

A428 Black Cat to Caxton Gibbet improvements

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Volume 9

9.97 Applicant's Response to the Examining Authority's Third
Round of Written Questions

Planning Act 2008

Rule 8(1)(b)

The Infrastructure Planning (Examination Procedure)
Rules 2010

January 2022

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Examination Procedure) Rules 2010**

A428 Black Cat to Caxton Gibbet improvements

Development Consent Order 202[]

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1 Applicant's Response to the Examining Authority's Third Round of Written Questions

- 1.1.1 This document has been prepared by the Applicant to set out its responses to the Examining Authority's (ExA's) third round of written questions.
- 1.1.2 These can be found in **Table 1-1** below.

Table 1-1 Applicant's Response to the Examining Authority's Third Round of Written Questions

No.	Directed to	Question
Q3.1	General and Cross Topic	
Q3.1.1	Equality Impact Assessment	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.1.2.1	All Parties Applicant	<p>Question: Environment Act 2021 The ExA is aware that the Environment Act 2021 received royal assent on 9 November 2021.</p> <p>a) All Parties and the Applicant are invited to explain, with reasons, whether the assent of the Act has any implications on the Proposed Development, including with regard to Air Quality, Biodiversity, Water, Waste and Monitoring.</p> <p>b) More specifically, Section 99 and Schedule 15 of the Act and the subsequent amendments to the Planning Act 2008 will require certain NSIPs to increase biodiversity by 10% compared to predevelopment values. Do you believe there are any implications on the Proposed Development, if so explain with reasons, including if relevant, how any additional measures could be delivered.</p> <p>Answer:</p> <p>a) The Environment Act 2021 currently is subject to one commencement regulation relating to creation of the Office of Environmental Protection (OEP). This commencement order requires the Secretary of State for the Environment to establish the 'semi-independent' Office of Environmental Protection with two objectives: Environmental protection and improvement of the natural environment.</p>

No.	Directed to	Question
		<p>OEP has enforcement powers to hold both government departments, semi state organisations and companies with a statutory mandate to account regarding their environmental performance.</p> <p>While the OEP may have a remit regarding the operations of the Applicant, its role does not specifically relate to the Scheme.</p> <p>The Environment Act also requires the Secretary of State to set at least one legally binding target for each of four priority areas: water; air quality; biodiversity; and resource efficiency and waste reduction. Targets are not yet in place but due to be available by the end of 2022 and apply for at least 15 years. Non-legally binding interim targets will be established against which the Environmental Improvement Plan will be monitored. While these targets may affect the Scheme, in the absence of any information about them, it is not possible to establish what the effects will be and how they could be monitored.</p> <p>Organisations are required to 'pay regard' to five overriding environmental principles with a policy statement to be published by Government in due course. These are:</p> <ul style="list-style-type: none"> • Integration • Prevention • Rectification at source • Precautionary • Polluter pays <p>In the absence of the policy statement, it is not possible to establish how the policy statement will affect the Scheme; however, through the Environmental Impact Assessment and best practice, the Applicant has addressed the principles appropriate to the Scheme.</p> <p>Specifically, with regard to air quality, the Environment Act provides a mechanism for a consultation on PM2.5 targets. This consultation will take place by October 2022 with the targets set thereafter. The Act also further defines the duties of local authorities in relation to protection of designated areas for air quality and the role of air quality partners regarding the effects they have on these areas. While these targets may affect the Scheme, in the absence of any information about them, it is not possible to establish what the effects will be and how they could be monitored. At this time, National Highways' projects will continue to be assessed in line with the existing air quality objectives and limits as applicable and in accordance with current legislation and in compliance with the NPSNN.</p>

No.	Directed to	Question
		<p>Specifically in relation to Biodiversity, the Environment Act mandates biodiversity net gain to ensure that new development enhances the environment, contributes to ecological networks and conserves precious landscapes. It makes it mandatory for certain types of development, subject to some narrow exemptions, to achieve at least a 10% net gain in value for biodiversity – a requirement that habitats for wildlife must be left in a measurably better state than before the development. Developers must submit a 'biodiversity gain plan' alongside usual planning application documents. The relevant local authority must assess whether the 10% net gain requirement is met in order to approve the biodiversity gain plan. If net gain is not achievable on-site, offsite habitat creation/enhancements will have to be agreed. Part (b) of this response provides further information on the implications for the Scheme in relation to this; however, in the absence of commencement legislation, in the context of the Scheme, biodiversity net gain is not a statutory requirement and the mechanisms for its delivery will not be available until commencement legislation has been produced. As a result, there is currently no requirement to achieve net gain for Nationally Significant Infrastructure Projects.</p> <p>Specifically in relation to Water, there are duties for the Secretary of State for Environment, water companies and the Environment Agency. In relation to the Secretary of State, the following actions are required by the Environment Act:</p> <ul style="list-style-type: none"> • Prepare and publish a report setting out actions needed to eliminate storm overflows in England, including costs and benefits of those actions. • Where necessary, the Secretary of State has powers to update the list of priority substances. • Where necessary, the Secretary of State has powers to amend REACH and REACH Enforcement Regulations 2008 that were retained under the EU (Withdrawal) Act 2018. • In relation to water companies (in some cases in collaboration with the Environment Agency), the Environment Act now requires they complete the following duties: <ul style="list-style-type: none"> • To publish annual storm overflow data. • To publish near real-time monitoring of storm overflow operation (within 1 hr). • To monitor water quality upstream and downstream of sewage treatment works and overflows. • To prepare 5yr Drainage and Sewage Management Plans that examine and investigate network capacity and will enable better risk-based assessments of critical drainage, wastewater issues, impacts on the environment, long-term planning, and improvements in resilience to extreme weather events and flooding.

No.	Directed to	Question
		<ul style="list-style-type: none"> • To collaborate and prepare joint proposals for managing supply and demand, resilience and environmental improvements. • To have their licence conditions amended to modernise the process for water and sewerage companies. <p>In relation to the Environment Agency solely, the following powers have been created as a result of the Environment Act:</p> <ul style="list-style-type: none"> • Modernise water abstraction regime by giving powers to revoke or vary (old) permanent abstraction licences without liability for compensation where this is necessary for environmental protection or where the licence is considered under-used. <p>While the result of these powers and duties may indirectly impact the Scheme, none impact directly because they do not relate to activities which the Scheme will be involved in. While there are specific monitoring duties, these relate to water companies and the Environment Agency and will not be relevant to the Scheme. At this time, National Highways' projects will continue to be assessed in line with the existing water quality objectives and limits as applicable and in accordance with current legislation in compliance with the NPSNN.</p> <p>Specifically in relation to waste reduction and resource management, as referenced in the Act, there are new obligations put on the producers in relation to the re-use, redistribution and recycling of products and new powers to national authorities to set resource efficiency requirements for products to meet. While it has been identified that the Scheme will produce waste, there are also parts of the Scheme (borrow pits) which have been developed to use resources efficiently within the Scheme and minimise waste.</p> <p>With regard to monitoring, a suite of indicators was published in May 2019 to be updated annually and the Scheme may become part of this monitoring regime for air quality. There is currently a network of roadside NO₂ and vehicle noise monitoring, of which the A14 is currently part of and this may extend to the Scheme. However, at this time, as a National Highways project the Scheme has been assessed in line with existing environmental objectives and limits as applicable and in accordance with current legislation and in compliance with the NPSNN.</p> <p>b) As stated by the Applicant, in its response to actions arising from Issue Specific Hearing 4 (ISH4) on 30 November 2021 [REP6-030], Section 99 of the Environment Act brings in Schedule 15, which in turn amends sections 37, 103-105, 120 and 232 of the Planning Act 2008 and inserts a new schedule 2A into it. This will require certain Nationally Significant Infrastructure Projects to meet the objective of increasing biodiversity by at least 10% of the pre-development value of the site, calculated by reference to the biodiversity metric.</p>

No.	Directed to	Question
		<p>However, these provisions have not yet been brought into force; there is likely to be secondary legislation containing more detail on the requirements to be met for Biodiversity Net Gain, but the timescales for this to be brought forward are not yet known. As the Examination phase for the Scheme is to end on 18 February 2022, there are no implications arising in relation to the Biodiversity Net Gain requirements within the Environment Act for the Scheme.</p>
Q3.2	Air Quality	
Q3.2.1	Effects on human and ecological receptors	
Q3.2.1.1	Applicant	<p>Question:</p> <p>Sandy Air Quality Management Area</p> <p>The NPS NN (Paragraph 5.11) states that Air Quality considerations are likely to be particularly relevant when proposed schemes could bring about changes to exceedances of the Limit Values of an AQMA. The ExA note the position of CBC on this matter and is not persuaded by the Applicant's position that no further mitigation is necessary because any increase in NO₂ would be imperceptible, an AQMA already exists at this location and an increase in NO₂ is forecast [APP-074]. Applicant, provide further evidence and justification or suggest adequate mitigation.</p> <p>Answer:</p> <p>There are seven properties located within the Sandy Air Quality Management Area (AQMA), within Central Bedfordshire Council's (CBC's) administrative area, where annual mean concentrations of NO₂ are predicted to be above the objective value of 40µg/m³. At these properties the predicted change in NO₂ concentration is 0.2µg/m³ (less than 1% of the objective) with the Scheme in operation. As set out in previous responses [e.g. REP5-015], the Applicant's position is that as the predicted changes at these properties are less than 1% of the objective value, they are therefore imperceptible.</p> <p>A change of this magnitude is so small as to be beyond both monitoring and modelling precision. This level of change does not trigger a significant air quality effect and therefore mitigation measures are not required, in line with DMRB LA 105.</p> <p>Application of the DMRB LA 105 significance test is applied to all modelled/monitored locations with concentrations above their respective air quality threshold e.g. annual mean NO₂ of 40 µg/m³. This is irrespective of whether</p>

No.	Directed to	Question
		<p>receptors are located in an AQMA or in locations where an AQMA has not been declared, all receptors are treated with equal importance.</p> <p><i>Industry Standard Practice</i></p> <p>It is industry standard practice to screen out, as insignificant, changes of less than 1% of environmental thresholds. This is demonstrated in guidance documents of other national bodies, including the Environment Agency^[1] and Natural England^[2]. Consequently, changes of less than 1% are not included in the judgement of significant air quality effects. The relevant sections of these guidance documents are reproduced below:</p> <p>Environment Agency:</p> <p>“Screen out insignificant PCs</p> <p><i>To screen out a PC for any substance so that you do not need to do any further assessment of it, the PC must meet both of the following criteria:</i></p> <ul style="list-style-type: none"> • <i>the short-term PC is less than 10% of the short-term environmental standard</i> • <i>the long-term PC is less than 1% of the long-term environmental standard</i> <p><i>If you meet both of these criteria you do not need to do any further assessment of the substance.”</i></p> <p>Natural England</p> <p><i>“4.30 At this stage, this is irrespective of the current background levels and whether critical load or level values are currently being exceeded or not. This is because 1% of the environmental benchmark or 1000AADT is considered to be so small that anything less than this will be, in any event, not likely to be perceptible and significant. We would advise that current background levels are considered later should appropriate assessment be needed.”</i></p> <p><i>Projected Air Quality</i></p> <p>Air Quality is expected to improve over time due to the reduction in exhaust emissions due to a renewal of the fleet with newer, cleaner vehicles as demonstrated by lower emission rates in future years in the Defra Emissions Factors Toolkit.</p> <p>As shown in Table 3.2.1.1-the modelled NO₂ concentrations will return to the pre-Scheme levels due to ongoing fleet renewal, which leads to lower vehicle emissions, in less than 12 months post Scheme opening.</p>

No.	Directed to	Question																							
		<p>As identified above, there are 7 properties within the Sandy AQMA where annual mean concentrations are predicted to be above the objective value for annual mean NO₂ in the Scheme opening year (with and without the Scheme in place). These properties are shown on Figure 5.4 (sheet 9) of the Environmental Statement (ES) [APP-096].</p> <p>To assist the Examination the Applicant has presented in Table 3.2.1.1-1 the highest and lowest predicted annual mean NO₂ concentration which covers the range of concentrations at these properties without (Do-Minimum (DM)) the Scheme and with (Do-Something (DS)) the Scheme. The predicted change is the same at each property. The table presents the predicted concentrations reported in Chapter 5 of the ES [APP-074] and the same data projected to 2026.</p> <p>Table 3.2.1.1-1: Predicted NO₂ Concentrations from the ES and Projected Concentrations</p> <table border="1"> <thead> <tr> <th rowspan="2">Receptor</th> <th colspan="3">2025 (ES Predictions) (µg/m³)</th> <th colspan="2">Projected concentrations 2026 (µg/m³)</th> </tr> <tr> <th>DM</th> <th>DS</th> <th>Change</th> <th>DM</th> <th>DS</th> </tr> </thead> <tbody> <tr> <td>R222</td> <td>52.5</td> <td>52.7</td> <td>+0.2</td> <td>51.8</td> <td>52.0</td> </tr> <tr> <td>R286</td> <td>58.0</td> <td>58.3</td> <td>+0.2</td> <td>57.2</td> <td>57.5</td> </tr> </tbody> </table> <p><i>Note: Predicted change is calculated from unrounded predictions. Values rounded to 1 decimal place for presentation.</i></p> <p>This shows that based on these projections a 1% increase (0.4 µg/m³) is removed within a year with projected reduction in concentrations of between 0.7-0.8 µg/m³ from the opening year to the following year, with the projected Do-Something concentration in 2026 being below the predicted Do-Minimum concentration in 2025.</p> <p>As a change of this magnitude would be removed within 12 months a significant effect does not arise for the purposes of para 5.12 of the National Policy Statement for National Networks (NPS NN).</p> <p><i>CBC Air Quality Action Plan Mitigation Measures</i></p> <p>CBC have submitted into the Examination their Air Quality Action plan measures [Appendix 7, REP1-055], one of which is the introduction of average speed cameras along the A1 in Sandy AQMA and another was the reduction in</p>	Receptor	2025 (ES Predictions) (µg/m ³)			Projected concentrations 2026 (µg/m ³)		DM	DS	Change	DM	DS	R222	52.5	52.7	+0.2	51.8	52.0	R286	58.0	58.3	+0.2	57.2	57.5
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No.	Directed to	Question
		<p>speed limit to 40mph. In regard to the Sandy AQMA specifically, National Highways have previously discussed possible measures with CBC.</p> <p>The potential for average speed cameras to be installed along this section of the A1 had been initially identified primarily as a potential safety measure and National Highways had given consideration as to whether this might offer any air quality benefits. The consideration of average speed cameras was not put forward as a sole means to deliver air quality benefits rather it would have been explored had the average speed cameras been delivered as part of the safety case. It has now been determined by National Highways that there is not a safety requirement for average speed cameras along this route and National Highways is not aware of any evidence that would suggest the use of average speed cameras here would improve air quality in this location.</p> <p>National Highways commissioned a consultancy firm, Connected Places Catapult to undertake an analysis of changes in emissions from Light Duty Vehicles^[3] (cars and vans) under different driving conditions and different speed limits. The analysis set out in the report demonstrated improvements in NO_x emission rates could be identified when reducing the speed limit from 70mph to 60mph (average approx. 17% reduction in emissions compared to 70mph). No further improvements were identified with a reduction to 50mph (average approx. 15% reduction compared to 70mph).</p> <p>The section of the A1 past the receptors identified in the air quality assessment with annual mean concentration of NO₂ predicted to be above the UK Air Quality Strategy objective of 40µg/m³ already has a speed limit of 50mph. A reduction in speed here to 40mph would not be anticipated to lower vehicle emissions or consequently lead to a reduction in NO₂ concentrations. This is because emissions of pollutants from vehicles vary with speed and the lowest emissions are around 40-60mph, therefore further reductions in speed are not considered likely to improve emissions as very similar emissions are expected around these speeds. This is consistent with the emission rates in Defra's Emissions Factors Toolkit (EFT) and the DMRB speed banding tool.</p> <p>In their response to WQ2, Q2.2.1.1 [REP4-062] CBC refer to studies carried out in other areas that show a permanent speed restriction of 40mph is beneficial for air quality compared to 50mph. The Applicant has requested these studies from CBC (via email 11 Nov 2021) in order to consider the potential for a beneficial effect on Sandy outside of this DCO Examination. This is because the assessment for the Scheme has concluded that it does not trigger a significant air quality effect, as explained above, and therefore mitigation measures are not required. A copy of this study has not been provided by CBC to the Applicant at this time. The Applicant will review these studies once received and seek opportunities to support CBC, potentially through Designated funds.</p>

No.	Directed to	Question
		<p>Additionally, the Applicant has suggested meeting with CBC to discuss Sandy and the Action Plan measures, the next arranged meeting is 18 Jan 2022. The Applicant will continue to engage with CBC throughout the Scheme and beyond.</p> <p>^[1] Environment Agency, Air emissions risk assessment for your environmental permit [REDACTED], 2021</p> <p>^[2] Natural England, Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations, 2018</p> <p>^[3] Connected Places Catapult, Light Vehicle NO_x Exhaust Emissions, 2019</p>
Q3.3	Biodiversity and Ecological Conservation	
Q3.3.1	General	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.3.2	Biodiversity Net Gain (BNG)	
Q3.3.2.1	Applicant Natural England Local Authorities	<p>Question: Metric for calculating BNG</p> <p>a) NE, following discussions at ISH4 [EV-060] and the submissions at D6 [REP6-036] [REP6-030] [REP6-068] [REP6-062] confirm if you consider the Applicant's calculation for BNG using the DEFRA 2.0 metric shows a net loss or net gain or neutral finding.</p>

No.	Directed to	Question
		<p>b) NE, if you consider the calculations to show a net gain, and based on your current position that you are satisfied that the delivery of the Proposed Development would achieve genuine gains in biodiversity when compared with existing conditions [REP6-017], why do you still feel that the ES should be updated with the findings of the DEFRA 2.0 metric?</p> <p>c) NE, in what way do you believe that the findings of the DEFRA 2.0 metric would revise the assessment of the effects of the Proposed Development on biodiversity in the ES with reference the NPS NN (Paragraph 5.33) which requires the Applicant to maximise opportunities resulting in beneficial biodiversity or geological features in and around developments? Applicant and LAs may respond.</p> <p>d) Applicant, explain the reasons and criteria that would be determine the use of DEFRA 2.0 for road NSIPs [REP6-030] [REP6-062], and if those criteria be relevant here. NE and LAs may respond.</p> <p>e) NE and LAs, with particular reference to Rules 3 and 5 of the DEFRA User Guide [REP6-068] and the Cambridgeshire Council's position [REP6-062 Sections 3, 4, and 6] comment on the Applicant's position at ISH4 [EV-060] that a quantitative increase of low quality habitat outweighs or is equivalent to the high value habitats being replaced. Applicant may explain.</p> <p>f) Applicant and NE, the Cambridgeshire Councils raise concerns regarding the loss of habitats of medium/high distinctiveness and that further on-site and off-site compensation is required [REP4-059, Q2.3.2.1] [REP6-064] [REP6-062 Sections 3, 4, and 6]. What are your views on this and how it could be delivered?</p> <p>Answer:</p> <p>a) Not applicable.</p> <p>b) Not applicable.</p> <p>c) Whilst this question is for Natural England, the Applicant has the following comments.</p> <p>The Applicant refers the Examining Authority to its response to Actions Arising from ISH4 [REP6-030]. This explained that in response to the Examining Authority's Second Written Question (SWQ) Q2.3.2.1, [REP4-037], it was detailed that the assessment of effects on biodiversity, and the calculation of Biodiversity Net Gain (BNG) are two separate processes.</p> <p>The biodiversity net gain calculated using Metric 2.0 supersedes the calculation undertaken using the Highways England Metric. However, the biodiversity calculation does not form part of the ecological impact assessment, it is</p>

No.	Directed to	Question
		<p>a separate process, so the change in the calculation results using Metric 2.0 does not affect the conclusions of the ES.</p> <p>National Policy Statement for National Networks (NPSNN) paragraph 5.33 requires the Secretary of State, when considering proposals, to consider whether the applicant has maximised opportunities (resulting in beneficial biodiversity or geological features) in and around developments. In this respect, the Applicant has mitigated impacts and enhanced biodiversity provision through the Scheme as shown in Chapter 8, Biodiversity of the Environmental Statement [APP-077].</p> <p>The Applicant's response to Q2.3.2.1 explained that the design of the Scheme, has from the outset, sought to maximise opportunities to achieve positive outcomes for biodiversity, this is reflected by the enhancement measures incorporated into the Scheme described in Paragraphs 8.8.26-8.8.28 of the Environmental Statement [APP-077].</p> <p>Biodiversity enhancement is also demonstrated by the positive results of the BNG calculations for area-based habitat and rivers [APP-206] and [REP3-012] and [REP3-013].</p> <p>d) The Applicant refers the Examining Authority to its response to Action 10 of Actions Arising from ISH [REP6-030]. This explained in response to the Examining Authority's Second Written Question (SWQ) Q2.3.2.1, [REP4-037], that the NPSNN does not have any specific requirements for the Applicant to calculate BNG using biodiversity metrics for national network schemes.</p> <p>The Applicant's undertaking of a BNG assessment initially using the Highways England metric, was done for the purpose of monitoring and reporting progress towards its own biodiversity targets, as explained in 2.2.1 of [TR010044/EXAM/9.95]. This was included as Appendix 8.19 to the ES [APP-206] on a voluntary basis to quantify the predicted change in biodiversity units of the proposed Scheme, however there is no formal requirement to submit a BNG calculation as part of the DCO submission.</p> <p>e) The Applicant refers the Examining Authority to its response in Sections 4 and 5 of [TR010044/EXAM/9.95] which includes further explanation of Rule 3 of the Metric 2.0 User Guide [REP6-068] and justification of the reasons why the trading rules are not considered to be an issue. The reasons are summarised below.</p> <p>The Metric 2.0 User Guide (Paragraph 2.23 [REP6-068]) includes a set of key principles and rules for the correct application of the metric when conducting BNG assessments. Rule 3 relates to the 'trading down' of habitats which is intended to prevent higher value habitats being replaced by larger areas of lower distinctiveness habitats and to ensure that any priority habitats are replaced on a like for like basis. The trading down rules are triggered when there is a net loss of units associated with a habitat distinctiveness category and/or broad habitat type.</p>

No.	Directed to	Question
		<p>Paragraph 4.22 of [REP6-068] explains that the metric provides indicative advice on the types of habitats that could be included within the mitigation/compensation design of a scheme to meet the trading rules but the 'suggested actions' do not constitute formal advice. Whilst it is important to follow the trading rules as far as possible in certain instances this may not be feasible in practice or there may be good ecological reason to do otherwise.</p> <p>The update from the Highways England Metric to Metric 2.0, introduced the trading rules, which highlighted that these were not satisfied for some high and medium distinctiveness habitats. As explained in Section 5 [TR010044/EXAM/9.95] some of the classification of habitats of high and medium distinctiveness arose from the conversion of habitat types for use in Metric 2.0. As such this over-estimated the loss of biodiversity units. As explained in [TR010044/EXAM/9.95] taking this review of habitat types into account there is no 'trading down' of habitats.</p> <p>Rule 5 relates to the risks associated with creating new and restoring existing habitats. The metric includes a series of standard 'risk multipliers' to account for the inherent risk of creating and restoring habitats. The risk multipliers are embedded within the calculations and have the effect of reducing the unit value of the proposed habitats, which means larger areas, habitats of higher distinctiveness, and/or condition are required to achieve net gain. The Scheme has included the creation of large areas of habitat including woodland and grassland which is reflected in the positive results of the metric for area-based habitats, even with the highly precautionary use of the Metric 2.0 calculation.</p> <p>f) The Applicant does not agree that there is any need for further on-site or off-site compensation. As stated in the response to e) above there are no residual issues of trading down of high distinctiveness habitats which might warrant consideration of off-site compensation. The Scheme provides habitats which will achieve enhancement for biodiversity.</p>
Q3.3.3	Hedgerows	
Q3.3.3.1	Applicant	<p>Question:</p> <p>Quantum of Hedgerows</p> <p>a) Applicant, in terms of hedgerow lengths explain the different values before the ExA: loss of 0.82km [APP-077, Table 8-9]; increase of 4.3km [REP1-022, Q1.3.3.1]; and increase of 3.4km [REP4-037, Q2.3.2.1]. Explain and</p>

No.	Directed to	Question
		<p>confirm the actual length of new hedgerows to be provided and the difference as a result of the Proposed Development.</p> <p>b) Are there any implications on the ES and both the BNG scores?</p> <p>Answer:</p> <p>a) Table 8.9 in Chapter 8, Biodiversity [APP-077] of the Environmental Statement expressed hedges as area calculations rather than linear measurements, i.e. based on linear measurements within the area of permanent works and converted to area on the basis of standardised widths, as stated in Appendix 8.19, paragraph 2.2.6 [APP-206]. Hence there is not a loss of 0.82km of hedgerow. The difference in calculated area of hedgerow was 0.82 ha. The increased length of 3.4km is the current value, re-calculated and used in the more recent biodiversity gain metric calculation, i.e. Defra Metric 2.0, rather than the previous Highways England metric, as explained below.</p> <p>[REP1-022 Q1.3.3.1] described an increase of 4.3km of hedgerow. This length was used in the area-based (as opposed to length) assessment of biodiversity net gain using the Highways England metric [APP-206].</p> <p>When Metric 2.0 was used for the calculation a lesser increase of 3.4km of hedgerow was calculated. This is because of differences in the metric methods and the precautionary approach used as described in the method section of [REP3-012] and additional information provided in the <i>Applicant's comments on Biodiversity Net Gain Technical Note [REP6-062] [TR010044/EXAM/9.95]</i> submitted at Deadline 8. For Metric 2.0, the data preparation used the linear measures throughout, in accordance with the method (unlike the area-based calculations used in the Highways England method), although based on the same habitat survey data. The calculation reported in the Metric 2.0 BNG assessment [REP3-012 and REP3-013] took a very precautionary approach, which assumed that all of the hedgerow habitat within Order Limits would be removed during construction. Hedges would then be reinstated in the temporary land take areas and there would be additional hedgerow creation in the permanent land take areas. This led to the overall increase in length of 3.4km, as stated in [REP4-037, Q2.3.2.1], representing the worst case outcome for the Scheme.</p> <p>The total length of new hedge to be created is 34.27km, of which 14.26km comprises hedges that would be lost temporarily and then replaced and the remainder comprising wholly new hedges. The baseline length of hedges of all types is 30.85km, hence the calculation (34.27-30.85) results in the gain of 3.42km (which was rounded to 3.4km). Therefore, the increase in length of new hedgerows to be provided is 3.4km (i.e. the minimum increase compared to the baseline).</p>

No.	Directed to	Question
		<p>b) There are no implications for the Environmental Statement. The biodiversity net gain calculated using Metric 2.0 supersedes the calculation undertaken using the Highways England Metric. The biodiversity calculation does not form part of the ecological impact assessment. It is a separate measure so this change in the calculation does not affect the conclusions of the Environmental Statement.</p> <p>The scores calculated by the Highways England metric and Defra Metric 2.0 are not directly comparable, and therefore should not be compared.</p> <p>The Metric 2.0 biodiversity net gain score is based on the outline scheme design with precautionary assumptions. The Metric 2.0 calculation made the assumption that all of the hedges would be lost. It is expected that it will be possible to retain some of the hedges within the temporary and permanent land take. It will not be possible to determine the hedgerows which will be retained within Order Limits until the detailed design stage. The loss of hedgerows will be not more than the 30.85km stated and is expected to be less. Therefore 3.4km will be the minimum gain in hedgerow length.</p>
Q3.3.4	European Designated Sites	
Q3.3.4.1	Applicant Natural England	<p>Question:</p> <p>Ouse Washes SPA and Ramsar site</p> <p>a) Applicant, comment on the discrepancy between the Ouse Washes SPA qualifying features listed in the 1992 citation provided by the Applicant at Deadline 6 [REP6-030 Appendix A] and the 2019 Supplementary Advice on conserving and restoring site features produced by NE and referenced at Footnote 5 of the RIES [PD-013].</p> <p>b) Applicant, confirm whether all the features listed in the RIES [PD-013, Table 2.1] have been assessed for LSE in the NSER [APP-233]. NE to comment.</p> <p>c) Applicant, comment on whether the SPA and Ramsar species population estimates in the NSER [APP-233, Appendix F, Table 1] are reliable given the age of the datasets, and what implications this has on the assessment of the loss of wetland and arable habitat? NE to comment.</p> <p>d) The NSER [APP-233, Appendix F] states that the populations of SPA and Ramsar qualifying waterbird features occurring within the Proposed Development boundary are not significant, applying a threshold for significance of 5% of any of the citation populations. What is the Applicant's justification for using a 5% threshold? NE to comment.</p>

No.	Directed to	Question
		<p>Answer:</p> <p>a) There are some differences between the Ouse Washes SPA qualifying features listed in the 1992 citation provided by the Applicant at Deadline 6 [REP6-030 Appendix A] and the 2019 Supplementary Advice on conserving and restoring site features produced by Natural England and referenced at Footnote 5 of the RIES [PD-013]. The Applicant has considered all species on the lists and noted any differences. There is a small difference in the boundaries of the SPA and Ramsar sites (2498.6 ha and 2518.7 ha respectively); however, this difference does not introduce a change in the conclusion of no Likely Significant Effects (LSE) due to the intervening distance between the SPA (including land functionally linked to it) and the Scheme.</p> <p>b) All the features listed in the RIES [PD-013, Table 2.1] and recorded within the Scheme and its zone of influence have been assessed for LSE in the NSER [APP-233]. Further explanation for this is given in the <i>Applicant's comments on the Report on Implications for European Sites</i> [TR010044/EXAM/9.98] submitted at Deadline 8.</p> <p>c) The SPA and Ramsar species population estimates in the NSER [APP-233, Appendix F, Table 1] form the evidence base for which the SPA and Ramsar site were designated. The populations given are the cited/designated populations and until there is a review of SPA and Ramsar site citations and updates are officially made, these remain the cited species/populations. Whilst more recent data may be available for the SPA and Ramsar site, it is appropriate to base the assessment on the cited populations as presented in the official citations. Irrespective of this, the distance between the Scheme and SPA and Ramsar site means that the loss of wetland and arable habitat within the Scheme will have no effect on the SPA or Ramsar site and enables a finding of NSE. None of these differences introduce a change in the conclusion of no LSE due to the intervening distance between the SPA (including land functionally linked to it) and the Scheme.</p> <p>d) The NSER [APP-233, Appendix F] states that the populations of SPA and Ramsar qualifying waterbird features occurring within the Order Limits of the Scheme are not significant, applying a threshold for significance of 5% of any of the citation populations. The 5% threshold was used to provide a benchmark for those qualifying waterbird species recorded within the Scheme Order Limits. However, this is actually not relevant to the assessment, which has concluded no LSE on the basis of the significant intervening distance between the SPA and the Scheme such that none of these species is part of the populations of the SPA and Ramsar site.</p>
Q3.3.4.2		<p>Question:</p> <p>Eversden and Wimpole Woods SAC</p>

No.	Directed to	Question
	Applicant Natural England Local Authorities	<p>a) Applicant and NE, following your meeting on 23 November 2021, provide an update regarding [REP4-044, Paragraph 4.2.7]:</p> <ul style="list-style-type: none"> • justification of the survey approaches undertaken at Transect locations 3, 5, 7 & 8, and at Pillar Plantation; and • justification as to why Natural England's recommendation to survey 40 crossing points [REP1-032] was scoped out of the assessment. <p>b) Applicant and NE highlight any areas of disagreement, if any, regarding the scope of the 2018 surveys and the current survey. If there are disagreements, can they be resolved without the applicant undertaking more survey work?</p> <p>c) Applicant and NE, with reference to the approach to the 2018 survey are you satisfied that the baseline has been characterised reliably in terms of Barbastelle but also other bats. Explain with reasons. If there are concerns with the scope, approach of the survey, and as such the baseline, has the Applicant addressed these issues in the current survey round? Explain with reasons.</p> <p>d) Applicant, list with EL reference, or ensure copies have been submitted to the Examination, of all surveys/reports that have led to the conclusion of no likely significant effects on the SAC, including the Cambridgeshire Bat Group and the South Cambridgeshire District Council survey referenced at WQ3 [EV-059]. Details of the times and dates of the surveys should be included. NE/LAs what is your view of these surveys/reports?</p> <p>e) Applicant and NE, as stated by the Applicant at ISH4 [EV-059] the full suite of 2021 surveys of the Barbastelle bats of the SAC, including the hibernation suitability at Pillar Plantation, will not be completed until after Deadline 6 has passed, with the consequent reports to be submitted later. In this context, Applicant and NE provide by Deadline 8 your reasoned positions as to whether an Appropriate Assessment is required for the HRA.</p> <p>Answer:</p> <p>(a) Further to the meeting on 23 November 2021 between the Applicant and Natural England, please refer to Section 5 and Appendix C of the Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4] for full responses to these questions .</p> <p>The Applicant justifies its approach on the surveys undertaken in 2018 and 2019 as follows:.</p> <p><u>Transect 3 and 5</u></p>

No.	Directed to	Question
		<p>Transect 3 provides representative coverage of the habitats within the Order Limits within accessible habitat. The hedges in this section to the north are generally very species poor and have gaps with limited habitat linkages and therefore the focus was on the wooded section to the west as well as some more open areas, Hen Brook and hedges to the south.</p> <p>To clarify on Natural England's comments regarding numbers of Barbastelle, the number of bat passes were stated as relatively high for Barbastelle at some locations compared to other locations, but still low overall when compared to other bat species present. As an example, at Location 10, Transect 5, there were 2,703 passes of all species combined with just 56 passes of Barbastelle over 8 nights of survey.</p> <p>To clarify Natural England's comment on consideration of bat activity in close proximity of North Lodge Plantation and their close proximity to and crossing the Scheme, the Applicant has provided information from the transect and static surveys in 2018 (Transect 5) submitted in Appendix 8.5, Bats [APP-192] of the Environmental Statement. This data comprise eight transect surveys and also a bat trapping survey within and adjacent to this woodland. Most activity was in the woodland/woodland edge with Soprano Pipistrelle foraging and activity further south along a woodland ride. Two foraging passes were recorded to the north of the woodland along the hedge and one pass of Common Pipistrelle (bat records 7 and 8). This did not indicate regular use of the hedge with most bats foraging in and around North Lodge Plantation to the south.</p> <p>Other comments on Transect 5 regarding numbers of Barbastelle are agreed between the Applicant and Natural England in Appendix C of the Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4].</p> <p><u>Transect 7</u></p> <p>There are no survey approach comments from Natural England regarding Transect 7.</p> <p><u>Transect 8/Pillar Plantation</u></p> <p>Based on the habitats present on Transect 8 (i.e. a very gappy hedge near to Pillar Plantation and hedge next to the main road) and data collected in 2019, it was not selected for a crossing point survey in 2019.</p> <p>Bat crossing point and static data undertaken in 2021 at this crossing point location indicate low use of this crossing point feature. There was an average of 4.3 passes with a maximum of 8 passes during the manned surveys. Static data collected showed low overall bat activity of 2 to 3.4 passes/hour, mainly of Soprano Pipistrelle. This hedge does not provide a substantial link to adjacent habitat as it is cut very low and stops halfway between Pillar Plantation and a hedge to the east.</p>

No.	Directed to	Question
		<p>Following the Applicants responses, no further comments were received on the Applicant's responses survey approaches at all these locations from Natural England on 13 December 2021 (see Section 5 of the Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4]).</p> <p><u>Forty crossing points</u></p> <p>To clarify this question there has not been a request by Natural England to survey 40 bat crossing point features along the Scheme. A total of 40 habitat features were identified in Appendix 8.5, Bats [APP-192] and covered all of the locations that could potentially be important for commuting bats crossing the Scheme, for example, watercourses, tracks, verges and hedges. From these 40 linear features, the bat data collected in 2018 and 2019 were used to identify potential bat crossing points based on a number of parameters, including habitat suitability and bat activity recorded during the transect and static surveys.</p> <p>From this analysis, seven locations were identified that warranted further, more detailed investigation in 2019 using the bat crossing point survey method in Appendix 8.5, Bats [APP-192] of the Environmental Statement. As requested in comments provided by Natural England on 13^h December 2021 in Section 5 of the Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4] the Applicant has provided a rationale in Appendix E of that note for the scoping of the 40 crossing points down to 7 crossing points, for survey in 2019.</p> <p>Discussions between the Applicant and Natural England, included possible surveys at these 40 crossing points are documented in Eversden and Wimpole Woods SAC Technical Note [REP1-032] submitted to the Examination at Deadline 1. During the meeting on 23 August 2021 (Appendix D of the Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4]), it was explained that only some of the 40 features mentioned were actually potential crossing points and Natural England agreed that it was only at the potential crossing points that they were asking for the additional static detectors to be deployed in 2021 with respect to Barbastelle movements.</p> <p>A survey scope was agreed between the Applicant and Natural England for the additional surveys in 2021 as provided in Eversden and Wimpole Woods SAC Technical Note [REP1-032] submitted to the Examination at Deadline 1. This comprised a survey at 12 crossing points as well as other surveys in relation to Barbastelle. Those additional surveys have now been undertaken in accordance with the scope and are reported in Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4].</p> <p>b) There is no disagreement on the scope of the recent 2021 Barbastelle bat surveys. The scope was agreed between the Applicant and Natural England as presented in the Eversden and Wimpole Woods SAC Technical Note [REP1-032] submitted to the Examination at Deadline 1. The surveys have since been completed in accordance with</p>

No.	Directed to	Question
		<p>the scope and are reported in the Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4].</p> <p>The surveys undertaken in 2018 and 2019 are reported in Appendix 8.5, Bats [APP-192] of the Environmental Statement. The Applicant believes that Natural England's comments on the scope of the 2018 and 2019 surveys have been resolved by the additional surveys undertaken in 2021 as explained in the Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4]. As all further survey work requested by Natural England has now been completed in full, no additional survey work is required. Notwithstanding this, there is a commitment to undertake surveys for monitoring of the Scheme in the First Iteration Environmental Management Plan [REP6-008].</p> <p>c) A summary of the scope of surveys that were undertaken in 2018 and 2019 as reported in Appendix 8.5, Bats [APP-192] of the Environmental Statement are provided in Appendix C of the Barbastelle Bat Surveys and Mitigation Technical Note submitted at Deadline 8 [TR010044/EXAM/9.54v4]. The Applicant is satisfied that the baseline has been characterised reliably for all bat species, based on the completion of a comprehensive suite of bat surveys undertaken in accordance with standard methods (REF1, REF2).</p> <p>Surveys comprised:</p> <ul style="list-style-type: none"> - Preliminary Roost Appraisal - Roost Presence/Absence and Characterisation Surveys - Bat Activity Transect and Static detector surveys - Bat Crossing Point Surveys - Advanced Bat Survey Techniques (Trapping and Tracking) <p>These surveys involved a considerable input in terms of time in the field amounting to about 3,000 person hours. Coupled with data collected from these surveys, this exposure to the landscape of the Scheme and its bats provides a sound basis on which decisions can be confidently made.</p> <p>The surveys undertaken in 2021 supplement the 2018 and 2019 surveys by providing additional information on Barbastelle from the SAC in relation to the Scheme and the use of habitats by Barbastelle (and other bat species) during the autumn/early winter period across the Scheme. The final results of the 2021 surveys are presented in the Barbastelle Bat Surveys and Mitigation Technical Note [TR010044/EXAM/9.54v4] submitted at Deadline 8. These additional surveys in 2021 complete any survey gaps identified in the baseline data.</p>

No.	Directed to	Question					
		<p>REF 1. Collins, J. (ed.). Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edition, Bat Conservation Trust. 2016.</p> <p>REF 2. Berthinussen A. and Altringham J. (2015) WC1060: Development of a cost-effective method for monitoring the effectiveness of mitigation for bats crossing linear transport infrastructure. Department for Environment, Food and Rural Affairs (Defra), UK report.</p> <p>d) Table A provides a list of the documents which contain the evidence that has led to the conclusion of “no significant effects” presented by the Applicant.</p> <p>Table A – Evidence Times, Dates and Survey Type which supported the conclusion of “no significant effects” to Eversden and Wimpole Woods SAC and was reported in 6.7 – Habitats Regulations Assessment: No Significant Effects Report [APP-233]</p>					
		Examination Library Reference	Document Title	Document Reference	Survey Date	Survey Time	Survey Type
		APP-077	Environmental Statement Chapter 8: Biodiversity	TR010044/APP/6.1	Between 2018 and 2020 all accessible trees and structures within, and 100 metres beyond the Order Limits were assessed, where relevant, as a result of the preliminary roost appraisal survey undertaken to determine their suitability for roosting bats. Surveys included tree climbing, emergence and re-entry surveys, as appropriate. Bat activity surveys were undertaken within and up to 250 metres beyond the Order Limits in selected woodlands. Techniques consisted of walked transects and automated static detector surveys and Advanced Bat Survey Techniques (referred to in this table as ALBST (e.g. trapping and radio-tracking to roost)) in 2018 and 2019, and bat crossing point surveys in 2019. Survey locations are illustrated on the figures contained within Appendix 8.5 of the Environmental Statement [APP-192]. Refer to Appendix 8.5 of the		

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No.	Directed to	Question					
					Environmental Statement [APP-192] for further information.		
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.04.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 5 - Bats	TR010044/APP/6.3	24.05.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.05.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.04.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.04.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	11.07.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 3

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.04.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.04.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.04.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 6
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.05.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.05.2018	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	08.07.2019	n/a	Preliminary Roost Assessment Results to inform route of Transect Area 8
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	2018	n/a	Aerial Tree Climbing Potential Roost Feature (PRF) Survey Results – Transect Area 3, 4 and 5

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	2019	n/a	Aerial Tree Climbing PRF Survey Results – Transect Area 7 and 8
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.04.2018	20:16 - 22:59	Transect Survey – Transect 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.04.2018	20:17 - 22:35	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.04.2018	20:17 - 22:20	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.04.2018	20:10 – 22:42	Transect Survey – Transect 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.04.2018	20:10 – 22:20	Transect Survey – Transect 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.04.2018	20:16 – 22:23	Transect Survey – Transect 6

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.05.2018	20:57 – 23:45	Transect Survey – Transect 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	30.05.2018	21:03 – 23:10	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.05.2018	21:01 – 23:01	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.05.2018	21:01 – 23:01	Transect Survey – Transect 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	31.05.2018	21:10 – 23:20	Transect Survey – Transect 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.05.2018	20:50 – 23:30	Transect Survey – Transect 7

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	20.06.2018	21:26 – 23:45	Transect Survey – Transect 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	21.06.2018	21:45 – 23:50	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	06.06.2018	21:15 – 23:30	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	20.06.2018	21:15 – 21:50	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	21.06.2018	21:45-00:20	Transect Survey – Transect 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	20.06.2018	21:20-23:29	Transect Survey – Transect 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	21.06.2018	21:20 – 23:55	Transect Survey – Transect 7

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.07.2018	21:03 – 23:03	Transect Survey – Transect 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.07.2018	21:03 – 23:06	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.07.2018	21:05 – 23:09	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.07.2018	21:03 – 23:06	Transect Survey – Transect 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.07.2018	21:05 – 23:05	Transect Survey – Transect 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.07.2018	21:00 – 23:10	Transect Survey – Transect 6
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.07.2018	21:04 – 23:30	Transect Survey – Transect 7

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	22.08.2018	20:12 – 22:12	Transect Survey – Transect 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.08.2018	20:10 – 22:00	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	22.08.2018	20:12 – 22:15	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.08.2018	20:10 – 22:10	Transect Survey – Transect 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	22.08.2018	20:11 – 22:00	Transect Survey – Transect 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.08.2018	20:00 – 22:00	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	24.08.2018	03:59 – 05:59	Transect Survey – Transect 1

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	24.08.2018	03:59 – 05:59	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.08.2018	03:57 – 05:57	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	24.08.2018	03:34 - 06:00	Transect Survey – Transect 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	29.08.2018	04:17 – 06:07	Transect Survey – Transect 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	24.08.2018	03:58 – 05:58	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	13.09.2018	04:25 – 06:30	Transect Survey – Transect 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	13.09.2018	19:22 – 21:25	Transect Survey – Transect 2

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	12.09.2018	19:24 – 21:28	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	13.09.2018	19:22 – 21:25	Transect Survey – Transect 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	12.09.2018	19:20 – 21:20	Transect Survey – Transect 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	13.09.2018	19:22 – 21:27	Transect Survey – Transect 6
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	13.09.2018	19:20 – 21:10	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.10.2018	18:35 – 20:45	Transect Survey – Transect 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	04.10.2018	18:32 – 20:32	Transect Survey – Transect 2

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.10.2018	18:36 – 20:35	Transect Survey – Transect 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	04.10.2018	18:32 – 20:32	Transect Survey – Transect 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.10.2018	18:36 – 20:40	Transect Survey – Transect 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	04.10.2018	18:30 – 20:44	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	12.06.2019	20:55 – 23:15	Transect Survey – Transect 8
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	17.07.2019	21:10 – 23:15	Transect Survey – Transect 8
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	14.08.2019	20:30 – 22:30	Transect Survey – Transect 8

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	18.09.2019	19:00 – 21:10	Transect Survey – Transect 8
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	09.10.2019	18:15 – 20:20	Transect Survey – Transect 8
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	10.07.2018	21:18 – 22:51	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.08.2018	03:45 – 03:45	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	10.07.2018	21:05 – 22:50	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.08.2018	03:54 – 05:39	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	14.08.2018	20:10 – 22:00	Transect Survey – Transect 2

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	18.07.2019	20:58 – 22:43	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	06.08.2019	20:44 – 22:14	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	20.08.2019	03:49 – 05:50	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	11.07.2018	03:14 – 05:00	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	30.08.2018	19:52 – 21:22	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	10.08.2020	20:10 – 21:05	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	24.08.2020	19:50 – 21:15	Transect Survey – Transect 7

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	07.09.2020	19:10 – 21:05	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	18.07.2018	03:31 – 05:16	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	02.08.2018	20:30 – 22:21	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	10.08.2020	20:20 – 22:00	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	24.08.2020	19:50 – 21:15	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	07.09.2020	19:10 – 21:05	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	10.08.2020	20:10 – 22:00	Transect Survey – Transect 7

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	24.08.2020	19:40 – 22:00	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	07.09.2020	19:15 – 21:04	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	08.07.2018	20:30 – 22:10	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	29.08.2018	19:40 – 21:25	Transect Survey – Transect 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	11.07.2018	21:07 – 22:52	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	08.08.2018	04:00 – 05:50	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	31.08.2018	04:41 – 06:26	Transect Survey – Transect 7

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	21.05.2019	20:43 – 22:28	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	20.06.2019	03:02 – 05:00	Transect Survey – Transect 7
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	25.04.2018 – 09.05.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	24.05.2018 – 29.05.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	20.06.2018 – 10.07.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	18.07.2018 - 31.07.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	02.08.2018 – 06.08.2018	n/a	Static Detector Survey

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	23.08.2018 – 28.08.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	02.09.2018 – 09.09.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	13.09.2018 – 20.09.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	28.09.2018 – 01.10.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.10.2018 – 09.10.2018	n/a	Static Detector Survey
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	08.08.2018	20:40 – 01:35	ALBST
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	27.09.2018	18:30 – 21:30	ALBST

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	02.10.2018	18:15 – 22:00	ALBST
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	08.07.2019	21:25 – 02:00	ALBST
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	27.08.2019	20:00 – 00:30	ALBST
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	02.10.2019	18:37 – 21:00	ALBST
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	16.10.2019	18:04 – 21:00	ALBST
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	29.05.2019	21:09 – 22:09	Bat Crossing Point Survey Location 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.06.2019	21:28 – 22:28	Bat Crossing Point Survey Location 1

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.07.2019	21:26 – 22:30	Bat Crossing Point Survey Location 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	07.08.2019	20:42 – 21:42	Bat Crossing Point Survey Location 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	28.08.2019	19:58 – 20:58	Bat Crossing Point Survey Location 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	11.09.2019	19:27 – 20:30	Bat Crossing Point Survey Location 1
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	29.05.2019	21:09 – 22:10	Bat Crossing Point Survey Location 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.06.2019	21:26 – 22:26	Bat Crossing Point Survey Location 2

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	03.07.2019	21:25 – 22:25	Bat Crossing Point Survey Location 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	07.08.2019	20:42 – 21:42	Bat Crossing Point Survey Location 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	28.08.2019	19:59 – 21:09	Bat Crossing Point Survey Location 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	11.09.2019	19:26 – 20:36	Bat Crossing Point Survey Location 2
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	29.05.2019	21:08 – 22:08	Bat Crossing Point Survey Location 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.06.2019	21:23 – 22:30	Bat Crossing Point Survey Location 3
		APP - 192	Environmental Statement: Volume	TR010044/APP/6.3	03.07.2019	21:23 – 22:30	Bat Crossing Point Survey Location 3

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No.	Directed to	Question					
			6.3 Appendix 8.5 - Bats				
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	07.08.2019	20:40 – 21:45	Bat Crossing Point Survey Location 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	28.08.2019	19:58 – 20:58	Bat Crossing Point Survey Location 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	11.09.2019	19:25 – 20:25	Bat Crossing Point Survey Location 3
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	30.05.2019	21:20 – 22:10	Bat Crossing Point Survey Location 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.06.2019	21:28 – 22:28	Bat Crossing Point Survey Location 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	04.07.2019	21:25 – 22:30	Bat Crossing Point Survey Location 4

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	08.08.2019	20:40 – 21:40	Bat Crossing Point Survey Location 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	29.08.2019	19:56 – 20:56	Bat Crossing Point Survey Location 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	12.09.2019	19:37 – 20:25	Bat Crossing Point Survey Location 4
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	30.05.2019	21:20 – 22:11	Bat Crossing Point Survey Location 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	26.06.2019	21:26 – 22:26	Bat Crossing Point Survey Location 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	04.07.2019	21:25 – 22:30	Bat Crossing Point Survey Location 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	08.08.2019	20:40 – 21:40	Bat Crossing Point Survey Location 5

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No.	Directed to	Question					
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	29.08.2019	19:56 – 20:56	Bat Crossing Point Survey Location 5
		APP - 192	Environmental Statement: Volume 6.3 Appendix 8.5 - Bats	TR010044/APP/6.3	12.09.2019	19:24 – 20:20	Bat Crossing Point Survey Location 5
		REP1-032	Eversden and Wimpole Woods SAC Technical Note	TR010044/EXAM/9.13	Sept – Dec 2021	n/a	Hibernation suitability inspections to quantify potential roosting resources.
		REP1-032	Eversden and Wimpole Woods SAC Technical Note	TR010044/EXAM/9.13	Oct – Dec 2021	n/a	Static detector surveys to be carried out in five woodlands identified within 250m of the scheme (Boys Wood, Fox Holes Wood, The Gorse, North Lodge Plantation and Pillar Plantation) in October to December 2021.
		REP1-032	Eversden and Wimpole Woods SAC Technical Note	TR010044/EXAM/9.13	Oct – Dec 2021	n/a	Three crossing Point surveys from October to December 2021 at dusk, at twelve locations in suitable weather along with the use of static detectors deployed for five nights per month at each location. Seven locations are in the western half of the

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							scheme with the other five being located towards the eastern end of the scheme all of which comprise hedgerow features that would be crossed by the scheme that all have links to adjacent woodland habitats.
		REP1-032	Eversden and Wimpole Woods SAC Technical Note	TR010044/EXAM/9.13		n/a	Advanced survey techniques (Tagging, tracking and trapping) within the SAC or woodlands close to the scheme. Trapping will take place at woodlands close to the scheme. Three trapping visits will be undertaken at each woodland to capture and tag barbastelle. If trapping can't be undertaken, direct observation will be used instead.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9.60	15.07.2021	n/a	Preliminary Roost Assessment to identify and update the presence of bats or roosts in features likely to be directly impacted by the scheme.

