DCO Boundary for the scheme. Of these, 27 are sites recorded in the Gloucestershire Historic Environment Record (HER), and the others represent individual artefact find-spots recorded by the Portable Antiquities Scheme (PAS).</td></tr>
<tr><td>Volume 6.2 Environmental Statement Chapter 6 – Cultural heritage (APP-037)</td><td>Mis-graded Asset – Womble Bond Dickinson (UK) LLP on behalf of Historic England, Responses to Examining Authority’s Written Questions (REP1-139) Question 1.7.10:

“Peak Camp (GHER 4754), although mentioned within Chapter 6, it is missed off the mapping (ES 2.12 Heritage Designations Plans). At 6.10.9 it is stated to be a resource of Medium value. The site as a Neolithic settlement is reckoned due to its rarity to be of national importance and schedulable (Paragraph 4.1 Scheduling Selection Guide Settlements to 1500, Historic England 2018). Because of this it is of high value”

Peak Camp is agreed to be upgraded to ‘high’ value. This change does not change the assessment outcomes in ES Chapter 6 Cultural Heritage.</td><td>Paragraph 6.10.9 of ES Chapter 6 – Cultural Heritage is amended to:
Although it is not scheduled, Peak Camp (45), is considered to be a resource of high value. Though currently wooded, Peak Camp was located to take advantage of views to the west from the escarpment, and towards a contemporary prehistoric enclosure on Crickley Hill. These views today contain modern infrastructure including the A417, M5 and other modern development that forms the urban curtilage of Gloucester to the west. Despite this, the location of Peak Camp, and views from it make a positive contribution to its significance.</td></tr>
</table>

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr>
<td>Volume 6.2 Environmental Statement Chapter 7 Landscape and visual (APP-038)</td>
<td>
Scope of the ES- Examining Authority’s Written Questions (PD-008) Question 1.8.5:
B. Visual receptors:

“For the Community of Birdlip, Table 7-12 notes that “Parts of the community may experience direct views, large changes which may appear dominant or form a noticeable feature in views or their visual resource at close proximity from locations to the north and east of Birdlip”. Can the Applicant provide a justification for not including the assessment within the main ES chapter, as it has currently been scoped out and is reported in Appendix 7.5 [APP-352], despite the assessment indicating that it is of a medium sensitivity with a potentially moderate adverse effect during construction, which therefore may require scoping into the assessment in order to consider mitigation measures?
For the community of Cold Slad, Table 7-12 indicates that this is to be scoped in, however the assessment is presented within Appendix 7.5 [APP-352] and the accompanying text appears to indicate that the Applicant has decided to scope this out. Can the Applicant provide clarification as to the intended location of this assessment?”

Table 7-12 of ES Chapter 7 Landscape and Visual erroneously states that the community of Birdlip may experience large changes in views which may appear dominant or form a noticeable feature in views. This should state that the community of Birdlip would have limited views of the proposed development.

Table 7-12 of ES Chapter 7 Landscape and Visual erroneously states that the community of Cold Slad is scoped into the assessment. This should state ‘scoped out’.

These errors and their amendments were confirmed within the Response to the Examining Authority’s Written Questions (ExQ1) (Document Reference 8.4, REP1-009).
</td>
<td>
Table 7-12 of ES Chapter 7 Landscape and Visual is amended to:
Table 7-12 Visual receptors scoped in and out of assessment
<table>
<tr><th>Receptor</th><th>Representative viewpoint number</th><th>Receptor scoped in/out</th><th>Reason</th></tr>
<tr><td>Community of Birdlip</td><td>VP39</td><td>Scoped out</td><td>The community of Birdlip are unlikely to experience large changes which may appear dominant or form a noticeable feature in views or their visual resource from this distance and as a result of intervening vegetation and landform.
The visual amenity for the Community of Birdlip was assessed. The assessment determined that there would be no significant visual effects during construction or operation for the Community of Birdlip. The content of the visual assessment has been moved to ES Appendix 7.5 Visual Assessment Tables (Document Reference 6.4).</td></tr>
<tr><td>Community of Cold Slad</td><td>VP13 and VP14</td><td>Scoped out</td><td>The community may experience direct views, large changes which may appear dominant or form a noticeable feature in views or their visual resource at close proximity from locations along Cold Slad lane, limited to gaps in vegetation and between properties. The visual amenity for the Community of Cold Slad was assessed. The assessment determined that there would be no significant visual effects during construction or operation for the Community of Cold Slad. The content of the visual assessment has been moved to ES Appendix 7.5 Visual Assessment Tables (Document Reference 6.4).</td></tr>
</table>
</td>
</tr>
</table>