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		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	22.07.2021	n/a	Preliminary Roost Assessment to identify and update the presence of bats or roosts in features likely to be directly impacted by the scheme.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	28.07.2021	n/a	Preliminary Roost Assessment to identify and update the presence of bats or roosts in features likely to be directly impacted by the scheme.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	04.08.2021	n/a	Preliminary Roost Assessment to identify and update the presence of bats or roosts in features likely to be directly impacted by the scheme.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	10.08.2021	n/a	Preliminary Roost Assessment to identify and update the presence of bats or roosts in features likely to be directly impacted by the scheme.

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		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	18.08.2021	n/a	Preliminary Roost Assessment to identify and update the presence of bats or roosts in features likely to be directly impacted by the scheme.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	29.09.2021	n/a	Tree Climbing Survey on relevant trees identified within the scheme likely to be felled.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	30.09.2021	n/a	Tree Climbing Survey on relevant trees identified within the scheme likely to be felled.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	July, August, September 2021	n/a	Bat activity survey – walked transects 9, 10 and 12 (land based on previously assessed moderate habitat suitability for bats)
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	July, August, September 2021	n/a	Static surveys, five consecutive nights per month from July to September 2021.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	July, August, September 2021	n/a	Preliminary Roost Features Inspection, When required for structures requiring

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							demolition or trees proposed to be felled only
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9.60	15.07.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9.60	04.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9.60	09.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9.60	17.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and

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No.	Directed to	Question					
							IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	18.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	19.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	20.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	24.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat

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							calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	26.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	31.08.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	01.09.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	02.09.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat

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							detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	07.09.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	15.09.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.
		REP5-010	Updated Bat Surveys 2021 Technical Note	TR010044/EXAM/9 .60	30.09.2021	Dusk and Dawn	Dusk and Dawn bat surveys . This involved direct observation, bat detectors to record bat calls, static detectors and IR video cameras and additional IR lighting were required.

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No.	Directed to	Question					
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	23.09.2021	n/a	Bat trapping within The Belts woodland (Part of Eversden and Wimpole Wood SAC). Bats tracked from dusk for a period of five nights
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	24.09.2021	n/a	Bat trapping within The Belts woodland. Bats tracked from dusk for a period of five nights
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	25.09.2021	n/a	Bat radio tagging within The Belts Woodland
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	26.09.2021	n/a	Bat radio tagging within The Belts Woodland
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	28.09.2021	n/a	Bat radio tagging within The Belts Woodland
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	29.09.2021	n/a	Bat radio tagging within The Belts Woodland
		REP6-027	Barbastelle Bat Surveys and Mitigation	TR010044/EXAM/9.54	30.09.2021	n/a	Bat radio tagging within The Belts Woodland

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No.	Directed to	Question					
			Technical Note (Rev 3)				
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	22.09.2021	Sunset for a minimum of 2 hours	Bat Activity Transect within Eversden and Wimpole SAC
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	06.10.2021	Sunset for a minimum of 2 hours	Bat Activity Transect within Eversden and Wimpole SAC
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	15.10.2021	Sunset for a minimum of 2 hours	Bat Activity Transect within Eversden and Wimpole SAC
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	22.09.2021	n/a	Deployment of three static detectors within Eversden and Wimpole SAC
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	06.10.2021	n/a	Deployment of three static detectors within Eversden and Wimpole SAC
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	15.10.2021	n/a	Deployment of three static detectors within Eversden and Wimpole SAC

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No.	Directed to	Question					
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3)	TR010044/EXAM/9.54	October – November 2021	n/a	Three visits for bat crossing point surveys and static surveys at 12 locations along the length of the Scheme, 7 in the western part of the scheme and 5 new crossing points in 2021 to the east. Surveyors were equipped with bat detectors. Static detectors were deployed at the 12 crossing points during these surveys in October and November 2021 to cover a minimum of 5 nights per month.
		REP6-027 Examination Library Reference not available for Rev 4 version.	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3 and Rev 4)	TR010044/EXAM/9.54	18.10.2021 – 16.12.2021	n/a	Hibernation suitability inspections at Boys Wood, Fox Holes, The Gorse, North Lodge Plantation and Elsworth Wood.
		REP6-027	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 3 and Rev 4)	TR010044/EXAM/9.54	24.11.2021 – 16.12.2021	n/a	Hibernation suitability inspections at Pillar Plantation.

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No.	Directed to	Question					
		Examination Library Reference not available for Rev 4 version.					
		Examination Library Reference not available for Rev 4 version.	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 4)	TR010044/EXAM/9.54	24.11.2021 – 06.12.2021		Static detector survey in Pillar Plantation.
		Examination Library Reference not available for Rev 4 version.	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 4)	TR010044/EXAM/9.54	7.12.2021 – 15.12.2021		Static detector survey in Boys Wood.
		Examination Library Reference not available for Rev 4 version.	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 4)	TR010044/EXAM/9.54	7.12.2021 – 15.12.2021		Static detector survey in Fox Holes.
		Examination Library Reference	Barbastelle Bat Surveys and Mitigation	TR010044/EXAM/9.54	7.12.2021 – 15.12.2021		Static detector survey in The Gorse.

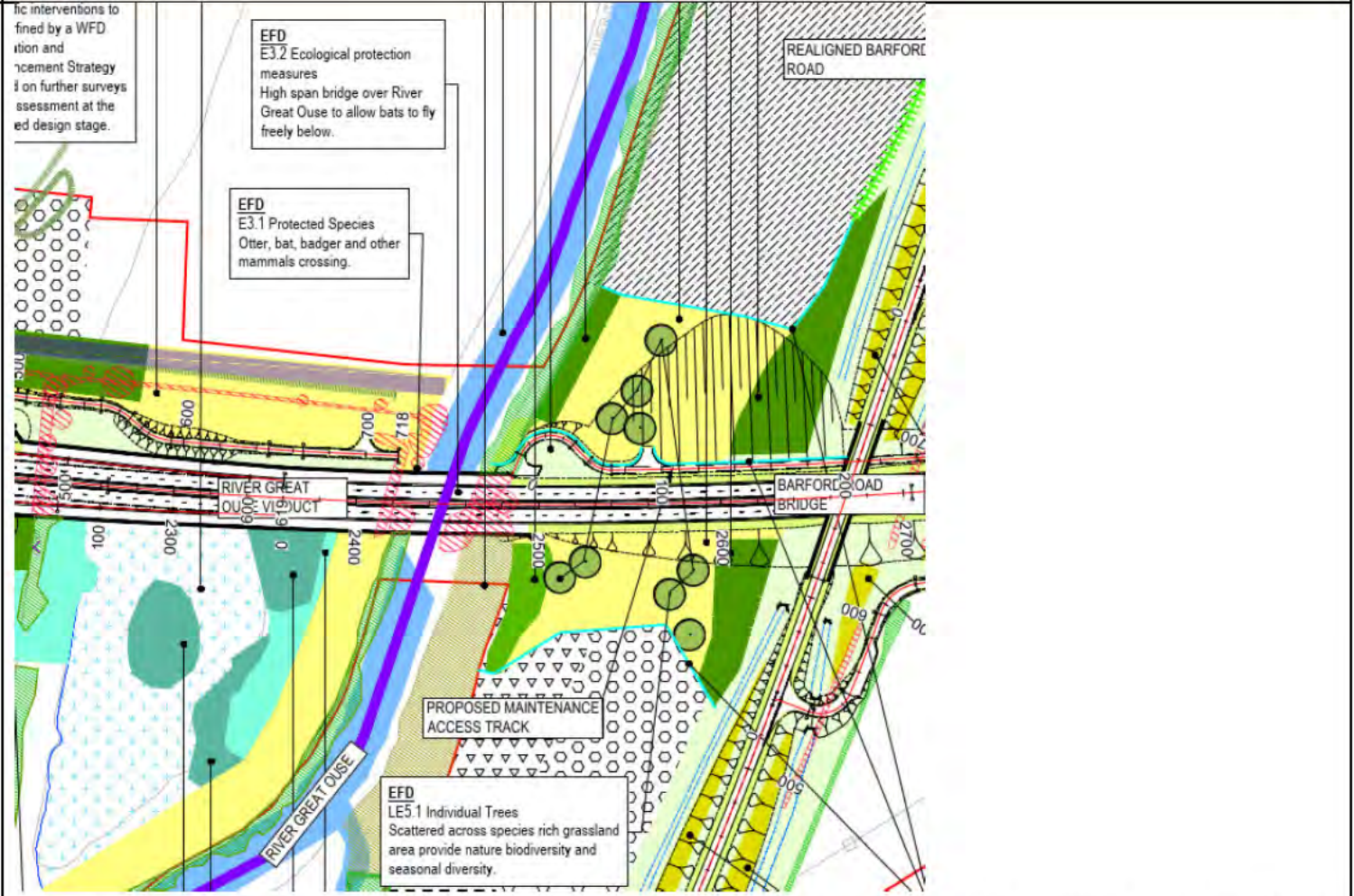
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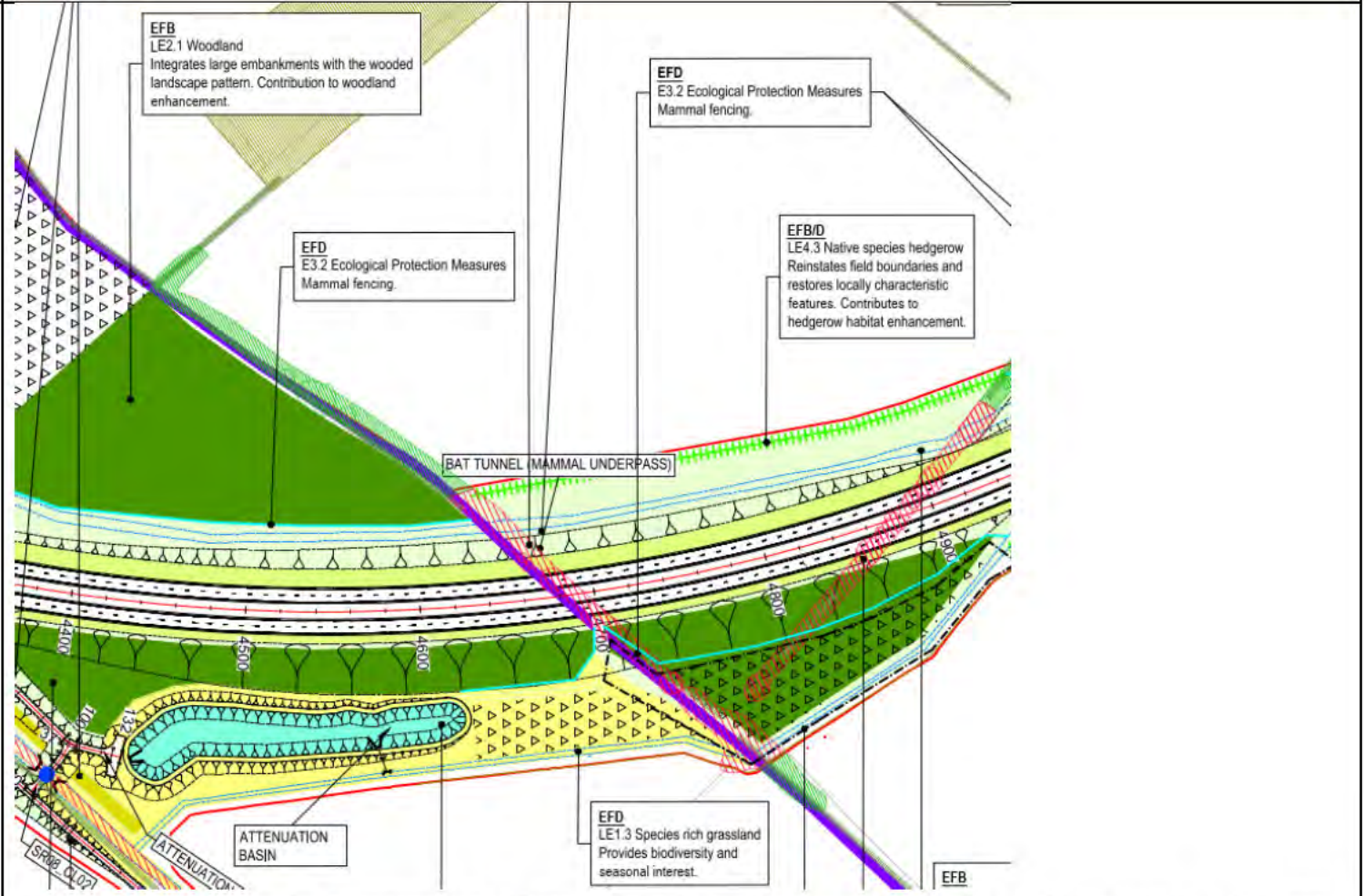
No.	Directed to	Question					
		not available for Rev 4 version.	Technical Note (Rev 4)				
		Examination Library Reference not available for Rev 4 version.	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 4)	TR010044/EXAM/9.54	7.12.2021 – 15.12.2021		Static detector survey in North Lodge Plantation – North.
		Examination Library Reference not available for Rev 4 version.	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 4)	TR010044/EXAM/9.54	7.12.2021 – 15.12.2021		Static detector survey in North Lodge Plantation – South.
		Examination Library Reference not available for Rev 4 version.	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 4)	TR010044/EXAM/9.54	7.12.2021 – 15.12.2021		Static detector survey in Pillar Plantation.
		Examination Library Reference not available	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 4)	TR010044/EXAM/9.54	7.12.2021 – 15.12.2021		Static detector survey in Elsworth Wood West.

No.	Directed to	Question					
		for Rev 4 version.					
		Examination Library Reference not available for Rev 4 version.	Barbastelle Bat Surveys and Mitigation Technical Note (Rev 4)	TR010044/EXAM/9.54	7.12.2021 – 15.12.2021		Static detector survey in Elsworth Wood East.
<p>Further background information is provided in the following documents which have been provided as part of an appendix to this question -</p> <ul style="list-style-type: none"> Cambridgeshire Bat Group Survey is: Damant, S. and Vine, C. (2006). The Barbastelle at Wimpole. Nature in Cambridgeshire, (48), 60-64. (See Appendix to Q3.3.4.2 Part 1). The South Cambridgeshire District Council publication is: South Cambridgeshire District Council (2009) Local Development Framework Biodiversity Supplementary Planning Document (Adopted 2009). (See Appendix to Q3.3.4.2 Part 2). <p>There are also survey data from the East West Rail bat report surveys from summer 2020 (see East West Rail Company (2020). Wimpole Radio-tracking report, Rev 2) that was submitted at Deadline 6 [REP6-053].</p> <p>e) The Applicant has presented its position regarding the requirement for Appropriate Assessment in the Deadline 6 Submission, Appropriate Assessment Note [REP6-052]. Nonetheless, in the event that it is required by the Secretary of State, and entirely without prejudice to the Applicant's position, a Habitats Regulations Assessment: Report to Inform Appropriate Assessment [TR010044/EXAM/9.99] has been submitted at Deadline 8 as advised by Natural England.</p>							
Q3.3.5	Habit Fragmentation						
Q3.3.5.1	<p>Question: Adequacy of mitigation measures</p>						

No.	Directed to	Question
	Applicant Natural England Local Authorities	<p>a) Applicant, for the identified bat crossings of the Proposed Development identify all existing and proposed landscaping features that will help guide bats to these crossing points. What assurance can the ExA have that the proposed landscaping will function as intended?</p> <p>b) What landscaping or other measures will help guide other animal species, including mammals, birds, amphibians to these crossing points?</p> <p>c) Applicant, provide examples of the evidence referred to at ISH4 [EV-060] showing that bats will use multi-purpose underpasses, including ones used by humans.</p> <p>d) What evidence is there that other animal species will use such multipurpose underpasses?</p> <p>Answer:</p> <p>a) There are two locations which have been identified as needing bat crossings: the River Great Ouse corridor and the hedgerow linking woodland either side of the Scheme, namely Sir John's Wood (south-east) and Boys Wood and Alington Hill Plantation (north-west).</p> <p>The River Great Ouse (Plate 1) is a feature used by a high numbers of bats (see Appendix 8.5, Bats [APP-192] of the Environmental Statement), with existing landscaping features such as bankside woodland, scrub vegetation and the river. This along with substantial areas of new habitat planting (including woodland and species rich grassland either side, of suitable species) will encourage bats to use the area for foraging and pass freely north to south along the river and east to west to habitats either side.</p> <p>There will be a bat tunnel (Plate 2) between the woodlands either side of the Scheme which is aligned in terms of both direction and height with the existing hedgerow that connects to existing ancient and broad-leaved woodland, which will enable bats to follow their existing route. There is additional habitat creation (i.e. woodland and hedges) with fencing adjacent to the entrances to help guide bats to this crossing point. The proposed design and landscaping conform with best practice mitigation guidance for bats (section 4.2 of REF1) to ensure that both crossings function as intended.</p>

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		<p>Ecological interventions to be defined by a WFD action and Remediation Strategy based on further surveys and assessment at the detailed design stage.</p> <p>EFD E3.2 Ecological protection measures High span bridge over River Great Ouse to allow bats to fly freely below.</p> <p>EFD E3.1 Protected Species Otter, bat, badger and other mammals crossing.</p> <p>EFD LE5.1 Individual Trees Scattered across species rich grassland area provide nature biodiversity and seasonal diversity.</p>  <p>Plate 1 – Extract from the Environmental Masterplan [APP-091] showing the bridge structure above the River Great Ouse Crossing</p>

No.	Directed to	Question
		 <p>Plate 2 – Extract from the Environmental Masterplan [APP-091] showing the bat tunnel (mammal underpass) structure under the Scheme</p>

No.	Directed to	Question												
		<p>The design has incorporated three additional structures that are suitable to provide safe bat crossing across the Scheme: the East Coast Main Line railway bridge; Hen Brook underpass; and the Pillar Plantation (West Brook) underpass. All these structures have planting linking in with the adjacent landscape to encourage bats to use these features. Further information on their locations and surrounding landscaping are provided in the Environmental Masterplan [REP6-006] and the engineering sections drawings [APP-019]. A summary of these structures and their suitability to facilitate bats crossing the Scheme is provided in Table 1 below.</p> <p>Table 2. Dimensions and other features of structures and their suitability to facilitate bats crossing the Scheme</p> <table border="1"> <thead> <tr> <th>Structure</th> <th>Height (m)</th> <th>Length (m)</th> <th>Width (m)</th> <th>Other features</th> <th>Comments on suitability (based on published evidence [Error! Reference source not found., Error! Reference source not found., Error! Reference source not found., Error! Reference source not found.4, REF 5])</th> </tr> </thead> <tbody> <tr> <td>River Great Ouse Viaduct (ref 009)</td> <td>3 (minimum)</td> <td>260</td> <td>27.1 (minimum)/ 34.6 (maximum)</td> <td>Part of river corridor</td> <td> <p>Suitable for low flying species commuting/foraging over the river/banks such as Myotis (Daubenton's). (minimum clearance recommended is >2m). Likely to be suitable for other species such as Pipistrelle and Barbastelle [REF 5], that will fly lower over water foraging. There are no abutments in the river channel maintaining clear access over water.</p> <p>No change to movements east-west over the river to quarry wetland habitat. Access from the</p> </td> </tr> </tbody> </table>	Structure	Height (m)	Length (m)	Width (m)	Other features	Comments on suitability (based on published evidence [Error! Reference source not found., Error! Reference source not found., Error! Reference source not found., Error! Reference source not found.4, REF 5])	River Great Ouse Viaduct (ref 009)	3 (minimum)	260	27.1 (minimum)/ 34.6 (maximum)	Part of river corridor	<p>Suitable for low flying species commuting/foraging over the river/banks such as Myotis (Daubenton's). (minimum clearance recommended is >2m). Likely to be suitable for other species such as Pipistrelle and Barbastelle [REF 5], that will fly lower over water foraging. There are no abutments in the river channel maintaining clear access over water.</p> <p>No change to movements east-west over the river to quarry wetland habitat. Access from the</p>
Structure	Height (m)	Length (m)	Width (m)	Other features	Comments on suitability (based on published evidence [Error! Reference source not found., Error! Reference source not found., Error! Reference source not found., Error! Reference source not found.4, REF 5])									
River Great Ouse Viaduct (ref 009)	3 (minimum)	260	27.1 (minimum)/ 34.6 (maximum)	Part of river corridor	<p>Suitable for low flying species commuting/foraging over the river/banks such as Myotis (Daubenton's). (minimum clearance recommended is >2m). Likely to be suitable for other species such as Pipistrelle and Barbastelle [REF 5], that will fly lower over water foraging. There are no abutments in the river channel maintaining clear access over water.</p> <p>No change to movements east-west over the river to quarry wetland habitat. Access from the</p>									

No.	Directed to	Question					
							quarry to fields in the north will be possible without crossing over road as viaduct is raised by 3 to 4m over land to the west for a distance of approximately 200m. Approximately 4m side walls so traffic minimum 7m above water course plus additional 1m height of parapets along road. Unlit.
		East Coast Main Line (ECML) railway bridge (ref 013)	7.2 (minimum)	75.2	28	Part of rail corridor	Suitable for all species. Will provide good access either side of rail line for all species recorded to the north and south of the Scheme and should also allow movement of bats from the bat tunnel location to north-east and other habitats to north and south to cross the Scheme. Extensive new woodland planting. Unlit
		Bat Tunnel (Mammal Underpass) (ref 53a)	4.5	55.8	5	Directly replaces flight line along hedgerow	Purpose built structure based on recommended dimensions (minimum 4.5m height) for all species recorded (except noctule that are at low risk due to their flight height). Tunnel is located along line of existing well used commuting foraging route which comprises a 3 to 5m hedge line, linking adjacent woodlands. Tunnel with no public access, unlit

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							<p>and protected from unauthorised entry.</p> <p>Extensive planting including new woodland, hedges and grassland either side with an attenuation basin, potential wetland feature to enhance foraging resource to the south-east, importantly screened from the road by woodland. Monitoring important, potential to install features suitable for hibernating bats.</p>	
		Hen Brook Underpass (ref 019)	4.25 (up to 5.1m high over the Brook)	32.1 (minimum)	6.85	Part of river corridor and footpath	<p>Slightly lower than guidance of 4.5m height along the footway, but higher than the minimum >4.5m for the species recorded in the vicinity over the water. It is located along existing river corridor. Likely to be well used by bats particularly as waterways function as commuting routes and the existing and additional adjacent hedges and trees plus restored riparian habitat will have a significant role in enhancing their use.</p>	
		West Brook (Pillar Plantation) Underpass (ref 037)	3.7 (up to 4.2m over West Brook)	37.45 (minimum)	5.55	Part of river corridor and bridleway	<p>Slightly lower than guidance of 4.5m height along the footway and the West Brook tributary. Likely to be used in future particularly as waterways function as commuting routes and restored riparian</p>	

No.	Directed to	Question				
						<p>habitat, new hedgerow and woodlands proposed adjacent will have a significant role in enhancing their use. There is also a large attenuation basin that could be used by foraging bats.</p>
<p>An important feature of the Scheme is substantial improvement in east-west connectivity. The movement of bats east-west is facilitated by both the Scheme and the existing A428 which will remain as a corridor for bat movement but without the traffic numbers that it experiences at present. Bats will be able to move east-west benefiting from foraging along the Scheme. This will reduce the need for bats to cross the Scheme. Monitoring of crossing structures will be undertaken to provide information of their usage by bats to safely cross the Scheme to ensure they function as intended and this would feedback into management of habitats where required.</p> <p>The Applicant has engaged further with Natural England and Local Planning Authorities on the Environmental Masterplan [REP6-006], particularly regarding planting around bat crossings structures and the time these features will take to mature and the functionality of this planting. Where further changes are possible within the Order Limits or further clarity is required the relevant documents will be updated at Deadline 9 once the Masterplan has been further assessed in light of these discussions. The comments provided will also be passed on to the Principal Contractor for consideration / incorporation at detailed design.</p> <p>b) The landscaping and design of the bat tunnel as described in Part a) along with other underpass structures are such that they will guide other animal species, including other mammals such as Badger and Otter, as well as reptiles and amphibians. A combination of fencing and planting will provide guides to these crossing points, as well as to the other culverts provided that can be used by Otter and Badger and other species. Birds will not need to use such crossings.</p> <p>c) The evidence that bats will use multi-purpose underpasses, including ones used by humans referred to at ISH4 [EV-060] can be found in Section 4.2 of the 'Effectiveness of bat mitigation measures on roads – a guideline. December 2016' [REF1] and a literature review is provided in Appendix C of the Bat Technical Note (Rev 4) [TR010044/EXAM/9.54v4] submitted at Deadline 8. These provide evidence that bats will use properly designed multifunctional tunnels if there is little human traffic during night and minimum lighting in the underpass at night. Waterways should never be illuminated. Most large underpasses are created to provide a multi-purpose function, such as farm access or public right of ways and therefore have use by humans and bats. From the literature</p>						

No.	Directed to	Question
		<p>review there are numerous UK studies that have found bats using properly designed underpasses [REF2]. One example referred to is an underpass at Eversham Nurseries on the A465 in Wales. This is a public footpath within an underpass. The majority of bats (comprising seven species) used the underpass (95% of bats) rather than flew over the road above at unsafe heights (5% of bats) (see Section 4.2 of [REF3]). A study in France (with a similar bat fauna) of 24 underpasses comprising structures 2.5 to 5m high, found use of multi-purpose underpasses by <i>Myotis</i> species, <i>Pipistrellus</i> species, <i>Rhinolophus</i> species and <i>Barbastelle</i> [REF4].</p> <p>REF1 Elmeros, M., Møller, J.D., Dekker, J., Garin, I, Christensen, M, Baagøe, H.J and Forskning F (2016) CEDR Transnational Road Research Programme Call 2013: Roads and Wildlife. Fumbling in the dark – effectiveness of bat mitigation measures on roads bat mitigation measures on roads – a guideline. December 2016.</p> <p>REF2 Berthinussen, A., Richardson O.C. and Altringham J.D. (2019) Bat Conservation. Pages 67-140. In: W.J. Sutherland, L.V. Dicks, N. Ockendon, S.O. Petrovan & R.K. Smith (eds) What Works in Conservation 2019. Open Book Publishers, Cambridge, UK.</p> <p>REF3 Berthinussen A. and Altringham J. (2015) WC1060: Development of a cost-effective method for monitoring the effectiveness of mitigation for bats crossing linear transport infrastructure. Department for Environment, Food and Rural Affairs (Defra), UK report.</p> <p>REF4 Laforge A., Archaux F., Bas Y., Goux N., Calatayud F., Latge T. and Barbaro L. (2019) Landscape context matters for attractiveness and effective use of road underpasses by bats. <i>Biological Conservation</i>, 237, 409–422.</p> <p>REF 5 Russ, J (1999) <i>The Bats of Britain and Ireland</i>. 1st edition.</p> <p>d) A review of 25 studies on the effects of interventions for terrestrial mammals (excluding bats) of tunnels, culverts and underpasses concluded that such interventions were likely to be beneficial in terms of providing safe road crossing opportunities for mammals [REF6]. This included the use of purpose-built wildlife tunnels, culverts that assist with drainage, and underpasses beneath roads which may also be used for local vehicle/pedestrian access.</p> <p>Most large underpasses are created to provide a multi-purpose function, such as farm access or public right of ways and therefore have use by humans and other wildlife. Similar principles apply to overpasses and one study by van Grift <i>et al.</i> (2012) [REF7] looked at the use of an overpass, intended for both humans and wildlife, in the Netherlands. This considered whether animal use of an overpass was affected by human co-use, by comparing animal use of multipurpose and wildlife-specific overpasses. Although there were some effects of human co-use, such as deer moving more quickly over the co-use overpasses, there were no strong positive or negative</p>

No.	Directed to	Question
		<p>correlations found between humans and the crossing frequency of wildlife, although there was a strong bias to crossings in the evening and early morning.</p> <p>REF6 Littlewood, N.A., Rocha, R., Smith, R.K., Martin, P.A., Lockhart, S.L., Schoonover, R.F., Wilman, E., Bladon, A.J., Sainsbury, K.A., Pimm S. and Sutherland, W.J. (2020) Terrestrial Mammal Conservation: Global Evidence for the Effects of Interventions for terrestrial mammals excluding bats and primates. Synopses of Conservation Evidence Series. University of Cambridge, Cambridge, UK.</p> <p>REF7 Grift, E. V. D., Ottburg, F &, Dirksen, J (2012) Multiuse Overpasses: Does Human Use Impact the Use by Wildlife? Published 2012. https://www.semanticscholar.org/paper/Multiuse-Overpasses:-Does-Human-Use-Impact-the-Use-Grift-Ottburg/</p>
Q3.3.6	Aquatic Environment and Biodiversity	
Q3.3.6.1	Natural England Environment Agency Applicant Local Authorities	<p>Question:</p> <p>Mitigation measures</p> <p>a) Applicant and EA have you reached agreement that the various biodiversity measures identified by EA [RR-036] would be addressed by the Proposed Development within iterations of the Environmental Management Plan (EMP). How is this secured?</p> <p>b) Applicant, respond to the Cambridgeshire Council's concerns regarding Pond 83 [REP4-054]?</p> <p>Answer:</p> <p>a) The Environment Agency [RR-036] requested several biodiversity measures, as follows:</p> <ol style="list-style-type: none"> 1. Further updates to ecological surveys are likely to be required as the scheme progresses, to provide up-to-date ecological information. 2. Consideration should be given to timings of works within watercourses to avoid sensitive times around fish spawning. 3. Given the adverse ecological impacts associated with culverts, new and/or replacement culverts should be kept as short as possible, with culverts being oversized and set below natural bed level (>30cm). Positioning should not inadvertently result in invert levels creating a potential barrier to eel and fish migrations.

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		<p>4. Mammal ledges should also be included.</p> <p>5. Designing ponds and wetland areas with shallow bank slopes and variation in plan-form can help to improve their ecological value. Planting should consist of native species characteristic of the local area, ideally sourced locally.</p> <p>6. Measures will be required during construction phases to prevent sediment run-off, as well as other polluting substances, from entering watercourses.</p> <p>All of these matters have been addressed, as described below:</p> <ol style="list-style-type: none"> 1. Update surveys were carried out by the Applicant in 2021 with reports submitted at Deadline 5 [REP5-006 to REP5-013]. Further updates will be carried out as described in the Biodiversity Pre-commencement Plan (Rev 2) [APP-239] or any subsequent revisions of the document, and subsequently during the construction period as part of the Biodiversity Management Plan contained within the First Iteration Environmental Management Plan (see Annex D) [REP6-008]. 2. The First Iteration Environmental Management Plan [REP6-008] (Annex F 4.3.2) states works on watercourses will be programmed to minimise impacts during fish spawning (typically March-June) where possible. 3. Lengths of new and replacement culverts have been kept as short as practicable in the development of the outline drainage design, see Appendix 13.3, Drainage Strategy [APP-219] of the Environmental Statement. Embedding a culvert in a watercourse is a requirement in the Design Manual for Roads and Bridges CD 529 3.9 which states that where a culvert conveys a public watercourse its invert shall be depressed below the natural bed level as described in Chapter 9 of CIRIA C786 and CD 529 3.10 and where a culvert conveys a highway drain that is not a public watercourse, the invert shall be at least 75mm below the bed of the drain. By ensuring the culverts are embedded/ depressed below the natural bed level will not inadvertently result in invert levels creating a potential barrier to eel and fish migrations. 4. New culverts and underpasses incorporate features to aid crossing by wildlife, including mammal ledges in culverts. The locations are shown on the Environmental Masterplan [REP6-006]. 5. The First Iteration Environmental Management Plan [REP6-008] Annex L section 1.10 Wetland shows that variations within drainage attenuation features will be achieved by the areas for wet treatment and attenuation of runoff, with different conditions and plant mixes for basin slopes, temporarily wet basin floors and wet treatment areas. These plant mixes are native species characteristic of the local area. The First Iteration

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		<p>Environmental Management Plan [REP6-008] Annex F 4.1.33 also includes designs to provide enhancement of existing watercourses to a more natural form, and Annex F 4.1.36 includes natural channels and variety to maximise biodiversity.</p> <p>6. In the First Iteration Environmental Management Plan [REP6-008] Table 3-11 Road Drainage and the water environment (ESS-RD1), the Water Management Plan is required to include controlling and minimising risk of pollution to surface waters and groundwater by managing construction site runoff and the risk of chemical spillages. Details are included in Annex F, Section 4.2.</p> <p>These matters are secured within the First Iteration Environmental Management Plan [REP6-008] by Requirement 3 (regarding the Second Iteration Environmental Management Plan) and Requirement 12 (regarding detailed design) within Schedule 2 of the draft DCO [REP6-003].</p> <p>b) Regarding Cambridgeshire County Council's query as to how attenuation pond 83 will be restored to mitigate permanent habitat loss, there will be no permanent habitat loss from Pond 83 which will be retained and restored. The pond is becoming overgrown by Common Reed (<i>Phragmites australis</i>) and needs to be de-silted to prevent further loss of open water by natural succession to reedbed and terrestrial vegetation. In addition to desilting, the restoration will include planting of native aquatic and wetland species, from those already identified for use for new ponds and wet treatment areas (First Iteration Environmental Management Plan [REP6-008] Annex L section 1.10 Wetland). Small-scale habitat features will be added to diversify substrate for invertebrates. The pond supports a population of Great Crested Newt so desilting will be carried out outside the breeding season. Restoration will be beneficial to the newt population. Work will be carried out in at least two phases to avoid removing all the vegetation at once. Restoration will start as soon as practicable and will be completed before the end of the construction period. The detailed design and programming of the restoration will be carried out by the Principal Contractor.</p>
Q3.3.7	Arboreal Environment	
		<p>Question:</p> <p>No further questions at this stage</p> <hr/> <p>Answer:</p>

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Q3.4	Climate Change and Carbon Emissions	
Q3.4.1	Emissions	
Q3.4.1.1	Applicant Transport Action Network Local Authorities	<p>Question:</p> <p>Assessment of effects for the Proposed Development alone and cumulatively at a local and regional level</p> <p>a) Applicant, your response to [REP4-037, WQ2.4.1.1] and your position at ISH4 [EV-062] is unclear to the ExA. Indicate what level of emissions would be considered significant in this context, for the Proposed Development alone and for cumulative and in-combination effects. In particular, with reference to Paragraph 5.18 of the NPS NN, what increase in carbon emissions would be considered “so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets”?</p> <p>b) Paragraph 5.17 of the NPS NN requires applicants to “provide evidence of the carbon impact of the project”. This is addressed at various locations within the examination library, including [APP-254 paragraph 4.4.7]. Applicant, the GHG emissions of the Proposed Development of -£127.0 million in discounted 2010 prices is a greater negative sum than the combined accident and journey time reliability benefits [APP-240 Table 4-4]. Explain how environmental effects of such a scale are not considered to be significant.</p> <p>c) Applicant, TAN, would the changes to the Green Book and increased carbon values adopted by BEIS and DfT in September and October 2021 [REP6-134] [REP6-135] affect the assessment of cumulative effects?</p> <p>d) BBC and the Cambridgeshire Councils, evidence to show carbon budgets for Bedford [REP6-134 Annex 1], Huntingdonshire and South Cambridgeshire [REP6-063] produced by the Tyndall Centre has been provided. However, for all cases the Carbon Budgets are described as “Energy Only”. Confirm whether this would include transport emissions such as would be produced by the Proposed Development during construction and operation. Applicant and TAN may comment.</p> <p>e) TAN, BBC and the Cambridgeshire Councils, what would be the effect on these local and regional carbon budgets [REP6-134 Annex 1] [REP6-063] of the Proposed Development over the 60-year project lifetime, with particular regard to the apportionment of carbon emissions for road transport used by BEIS [REP6-121]? Applicant may comment.</p> <p>f) Applicant and LAs, in what way would the Proposed Development affect the ability of LAs to meet any locally or regionally adopted carbon reduction targets?</p>

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		<p>g) Does the cancellation of the Oxford Cambridge Expressway project in March 2021 in any way change the need for the Proposed Development and, or, effect the economic justification and the BCR for the scheme?</p> <p>Answer:</p> <p>a) Climate assessment guidance provides no specific guidance on what levels of emissions would be considered significant.</p> <p>DMRB LA114, paragraph 3.20, states that the assessment of projects on climate shall only report significant effects where increases in GHG emissions will have a material impact on the ability of Government to meet its carbon reduction targets.</p> <p>NPSNN, paragraph 5.17, states that "It is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets."</p> <p>To test this, emissions from the Scheme have been put in the context of the UK carbon budgets, including the 6th carbon budget which is in line with the UK's 2050 net zero carbon emissions target. The results of this assessment are presented in Chapter 14, Climate [APP-083] of the Environmental Statement and conclude that as emissions from the Scheme only contribute 0.012% to the 4th carbon budget, 0.011% of the 5th carbon and 0.024% of the 6th carbon budget they are not so significant as to affect the ability of the government meeting its carbon reduction plan targets. Furthermore, it has been noted in Q1.1.1.1 [REP1-22] that the carbon emissions presented in Chapter 14, Climate [APP-083] of the Environmental Statement are a conservative estimate as do not take into account the impact of the government's Transport Decarbonisation Plan. In addition, at the time the road user emissions were calculated, version 10 of the Emissions Factor Tool was the latest available. This only made minimal provision for the update of electric vehicles on the road network. Version 11 of the EFT release in November 2021 makes a greater allowance for electric vehicle uptake which would result in reduced emissions from the Scheme.</p> <p>As presented in the Applicant's response to Q2.4.1.1 [REP4-037], this Scheme's contribution to the UK carbon budgets is commensurate with other schemes from RIS 1 and RIS 2 which were found not to have a significant impact, or have a material effect, on the ability of the UK to meet its carbon reduction targets. This included the A1 Morpeth to Ellingham (0.01-0.001% of the relevant carbon budgets), A38 Derby Junctions (less than 0.01% of the relevant carbon budgets), M42 Junction 6 Improvement (less than 0.006% of the relevant carbon budgets) and the A1 Birtley to Coal House (0.001-0.005% of the relevant carbon budgets).</p>

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		<p>In the absence of specific policy-based criteria on what is significant, whether the impact of a scheme is significant is a matter of judgement in individual cases based on the information relating to the scheme in question. In this case the Applicant has assessed the carbon emissions arising from the Scheme and reached a judgment that the effect would not be significant for the reasons set out above. Further, those reasons demonstrate why the policy test in the NPS NN would be met.</p> <p>b) Chapter 14, Climate [APP-083] of the Environmental Statement presents an assessment of the significance of the Scheme in line with the requirements of the NPSNN. NPSNN, paragraph 5.17, states applicants should provide evidence of the carbon impact of the project and an assessment against the Government's carbon budgets. NPS NN, paragraph 5.18, goes on to state that any increase in carbon emissions is not a reason to refuse development consent unless the increase in carbon emissions resulting from the proposed scheme are so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets. As required by the NPSNN, this is the approach which the Applicant has adopted in assessing the significance of GHG impacts as a result of the Scheme. There is no national policy requirement to assess the significance of a scheme's GHG impact based on the economic impact of carbon emissions as suggested by the Examining Authority in this question. The Applicant is not aware that any such assessment has ever been undertaken on any other National Highways schemes and indeed there is no agreed methodology on how such an assessment would be undertaken.</p> <p>For these reasons, it is not considered appropriate to assess the significance of GHG impacts by reference to the economic impact of carbon emissions in the way the Examining Authority suggests, and instead the approach set out in the NPSNN should be adopted.</p> <p>c) Changes to the Emission Factor Toolkit (EFT), version 11 was issued by Defra in November 2021, and would result in a reduction in estimated road user emissions as a result of a predicted increase in electric vehicles.</p> <p>As per the Applicant's response to Q3.11.1.1, where the Examining Authority has asked what impact this and other changes to DfT's Transport Assessment Guidance (TAG) and the associated supplementary Green Book Guidance: 'valuation of energy use and greenhouse gas emissions for appraisal' would have on the economics of the Scheme, the Applicant has agreed to carry out a further assessment that will involve running the latest version of the EFT to provide revised forecasts of emissions that will then be used for an updated economic appraisal. This will be submitted at Deadline 9.</p>

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		<p>d) Local carbon budgets produced by the Tyndal Centre¹ have been calculated based on a grandfathering allocation regime for sub-dividing the UK sub-national energy only carbon budget. This energy only carbon budget includes all emissions as a result of energy use in the UK but excludes emissions from international shipping and aviation and from the variation in carbon sequestration as a result of changes in land use and forestry.</p> <p>As the UK Government does not publish carbon budgets at a local or regional scale, the Applicant is not in a position to provide an assessment as to whether or not construction or operation emissions are included within these local carbon budgets. The effects of the greenhouse gas emissions for the Scheme cannot be assessed against anything other than the national level carbon budgets. Please see response below for further detail.</p> <p>e & f) (<i>noting part 'e' is specifically directed at TAN, Cambridgeshire councils</i>)</p> <ul style="list-style-type: none"> The national carbon budgets are themselves cumulative i.e. the sum of carbon emissions from a range of sectors between now and the end of the 6th carbon budget (2037). <p>The CCA 2008 does not impose a legal duty to set carbon budgets at a smaller scale than national i.e. regional or local. Specifically:</p> <p>In setting carbon budgets parliament has not imposed any legal duty upon local authorities to attain any particular targets whether carbon budgets or for net zero 2050. i.e. there are no legal duties which require particular geographical areas within the UK to achieve particular reductions in carbon emissions by particular dates.</p> <p>There are no sectoral targets for transport, or any other sector. There is no requirement in the CCA 2008, or in government policy, for carbon emissions for all road transport to become net zero.</p> <p>Emissions in one sector, or in part of one sector, may be balanced against better performance in others. A net increase in emissions from a particular policy or project is managed within the government's overall strategy for meeting carbon budgets and the net zero target as part of an economy-wide transition.</p> <p>Accordingly, as the UK Government does not publish carbon budgets at a local or regional scale, National Highways is not in a position to provide an assessment of the cumulative effects of the greenhouse gas emissions for the Scheme for anything other than at the national level carbon budgets.</p>

¹ <https://carbonbudget.manchester.ac.uk/reports/>

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		<p>[1] https://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf</p> <p>[2] https://www.gov.uk/guidance/carbon-budgets</p> <p>The decision to cancel the Oxford to Milton Keynes section of the Oxford to Cambridge Expressway was taken on the basis of the cost benefit appraisal which demonstrated that it did not represent a cost-effective option for the taxpayer.</p> <p>The main difference between the Scheme and the Oxford to Cambridge Expressway is that the Scheme is targeted to solving local traffic congestion and capacity problems at Black Cat and along the A428 corridor. By contrast one of the main objectives of the Expressway was to support new housing development and possible land value uplift.</p> <p>Unlike the Oxford to Cambridge Expressway, the A428 Scheme represents value for money. The outturn costs of the Scheme is £812.5M (in 2019 Q1 prices). The adjusted Net Present Value (benefits minus cost) is £420M with a Benefit to Cost Ratio of 1.9. (Reported in Chapter 5 of the Combined Modelling and Appraisal Report [APP-250].</p> <p>The cancellation of the proposed Expressway has no bearing on the need, or the economic case, for the Scheme. The two schemes have separate business cases and there is no assumption within the Scheme's DCO application that the Expressway will be delivered.</p> <p>For traffic modelling and economic assessment purposes, other proposed transport schemes require a specified degree of certainty in proceeding to be included within the forecasting process. As the Expressway did not meet that certainty criteria it was not included in the Scheme forecasting that underpinned the economic appraisal.</p> <p>The economic benefits calculated for the Scheme are therefore not dependent upon completion of the Oxford to Cambridge Expressway and are unaffected by cancellation of the project.</p>
Q3.4.1.2	Applicant Transport Action Network Local Authorities	<p>Legislation, policy and international obligations</p> <p>a) Applicant, do any UK Government obligations made at the United Nations Climate Change Conference (COP26) affect the assessment of carbon emissions of the Proposed Development? Given a climate emergency has been declared what additional measures would the Applicant propose are adopted to reduce the anticipated carbon emissions of the Proposed Development.</p> <p>b) The UK is committed to achieving net-zero carbon emissions by 2050 and has established carbon budgets to both inform and measure progress. Applicant, what assurance can the ExA have that carbon emissions up to and</p>

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		<p>beyond 2050 will be satisfactorily mitigated, in light of forecasts in the Decarbonising Transport Strategy [REP6-131] and by the Climate Change Committee [REP6-118] [REP6-119]?</p> <p>Answer:</p> <p>a) The key achievements of COP26 included ensuring that over 90% of world GDP is covered by net zero targets, that Nationally Determined Contributions (NDC) for 2030 are put forward, and that national adaptation plans are put in place.</p> <p>The Glasgow Climate Pact² is the main outcome of COP26, which demonstrates global agreement (by almost 200 countries) on the themes of mitigation, adaption, finance and collaboration in relation to climate change. The Glasgow Climate Pact reaffirms the goal to limit global warming to 1.5 degrees Celsius above pre-industrial levels and resolves to pursue efforts to achieve this (see paragraphs 15 and 16). Government legislation and policy, including the Climate Change Act 2008³, is fully in line with this reaffirmed goal. The carbon budgets under the Climate Change Act 2008 align with the Glasgow Climate Pact objective of requiring rapid, deep and sustained reductions (paragraph 17). For example, the first three carbon budgets required a 37% reduction in emissions compared to 1990 levels to be achieved on average over the period 2018 to 2022. The fourth and fifth budgets have extended the reductions to 57% below 1990 levels to be achieved on average over the period 2028 to 2032. The sixth carbon budget requires a reduction in emissions to 78% below 1990 levels to be achieved on average over the period 2033 to 2037. The Government's policy 'Decarbonising Transport' (HM Government 2021) sets out the approach to reducing the impact of transport upon carbon emissions. The Government, via the review process identified within Decarbonising Transport, will exercise its powers within the Planning System to deliver the reductions in carbon emissions from road transport that it anticipates will be achieved. Additionally, the Government's publication of the Net Zero Strategy (HM Government, 2021) further presents the requirement to decarbonise transport. This document sets out clear policies and proposals for keeping the UK on track for its coming carbon budgets, its Nationally Determined Contribution (NDC), and then sets out our vision for a decarbonised economy in 2050.</p> <p>Accordingly, the Glasgow Climate Pact does not require any change in the policy commitments or legislation under which the assessment of carbon emissions of the Scheme was made and this assessment remains robust</p>

² <https://unfccc.int/documents/310475>

³ <https://www.legislation.gov.uk/ukdsi/2019/9780111187654>

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		<p>in light of the declared climate emergency. The UK government has applied its international obligations through domestic legislation contained in the Climate Change Act 2008, further to which carbon budgets have been adopted and considered by the Applicant. Embedded mitigation is in place to reduce the carbon emissions from the Scheme and the Applicant does not consider that additional measures for this individual development are necessary to fall within the carbon budgets set by Government nor the most effective way of reducing emissions, which is best dealt with at a strategic level.</p> <p>The assessment of carbon emissions in the Scheme includes assessment against the legislated for carbon budgets and concludes no material impact – see paragraph 14.8.5 in Chapter 14, Climate [APP-083] of the Environmental Statement. The Sixth Carbon Budget is aligned with the Paris Agreement target to keep global temperature increases at 1.5 degrees and this puts the UK on course to meet their 2030 NDC pledge.</p> <p>The Scheme contains mitigation for carbon emissions, including (for example) energy efficient road lighting, planting of trees, shrubs and hedgerows planted as part of the landscape design which would offset some of the carbon emissions, retention where possible of existing highway infrastructure within the Scheme design to reduce GHG emissions associated with demolition activities and the transportation of associated arisings off-site, the inclusion of borrow pits within the Scheme to provide suitable construction material for the Scheme and the reuse, where possible, of material arisings generated from construction works, to minimise GHG emissions associated with their transportation both on and off site.</p> <p>In addition, a climate risk assessment has been carried out against the latest UK climate projections to ensure the future resilience of the project - see paragraph 14.8.5 in Chapter 14, Climate [APP 083] of the Environmental Statement. This has mitigation including Sustainable Drainage Systems (SuDS) to handle road runoff and provide resilience against potential future flood events associated with climate change, specification and installation of highway equipment capable of withstanding high temperatures (including electrical equipment comprising information and communication systems, bridge joints and paved surfaces) arising from severe weather events to provide resilience to climate change, and the implementation of emergency systems and response plans, including the identification of suitable network redundancies and diversion routes, to respond to severe weather events, which would further increase the resilience of the Scheme to extreme weather conditions.</p>

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		<p>In addition to project level mitigation, National Highways have recently published a Net Zero Highways Plan⁴. This sets out actions to achieve net zero and includes targets for: net zero for own operations by 2030; net zero for maintenance and construction by 2040; and net zero carbon travel on its roads by 2050. This plan is based on science based targets and proposes actions that will ensure that National Highways take wide ranging measures to align with limiting warming to 1.5 degrees and facilitate the transition to net zero carbon travel across the Strategic Road Network.</p> <p>b) The Scheme seeks to reduce carbon through design and mitigation by applying a mitigation hierarchy, as follows:</p> <ul style="list-style-type: none"> • Avoidance/prevention – to maximise the potential for reusing and/or refurbishing existing assets. • Reduction – through the application of low carbon solutions including technologies, materials and products to minimise resource consumption. • Remediation – applied to further reduce carbon through on or off site offsetting or sequestrations. <p>This mitigation includes mitigation applied to the construction phase and operational phase included in part (a) above.</p> <p>The Applicant has presented an assessment of carbon from construction and operations relative to the economy wide targets for decarbonisation set out in the carbon budgets, up to the sixth carbon budget (2033-2037) – see the Applicant's response to Q1.4.1.1 [REP1-022]. The conclusion of this assessment is that there is not a material effect from the Scheme on the achievement of the UK carbon budgets.</p> <p>While it is not possible to assess emissions against as yet unpublished future carbon budgets, as part of the Strategic Road Network the targets in National Highways' Net Zero Highways Plan will ensure that actions are taken to ensure the SRN overall, of which this Scheme would form part, is net zero carbon by 2050. This includes actions to support zero carbon HGVs, actions to support zero carbon cars and vans, and actions to support modal shift. This plan sits alongside the government's Transport Decarbonisation Plan and measures contained therein.</p>
Q3.4.2	Climate Change Adaptation	

⁴ <https://nationalhighways.co.uk/netzerohighways/>

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3.4.2.1	Applicant Transport Action Network Local Authorities	<p>Question:</p> <p>Climate change resilience</p> <p>Applicant, with reference to the Green Book advice referenced by TAN at Deadline 6 [REP6-113], what assessment has been made of the resilience of the Proposed Development to a global temperature increase of 4 degrees Celsius?</p> <p>Answer:</p> <p>Appraisal of the Scheme has followed the Government's Transport Analysis Guidance (TAG) which provides information on the role of transport modelling and appraisal. The WebTAG process requires completion of the Appraisal Summary Table (AST) providing a summary of a schemes impacts including estimates of costs and benefits to transport users.</p> <p>The AST requires a monetised assessment of greenhouse emissions to be reported. GHG emissions are monetised following the supplementary guidance to Treasury's Green Book, 'Valuation of energy use and greenhouse gas emissions for appraisal'.</p> <p>WebTAG currently places no requirement for a monetised assessment of the effects of climate change on the Scheme to be reported such as that presented in the supplementary Green Book guidance 'Accounting for the Effects of Climate Change', published by DEFRA.</p> <p>An assessment of the vulnerability of the Scheme to climate change impacts was undertaken in line with the requirements of the NPSNN (paragraphs 4.36 to 4.45) and DMRB LA114 Climate. The methodology and results are presented in Chapter 14, Climate of the ES [APP-083].</p> <p>NPSNN (paragraphs 4.40 to 4.42) states:</p> <p><i>'Applicants must consider the impacts of climate change when planning, design, location and operation. Any accompanying Environmental Statement should set out how the proposal will take account of the projected impacts of climate change.'</i></p> <p><i>Where transport infrastructure has safety-critical elements and the design life of the asset is 60 years or greater, the applicant should apply the UK Climate Projections 2009 (UKCP09) high emissions scenario (high impact, low likelihood) against the 2080 projections at the 50% probability level.</i></p>

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		<p><i>The applicant should take into account the potential impacts of climate change using the latest UK Climate Projections available at the time and ensure any environment statement that is prepared identifies appropriate mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure. Should a new set of UK Climate Projections become available after the preparation of any environment statement, the Examining Authority should consider whether they need to request additional information from the applicant'.</i></p> <p>DMRB LA114 provides a method for assessing the impacts of climate change on a scheme in line with NPSNN. DMRB requires that the assessment of a project's vulnerability to climate change shall use published historical regional weather data to demonstrate the current climate impacts on a study area. It also requires that UK Climate Impacts Programme UK Climate Projections 2018 (UKCP18) is used to identify future climate impacts for the appropriate geographic area of the project.</p> <p>In line with the DMRB, the assessment included all infrastructure and assets associated with the Scheme and assessed resilience against both gradual climate change and the risks associated with an increased frequency of extreme weather events, referencing UKCP18 data, A precautionary approach to climate vulnerability is taken using Representative Concentration Pathways (RCP) 8.5, 50th Percentile for the 2020s and 2080s. RCP 8.5 is consistent with a global temperature rise of 4°C, or '4°C' scenario. This is a high emissions scenario as required in the NPSNN. The climate change vulnerability assessment identified no significant impacts on the Scheme as a result of climate change.</p>
Q3.5	Compulsory Acquisition and Temporary Possession	
Q3.5.1	Compulsory Acquisition schedule	
Q3.5.1.1	Applicant	<p>Question:</p> <p>Schedule of all agreements, negotiations and objections</p> <p>Provide an update on all agreements, negotiations and objections to the grant of CA or TP powers [REP6-024].</p> <hr/> <p>Answer:</p> <p>The Applicant has submitted an updated version of the Compulsory Acquisition Objection Schedule [TR010044/EXAM/9.4v4] at Deadline 8 which sets out the latest position on all agreements, negotiations and objections to the grant of CA or TP powers.</p>

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		If there are any comments made at Deadline 8 in relation to this document, the Applicant will respond at the next appropriate deadline.
Q3.5.2	Protective Provisions	
Q3.5.2.1	Statutory Undertakers Applicant	<p>Question:</p> <p>Protective Provisions</p> <p>a) ExA notes in the Statutory Undertakers Progress Schedule [REP6-026], relevant SoCGs [REP6-011] [REP6-012] [REP6-013] [REP6-014] [REP6-022] and submissions [REP6-096] that Protective Provisions are still under discussion with matters not agreed. Applicant and Statutory Undertakers list and explain if there are any fundamental areas of disagreement, and identify any disagreements that you envisage not being agreed before close of the Examination, explaining the implication of not reaching agreement.</p> <p>b) Statutory Undertakers, in particular if the area of disagreement is in the wording of Protective Provisions in the dDCO [REP6-003] then provide proposed revised wording and accompanying justification and reasons for the ExA to consider.</p> <p>c) Applicant, explain the nature of the side agreement referred to in several updates [REP6-026]. What is the relationship between the side agreement with parties where Protective Provisions are also included in the dDCO [REP6-026], such as Cadent Gas? You may provide a list of all instances and explain individually if the response is unique to each such update.</p> <p>d) Statutory Undertakers as and when agreement is reached, provide a statement confirming all matters have been agreed and there are no outstanding objections, either in the SoCG if there is one or via a Deadline submission.</p> <p>Answer:</p> <p>a) The Applicant is aware of the following positions with regards to protective provisions (PPs):</p> <p>Anglian Water – There are three main outstanding points of principle between the parties. These have been outlined in the SoCG submitted at Deadline 6 [REP6-012]. Acknowledging that these are key points of principle, the Applicant is keen to resolve these ahead of the end of Examination. However, should this not be the case, a SoCG will be signed and submitted accordingly and the ExA will have the ability to make a recommendation on this wording.</p>

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		<p>Cadent – the PPs and Side Agreement are fully agreed.</p> <p>South Staffordshire Water (as parent of Cambridge Water) – The PPs are those on the face of the Order for the protection of Electricity, Gas, Water and Sewerage Undertakes. While discussions are ongoing with regards the side agreement, this is anticipated to be finalised by the close of Examination.</p> <p>Exolum – there are no areas of disagreement the Applicant considers fundamental.</p> <p>National Grid – the PPs are now agreed. While discussions are ongoing with regards the side agreement, this is anticipated to be finalised by the close of Examination.</p> <p>UKPN - there are no areas of disagreement the Applicant considers fundamental.</p> <p>Environment Agency – there are no areas of disagreement the Applicant considers fundamental.</p> <p>Drainage Authorities:</p> <ul style="list-style-type: none"> • Beds and River Ivel Internal Drainage Board – all matters have been agreed save for details regarding approvals for the construction of specified works. It is envisaged that this matter is likely to be resolved before the end of examination. • Central Bedfordshire Council – all matters have been agreed. • Bedfordshire Borough Council – there are no areas of disagreement the Applicant considers fundamental. • Cambridgeshire County Council – all matters have been agreed save for details regarding approvals for the construction of specified works and maintenance of drainage works. It is envisaged that these matters are likely be resolved before the end of examination. <p>Telecoms – the PPs are fully agreed.</p> <p>b) No comment.</p> <p>c) It is common for side agreements to be entered into with parties who have the benefit of protective provisions on the face of the dDCO. These can set out further detail on the arrangements between the parties or, in certain circumstances, allow deviations from the protective provisions on the face of the dDCO. Whilst reference has been drawn to side agreements in previous submissions, this is solely to demonstrate that progress is being made in negotiations with statutory undertakers. The content of side agreements is usually confidential between the parties, and it is therefore not common practice for the details of side agreements to be shared with the examination. It is not considered necessary to provide these details because the Examining Authority can be</p>

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		<p>satisfied that the protective provisions on the face of the dDCO will apply to safeguard the relevant statutory undertaker's asset unless the parties voluntarily agree (as they should be entitled so to do) to deviate from these.</p> <p>d) No comment.</p>
Q3.5.2.2	East West Rail Applicant	<p>Question:</p> <p>Proposed draft Protective Provisions by EWR</p> <p>a) The ExA had requested to see EWR's draft Protective Provisions and the Applicant's counter proposal of a cooperation agreement since the start of the Examination [EV-016] [PD-008] [PD-009], and this has only partially been made available at D6 [REP6-094] [REP6-030]. The ExA intends to highlight the delay in responding to these matters as the reason, should matters not be agreed between parties before the close of the Examination. Applicant and EWR provide reasons for the delay and proposed way of working to conclude matters.</p> <p>b) Applicant, provide any further comments on the draft Protective Provisions proposed by EWR [REP6-094], if this version is different to what you have commented on before [REP6-030].</p> <p>c) EWR, you have stated that your proposed Protective Provisions are adapted from those used in previous DCOs in respect of railway undertakings [REP6-094]. Can you list examples of made DCOs where Protective Provisions (that you have used as a model) were secured for a proposed railway scheme in a similar stage of development as your proposed scheme. Applicant may respond.</p> <p>d) EWR, given the early stages of development, how and when would you define the specified work supply in 95(1)?</p> <p>e) Applicant and EWR, can 95(3) be delivered within the provisions of the current draft of the dDCO [REP6-003]?</p> <p>f) EWR, notwithstanding the provision in 95(5), how can the ExA secure in the dDCO daptation and integration of approved work without any details before it, or understanding the associated environmental effects?</p> <p>g) Applicant does your position stated at CAH2 [REP6-032] that you would not be providing a revised wording to the Protective Provisions for the negotiations, still stand? If not, provide your proposed amendments.</p> <p>h) Applicant, the ExA can see some merit in the arguments you have presented in response to the EWR's proposed draft Protective Provisions; however, the ExA considers that your counter proposal, [REP6-094], would not provide adequate protection for the EWR scheme in the dDCO. Consider the protections sought in the Protective Provisions and provide a suitably worded draft Cooperation Agreement that may provide similar protections, for</p>

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		<p>EWR to consider. This may be shared between parties in advance of D8, and the ExA would welcome EWR's response to proposed draft, alongside at D8.</p> <p>(See related questions in <i>Significant Cumulative Effects</i>.)</p> <p>Answer:</p> <p>a) The Applicant has been in ongoing discussions with EWR regarding their request for Protective Provisions and alternative solutions that could be reached. Appreciating that there would be potential merit in future co-operation with EWR in respect of the respective schemes, the Applicant has sought to engage with EWR. However as previously and consistently explained, the Applicant has resisted Protective Provisions including in the form suggested by EWR given the early stage of their proposals and the absence of any clear existing apparatus which ought to be protected through the use of Protective Provisions. Despite Protective Provisions being proposed by EWR from the beginning of the Examination, the Applicant did not receive a copy of the EWR draft Protective Provisions until 15 October 2021 and the associated Interface Agreement on 19 November 2021. Since then, the Applicant has provided comments on the unsuitability of these proposed Protective Provisions at Deadline 6 [REP6-031] and offered an alternative cooperation agreement to be entered into with EWR, a draft of which has been shared with EWR on 12 Jan 2022. The Applicant considers that this cooperation agreement forms a more suitable mechanism through which engagement between the two parties can be managed in relation to the A428 Scheme and the Applicant has sought to prepare a draft and share this with EWR as soon as possible following receipt of EWR's draft Protective Provisions and Interface Agreement. The Applicant remains engaged with EWR and willing to continue negotiations to enter into a co-operation agreement in due course.</p> <p>However, in the Applicant's view, given the prematurity of the EWR request for Protective Provisions relative to the current status of its project, the ExA can be satisfied that there will be no detriment to EWR's proposed operations (which have still to reach a preferred route stage and statutory consultation) irrespective of whether a cooperation agreement is entered into. The cooperation agreement will seek to offer benefits to the parties rather than prevent detriment to EWR. Therefore, whether progress is or is not made on a cooperation agreement before the close of the examination is not material to the Examining Authority's decision on the A428 Scheme. In any event, the Applicant considers that in the circumstances it has not acted to cause any delay; and the fundamental reason for any agreement not being reached is not delay, but rather the attempt by EWR to seek Protective Provisions in the DCO when it is premature and inappropriate to do so.</p> <p>b) The Applicant has previously commented upon a version of the draft Protective Provisions which were provided by EWR to the Applicant on 15 October 2021. These comments can be found within the document 'Applicant</p>

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		<p>response to actions arising from Issue Specific Hearing 5', action point 7 [REP6-031] submitted at deadline 6. Also, at Deadline 6, EWR submitted a table setting out its draft Protective Provisions and its justification for their inclusion. There was one discrepancy between the two sets of draft Protective Provisions but this does not impact on the overall and consistent position of the Applicant that these Protective Provisions are not suitable because there is no existing EWR apparatus requiring protection and no section 127 status to consent the erection of any such apparatus and, therefore, EWR cannot be considered an undertaking.</p> <p>c) The Applicant is not aware of any such made DCOs where Protective Provisions have been included for a railway scheme at the same stage as EWR's Scheme. EWR is not an undertaking nor a statutory undertaker for the purposes of the Planning Act 2008, and it is the Applicant's position that EWR's request for Protective Provisions is premature and without any clear rationale or justification. It is noted that EWR were not deemed to meet any of the criteria, set out in sections 102A and 102B of the Planning Act 2008, to have Interested Party status and as such hold the status of 'other person' in the Examination.</p> <p>d) No comment.</p> <p>e) The Applicant considers that provisions contained within paragraph 95(3) would be best placed within any Order to be made for the EWR Scheme and, for the reasons stated within [REP6-031], is not suitable for inclusion within the A428 dDCO.</p> <p>f) No comment.</p> <p>g) The Applicant considers the inclusion of Protective Provisions for the EWR Scheme, which is neither consented nor in existence, to be entirely inappropriate as a general principle. Therefore, the Applicant maintains the position stated at CAH2 that it will not be providing revised wording to the EWR proposed Protective Provisions.</p> <p>h) The Applicant does not consider that protection is required to be secured for EWR under the DCO. EWR have not presented any detailed or specific evidence to suggest that the Scheme would prejudice their ability to deliver the EWR Scheme, and indeed has not yet made a Preferred Route Announcement to confirm what route the EWR Scheme will take. Accordingly, the cooperation agreement is not a material consideration for the ExA in determining whether to grant development consent; it is a mechanism through which the Applicant and EWR will manage any potential interaction between the two schemes in the future, acknowledging the advanced stage of the Scheme by comparison to the EWR Scheme.</p> <p>A draft cooperation agreement has been shared with EWR and the Applicant considers that it is not necessary for this to be submitted to the Examination, because whether progress is or is not made on this cooperation</p>

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		agreement before the close of the examination is not material to the Examining Authority's decision on the A428 Scheme.
Q3.5.3	Affected Persons' site specific issues	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.6	Construction methods and effects	
Q3.6.1	Approach to construction and proposed programme	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.6.2	Borrow pits, construction compounds, waste management	
Q3.6.2.1	Local Authorities National Farmers Union The Church Commissioners of England	<p>Question: Borrow pits Comment on Annex R Borrow Pits Management Plan in the First Iteration EMP [REP6-008].</p> <p>Answer:</p>

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		<p>A response to this question is not required from the Applicant.</p> <p>The Applicant will respond to any points raised in response to Q3.6.2.1 at the next appropriate deadline.</p>
Q3.6.3	Environmental Management Plan	
Q3.6.3.1	Applicant All Parties	<p>Question:</p> <p>First Iteration EMP</p> <p>a) Applicant, set out a schedule of the fundamental changes proposed in the First Iteration EMP [ref]. Is there any relevance to the colour coding in the track change versions [REP6-007]?</p> <p>b) All relevant Parties comment, if you have concerns, to the changes proposed in the First Iteration EMP [REP6-008].</p> <p>c) The ES provides detail of construction related activities that would fall outside the defined construction working hours [APP-071 Annex K, paragraph 1.4]. Applicant, no reference to 'departure' is made in the updated First Iteration EMP [REP6-008, 1.4.3 a. or b.] Therefore, would the departure of delivery vehicles from site and the departure of vehicles from the works compounds fall within the scope of the set construction hours?</p> <p>d) All Parties, provide comment as to whether those activities referred to in First Iteration EMP [REP6-008, 1.4.3 a or b] are reasonable to be excluded from the set construction hours set out in the ES. How would they be controlled?</p> <p>Answer:</p> <p>a) A schedule of the fundamental changes made to the First Iteration Environmental Management Plan by the Applicant between version 1 (contained within the DCO application) [APP-234] and version 2 (submitted at Deadline 6) [REP6-007] is provided in the <i>Schedule of Changes to the Environmental Management Plan</i> [TR010044/EXAM/9.106] submitted at Deadline 8.</p> <p>The colour coding within the track changed version of the First Iteration Environmental Management Plan [REP6-007] is a consequence of multiple author changes generated within the electronic file by the word processing software used, and therefore this has no relevance to the document contents and the changes proposed.</p> <p>b) No further response to make.</p>

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		<p>c) During the start-up and shut down periods, delivery vehicles may both arrive and depart from the 'site' and the 'works compounds'. The Second Iteration EMP, which will be prepared by the Principal Contractor, will clarify this wording such that items in Annex K, 1.4.3 a & b include both the 'arrival' and 'departure' of vehicles.</p> <p>d) The activities presented in Annex K1.4.3 a & b are reasonable to be excluded from the set construction hours because they represent activities which have to take place in advance of construction, in so far as they relate to the delivery of goods and the arrival/departure of staff.</p> <p>With regard to the delivery of goods, this activity is referenced as an exception because there are instances when oversize deliveries may excessively disruptive to normal traffic operation, including delivery of plant are permitted outside construction hours. These activities are controlled by existing Local Authority mechanisms associated with managing the delivery of oversize goods and the arrival and departure of staff is controlled by Annex Q Travel Plan.</p>
Q3.7	Draft Development Consent Order	
Q3.7.1	General	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.7.2	Definitions	
Q3.7.2.1	Applicant Local Authorities	<p>Question: Pre-commence and pre-commencement</p> <p>All relevant parties comment on the Pre-commencement plan [REP6-028] and definition of pre-commencement in Article 2 of the dDCO [REP6-003].</p> <p>Answer:</p>

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		<p>The Applicant has submitted an updated version of the Pre-commencement plan [TR010044/EXAM/9.48v3] at Deadline 8 which addresses comments made in a marked-up version of the plan submitted by the Cambridgeshire Authorities [REP6-061]. Appendix A of the Applicant's comments on Deadline 6 submissions [TR010044/EXAM/9.93] sets out the Applicant's comments on the points raised by the Cambridgeshire Authorities [REP6-061].</p> <p>If there are any further comments made at Deadline 8, the Applicant will respond at the next appropriate deadline.</p>
Q3.7.3	Articles	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.7.4	Schedule	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.7.5	Requirements	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>

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Q3.8	Diversion of high pressure pipeline	
Q3.8.1	Application materials	
		<p>Question: No further questions at this stage</p> <p>Answer:</p>
Q3.8.2	Determining if the pipeline diversion would be an NSIP	
Q3.8.2.1	Applicant Cadent Gas	<p>Question: Screening Assessment Provide any relevant updates and confirm a projection for progress before the close of Examination.</p> <p>Answer: The Applicant can confirm that the archaeology in Field 44 continues to be excavated under planning application CB/20/04185/FULL granted on 08 April 2021. As of 12 January 2021, the excavation is approximately 80% complete and it is anticipated that all site work will be complete by the close of the Examination (18 February 2021). Accordingly, the screening assessment will be updated prior to the end of the Examination at Deadline 10.</p>
Q3.8.3	Excavating the archaeological remains	
Q3.8.3.1	Applicant Central Bedfordshire Council	<p>Question: Excavating the archaeological remains Provide any relevant updates and confirm a projection for progress before the close of Examination.</p>

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		<p>Answer:</p> <p>The archaeology in Field 44 continues to be excavated under planning application CB/20/04185/FULL granted on 8 April 2021. As of 12 January 2021, the excavation is approximately 80% complete and it is anticipated that all site work will be complete by examination close (18 February 2021).</p>
Q3.8.4	Environmental effects	
		<p>Question:</p> <p>No further questions at this stage.</p>
		<p>Answer:</p>
Q3.9	Flood Risk	
Q3.9.1	Sequential approach to route selection and design	
		<p>Question:</p> <p>No further questions at this stage</p>
		<p>Answer:</p>
Q3.9.2	Interactions between different sources of flooding	
Q3.9.2.1	Environment Agency Bedfordshire and River Ivel Internal Drainage Board	<p>Question:</p> <p>Black Cat Junction</p> <p>The EA has raised concerns regarding the effects of permanently sealing the A1 Black Cat junction to prevent significant groundwater ingresses on flows along South Brook, and that further modelling and sensitivity testing is</p>

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		<p>required [REP4-068]. BRIIDB, advise whether you share the EA's concerns in this respect and set out your position with regard to the proposals for the Black Cat Junction.</p> <p>Answer: The Applicant's response is not required for this question.</p>
Q3.9.2.2	Applicant Environment Agency Natural England Local Authorities Bedfordshire and River Ivel Internal Drainage Board (BRIIDB)	<p>Question: Drainage and Flood Risk Management</p> <p>a) EA you have stated [REP4-068] that you have not yet seen the FRA Technical Note, but this seems to contradict your signed SOCG that states the FRA Technical Note was issued on 15 July 2021. Provide an update.</p> <p>b) Applicant, has the latest version of the FRA Technical Note also been made available to other parties, in particular the LLFAs and BRIIDB?</p> <p>c) Applicant, what further updates to the FRA Technical Note are proposed? When will the final version be submitted to the ExA? Will the FRA or relevant ES chapters [APP-077] [APP-082] require updating in light of the FRA Technical Note?</p> <p>Answer:</p> <p>a) Whilst this question is directed towards the Environment Agency, the Applicant can confirm that the first draft of the Flood Risk Assessment Technical Note [REP6-042] was issued to the Environment Agency on 15 July 2021, as stated in the Examining Authority's question, and a further updated draft was issued on 17 November 2021. The Applicant received the latest comments on this draft from the Environment Agency on 26 November 2021 and these comments informed the final draft version that was submitted into the Examination at Deadline 6 and sent to the Environment Agency at this time.</p> <p>b) The latest version of the Flood Risk Assessment Technical Note [REP6-042] was submitted at Deadline 6. In advance of this, the Applicant also issued a draft for comment to the BRIIDB on 6 December 2021. The Applicant received comments from the BRIIDB on 14 December 2021. The comments received from the BRIIDB related to maintenance access requirements to Rockham Ditch which were not relevant to the production of the Flood Risk Assessment Technical Note. The Applicant has separately addressed the concerns of the BRIIDB and they have been informed of the action taken in respect of the access from Rockham Ditch.</p>

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		<p>A draft of the Flood Risk Assessment Technical Note [REP6-042] was not shared with the LLFAs prior to submission at Deadline 6 because it dealt with matters raised by the Environment Agency and not the LLFAs. To date, no comments have been received from the LLFAs on the Flood Risk Assessment Technical Note [REP6-042] submitted at Deadline 6. If comments are received from the LLFAs at a later deadline, the Applicant will respond accordingly.</p> <p>c) The Applicant does not anticipate any further update to the Flood Risk Assessment Technical Note [REP6-042], subject to any further comments received from the Environment Agency or LLFAs. Based on the content of the Flood Risk Assessment Technical Note [REP6-042], the Applicant has concluded that no updates are required to the Flood Risk Assessment [APP-220], Chapter 8, Biodiversity [APP-077] and Chapter 13, Road Drainage and the Water Environment [APP-082] of the Environmental Statement. The conclusions of the Flood Risk Assessment [APP-220], Chapter 8, Biodiversity [APP-077] and Chapter 13, Road Drainage and the Water Environment [APP-082] of the Environmental Statement remain unchanged.</p>
Q3.9.3	Passing the Exception Test	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.9.4	Climate Change resilience	
		<p>Question: No further questions at this stage.</p> <p>Answer:</p>
Q3.10	Good Design	

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Q3.10.1	Visual appearance and design principles	
Q3.10.1.1	Applicant	<p>Question:</p> <p>Scheme Design Approach and Design Principles</p> <p>Provide a further iteration of the Scheme Design Approach and Design Principles [REP3-014], in light of the comments provided in at ISH5 and at D6 and any others. Provide your justification and reasons for not taking on board any comments.</p> <p>Answer:</p> <p>The Applicant has submitted an updated version of the Scheme Design Approach and Design Principles [TR010044/EXAM/9.26v2] report at Deadline 8. The report has been updated as a result of discussions held at Issue Specific Hearing 5 [EV-056] as well as comments set out in a marked-up version of the report submitted by the Cambridgeshire Authorities [REP6-063].</p> <p>Appendix B of the Applicant's comments on Deadline 6 submissions [TR010044/EXAM/9.93] sets out the Applicant's comments on the points raised by the Cambridgeshire Authorities [REP6-063].</p>
Q3.10.2	Design development process	
Q3.10.2.1	Applicant	<p>Question:</p> <p>Design development process</p> <p>a) It is the ExA's understanding that you have scoped out further consultation with parties on the Scheme Design Approach and Design Principles document after this Examination. Confirm if this position still stands.</p> <p>b) If so, describe the scope and purpose of the 'detailed design stage' and the engagement expected with parties during 'detailed design stage'. Should this be described in the Design Approach and Design Principles document?</p>
		<p>Answer:</p> <p>(a) The Applicant confirms that no further formal consultation with parties on the Scheme Design Approach and Design Principles [TR010044/EXAM/9.26v2], document is proposed to be undertaken after this Examination. The Applicant has demonstrated how comments made by interested parties have been considered in the development</p>

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		<p>of the Scheme Design Approach and Design Principles document [TR010044/EXAM/9.26v2], submitted at Deadline 8. Please refer to the following to show how the comments received from other parties at Deadline 6 have been considered:</p> <ul style="list-style-type: none"> a. Appendix B of the Applicant's comments on submissions made at Deadline 6 [TR010044/EXAM/9.93] which sets out how comments from the Cambridgeshire Authorities have been considered. b. Table 2-1 in the Applicant's comments on submissions made at Deadline 6 by Camcycle [REP6-077] [TR010044/EXAM/9.104] which sets out how comments from Camcycle have been considered. <p>(b) The 'detailed design stage' within National Highways is referred to as Construction Preparation (Project Control Framework Stage 5), which better reflects the scope and nature of the intended design development scope. The focus is placed on developing the information required to enable the planning and commencement of construction.</p> <p>As set out in the Scheme Design Approach and Design Principles [TR010044/EXAM/9.26v2], engagement during the 'detailed design stage' will be predominantly used to communicate progress with key stakeholders including Local Authorities and Statutory Environmental Bodies. Engagement will also include regular meetings (monthly/quarterly) with these stakeholders to provide updates and an opportunity to raise questions around key topics. The detailed design will also be presented through Public Information Exhibitions to provide visibility to the solution being delivered.</p> <p>Legal Agreements with Local Authorities are being prepared to define any specific requirements for key topics, such as asset handover and the application of standards for the design of new local roads.</p>
Q3.11	Highways – network and structures	
Q3.11.1	Transport Modelling	
Q3.11.1.1	Applicant	<p>Question:</p> <p>Changes to DfT TAG Data Book v 1.17</p> <p>The Statement on Forthcoming Updates to DfT Transport Appraisal Guidance (TAG) [REP4-046], explained that revisions were likely to be made to TAG parameters including carbon values and fuel costs in November 2021, and a more significant release may follow no earlier than March 2022 (after the close of the examination).</p>

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		<p>a) Can the Applicant confirm if any revisions were made to the DfT TAG Data Book and what, if any, implication this has had on the BCR for the Proposed Development.</p> <p>b) If a more significant update follows the close of the Examination how will the Applicant deal with any material change to the BCR? Would the SoS need to consider any updates to the DfT TAG Data Book before determining the outcome; and if so how?</p>
		<p>Answer:</p> <p>a) The Department of Transport released an updated version of the TAG Data Book (v 1.17) on 29 November 2021. This version included higher values for Carbon and changes to fuel costs.</p> <p>It is noted that an updated version (v 11.0) of the Emissions Factor Toolkit (EFT) was also published by Department for Environment, Food and Rural Affairs (Defra) in November 2021. This provides updated fleet compositions, that assume a higher proportion of electric vehicles beyond 2030 and adjustments to the engine efficiency factors.</p> <p>Both the updated TAG and the EFT could potentially affect the BCR for the proposed A428 Scheme. The higher Carbon values within v1.17 of the TAG Data Book is likely to adversely affect the BCR. The adoption of v11.0 of the EFT is likely to reduce the predicted emissions from the Scheme. This is due to the higher proportion of electric vehicles beyond 2030 and is expected to have a positive impact on the BCR.</p> <p>In order to determine the impact of these combined changes, a revised assessment of emissions will be carried out using EFT V11.0 and an updated economic assessment undertaken adopting the revised values for Carbon and values of time using v1.17 of the TAG Data Book.</p> <p>The results of this work, that would include an updated BCR, will be reported at Deadline 9 (25 January).</p> <p>b) As noted by the Applicant in the Statement on Forthcoming Updates to DfT Transport Appraisal Guidance [REP4-046], a more significant update to TAG guidance that would include new National Trip End Model (NTEM) is due for release in 2022, but the timing of the release is very uncertain and would not be before March 2022.</p> <p>Depending on the materiality and timing of the release of future TAG guidance relative to the determination of the DCO application for the Scheme, the Secretary of State may request further updates to the economic assessment and the BCR.</p>

No.	Directed to	Question
		<p>Separately to the DCO process, the Applicant will submit a Full Business Case for the Scheme to the DfT. The FBC is currently under preparation by the Applicant and future updates to TAG guidance would need to be considered as part of this.</p>
Q3.11.1.2	Applicant	<p>Question:</p> <p>Junction Model Sensitivity Test Results</p> <p>The Junction Model Sensitivity Test Results [REP5-018] focuses on average speeds at certain junctions rather than traffic flows and queue lengths. For completeness, submit any additional information to the Examination which was provided to CCC, (understood to have been provided on 3 December 2021) relating to traffic flows and queue lengths at:</p> <ul style="list-style-type: none"> a) Black Cat Junction; b) Cambridge Road Junction; and c) Caxton Gibbet Junction.
		<p>Answer:</p> <p>Further information relating to traffic flows and queue lengths at the above locations was provided to CCC in the form of a Powerpoint presentation on 3 December 2021 and CCC have now confirmed that they are content with these model outputs. For the avoidance of doubt, this further information does not change the conclusions that the Applicant has provided at the sensitivity tests and junction model reports.</p> <p>The Powerpoint presentation is set out at Appendix Q3.11.1.2 of this document.</p>
Q3.11.1.3	Applicant	<p>Question:</p> <p>Effect of Junction Model Sensitivity Testing</p> <p>The Applicant has undertaken additional traffic modelling and model sensitivity testing throughout the Examination, including but not limited to, Junction Model Sensitivity Test Results [REP5-018], Coton [REP1-028], Dry Drayton and Madingley [REP3-028], Girton [REP4-040] and Cambourne [REP4-041]. How do the results of the testing undertaken to date affect the BCR?</p>

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		<p>Answer:</p> <p>The junction model sensitivity testing will have no bearing on the Benefit to Cost Ratio (BCR) as these models are not used in calculating the BCR which is based on the strategic model.</p> <p>The modifications made to the strategic model in the sensitivity tests at Dry Drayton & Madingley, Girton and Cambourne have been undertaken separately and not as a single set of corrections and not for all modelled years and time periods. Therefore, a revised BCR has not been calculated. However, as reported in the Written Representations (e.g. REP5-020cq, REP5-020co), the impacts of the modifications are relatively minor, and particularly their impacts on the Scheme as a whole. It is considered that even if all the model network modifications were combined, including those in respect to Coton, the impact on the BCR would be negligible.</p>
Q3.11.2	Road layout, junctions and bridges	
Q3.11.2.1	Applicant Local Highway Authorities	<p>Question:</p> <p>Operational phase monitoring and evaluation</p> <p>Further to discussion at ISH5 [EV-069], the Applicant has provided a technical note regarding the 'monitor and manage' approach [REP6-041]. The Technical Note explains that the locations referred to in the Transport Assessment Annexe [APP-243], identified as requiring a 'monitor and manage' approach on the Strategic Road Network, would be dealt with under the 'business as usual' activities of the Applicant, under its 2015 Operating Licence. As such, the Applicant does not consider that the 'monitor and manage' approach needs to be secured separately through the DCO. The Applicant has previously explained that post scheme monitoring of the local road network could occur at certain junctions across the extent of the scheme [REP5-014], in response to representations of the joint Cambridgeshire authorities [REP4-58]. However, this appears to be entirely different from the 'monitor and manage' process as the Applicant does not consider it their duty to monitor and manage beyond the SRN. Instead, the Technical Note explains that a Post Opening Project Evaluation (POPE) will occur and sections of the local road network will likely be included, albeit the scope is as yet undefined. Additionally, the Technical Note [REP6-041, Paragraph 1.5.5] also states that there is no requirement to intervene upon the evaluation of the Proposed Development, although any findings may inform future solutions.</p> <p>a) Applicant, confirm whether the operational monitoring described in the Technical Note is intended to form any form of mitigation relied upon in the ES to reduce effects of the Proposed Development.</p>

No.	Directed to	Question
		<p>b) Applicant, explain with reasons if there has been a divergence in your approach to operational monitoring of the effects of the Proposed Development on the local road network during the Examination.</p> <p>c) LHAs comment on the content of the Technical Note [REP6-041], including whether the approach explained in the document differs from that previously presented by the Applicant. If not, what are the implications, if any, of the residual effects after mitigation that is secured in the dDCO, excluding 'monitor and manage'.</p> <p>d) Applicant, is the POPE intended to be secured in the DCO, if so how? Would LHAs see any value in the POPE being secured in the DCO given it appears to be a generic approach to post scheme evaluation of the Applicant?</p> <p>e) If the POPE, or other traffic monitoring on the local road network, is not secured in the DCO, how can LHAs have any certainty that the monitoring previously suggested by the Applicant [REP5-014] would be undertaken by the Applicant?</p> <p>NPS NN (Paragraph 5.211), explains that the ExA and SoS should give due consideration to impacts on local transport networks, and that where development would worsen accessibility such impacts should be mitigated as far as possible (Paragraph 5.2156).</p> <p>f) Notwithstanding no definition of 'accessibility' in this regard is provided in the NPS NN how can the Applicant be confident that no adverse impact affecting accessibility to, or within, the local transport networks would occur and not require mitigation without operational phase monitoring of traffic on such networks?</p> <p>The affected LHAs have provided a document [REP6-074] outlining how they consider a joint approach with the Applicant to an operational 'monitor and manage scheme' should be taken forward through the use of a Requirement in the DCO.</p> <p>g) Applicant, comment on the proposed Requirement associated with an operational monitor and manage scheme submitted by the LHAs [REP6-074].</p> <p>h) It would appear that LHAs consider the full costs associated with the requested monitor and manage scheme should be met in full by the Applicant. How is this justified given your own statutory duties to manage the expeditious movement of traffic on the local network?</p> <p>i) Are LHAs aware of similar Requirements being included in other made DCO road schemes such as the recently constructed A14 Cambridge to Huntingdon Improvement Scheme? How is it justified in relation to the Proposed Development? Applicant to also respond.</p> <p>j) LHAs, what would be the trigger point(s) of such a Requirement?</p>

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		(See related questions to <i>Monitoring of traffic re-routing during construction</i>)
		<p>Answer:</p> <p>a) [REP6-041] describes various approaches to operational monitoring. One approach (described at section 1.6 of [REP6-041]) is the requirement for the Applicant to 'monitor and manage' the Strategic Road Network (SRN) under its operating licence. Section 3.22 of the Transport Assessment Annex (TAA) [APP-243] recognises that there is the potential for adverse effects to occur as a result of the Scheme at a limited number of locations within the wider network, and the TAA [APP-243] confirms that the 'monitor and manage' approach will be adopted at these locations (see paragraphs 6.45 to 6.47 of the TAA [APP-241]).</p> <p>To the extent that adverse effects occur, and the Applicant subsequently undertakes interventions to 'manage' those effects, this would reduce the effects of the traffic impact and could be considered to act as mitigation. However, these are indirect impacts resulting from increases of traffic flows away from the Scheme due to drivers in the wider area choosing to re-route to enjoy the benefits of the Scheme. They are not impacts which arise from the Scheme itself and as such the 'monitor and manage' approach referred to in the TAA [APP-243] is not relied upon as mitigation by the Applicant.</p> <p>[REP6-041] also refers to operational monitoring under the Post Opening Project Evaluation (POPE) (see section 1.5 of [REP6-041]). This is not referred to in the Transport Assessment [APP-241 to APP-242] or TAA [APP-243] and is not relied upon by the Applicant as mitigation.</p> <p>b) The Applicant has maintained a consistent approach in relation to its position on monitoring of the Local Road Network (LRN) during operation. The Applicant believes that previous submissions on the subject of operational monitoring of the LRN [REP5-014] are consistent with submissions in the Monitor and Manage Technical Note [REP6-041]. However, for the avoidance of doubt and in summary:</p> <ul style="list-style-type: none"> • The Applicant's duty to 'monitor and manage' under its operating licence does not apply to the LRN; and • The Applicant may monitor some areas of the LRN under the Post Opening Project Evaluation to assess the Scheme's benefits and impacts. <p>In this particular case, the Applicant does not consider it necessary to monitor the LRN during the operation of the Scheme because the TAA [APP-243] and more recent sensitivity tests [REP5-018] have shown no potential for significant adverse effects on the LRN and, in fact, [REP5-018] has shown that there will be beneficial effects with the Scheme in both 2025 and 2040 compared to the Do Minimum scenario. However, the Applicant will continue to co-</p>

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		<p>operate with Local Highway Authorities, including in relation to monitoring of the LRN if necessary, in accordance with its Licence and the Network Management Duty.</p> <p>Under the terms of its Licence the Applicant is required to ensure the effective operation of the SRN. The Applicant has proposed this Scheme in contribution of honouring this and other requirements. By ensuring an effective operation of the SRN the Applicant accepts that drivers will favour the SRN over the LRN where it meets their journey requirements. Journeys will typically start and end within the LRN, and traffic returning to routes leading to the Scheme is a direct consequence of the SRN working effectively. Junction locations do not change as a result of the Scheme, and most increases in traffic at local junctions are attributable to vehicles making their way more directly to these SRN junctions, utilising roads they would currently be using if the existing A428 did not suffer congestion. It is not therefore reasonable to impose further commitments upon the Applicant as a result of fulfilling its role.</p> <p>c) This part of the question is for the Local Highway Authorities to respond.</p> <p>d) The Applicant does not consider it necessary to secure operational monitoring of the Local Road Network (LRN) through the DCO given the predicted traffic flows on the LRN compared with the Do Minimum scenario. If the Applicant was required to monitor the LRN this would duplicate the monitoring Local Highway Authorities are already required to undertake. The Applicant's monitoring and managing of the SRN will ensure the SRN operates effectively and thus has sufficient capacity to accept traffic joining from the LRN.</p> <p>As outlined in the Monitor and Manage Technical Note [REP6-041], the purpose of the POPE is to measure scheme benefits as required under the Applicant's Licence. This states at paragraph 5.12(c) that the Applicant must '<i>Ensure that it has in place robust internal arrangements to achieve, and to demonstrate how it has achieved, value for money</i>'.</p> <p>POPE studies are a mandatory governance step for all major projects and have been undertaken for all of National Highways' major schemes since 2002. POPE forms the mechanism whereby National Highways has:</p> <ul style="list-style-type: none"> • Assessed whether schemes have delivered the anticipated value for money; • Validated the accuracy of the estimated scheme costs, impacts and benefits which were agreed as part of the business case for investment, and used this to improve future scheme appraisals; and • Promoted transparency and accountability to stakeholders. <p>The evidence base generated by these evaluations is important in improving the approach to forecasting the impacts and costs for future schemes.</p>

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		<p>The Applicant is not aware of any previous occasions where the POPE has been secured within a made DCO for a National Highways scheme and considers that this would also be unnecessary duplication given the Applicant's existing obligation to carry this out. As stated above in response to sub-question (a), the Applicant does not rely on the POPE as mitigation for the Scheme and therefore, does not see any justification for this being secured under the DCO.</p> <p>e) In [REP5-014] the Applicant said it would "...give consideration to monitoring the impacts [in this area] post Scheme opening". There has been no commitment by the Applicant to carry out any operational monitoring on the Local Road Network (LRN).</p> <p>The Applicant, as part of its responsibility for the SRN, does not expect Local Highway Authorities (LHAs) to monitor and manage the SRN, even though that traffic may be generated from activities within the LHAs areas, or as a result of LHAs decisions. On a converse basis, the Applicant does not accept the proposition advanced that it should be required to monitor and manage roads within the LRN. The Applicant recognises, as stated by the 2004 Network Management Duty Guidance, that there is no delineation of SRN cars and LRN cars and that ordinary drivers do not see a distinction between the two networks.</p> <p>In line with this, the Applicant has reiterated throughout the examination that it wants to remain engaged with LHAs to co-operate in ensuring the smooth running of the network. The Applicant recognises the importance of co-operation with LHAs in ensuring outcomes received by road users are as effective as possible and is committed to long term engagement with LHAs. Such commitment accords with the Applicant's Licence obligations under paragraph 5.17 "so far as is reasonably practicable" provide "reasonable support to local authorities in their planning and the management of their own networks".</p> <p>In addition, Paragraph 5.22 of the Applicant's Licence stipulates: The Licence holder must establish a stakeholder advisory panel to provide advice to the Licence holder's Board on issues directly affecting local authorities and communities, and ensure that:</p> <ul style="list-style-type: none"> a) The membership of the panel includes representation from a credible range of local government and other stakeholders, including environmental and safety groups, as appropriate; b) The Licence holder seeks advice from the panel on a regular basis. <p>The LHAs can therefore be certain of ongoing engagement and co-operation with the Applicant in relation to the smooth running of the network.</p>