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr>
<td>Volume 6.2 Environmental Statement Chapter 8 Biodiversity (APP-039)</td>
<td>Change lowland meadow habitat references
Correspondence with Natural England has confirmed that the habitat referred to as lowland meadow to the north of Shab Hill within ES Chapter 8 Biodiversity has originated from arable reversion, undertaken since 2002 under an Environmental Stewardship agreement. Therefore, whilst the habitat approximates to MG5a grassland, it is not semi-natural, unimproved grassland and does not meet definition of lowland meadow priority habitat. Therefore, updates to the impact assessment and valuation have been amended.

ES Chapter 8 Biodiversity erroneously states that the total area of this neutral species-rich grassland to the north of Shab Hill is 4.5ha. This should state 5.32ha.</td>
<td>Paragraphs 8.7.53, 8.7.55, 8.9.42, 8.10.87, 8.10.97, 8.10.99, 8.10.101 and Table 8-21 of Chapter 8 Biodiversity are amended to:
Paragraph 8.7.53
A field north of Shab Hill was surveyed due to the species-rich nature of the grassland with a high cover of forbs and species such as bee orchids, common spotted orchids and yellow rattle (Rhinanthus minor), noted during other species surveys. This field was assessed to be neutral grassland of NVC community MG5a (crested dog’s-tail (Cynosurus cristatus) and common knapweed (Centaurea nigra)), although is described as an atypical example. It has maintained good floristic condition of high botanical value due to sympathetic agricultural management and exhibits characteristics of a hay meadow. Correspondence with Natural England has confirmed that this grassland has originated from arable reversion undertaken since 2002 under an Environmental Stewardship agreement. Therefore, whilst the habitat approximates to MG5a grassland, it is not semi-natural, unimproved grassland and does not meet definition of lowland meadow priority habitat.

Paragraph 8.7.55
Neutral, species rich grassland of high botanical value recorded to the north of Shab Hill is considered to be species-rich semi-improved neutral grassland of county importance.

Paragraph 8.9.42
A field of high botanical value known to contain an abundance of orchids and approximating to NVC community MG5a was recorded to the north of Shab Hill. The topsoil containing the seed bank from this field would be stored and retained in order to use it in areas of neutral species-rich grassland habitat creation (including attenuation basins) or enhancement within the scheme. Methodologies will be developed through detailed design and included in Annex D LEMP of ES Appendix 2.1 EMP (Document Reference 6.4).

Paragraph 8.10.87
<u>Grassland</u>
The scheme would result in the following direct losses of grassland types, valued as being of local importance and above:
• Calcareous grassland – unimproved - national importance (HPI) (0.09ha).
• Calcareous grassland – semi-improved - county importance (2.44ha).
• Neutral grassland - semi-improved, species-rich grassland - county importance (HPI) (5.32 ha).
• Neutral grassland - semi-improved (other) - local importance (4.48ha).
• Neutral grassland poor semi-improved - local importance (36.17ha).

Paragraph 8.10.97
There are localised areas of neutral species-rich grassland within the DCO Boundary. Most notably, a grazed and managed meadow, measuring approximately 5.32 ha, of high botanical value to the north of Shab Hill. This species-rich grassland originates from arable reversion under an Environmental Stewardship agreement. It approximates to MG5a NVC community and contains an abundance of orchids. This meadow falls within the main alignment of the scheme and its loss would be unavoidable. The topsoil and seed bank from this field would be stored and retained in order to use it in areas of nearby habitat creation within the scheme.

Paragraph 8.10.99
The loss of 5.32 ha of neutral species-rich grassland habitat to the north of Shab Hill, in the early stages of the construction programme, would result in permanent/irreversible damage that would negatively affect the integrity of the resource. The habitat loss would represent a major adverse impact upon this biodiversity resource.

Paragraph 8.10.101
In summary, neutral semi-improved species rich grassland would be subject to a major adverse impact due to loss resulting from construction activities. The residual effect associated with the scheme is considered to be moderate adverse at the county level, and significant.