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		<p>f) The Applicant understands there to be a typographical error in the question. Reference to NPS NN “paragraph 5.2156” should be “paragraph 5.216”.</p> <p>In so far as traffic impacts arise, these have been mitigated as far as possible in accordance with paragraph 5.216 of the NPS NN. In fact, as set out in (b) above, the TAA [APP-243] and the more recent sensitivity tests [REP5-018] clearly demonstrate the overall benefits that the Scheme will have to accessibility on the Local Road Network (LRN) when compared to the Do Minimum scenario. The evidence presented to the Examination has shown that the assessments undertaken are robust and that there can be every confidence in the conclusions of the models, notwithstanding the significant scrutiny of them by Local Highway Authorities (LHAs).</p> <p>Whilst LHAs may have requested the Applicant to undertake monitoring of the LRN during operation, there has been no suggestion that this has been sought to address concerns that the Scheme will worsen accessibility.</p> <p>As the Applicant has explained the LHAs also have a duty to monitor their network, and will routinely undertake monitoring of the LRN accordingly. In the event that the LHA, as a result of their usual monitoring activities, was to identify a concern as a result of the operation of the Scheme, the Applicant would be required to work with the LHA to address this in accordance with the Applicant's Licence which, under paragraph 5.23(c), commits the Applicant to ‘Consider the cumulative environmental impact of its activities across its network and identify holistic approaches to mitigate such impacts and improve environmental performance’.</p> <p>Given the robustness of the model, the Applicant is confident that it does not need to commit to operational monitoring of the LRN in order to ensure that no adverse impact affecting accessibility would occur. However, should an issue arise which requires mitigation as a result of the Scheme the Applicant is equally confident that, this will be brought promptly to the Applicant's attention through the LHAs own routine and ongoing monitoring of the LRN.</p> <p>Continued engagement is supported by paragraph 5.14 of the Applicant's Licence which states ‘Consider opportunities for collaborative solutions, including potential interventions off the Licence holder's network, that can improve the performance of the network and provide increased integration benefits over those that the Licence holder can achieve alone, where this delivers value for money;</p> <p>g) The Applicant does not consider it appropriate to fund monitoring or interventions on the local road network beyond those areas as identified as necessary to assess scheme benefits as it is not part of the functions as set out in National Highways Licence. Local Authorities receive separate funding for the management of the local road network. Further information on funding available to LHAs is contained within the Applicant's response to WQ 2.11.6.1 (including Appendix 2.11.6.1) in [REP4-037] and the Monitor and Manage Technical note submitted at deadline 6 [REP6-041].</p>

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		<p>Paragraph 5.5 states that <i>"The Licence holder must demonstrate in the Delivery Plan how it aims to comply with the general duty to maintain highways in section 41 of the Highways Act."</i></p> <p>The Applicant considers that the analysis of traffic flows, junction capacity model results and other items included within the Transport Assessment [APP-241] and Transport Assessment Annex [APP-243] is sufficient to allow the Local Highway Authorities so to conclude that the operation of the Proposed Development would not interfere with the expeditious movement of traffic on the LHN.</p> <p>Where the Local Highway Authorities have disputed this, the Applicant has carried out sensitivity testing at locations where the Applicant agrees that such work is both necessary and proportionate. The Applicant considers that the additional material now provided should enable the Local Highway Authorities to conclude that their initial concerns have been addressed and that the operation of the Scheme would not interfere with the expeditious movement of traffic on the local highway network and the LHAs' ability to fulfil their Network Management Duty.</p> <p>The extent to which the LHA's seek to commit the Applicant within the proposed Requirement is limited to place names and does not define precise locations in which monitoring is requested despite the Applicants request for precise definition. Furthermore, the LHA's have not provided evidence-based reasoning for the locations selected. In determining locations for post opening monitoring, the Applicant will identify areas where significant change is forecast to occur drawing upon the Transport Assessment and Sensitivity testing undertaken. As such the Applicant does not consider the extent or locations of monitoring to be justified or a reasonable expenditure against Scheme costs. The Applicant will share data from the Post Opening Evaluation (POPE) with the Local Authorities.</p> <p>Additionally, and fundamentally, the proposed Requirement does not meet the requisite tests for it to be validly included within the DCO. PINS Guidance Note 15 (paragraph 15.2) confirms that, as with law and policy relating to planning conditions, "Requirements should therefore be precise, enforceable, necessary, relevant to the development, relevant to planning and reasonable in all other respects". For the following reasons, the Applicant does not consider the proposed Requirement meets these tests and, therefore, it should not be included within the DCO.</p> <p>Precise – The proposed Requirement lists several locations described as "locations that could be affected by the construction of the authorised development". This list is unlimited and does not refer to any specific junctions but rather whole villages and areas. It would be unclear how the Applicant could formulate an approach to monitoring which would comply with this non-exhaustive and all-encompassing list of locations.</p> <p>Enforceable – Breach of a DCO carries criminal sanctions. Policy requires enforcement action to be within the public interest (see Paragraph: 002 Reference ID: 17b-002-20140306 of government guidance on 'Enforcement and post-</p>

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		<p>permission matters'). For the reasons outlined in this response, it would not be in the public interest to enforce this Requirement and thus it would not be policy compliant to effect such enforcement action.</p> <p>Necessary – The most fundamental failing of the proposed Requirement is its demonstrable lack of necessity. Further to the alternative mechanisms available to the LHA, as set out in the Applicant's Monitor and Manage Technical Note [REP6-041], there is no proven or clear need for the extent of monitoring proposed by the LHAs in any of the Application or Examination documents. Paragraphs 1 and 3 of the proposed Requirement state that the monitor and manage scheme must be prepared in relation to "any adverse traffic impacts". NPSNN policy anticipates (para. 5.206) that an applicant should describe "significant" environmental impacts and associated mitigation commitments; not impacts other than significant impacts. Therefore, requiring that any impacts be mitigated through this Requirement goes beyond policy. Furthermore, the funding streams available to LHAs (as outlined in the Applicant's Monitor and Manage Technical Note [REP6-041]) mean that full funding of such monitoring by the Applicant is unnecessary.</p> <p>The updated Outline Construction Traffic Management Plan (OCTMP) [REP4-012] establishes a traffic management forum, which will, amongst other things, review the results of traffic monitoring on the strategic road network and consider this against any LHA reports of significant increases in self-diverting traffic on the local road networks. The OCTMP is secured through Requirement 11 so there is no need for this proposed Requirement.</p> <p>Relevant to the development – The LHA submissions on monitor and manage tend to overlook their own general Network Management Duty obligations. The imprecise scope of the monitoring locations proposed (as is outlined above) does not demonstrably link to actual consequential effects of the Scheme's construction and operation. It should be recognised that the Scheme is not the only change affecting traffic flows between 2025 and 2040.</p> <p>Paragraphs 1(a) and 3(a) of the proposed Requirement specifies that the monitor and manage scheme include "locations on the trunk highway network where monitoring must take place". Monitoring obligations on the trunk highway (i.e. the SRN) is already a duty by which the Applicant must comply and, therefore, it is unnecessary to include a monitoring requirement which duplicates this duty.</p> <p>Paragraphs 1(b) and 3(b) specify that the monitor and manage scheme include "locations that could be affected" (our emphasis). The Applicant considers that locations which 'could' be affected by the Scheme are so wide ranging and insufficiently tied to the development in question that this proposed Requirement fails to meet the requisite test.</p> <p>Relevant and reasonable – For the reasons outlined above, the proposed Requirement is neither relevant to the Applicant's policy obligations to sufficiently mitigate the development nor reasonable to enforce against the Applicant at taxpayer expense.</p>

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		<p>h) This part of the question is for the Local Highway Authorities to respond.</p> <p>i) Only two made National Highways related DCOs include a monitor and manage requirement: the A303 Sparkford DCO; and the A14 DCO. Each of these are distinguishable from the A428 Scheme as follows:</p> <p>A303 Sparkford:</p> <p>With regards justification for monitoring and management, the ExA report stated the following at paragraphs 10.5.9 and 10.5.10:</p> <p><i>"As a consequence of the Proposed Development there would be a substantial increase in the number of vehicles using Sparkford High Street ([APP-150] paragraph 7.1.4, Figure 12.8 of the COMMA Report [APP-151]). This increase could have the potential to adversely affect Sparkford High Street. However, there is insufficient evidence to conclude that the increase in traffic would necessitate additional traffic calming within Sparkford High Street. Notwithstanding this, there is clearly a potential for harm arising from the substantial increase in traffic and in the light of the submissions from the PCs and other IPs to the effect that the Applicant's transport model does not accurately reflect driver behaviour.</i></p> <p><i>Traffic within West Camel would increase under the Do-Something scenario a by comparison with the Do-Minimum scenario ([APP-151] 12.2.6-12.2.7)."</i></p> <p>It is as a result of these two projected increases within the A303 Sparkford Scheme and the absence of evidence that mitigation is not needed to prevent likely significant effects that a period of monitoring is determined appropriate. Paragraph 10.5.4 of the ExA's Report for the A303 Sparkford Scheme points to the significance of increases in traffic not having been assessed. As has previously been submitted by the Applicant, there are no likely significant effects on the local road network resulting from the A428 Scheme and, therefore, no necessity for a Monitor and Manage Requirement. The only comparable increase as a result of the A428 Scheme relates to the A1303 corridor. The TAA [APP-042] and 'Results of additional VISSIM Modelling at M11 Junction 13' [TR010044/EXAM/9.102] go into further detail on how this corridor has been assessed. Given the uncertainty as to whether and when an adverse effect would occur and that the A1303 Corridor relates to the Strategic Road Network, this will be dealt with under National Highways 'monitor and manage' duty and does not need to be secured through the dDCO.</p> <p>A14 Cambridge to Huntingdon:</p> <p>As stated previously in respect of the A14 Scheme, it is not comparable with the A428 Scheme. It was a significantly larger scheme than the A428 Scheme with different traffic impacts during construction and operation. The A14 scheme also involved online works including widening of the A14 and A1 meaning greater levels of traffic</p>

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		<p>management on the existing roads. It also created a new single carriageway between Swavesey and Girton for local traffic. As can be seen from paragraph 8.6.6 of the Post-Hearing Comments for the A14 Scheme, National Highways only agreed to the monitoring and mitigation of an area deemed to have an increase of traffic flow due to re-routing. No significant increases in traffic flows have been identified on the LRN in the case of the Scheme, either during operation or construction, and so the A14 scheme should not be used as a precedent because it is not applicable to the facts of the A428 Scheme.</p> <p>Silvertown Tunnel:</p> <p>The Silvertown Tunnel DCO is not a National Highways Scheme (being a TFL Scheme) but it has been referred to in the course of the Examination for the Scheme. However, as a scheme which authorised variable toll fees ("free-flow user charging") on users of the tunnel it has a fundamental difference, which clearly distinguishes the use of a monitor and manage requirement in that case. This would have had a significant effect on the road network in other London Boroughs as drivers would self-divert to avoid the tolls, which is clearly entirely different from the impacts predicted for the A428 Scheme.</p> <p>In summary, not only is the specific draft Requirement as proposed by the Cambridgeshire authorities inappropriate, so too would be any precedented Requirement of this type because the circumstances fundamentally differ from the A428 Scheme.</p> <p>j) This part of the question is for the Local Highway Authorities to respond.</p>
Q3.11.2.2	Applicant	<p>Question:</p> <p>Funding mechanisms for future improvement measures</p> <p>In addition to the information provided in response to WQ2.11.6.1 [REP4-037], at ISH5 [EV-070] the Applicant explained that the main sources of funding for any future improvement measures on the nearby highway network would likely come from RIS2 or Designated Funds (both understood to be national funding sources) or from local operational maintenance funds for minor works.</p> <p>a) The ExA notes that the current Designated Funds Plan [Appendix Q2.11.6.1 REP4-037] has a timeframe running between 2020 and 2025. To what extent are funds currently available in future years that would tie in with the Proposed Development's construction programme?</p>

No.	Directed to	Question
		<p>b) Noting that the Funding Principles section of the Designated Funds Plan states that proposals should align with all, or most, of the 14 stated funding principles, can the Applicant confirm that funding principle 12 would not represent a 'show-stopper' to proposals for the types of NMU infrastructure previously requested by IPs, located within the development limits of the Proposed Development?</p>
		<p>Answer:</p> <p>a) Designated Funds are directly linked to Road Investment Strategy (RIS) funding. Funding for Designated funds projects beyond 2025 is subject to confirmation of RIS3 funding.</p> <p>Designated Funds will release funding in stages and applications can seek future years funding up to 2025. This approach allows certainty around technical and commercial feasibility of an opportunity prior to commitment of construction funding.</p> <p>In practical terms, this could mean securing funding for feasibility and detailed design of a project up to 2025 and forecasting potential costs for delivery beyond 2025, which would need to be secured through a separate RIS3 bid.</p> <p>Designated Funds projects can be funded and or delivered by the Applicant. The construction phase of a designated funded project can occur before, after or alongside the main scheme construction period. However, any dependency to the main scheme delivery would need to be identified and appropriately coordinated and managed during feasibility, hence the need for phasing. The A428 Scheme will be constructed over using RIS 2 and RIS3 funding and is scheduled to be open for traffic during 2026. It is possible for some Designated Funds schemes to be constructed using funds allocated during RIS2 and potential dependencies to the main scheme should be identified during the feasibility stages.</p> <p>The Applicant remains willing and resourced to support Designated Funds bid development and remains committed to working with all Local Authorities to support future and active bids. To date, 9 proposals relating to the A428 have been approved through Designated Funds totalling approx. £4.7m, and 13 more proposals are in development for the remainder of RIS2. Proposals are wide ranging; for example, developing innovative solutions for archaeology archiving, and partnership initiatives with our stakeholders, including, partnering with Huntingdonshire District Council to invest in enhancements at St Neots high street.</p> <p>Whilst at this point Designated funds can only be secured for project phases which conclude before the end of 2025, the Applicant is confident that Designated Funds will continue within RIS3 and bids for later stages will be welcomed.</p>

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		<p>b) All proposals received to date can be considered as having a relationship to the National Highways Estate and as such would not be prohibited under funding principle 12. . However, there are limitations to the extent NMU facilities can be enhanced using Designated Funds. For example, the Applicant may fund feasibility studies which conclude that proposals in the existing form are not viable. If a proposal is in partnership with 3rd parties, Designated Funds would expect a contribution from partners which could include; co-financing, labour, expertise, land, future maintenance and intellectual property.</p> <p>The Applicant refers to its document, the Applicants comments on the Joint Authorities' Brief Feasibility Study for a new NMU link between St Neots and Cambourne [TR010044/EXAM/9.96], which reviews the Cambridgeshire Authorities Feasibility study into an A428 Non Motorised User (NMU) linear route [REP6-065]. In this document the Applicant identifies that additional land would be required to deliver an NMU route alongside the existing A428, in compliance with DMRB CD143. Further design constraints are also highlighted within [TR010044/EXAM/9.96] which would extend the required land take beyond the Scheme boundaries and would increase cost significantly.</p> <p>Designated Funds will fund proposals inside and outside of the development boundary for the main scheme. As an example of a successful application outside of a scheme development boundary , the Applicant cites Papworth Everard to Caxton Gibbet roundabout NMU provision, currently under construction.</p> <p>The Applicant has recently secured feasibility funding (Jan 2022) from Designated Funds to assess, price and develop proposals for the following proposals:</p> <ul style="list-style-type: none"> • Cambourne to Madingley Mulch WCH route (8km); • St Neots to Cambourne WCH route (12km); • Eltisley to Caxton Gibbet junction WCH route (0.65km); and • A new crossing of the existing A428 at Wintringham (0.2km). <p>Whilst National Highways will fund and deliver the feasibility study, as partners, Joint Authorities will be required to input into the feasibility study, particularly in relation to whether the Local Authorites standards for NMU provision can be met. If the enhancements for the provisions can be feasibly delivered, the Applicant will work with Joint Authorities to submit further applications for Designated Funds to deliver the proposals.</p>

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Q3.11.2.3	Cambridgeshire Authorities Applicant	<p>Question:</p> <p>Cambridgeshire and Peterborough Vision Zero Strategy</p> <p>The Cambridgeshire Authorities have requested that an enforceable commitment is provided by the Applicant to accord with the Cambridgeshire and Peterborough Vision Zero road safety strategy on both the strategic and local highway network [REP6-020].</p> <p>a) Confirm the status of this strategy document and signpost to when it, or extracts of it, were submitted to the Examination for consideration.</p> <p>b) What form should such an 'enforceable commitment' take and how could it realistically be enforced given the array of factors that can influence the safety of the highway at any given point in time?</p> <p>c) Applicant to comment and provide an agreed position with the Cambridgeshire Authorities.</p>
		<p>Answer:</p> <p>a) The strategy document "Towards 2030 Making our Roads Safer for All" prepared by the Vision Zero Partnership was published in January 2021. This document has not been submitted into the Examination but is attached in Appendix 3.11.2.3 of this document.</p> <p>b) National Highways as an organisation places safety as one of its key commitments both in the design and delivery of its schemes and in its operation of the strategic road network. Schemes are designed to the appropriate standards with safety of all users considered. The Applicant is already committed to the overall goal of bringing the number of people killed or seriously injured to a level approaching zero by 2040. Within the Eastern region, the East Regional Road User Safety Plan 2020-2025 has a key performance indicator for the ongoing reduction in the number of people killed or seriously injured to support a reduction of at least 50% by the end of 2025 against the 2005-2009 baseline. The Applicant also actively supports a Suicide Prevention Strategy. The Applicant is actively engaged with and contributes to the Vision Zero Partnership alongside the LA and other parties.</p> <p>However, the Applicant agrees with the Examining Authority that any commitment to accord with the Cambridgeshire and Peterborough Vision Zero Strategy would not be enforceable given the array of factors that could influence highway safety. Neither would it meet the tests of being necessary, relevant to the Scheme nor be reasonable. For these reasons, it would not be appropriate to secure such an enforceable commitment through the DCO process.</p>

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		c) It has been agreed with the Cambridgeshire Authorities, that as National Highways are already part of the Vision Zero Partnership, no further 'enforceable commitment' is required. This position will be reflected in the final Statement of Common Ground with the Cambridgeshire Authorities, to be submitted at Deadline 10.
Q3.11.3	Signage and lighting	
		Question: No further questions at this stage.
		Answer:
Q3.11.4	Operational effects beyond the extent of the proposed scheme	
		Question: No further questions at this stage.
		Answer:
Q3.11.5	De-trunking proposals and new local highway infrastructure	
		Question: No further questions at this stage.
		Answer:
Q3.11.6	Non-motorised users	

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Q3.11.6.1	Applicant Interested Parties	<p>Question:</p> <p>Providing opportunities for NMUs</p> <p>At ISH5 [EV-070] and throughout the Examination to date, it is clear various parties including Local Highway Authorities, CamCycle, the British Horse Society and individual representations consider the Applicant should go further in terms of NMU provision across the extent of the Order Limits of the Proposed Development. The scheme objectives [APP-071], also referred to in the Statement of Reasons [APP-030], include ensuring the safety of cyclists, walkers and horse riders and those who use public transport by improving the routes and connections between communities improving accessibility. The ExA note this local concern, particularly where there may be scope to maximise future and potentially lock-in benefits of the Proposed Development, specifically along the A428 to be de-trunked and Barford Road bridge.</p> <p>a) A428 corridor</p> <p>The Applicant has previously explained how it considers that the construction of a NMU link along the existing A428, once de-trunked, to be beyond the scope of the Proposed Development [Q2.11.6.1, REP4-037], also that there is an absence of likely usage or feasibility information to justify such provision. Notwithstanding likely usage data is somewhat unclear, the development of such a route, by virtue of the communities served and underlying topography, may assist in meeting the objectives of the scheme, the NPS-NN, local policies and LTN 1/20, particularly in terms of modal shift, improving health and wellbeing. CCC have provided a pre-feasibility document [REP6-065] outlining the form such a scheme could take. The Applicant has explained there is nothing to prevent the LHA from pursuing such a scheme once de-trunked. Would the Applicant commit, through the dDCO or other means, to undertaking detailed design of such a route, in liaison with the LHA, so as to enable a scheme to be constructed in future by the LHA, potentially through designated funds or other funding streams? Would parties consider this to be sufficient given the current status of such a scheme?</p> <p>b) Barford Road bridge</p> <p>At ISH5 [EV-070] the Applicant explained that any future aspirations of CBC for the provision of NMU infrastructure at or near the proposed Barford Road bridge could be dealt with by either a bolt-on structure to that intended as part of the Proposed Development or the creation of a separate crossing facility. The ExA is unaware of such a design having been considered previously by the Applicant, particularly in terms of visual impact or the suitability of the proposed road bridge to accommodate such a bolt-on structure. As such, should the intended bridge not provide a crossing with sufficient deck space to retrofit NMU facilities within its footprint in future?</p>

No.	Directed to	Question
		<p>Answer:</p> <p>a) The Applicant considers that provision of an NMU facility along the existing A428 once de-trunked is a significant piece of infrastructure which requires proper consideration through optioneering, consultation and environmental assessment. An NMU link between Cambridge Road and Caxton Gibbet junction will require land acquisition, whether by agreement or compulsory purchase, and therefore any proposed option should present a robust case and have been adequately consulted upon. The Applicant does not consider it appropriate to seek to include additional land for such provision within the permanent land take required for the Scheme, when it is not required to mitigate the impact of the Scheme and where there is no evidence to substantiate the anecdotal need for such provision.</p> <p>The Applicant is willing to work with the Joint Authorities to consider options for NMU enhancement outside of the DCO process, but is of the firm view that the NMU enhancement sought is not necessary to mitigate the impacts of the Scheme and nor do they present reasonable opportunities to be delivered as part of the Scheme. The Applicant maintains its position that the proposed NMU routes of the Scheme are both proportionate and reasonable and will lead to enhancements of the NMU provision in the local area. This is in accordance with the Scheme Objectives and the National Networks National Policy Statement (NN NPS) as detailed in the Applicant's response to Written Question Q2.11.6.1 in [REP4-037].</p> <p>The Applicant has secured feasibility funding to assess, price and develop proposals for the NMU link between St Neots and Cambourne and will assist the Joint Authorities to submit further applications for Designated Funds to deliver the proposals, but this is separate to and outside of the DCO process.</p> <p>The Applicant maintains that LTN1/20 does not apply to the Scheme, or any National Highways scheme. The Applicant is not required to adopt the principles of Local Transport Notes. The requirements and standards in the Design Manual for Roads and Bridges are the appropriate standards to be complied with for the development of the Strategic Road Network. LTN1/20 is a document produced by the Department for Transport and is recommended to local highway authorities when seeking funding for construction or improvements of local highways, with particular emphasis on urban areas. It should be noted that LTN/120 is advisory and as such compliance with LTN 1/20 is not compulsory for local highway authorities either.</p> <p>b) The existing Barford Road has been in its current form for at least the last 75 years with no off-carriageway provision and the Applicant is of the view that the request for passive provision across the structure is to facilitate access to a potential station location for the East West Rail development. The East West Rail development is still at an early stage of development with the route and station locations still to be announced. Inclusion of this</p>

No.	Directed to	Question
		<p>provision at the expense to the public purse should not be seen to influence or pre-judge such decisions and in addition could provide a piece of infrastructure that is ultimately not needed and therefore redundant. The Applicant is willing to engage with the relevant parties when more certainty of the East West Rail scheme and the associated NMU routes are known, as demonstrated through the Applicant's offer to enter into a co-operation agreement with East West Rail (see the Applicant's response to Q3.5.2.2). However, any increase in provision to accommodate the EWR development would need to be funded and consulted upon by EWR.</p> <p>The Applicant has not considered passive provision (including a 'bolt-on') for an NMU route across the proposed Barford Road structure. The Applicant would recommend that, if funding by EWR or CBC for the proposed passive provision is not available, then a separate structure should be provided rather than a 'bolt-on'. The Applicant does not consider it appropriate to design this additional structure as it is not required for the Scheme and is sought to make provision for an undefined, unconfirmed demand driven by a separate scheme and/or LA ambition. It would be for the local authority or the developer to design and assess this separate structure. Furthermore, it would be for the developer to address any Landscape & Visual Impact Assessment (LVIA) impacts of any proposed crossing.</p>
Q3.11.7	Construction traffic impacts	
Q3.11.7.1	All Parties Applicant	<p>Question:</p> <p>Construction Workers Travel Plan</p> <p>The Applicant has provided an Outline Travel Plan [REP5-016] for workers associated with the construction of the proposed development.</p> <ol style="list-style-type: none"> The Examining Authority invites comments on its content and scope from any Interested Party so as to inform any future iterations of the document. Does the Applicant intend to investigate further the feasibility of provision of temporary bus stops or the creation of welfare facilities that may encourage sustainable travel to site compounds? Is it the intention of the Applicant that the Travel Plan would relate to pre-commencement works? If not, explain with reasoning. If so, provide wording for cross-referencing between the two certified documents. <p>Answer:</p>

No.	Directed to	Question
		<p>a) This part of the question is for other Interested Parties.</p> <p>b) In the development of the Travel Plan during the detailed design phase the Applicant will investigate the feasibility of the provision of a temporary bus stop close to the entrance of the main compound at Wintringham.</p> <p>The main compound at Wintringham together with the western compound at Black Cat and the eastern compound at Caxton Gibbet will all provide welfare facilities onsite for all staff members including operatives, tradesman, plant operators, contractors, supervisors and site management. These welfare facilities will include drying rooms and showers which will be available to those using alternative methods of travel to site.</p> <p>c) It is not intended that the Travel Plan will apply during the pre-commencement works as the activities that will be progressed during this phase will be of short duration and employ low levels of labour in remote locations. These works will include the establishment of the main works site compounds including the installation of the drying rooms, showers, information boards and electric charging points. The Travel Plan is thus not applicable at this stage of the works.</p>
Q3.11.7.2	All Parties	<p>Question:</p> <p>Adequacy of updated Outline CTMP</p> <p>All parties comment on and highlight any pending concerns with the updated Outline CTMP [REP4-011], giving due regards to the Applicant's summary table detailing how comments received to date from IPs and particularly LHAs have been addressed or considered [REP4-037, WQ2.11.7.2].</p> <hr/> <p>Answer:</p> <p>The applicant has no pending concerns with the updated Outline CTMP [REP6-010] and welcomes comments from the other interested parties.</p>
Q3.11.7.3	Applicant	<p>Question:</p> <p>Future customer consultation and stakeholder engagement regarding the Construction Traffic Management Plan</p> <p>The ExA notes reference to a Customer Plan and the Stakeholder Engagement and Communications Plan has been removed from the updated Outline CTMP [APP-244, Paragraph 3.15.2]. Where are the commitments previously</p>

No.	Directed to	Question
		<p>contained in 3.15 located? Or if this detail has been removed all together, how would the Applicant engage with customers and stakeholders in shaping future versions of the CTMP in the event that consent is granted?</p> <p>Answer:</p> <p>The reference to the Customer Plan and the Stakeholder Engagement and Communication Plan was removed from the revised Outline Construction Traffic Management Plan (OCTMP) [REP06-009]. These references have been replaced by clear commitments that provide more detail on specific Customer and Stakeholder Engagement measures that will help to shape the future development of the Construction Traffic Management Plan which will be secured by the Secretary of State (SoS) under Requirement 11 of the draft DCO [REP6-003].</p> <p>These include:</p> <p>3.15.3 Details of advanced notification periods for stakeholders for changes to the traffic management arrangements.</p> <p>3.15.4 Details of the establishment by the Applicant of regular traffic management forum meetings to which stakeholders and customers including the <u>Local Highway Authorities (LHAs)</u>, parish councils and emergency services will be invited. In these forums the traffic management plans will be discussed and assessed to minimise impacts, support local connectivity and ease of movement.</p> <p>3.15.5 Confirmation that where particular stakeholders or customers will be affected by more localised limitations to vehicle movements, direct engagement will be implemented to minimise their disruption.</p> <p>3.15.6 A commitment by the Applicant's 'Stakeholder and Engagement Team' to work with all parties to find reasonable resolutions and minimise disruption.</p> <p>As the Applicant has now provided these clear commitments within the OCTMP it is not necessary to have separate stand-alone documents for the Customer Plan and the Stakeholder Engagement and Communication Plan.</p> <p>The Applicant has been engaging with Parish Councils since 2017 and has an established group of Community Forums which are well attended. These forums remain active and will continue throughout the construction period and will be used to discuss future traffic management plans and other community issues as they arise.</p>
Q3.11.7.4	Applicant Local Authorities	<p>Question:</p> <p>Local impacts of construction traffic</p>

No.	Directed to	Question
		<p>Notwithstanding the Applicant's response to ISH5 Action Point 11 [REP6-031], the ExA is concerned that there is a lack adequate evidence before it in relation to the likely construction traffic effects of the Proposed Development, particularly with regard to likely HGV movements in, or near, residential areas. At ISH5 [EV-071], the ExA requested that the construction traffic restriction maps contained in the Outline CTMP [REP4-011] be annotated to give an indication of potential HGV movements, ideally by construction phase, providing an indication of a range if there was uncertainty. However, this was rejected by the Applicant. The ExA note that the Applicant does not consider impacts associated with construction traffic would be significant following mitigation [REP6-41, Paragraph 1.9.6] based upon the findings of the strategic traffic model.</p> <p>a) How does the strategic traffic model provide a reliable picture of likely construction traffic movements in the absence of such data being available to the ExA?</p> <p>b) Applicant, provide the HGV data referred to for each site compound or signpost to where in the Examination this information has been presented.</p> <p>c) Applicant, for clarity what mitigation measures described in the Schedule of Mitigation [APP-235] relate to HGV construction traffic? How has the effectiveness of the mitigation been assessed in the absence of HGV numbers?</p> <p>Answer:</p> <p>a) The movements of the construction vehicles, including HGV's and light vehicles were included within the strategic traffic model. The method for estimating the construction traffic is described in detail in Section 5 of Appendix 9.1 of the Transport Assessment [APP-241].</p> <p>The construction trips were distributed across model zones using a gravity model in order to determine the non-construction site or compound trip-end location. The HGV trip distribution also used observed trip length distribution to inform distribution, while the light construction vehicles were compared with the car commuting user class which showed a close fit. The construction trips were then assigned to the networks developed for each of the 4 modelled phases, taking account of the construction traffic route restrictions, traffic management measures including speed reductions, haul crossings and temporary layouts.</p> <p>It is recognised that the method adopted to model construction traffic, is based upon a number of simplifications and/or limitations. This includes the adoption of four construction phases to represent the main construction layouts. In reality there will be multiple phases, however it is not practical to model every week or month for a construction period of approximately 3.5 years. A further point to note was the concentration of construction traffic at single locations at the main worksite locations whereas in reality there will be a number of access points.</p>

No.	Directed to	Question																																																
		<p>The volumes of construction movements on individual links were not included in the Transport Assessment [APP-241]. While it is possible to extract the construction HGV flows on individual links from the model, it should be borne in mind that the Outline Construction Traffic Management Plan upon which the modelling was based, has subsequently been amended during examination (Deadline 6 Submission - 7.4 Outline Construction Traffic Management Plan (Clean) - Rev 3 [REP6-010]). The Applicant will nevertheless provide details of construction HGV flows at Deadline 9 based upon the original Outline Construction Traffic Management Plan.</p> <p>b) The HGV data referred to in each site or compound is shown in Table 4 of Appendix 9.1 [APP-241] (table reproduced below). The largest number of construction vehicles arriving to either the sites or the compounds is expected to be in Phase 2, with a total of 1,122 vehicles on average per weekday, of which 309 are HGVs. The highest number of weekday construction HGV arrivals is expected during Phase 3 with a total of 340 arrivals throughout all the construction sites and compounds.</p> <p>Tables 5 and 8, reproduced below, show that the largest percentage of weekday construction traffic of 15% is forecast between 0700-0800, with the largest proportion of construction traffic originating from the north and south at 35% each.</p> <p>In addition to bans on general HGV traffic, specific construction HGV traffic restrictions (see Appendix C of [APP-244]) mean that construction HGVs are generally restricted to A-road and B-roads in the local area.</p> <p>Table 4: Construction traffic weekday arrivals by location and user-class.</p> <table border="1"> <thead> <tr> <th>Phase 1</th> <th>Location</th> <th>Staff</th> <th>Labour</th> <th>HGVs</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td></td> <td>Black Cat Compound</td> <td>62</td> <td>20</td> <td>2</td> <td>84</td> </tr> <tr> <td></td> <td>Wintringham Compound</td> <td>62</td> <td>20</td> <td>2</td> <td>84</td> </tr> <tr> <td></td> <td>Caxton Gibbet Compound</td> <td>0</td> <td>10</td> <td>1</td> <td>11</td> </tr> <tr> <td></td> <td>Black Cat/A421/A1 site</td> <td>0</td> <td>40</td> <td>10</td> <td>50</td> </tr> <tr> <td></td> <td>Barford Road site</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>B1046/Potton Rd site</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>A428/Cambridge Rd site</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Phase 1	Location	Staff	Labour	HGVs	Total		Black Cat Compound	62	20	2	84		Wintringham Compound	62	20	2	84		Caxton Gibbet Compound	0	10	1	11		Black Cat/A421/A1 site	0	40	10	50		Barford Road site	0	0	0	0		B1046/Potton Rd site	0	0	0	0		A428/Cambridge Rd site	0	0	0	0
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A428 Black Cat to Caxton Gibbet improvements
 Applicant's Response to the Examining Authority's Third Round of Written Questions

No.	Directed to	Question				
		Eltisley/B1040 site	0	0	0	0
		Caxton Gibbet/A1198 site	0	0	0	0
		Total	123	90	15	228
		Phase 2				
		Location	Staff	Labour	HGVs	Total
		Black Cat Compound	205	21	6	232
		Wintringham Compound	210	21	6	237
		Caxton Gibbet Compound	86	10	3	99
		Black Cat/A421/A1 site	0	46	37	83
		Barford Road site	0	50	37	88
		B1046/Potton Rd site	0	49	52	101
		A428/Cambridge Rd site	0	15	29	45
		Eltisley/B1040 site	0	60	90	151
		Caxton Gibbet/A1198 site	0	40	48	88
		Total	501	313	309	1122
		Phase 3				
		Location	Staff	Labour	HGVs	Total
		Black Cat Compound	183	21	6	210
		Wintringham Compound	200	21	6	227
		Caxton Gibbet Compound	85	10	3	99
		Black Cat/A421/A1 site	0	41	87	128

A428 Black Cat to Caxton Gibbet improvements
 Applicant's Response to the Examining Authority's Third Round of Written Questions

No.	Directed to	Question					
		Barford Road site	0	46	40	86	
		B1046/Potton Rd site	0	45	78	123	
		A428/Cambridge Rd site	0	11	40	51	
		Eltisley/B1040 site	0	56	56	113	
		Caxton Gibbet/A1198 site	0	36	24	60	
		Total	468	288	340	1096	
		Phase 4					
		Location	Staff	Labour	HGVs	Total	
		Black Cat Compound	173	20	5	198	
		Wintringham Compound	175	20	5	200	
		Caxton Gibbet Compound	88	10	3	100	
		Black Cat/A421/A1 site	0	40	43	83	
		Barford Road site	0	33	18	51	
		B1046/Potton Rd site	0	35	55	91	
		A428/Cambridge Rd site	0	10	36	46	
		Eltisley/B1040 site	0	47	42	89	
		Caxton Gibbet/A1198 site	0	25	17	42	
		Total	435	240	224	900	
Table 5 Weekday Construction Traffic Arrivals and Departures by Hour.							
		Staff		Labour		HGVs	
		Arrival	Departure	Arrival	Departure	Arrival	Departure

No.	Directed to	Question																																																																																																																										
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		<p>c) For noise, paragraph 11.9.30 in Chapter 11 of the Environmental Statement [APP-080] identifies four routes on which construction traffic noise significant effects are predicted to occur. However, these effects are due to rerouting of existing traffic and not as a direct result of construction HGV traffic.</p> <p>For air quality only "high risk" areas were modelled for construction phase traffic effects. These were areas predicted to experience air quality within 10% the objective values in the baseline year and where a road is considered to be an affected road as set out in DMRB LA 105. Outside of these areas significant impacts during construction would not be anticipated due to the existing good air quality. Where spot modelling was undertaken, imperceptible impacts at concentrations below the objective value were predicted. Areas in close proximity to the Scheme generally have good air quality and therefore were not modelled in detail for the construction phase.</p> <p>Against this background, there are no specific measures set out in the Schedule of Mitigation [APP-235] relating to HGV movements during construction for air quality or noise. It includes a reference to the First Iteration EMP (FIEMP) [REP6-008] and that a range of measures are included in that. For air quality the primary measure identified in the FIEMP regarding HGV movements is "Manage the sustainable delivery of goods and materials through careful programming of delivery." This will help to minimise the effects of the construction phase HGV movements by avoiding the most congested periods on the surrounding road network and therefore minimise effects on nearby sensitive receptors. For noise, the measures included in the Outline Construction Traffic Management Plan as summarised below, will assist in minimising the noise impact resulting from traffic noise on nearby residential areas.</p> <p>The Construction Traffic Restriction Sheets 1 & 2 included in Appendix C of the Outline Construction Traffic Management Plan, detail routes that will be used by all HGV and other construction traffic servicing the site. These restrictions mitigate the impacts as they prevent construction traffic from using many of the minor roads through surrounding villages, where effects may be more significant and instead route the construction traffic via the Strategic Road Network (SRN).</p> <p>The main construction compounds at Black Cat and Wintringham have been located such that they can be accessed directly off the strategic road network (SRN) where increased traffic levels during construction would have least impact.</p> <p>The inclusion of borrow pits on this Scheme, which are located directly adjacent to embankments that require the import of large volumes of fill, provide significant mitigation to the impact of construction HGV traffic on the adjacent road network. These borrow pits allow large volumes of fill material to be moved directly by site dumpers on construction haul routes. If borrow pits had not been included in this development this material would have</p>

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		<p>been imported to the scheme via HGVs. This reduction of HGV movements is detailed in the paragraph 2.3.3 of the Borrow Pit Optioneering Report [APP-246].</p> <p>In response to the last sentence of the Examining Authority's question, (part c), HGV data has been provided, as described above.</p>
Q3.11.7.5	Applicant Local Highway Authorities	<p>Question:</p> <p>Monitoring of traffic re-routing during construction</p> <p>The ExA are unconvinced that there is currently a robust mechanism or methodology agreed between the Applicant and LHAs to effectively monitor and manage the impact of traffic re-routing on to the local network during the construction phases of the Proposed Development.</p> <p>a) Do the Applicant and LHAs agree that such an approach is necessary, for the purposes of effective traffic management during construction phases, beyond any existing arrangements for collaboration? Explain with reasoning.</p> <p>b) The Applicant is asked to respond to the proposed Requirement of the LHAs [REP6-074] relating to a construction phase monitor and manage scheme.</p> <p>c) It would appear that LHAs consider the full costs associated with the requested monitor and manage scheme should be met in full by the Applicant. How is this justified given your own statutory duties to manage the expeditious movement of traffic on the local network?</p> <p>d) Are LHAs aware of similar Requirements being included in other made DCO road schemes such as the recently constructed A14 Cambridge to Huntingdon Improvement Scheme? How is it justified in relation to the Proposed Development? Applicant to respond.</p> <p>e) LHAs, what would be the trigger point(s) of such a Requirement?</p> <p>(See related questions to <i>Operational phase monitoring and evaluation</i>)</p> <p>Answer:</p> <p>a) The Applicant maintains that robust communication systems will be in place to demonstrate reliability of the SRN and encourage drivers to maintain their course on the SRN. The majority of the existing A428 will appear as normal during construction as the Scheme is predominantly off line. Interfaces with construction occur at 3</p>

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		<p>junctions only. At the largest and most significant of these junctions, the Black Cat roundabout, the Vissim model outputs suggest that under traffic management the roundabout will function no worse than it does presently. These outputs have been shared with the Local Highway Authorities. Overall increased journey times across the scheme limits are forecast to be below four minutes.</p> <p>The Applicant proposes a collaborative approach to construction phase traffic monitoring to be defined in Joint Position Statements with the LHA's to be submitted at Deadline 9. To ensure that any subsequent requirement is clearly defined and derived from an evidence-based position, the Applicant will identify locations where the Strategic Traffic Model indicates there could be a significant rise in HGV and overall traffic during construction and undertake baseline monitoring. By providing the data to the LHA's, the Applicant provides the basis for construction phase monitoring which the Applicant proposes is carried out by the LHA's as they perform their Network Manager duties, if complaints are received. The Applicant's commitment to joint resolution of significant increases in self diverting traffic during the construction phase is secured through the OCTMP [REP4-012].</p> <p>b) Please see the Applicant's response to Q3.11.2.1(g) which covers the proposed Requirement generally and therefore is also applicable here.</p> <p>c) This section of the question is not addressed to the Applicant and so the Applicant has no comment.</p> <p>d) Please see the Applicant's response to Q3.11.2.1(i) which is also applicable here.</p> <p>e) This section of the question is not addressed to the Applicant and so the Applicant has no comment.</p>
Q3.12	Historic Environment	
Q3.12.1	Methodology	
		<p>Question: No further questions at this stage.</p>
		<p>Answer:</p>

No.	Directed to	Question
Q3.12.2	Brook Cottages	
Q3.12.2.1	Historic England Bedford Borough Council	<p>Question:</p> <p>Written summary of oral representation at ISH4</p> <p>HistE and BBC, submit a written summary of your oral representation for ISH 4 agenda item 6 [EV-055], referring to transcript [EV-066] and recording [EV-061].</p>
		<p>Answer:</p> <p>A response to this question is not required from the Applicant.</p> <p>The Applicant will respond to any points raised in response to Q3.12.2.1 at the next appropriate deadline.</p>
Q3.12.2.2	Applicant Historic England Bedford Borough Council	<p>Question:</p> <p>Survey of Brook Cottages</p> <p>a) Applicant, provide the results for the first stage Survey for anthrax and asbestos [EV-061] [REP6-036] and its implication (if they can be determined) in the relocation proposal for Brook Cottages. HistE may comment.</p> <p>b) At ISH4 [EV-061] there was a discussion regarding the methodology, practicalities and the value of relocating Brook Cottages. Submit a joint position statement between Applicant, HistE and BBC, on matters including but not limited to:</p> <ul style="list-style-type: none"> • methodology of the survey; • the methodology and practicalities around the demolition and relocation of Brook Cottages; • views on what would be a suitable relocation venue, shortlist of specific locations and progress on any conversations; • the value of the relocation, including in terms of the assessment and significance of effects in the ES; <p>c) Wording for Requirement 16 of the dDCO [REP6-003] concerning the demolition and potential reconstruction of Grade II listed Brook Cottages, including greater clarity in terms of specific and detailed reasons that would prevent reconstruction and timescale and mechanism for demolition and reconstruction, if considered appropriate.</p>

No.	Directed to	Question
		<p>Answer:</p> <p>a) The first stage survey for anthrax and asbestos at Brook Cottages was undertaken on 30 November 2020, in accordance with the methodology agreed with Bedford Borough Council and Historic England. The results of the asbestos survey were received on 8 December 2020. The results are attached to this response. These results have been shared with Historic England and Bedford Borough Council. The results of the anthrax survey were received on 14 January 2022.</p> <p>The results show that asbestos is present within the 20th century extensions to the rear of the property, but absent within the historic cottages at the locations tested. The results of the anthrax samples show that anthrax is not present within the building.</p> <p>On the basis of these results, the dismantling of No. 2 Brook Cottages can progress except for the 20th century extensions to the rear which will need to be disposed of via a licensed contractor. These extensions are considered to be of lesser historic significance; therefore, the results do not affect the viability of relocating the historic fabric of the building. Further sampling may be required at No. 1 Brook Cottages once access is secured. This is likely to be after the Examination period has closed.</p> <p>The results of the planned intrusive surveys will be required before a decision can be made regarding the validity and extent of relocation.</p> <p>b) A Joint Position Statement has been prepared in response to the question raised [TR010044/EXAM/9.100]. This statement was initially prepared by the Applicant with inputs from Historic England and Bedford Borough Council. The statement was discussed at a meeting on 12 January and updated accordingly. The final document has been agreed by all parties and forms part of the Applicant's submissions at Deadline 8.</p>
Q3.12.2.3	Applicant Historic England Bedford Borough Council	<p>Question:</p> <p>Black Cat Junction Options</p> <p>a) Applicant, in the Black Cat Options overview report [REP4-032, Appendix C, row 19], the RAG table assumptions relating to "Sites of Archaeological importance / listed buildings disturbed by option" are medium or low. Explain how the ExA can have confidence in this approach given that despite these assumptions, the Proposed Development requires the demolition of a Grade II listed building? HistE and BBC may comment.</p>

No.	Directed to	Question
		<p>b) Applicant, evidence what specific heritage expertise was used to inform the sifting and selection process? Provide evidence. HistE and BBC may comment.</p> <p>c) Explain how Option C became the preferred Option at PRA stage, despite Option A scoring significantly better in terms of Environmental effects (Cultural Heritage) [APP-072 Table 3-2]; better in terms of BCR [REP4-033, Table 10.2]; and the same in terms of addressing the identified problems, meeting the scheme objectives, deliverability, feasibility, traffic benefits, road safety and effects on NMUs [REP4-033 Table 10.2]. BBC may comment.</p> <p>d) Applicant, why was Option A not reconsidered at this stage, in light of its performance against Option C [REP4-033 Table 10.2]? Is there any evidence to show that it was impractical to amend Option A to avoid the demolition of Brook Cottages? BBC may comment.</p> <p>e) Please explain the reason for rejecting Option Orange C+, which did not require the demolition of Brook Cottages, which had the highest BCR of any of the Route/Junction options [REP6-040, Table 2-3] and which had a comparable effect on Road Safety and Traffic Benefits [REP4-033 Table 10.2] to the other options assessed at this stage? BBC may comment.</p> <p>f) Given the that the Proposed Development has numerous departures from DMRB standards within the vicinity of the Black Cat Junction and Brook Cottages [REP6-045] why were departures from standard associated with Option C+ considered so adverse?</p> <p>g) HistE, with reference to your comments at ISH3 [EV-045] and your response to the ExA's WQ2s [REP4-069 Q2.12.2.1] would you like to elaborate on your position in the SOCG regarding the (exceptional) justification for the demolition of Brook Cottages [REP6-016].</p>
		<p>Answer:</p> <p>a) Applicant, in the Black Cat Options overview report [REP4-032, Appendix C, row 19], the RAG table assumptions relating to "Sites of Archaeological importance/listed buildings disturbed by option" are medium or low. Explain how the ExA can have confidence in this approach given that despite these assumptions, the Proposed Development requires the demolition of a Grade II listed building? HistE and BBC may comment.</p> <p>As explained in the Overview of the Alternatives considered at the Black Cat Junction Report [REP4-032] Chapter 4 and demonstrated in Figure 4.1, the option assessment process is iterative. In each iteration, the proportionate development of options is undertaken to allow assessment that informs the sifting out of options. Further development work is then undertaken followed by further assessment and sifting. In each step consideration is</p>

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		<p>given as to whether there are compelling reasons to sift out options based on the evidence available at that point in time.</p> <p>The 12 concept design options for the Black Cat Junction were assessed by a multi-disciplinary team and this assessment work is summarised in the RAG Table in Appendix C of the Overview of the Alternatives considered at the Black Cat Junction Report [REP4-032]. The "Assumptions" column sets out the criteria used for the assessment. These criteria are usual for assessing large numbers of options at an early stage of design maturity. At this stage, the potential impact of each option on cultural heritage assets (sites of archaeological importance / listed buildings) was reported at Row 19.</p> <table border="1"> <thead> <tr> <th></th> <th>Option 1a</th> <th>Option 1b</th> <th>Option 1c</th> <th>Option 1d</th> <th>Option 1e</th> <th>Option 2a</th> <th>Option 2b</th> <th>Option 3a</th> <th>Option 3b</th> <th>Option 4</th> <th>Option 5</th> <th>Option 6</th> <th>Assumptions</th> </tr> </thead> <tbody> <tr> <td>19. Sites of Archaeological importance/ listed buildings disturbed by option?</td> <td>medium</td> <td>medium</td> <td>medium</td> <td>low</td> <td>low</td> <td>medium</td> <td>medium</td> <td>medium</td> <td>medium</td> <td>medium</td> <td>medium</td> <td>medium</td> <td>Green = 1-2 (low) Amber = 3-4 (medium) Red = >5 (high)</td> </tr> </tbody> </table> <p>At the early concept stage of option development, the nature of the final impact on cultural heritage assets cannot be precisely determined. Therefore, a quantitative assessment of the number of assets that may be impacted by each option is adopted. Each potential asset that could be impacted by an option is counted and no weighting is given to any specific asset. In the case of the Scheme, this approach led to the rating of each option as low/medium based on the number of assets potentially impacted using the following criteria:</p> <ul style="list-style-type: none"> • Green = 1-2 (low) • Amber = 3-4 (medium) • Red = >5 (high) 		Option 1a	Option 1b	Option 1c	Option 1d	Option 1e	Option 2a	Option 2b	Option 3a	Option 3b	Option 4	Option 5	Option 6	Assumptions	19. Sites of Archaeological importance/ listed buildings disturbed by option?	medium	medium	medium	low	low	medium	medium	medium	medium	medium	medium	medium	Green = 1-2 (low) Amber = 3-4 (medium) Red = >5 (high)
	Option 1a	Option 1b	Option 1c	Option 1d	Option 1e	Option 2a	Option 2b	Option 3a	Option 3b	Option 4	Option 5	Option 6	Assumptions																	
19. Sites of Archaeological importance/ listed buildings disturbed by option?	medium	medium	medium	low	low	medium	medium	medium	medium	medium	medium	medium	Green = 1-2 (low) Amber = 3-4 (medium) Red = >5 (high)																	

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		<p>Brook Cottages was one of 41 medium level assets identified (see Table A.1 of the Stage 1 Environmental Assessment Report [REP-033 Appendix I] below) and was judged to be potentially affected (whether directly or indirectly) by all 12 options due to its proximity to the Black Cat Junction.</p> <p>The sources of data that were used during the Stage 1 data gathering to establish the heritage baseline are set out in Section 2.2.1 of the Stage 1 Environmental Assessment Report, Appendix I within Appendices G to K to the Overview of the Alternatives considered at the Black Cat Junction [REP4-033]. The sources of data were:</p> <ul style="list-style-type: none"> • National Heritage list for information on statutory designated cultural heritage assets (World Heritage Sites, Scheduled Monuments, Listed Buildings, Registered Battlefields and Registered Parks and Gardens) (Historic England, 2016a). • English Heritage archive for information on undesignated cultural heritage assets (Historic England, 2016b). • Cultural heritage assets recorded on the Cambridgeshire Historic Environment Record (HER) were provided by Cambridgeshire County Council (12 April 2016) and on the Bedfordshire HER from Bedford Borough Council (15 April 2016). • Information on Conservation Areas from South Cambridgeshire District Council, Huntingdonshire District Council, Central Bedfordshire Council and Bedford Borough Council websites. <p>Table A.1 of the Stage 1 Environmental Assessment Report [REP-033 Appendix I] summarised the key environmental designations and features –</p> <table border="1"> <thead> <tr> <th>Topic</th> <th>Sensitive designations and features within the study area</th> </tr> </thead> <tbody> <tr> <td>Cultural heritage</td> <td> <ul style="list-style-type: none"> • High value assets within the 1km buffer include 11 scheduled monuments, 7 grade II* and one registered park and garden (Croxtan Park). • Medium value assets within 300m of the A428 include 41 grade II listed buildings, four conservation areas, two non-designated historic buildings and three archaeological areas. </td> </tr> </tbody> </table> <p>The A428 Consultation Constraints Plan at Appendix B in the Stage 1 Environmental Assessment Report [REP4-033] shows these high and medium value cultural heritage assets in the vicinity of the Black Cat</p>	Topic	Sensitive designations and features within the study area	Cultural heritage	<ul style="list-style-type: none"> • High value assets within the 1km buffer include 11 scheduled monuments, 7 grade II* and one registered park and garden (Croxtan Park). • Medium value assets within 300m of the A428 include 41 grade II listed buildings, four conservation areas, two non-designated historic buildings and three archaeological areas.
Topic	Sensitive designations and features within the study area					
Cultural heritage	<ul style="list-style-type: none"> • High value assets within the 1km buffer include 11 scheduled monuments, 7 grade II* and one registered park and garden (Croxtan Park). • Medium value assets within 300m of the A428 include 41 grade II listed buildings, four conservation areas, two non-designated historic buildings and three archaeological areas. 					

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		<p>Junction, which include the Scheduled Monuments (Tempsford Bridge, Bowl Barrow, Chawston Manor and moated enclosure) and numerous listed buildings including Brook Cottages.</p> <p>Based on the assessment and information available at that time, no compelling evidence was found to discount any options solely due to potential impacts on cultural heritage assets, including Brook Cottages. As detailed in Table 4-4 of the Overview of the Alternatives considered at the Black Cat Junction Report [REP4-032], whilst there was a recognised threat of impact on Brook Cottages posed by each option, the impact could not be definitively identified as there remained the potential to develop the design to mitigate or remove the impact. Options that were discounted at this time were done so primarily based on safety concerns or other environmental impacts, such as the requirement for large scale construction in the floodplain. In these cases, the impacts are known and certain as they are due to a fundamental part of the option concept and it was certain that they could not be designed out with further design development.</p> <p>The approach to assessment and sifting of options for the Scheme followed that required by National Highways for the assessment of all Major Projects highway schemes through the Project Control Framework (PCF) and as documented in Chapter 4 of the Overview of the Alternatives considered at the Black Cat Junction Report [REP4-032]. This is a tried and tested approach, used on numerous highways schemes to date, to sift options for concept level designs. Sifting can only be undertaken based on the level of information available at the time and, in this case, was informed by baseline data of the wide study area, which included data identified by cultural heritage specialists. Whilst options with the potential to affect Brook Cottages were not ruled out at this early stage, this is an entirely reasonable approach given it was not known how the concept level designs would develop and the extent to which these would continue to affect Brook Cottages as the detailed design progressed. It should be recognised that the RAG table is part of a wider assessment process which must be considered as a whole. For the reasons explained previously by the Applicant, an extensive process, including but not limited to the RAG table, considered whether the Scheme could be developed without the loss of Brook Cottages and has explained why this is not the case. Despite requests from the Examining Authority there has been no evidence submitted for a feasible alternative junction arrangement which would avoid the loss of Brook Cottages. For all of these reasons, the Examining Authority can have every confidence that the Applicant has conducted a robust and thorough assessment of alternatives and that there is no feasible alternative to the loss of Brook Cottages in delivering the Scheme.</p> <p>b) Applicant, evidence what specific heritage expertise was used to inform the sifting and selection process? Provide evidence. HistE and BBC may comment.</p>

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		<p>Environmental assessment of major infrastructure projects for National Highways is typically led by an Environmental Impact Assessment specialist, supported by subject matter experts. Cheryl White BSc MSc MIEMA MCiWEM led the team for the Scheme and in the case of Cultural Heritage, Ed Dickinson BA MCiFA provided subject matter expertise.</p> <p>Ms White is a highly experienced environmental specialist with a degree in Geography and Geology and a masters in Geophysical Archaeology, she is also a Chartered Member of the Chartered Institution of Water and Environmental Management and a Member of the Institute of Environmental Management and Assessment.</p> <p>Mr Dickinson is a highly experienced cultural heritage expert with a degree in Archaeology and is a Chartered Member of the Chartered Institute for Archaeologists.</p> <p>The environmental assessment team initially identified the cultural heritage assets within the study area of the Scheme and were involved in the option appraisal process.</p> <p>Ms White, supported by Mr Dickinson, was a key part of the team undertaking the sifting and selection process for the main route and Black Cat Junction options during PCF Stages 1 and 2. An overview of the Project Control Framework (PCF) Process is provided at Section 2 of the Overview of the Alternatives considered at the Black Cat Junction Report [REP4-032]. The heritage expertise input to inform this process included:</p> <ul style="list-style-type: none"> • Preparation of the Stage 1 Environmental Assessment Report [REP-033 Appendix I], which included: <ul style="list-style-type: none"> ○ Summarising the key environmental designations and features in Table A.1 ○ Establishing the environmental baseline using the sources of data that are set out in Section 2.2.1 ○ Setting out the geographical scope at Section 2.2.2 ○ Explaining the baseline conditions for high value assets within the 1km buffer, medium value assets within 300m of the A428, low and negligible value assets within 300m of the A428 and archaeological potential at Section 2.2.3 ○ Assessment of the value of identified cultural heritage assets was undertaken based on criteria provided in DMRB standard HA208/077, see Section 2.2.4 and as summarised in Appendix C ○ Using this data to inform the content of the A428 Consultation Constraints Plan contained in Appendix B ○ Preparing a list of the 188 heritage assets in Appendix D

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		<ul style="list-style-type: none"> • Inputting into the assessment criteria for comparison of the 12 concept design Black Cat junction options. These criteria are set out in the “Assumptions” column of the RAG table, Row 19 in Appendix C of the Overview of the Alternatives considered at the Black Cat Junction Report [REP4-032]. • The assessment of the number of sites of archaeological importance / listed buildings likely to be impacted/disturbed in the Black Cat Junction study area and associated RAG rating. <p>Ms White, supported by Mr Dickinson, was involved throughout the option development, assessment and sifting process based on the identified data/information. As options were developed for the non-statutory consultation and then subsequently during and post non-statutory consultation, Ms White and Mr Dickinson were involved in providing guidance and assessments of the potential impacts on the cultural heritage assets through each iteration of the options development. At the end of PCF Stage 2, Ms White and Mr Dickinson reported, in the Stage 2 Environmental Assessment Report [REP4-033], the potential that, for all options, Brook Cottages may need to be removed, but this could not be definitively known until further design development and assessment had taken place.</p> <p>c) Explain how Option C became the preferred Option at PRA stage, despite Option A scoring significantly better in terms of Environmental effects (Cultural Heritage) [APP-072 Table 3-2]; better in terms of BCR [REP4-033, Table 10.2]; and the same in terms of addressing the identified problems, meeting the scheme objectives, deliverability, feasibility, traffic benefits, road safety and effects on NMUs [REP4-033 Table 10.2]. BBC may comment.</p> <p>The ExA has referred to Table 3-2 in Chapter 3 – Assessment of Alternatives [APP-072] of the Environmental Statement. This was the assessment of potential environmental impacts prior to being presented at the non-statutory consultation in March 2017. The assessment of environmental effects continued after the non-statutory consultation as the design of the options evolved and the level of detail and granularity of option assessment increased. Some design changes resulted from comments made in response to the non-statutory consultation. For example, the design for Option C was updated following the non-statutory consultation and the A1 route was lowered through the new Black Cat junction. This change reduced the overall height and visual impact of Option C which changed the assessment of the environmental effects. Other design changes were due to the normal and planned iterative approach to project evolution. For example, each of the three options were developed further by producing 3-dimensional (3D) designs to support the more detailed assessment and understanding of the project required at the end of PCF Stage 2.</p> <p>The assessment of potential environmental impacts of the Black Cat Junction options were presented in the Stage 2 Environmental Assessment Report included in Appendix J to the Overview of the Alternatives considered at the Black Cat Junction [REP4-033]. The Options Appraisal Matrix at Appendix F summarises the assessment of each</p>

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		<p>option and all options are assessed as having similar impacts. Specifically, for Cultural Heritage, the impacts for Option C are noted as “similar to Option A”.</p> <p>With regard to Tables 10.2 [REP4-033], whilst the BCR is better for Option A than Option C, the difference is marginal and not considered a significant reason for selection. When taken in context of the above environmental assessment, Route Option 1 with either Option A or C, have therefore been assessed as having very few differences in terms of performance.</p> <p>It is key to note that Table 10.2 [REP4-033] summarises the extensive assessment work that was undertaken on the options for the whole Scheme, including the Black Cat Junction. As such, it does not offer the granularity of differences between the Black Cat Junction options. The table should therefore be read in the context that it is reporting the performance of the full extent of the Scheme from the Black Cat Junction to Caxton Gibbet and care should be taken in interpreting the performance of the junction itself. For example, whilst Table 10.2 summarises that all route options perform the same for Road Safety considerations, it is detailed in Section 4 of the Scheme Assessment Report [REP4-033] that Option C requires 7 Departures from Standard whilst Option A requires 9 due to its more complex design. So, whilst the differences of the junction options may aggregate to small differences overall for the route, when selecting which Black Cat Junction option to progress, it is these key differences that bring Option C to the fore.</p> <p>As summarised in the Preferred Route Decision (PRD) included at Appendix A of the Update on Overview of the Alternatives considered at the Black Cat Junction report [REP6-040], the analysis of options and selection process also considered safety, congestion relief, free flowing movements, wider economic benefits and capacity.</p> <p>Further reasons for the choice of Option C as the preferred option are set out in the Consultation Report - Appendix B - Options consultation and PRA booklet [APP-035], Section 3.2, 3.3 and Table 3-4 of Chapter 3 – Assessment of Alternatives [APP-072] of the Environmental Statement, Section 4 of the Black Cat Junction Design Options Report [APP- 247], the Overview of the Alternatives considered at the Black Cat Junction report [REP4-032] and the Update on Overview of the Alternatives considered at the Black Cat Junction report [REP6-040]. The reasons for the choice of Option C as preferred option at Preferred Route Announcement (PRA) stage included:</p> <ul style="list-style-type: none"> Option C is a standard grade separated junction layout which offers a more familiar and less confusing layout for road users, which reduces the potential for accidents. The COst and Benefit to Accidents – Light Touch (COBALT) analysis of the options predicts that the Orange/Option C scheme could prevent 916 accidents over a 60-year period compared to 677 for the Orange/Option A scheme over the same assessment period.

No.	Directed to	Question
		<p>COBALT is a program developed by the DfT to undertake the analysis of the impact on accidents as part of economic appraisal for a road scheme.</p> <ul style="list-style-type: none"> • Performed best in traffic modelling simulations. • Involved the least land take for the junction. • Had the smallest area within the River Great Ouse flood plain, and so required the least flood compensation. • Received the most support following the non-statutory consultation in spring 2017 with 1533 of the 2538 respondents (60%) expressing it as their preferred option. The Preferred Route Announcement (PRA) brochure set out some of the reasons why people preferred Option C: <ul style="list-style-type: none"> ○ It creates free-flowing traffic at the Black Cat Roundabout. ○ It has the least impact on the local environment, surrounding area and land take. ○ It improves traffic and congestion. ○ It is seen as the most practical option. ○ It has the most capacity and flexibility to cope with any future increases in traffic or road use. <p>It is key to re-iterate that at this stage it was assessed that all options for Black Cat Junction had the potential to impact Brook Cottages to the point of removal. This was not therefore a determining factor for the option selection.</p> <p>d) Applicant, why was Option A not reconsidered at this stage, in light of its performance against Option C [REP4-033 Table 10.2]? Is there any evidence to show that it was impractical to amend Option A to avoid the demolition of Brook Cottages? BBC may comment.</p> <p>Option A was reconsidered, as well as Options B and C, up to Preferred Route Announcement (PRA) even though Option C was clearly emerging as the preferred option at the Black Cat junction from the non-statutory consultation.</p> <p>The three junction options were developed further following the non-statutory consultation by producing 3-dimensional (3D) designs to support the more detailed assessment and understanding of the impact on Brook Cottages and the other broad range of criteria and constraints required to identify a preferred option. The horizontal and vertical alignments for all the Black Cat junction links and slip roads were designed to DMRB standards and the relevant traffic flows. This resulted in some links being longer or at a greater lateral clearance to other road elements to meet the standards for gradients, curvature and structural clearances. The earthworks</p>

No.	Directed to	Question
		<p>design enabled the land take requirements for each option to be more accurately defined. For Option A, as shown in Figure 2-7 of the Update on Overview of the Alternatives considered at the Black Cat Junction report [REP6-040], this development of the 3-D design had an impact on the layout which extended the A1 northbound slip road further north and increased the proposed land take in that area. This further design development demonstrated that all 3 junction options would require the removal of Brook Cottages.</p> <p>The fundamental issues associated with the Option C+ design of the A1 northbound merge slip road provides evidence of why it was impractical to amend Option A to avoid the demolition of Brook Cottages. There are comparable layout requirements for the design of the A421 to A1 northbound free flow link and northbound merge slip road for both Option C+ and Option A. As a result, Option A would also require an additional departure from standards for the layout similar to that described for Option C+ in Sections 4.3 and 4.4 of the Black Cat Junction Design Options Report [APP-247]. But the nature of this additional departure from standards was unacceptable on traffic and safety grounds that it also rules out using this design amendment on Option A.</p> <p>Option C was selected as the preferred design because it was a standard grade separated junction layout and was considered to meet Scheme objectives, be safe, operationally resilient, minimise the overall environmental impact, satisfy the key traffic and design requirements and the standard grade separated junction design and offered a more familiar layout for road users which reduced the risk of accidents.</p> <p>This decision was supported by the results of the non-statutory consultation in spring 2017 where the Option C design received the most support from respondents with 1533 of the 2538 (60%) expressing it as their preferred option.</p> <p>Also, Bedford Borough Council's response to the non-statutory consultation confirmed their support for the Scheme and the Black Cat Junction Option C.</p> <p><i>"Bedford Borough Council has offered full support for many years for improvements in various forms to this stretch of road, and we are pleased to continue that support through this stage of the consultation process for the orange route, and junction arrangement 'C'."</i></p> <p>e) Please explain the reason for rejecting Option Orange C+, which did not require the demolition of Brook Cottages, which had the highest BCR of any of the Route/Junction options [REP6-040, Table 2-3] and which had a comparable effect on Road Safety and Traffic Benefits [REP4-033 Table 10.2] to the other options assessed at this stage? BBC may comment.</p>

No.	Directed to	Question
		<p>As stated at Section 2.6.8 of the Update on Overview of the Alternatives considered at the Black Cat Junction report [REP6-040] "The selection of a preferred route considered the full suite of assessment evidence in the PCF Stage 2 reports, including the report on the Non-Statutory Consultation [APP-035 Part B16]".</p> <p>The summary for Road Safety and Traffic Benefits in Table 10.2 of the Scheme Assessment Report [REP4-033 Appendix K] provided a comparison to the existing at grade junction arrangement at that stage of design development and assessment. Any grade separated junction option would provide significant capacity improvements and have similar impact on road safety. The more detailed comparison between Options C and C+ is provided in Sections 4.3 and 4.4 of the Black Cat Junction Design Options Report [APP- 247] and Chapter 3 – Assessment of Alternatives [APP-072].</p> <p>The assessment determined that Option C+ presented unacceptable technical and safety issues. In summary, Option C+:</p> <ul style="list-style-type: none"> • would result in an unacceptable impact on safety due to likelihood of queuing on the slip road because the design of the Layout A Taper Merge arrangement would be insufficient to cope with predicted traffic flows. This is the only merge arrangement that could be accommodated in order to meet the objective of retaining Brook Cottages. • was significantly more expensive than Option C due to additional land being required, complex utility diversions, complex structures and additional traffic management. Confirmation of this assessment is provided at section 4.3.12 of the Black Cat Junction Design Options Report [APP- 247]: "An initial estimate of costs of Option C and Option C+ demonstrated that Option C was estimated to have a cost of £286.8 million, whilst Option C+ was estimated to be £316.2 million, an increase in cost of approximately £29 million." • increased the scale of engineering work and resulted in a non-standard junction layout which would be more difficult for road users to understand. • had poor operational resilience when compared to Option C if the A1 northbound carriageway were to become blocked in the underpass due to an incident or flooding. In this situation it would not be possible with Option C+ for A1 northbound traffic to be temporarily diverted using the diverge and merge northbound slip roads. Therefore, Option C+ did not meet the Scheme objective relating to 'Resilience'. <p>These factors were more significant differentiators than the BCR, because the BCR value represents monetised costs and benefits and does not consider other safety, technical and operational differences. For this assessment,</p>

No.	Directed to	Question
		<p>the BCR value for the Orange/C+ Option is only marginally greater than the Orange/C Option and they both have the same medium level Value for Money classification.</p> <p>f) Given the that the Proposed Development has numerous departures from DMRB standards within the vicinity of the Black Cat Junction and Brook Cottages [REP6-045] why were departures from standard associated with Option C+ considered so adverse?</p> <p>The departures from standards for the Scheme on the A421 main carriageway through the junction and on the existing A1 to the north and south of the new Black Cat Junction would also be required for Option C+. However, Option C+ included an additional departure from standards associated with the A1 Northbound single lane slip road and Layout A Merge Taper which had been designed to avoid the loss of Brook Cottages.</p> <p>The reason for this additional departure from standards is described in Sections 4.3 and 4.4 of the Black Cat Junction Design Options Report [APP-247]. The Option C+ design incorporated a Layout A Merge Taper rather than Layout C Ghost Island Merge Taper for the A1 northbound on slip road and the A421 to A1 free flow link northbound on slip road to avoid the demolition of Brook Cottages. But the single lane Layout A Taper Merge arrangement would be insufficient to cope with predicted traffic flows on the free flow link and slip road. With reference to the DMRB standard CD 122 'Geometric design of grade separated junctions', the absolute capacity would be exceeded in the peak hour and a two-lane slip road is required. The inclusion of a single lane slip road and Layout A Merge would result in an unacceptable impact on safety due to the likelihood of queuing on the slip road. Therefore, the nature of this additional departure from standards was so fundamentally unacceptable that it ruled out Option C+ irrespective of any other departures from standards required. As explained above, this could only have been overcome by providing the two-lane slip road with Layout C Ghost Island Merge Taper, which is the same as the layout in the submitted Scheme and results in the loss of Brook Cottages.</p> <p>g) HistE, with reference to your comments at ISH3 [EV-045] and your response to the ExA's WQ2s [REP4-069 Q2.12.2.1] would you like to elaborate on your position in the SOCG regarding the (exceptional) justification for the demolition of Brook Cottages [REP6-016].</p>
Q3.12.3	Milestone and Mileposts	
		<p>Question: No further questions at this stage.</p>

No.	Directed to	Question
		Answer:
Q3.12.4	Archaeological Remains	
		Question: No further questions at this stage.
		Answer:
Q3.13	Landscape and Visual Effects	
Q3.13.1	General	
		Question: No further questions at this stage.
		Answer:
Q3.13.2	Visual Impact	
		Question: No further questions at this stage.
		Answer:

No.	Directed to	Question
Q3.13.3	First Iteration EMP and Landscape and Ecology Management Plan	
		Question: (See related question in <i>Construction Methods and Effects</i>)
		Answer:
Q3.14	Land use including open space and green infrastructure	
Q3.14.1	Geology and Soils	
Q3.14.1.1	NFU Natural England Local Authorities	Question: Surveys a) Are you satisfied with the Applicant's Agricultural Technical Note on Soils and Agricultural Land? b) Do you have any outstanding concerns in this regard?
		Answer: A response to this question is not required from the Applicant. The Applicant will respond to any points raised in response to Q3.14.1.1 at the next appropriate deadline.
Q3.14.2	Cumulative effects	
		Question: No further questions at this stage.
		Answer:

No.	Directed to	Question
Q3.15	Need for Development and Consideration of Alternatives	
Q3.15.1	Need for the development	
		Question: No further questions at this stage.
		Answer:
Q3.15.2	Business case	
		Question: No further questions at this stage.
		Answer:
Q3.15.3	Cost benefit analysis	
		Question: No further questions at this stage.
		Answer:
Q3.15.4	Alternative modal solutions	
		Question:

No.	Directed to	Question
		No further questions at this stage.
		Answer:
Q3.16	Noise and Vibration	
Q3.16.1	Construction and Operational effects on sensitive receptors	
		Question: No further questions at this stage.
		Answer:
Q3.16.2	Proposed mitigation, management and monitoring	
Q3.16.2.1	Applicant All parties	Question: Operational noise monitoring The Applicant has previously explained that no operational noise monitoring is proposed following the construction of the Proposed Development other than to ensure that 'measures' were installed as required [APP-080, Paragraph 11.10.2] [EV-072]. a) Is this typical of other made DCOs for road schemes? b) Do IPs agree with this approach? If not, explain with reasons. c) Applicant, how would you deal with any unanticipated noise effects during operation, particularly for residential receptors such as at R16, R17 and R18 [REP6-018], Little Barford as well as receptors around the Potton Road Junction and Cambridge Road Junction [REP6-020]?
		Answer:

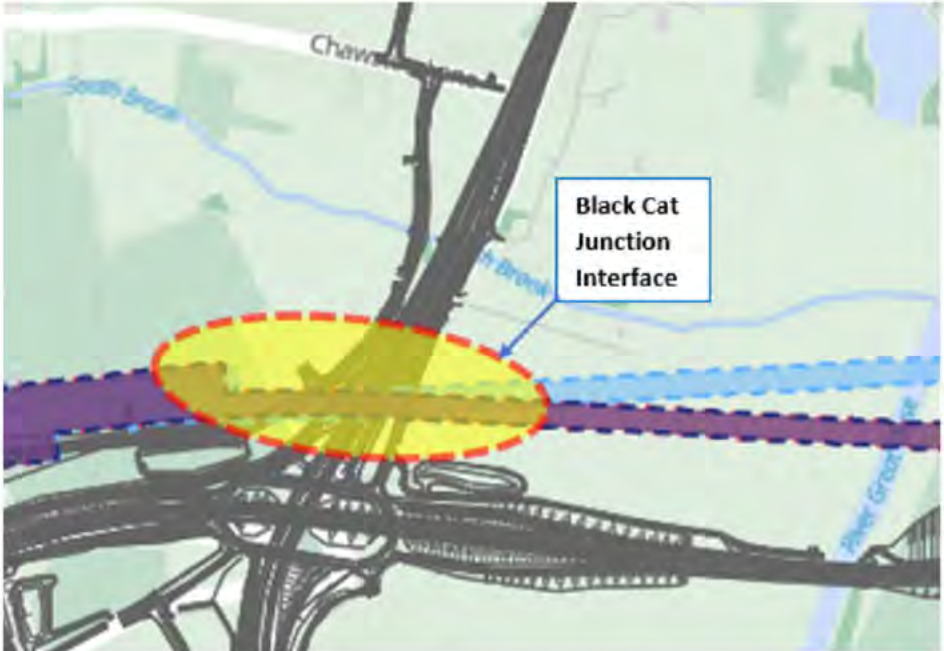
No.	Directed to	Question
		<p>a) The Applicant has undertaken a review of the operational noise monitoring requirements for the following made DCOs relating to road schemes proposed on the strategic road network, for which information is available on the National Infrastructure Planning portal:</p> <ul style="list-style-type: none"> i) A1 Birtley to Coal House ii) A1 Morpeth to Ellingham iii) A14 Cambridge to Huntingdon iv) A160-A180 Port of Immingham v) A19-A184 Testos Junction Improvement vi) A19 Downhill Lane Junction vii) A19/A1058 Coast Road viii) A30 Chiverton to Carland Cross ix) A303 Sparkford to Ilchester x) A556 Knutsford to Bowden xi) A585 Windy Harbour to Skippool Improvement xii) A63 Castle Street Improvement xiii) M20 Junction 10A xiv) M4 Junction 3 to 12 Smart Motorway xv) M42 Junction 6 Improvement <p>No commitments to operational noise monitoring in the form of road traffic noise monitoring at specific receptors have been identified in the made DCOs for any of the projects listed above.</p> <p>Further details on why post opening road traffic noise monitoring is not normally undertaken is set out in response to REP1-048bv in the Applicant's Comments on Written Representations [REP3-008] submitted at Deadline 3 and REP3-041b in the Applicant's Comments on Deadline 3 Submissions [REP4-036] submitted at Deadline 4.</p>

No.	Directed to	Question
		<p>The approach to monitoring as set out in paragraph 11.10.2 of Chapter 11, Noise and Vibration [APP-080] of the Environmental Statement is in accordance with Section 4.2 of the Design Manual for Roads and Bridges (DMRB) LA 111 - Noise and Vibration, which requires the monitoring of significant environmental effects to include:</p> <ol style="list-style-type: none"> 1) ensuring mitigation measures included with the project design are incorporated with the as-built project. Where they are not included, ensuring resultant noise levels, taking account of any additional mitigation installed but not included in the assessed design, are no higher than set out in the project assessment; 2) ensuring specifications of noise mitigation measures, including barriers and low noise surfaces, meet design specifications. <p>The Applicant refers to Table 7 of the Schedule of Mitigation [APP-235] which sets out the noise mitigation proposed along the length of the Scheme, including the performance of the proposed low noise surfacing. The Applicant will update the Register of Environmental Actions and Commitments in a revised version of the First Iteration Environmental Management Plan [REP6-007] to be submitted at Deadline 9, which will secure the specification requirement for the proposed low noise surfacing and its delivery. The proposed wording is as follows:</p> <p style="padding-left: 40px;">Low noise surfacing will be installed on the following roads and junctions within the Scheme, as illustrated on Figure 2.4 Environmental Masterplan [REP6-006] [Figure 2.4v3 of TR010044/APP/6.2]:</p> <ol style="list-style-type: none"> a. Along the entire length of the new dual carriageway, from its tie in with the existing A421 through to the tie in with the existing A428 dual carriageway east of Caxton Gibbet junction. b. On the A1 (ground -1) through Black Cat junction. c. Black Cat junction. d. Cambridge Road junction. e. Eltisley link. f. Realigned A428 g. Caxton Gibbet junction. <p>This will be specified as meeting Level 3 (-3.5dB(A)) as stated in Table 9/17 of the MCHW Volume 1 Specification for Highways Works Series 900. The Principal Contractor must meet the TSCS performance</p>

No.	Directed to	Question										
		<p>requirements (Level 3 / -3.5 dB(A), as detailed above) and will be required to demonstrate that the “as installed” material has been installed so as to meet the requirements of the specification.</p> <p>b) N/A</p> <p>c) The Applicant confirms that the draft DCO [REP6-003] submitted at Deadline 6 includes a requirement which, when discharged, will minimise the risk of any unexpected noise effects during operation. Requirement 18 of the draft DCO [REP6-003] requires the proposed noise mitigation to be approved by the Secretary of State, following consultation with the relevant planning authority. Any material change from the mitigation included in Chapter 11, Noise and Vibration [APP-080] of the Environmental Statement must demonstrate that the mitigation proposed ‘would not give rise to any materially new or materially different environmental effects in comparison with those reported in the environmental statement’.</p> <p>However, where unidentified noise effects are identified, either directly by the Applicant or through the receipt of a complaint once the Scheme is operational, these would be investigated by the Applicant and measures to address the effects considered. The complaints procedure is set out on the Applicant's webpages as follows:</p> <table border="1"> <thead> <tr> <th>Stage</th> <th>Summary</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Local resolution. Response provided within 10 days</td> </tr> <tr> <td>2</td> <td>Review. Opportunity to escalate if response provided at stage 1 insufficient. Response provided within 10 days</td> </tr> <tr> <td>3</td> <td>Independent review. Independent Complaints Assessor</td> </tr> <tr> <td>4</td> <td>Parliamentary Ombudsman. MP involvement</td> </tr> </tbody> </table> <p><u>Low noise surfacing</u></p> <p>The Applicant confirms that Requirement 18 of the draft DCO [REP6-003] applies in perpetuity. Requirement 18(1) requires the proposed noise mitigation for the use and operation of the Scheme (including low noise surfacing) to be approved by the Secretary of State, following consultation with the relevant planning authority. Requirement 18(3)</p>	Stage	Summary	1	Local resolution. Response provided within 10 days	2	Review. Opportunity to escalate if response provided at stage 1 insufficient. Response provided within 10 days	3	Independent review. Independent Complaints Assessor	4	Parliamentary Ombudsman. MP involvement
Stage	Summary											
1	Local resolution. Response provided within 10 days											
2	Review. Opportunity to escalate if response provided at stage 1 insufficient. Response provided within 10 days											
3	Independent review. Independent Complaints Assessor											
4	Parliamentary Ombudsman. MP involvement											

No.	Directed to	Question
		requires the noise mitigation to be retained thereafter. Therefore, any maintenance of the low noise surfacing as a result of deterioration will need to be undertaken with material that has the same noise reduction qualities.
Q3.16.2.2	Applicant	<p>Question:</p> <p>Low noise surfacing</p> <p>As discussed at ISH5 [EV-072], can the Applicant confirm that the intended low noise surfacing referred to in the Schedule of Mitigation [APP-235, Table 7] will be maintained as such in future?</p>
		<p>Answer:</p> <p>Low noise surfacing is being installed to reduce road traffic noise at source. The Applicant confirms that when it is necessary to replace this material because of deterioration, it will be replaced with material having the same noise reduction qualities.</p>
Q3.17	Significant Cumulative Effects	
Q3.17.1	Approach to assessment	
		<p>Question:</p> <p>No further questions at this stage.</p>
		<p>Answer:</p>
Q3.17.2	Assessment of cumulative effects	
		<p>Question:</p> <p>No further questions at this stage.</p>
		<p>Answer:</p>

No.	Directed to	Question
Q3.17.3	Assessment of combined effects	
		Question: No further questions at this stage.
		Answer:
Q3.17.4	East West Rail	
Q3.17.4.1	East West Rail Company Applicant	Question: East West Rail At ISH5 [EV-070] EWR explained that potential design changes to the Proposed Development would largely be limited to LHA side roads linking to the Proposed Development. However, EWR state in the post hearing note [REP6-094] that the exception to this would likely be at Black Cat Roundabout. Explain how the EWR Route Alignments 1, 2 and 6 would likely affect the intended layout or function of the proposed Black Cat junction. (See related questions in <i>Protective Provisions</i> .)
		Answer: East West Rail Co (EWR) has provided the following details in section 3.3 of Appendix 1 in their - Responses to the ExA's Second Written Questions (WQ2) [REP4-067], regarding the potential interaction of their Route Alignments 1, 2 and 6 with the Black Cat Junction. "3.3. Black Cat Junction

No.	Directed to	Question
		 <p><i>Figure 4 - Potential engineering interaction location between the Scheme and EWR Project Route Alignments 1, 2 and 6 at the Black Cat Junction (included in [AS-011])</i></p> <p><i>3.3.1. The 2021 EWR Project non-statutory consultation (NSC) design proposes that Route Alignments 1, 2 & 6 would pass over Black Cat Junction on a viaduct, which would avoid the remodelling of any major roads in this area (either existing, or those remodelled as part of the Scheme) but may require modification of some local road infrastructure such as Roxton Road. This is subject to design development and EWR Co is seeking to minimise impact on the A428 Scheme and other receptors.</i></p> <p><i>3.3.2. While the viaduct is subject to ongoing detailed design work, keeping the EWR Project footprint to a minimum would reduce the potential for interactions with the Scheme's proposals.</i></p> <p><i>3.3.3. To the east of Black Cat Junction, the NSC proposal is for Route Alignments 1, 2 & 6 to be elevated on a viaduct passing over a borrow pit proposed to be utilised by the Scheme. The interface between these works would</i></p>

No.	Directed to	Question
		<p><i>require appropriate phasing through construction and a coordinated environmental strategy post-construction. It would also be beneficial to the EWR Project for the Scheme to use the borrow pit in a way that minimises or avoids permanent excavations that would adversely affect the foundations of the viaduct proposed by the EWR Project."</i></p> <p>The Route Alignments 1, 2 & 6 cross to the north of the proposed Black Cat junction circulatory carriageway. At this point the A1 passes under the junction and is therefore at a lower level to the junction circulatory and adjacent slip roads. The proposals for the Black Cat junction include for retaining walls on either side of the A1 cutting plus a Bentonite cut-off wall set back behind each of the east and west retaining walls.</p> <p>For EWR Route Alignments 1, 2 and 6, the EWR alignment would cross the Black Cat junction on a viaduct just to the north of the Black Cat Junction, over the slip roads and the A1. Therefore, the present design for EWR Route Alignments 1, 2 and 6 is not expected to alter the main layout or function of the A428 Black Cat Roundabout and its slip roads in the permanent case. However, EWR consider that temporary changes to the layout or function of the junction may be necessary to facilitate access to and construction of the EWR viaduct. These could include lane closures, diversions and the construction of temporary and permanent structures alongside the highway. In addition, there may be a requirement for the slight realignment of local road infrastructure, such as the Roxton Road access road.</p> <p>However, it should be noted that this would not affect the substance of the A428 Scheme and equally does not affect the Applicant's previous representations on the extent to which EWR can properly be considered as part of the assessment and examination of the A428 Scheme. As is stated in the Applicant's response to question 3.5.2.2, EWR have not presented any detailed or specific evidence to suggest that the Scheme would prejudice their ability to deliver the EWR Scheme, and indeed has not yet made a Preferred Route Announcement to confirm what route the EWR Scheme will take.</p>
Q3.18	Socio-economic effects	
Q3.18.1	Methodology	
		<p>Question:</p> <p>No further questions at this stage.</p>
		<p>Answer:</p>

No.	Directed to	Question
Q3.18.2	Local and national economic activity and employment	
		Question: No further questions at this stage.
		Answer:
Q3.19	Water quality and resources	
Q3.19.1	General	
		Question: No further questions at this stage.
		Answer:

Appendix to Q3.3.4.2 Part 1

pp. 264. Harley Books, Colchester.

Kerney, M.P. and Cameron, R.A.D. (1979). *A Field Guide to the Land Snails of Britain & North-West Europe*, 2nd Edition. pp. 288. Harper Collins, London.

Meyrick, R.A. (1998). Molluscan analysis. In: Hinman, M. *Prehistoric remains on land adjacent to Babraham Road, Cambridge. An evaluation*. Cambridgeshire County Council Report No. 147, 34-35.

Meyrick, R.A. (1999). Molluscan analysis (column samples). In: Hinman, M. *Ritualistic prehistoric activity and inhumation on land adjacent to Babraham Road, Cambridge. Post excavation assessment of evaluation and excavation, 1997–1998*. Cambridgeshire County Council Report No. PXA 10, 70-74.

Websites.

www.ivelvalley.co.uk/Snail%20report3.PDF

www.wildlifetrust.org.uk/bcnp/bedsbap/pdf/snail.pdf

The Barbastelle at Wimpole

Simon Damant and Chris Vine

The first known reference to the Barbastelle (*Barbastella barbastellus*) at Wimpole came in a letter addressed to Mrs Bambridge in the late 1960s or early 1970s. Mrs Bambridge owned all the historical manors of Wimpole which made up almost 90% of the parish (there were outlying fragments in other hands). The letter apparently asked Mrs Bambridge for access to the Folly within the historic Wimpole parkland. At this time the Folly was covered in Ivy (*Hedera helix*) and a colony of Barbastelles was alluded to. Unfortunately, at present, this letter has been mislaid but it was written by someone from one of the Cambridge Colleges. It would be extremely useful if anybody still knows of this record or the gentleman concerned and any further details.

When Mrs Bambridge died the estate was passed to the National Trust as a gift with all land being held as inalienable. Some initial work was undertaken on the bats of Wimpole in 1978 when Bob Stebbings made a systematic survey of the buildings. His report remains accurate to this day, but requires a few additions.

The report identified a number of species in the main house in the very large attic spaces: Pipistrelle (*Pipistrellus pipistrellus*), Long-eared Bats (*Plecotus* species), Daubenton's Bat, (*Myotis daubentonii*), Natterer's Bat (*Myotis nattereri*) and Serotine (*Eptesicus serotinus*). Two other species were thought to have roosted in the Hall: Whiskered Bat (*Myotis mystacinus*) and Leisler's (*Nyctalus leisleri*). All bats were identified from droppings except for the following: one Daubenton's Bat was seen hibernating under

the cellar of the old conservatory and over one hundred Pipistrelles were counted out of the east roof of the hall.

By the time the National Trust's biological survey team and Tony Mitchell-Jones from English Nature visited in 1986 there may have been a decline in bat numbers. At this time the park and surrounding arable land had undergone some rather intensive changes; not least of those was from natural causes because of the Dutch elm disease; others were due to the modern agricultural policy of the day.

It is necessary to point out that in the 1970s and 1980s use of bat detectors was limited and most records were from buildings and therefore surveys almost always omitted any predominantly woodland species.

In the late summer of 1999 Simon Damant was asked to remove a bat from the Kendal stables which was flying around in the day-time in one of the rooms being used for storing books. It was caught and easily identified as a Barbastelle. The bat was released into the upper attic rooms where it went off to roost. It is now suspected that the bat was a male.

In 2000, when the Cambridgeshire and Bedfordshire bat groups along with National Trust staff were undertaking a bat survey of the Wimpole Estate, some very unusual bat calls were recorded on very expensive sound equipment using time expansion techniques. Bob Cornes, who was the only specialist with this equipment at the time, later identified them as Barbastelle calls. Further evening work located an area within the woodlands where many Barbastelles were seen and heard. These bats usually emerged approximately half an hour after sunset, flew around the woods for up to an hour and then disappeared.

Further information was required so with permission from English Nature both bat groups and the National Trust were allowed to set mist-nets in the woodlands in 2001 in the hope of catching a Barbastelle and attaching a small radio transmitter to it. This was a success and radio tracking revealed that the bat emerged from an oak tree with loose bark over the nest few nights and flew around the woods for at least half an hour and then used a mature hedge north of 'The Gloucesters' to gain access to Eversden woods where it stayed for up to two hours before proceeding eastwards.

Since this first capture and radio tagging of a Barbastelle there have been repeated surveys using this technique, and monitoring with bat detectors. The results have largely been similar to those of previous surveys at Ebernoe, Sussex (Greenaway 2001, 2004). In most cases the Barbastelles caught in Twidlems Corner within 'The Gloucesters' woodland belt roost in oak trees which are either dead or have large dead branches and have loose bark. The woodland has a good understorey and all the radio tagged bats emerged about half an hour after sunset regardless of weather. These bats would fly around feeding within the wood and would also visit a small pond in the wood to drink very early on (they would also visit this pond prior to returning to their roost for the day; however the pond did dry up in 2005). After half an hour or so bats would fly along the woodland belts eastward and also north east to the Harcamlow Way (a very tall thin strip of woodland

come lapsed hedge) or go via the thin tall hedge northwards to Eversden woods. In nearly all cases after one hour most of the bats would be found foraging in Eversden woods. Incidentally, from information provided by the Cambridge Biological Records Centre, this woodland has been a hot spot for micro-lepidoptera which are the main food of the Barbastelle.

After another hour or two these bats would make excursions to the east, towards Cambridge. The favoured route for some bats was the old railway line with the radio telescope dishes; this also had tall neglected hedges either side and semi-natural grassland (another good source of micro-lepidoptera). Other routes were along Bourn brook and other tall hedges. The small villages of Toft, Kingston, Comberton, Barton and Harlton were also favoured. In 2003 one bat used Harlton quite frequently, including the old chalk quarry with its secondary growth of woodland and the tall hedges in and around the area.

In these early surveys it was difficult to actually pin down the bats' flight lines and really understand their foraging requirements. However, recently, with a better understanding of their requirements and the knowledge of other radio tagging survey work elsewhere in the UK we were able to anticipate their movements more accurately and certainly and pin down the better feeding areas. One such place in 2005 was at Barton where there is a double hedged trackway and the Barton area was extensively used by a single bat which sometimes flew to Barton, back to the maternity roost woodland and back to Barton in one night. It is very probable that these trackways are used because of the natural grassland margins, their quietness and also the fact that they may actually accumulate wind blown invertebrates from the surrounding arable land. Simon Damant has witnessed this in another trackway used by Pipistrelles where a short section had a tall hedge in a predominantly open landscape a long way from buildings and woodland. The Pipistrelles were seen in some number, catching insects on a moderately windy night on the lee side. This makes sense in conserving flight time energy while gaining a rich source of food. As bats may live as long as 20 years they would, over time, learn to recognise the weather patterns that would provide them with easy pickings at various sites.

All the radio tagged bats went eastwards; none went west except for one short excursion and none ventured into the parkland. This seemed extremely odd considering the large number of micro-moths present within the park (recorded by Simon Damant using a moth trap in the semi natural grasslands in the park).

In 2004 and 2005 further survey work was carried out within the park, principally for Serotines; however Barbastelles were present and were heard most of the night throughout the summer. Early indications suggested another roost of some description to the west.

In 2005 we netted a lactating female Barbastelle in the woodlands behind the lakes. At first the bat seemed to be alone, roosting in Horse Chestnut trees with split cavities and in willows under dead bark. However one night she ended up in a mature Field Maple with a split in the trunk. At least 14

bats were counted from the roost and a number caught. All appeared to have been lactating females indicating another maternity group using different roost trees. Most of these roosts were in splits rather than under loose dead oak bark.

This female spent most of her time using the woodland to the west of Wimpole estate and Valley Farm with its hay meadows and tall hedges. The bat would seem not to have flown more than three kilometres from the roost site; however radio tracking to the west beyond the A1198 was very difficult as the road system is sparse.

From the data collected to date the indication is that the population at Wimpole behaves very like those at Ebernoe. Frank Greenaway suggests that these bats would, in their natural environment, typically have a maternity roost area in the head waters of a catchment and would use the waterways as their flight lines. They would forage as they fly to richer areas of micro moths such as woodland glades along the river systems.

To some extent the Wimpole population follows this basic assumption in that they do use Bourn Brook and go into Grantchester where the River Cam joins the River Rhee, almost certainly relying on the adjacent meadows to the waterways for a rich source of food. The small River Rhee catchment and Bourn Brook seem to be the main areas for foraging, though villages to the east are also frequented. . However in a much modified human landscape the bats would seem to have also adapted to using the more unkempt wider and taller boundary hedgerows with woodland copses for their flight lines and foraging in south west Cambridgeshire. They have also used the disused railway lines which have developed a secondary tree growth and tall hedgerows with semi natural grasslands. It is important to note that south-west Cambridgeshire is well wooded compared with much of the rest of the county but even here woodland is sparse and not particularly well linked by good tall and wide hedgerows.

Much of the woodland at Wimpole where the breeding colonies roost is a result of landscape plantings from the 18th and 19th centuries. It appears that it is not the age of the woodland that is important but that it has had limited management and has not suffered too greatly from a policy of clear felling and removal of standing dead and diseased trees (an important component of a maternity roost area, where many trees are used in a single breeding season). Because of the bats' requirements and that the males tend to be solitary, outlying woodlands may provide a sanctuary for non breeding females and solitary males, both of which are said to use sub-optimal feeding areas leaving the richer foraging for the breeding females whose energy requirements are much greater. Therefore, absolutely any woodland loss within a radius of 10-15km could be of great significance for the viability of the population of *Barbastelles* at Wimpole.

Most outstanding of all is that when the facility from Google Earth is used, it can be seen that the flight lines and foraging areas are very limited and are very vulnerable and as such could have a significant effect on the breeding viability of this very rare species. Arable land dominates the

landscape as a monoculture of either wheat or rape with the resultant low biodiversity of invertebrates.

There is an urgent need to acquire more information on the ecology of the Barbastelle population at Wimpole especially with the current need for more housing within Cambridgeshire, which is in-filling areas of semi natural grassland within the small villages surrounding Wimpole estate.

References

- Greenaway, F.** (2001). The Barbastelle in Britain. *British Wildlife*. 12:327 – 334
- Greenaway, F.** (2004). Advice for the management of flightlines and foraging habitats of the barbastelle bat *Barbastella barbastellus*. English Nature Research Report Number 657

The distribution and ecology of two UK Biodiversity Action Plan moths in Cambridgeshire: The Square-spotted Clay (*Xestia rhomboidea*) and the Buttoned Snout (*Hypena rostralis*)

Robin Field and Paul Waring

Introduction

The distribution and ecology of the Square-spotted Clay (*Xestia rhomboidea*) and the Buttoned Snout (*Hypena rostralis*) were investigated between the period April 2002 and March 2005 by the Cambridgeshire and Essex Branch of Butterfly Conservation (BC). The funding was provided by an English Nature Biodiversity Action Plan (BAP) Grant with additional funding coming from the local BC Branch. Prior to the commencement of this study the known distribution of both species in Cambridgeshire was limited to several old records of adults from around the county and one record of a larva for *H. rostralis* (Field *et al.*, 2003).