Table 8-21 Summary of assessment of likely significant construction effects
<table>
<tr><th>Ecological receptor</th><th>Description of potential impact</th><th>Embedded design, mitigation, and enhancement measures</th><th>Importance of receptor</th><th>Duration and reversibility</th><th>Magnitude of impact</th><th>Significance of potential effect</th></tr>
<tr><td>Species-rich neutral grassland</td><td>Habitat loss</td><td>The topsoil and seed bank from this field would be stored and retained in order to use it in areas of nearby habitat creation within the scheme.</td><td>County</td><td>Permanent/ irreversible</td><td>Major adverse</td><td>Moderate adverse (significant)</td></tr>
</table>
</td>
</tr>
</table>

Document reference	Reason for amendment to the ES	Amendment to the ES
Volume 6.2 Environmental Statement Chapter 8 Biodiversity (APP-039)	**Calcareous grassland net gain** Table 8-18 of ES Chapter 8 Biodiversity correctly states the net gain of calcareous grassland and neutral grassland (75.41ha and 7.6ha respectively). However, paragraphs 8.9.86 and 8.9.115 state marginally incorrect totals.	**Paragraphs 8.9.86** and **8.9.115** of ES Chapter 8 Biodiversity are amended to: Paragraphs 8.9.86 Mitigation measures would include landscape planting designed to replace that lost and incorporate features beneficial to invertebrates throughout the scheme. Habitat creation would include the planting of 75.41 ha of species-rich calcareous and 7.52 ha of neutral grassland with species beneficial to insects including pollinators. Species mixes would seek to include plants that provide a food source for scarce species identified onsite and especially within the SSSIs such chalkhill blue (*Lysandra coridon*), green hairstreak (*Callophrys rubi*), marsh fritillary (*Eurodryas aurinia*), Duke of Burgundy fritillary (*Hamearis Lucina*) and the day flying cistus forester moth (*Adscita Geryon*). Paragraphs 8.9.115 The landscape design focusses on provision of priority habitats that are present within the Cotswold AONB. Natural England and Gloucestershire Wildlife Trust's vision for the scheme was to increase the area of lowland calcareous grassland. The current area of unimproved and semi-improved calcareous grassland within the scheme boundary is approximately 4.9ha (of which 2.53ha would be lost). A total of 75.41 ha would be created following construction of the scheme. Whilst some of this area would be to compensate for the loss of SSSI calcareous grassland and mitigate the impacts of further fragmentation of SSSI habitat or loss of foraging habitat, the very large increase in calcareous grassland area exceeds that created for mitigation and is considered an enhancement. Furthermore, a 25m wide corridor of calcareous grassland will be provided across the Gloucestershire Way crossing, providing a continuous habitat link for calcareous grassland flora and fauna to disperse through the landscape. This is an enhancement in comparison to the Existing A417 which has no such provision.
Volume 6.2 Environmental Statement Chapter 9 Geology and soils (APP-040)	**Hydrology** - Examining Authority's Written Questions (PD-008) Question 1.6.1: "*a) With reference to paragraph 9.7.24 in ES Chapter 9 [APP040], can any more certainty be given as to the relationship between the stream south of the Birdlip junction and the Churn valley?*" Paragraph 9.7.24 of ES Chapter 9 Geology and Soils erroneously refers to Birdlip Junction. This should refer to Birdlip Radio Station, as confirmed within the Response to the Examining Authority's Written Questions (ExQ1) (Document Reference 8.4, REP1-009).	**Paragraph 9.7.24** of Chapter 9 Geology and Soils is amended to: The tributary of Norman's Brook is a watercourse running from east to west below Crickley Hill and is primarily groundwater fed. It is connected to the River Severn and rises from springs on the escarpment. A small stream was also noted above the escarpment, immediately south of Birdlip Station, which is possibly associated with the Churn valley near Shab Hill.

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr>
<td>Volume 6.2 Environmental Statement Chapter 14 Climate (APP-045)</td>
<td>Clarification on Data - Examining Authority’s Written Questions (PD-008) Question 1.1.17:
“In Chapter 14 of the ES [APP-045] Table 14-15 suggests total construction emissions of 74,114 tCO2e but paragraph 14.10.4 states this is 74,144. Confirm the correct figure”