Square-spotted Clay

X. rhomboidea is classed as being Nationally Scarce, in that it was recorded from fewer than one hundred of the 10km squares in Great Britain from 1980 to 1999 (Waring *et al.*, 2003). The UK BAP notes that it has been lost from parts of its former range in the west of England, including Hampshire, Dorset, Devon and Cornwall (UK Biodiversity Group, 1999). The adult occurs in broad-leaved and mixed woodland during late July and August and can be found nectaring on various plants such as Lesser Burdock (*Arctium minus*) and Teasel (*Dipsacus fullonum*). Before 2002 the larvae had never knowingly been recorded in the wild. The larval foodplants in the wild were thus unknown, as were details of the larval habitat requirements, behaviour, timing and development. In captive rearing Chickweed (*Stellaria media*), docks (*Rumex* spp.), willows (*Salix* spp.), Primrose (*Primula vulgaris*), birch (*Betula* spp.), bramble (*Rubus fruticosus* agg.) and Ribwort Plantain (*Plantago lanceolata*) were all eaten by the larvae.

Appendix to Q3.3.4.2 Part 2



Local Development Framework
Biodiversity
Supplementary Planning Document

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If you would like a copy of this document in large print or another format please contact South Cambridgeshire District Council on 08450 450 500 or email ldf@scambs.gov.uk

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Chapter 1

Introduction to The Supplementary Planning Document

- 1.1 This South Cambridgeshire District Council (SCDC) Supplementary Planning Document (SPD) forms part of the South Cambridgeshire Local Development Framework (LDF).
- 1.2 The SPD expands on district-wide policies in the Development Control Policies Development Plan Document (DPD), adopted in July 2007, and policies in individual Area Action Plans for major developments that may vary from the district-wide policies. Policies seek to ensure that biodiversity is adequately protected and enhanced throughout the development process, and this SPD provides additional details on how these policies will be implemented.
- 1.3 The SPD builds on national policy in Planning Policy Statement (PPS) 1: Delivering Sustainable Development and PPS9: Biodiversity and Geological Conservation. These promote sustainable, well-designed development. In addition, they seek to ensure that biodiversity and appropriate landscaping are fully integrated to new developments in order to create accessible green spaces for wildlife and people, to contribute to a high quality natural and built environment, and to contribute to a better quality of life.
- 1.4 PPS9 further strengthens previous guidance (PPG9: Nature Conservation, 1994) and attaches a greater weight to the conservation of biodiversity within the development control process. The Biodiversity Issues section 3.24 of this document reflect the key principles of PPS9.
- 1.5 Biodiversity is a term used to describe the richness of the living environment around us, it incorporates all species and habitats, both rare and common, and strives to ensure the protection of genetic diversity. Species once considered to be common are facing increasing stresses upon their populations and the rate of species loss has never been higher. International initiatives exist to reduce the rate of species loss and at the national level lists of species and habitats have been produced that require particular measures to halt their decline.
- 1.6 PPS9 presents six key principles to guide Local Planning Authorities. In brief the key principles are:

1. The need to base decisions on up-to-date information.
 2. The requirement to maintain, enhance, restore or achieve a gain in biodiversity.
 3. The necessity to adopt a strategic approach to conservation and enhancement of biodiversity.
 4. The need to incorporate biodiversity within the design of new developments.
 5. The encouragement to support development schemes that conserve or enhance local biodiversity.
 6. The requirement to prevent harm to biodiversity, including the consideration of alternative sites. Where significant harm cannot be avoided adequate mitigation or compensation should be in place, or the planning permission should be refused.
- 1.7 Biodiversity will not be peripheral to the planning process but will be fully integrated into the design stages. Consideration will be given, wherever possible, to the retention of biodiversity features within developments, or to incorporating new planting or specific biodiversity features into new designs. Biodiversity is a valuable addition to any development, often helping to create green spaces and achieve development of a high-quality design in the local landscape or townscape.
- 1.8 SCDC is also producing SPD to provide further guidance on trees and landscape issues, and it may be helpful to read these alongside this SPD. SCDC has already produced its Biodiversity Strategy and has adopted it as council policy, September 2006. The Biodiversity Strategy is due for review and will continue to act as a guiding document for SCDC's general approach to biodiversity conservation across its range of functions. The Strategy will act in parallel to the SPD.

Purpose

- 1.9 The objective of this SPD is to assist the achievement of the LDF objectives for the conservation and enhancement of biodiversity and landscape character.
- Specific objectives for this document are to: Assist applicants' understanding of the role of biodiversity within the wider environment and how biodiversity features should be incorporated within development proposals as part of a high-quality design.
 - Assist applicants to gain planning permission quickly by informing them of the level of information required to accompany planning applications.
 - Explain terminology associated with biodiversity conservation.

- Ensure that development works are undertaken in an appropriate manner to avoid harm to biodiversity.

South Cambridgeshire LDF Policy

- 1.10 There are a number of policies within the Development Control Policies DPD and Area Action Plans which relate to biodiversity. A full list of these policies is provided in appendix 1. The full wording of the two key LDF policies is also provided in appendix.
- 1.11 The supporting text of the Development Control Policies Policy NE/6 states that further guidance on Priority Species and Habitats, sites and the achievement of biodiversity targets shall be set in the Biodiversity Strategy. The Biodiversity Strategy was produced in 2006 and adopted as Council policy. It provided guidance in the interim period to the production of this Biodiversity SPD. This SPD now incorporates those matters from the Biodiversity Strategy that relate to the planning process and provides guidance to support the policies in the LDF. The Biodiversity Strategy will subsequently be reviewed to provide a wider strategy for the conservation of the district's biodiversity and will be adopted as Council policy.
- 1.12 The key themes arising from all policies, at a national or local level, can be summarised as follows:
- Conserve and enhance biodiversity.
 - Undertake full surveys of existing biodiversity features and conserve the environmental aspects of the site.
 - Include high quality landscaping.
 - Achieve a net increase in biodiversity.
 - Not to permit proposals where there will be an unacceptable impact on the countryside, landscape character or biodiversity.
 - The major development locations are also required to include early provision of landscaping and biodiversity features on site.

Chapter 2 Biodiversity Conservation

The Need

- 2.1 In its capacity as the Local Planning Authority SCDC has an obligation to consider how development will affect biodiversity. The conservation and enhancement of an ecologically diverse countryside and built environment alike presents many challenges within the rapidly changing district. This document aims to provide guidance on biodiversity issues that are likely to be encountered during the development control process. The document provides information on the preservation and enhancement of biodiversity across South Cambridgeshire and should be read alongside the SCDC Biodiversity Strategy. A full list of habitats and species of principal importance for biodiversity conservation can be found in the Natural Environment and Rural Communities (NERC) Act, 2006, section 41, [Natural Environment and Rural Communities Act 2006 \(legislation.gov.uk\)](#)
- 2.2 Priority Species and Habitats for conservation are those identified within the Biodiversity Action Plans (BAPs) and/or the NERC Act. Further information on BAPs can be found at:
- [Biodiversity SPD - South Cambs District Council](#)
 - [Cambridgeshire and Peterborough Biodiversity Group](#)
 - [UKBAP](#)
- 2.3 The South Cambridgeshire Biodiversity Action Plan proposes a varied range of actions in order to protect existing biodiversity and to achieve biodiversity gain. Habitat enhancement should aim to contribute towards BAP targets.
- 2.4 Tables 5 and 6 in appendix 5 detail Priority Species and Habitats for South Cambridgeshire. Other species and habitats may be added (or removed) as BAPs are reviewed.

Contribution to the UK Biodiversity Action Plan

- 2.5 The UK Government is a signatory to the Convention on Biological Diversity (1992) and seeks to meet its obligations under the convention through the biodiversity action planning process. Biodiversity Action Plans (BAPs) should be considered as the drivers for nature conservation across the UK, counties and districts for listed species and habitats.

- 2.6 In 2000 the Cambridgeshire BAP was launched. It was produced by the Cambridgeshire and Peterborough Biodiversity Partnership and lists those species and habitats considered to be of particular importance at the county level.
- 2.7 The Cambridgeshire BAP has been used to focus attention on Priority Species and Habitats of particular relevance to the district. This document consequently aims to contribute to the achievement of the Cambridgeshire BAP by providing further guidance with respect to South Cambridgeshire.

The South Cambridgeshire Biodiversity Resource

- 2.8 The district of South Cambridgeshire contains important habitats and species. The increase in the distribution of the otter throughout the 1990's can be considered as an indicator of the general health of the district's watercourses. The discovery of a population of the Barbastelle bat at Wimpole by the Cambridgeshire Bat Group led to the designation of the Eversden and Wimpole Woods as a Special Area of Conservation (SAC) under the UK Habitats Regulations, 1994. Large scale habitat creation projects such as the proposed Cambridgeshire Hundreds Woodland initiative and the National Trust's Wicken Fen Vision present examples of exciting opportunities to reverse some of the damage and habitat fragmentation of the past.
- 2.9 South Cambridgeshire is known to contain a broad range of statutorily protected species (refer to table 4). The habitat range of these species should never be considered to be static as species will move due to natural dispersal and / or environmental stresses.
- 2.10 In the past the largely rural nature of the district meant that wildlife could even find refuges within the villages. Species such as the great crested newt, barn owl and house sparrows were much more widespread. However, within villages, changing land-use and farming practice has placed increasing pressure upon a wide range of species. Small meadows, ponds and relatively quiet lanes have also been affected by change, and "unkempt" areas have been "tidied-up", often with a negative impact upon biodiversity. It is widely acknowledged that the opportunity to see and interact with biodiversity can enrich people's lives. It is therefore important to strive for the integration of wildlife within new developments.

- 2.11 English Nature (now Natural England) had undertaken a mapping exercise to display known information upon national Priority Habitats and protected sites. The information is presented on an interactive map entitled Nature on the Map ([MAGIC interactive mapping](#)). The map enables users to find information about protected sites and areas of semi-natural habitats. The map for South Cambridgeshire is presented in the SCDC Biodiversity Strategy.
- 2.12 It should be remembered that very little of the landscape that we see today has not been influenced by Man. However, recent decades have seen an increased rate of landscape change that has resulted in a significant loss of habitats including hedgerows, flower rich meadows, and wetlands. Other habitats, such as planted woodlands and grasslands are fragmented and are unlikely to ever receive the transfer of species that occurred in the past, thus their potential to become ecologically rich is limited without the positive intervention by conservationists or development schemes.
- 2.13 Biodiversity conservation is intrinsically linked with climate change. Many species rely on the seasonal patterns of our stable climate. As weather patterns subtly change or storm events become more frequent than certain species may experience stresses on their populations. Where species cannot move in order to adjust to rainfall patterns or periods of extreme temperature then they may suffer local extinctions. Habitat fragmentation is a real threat to biodiversity. In order to address this pressure large-scale habitat creation may become increasingly important. At the local level, the choice of traditional planting may need to be re-considered in order to deliver new habitats for the future.



Beech trees may suffer during drought periods due to the shallow nature of their roots. This could make the establishment of new beech woods difficult. Bluebells may be affected by the subtle change of spring weather patterns.

Chapter 3 The Development Process

Pre-Application: The Need for Up-To-Date Information

- 3.1 Planning staff welcome pre-application discussions. Such discussions may establish the potential impact of a development and help to outline the scope of survey and assessment needed to support an application.
- 3.2 Where the current level of biodiversity interest upon a site is unknown, and there are reasonable grounds to believe that the site may be used by a Priority Species, then an applicant shall be expected to undertake a site survey and assessment prior to the consideration of a development proposal. The information gained from the site survey and assessment should be up-to-date and sufficient to allow the development impact to be appropriately assessed. Failure to provide accurate environmental information will be a reason to refuse the registration of the planning application or will result in its subsequent refusal when considered against policy. This is because in order to protect and conserve species and habitats it is crucial that their distribution and interaction with the wider environment is understood.
- 3.3 Applicants should be aware that some developments may require the collation of ecological data, such as badger social group surveys, over an extended period of time in order to present the most suitable scheme of mitigation. The advance planning of ecological works should always be considered early on in a project.
- 3.4 The provision of compensatory habitats may also be required in advance of a development project. This is to ensure that the new habitat is of a suitable standard prior to the loss of the existing habitat.

Submission of A Planning Application: Development Guidelines

- 3.5 Development proposals should have regard to the following development guidelines:

Guideline 1: Site survey and assessment for Priority Species and Habitats	Example best practice approach: Surveying ponds and terrestrial habitat in advance of a development application for the presence of great crested newts. Desk based data searches may also be made through the Biological Records Centre.
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<p>Guideline 2: Protection of existing biodiversity</p>	<p>Example best practice approach: Development plans will show how features of value to biodiversity have been integrated into the design of a development, and how such features might relate to the biodiversity of the surrounding area (for example, wildlife corridors and greenways linking to the open countryside or the enhancement of watercourses within development sites).</p>
<p>Guideline 3: Enhancement of habitats</p>	<p>Example best practice approach: The restoration of a pond would provide an attractive feature within a development whilst also providing for a diverse range of species. Enhancement proposals should aim to contribute towards BAP targets or delivering aspects of the Countryside Enhancement Area concept.</p>
<p>Guideline 4: Mitigation against disturbance</p>	<p>Example best practice approach: If disturbance of a Priority Species or Habitat is unavoidable then a suitable mitigation scheme will need to be agreed. Where mitigation cannot take place on site, the applicant will be expected to enter into a planning agreement to re-create habitats off-site, and / or to make a financial contribution towards the management of nearby sites in order to offset the impact upon local biodiversity. In some cases, simply planning work on-site to avoid sensitive times of the year, such as the bird breeding season, may adequately address the issue. At other sites, the range of issues may be more complex and the input of a professional ecologist at an early stage is recommended.</p>
<p>Guideline 5: Compensation for Priority Species or Habitats</p>	<p>Example best practice approach: Where an impact is unavoidable, and mitigation alone cannot adequately protect a species or habitat then the provision of compensatory habitat will be expected whilst being proportional to the development scheme. The provision of compensatory habitat should be relevant to the loss that has occurred within the development site and should ultimately aim to provide an overall biodiversity gain. For example, if a pond is to be lost then two new ponds should be created, where an area of grassland is lost then a similar or larger area of wildflower grassland should be created. All created habitats are expected to be positively managed for at least ten years after their creation.</p>

Biodiversity Information to Support a Planning Application: Local Requirements for Priority Species Conservation

- 3.6 When undertaking development, the majority of sites, whether infill, greenfield or brownfield, will be considered as having potential to support biodiversity. Where a proposed development is likely to affect Priority Species, the applicant must submit a Priority Species Survey and Assessment.
- 3.7 If the application involves any of the development proposals shown in table 1 a Priority Species Survey and Assessment must be submitted with the application. Exceptions to when a survey and assessment may not be required are explained in the table. The survey should be undertaken and prepared by competent persons with suitable qualifications and experience (such as a member of the Institute of Ecology and Environmental Management) and must be carried out at an appropriate time and month of year, in suitable weather conditions and using nationally recognised survey guidelines or methods where available. Further information on appropriate survey methods can be found on the website of the Institute of Ecology and Environmental Management: Sources of Survey Methods - [CIEEM](#)
- 3.8 The survey may be informed by the results of a search for ecological data from the Cambridgeshire and Peterborough Biological Records Centre. The survey must be to an appropriate level of scope and detail and must:
- Record which species are present and identify their numbers (may be approximate).
 - Map their distribution and use of the area, site, structure or feature (such as for feeding, shelter, breeding).
- 3.9 The assessment must identify and describe potential development impacts likely to harm the Priority Species and / or their habitats identified by the survey (these should include both direct and indirect effects both during construction and afterwards). Where harm is likely, evidence must be submitted to show how:
- Alternative designs or locations have been considered.
 - Adverse effects will be avoided wherever possible.
 - Unavoidable impacts will be mitigated or reduced.
 - Impacts that cannot be avoided or mitigated will be compensated.
- 3.10 In addition, proposals are encouraged that will enhance, restore or add to features or habitats used by Priority Species. The assessment should also give an indication of how species numbers are likely to change, if at all, after development so as to establish whether there will be a net loss or gain.

3.11 The information provided in response to the above requirements are consistent with those required for an application to Natural England for a European Protected Species License. For further detailed information see: [Wildlife licences: when you need to apply](#)

3.12 Please be aware that:

- Applications that do not contain the necessary level of biodiversity information may not be validated by the District Council and may be returned to the applicant undetermined or further information will be requested.
- Applications that have failed to inform the District Council about the presence of a Priority Species and / or Habitat on a development site may be refused on the basis of failure to adequately address the biodiversity impact of the proposal.
- Applicants are strongly advised to discuss all potential environmental issues at the earliest stage possible with the District Council.



The formerly common house sparrow has undergone a rapid decline in recent years due to the loss of nest sites, cover and lack of suitable food. New developments can provide native planting to provide cover and food, and nest boxes can be erected.

Local Requirement for Priority Species: Criteria and Indicative Thresholds for When a Survey and Assessment is Required

Table 1	Species likely to be affected and for which a survey will be required
---------	---

Proposals for development that will trigger a Priority Species survey	Bats	Barn Owls	Breeding Birds	Gt. Crested Newts	Otters	Waters Voles	Badgers	Reptiles	Amphibians	Schedule 8 Plants	BAP Species
Proposed development which includes the modification, conversion, demolition or removal of buildings and structures (especially roof voids) involving the following:	-	-	-	-	-	-	-	-	-	-	-
<ul style="list-style-type: none"> all agricultural buildings (for example, farmhouses and barns) particularly of traditional brick or stone construction and/or with 	•	•	•	-	-	-	-	-	-	-	-

exposed wooden beams greater than 20cm thick												
• all buildings with weather boarding and / or hanging tiles regardless of location	•	-	-	-	-	-	-	-	-	-	-	-
• pre-1960 detached buildings and structures within 200m of woodland and / or water	•	-	-	-	-	-	-	-	-	-	-	-
• pre-1914 buildings within 400m of woodland and / or water	•	-	-	-	-	-	-	-	-	-	-	-
• pre-1914 buildings with gable ends or slate roofs, regardless of location	•	-	-	-	-	-	-	-	-	-	-	-
• all tunnels, kilns, ice-houses, adits, military fortifications, air raid shelters, cellars and similar underground ducts and structures	•	-	-	-	-	-	-	-	-	-	-	-

<ul style="list-style-type: none"> all bridge structures (especially over water and wet ground) 	•	-	-	-	-	-	-	-	-	-	-	-
Proposals involving lighting of churches and listed buildings or flood lighting of green space within 50m of woodland, water, field hedgerows or lines of trees with obvious connectivity to woodland or water	•	•	•	-	-	-	-	-	-	-	-	-
Proposals affecting woodland, or field hedgerows and/or lines of trees with obvious connectivity to woodland or water bodies	•	-	•	-	-	-	•	-	-	-	•	•
Proposed tree work (felling or lopping) and / or development affecting:	-	-	-	-	-	-	-	-	-	-	-	-
<ul style="list-style-type: none"> old and veteran trees that are older than 100 years 	•	-	•	-	-	-	-	-	-	-	-	•
<ul style="list-style-type: none"> trees with obvious holes, cracks or cavities 	•	-	•	-	-	-	-	-	-	-	-	•

• trees with substantial ivy cover	•	-	•	-	-	-	-	-	-	-	•
• trees with a girth greater than 1m at chest height	•	-	•	-	-	-	-	-	-	-	•
Proposals affecting gravel pits, quarries, cliff faces or caves	•	-	•	-	-	-	-	•	-	-	•
Major proposals within 250m* of a pond or Minor proposals within 100m* of pond (Note: A major proposals is one that is more than 10 dwellings or more than 0.5 hectares or for non-residential development is more than 1000m ² floor area or more than 1 hectare)	-	-	-	•	-	-	-	-	-	-	•
Proposals affecting or within 25m* of rivers, streams, ditches lakes, or other aquatic habitats such as reedbeds or fen	•	-	•	-	•	•	-	-	•	•	•
Proposals affecting 'derelict' land (brownfield sites),	-	-	•	•	-	-	•	•	•	-	•

allotments and railway land especially where piles of dumped materials are to be moved or disturbed											
Proposed development affecting any buildings, structures, feature or locations where <u>Priority Species are known to be present</u> **	•	•	•	•	•	•	•	•	•	•	•

Table adapted from version produced by ALGE 2007, Validation of Planning Applications

* Distances may be amended to suit local circumstance on the advice of the local Natural England team and / or Local Biodiversity Partnership.

** Confirmed as present by either a data search (for instance via the Biological Records Centre or as notified to the developer by the local planning authority, and/or by Natural England, the Environment Agency or other nature conservation organisation.

Exceptions for When a Full Priority Species Survey and Assessment May Not Be Required

- 3.13 A full Priority Species survey and assessment may not be required when:
1. Following consultation by the applicant at the pre-application stage where the LPA has stated in writing that no Priority Species surveys and assessments are required.
 2. It is clear that no Priority Species are present, despite the guidance in the above table indicating that they are likely, and the applicant is able to provide evidence with the planning application to demonstrate that such species are absent (for example, this might be in the form of a letter or brief report from a suitably qualified and experienced person, or a relevant local nature conservation organisation).
 3. It is clear that the development proposal will not affect any Priority Species present, then only limited information needs to be submitted. This information should, however:
 - a. demonstrate that there will be no significant effect on any Priority Species present; and
 - b. include a statement acknowledging that the applicant is aware that it is a criminal offence to disturb or harm protected species should they subsequently be found or disturbed.
- 3.14 In some situations, it may be appropriate for an applicant to provide a Priority Species survey and assessment for only one or a few of the species shown in the table above for example, those that are likely to be affected by a particular activity. Applicants should make clear which species are included in the assessment and which are not and why the exceptions apply.

Biodiversity Information to Support a Planning Application: Local Requirements for Designated Sites and Priority Habitats

- 3.15 The District Council will have regard to the protection of biodiversity at designated sites and to Priority Habitats. Where a proposed development is likely to affect such a site or habitat an applicant must submit a Biodiversity Site Survey and Assessment.
- 3.16 If the application is likely to affect any of the designated sites, Priority Habitats or biodiversity features listed in table 2 a survey and assessment for the relevant feature(s) must be submitted with the application. Exceptions to when a survey and assessment may not be required are explained in the table. The survey should be undertaken and prepared by competent persons with suitable qualifications and

experience (such as a member of the Institute of Ecology and Environmental Management) and must be carried out at an appropriate time and month of year, in suitable weather conditions and using nationally recognised survey guidelines or methods where available. Further information on appropriate survey methods can be found on the website of the Institute of Ecology and Environmental Management Sources of Survey Methods [REDACTED]

- 3.17 The survey may be informed by the results of a search for ecological data from the Cambridgeshire and Peterborough Biological Records Centre. Information on internationally and nationally designated sites can be found at:
[REDACTED]
- 3.18 The survey must be to an appropriate level of scope and detail and must:
- Record which habitats and listed Biodiversity Features are present on and, where appropriate, around the site.
 - Identify the extent / area / length present.
 - Map their distribution on site and/or in the surrounding area shown on an appropriate scale plan.
- 3.19 The assessment should identify and describe potential development impacts likely to harm designated sites, Priority Habitats, and listed Biodiversity Features. This should include both direct and indirect effects occurring during construction and after development. Where harm is likely, evidence must be submitted to show:
- How alternative designs or locations have been considered.
 - How adverse effects will be avoided wherever possible.
 - How unavoidable impacts will be mitigated or reduced.
 - How impacts that cannot be avoided or mitigated will be compensated.
- 3.20 In addition, proposals are encouraged that will enhance, restore or add to designated sites, Priority Habitats, or Biodiversity Features. The assessment should give an indication of likely change in the area (hectares) of Priority Habitat(s) on the site after development such as to whether there will be a net loss or gain.



Due to their biodiversity value old orchards have been added to the UK BAP.

Fragments of old orchards still occur in many villages and should be conserved or suitably integrated within with the landscape of new developments.

Local Requirements for Designated Sites and Priority Habitats: Criteria for When a Biodiversity Site Survey and Assessment is Required

Table 2 - Local Requirements for Designated Sites and Priority Habitats: Criteria for When a Biodiversity Site Survey and Assessment is Required

1. Designated sites (as shown on the LDF Proposals Map)

Internationally designated sites

- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Wetlands of International Importance (Ramsar site)

Nationally designated sites

- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)

Regionally and locally designated sites

- County Wildlife Site (CWS)
- Local Nature Reserve (LNR)
- Protected Road Verge (PRV)

2. Priority Habitats (Habitats of Principal Importance for Biodiversity under S.41 of the NERC Act 2006)

- Ancient and/or species-rich hedgerows
- Floodplain grazing marsh
- Fen, marsh, swamp and reedbeds
- Purple moor grass and rush pastures
- Lowland beech and yew woodland
- Lowland calcareous grassland (for example, species-rich chalk and limestone grasslands)
- Lowland heathland and / or dry acid grassland
- Lowland meadows (for example, species-rich flower meadows)
- Lowland mixed deciduous woodland (ancient woodland)
- Lowland wood-pasture and parkland
- Rivers and streams (for example, chalk streams)
- Standing open water and canals (for example, lakes, reservoirs, ponds, aquifer fed fluctuating water bodies)
- Wet woodland
- Traditional orchards

3. Other Biodiversity Features (as identified by the Cambridgeshire and Peterborough Biodiversity Partnership - see paragraph 84 ODPM Circular 06/2005))

- Secondary woodland and mature / veteran trees
- Caves and disused tunnels (for example, roosts for bats)
- Trees and scrub used for nesting by breeding birds
- Previously developed land with biodiversity interest (for example, brownfield sites)
- Urban green space (for example, parks, allotments, flower-rich road verges and railway embankments)

Table adapted from version produced by ALGE 2007, Validation of Planning Applications

Exceptions for When a Full Biodiversity Site Survey and Assessment May Not Be Required

- 3.21 A full biodiversity site survey and assessment may not be required when:
1. International and National Sites: The applicant is able to provide copies of pre-application correspondence with Natural England, where the latter confirms in writing that they are satisfied that the proposed development will not affect any statutory sites designated for their national or international importance.
 2. Regional and Local Sites and Priority Habitats: The applicant is able to provide copies of pre-application correspondence with the District Council's Ecology Officer or similar conservation professional, confirming that they are satisfied that the proposed development will not affect any regional or local sites designated for their local nature conservation importance or any other Priority Habitats or Biodiversity Features.

Determination of Planning Applications: Biodiversity Issues

- 3.22 Biodiversity is now established in planning policy as an important element within the decision-making process – a material consideration. Government guidance, PPS9, emphasises the importance of biodiversity and the requirement for development to positively enhance wildlife.
- 3.23 Development proposals provide many opportunities for building-in beneficial biodiversity features as part of good design. Planning policies, conditions and legal agreements can be used to maximise, and require, the provision of specific features for biodiversity.
- 3.24 Development proposals will be considered against the following Biodiversity Issues in order to appreciate how they have considered the requirements of PPS9 and LDF policies:

Table 3 - Biodiversity Issues

B1 - Protection, Enhancement, Creation, Restoration and Management of Biodiversity Habitats
B2 - Biodiversity Site Protection
B3 - Mitigation and Compensation
B4 - Planning Obligations
B5 - Protection of Wildlife Corridors
B6 - Protection of Ancient Woodland

B7 - Biodiversity Provision in the Design of New Buildings

B8 - Provision of Green Roofs and Walls

B9 - Maximising the Biodiversity Potential of Agricultural Land

3.25 Biodiversity Issue B1- Protection, Enhancement, Creation, Restoration and Management of Biodiversity Habitats. Development should:

1. Secure the protection, enhancement and management of natural and semi-natural landscapes and habitats together with the biodiversity that they contain, and to seek the restoration or creation of new wildlife habitats.
2. Secure the provision of appropriate public access to natural green spaces, particularly within or close to the villages.
3. Ensure that planning applications contain an adequate amount of information on a site's past and present biodiversity status in order to allow the impact of a proposal to be appropriately assessed.
4. Contribute to biodiversity gain as a means to achieve sustainable development.

3.26 Protection of Priority Species and Habitats - An example of a Priority Species of particular significance within the district is the occurrence of the Barbastelle bat (*Barbastelle barbastellus*), one of Britain's rarest bats. The species is protected on Schedule 5 of the Wildlife and Countryside Act, 1981, and on Annex IV of the EC Habitats Directive. The Directive is European law that provides for the creation of a network of protected sites known as Natura 2000. In the UK Special Areas of Conservation (SAC) are designated. The Eversden and Wimpole Woods SSSI also represents the SAC boundary. This area is shown on Map 1 and shows the wide area of land that is currently believed to support the bats outside of the SAC which is integral to the species' long-term survival within the district. Development proposals should aim to retain mature trees, woods, and copses, and to provide new habitat linkages, through new tree planting and the integration of existing hedgerow networks with new ones. Where a development is likely to cause an adverse effect, either alone or in combination, upon the special features of the SAC it shall be subject to rigorous scrutiny. Where a proposal is likely to have a significant effect on any European site it will be subject to an Appropriate Assessment.

3.27 The control of invasive plants - Vigorous or invasive non-native plant species can impact negatively upon biodiversity by out-competing native flora. This can then lead to a negative impact upon fauna by limiting the available feeding and cover areas. Species of particular concern include Japanese knotweed (*Fallopia japonica*),

Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*), parrot's feather weed (*Myriophyllum aquaticum*), New Zealand pygmy weed (*Crassula helmsii*) and Chinese water fern (*Azolla filiculoides*). Where proposals at development sites are likely to result in the spread of non-native invasive plant species the development may not be permitted until suitable measures have been agreed and / or undertaken to control the invasive species. It should be noted that it is an offence to spread, or cause to grow, certain plant species listed on Schedule 9 of the Wildlife and Countryside Act, 1981.



Japanese knotweed



Giant hogweed

- 3.28 Equestrian activity - The increased use of land for equestrian purposes can bring benefits if properly planned and sensitively managed. The use of grassland sites by horses can sustain their botanical interest. However, there is also much potential to damage the interest of grassland sites through overgrazing. Over-grazing may lead to the proliferation of certain weed species, increased soil erosion and diffuse pollution. Development proposals for stabling or for Change Of Use (COU) to paddock land will be subject to an appropriate level of scrutiny.
- 3.29 Enhancement of existing biodiversity assets through development - The creation and enhancement of habitats adjacent to existing biodiversity rich areas to complement and provide a buffer for biodiversity will be sought. Habitat creation and enhancement towards the achievement of targets in the Biodiversity Action Plans will also be sought.
- 3.30 There is also considerable scope for the use of green building methods within the landscaping of new developments. Buildings can be screened using native shrubs and hedges. They can also be made attractive to biodiversity by using climbing plants on walls, fitting window boxes or installing green roofs and walls. Plants can cleanse

particles from the air thus improving local air quality. Channelised or culverted watercourses can be restored to provide a more natural profile to rivers and streams whilst increasing the range of aquatic habitats, with the additional benefits of increased flood storage capacity and improvements to water quality. This may result through the careful integration of a Sustainable Urban Drainage System (SUDS) within the site.

- 3.31 The use of Article 4 Directions - In particularly sensitive areas such as within the Green Belt or within Conservation Areas, the District Council will consider the use of Article 4 Directions of the Town and Country Planning (General Permitted Development) Order 1995 which would remove certain Permitted Development rights. The purpose will be to control development that is of potential harm and maximise opportunities for biodiversity within new developments.
- 3.32 Development (that might otherwise be Permitted Development) that can be harmful to watercourses includes the construction of outhouses, boathouses, gazebos, jetties, bank stabilisation, decking or sheds that reduce or destroy the natural bankside habitat. Lighting and fencing can also impact upon the movement of species such as otter or bats.
- 3.33 **Garden extension** - It is important to consider the impact of garden extensions into the open countryside. In particular the physical and visual impact on the wider landscape character area will need to be considered. Such a change will normally require planning consent for a Change Of Use (COU). Species and features associated with a farmland landscape may not be replicable within the garden environment. These issues shall be considered when determining the biodiversity impact of a COU planning application to create or extend gardens.
- 3.34 Applicants, where appropriate, will be required to plant native species hedges to define boundaries in open countryside as opposed to the erection of fences that may hinder the natural movement of animals.



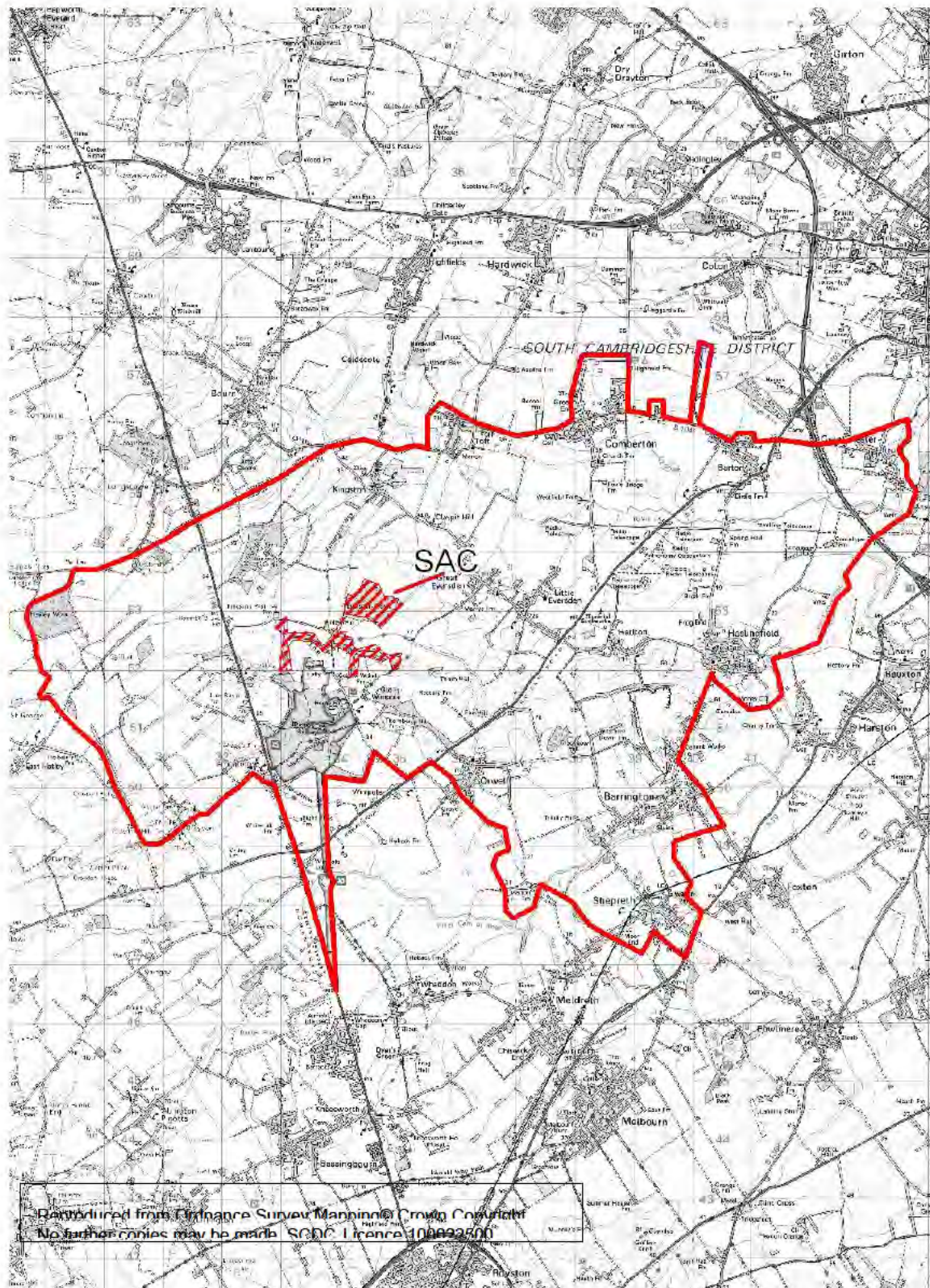
Garden extensions can provide an opportunity to diversify arable landscapes. Fencing can be softened through the use of native hedging. Wildflower grass mixes can be sown to increase the biodiversity value of new grasslands.

- 3.35 Development in gardens - The protection of species and their habitats is an important part of sustainable development. Much of the open space within the built-up areas of villages constitutes domestic gardens or curtilage land. These sites may support a wide array of wildlife especially where a diverse mix of flowerbeds, shrubs and tree cover is provided. A wide diversity of native and non-native flowering and berry bearing plants can also be particularly attractive to biodiversity especially invertebrates such as moths. Gardens ponds will further increase the value of a garden for biodiversity by drawing in amphibians, birds and mammals.
- 3.36 Areas with long gardens or large blocks of gardens and areas with a diversity of habitats can support Priority Species, such as the great crested newt or house sparrow. Large or long gardens are generally less disturbed by people and may contain a wider range of habitats such as a pond, formal areas and unmanaged areas. Small gardens, however well landscaped, tend to support a more limited range of wildlife. It is therefore possible that certain back garden blocks may provide the best habitat within a local area. In such cases the retention of habitat for biodiversity will have to be carefully integrated within development proposals.
- 3.37 Habitat creation and management - There will always be some opportunity within development proposals to create and manage biodiversity. Development proposals that deliver public open space which provides new wildlife habitats with clear management objectives will be encouraged. There is a particular need for such initiatives within or near to villages where the desire for increased access to nature is greatest. Access can be improved by making places more attractive and safer, enhancing, or creating, new accessible wildlife habitats. In the few cases where there are habitats or species that are particularly sensitive to disturbance, such as badger setts, specific mitigation and / or specific management proposals will be required to be presented prior to the commencement of development.



Stockbridge Meadows Riverside Park has been provided by Manor Kingdom Ltd for Melbourn Parish Council through a legal agreement attached to a planning decision.

Map 1 - Barbastelle bat area of importance for Eversden and Wimpole Woods SAC



3.38 Biodiversity Issue B2 - Biodiversity Site Protection

Sites will be considered important for biodiversity where they:

1. Are European protected sites (SPAs, SACs or Ramsar sites).
2. Are Nationally protected sites (SSSIs, NNRs or AONB).

3. Are County protected sites (CWS).
4. Provide for the presence of a Priority Species and / or Habitat.
5. Have the potential to assist in the delivery of National, County or District Biodiversity Action Plan targets.
6. Provide for the quiet enjoyment of biodiversity within semi-natural areas of an otherwise built environment (LNR).
7. Act as an educational resource (LNR).
8. Clearly act as a stepping-stone, wildlife corridor or refuge area within an otherwise built environment.
9. Have a demonstrable level of public involvement in the management of the site.

Development proposals, where appropriate, shall be expected to provide appropriate access to Biodiversity Sites. The most important Biodiversity Sites are shown on the Proposals Map within the LDF. Other such sites may occur through the process of site assessment as development proposals come forward and shall be added to the Proposals Map where necessary.

- 3.39 Within South Cambridgeshire there will be a tiered approach to biodiversity conservation at known sites. The two broad categories shall be Statutory Protected Sites (to be known as statutory sites) and Non-statutory Protected Sites (to be known as non-statutory sites).
- 3.40 Statutory sites - In line with PPS9, statutorily protected sites constitute a material consideration in all development proposals. Policy NE/7 of the Development Control Policies section of the LDF details the Council's approach to such sites. Sites that fall within policy NE/7 include Special Areas of Conservation (SAC), Special Protection Areas (SPAs), Ramsar sites and Sites of Special Scientific Interest (SSSI). Full details of the special interest of SAC's and SSSI's of particular interest to South Cambridgeshire can be obtained from Natural England at [Natural England Access to Evidence - Special Areas of Conservation Map](#)
- 3.41 Non-statutory sites - the most important non-statutory site is the County Wildlife Site (CWS). The Cambridgeshire and Peterborough County Wildlife Site Handbook provides a guide as to how the CWS system operates in Cambridgeshire. Further information regarding CWS and copies of the handbook can be obtained from [Cambridgeshire and Peterborough Wildlife Handbook](#). The conservation of biodiversity across the district as a whole is an issue that requires a closer focus at the local level and a certain amount of careful balance in order to afford protection without unnecessarily restricting development. It has become apparent that there is a

need to identify areas within the villages that provide for local biodiversity and also for people's enjoyment of local biodiversity.

3.42 Non-statutory sites shall contribute to the overall conservation of biodiversity at the local level by retaining habitats and features important to Priority Species. Many parishes have relatively small areas that are managed by local people for the benefit of biodiversity. Due to their small size or limited number of species these areas may not fulfil the criteria used to designate statutory sites, however they may have an inherent value at the local level. Such sites should also be protected from inappropriate development where possible. Non-statutory sites frequently provide areas where people engage with and experience biodiversity, and thus contribute towards people's quality of life.

3.43 Non-statutory sites incorporate the following types of sites:

- County Wildlife Sites (CWS)
- Local Nature Reserves (LNR)
- Protected Road Verges (PRV)
- Village Green Spaces (VGS)
- Pocket Parks (PP)

For information on the above sites please refer to the SCDC Biodiversity Strategy.

3.44 **Open space targets** – The policy requirements of the adopted Development Control Policies DPD Policy SF/11 “open space standards” will always be the primary driver for open space provision. However, in order to encourage further access to biodiversity areas through development Natural England's Accessible Natural Green Space Target (ANGST) will be aspired to. The provision of new LNRs is one such mechanism to achieve the target and deliver necessary quality open space for experiencing biodiversity. The ANGST criteria as set out in “Assessing needs and opportunities: a companion guide to PPG17” requires the following:

- Every home to be within 300m / 5-minute walk of a natural greenspace site of at least 2 ha.
- Every home to be within 2km of >20ha natural greenspace site.
- Every home to be within 5km of a >100ha natural greenspace site.
- Every home to be within 10km of a >500ha natural greenspace site.

- 3.45 Preservation of non-statutory sites - Non-statutory sites in combination with statutory sites represent a strategic framework for the conservation of biodiversity. The District Council will give an appropriate level of protection to non-statutory sites to ensure the continued existence of their main features of interest, and to ensure that the contribution such sites have towards the achievement of Biodiversity Action Plan targets is not unnecessarily compromised.
- 3.46 Applications for development within, or near to, a non-statutory site will be expected to be informed by up-to-date information and will be subject to assessment with particular account taken of any direct or indirect effects on the main features giving rise to the designation. Indirect effects can include increased use and disturbance, hydrological changes (for example due to increased hard surfaces or underground development), an increased level of noise, pollution, shading and lighting disturbance. Adverse effects on a site include effects on the species that it supports. This principle shall also apply to the effects on people's opportunity to enjoy and experience nature on a site. Development on or adjacent to an important site can have an adverse impact upon people's enjoyment of the site's biodiversity and landscape value, for example through intrusive visual features, restrictions on access or a significant increase in noise.
- 3.47 If significant harm cannot be prevented, adequately mitigated against, or compensated for, the planning permission will be refused.
- 3.48 Biodiversity Issue B3 - Mitigation and Compensation
- Where, development results in significant harm to a Biodiversity Site or a Priority Species (or Habitat) appropriate planning conditions or obligations will be required to adequately mitigate and / or compensate for the harm.
- 3.49 Mitigation consists of measures taken to avoid or reduce negative impacts on species or habitats. Measures may include: locating a development and its working areas and access routes away from areas of high ecological interest, fencing-off sensitive areas during a construction period, or timing works to avoid sensitive periods. Measures may be employed to protect a habitat from the operational impacts of a development such as a reedbed designed and constructed to prevent silt and road run-off from entering a watercourse.
- 3.50 Compensation is the process of providing species or habitats benefits specifically to make up for the loss of, or permanent damage to, biodiversity through the provision of replacement areas. Any replacement area should be similar to or, with appropriate

management, have the ability to reproduce the ecological functions and conditions of the resource that has been lost or damaged.

- 3.51 Compensation shall be considered as the last resort, with priority always given to protection in entirety followed by appropriate mitigation. Where the benefits of a proposal are demonstrated to clearly outweigh the importance of biodiversity conservation, conditions will be imposed and obligations negotiated with the aim of securing compensatory habitat creation to prevent biodiversity loss.
- 3.52 Mitigation schemes may require advance surveys in order to assess species' numbers and habitat quality. This work may only be possible at certain times of the year due to the seasonal nature of species and habitats.
- 3.53 Some forms of mitigation may be relatively simple such as avoiding the bird breeding season whilst undertaking vegetation clearance. Other requirements such as those associated with avoiding harm to bats during building works at a known bat roost may be more complex. Such works may require the input of a licensed ecologist to oversee the work.
- 3.54 Some compensatory measures can be relatively inexpensive in the scheme of a development, such as the provision of new swift nest sites. Other measures may require the construction of entirely new features, such as a bat roost building and may require planning consent in their own right.
- 3.55 A compensatory habitat will preferably replace "like with like". Where this is impossible more extensive new habitat will be sought that replaces the loss with a similarly valued habitat or biodiversity feature. Likewise, measures may be required that:
1. Secure the future of a retained site as an LNR or similar.
 2. Provide for its long-term beneficial management.
 3. Provide public access to a new habitat.
- 3.56 The SCDC Biodiversity Strategy provides further information on methods of mitigation in section 4.4 tables 10 and 11.



Protective measures in place to conserve a population of common lizards following their translocation within Melbourn.

3.57 Biodiversity Issue B4 - Planning Obligations

The District Council will seek to use planning obligations under Section 106 of the Town and Country Planning Act, 1990, in order to ensure the protection, restoration, management and further enhancement of biodiversity and people's accessibility to sites for the appreciation of biodiversity.

Planning obligations shall be considered as an important tool for the delivery of green infrastructure in line with the identified Countryside Enhancement Areas and the Cambridgeshire Green Infrastructure Strategy.

3.58 Securing biodiversity gain - Planning obligations are an important tool in securing mitigation and compensation for losses of biodiversity caused through development, and also for securing biodiversity enhancements. In seeking biodiversity gain priority will be given to actions that help achieve Biodiversity Action Plan targets. In particular, enhancements to create appropriate access to Biodiversity Sites will be sought, especially those where landowners or organisations undertake, or increase opportunities for, environmental education; or provide areas where people engage with and experience biodiversity and thus contribute to people's quality of life. Planning obligations relating to the creation of new wildlife habitats will usually include a provision for the ongoing management of new sites for at least ten years.

3.59 Assessing contribution requirements - Unlike other service areas, contribution requirements for biodiversity features cannot be solely based on housing units or any other form of development. Instead assessments will be made on a case-by-case basis in the context of wider viability considerations, taking account of:

1. The effect of a proposal on any existing Biodiversity Features, and upon Priority Species and Habitats.
2. The opportunities provided by a proposal for biodiversity, taking account of the location, type, scale and composition of the development.


3.60 There is no minimum development threshold. Whenever development falls into either category in 3.60 it will be necessary to implement suitable mitigation and / or enhancement measures and, where appropriate, to make provision for such measures off-site.


3.61 The SCDC Development Control Policy DPD has identified a broad approach to countryside enhancement and presents it in Policy NE/5 Countryside Enhancement Areas. Similarly, the Cambridgeshire and Peterborough Biodiversity Partnership has also produced its 50 Year Vision Map (refer to the SCDC Biodiversity Strategy).

- 3.62 Countryside Enhancement Areas apart from their habitat value, have the potential to provide accessible open spaces where people can experience the countryside close to home. This has the potential to contribute to people's quality of life. A greater provision of accessible sites spread across the district is required to relieve the pressure upon established "honey pot sites" such as Grantchester Meadows and Wandlebury Country Park.
- 3.63 Examples of Countryside Enhancement Areas where significant projects are already underway include the West Cambridgeshire Hundreds Project (Wildlife Trust and landowners), and the Coton Countryside Reserve (Cambridge Preservation Society), the Wicken Fen Vision (National Trust) and the Fen Drayton Lakes Projects (RSPB). These projects should be considered as prime examples of countryside enhancement projects that will provide significant areas of land for both people and biodiversity, thus meeting the aim of green infrastructure provision.
- 3.64 Establishing enhancement targets - The SCDC Biodiversity Strategy had established a broad range of potential habitat creation initiatives and proposed Countryside Enhancement Areas. The map of the Countryside Enhancement Areas is presented over the page as Map 2. Similarly, the Cambridgeshire Green Infrastructure Strategy identified the locations of fragile habitats; identified current and future areas of importance for biodiversity; established mechanisms for landscape and biodiversity restoration; and produced a framework plan to assist in its long-term delivery. The Green Infrastructure Strategy identified areas that are deficient in biodiversity and countryside access. Consequently, a range of concept projects have been prioritised for delivery. The use of planning obligations will be a key means of taking forward the Green Infrastructure Strategy where there is a clear relationship between a project and a proposed development. For example, where a development site results in the loss of grassland and a nearby project aims to re-create semi-natural grassland then financial support for the enhancement project may be sought.
- 3.65 The Green Vision is the county's combined response to the need for a green infrastructure strategy and was produced by Cambridgeshire Horizons in 2006. It presents a 20-year plan to improve the quality of life for residents of the county. It seeks to enhance the environment for both people and wildlife and respond to the planned population growth by identifying those areas most in need of environmental improvements. It can be viewed at [Cambridge Horizons Green Infrastructure Strategy](#)

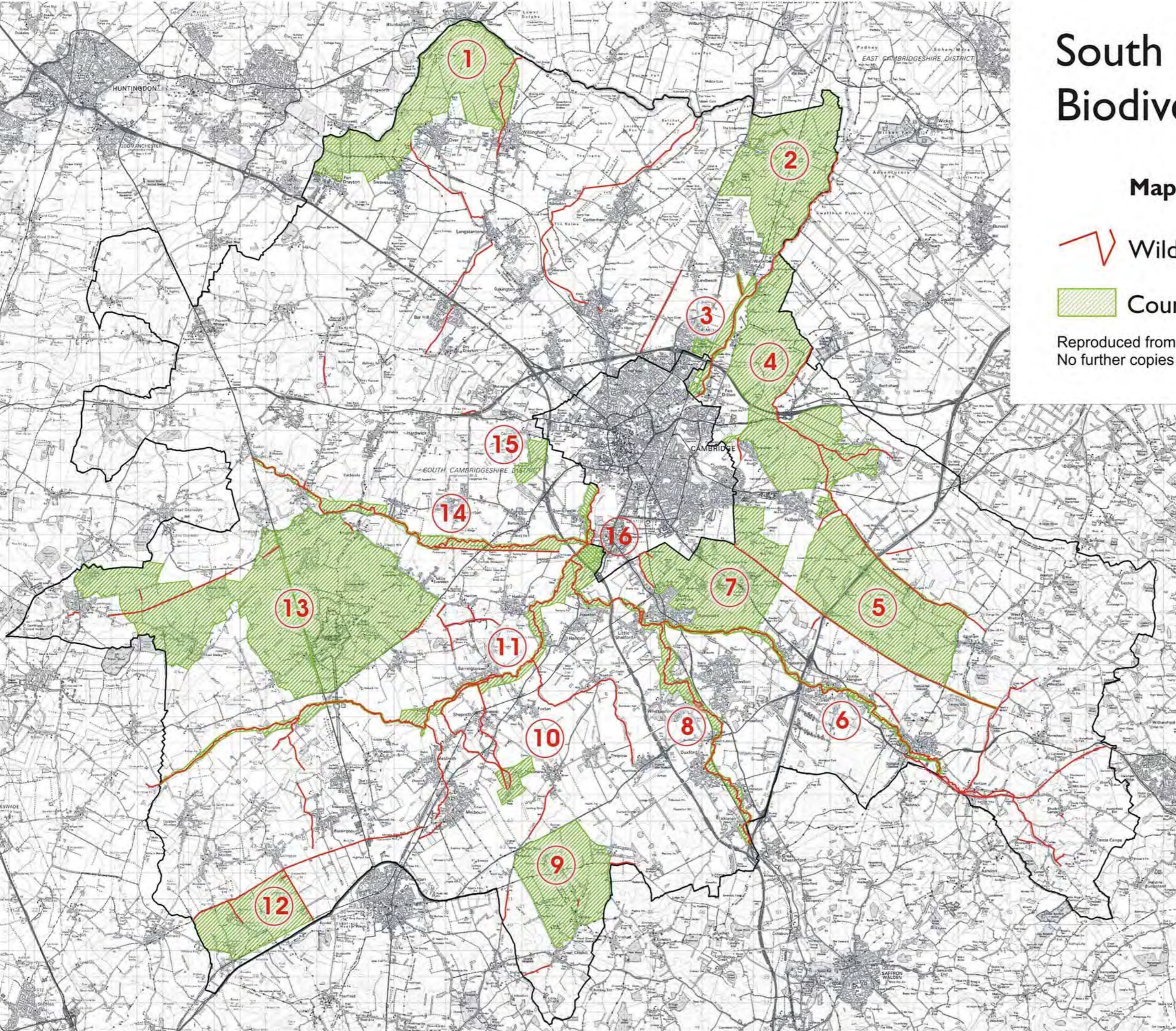
South Cambs Biodiversity SPD

Map 2

 Wildlife Corridors

 Countryside Enhancement Areas

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CEA ref. no.	Location description	Target habitat
1	Fen Drayton to Willingham, River Ouse corridor.	Wetland habitats, inc. fen and wet grassland
2	Denny Abbey, A10 to Lower Cam corridor	Wetland habitats, inc. fen and wet grassland.
3	Milton to Waterbeach, River Cam corridor.	Wetland habitats, inc. fen and wet grassland.
4	Wicken Fen Vision Area to Great Wilbraham.	Wetland habitats, inc. fen and wet Grassland. Dry grassland, inc. chalk and neutral grassland.
5	Fleam Dyke to Roman Road.	Chalk grassland.
6	River Granta corridor.	Wetland habitats, inc. fen and wet grassland.
7	Cherry Hinton to Great Shelford.	Chalk grassland.
8	Upper River Cam corridor	Wetland habitats, inc. fen and wet grassland.
9	Great Chishill to the A505.	Chalk grassland.
10	Fowlmere Nature Reserve area	Wetland habitats, inc. fen and wet grassland. Dry grassland, inc. chalk and neutral grassland.
11	River Rhee corridor.	Wetland habitats, inc. fen and wet grassland.
12	Morden Grange.	Woodland, inc. grassland specific to varying geology.
13	Gamlingay to Wimpole.	Chalk Grassland.
14	River Bourn corridor.	Wetland habitats, inc. Fen and wet grassland
15	Coton Farming and Wildlife Reserve	Farmland habitat, inc. rivers and wet grassland.
16	Grantchester Meadows	Grassland habitat, inc. pollard Willows and river.



The RSPB's Fen Drayton Lakes Project will improve the site for wildlife whilst enhancing public access. The work to date has been funded by the Government's Growth Area Fund, however future improvements could be delivered through S106 agreements.

3.66 Biodiversity Issue B5 - Protection of Wildlife Corridor

Development proposals will be expected to contribute to the enhancement of biodiversity. Where a contribution to off-site works is requested regard will be had to the identified network of Wildlife Corridors and green infrastructure projects for the district.

A Wildlife Corridor shall be a site, feature or combination of features within the landscape that form linkages between Biodiversity Sites or have been identified as a regularly used route or flight path for a Priority Species within the wider landscape.

3.67 Purpose of Wildlife Corridors - Conservation of the district's biodiversity cannot be achieved solely by the protection of Biodiversity Sites (possibly fragmented sites). It should also take account of the value of other biodiversity features within the district such as rivers, ditches, hedgerows, ponds and woods which all provide valuable habitat. Regulation 37 of the UK Habitats Regulations draws specific attention to the management of such features in order to sustain biodiversity. Green spaces together with Biodiversity Sites may link together habitats, forming wider biodiversity networks. Green spaces adjacent to such sites may make them more resilient to pressure from overuse or climate change. Corridors will act as linkages between sites permitting the movement of some animals and plants. This may allow some animals to undertake movements between the different habitats that they require for survival, for example, great crested newts dispersing to land from breeding ponds. Wildlife Corridors may also enable species to re-colonise former habitats.

3.68 Wildlife Corridors are presented on Map 2 (after 3.66)

3.69 Water-based corridors - Rivers, streams and ditches are perhaps the most obvious and important Wildlife Corridors within the district. Where considered significant they have been identified as Wildlife Corridors in the SCDC Biodiversity Strategy and form the basis of a wider network of natural habitats worthy of protection. In addition to providing key landscape settings they provide important semi-natural habitats for a

wealth of biodiversity. Protected species such as the otter and water vole find habitats upon many of the rivers. Within an intensively farmed landscape, watercourses assist in species dispersal and migration. It is therefore essential to maintain the quality of these environments and to carefully balance public access.



The River Shep acts as a wildlife corridor between Fowlmere Nature Reserve and the River Rhee allowing otters to move between sites.

3.70 Roadside verges - Roadside verges constitute a significant area of grassland within the district. Due to their linear nature, road verges also have potential to act as Wildlife Corridors especially when associated with features such as hedgerows, tree belts or ditches. A series of Protected Road Verges (PRVs) exist and may act as refuge areas for uncommon species. Background information is available from the County Council's Biodiversity Officer, but for more detailed information on sites please contact the Cambridgeshire and Peterborough Biological Records Centre. Information is also available at [Cambridgeshire & Peterborough Environmental Records Centre](#)

3.71 Biodiversity Issue B6 - Protection of Ancient Woodland

The District Council will not grant planning consent for development that would result in the loss of ancient woodland or its deterioration as a result of a planning consent.

The District Council will expect any development that may have an impact on the biodiversity value of an ancient woodland to mitigate any adverse impact, and to contribute to the woodland's management and further enhancement via planning conditions or planning obligations. Ancient woodland shall be identified by having regard to the presence and combination of Ancient Woodland Indicator Species (as presented in the "Cambridgeshire County Wildlife Sites Selection Criteria", Cambridgeshire Biological Information Services, 1997).

3.72 Retention of ancient woodland - The SCDC Biodiversity Strategy has defined what an area of ancient woodland is. Ancient woodland once lost cannot be recreated. PPS9 states quite clearly that local planning authorities should identify areas of ancient woodland and resist granting permission for developments that would result in the

loss or deterioration of the woodland habitat. The SCDC Biodiversity Strategy shows known ancient woodlands upon its Proposals Map 4.

- 3.73 Veteran trees - English Nature defined a veteran tree as: A tree which, because of its great age, size or condition is of exceptional value culturally, in the landscape or for wildlife.
- 3.74 Some trees are clearly old and would instantly be recognisable as veteran or ancient. Others may not grow to a great size or reach a great age, but they may be veterans for their species, such as large pollard willows or fruit trees within an old orchard.
- 3.75 Veteran trees found outside ancient woodland are particularly valuable for biodiversity due to the large amount of deadwood that they may contain. Deadwood is important for invertebrates and rot holes may provide nest sites for birds or roosts for bats. The retention of veteran trees within development sites shall be encouraged where they present no unacceptable safety risks. Where trees have to be removed the deadwood will be retained on site where possible.



Veteran trees such as this willow pollard are important in respect of their biodiversity and landscape value. Once these trees are lost, they may take many decades or even hundreds of years to be replaced. PPS9 encourages the conservation of such trees within development proposals.

3.76 Biodiversity Issue B7 - Biodiversity Provision in the Design of New Buildings

The District Council will expect:

1. That on all major housing developments 50% of the dwellings will have features such as bird, bat or insect boxes provided in close association with the properties. On all other sites suitable provision for biodiversity enhancements shall be negotiated to achieve a similar standard.

2. That appropriate new wildlife habitats will be incorporated into landscaping schemes and the general layout of the built environment.
 3. Development proposals to have regard to the biodiversity already present within a development site and to identify opportunities to maximise the provision for biodiversity within new buildings.
- 3.77 Net increase in biodiversity - Design for biodiversity is a key test of sustainable development and offers many opportunities for innovative design in order to achieve Biodiversity Action Plan targets. PPS9 also states that local planning authorities should maximise opportunities for building-in beneficial biodiversity features as part of good design.
- 3.78 Coping with higher density - Higher density built environments can be exploited to create habitats on walls, balconies, roof terraces and decks. Distinct microclimates can be found in and around buildings, with varying levels of daylight, wind, temperature and moisture. This requires the selection of appropriate native plants that are adapted to each distinct microclimate. Additionally, the careful selection of more exotic species may provide extended flowering periods and increased yields of berries.
- 3.79 Climbing plants can be encouraged to colonise walls creating habitats for birds, insects and small mammals. They can also enhance the visual appearance of buildings, as well as providing cooling and insulation.
- 3.80 Habitat mosaics can be creatively incorporated within landscaped areas of buildings or used to make communal spaces more interesting and distinctive. Private gardens, balconies and roof terraces can also be a haven for biodiversity. The provision of wildlife features such as birdbaths and feeders, bat or hedgehog boxes can act as catalysts to encourage a greater interest in biodiversity.
- 3.81 The erection of specialist bird, insect and bat boxes can provide shelter for a wide range of species where the improved build of modern developments may have removed former crevices and holes. Swifts, house sparrows and starlings are three bird species that can easily be catered for with specialist bird boxes. Additionally, simple measures such as lifting fences 150mm off the ground may allow hedgehogs to make use of new garden spaces. Similarly, the provision of dropped kerbs (or their total exclusion where not absolutely necessary) will assist the movement of small animals such as toads along their migration routes. The replacement of open drains and gully pots with sustainable urban drainage systems (SUDS) will also reduce the number of animals becoming trapped in drains.

- 3.82 SUDS can be particularly beneficial in higher density areas due to the dual land use that they can offer. The natural features offered by grass swales, infiltration strips, reedbeds and ponds will provide habitats for amphibians, birds, mammals and insects whilst also contributing to landscape settings and possibly open space requirements. The Design Guide SPD will provide further details on SUDS.
- 3.83 The success of wildlife areas or SUDS will depend on their proper understanding and management. Where such features are created an applicant may be expected to provide a suitable management statement or management plan. The level of detail is likely to include:
1. A description of the area including a map.
 2. Species and habitat targets.
 3. Management prescriptions.
 4. Persons responsible for undertaking the management.
 5. Means of reviewing the management plan.
- 3.84 For further examples of the incorporation of biodiversity into developments and for habitat creation refer to the SCDC Biodiversity Strategy section 4.3.



The creation of this osier greenway at Cambourne brings distinctive design, open space and biodiversity gain to the housing estate.



The use of ditches and wildflower meadows softens the impact of hi-tech office buildings at Granta Park.



Housing at Lamb Drove, Cambourne, has successfully integrated SUDS adjacent to footpaths and open space. The wetland features provided habitats for amphibians and invertebrates.



Bird boxes can be provided for house sparrows that attach to houses and garages (left) or they can be built-in to walls to provide for flycatchers, robins, or black birds (right). Climbing plants can be added for further cover.



Many specialist nest and bat boxes can be purchased. These swift brick-boxes are being built into dwellings in New Barnet for the Notting Hill Housing Trust.

3.85 Biodiversity Issue B8 - Provision of Green Roofs and Green Walls

The District Council shall adopt the following approach:

The provision of green roofs and walls will be encouraged as a means to maximise biodiversity particularly where the opportunities for ecological enhancement of a site area are limited and where such measures will deliver landscape enhancement.

3.86 Green roofs and walls can provide areas for biodiversity within high-density sites or those where habitat provision at ground level is simply not practicable. Green roofs can grow a variety of plant types depending on the roof design and its aspect. Commonly succulent plants of the sedum type are grown; however, grass and wildflower roofs are possible. A similar approach is now being developed for the

provision of vegetated green walls where prefabricated systems are being used to clad walls in order to provide a suitable growing medium.

- 3.87 Green roofs and walls can be beneficial for biodiversity by providing “stepping stones” within development sites. They can replicate the exposed surfaces of brownfield sites that are important for invertebrates and provide feeding areas for birds as well as contributing to the overall health of the environment. Sky larks have been recorded using green roofs on large factories where the wide-open space mimics conditions found at ground level.
- 3.88 In addition to providing opportunities for biodiversity, green roofs can also provide the following benefits: water attenuation by reducing run-off rates, increase of thermal insulation and improvement of air quality by reducing the level of airborne particulates. Further information can be found at [REDACTED]



Orchard Park Community Centre



A private building using green roof techniques to lessen the visual impact.

3.89 Biodiversity Issue B9 - Maximising the Biodiversity Potential of Agricultural Land

The District Council shall adopt the following approach:

1. When considering proposals for the change of use or diversification of farmland, particular consideration shall be given to the potential for impact upon Priority Species and Habitats.
2. New agricultural developments will be expected to make provision for typical farmland species, particularly Priority Species.

3.90 Biodiversity on farms - The district of South Cambridgeshire is still a largely rural district with open farmland constituting a very noticeable proportion of the landscape.

The farmland landscape, whether it be arable or pastoral, is also important for biodiversity. Until recently the rare stone curlew could still be found in the chalk belt in the south east of the district. On the fen edge nationally important numbers of birds, such as the golden plover may be observed in winter months. Rare arable plants such as the Venus's looking glass can be found on field margins. Consequently, farmland could be considered as the most extensive biodiversity resource of the district. However, due to the pressures of increasing land use and the past needs of intensive cultivation, the farmland of the district in places is under severe stress.

3.91 With consideration to the points above, farmland shall not be viewed as a landscape devoid of biodiversity. Appropriate surveys may be required in order to fully assist the evaluation of a development impact. The loss of farmland habitats may not always be suitably compensated for within modern developments.



The farmland landscape of the East Anglian Chalk Natural Area looking towards Great Criswell (above) provides visual interest and habitat diversity. Arable plants (left) of field margins provide nectar for invertebrates and seeds for farmland birds.

Appendix 1 Local Development Framework Policies Supplemented by the Supplementary Planning Document

Development control policies development plan document

DP/1 Sustainable Development – in particular part o

DP/2 Design of New Development – in particular parts b, k and l

DP/3 Development Criteria – in particular part o

GB/2 Mitigating the Impact of Development in the Green Belt

GB/3 Mitigating the Impact of Development Adjoining the Green Belt

GB/5 Recreation in the Green Belt

Natural Environment Objectives – in particular objective NE/c

NE/4 Landscape Character Areas

NE/5 Countryside Enhancement Areas

NE/6 Biodiversity

NE/7 Sites of Biodiversity Importance

CH/1 Historic Landscapes

Policy NE/6 Biodiversity

1. New development should aim to maintain, enhance, restore or add to biodiversity. Opportunities should be taken to achieve positive gain through the form and design of development. Where appropriate, measures may include creating, enhancing and managing wildlife habitats and natural landscape. The built environment should be viewed as an opportunity to fully integrate biodiversity within new development through innovation. Priority for habitat creation should be given to sites which assist in achieving targets in the Biodiversity Action Plans (BAPs).
2. The District Council will refuse development that would have an adverse significant impact on the population or conservation status of protected species or priority species or habitat unless the impact can be adequately mitigated or compensated for by measures secured by planning conditions or obligations.
3. Where there are grounds to believe that a proposal may affect a protected species or priority species or habitat, applicants will be expected to provide an adequate level of

survey information to establish the extent of the potential impact together with possible alternatives to the development, mitigation schemes and / or compensation measures.

4. New development will have regard to the impact, either direct or indirect, of a proposal on people's opportunity to enjoy and experience nature on a site together with opportunities to improve public access to nature in addition to understanding local environmental characteristics.
5. Previously developed land will not be considered to be devoid of biodiversity. The re-use of such sites must be undertaken carefully with regard to existing features of biodiversity interest. Development proposals will be expected to include measures that maintain and enhance important features whilst incorporating them within any development of the site.
6. Exceptionally, where the economic or social benefits of a proposal outweigh harm to an important site or species, the approach will be first to avoid or minimise the harm, then to seek mitigation of the impact, and finally to secure appropriate compensation for any residual impact in order to ensure no net loss of biodiversity. Planning conditions and obligations will be used as appropriate to secure this.
7. Planning permission will not be granted for development which would have an unacceptable adverse impact on the biodiversity of the Natural Areas shown on Figure 7.1 (of the LDF).

Policy NE/7 Sites of Biodiversity or Geological Importance

1. Planning permission will not be given for proposals that may have an unacceptable adverse impact, either directly or indirectly, on a Site of Biodiversity or Geological Importance.
2. In determining any planning application affecting international, national or non-statutorily protected sites the District Council will ensure that the intrinsic natural features of particular interest are safeguarded or enhanced having regard to:
 - a. The nature and quality of the site's features, including its rarity value;
 - b. The extent of any adverse impacts on the features of interest;
 - c. The likely effectiveness of any proposed mitigation with respect to the protection of the features of interest;
 - d. The need for compensatory measures in order to protect and enhance remaining features or to recreate habitats on or off the site;

- e. The status and designation of the site.
3. Where appropriate the District Council will ensure the effective management of designated sites through the imposition of planning conditions or Section 106 agreements as appropriate.

Northstowe Area Action Plan

NS/2 Development Principles – in particular part h

The Site and Its Setting Landscape Objective C2/b

Landscape Objectives – in particular objectives D7/b, D7/d and D7/g

NS/12 Landscape Principles

NS/13 Landscape Treatment of the Edges of Northstowe

NS/14 Landscaping Within Northstowe

Biodiversity Objectives D8/a – i

NS/16 Existing Biodiversity Features

NS/17 New Biodiversity Features

Cambridge Southern Fringe Area Action Plan

CSF/1 The Vision for the Cambridge Southern Fringe

CSF/2 Development and Countryside Improvement Principles – in particular part 9

Trumpington West and the Southern Setting of Cambridge Objectives – in particular C3/b

CSF/5 Countryside Enhancement Strategy

Landscape Objectives – in particular D6/b, D6/d and D6/g

CSF/12 Landscape Principles

CSF/13 Landscaping within Trumpington West

Biodiversity Objectives D7/a – f

CSF/15 Enhancing Biodiversity

Phasing and Implementation Objectives – in particular E1/b

Cambridge East Area Action Plan

CE/1 The Vision for Cambridge East

The Site and Its Setting Landscape Objective C3/b

CE/4 The Setting of Cambridge East

Landscape Objectives D7/b, D7/d and D7/g CE/13 Landscape Principles

CE/14 Landscaping Within Cambridge East

Biodiversity Objectives D8/a – i

CE/16 Biodiversity

CE/17 Existing Biodiversity Features

CE/33 Infrastructure Provision – in particular part g

Appendix 2 Legislative and National Policy Context

The following documents should be referred to as key sources of reference and guidance with respect to biodiversity in the planning system:

- [PPS9 Biodiversity & Geological Conservation \(2005\)](#)
- [Biodiversity and geological conservation: circular 06/2005 - GOV.UK](#)
- [Planning for biodiversity and geological conservation: a guide to good practice 2006 - GOV.UK](#)
- Natural Environment and Rural Communities Act (NERC), 2006, Section 41. This requires the publication of a list of the living organisms and types of habitats which are of principal importance for the purpose of conserving biodiversity. A full list of the Section 41 species and habitats can be found at: [NERC 2006 legislation PDF](#)
 - Note: the NERC Act, Section 41, replaces Section 74 of the Countryside and Rights of Way Act, under which Defra published a similar list in 2002 which was identical with the UK BAP list at the time.
- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (commonly known as the Habitats Directive) seeks to protect wild plants, animals and habitats that have been noted of particular ecological value across Europe by maintaining their favourable conservation status. The Directive also requires the designation of Special Areas of Conservation. [Article 17 Habitats Directive Report 2019 | JNCC - Adviser to Government on Nature Conservation](#)
- In the UK the Habitats Directive is implemented by [The Conservation \(Natural Habitats, &c.\) Regulations 1994](#)
- [Council Directive of 2 April 1979 on the conservation of wild birds \(79/409/EEC\)](#) (commonly known as the Birds Directive) seeks to protect wild bird populations of European importance by establishing a network of protected areas known as Special Protection Areas.
- [Wildlife and Countryside Act 1981](#) (as amended) (WCA 1981) provides varying degrees of protection for scheduled plants and animals. The Countryside and Rights of Way Act 2000 (CRoW 2000) amended to the WCA1981 with the effect that reckless disturbance of certain species was introduced, thus strengthening UK wildlife law.
- [Protection of Badgers Act 1992](#) prevents persecution and cruelty to badgers. The likelihood of disturbing a badger sett, or adversely affecting badgers' foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties

amongst badger populations, are capable of being material considerations in planning decisions (Circular 06/2005).

Appendix 3 Contact Details and Further Information

Ecology Officer

South Cambridgeshire Hall

Cambourne Business Park

Cambourne

Cambridgeshire

CB23 6EA

Tel: 08450 450 500

Website: 

Useful Websites

- [Association of Local Government Ecologists](#)
- [Cambridgeshire & Peterborough Environmental Records Centre](#)
- [Cambridge Horizons Green Infrastructure Strategy](#)
- [Ministry of Housing, Communities & Local Government](#)
- [Department for Environment, Food & Rural Affairs](#)
- [Environment Agency](#)
- [CIEEM](#)
- [National Biodiversity Network](#)
- [Natural England](#)
- Online information on internationally and nationally designated sites can be found at [MAGIC Defra](#)
- [Planning Officers Society](#)
- [Planning permission](#)
- [Royal Town Planning Institute RTPi](#)
- [The RSPB Wildlife Charity: Nature Reserves & Wildlife Conservation](#)

- [The Wildlife Trusts](#)
- [Town and Country Planning Association](#)
- [Wildlife and Countryside Link](#)

Sources of Reference and Further Reading

- British Standards Institution (2006)
PAS 210 Planning to halt the loss of biodiversity: biodiversity conservation standards for planning in the United Kingdom – Code of Practice
- Department for Communities and Local Government (2007)
The Validation of Planning Applications: Best practice guidance for local planning authorities
- Institute of Ecology and Environmental Management (2006)
Guidelines for Ecological Impact Assessment (EclA)
- Judicial Review (2001) Mr. Justice Harrison
Regina -v- Cornwall County Council ex parte Jill Hardy Journal of Planning Law 786
- Colston, Gerrard & Parslow Cambridgeshire's Red Data Book
The Wildlife Trust for Cambridgeshire, 1997
- Badgers and development
English Nature, 2002
- Barn Owls on Site – a guide for developers and planners
Barn Owl Trust and English Nature, 2nd edn, 2002
- Bat Mitigation Guidelines
English Nature, 2004
- Bat Worker's Manual
Joint Nature Conservation Committee, 1999
- Biodiversity By Design – A guide for sustainable communities
Town and Country Planning Association, 2004
- Biodiversity checklist for land use planners in Cambridgeshire and Peterborough
Cambridgeshire County Council, 2001
- Biodiversity – The UK Action Plan
London: HMSO, 1994
- Birds of Conservation Concern

RSPB, 2001

- Byron, H

Biodiversity Impact – Biodiversity and environmental impact assessment: A good practice guide for road schemes

RSPB, WWF-UK, English Nature and the Wildlife Trusts, 2000

- Design Manual for Roads and Bridges

Highways Agency, 2001

- Eversden and Wimpole Woods SSSI – supporting information, a supplement to the notification package English Nature, 2003

- Eversden and Wimpole Woods SSSI – notification under section 28C of the Wildlife and Countryside Act 1981 (as amended)

English Nature, 2003

- Green Roofs: their existing status and potential for conserving biodiversity in urban areas

English Nature Research Report No. 498, 2003

- Great Crested Newt Mitigation Guidelines English Nature, 2001

- Handbook for Phase 1 habitat survey – a technique for environmental audit and field manual

Nature Conservancy Council, 1990, revised 1993

- Johnston, J and Newton, J

Building Green – a guide to using plants on roofs, walls and pavements

London Ecology Unit, 1992

- Planning Policy Statement 9: Biodiversity and Geological Conservation

Office of the Deputy Prime Minister, 2005

- Otters and River Habitat Management

Environment Agency 2nd edn, 1999

- Oxford, M J

Developing Naturally – a handbook for incorporating the natural environment into planning and development

ALGE, 2000

- The New Rivers and Wildlife Handbook
RSPB, NRA and RSNC, 1994
- Special Areas of Conservation – what they mean for you
English Nature, 2002
- Special Areas of Conservation – questions and answers
English Nature, 2002
- Validation of Planning Applications: planning applications (local) (pilot draft)
Association of Local Government Ecologists, 2007
- Water Vole Conservation Handbook
English Nature, Environment Agency and Wildlife Conservation Research Unit, 1998)
- Working with the Grain of Nature – A Biodiversity Strategy for England
DEFRA, 2002
- Working with Wildlife – A resource and training pack for the construction industry
CIRIA, 2004

Appendix 4 Protected Species and Ecological Survey Seasons

Table 4 - Protected Species and Ecological Survey Seasons Key:

Optimal survey time = Extending into + N/A -

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Badgers	-	=	=	=	+	+	+	+	+	=	=	+
Bats (hibernation roosts)	=	=	-	-	-	-	-	-	-	-	=	=
Bats (summer roosts)	-	-	-	+	=	=	=	=	-	-	-	-
Bats (foraging / commuting)	-	-	-	+	=	=	=	=	=	+	-	-
Birds (breeding)	-	-	=	=	=	=	=	=	-	-	-	-
Birds (over wintering, nonprotected)	=	=	-	-	-	-	-	-	-	-	=	=
Great-crested newts (Terrestrial)	-	-	=	=	=	=	=	=	=	=	-	-
Great-crested newts (aquatic)	-	=	=	=	=	-	-	-	-	-	-	-
Invertebrates (mostly nonprotected)	-	-	-	=	=	=	=	=	=	-	-	-
Otters	=	=	=	=	=	=	=	=	=	=	=	=
Reptiles	-	-	-	=	=	=	-	-	=	-	-	-
Water voles	-	+	=	=	=	=	=	=	=	+	-	-
White-clawed crayfish	-	-	-	-	-	-	=	=	=	-	-	-

Habitats / vegetation (mostly non-protected)	-	-	-	=	=	=	=	=	=	=	=	=
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Table adapted from version produced by ALGE 2007, Validation of Planning Applications

Points to note regarding surveys are as follows:

- For certain species and habitats surveys can be carried out at any time of year, but for other species, particular times of year are required to give the most reliable results, as indicated in the above table.
- Surveys conducted outside of optimal times (identified above) may be unreliable. For certain species (for example great crested newt) surveys over the winter period are unlikely to yield any useful information. Similarly, negative results gained outside the optimal period should not be interpreted as absence of a species and further survey work maybe required during the optimal survey season. This is especially important where existing surveys and records show the species has been found previously on site or in the surrounding area. An application may not be valid until survey information is gathered from an optimum time of year.
- Species surveys are also very weather dependent so it may be necessary to delay a survey or to carry out more than one survey if the weather is not suitable, for example, heavy rain is not good for surveying for water voles as it washes away their droppings. Likewise, bat surveys carried out in wet or cold weather may not yield accurate results.
- Absence of evidence of a species does not necessarily mean that the species is not there, nor that its habitat is not protected (for example, a bat roost is protected whether bats are present or not).
- The Cambridgeshire and Peterborough Biological Records Centre may have useful existing information and records.
- Competent ecologists should carry out surveys. Where surveys involve disturbance, capture or handling of a protected species, then only a licensed person (as issued by Natural England) can undertake such surveys. Surveys should follow published national or local methodologies. Further details may be found on the following websites:



Appendix 5 South Cambridgeshire District Council BAP Priority Species and Habitats

Table 5 - South Cambridgeshire District Council BAP Priority Species

Priority Species	Reason
Otter	Otters are widespread along the Upper Cam and its tributaries. Work must be undertaken to ensure that the local environment continues to have the capacity to support otters.
Water vole	Water voles are widespread in some parishes. The species has the ability to live in close proximity to people if suitable habitat is maintained.
Skylark	The skylark was chosen as a national indicator of sustainability and skylarks are still widespread in South Cambridgeshire.
Great crested newt	The great crested newt receives full protection in law. It may often be encountered at smaller development sites within villages.
House sparrow	Rapid decline since the 1970's. For example, in Coton the species was considered too numerous to record until 1978, but none have been recorded from the parish's farmland in recent survey work. The species' recovery can be assisted by nest box erection and sensitive planting and the phasing of activities that might cause disturbance. DEFRA leaflet produced in 2004 to explain reasons for the decline.
Barn owl	The RSPB currently lists the barn owl upon its Amber List believing the decline to range between 25-49% over the last 25 years. The loss in South Cambridgeshire may have been higher due to the drive for intensive farming and the high number of barn conversions. However, barn owl numbers are now increasing but the species needs to be the focus of further conservation effort as a flagship species for positive land management.
White-clawed crayfish	The white-clawed crayfish is the UK's only native crayfish. Populations were formally widespread in the River Rhee and its tributaries. Disease passed on from the American signal crayfish has wiped out all but one population of the white-clawed crayfish for the whole of Cambridgeshire. However, undiscovered populations may still remain.

Native black poplar tree	<p>A nationally scarce tree formerly of floodplains. Only 57 adult trees occur within the district following survey in 2007.</p> <p>The national black poplar BAP should also be used as a guide document.</p>
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Table 6 - South Cambridgeshire District Council Bap Priority Habitats

Priority Habitat	Reason
Rivers and streams (including chalk rivers)	<p>Rivers and river valleys have been the focus of policies in Local Plans for many years. It is widely recognised that rivers and streams represent a major habitat resource within the landscape of the district.</p> <p>The high-water quality and dependant species of the chalk rivers, such as the Shep and Mel, make their habitats particularly worthy of conservation.</p>
Woodland	Woodland provides a diverse habitat for many different species. The protection and creation of woodlands has previously been the focus of Local Plan policies. South Cambridgeshire is relatively poorly wooded.
Scrub	Changes in farming practice over the last forty years has resulted in some small fields becoming over-grown with scrub. Scrub can provide an important habitat for many different species, especially birds, and should not be looked upon as over-grown wasteland.
Old orchards	Changes in farming practice over the last forty years has resulted in the loss of many orchards, particularly in the Fen edge villages.
Hedgerows	Changes in farming practice, and land use generally, has resulted in the loss of extensive lengths of hedgerows. Many of the remaining and newly planted hedges are not particularly species rich, however as landscape features and as a biodiversity resource they are important.
Farmland (arable)	South Cambridgeshire is dominated by an arable landscape. Within this habitat important and declining species remain.
Ponds	Many farm and village ponds have been lost. This has negatively impacted upon biodiversity. However, ponds can be relatively straightforward to recreate and can bring back wildlife with suitable management.

Churchyards and cemeteries	The tranquil environment of these sites offer important greenspaces. If sensitively managed they can be a place for people to quietly enjoy wildlife.
Lowland calcareous grassland	Grasslands were once extensive within the district. Maintaining the diversity of wildflowers contained within chalk grasslands is of particular conservation interest.
Meadows and pastures	Small meadows were once common within villages. Grazing upon nutrient rich soils created diversity within grass swards rather than dominance by weed species.



Chalk grassland can contain a high diversity of plants. At Litlington Chalk Pit wild thyme, milkwort and squinancywort are of special interest.

Appendix 6 Natural Area Profiles for the South Cambridgeshire District

Table 7 - Natural Area Profiles

Natural Area	Characteristic flora and fauna	Parishes
The East Anglian Chalk	<p>Scattered chalk grassland, beechwood plantations on dry hill tops, willow and alder in wetter vallies, scrub of hawthorn and blackthorn with ivy or bramble beneath.</p> <p>Spring-fed fens, mires and marshy ground with reed, sedge and hemp agrimony.</p> <p>Spring-fed flowing water supporting water crowfoots and pondweeds with reed sweetgrass at the margins.</p> <p>Large open arable fields may support rare arable plants such as grass poly or Venus's looking-glass.</p> <p>Brown hare and typical farmland birds, such as linnet, yellow hammer and corn bunting also occur.</p>	<p>Abington Pigotts, Babraham, Balsham, Barrington, Bassingbourn-cum-Kneesworth, Carlton, Duxford, Fen Ditton, Folwmere, Foxton, Fulbourn, Granchester, Gt & Lt Abington, Gt & Lt Chishill, Gt & Lt Shelford, Gt & Lt Wilbraham, Guilden Morden, Harlton, Harston, Haslingfield, Hauxton, Heydon, Hildersham, Hinxton, Horningsea, Ickleton, Linton, Litlington, Melbourn, Meldreth, Newton, Orwell, Pampisford, Sawston, Shepreth, Shingay-cum-Wendy, Stapleford, Steeple Morden, Stow-cum-Quy, Teversham, Thriplow, Weston Colville, West Wrating, West Wickham, Whaddon, Whittlesford.</p>

<p>The East Anglian Plain</p>	<p>Hedges, isolated trees and woods can give a wooded feel and provide habitat for song thrush, bullfinch and corn bunting.</p> <p>Hay meadows with knapweeds and crested dog's-tail grasses.</p> <p>Relict parkland and large hedgerow trees particularly of oak with associated bats, lichens and turtle doves.</p> <p>Arable farming dominates the land use and provides habitat for skylarks, grey partridge and brown hare.</p>	<p>Balsham, Bartlow, Carlton, Castle Camps, Horseheath, Linton, Shudy Camps, Weston Colville, West Wickham, West Wrating.</p>
<p>Natural Area</p>	<p>Characteristic flora and fauna</p>	<p>Parishes</p>
<p>The Bedfordshire Greensand Ridge</p>	<p>Arable land and agriculturally improved pasture comprise a major proportion of the habitats within the area.</p> <p>Skylark and grey partridge are both still found in the area, as are a number of rare arable plants including broad-leaved spurge, fine-leaved sandwort and toothed medick.</p> <p>Important ancient woodland containing oak, ash and holly occurs. Ground flora may contain bluebell, oxlip and wood sorrel. Fungi and invertebrates are also of note.</p>	<p>Gamlingay.</p>

<p>The Fens</p>	<p>Agriculture is very important in the area due to the high-quality soil. This has restricted biodiversity in some parts. However, drains, hedges and field margins provide refuge for species such as barn owl, corn bunting and skylark.</p> <p>Washlands provide temporary areas of flooded grassland that are important for plants such as the marsh foxtail, tufted hairgrass and narrow-leaved water dropwort.</p>	<p>Cottenham, Fen Ditton, Horningsea, Milton, Over, Stow-cum-Quy, Waterbeach, Willingham.</p>
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The Fens Natural Area looking towards Over.

Natural Area	Characteristic flora and fauna	Parishes
The West Anglian Plain	<p>Hedgerows, mature trees, ponds, small watercourses, and rough grassland are all typical of the area and support species such as skylark and grey partridge.</p> <p>Flooded gravel and clay pits diversify the semi-natural habitats and provide habitat for various waterfowl and the great crested newt.</p>	<p>Abington Pigotts, Arrington, Bar Hill, Barton, Bourn, Boxworth, Caldecote, Caxton, Childerley, Comberton, Conington, Coton, Cottenham, Croydon, Croxton, Dry Drayton, Elsworth, Eltisley, Fen Ditton, Fen Drayton, Gamlingay, Girton, Granchester, Gransden, Graveley, Gt & Lt Eversden, Guilden Morden, Hardwick, Harlton, Haslingfield, Hatley, Histon, Horningsea, Impington, Kingston, Knapwell, Landbeach, Lolworth, Longstanton, Longstowe, Madingley, Milton, Oakington, Orwell, Over, Papworth Everard, Papworth St Agnes, Rampton, Shingay-cumWendy, Steeple Morden, Swavesey, Teversham, Tadlow, Toft, Waterbeach, Westwick, Whaddon, Willingham, Wimpole.</p>



The West Anglian Plain Natural Area contains a number of ancient woodlands such as Hayley Wood.

Glossary

Appropriate Assessment	This is an assessment carried out under Regulation 48 of the Habitats Regulations.
Area Action Plan	A planning document that provides a statutory framework for an area of land-use change.
Biodiversity	The biological diversity of the earth's living resources. Encompasses the total range of variability among ecosystems and organisms from the lowest level to the highest level.
Biodiversity Action Plan	A plan that lists habitats and species considered to be priorities for conservation (either local or national). The action plan will usually contain a series of agreed targets and actions.
Biodiversity Feature	Habitats, structures (natural or Man-made) or landscape features as listed in column 1 of tables 1 and 2.
Brownfield site	Previously developed land that is or was occupied by a permanent structure and is associated with fixed surface infrastructure. The definition covers the curtilage of development. Previously developed land can occur in both rural and urban settings and may contain Priority Habitats. A precise definition can be found in PPS3.
Compensation	Measures taken to make up for the loss of, or permanent damage to, biological resources through the provision of replacement areas. Any replacement area should be similar to or, with appropriate management, have the ability to reproduce the ecological functions and conditions of those biological resources that have been lost or damaged.
Conservation	The act of maintaining species and habitats at their current distribution and abundance levels across an area (such as a parish).
Designated site	Are sites noteworthy for their biodiversity interest. Such sites may be Statutory sites (Special Area of Conservation, Special Protection Area, Site of Special Scientific Interest) or Non-statutory sites (County Wildlife Site, Local Nature Reserve, Village Green Space or Pocket Park).
Diffuse pollution	Pollution arising from a series of points such as agricultural run-off.

Enhancement	A new benefit to biodiversity, unrelated to any negative impact.
Fragmentation	The breaking up of a habitat, ecosystem or land use type into smaller parcels.

Green Infrastructure	The sub-regional network of protected sites, nature reserves, green spaces, and greenway linkages. The linkages includes river corridors and floodplains, migration routes and features of the landscape which are of importance as wildlife corridors. Additionally, green infrastructure should provide for multi-functional uses such as wildlife and recreation.
Greenfield site	Land which has not been previously developed or which has returned to greenfield status over time.
Habitat	A place in which a particular plant or animal lives. Often used in the wider sense referring to major assemblages of plants and animals found together.
Impact	The way in which an ecological receptor or resource is affected by a project.
Infill development	Development within a village of a gap in an otherwise built-up frontage, or the redevelopment or sub-division of an existing residential curtilage, or the sub-division of an existing dwelling, or the conversion or redevelopment of a non-residential building.
Local Development Framework	Comprises a number of Development Plan Documents that set out policies and proposals for the development and use of land in the district.
Microclimate	Local climatic conditions that may result through semi-natural or Man-made features such as shading and / or wind funnelling due to tall buildings. Microclimates may provide specific conditions such as warmth on an embankment for invertebrates and reptiles.
Mitigation	Mitigation is the process of reducing harm to a species or habitat during the course of site development, preparation or clearance. See also compensation (which is separate from mitigation).

Natural Area	Is identified by a combination of physical attributes such as geology, plant and animal species, land use and culture. These attributes combine to give an area its distinctive biodiversity.
Net gain	The point at which the quality and quantity of habitats or species improves compared to their original condition, for example, improvements over and above those required for mitigation and compensation.
Network	An interconnected system of corridors.
Preservation	The act of maintaining a species and / or habitat at their current distribution and abundance level at a particular site. Preservation will often favour (but not to the exclusion of others) one species or habitat.
Priority Habitat	Priority Habitats are those identified within a BAP and / or the NERC Act, Section 41.
Priority Species	Priority Species are those identified within a BAP and / or the NERC Act, Section 41.
Restoration	The re-establishment of a damaged or degraded system or habitat to a close approximation of its pre-degraded condition.
Species	A group of organisms that can interbreed within their group but cannot breed (exchange genetic material) outside of it in order to produce fertile offspring.
Supplementary Planning Document	Informal policy that has been the subject of public participation. It replaces any previous Supplementary Planning Guidance (SPG).
Sustainable Urban Drainage System (SUDS)	The control of water, usually rainfall, by means of swales, lagoons, permeable paving, green roofs and sensitively re-engineered channels or reed beds.
Watercourse	Any river, brook, stream, ditch, drain, lode or dyke that conveys water from one location to another.
Wildlife corridor	A site, feature or combination of features within the landscape that form linkages between protected sites or have been identified as a regularly used route or flight path for a Priority Species.