Table 14-15 and Table 14-18 erroneously report the total construction emissions as 74,114 tCO_2e. This should state 74,144 tCO_2e, as confirmed within the Response to the Examining Authority’s Written Questions (ExQ1) (Document Reference 8.4, REP1-009).</td>
<td>Tables 14-15 and 14-18 of ES Chapter 14 Climate are amended to:
Table 14-15 Construction Stage emissions
<table>
<tr><th>Main stage of project life cycle</th><th colspan="2">Sub-stage of life cycle</th><th>Emissions (tCO_2e)</th><th>% of total construction emissions*</th></tr>
<tr><td rowspan="5">Construction stage</td><td colspan="2">Product stage; including raw material supply, transport and manufacture (A1-A3)</td><td>40,698</td><td>55%</td></tr>
<tr><td rowspan="2">Construction process stage; including:</td><td>Transport to/from works site (A4)</td><td>2,668</td><td>4%</td></tr>
<tr><td>Construction/installation processes (A5)</td><td>20,818</td><td>28%</td></tr>
<tr><td colspan="2">Land use change (D); future loss of ability to sequester carbon from habitats lost during construction (over the 60 year assessment period)</td><td>9,960</td><td>13%</td></tr>
<tr><td colspan="2">Construction stage total</td><td>74,144</td><td>100%</td></tr>
</table>
Table 14-18 Assessment of scheme net emissions (up to 2032) against UK Government carbon budgets
<table>
<tr><th rowspan="2">Project stage</th><th rowspan="2">Estimated total (cumulative) GHG emissions over carbon budgets (tCO_2e) (‘Do-Something’ scenario)</th><th rowspan="2">Net (cumulative) GHG emissions over carbon budgets (tCO_2e) (‘Do-Something’-‘Do-Minimum’)</th><th colspan="4">Net (cumulative) scheme GHG emissions per relevant carbon budget (tCO_2e)</th></tr>
<tr><th>Third (2018 - 2022)</th><th>Fourth (2023 - 2027)</th><th>Fifth (2028 - 2032)</th><th>Sixth[1] (2033 - 2037)</th></tr>
<tr><td>Construction (over a period of 42 months, assumed to commence in early 2023-2026)</td><td>74,144</td><td>74,144</td><td>n/a</td><td>74,144</td><td>n/a</td><td>n/a</td></tr>
<tr><td>Operation (modelled from 2026 through to 2037)</td><td>2,373,212</td><td>152,565</td><td>n/a</td><td>22,158</td><td>61,196</td><td>69,211</td></tr>
<tr><td>Total</td><td>2,447,356</td><td>226,709</td><td>n/a</td><td>96,302</td><td>61,196</td><td>69,211</td></tr>
</table>
</td>
</tr>
</table>

[1] The sixth carbon budget has been committed to by government and is expected to become law by June 2021.

Volume 6.4 Environmental Statement Appendix 6.1 Designated Assets: Value (Sensitivity) (APP-340)

Missing reference to the Peak – National Trust Written Representation (REP1-098) Point 3 of Annex B:

"3. *The setting analysis in the EIA for Crickley Hill mentions modern intrusions but does not mention the inter-relationship of the natural and historic environment, which is such a critical aspect of its significance and setting, underplays this site's visual and historic relationship to The Peak, Emma's Grove with its east-facing enclosure and other prehistoric monuments in the area, and its historic and visual relationship to views westwards. Considered as a whole, this group has national importance as evidence of how prehistoric peoples adapted the landscape as agricultural, social and religious practices changed.* "

Reference to the Peak was erroneously excluded from the setting description for Crickley Hill.

Table 6-3 of ES Chapter 6 Cultural heritage (Document Reference 6.2, APP-037) and **Table 1-1** of ES Appendix 6.1 Designated Assets: Value (Sensitivity) (Document Reference 6.4, APP-340) is amended to:

Table 6-6 Scheduled monuments (high value)

NHLE	Name	Distance from scheme	Setting	Nature of impact	Magnitude of impact	Significance of effect
1003586	Crickley Hill camp	250m	Sitting in a prominent position on the edge of the Cotswold escarpment, Crickley Hill's setting is one of long views over the lowlands to the west, shorter views to the south, down onto the slopes of Crickley Hill itself, and to the south east across Emma's Grove Barrows. Crickley Hill sits opposite the Peak, a Neolithic enclosure contemporary with the earliest phases of activity at Crickley Hill. There is a clear connection between these monuments, that is likely to have involved an element of control over the space now containing the A417. This relationship contributes substantially to the significance of the resource. This setting takes in a wide range of modern intrusions, not least the city of Gloucester with its residential and light industrial outskirts, the M5 in the mid distance, and the A417 as it approaches and passes next to the site. Despite these intrusions, the setting of the site clearly demonstrates the situation of the Neolithic, Bronze Age and Iron Age phases of the site and as such makes a substantial contribution to the significance of the resource.	The widened A417 would be visible from Crickley Hill in views to the south and would alter some elements of the setting that contribute to its significance, in particular views towards the contemporary prehistoric site, The Peak. This change to its setting would affect the ability to understand Crickley Hill in its wider context, and as a consequence its significance would be diminished. This would equate to a slight adverse effect according to the criteria in Table 6-4.	Minor Adverse	Slight Adverse

Table 1-1 Designated assets – Description, setting and value (sensitivity)

NHLE	Name	Designation	Grade	Description	Setting	Value (sensitivity)	References
1003586	Crickley Hill camp	Scheduled	N/A	There is evidence of the first major occupation of Crickley Hill c. 3rd millennium BC with the remains of a causewayed enclosure at the top of the hill. The site is comprised of two lines of interrupted ditches cut off the low knoll, accompanied by a bank built of stones taken from the ditch; two entrances; and pits and post-sockets that outline where structures would have stood. The phasing of the infilling of the ditches suggests a lengthy but intermittent use of the early site.	Sitting in a prominent position on the edge of the Cotswold escarpment, Crickley Hill's setting is one of long views over the lowlands to the west, shorter views to the south, down onto the slopes of Crickley Hill itself, and to the south east across Emma's Grove Barrows. Crickley Hill sits opposite the Peak, a Neolithic enclosure contemporary with the earliest phases of activity at Crickley Hill. There is a clear connection between these monuments, that is likely	High	Dixon, P W, 1977, Crickley Hill and Gloucestershire Prehistory, Gloucestershire County Council, Gloucester.

<table>
<tr><th>Document reference</th><th>Reason for amendment to the ES</th><th>Amendment to the ES</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td></td><td></td><td></td><td>Use of the site continued into the Iron Age with the addition of a hill-top enclosure. The development of Crickley Hill in the 7th/ 6th century BC saw the addition of a new rampart and ditched enclosure abutting the previous Neolithic. The occupation of the hillfort lasted no more than two generations before the site was abandoned. A second hillfort was constructed at the site around a century later with a central “great” roundhouse c. 50 feet in diameter, surrounded by sporadically placed smaller round houses and small square structures that were probably granaries or stores. Crickley Hill has archaeological interest due to the settlement remains known to be present.</td><td>to have involved an element of control over the space now containing the A417. This relationship contributes substantially to the significance of the resource. This setting takes in a wide range of modern intrusions, not least the city of Gloucester with its residential and light industrial outskirts, the M5 in the mid distance, and the A417 as it approaches and passes next to the site. Despite these intrusions, the setting of the site clearly demonstrates the situation of the Neolithic, Bronze Age and Iron Age phases of the site and as such makes a substantial contribution to the significance of the resource.</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Volume 6.4 Environmental Statement Appendix 6.2 Archaeological Assessment (APP-341)</td><td>National Trust Written Representation (REP1-098):

“The hilltop location which favoured the establishment of Mesolithic and Neolithic communities prompted the choice of location for the radio station at Birdlip in the Second World War, which is a rare surviving example of its type and of ‘Medium’ significance in a national context.”

National Highways agrees with the National Trust to update the significance to ‘Medium’.</td><td>The Archaeology Database in Appendix 1 of Appendix 6.2 Archaeological Assessment is amended to:
Archaeology Database
<table>
<tr><th>Our Reference</th><th>HER reference</th><th>NMR / HE reference</th><th>PAS</th><th>Description</th><th>Period</th><th>Type</th><th>Significance</th><th>Lidar</th><th>Aerial photograph</th></tr>
<tr><td>124</td><td>17036</td><td>1586997</td><td></td><td>A Second World War radio station</td><td>WWII</td><td>Military</td><td>Medium</td><td>No data available</td><td>RAF/CPE/U/1897 RS 4446-4447 12-DEC-1946; RAF/543/673 F41 0001- 0003 24-AUG-1959; RAF/543/1913 F22 0036- 0038 17-OCT-1962; OS/70291 V 380-381; 357-358 11-AUG-1970; OS/89088 V 014-015 21- APR-1989</td></tr>
</table>
</td></tr>
</table>