Where necessary glossary definitions have been collated or adapted from:

IEEM website (glossary no longer available)

SCDC LDF Development Control Policies DPD

SCDC Biodiversity Strategy

Planning Services

South Cambridgeshire District Council

Cambourne Business Park

Cambourne

Cambridgeshire CB23 6EA

t: 08450 450 500



Appendix to Q3.11.1 2

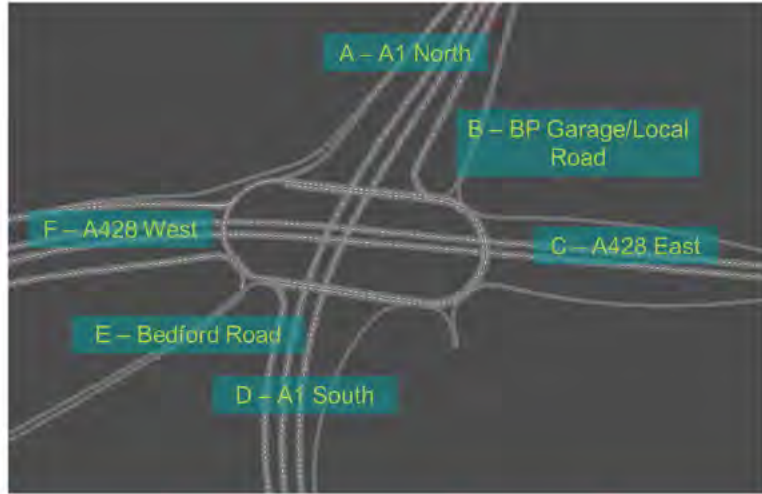


2040 Forecast Results

Turning flow counts and queue results for the for Black Cat,
Cambridge Road and Caxton Gibbet Sensitivity Test models

Black Cat

Black Cat – Turning Counts – 2040 AM

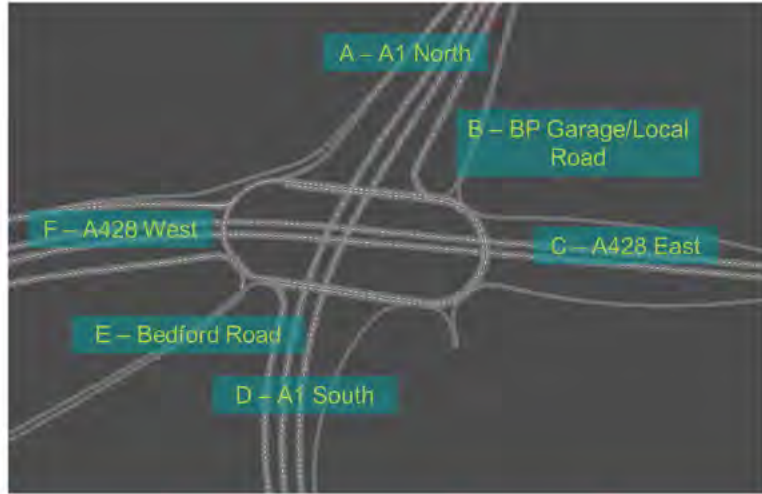


All Vehicles	A1 North	BP Garage/Local Road	A428 East	A1 South	Bedford Road	A421 West
A1 North	0	25	0	1184	56	1074
BP Garage/Local Road	4	1	1	100	10	95
A428 East	0	4	0	67	75	1270
A1 South	1338	4	79	0	43	147
Bedford Road	194	8	122	55	0	50
A421 West	1207	11	1717	270	5	0

Cars/LGVs	A1 North	BP Garage/Local Road	A428 East	A1 South	Bedford Road	A421 West
A1 North	0	25	0	1054	55	1010
BP Garage/Local Road	4	1	0	89	10	92
A428 East	0	6	0	66	74	1190
A1 South	1272	3	80	0	41	138
Bedford Road	188	9	118	54	0	48
A421 West	1192	11	1591	267	4	0

HGVs	A1 North	BP Garage/Local Road	A428 East	A1 South	Bedford Road	A421 West
A1 North	0	0	0	131	0	65
BP Garage/Local Road	0	0	0	12	0	6
A428 East	0	0	0	0	0	81
A1 South	67	0	0	0	2	10
Bedford Road	6	0	2	1	0	0
A421 West	15	0	127	4	0	0

Black Cat – Turning Counts – 2040 PM

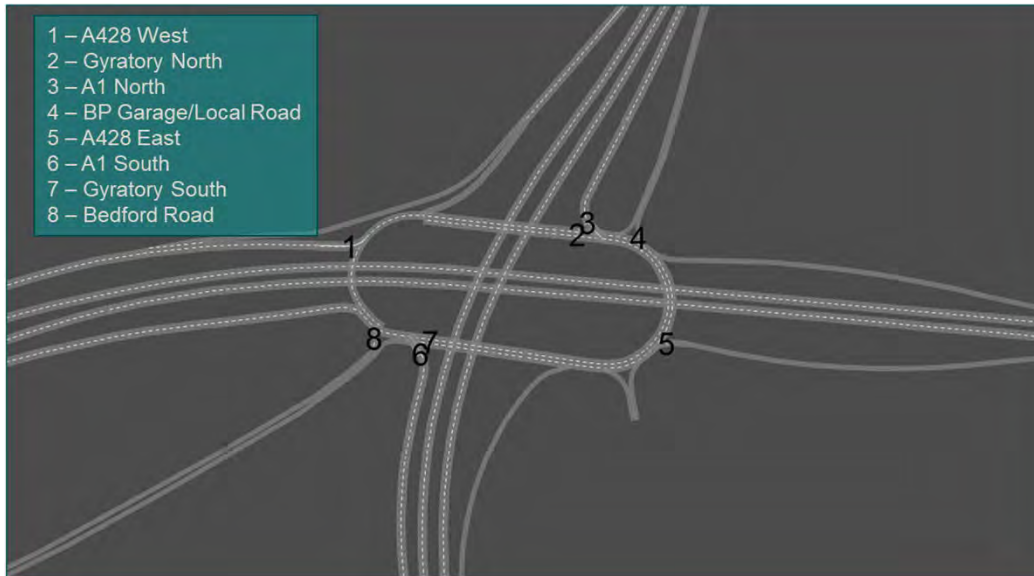


All Vehicles	A1 North	BP Garage/Local Road	A428 East	A1 South	Bedford Road	A421 West
A1 North	0	13	0	1296	68	1185
BP Garage/Local Road	20	0	7	83	9	85
A428 East	0	3	0	61	115	1753
A1 South	1374	2	46	0	80	194
Bedford Road	291	15	76	46	0	76
A421 West	1354	9	1133	187	57	0

Cars/LGVs	A1 North	BP Garage/Local Road	A428 East	A1 South	Bedford Road	A421 West
A1 North	0	13	0	1235	69	1184
BP Garage/Local Road	22	0	6	80	9	84
A428 East	0	2	0	58	112	1681
A1 South	1317	0	45	0	75	189
Bedford Road	291	16	76	47	0	76
A421 West	1286	9	1086	177	59	0

HGVs	A1 North	BP Garage/Local Road	A428 East	A1 South	Bedford Road	A421 West
A1 North	0	0	0	61	0	1
BP Garage/Local Road	0	0	0	3	0	0
A428 East	0	0	0	0	6	73
A1 South	59	0	0	0	4	5
Bedford Road	0	0	0	0	0	0
A421 West	69	0	48	11	0	0

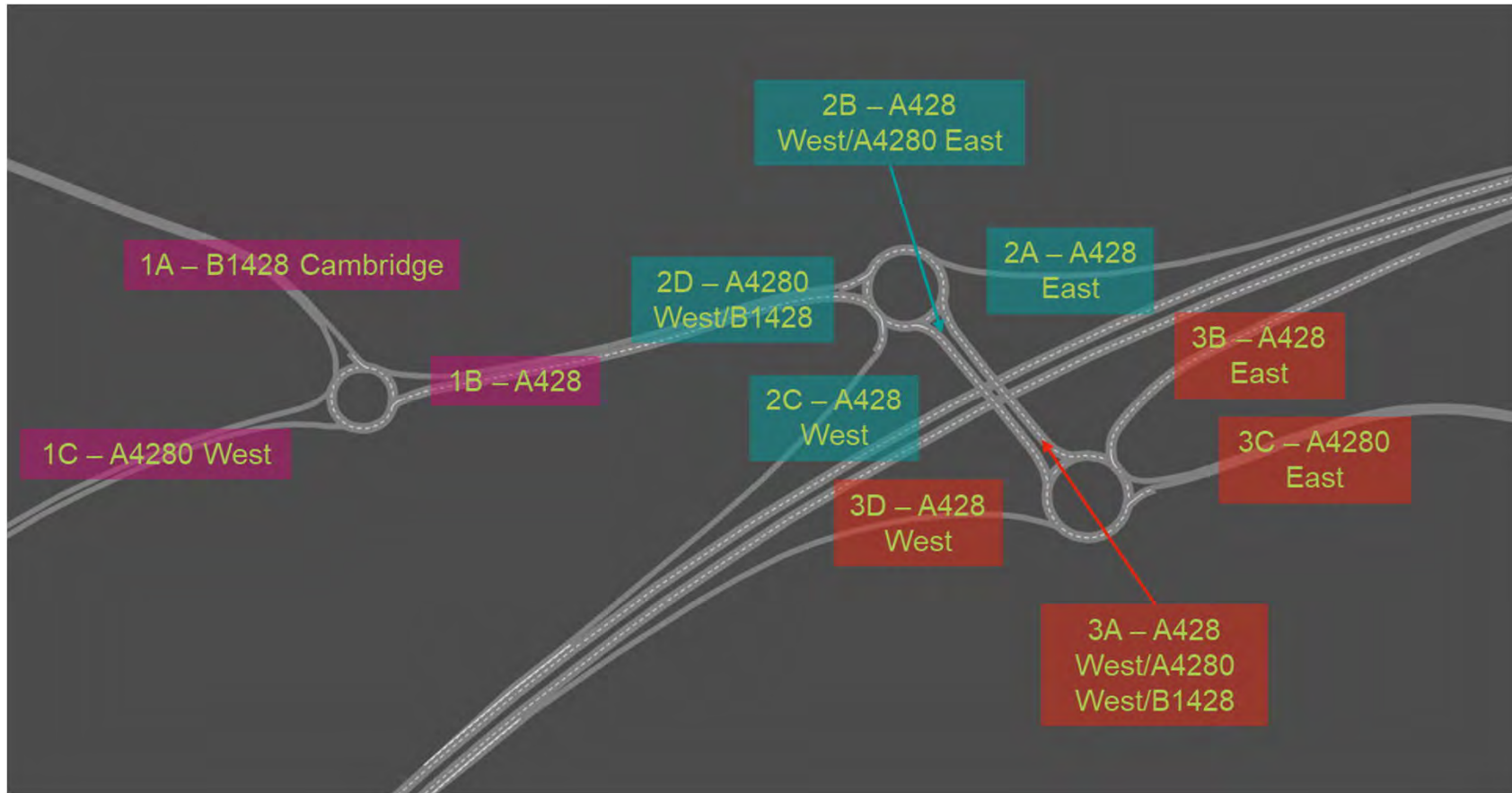
Black Cat – Queue Results – 2040 AM & PM



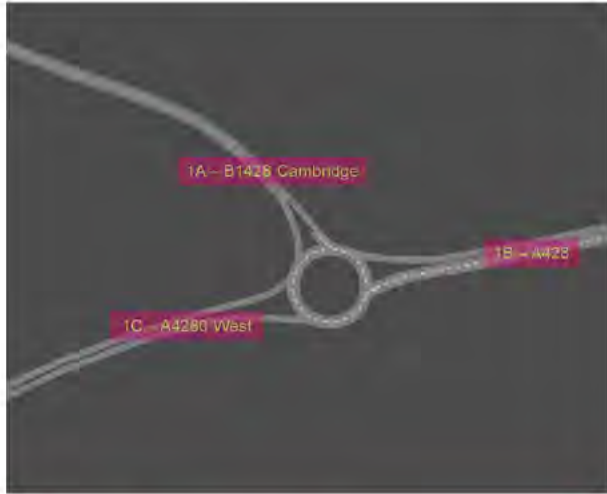
Queue Counter	AM	PM
	Avg Queue (m)	Avg Queue (m)
1 – A428 West	0	0
2 – Gyratory North	11	6
3 – A1 North	10	13
4 – BP Garage/Local Road	2	1
5 – A428 East	1	1
6 – A1 South	6	7
7 – Gyratory South	4	4
8 – Bedford Road	46	74

Cambridge Road

Cambridge Road Junctions – Turning Counts



Cambridge Road – Turning Counts – Junction 1 – 2040 AM

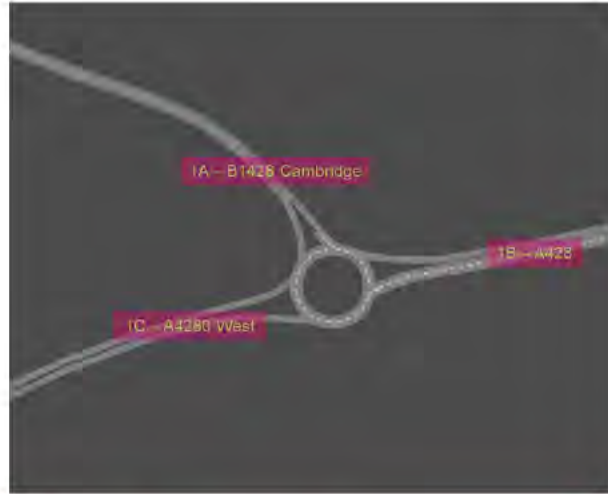


All Vehicles	B1428 Cambridge	A428	A4280 West
B1428 Cambridge	0	626	47
A428	539	0	405
A4280 West	44	464	0

Cars/ LGVs	B1428 Cambridge	A428	A4280 West
B1428 Cambridge	0	616	46
A428	527	0	390
A4280 West	43	427	0

HGVs	B1428 Cambridge	A428	A4280 West
B1428 Cambridge	0	10	0
A428	12	0	17
A4280 West	0	38	0

Cambridge Road – Turning Counts – Junction 1 – 2040 PM



All Vehicles	B1428 Cambridge	A428	A4280 West
B1428 Cambridge	2	663	50
A428	960	0	471
A4280 West	68	431	0

Cars/ LGVs	B1428 Cambridge	A428	A4280 West
B1428 Cambridge	0	662	50
A428	956	0	461
A4280 West	67	421	0

HGVs	B1428 Cambridge	A428	A4280 West
B1428 Cambridge	0	0	0
A428	3	0	7
A4280 West	0	11	0

Cambridge Road – Turning Counts – Junction 2 – 2040 AM

Doesn't include A428 through-movements



All Vehicles	A428 East	A428 West/A4280 East	A428 West	A4280 West/B1428
A428 East	-	0	-	0
A428 West/A4280 East	2	0	0	780
A428 West	-	118	-	167
A4280 West/B1428	877	208	0	0

Cars/ LGVs	A428 East	A428 West/A4280 East	A428 West	A4280 West/B1428
A428 East	-	0	-	0
A428 West/A4280 East	2	0	0	752
A428 West	-	101	-	166
A4280 West/B1428	841	199	0	0

HGVs	A428 East	A428 West/A4280 East	A428 West	A4280 West/B1428
A428 East	-	0	-	0
A428 West/A4280 East	0	0	0	28
A428 West	-	16	-	0
A4280 West/B1428	36	9	0	0

Cambridge Road – Turning Counts – Junction 2 – 2040 PM

Doesn't include A428 through-movements



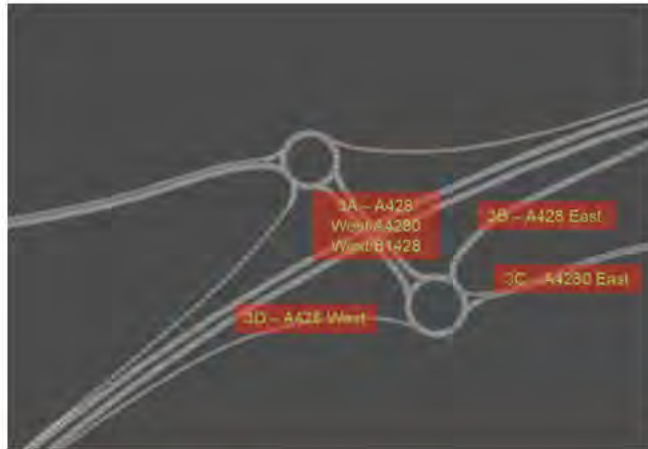
All Vehicles	A428 East	A428 West/A4280 East	A428 West	A4280 West/B1428
A428 East	-	0	-	0
A428 West/A4280 East	0	0	0	1247
A428 West	-	151	-	185
A4280 West/B1428	802	290	0	0

Cars/ LGVs	A428 East	A428 West/A4280 East	A428 West	A4280 West/B1428
A428 East	-	0	-	0
A428 West/A4280 East	0	0	0	1235
A428 West	-	138	-	186
A4280 West/B1428	795	288	0	0

HGVs	A428 East	A428 West/A4280 East	A428 West	A4280 West/B1428
A428 East	-	0	-	0
A428 West/A4280 East	0	0	0	14
A428 West	-	15	-	0
A4280 West/B1428	7	3	0	0

Cambridge Road – Turning Counts – Junction 3 – 2040 AM

Doesn't include A428 through-movements



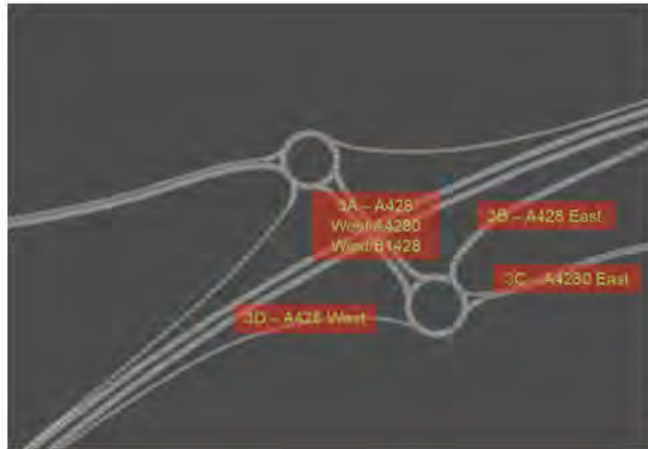
All Vehicles	A428 West/A4280 West/B1428	A428 East	A4280 East	A428 West
A428 West/A4280 West/B1428	0	0	190	137
A428 East	715	-	0	-
A4280 East	65	0	0	106
A428 West	0	-	0	-

Cars/ LGVs	A428 West/A4280 West/B1428	A428 East	A4280 East	A428 West
A428 West/A4280 West/B1428	0	0	169	133
A428 East	691	-	0	-
A4280 East	62	0	0	98
A428 West	0	-	0	-

HGVs	A428 West/A4280 West/B1428	A428 East	A4280 East	A428 West
A428 West/A4280 West/B1428	0	0	22	6
A428 East	26	-	0	-
A4280 East	4	0	0	10
A428 West	0	-	0	-

Cambridge Road – Turning Counts – Junction 3 – 2040 PM

Doesn't include A428 through-movements



All Vehicles	A428 West/A4280 West/B1428	A428 East	A4280 East	A428 West
A428 West/A4280 West/B1428	0	0	264	179
A428 East	1174	-	0	-
A4280 East	73	0	0	100
A428 West	0	-	0	-

Cars/ LGVs	A428 West/A4280 West/B1428	A428 East	A4280 East	A428 West
A428 West/A4280 West/B1428	0	0	248	180
A428 East	1164	-	0	-
A4280 East	71	0	0	97
A428 West	0	-	0	-

HGVs	A428 West/A4280 West/B1428	A428 East	A4280 East	A428 West
A428 West/A4280 West/B1428	0	0	18	0
A428 East	12	-	0	-
A4280 East	1	0	0	3
A428 West	0	-	0	-

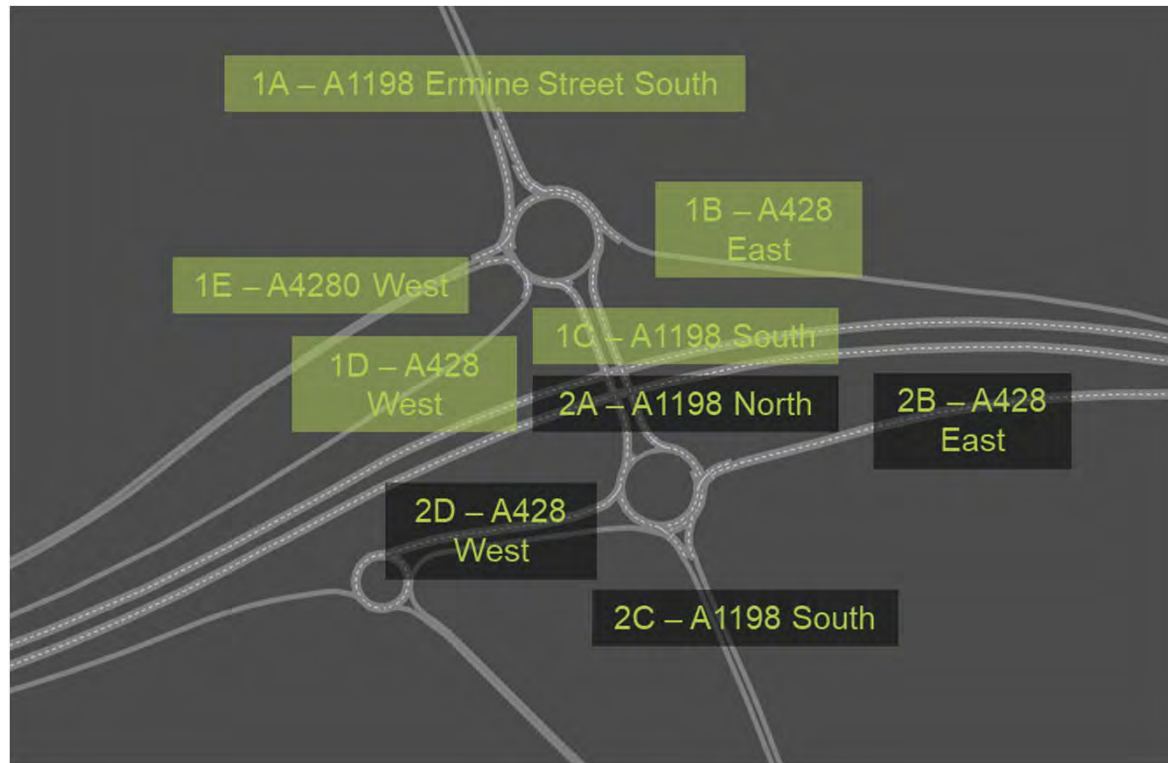
Cambridge Road – Queue Results – 2040 AM & PM



Queue Counter	AM	PM
	Avg Queue (m)	Avg Queue (m)
1 – A4280 East	0	1
2 – Gyratory South	0	0
3 – A428 East	1	3
4 – Gyratory North	0	0
5 – A428 West	1	3
6 – A4280 East EB	2	1
7 – A4280 East WB	0	1
8 – A4280 West	28	95
9 – B1428 Cambridge	12	8

Caxton Gibbet

Caxton Gibbet Junctions – Turning Counts



Caxton Gibbet – Turning Counts – Junction 1 – 2040 AM

Doesn't include A428 through-movements



Cars/ LGVs	A1198 Ermine Street South	A428 East	A1198 South	A428 West	A4280 West
A1198 Ermine Street South	0	360	459	0	1
A428 East	0	-	0	-	0
A1198 South	802	364	0	0	61
A428 West	47	-	311	-	0
A4280 West	1	89	14	0	0

All Vehicles	A1198 Ermine Street South	A428 East	A1198 South	A428 West	A4280 West
A1198 Ermine Street South	0	366	476	0	2
A428 East	0	-	0	-	0
A1198 South	824	369	0	0	62
A428 West	49	-	315	-	0
A4280 West	1	89	14	0	0

HGVs	A1198 Ermine Street South	A428 East	A1198 South	A428 West	A4280 West
A1198 Ermine Street South	0	6	17	0	0
A428 East	0	-	0	-	0
A1198 South	24	3	0	0	0
A428 West	3	-	6	-	0
A4280 West	0	0	0	0	0

Caxton Gibbet – Turning Counts – Junction 1 – 2040 PM

Doesn't include A428 through-movements



All Vehicles	A1198 Ermine Street South	A428 East	A1198 South	A428 West	A4280 West
A1198 Ermine Street South	0	330	552	0	5
A428 East	0	-	0	-	0
A1198 South	900	199	0	0	65
A428 West	33	-	347	-	0
A4280 West	2	78	17	0	0

Cars/ LGVs	A1198 Ermine Street South	A428 East	A1198 South	A428 West	A4280 West
A1198 Ermine Street South	0	325	539	0	5
A428 East	0	-	0	-	0
A1198 South	883	197	0	0	66
A428 West	33	-	345	-	0
A4280 West	1	78	17	0	0

HGVs	A1198 Ermine Street South	A428 East	A1198 South	A428 West	A4280 West
A1198 Ermine Street South	0	2	13	0	0
A428 East	0	-	0	-	0
A1198 South	16	3	0	0	0
A428 West	0	-	2	-	0
A4280 West	0	0	0	0	0

Caxton Gibbet – Turning Counts – Junction 2 – 2040 AM

Doesn't include A428 through-movements



All Vehicles	A1198 North	A428 East	A1198 South	A428 West
A1198 North	0	0	755	50
A428 East	411	-	132	-
A1198 South	842	0	0	331
A428 West	0	-	0	-

Cars/LGVs	A1198 North	A428 East	A1198 South	A428 West
A1198 North	0	0	735	49
A428 East	398	-	132	-
A1198 South	828	0	0	328
A428 West	0	-	0	-

HGVs	A1198 North	A428 East	A1198 South	A428 West
A1198 North	0	0	21	0
A428 East	13	-	0	-
A1198 South	15	0	0	4
A428 West	0	-	0	-

Caxton Gibbet – Turning Counts – Junction 2 – 2040 PM

Doesn't include A428 through-movements



All Vehicles	A1198 North	A428 East	A1198 South	A428 West
A1198 North	0	0	704	208
A428 East	417	-	305	-
A1198 South	745	0	0	449
A428 West	0	-	0	-

Cars/LGVs	A1198 North	A428 East	A1198 South	A428 West
A1198 North	0	0	693	204
A428 East	410	-	305	-
A1198 South	731	0	0	448
A428 West	0	-	0	-

HGVs	A1198 North	A428 East	A1198 South	A428 West
A1198 North	0	0	11	3
A428 East	7	-	0	-
A1198 South	15	0	0	1
A428 West	0	-	0	-

Caxton Gibbet – Queue Results – 2040 AM & PM



Queue Counter	AM	PM
	Avg Queue (m)	Avg Queue (m)
1 – A1198 South	15	113
2 – A428 East	2	5
3 – Gyratory South	0	0
4 – Gyratory North	0	0
5 – A428 West	108	70
6 – A4280 West	4	1
7 – A1198 Ermine Street South	19	8

Appendix to Q3.11.2.3

TOWARDS 2030

MAKING OUR ROADS SAFER FOR ALL





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Abbreviations

AIS	Abbreviated Injury Scale	IBRS	Injury Based Reporting Systems
ANPR	Automatic Number Plate Recognition	iRAP	International Road Assessment Programme
ASC	Average Speed Cameras	KSI	Killed or seriously injured (casualties)
CCC	Cambridgeshire County Council	NCAP	New Car Assessment Programme
CLOCS	Construction Logistics and Community Safety	NDORS	National Driver Offender Retraining Scheme
COM-B	Capability, Opportunity, Motivation and Behaviour Model	NIBRS	Non-Injury Based Reporting Systems
COPA	Case Overview and Prosecutions Application (Metropolitan Police)	ONS	Office for National Statistics
CPCA	Cambridgeshire and Peterborough Combined Authority	OPCC	Office of the Police and Crime Commissioner
CRASH	Collision Reporting and Sharing system	PCC	Peterborough City Council
CSP	Community Safety Partnership	PCC	Police and Crime Commissioner
CSW	Community Speed Watch	PDM	Partnership Delivery Manager
DfBB	Driving for Better Business	RPU	Road Policing Unit
DfT	Department for Transport	SDG	Strategic Development Goal
DVSA	Driver and Vehicle Standards Agency	SID	Speed Indicator Device
FORS	Fleet Operators Recognition Scheme	SPI	Safety Performance Indicator
FSC	Fatal or serious (collisions)	TBC	To be confirmed
		VAS	Vehicle Activated Sign





History

Following a number of years of informal partnership working, the first official Partnership for Road Safety in Cambridgeshire and Peterborough (PARSINCAP) was established in 2002. This focused on supporting close working relationships between the agencies listed below, in the prevention of road traffic related deaths and injuries, using the four strands of education, enforcement, engineering and epidemiology:

- Cambridgeshire County Council
- Cambridgeshire Constabulary
- Cambridgeshire Fire & Rescue Service
- Peterborough City Council
- East-Anglia Ambulance NHS Trust
- The Highways Agency (now Highways England)
- Cambridgeshire and Peterborough Public Health Network
- Magpas Air Ambulance

The inclusion of public health and medical practitioners in the partnership has been a key distinction of Cambridgeshire and Peterborough compared to most other partnerships nationally, and while the medical involvement diminished slightly in the intervening years, the refresh of the now Cambridgeshire and Peterborough Road Safety Partnership (CPRSP) in 2015 revived these

links with the inclusion of Addenbrooke's Hospital and the East of England Trauma Network in the revised partnership. In 2015, the Partnership also recognised that social and economic costs of road collisions extends to wider provision not previously associated with typical road safety programmes, such as victim support and rehabilitation and therefore also added the Road Victims' Trust, a charity supporting all those affected by a fatal road traffic collision across Bedfordshire, Cambridgeshire and Hertfordshire, as a partner. A new model was developed, and the idea of a safe system approach introduced.

Key to the review of the partnership in 2015 and continuing into the next partnership strategy is the acceptance that every death and life changing injury on Cambridgeshire and Peterborough's roads or to a Cambridgeshire or Peterborough resident is one too many, and the social and economic burden of road casualties is felt much wider than just those immediately involved in the collision.

Therefore, the vision remains to prevent all road deaths across Cambridgeshire and Peterborough and to significantly reduce the severity of injuries and subsequent costs and social impacts from road traffic collisions.

Cambridge



Peterborough





Context

Road safety is an important priority for the authorities of Cambridgeshire and Peterborough. Each year, just over 2,500 people are killed or injured on the region's roads. Overall, there has been a 29% reduction in the number of casualties on Cambridgeshire and Peterborough's roads since 2009, however, much of the reduction was observed in the first five years. In fact, there was a 24% reduction in casualties in 2013, compared to 2009, whilst there was only a 6% reduction from 2014 to 2018. See figure 1.

This new Strategy is timely. Adopting new targets, a new vision and a new approach will invigorate the Partnership and assist partner organisations and communities to work together to further reduce road injury. It also provides an opportunity to think beyond road safety to safe sustainability, to ensure that road safety is combined with active travel choice, to assist communities in becoming safer and healthier, with cleaner air, less traffic and more opportunities to use travel as a form of exercise.

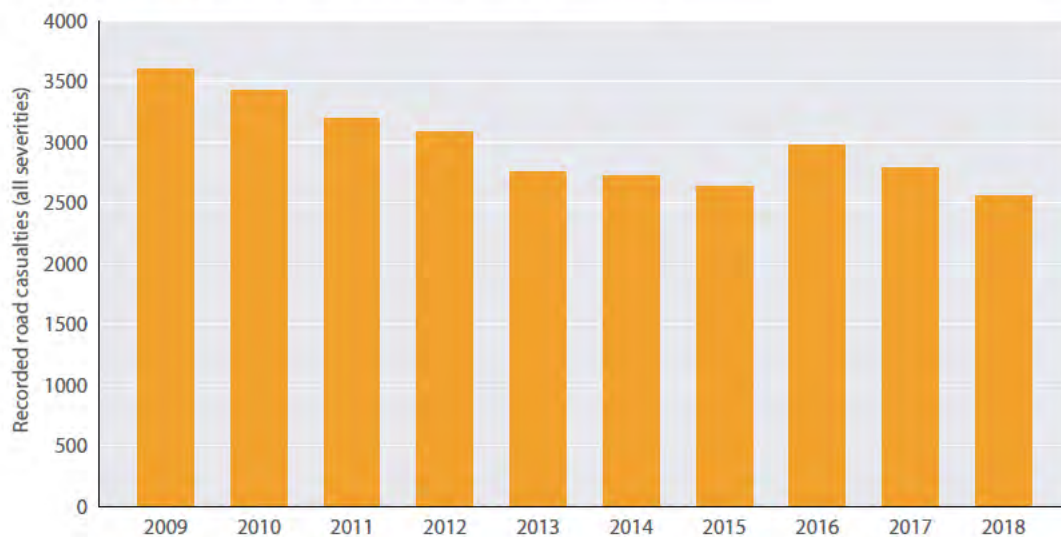
This Strategy has been created after an extensive review of the activities and structure of the Cambridgeshire and

Peterborough Road Safety Partnership. Interviews with key stakeholders and partners were conducted to understand how the partnership was functioning and which direction it should take in the future, alongside surveys to local residents and road users to uncover their priorities, with a review of previous work undertaken to map out the activities of the Partnership.

The conclusions were that the Partnership has strong foundations, with a well-established structure, including important organisations often not included in other road safety collaborations. There is a good use of data and evidence, with strong collaborations between partners to share knowledge and experience. All partners are committed to the goal of reducing road casualties.

These findings have been used alongside international evidence on best practice to re-launch the Partnership with this new Strategy, and a new name and structure, to continue to harness the passion of partners and effectively work towards Vision Zero.

Figure 1 - Number of road casualties in Cambridgeshire and Peterborough



An aerial photograph of a city, likely in the UK, showing a complex highway interchange with multiple overpasses and ramps. In the foreground, there is a large, modern building complex with several interconnected structures and a large parking lot. The surrounding area includes residential housing, green spaces, and a large body of water in the distance. The overall scene is captured from a high angle, providing a comprehensive view of the urban infrastructure.

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Vision



The Vision Zero Partnership is committed to a Safe System approach. Its structure and activities are based on the principles of Safe Systems and this Strategy sets out how the partners will work together to achieve Vision Zero.

No human being should be killed or seriously injured as the result of a road collision

The Partnership is working towards a long-term strategic goal of Vision Zero, where there are no deaths and serious injuries on the Partnership's roads. This is an ambitious goal and will need time and effort to be achievable. With this Strategy starting in 2020, the goal is to move towards **zero deaths or severe¹ serious injuries in the Partnership area by 2040.**

This Strategy sets out the structure, targets, key performance indicators and planned activities of the Partnership, explaining what the Safe System is and how it sits at the heart of the Partnership's vision.



Safe System Explanation

The Safe System is a concept in road safety which originated in Sweden and the Netherlands in the 1980s and 1990s.

At the time, scientists and policy makers began to question the prevailing view that the safety of road users was, in the last instance, their own responsibility and that the task of road safety policy was thus primarily to influence road users' behaviour so they would act safely at all times. As the decades-long decreases in the number of road fatalities and severe injuries were levelling out, it became clear a predominant focus on education, information, regulation and enforcement was no longer delivering progress. A rethink was needed.

Adopting a Safe System starts with accepting the validity of a simple ethical imperative: **No human being should be killed or seriously injured as the result of a road crash.** (ITF, 2016, p. 5)

Once this imperative is accepted, it leads to a philosophy where the whole traffic system is designed to prevent people being killed or seriously injured, often through policy frameworks such as 'Vision Zero' or 'Towards Zero'.

There are four principles which are central to a Safe System:

- **First**, people make mistakes that can lead to road collisions.
- **Second**, the human body has a known, limited physical ability to tolerate collision forces before harm occurs.
- **Third**, while individuals have a responsibility to act with care and within traffic laws, a shared responsibility exists with those who design, build, manage and use roads and vehicles to prevent collisions resulting in serious injury or death and to provide post-collision care.
- **Fourth**, all parts of the system must be strengthened in combination to multiply their effects, and road users are still protected if one part fails. (RoadSafe, 2020)

¹ 'Severe' Injuries are those categorised as MAIS4+. The Abbreviated Injury Scale (AIS) severity score is an ordinal scale of 1 to 6 (1 indicating a minor injury and 6 being maximal). A casualty that sustains an injury with a score of 3 or higher on the AIS is classified as clinically seriously injured (MAIS3+) (Department for Transport, 2015).



The Safe System requires a new approach to road safety. Table 1 compares the traditional approach to road safety with the Safe System approach. It shows how there is a shared responsibility for road safety in the Safe System, moving away from a focus on making road users compliant. It continues to be important that road users comply with the rules of the system, but also that the system is forgiving when people make mistakes. Information giving and enforcement are still important, but they need to be coordinated with safe vehicle and road design, speed choice, and post collision response.

The Safe System is therefore:

- the vision or aspiration that zero fatalities and serious injuries from collisions are ultimately possible
- the principles to guide the design, operation and use of a road system with a view to reducing fatalities and serious injuries to zero

- the implementation of practices, tools and their interactions that will deliver on the principles. (ITF, 2016, p. 30)

The Safe System requires a systematic, multi-disciplinary and multi-sectoral approach to address the safety needs of all users. It requires a proactive strategy which places road safety in the centre of road traffic system planning, design, operation and use. There are five components for action:

- Safe People
- Safe Vehicles
- Safe Speeds
- Safe Roads and Roadsides
- Post collision response (PACTS, 2016)

Table 1 – Comparing the traditional road safety approach and a Safe System

	Traditional road safety policy	Safe System
What is the problem?	Try to prevent all collisions	Prevent collisions from resulting in fatal and serious casualties
What is the appropriate goal?	Reduce the number of fatalities and serious injuries	Zero fatalities and serious injuries
What are the major planning approaches?	Reactive to incidents Incremental approach to reduce the problem	Proactively target and treat risk Systematic approach to build a safe road system
What causes the problem?	Non-compliant road users	People make mistakes and people are physically fragile/vulnerable in collisions. Varying quality and design of infrastructure and operating speeds provides inconsistent guidance to users about what is safe use behaviour
Who is ultimately responsible?	Individual road users	Shared responsibility by individuals with system designers
How does the system work?	Is composed of isolated interventions	Different elements of a Safe System combine to produce a summary effect greater than the sum of individual treatments – so that if one part of the system fails other parts provide protection

Source: (ITF, 2016)



The system needs to provide layers of protection through these components in order to prevent deaths and serious injuries.

To help build a safe road system that is forgiving of mistakes, investment needs to be made in the creation of Safe Roads, Safe Speeds, Safe Vehicles, Safe People and Post Collision Care to put layers of protection around people to keep them safe from death and serious injuries on the road. All parts of the road system must be strengthened in combination to multiply the protective effects and if one part of the system fails, the other parts will still protect people.

(Towards Zero Foundation, 2020)

The Safe System approach suits a multi-agency partnership well. It allows different organisations to lead on different components, playing to their strengths, core business and statutory duties. In the Structure section of this Strategy, there are details of how the Safe System components will be addressed, explaining the roles and responsibilities of Partnership members.

Targets

Setting targets

Road safety targets are a useful tool for focusing activities and prioritising actions. Whilst the United Kingdom does not currently have national road safety targets, Highways England and many local highways authorities and partnerships have adopted their own targets, to provide a goal to aim for and a means of checking progress.

The House of Commons Transport Select Committee has reviewed the Government's road safety strategy twice since 2010. In its 2012 report the Committee confirmed that *"Road safety targets have played an important role in driving the UK's positive road safety record"* (Transport Select Committee, 2012: 13). (Amos, Davies, & Fosdick, 2015)

There has been research which has shown that countries which have road safety targets have generally performed better than those without. The UN identified several reasons why road safety targets have proven to be beneficial:





- Setting targets communicates the importance of road safety.
- Targets motivate stakeholders and increase accountability for achieving results.
- Targets convey the message that the Government is serious about reducing road casualties.
- Sub-national targets widen the sense of ownership by creating greater accountability, establishing more partnerships and generating more action.
- Targets raise media and public awareness and motivate politicians to support policy changes and to provide resources. (Towards Zero Foundation, 2020, p. 3)

There are 17 Sustainable Development Goals (SDGs), adopted by all UN Member States in 2015, which are a call to action to end poverty, protect the planet and improve the lives and prospects of everyone. Goal 3 is 'Good Health and Well-Being'. Specifically, target 3.6 is:

By 2020, halve the number of global deaths and injuries from road traffic accidents. (United Nations, 2020)

The Stockholm Declaration, made at the Third Global Ministerial Conference on Road Safety in Stockholm on the 19th and 20th February 2020, stated:

Reiterating our strong commitment to achieving global goals by 2030 and emphasizing our shared responsibility, we hereby resolve to;

Call upon Member States to contribute to reducing road traffic deaths by at least 50% from 2020 to 2030 in line with the United Nations High-Level Political Forum on Sustainable Development's pledge to continue action on the road safety related SDG targets, including 3.6 after 2020, and to set targets to reduce fatalities and serious injuries, in line with this commitment, for all groups of road users and especially vulnerable road users such as pedestrians, cyclists and motorcyclists and users of public transport. (Third Global Ministerial Conference on Road Safety: Achieving Global Goals 2030, 2020, p. 3)

The '50 by 30' campaign (Towards Zero Foundation, 2020) to halve global road deaths and serious injuries by 2030 encapsulates this SDG, with the European Union adopting this target in order to meet its long-term strategic goal of achieving Vision Zero by 2050. (European Commission, 2019)

Changes in casualty reporting

The systems for collecting statistics about road casualties have been well-established for a number of years and even though these systems are managed by individual police forces, the level of consistency has traditionally been considered to be quite good. However, new software reporting systems (such as CRASH and COPA) have changed the way in which injury severity is classified.

The introduction of Injury Based Reporting Systems (IBRS) appears to have led to a change in the reported severity of road casualties. This can be explained by the change of reporting systems from Non-Injury-Based Reporting Systems (NIBRS), where judgement of the casualty severity is made by the reporting police officer, to IBRS, where the severity of the injury is determined automatically from the most severe type of injury suffered. It appears that some casualties that would have been categorised as 'slight' on NIBRS are recorded as 'serious' in IBRS. This became apparent from initial analysis of high level data suggesting that switching to CRASH and COPA added between 5 and 15% to the Great Britain total for 'serious' injuries [in 2017]. (Office for National Statistics, 2019, p. 3)

The Office for National Statistics (ONS) Methodology Advisory Service has completed analysis to quantify the effect of the introduction of new injury-based report systems, such as CRASH and COPA, on the number of slight and serious injuries reported to the police, and to estimate the level of slight and serious injuries as if all police forces were using injury-based reporting systems.

What this means is that, in order to make comparisons with casualty figures before the introduction of these new systems, adjusted figures (as calculated by ONS) should



be used. It means that there will be differences between these adjusted figures and those previously published for Cambridgeshire and Peterborough, but it will allow consistent future analysis.

Figure 2 shows the number of people who were reported as killed or seriously injured on Cambridgeshire and Peterborough’s roads since 2009, and the figures after the

adjustment calculations have been performed. The CRASH system was introduced by Cambridgeshire Police in 2016, shown by the converging figures. In 2009, there were 482 reported KSI casualties, compared to 595 when the figures were adjusted. Figure 3 shows the figures for slight injuries, with 3,120 reported in 2009, adjusted down to 3,007.

Figure 2 – Cambridgeshire and Peterborough Killed and Serious Casualties - Reported and Adjusted

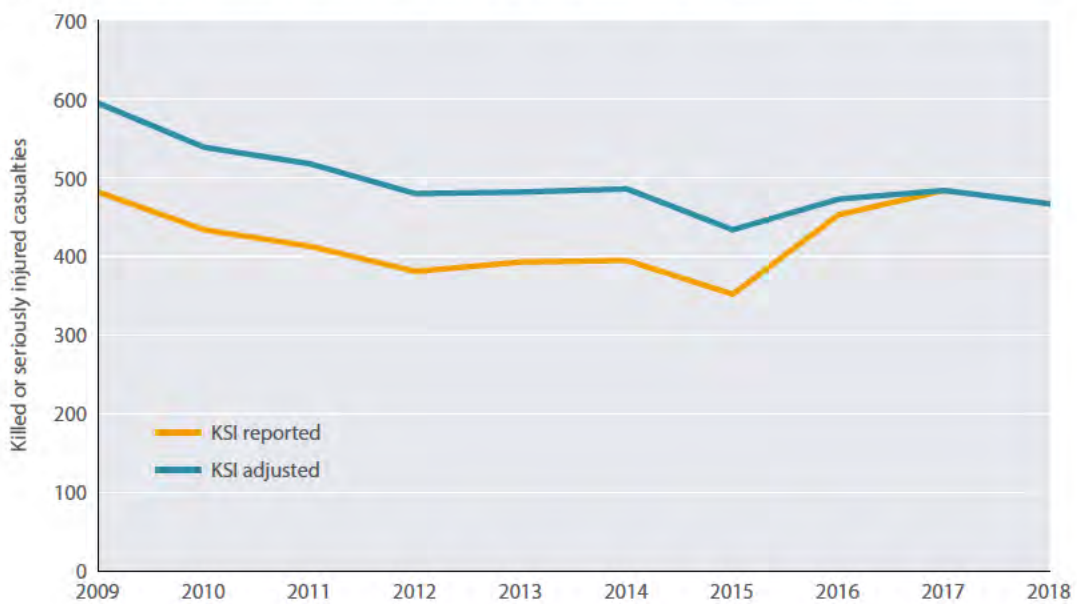
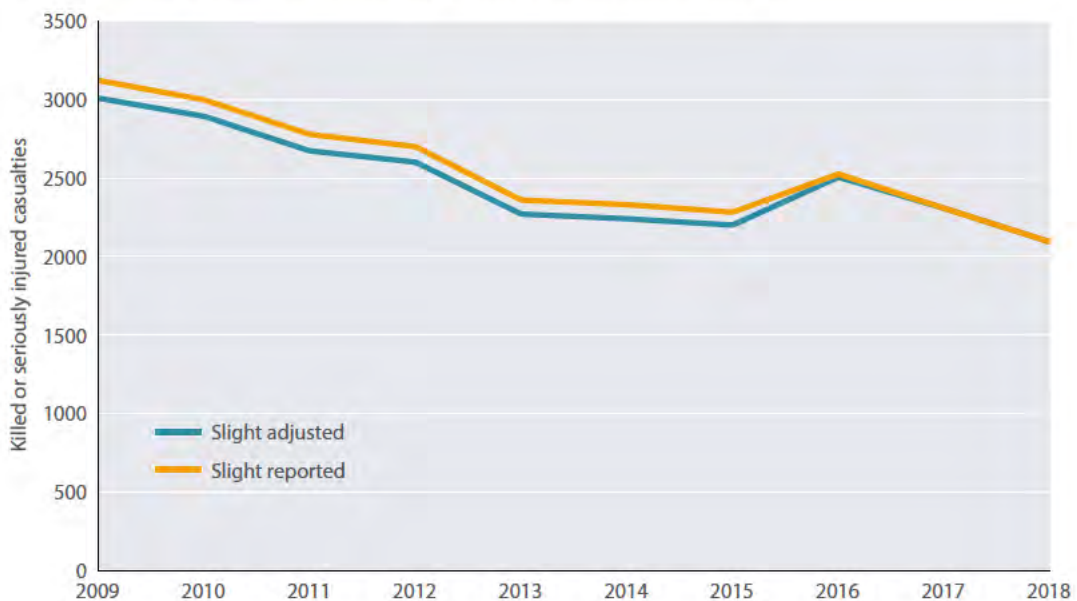


Figure 3 – Cambridgeshire and Peterborough Slight Casualties - Reported and Adjusted





Targets for the Vision Zero Partnership

To set targets for the future, the adjusted figures have been used in the analysis.

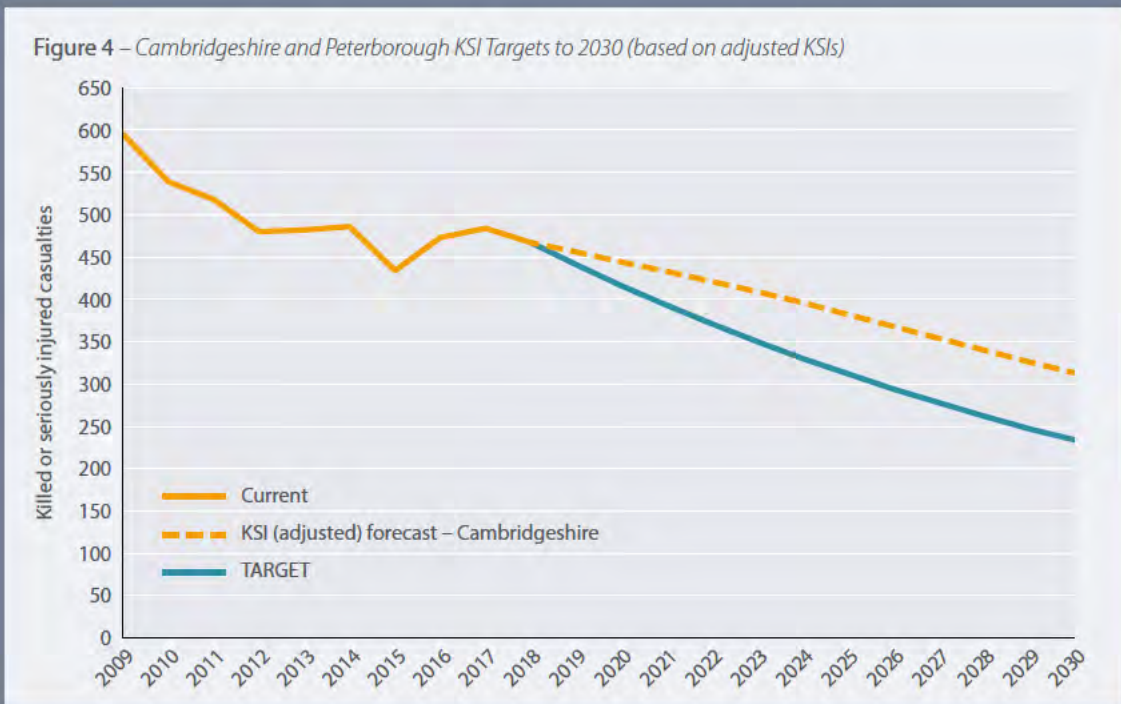
Given the international adoption of a 2030 target of a 50% reduction in road deaths and serious injuries, this is a suitable target for the Vision Zero Partnership.

As detailed earlier, there were 595 people killed or seriously injured on Cambridgeshire and Peterborough's roads in 2009 (after the figures were adjusted) and 467 adjusted-KSI casualties in 2018. Between 2014 and 2018, there was an annual average of 469 KSI casualties.

Figure 4 shows the numbers of adjusted KSI casualties which occurred in the partnership area from 2009 to 2018, and the dashed line shows the number of KSI casualties that would be expected if the trend continued. The forecast line suggests that there would be 329 people killed or seriously injured in Cambridgeshire and Peterborough in 2030, which of course depends on a large number of influencing factors – many of which are beyond the control of the Partnership. The continued solid line shows the path that would need to be followed to achieve a 50% reduction in KSI casualties by 2030: **a target of 234.**

The overall vision, as detailed earlier, for the Vision Zero Partnership is to achieve Vision Zero, where no people are killed or severely seriously injured on the partnership's roads. This is the long-term goal. The adoption of local targets allows partners to measure progress towards that goal and identify where further work is necessary.

To achieve a long-term reduction of severely seriously injured casualties, it will be necessary to undertake additional analysis on the casualty data. STATS19 data includes 'serious' casualties in one category, covering life-changing injuries (such as a broken neck or back, severe head injuries or internal injuries) through to less serious injuries, which still require medical treatment (including burns, concussion and severe general shock). To determine the numbers of severely injured casualties, the Vision Zero Partnership will need to work with health partners to link hospital or trauma data and report these figures alongside the STATS19 data. Cambridgeshire has been leading the way in linking these data sources and a methodology has been established for identifying and matching trauma cases with STATS19. (Nunn, et al., 2018)





Understanding changes in knowledge, attitudes and behaviour

This Strategy outlines, under each of the Safe System components, the activities which will be delivered, and the associated safety performance indicators (SPIs) for measuring success. In addition, to understand the overall impact of the Partnership on road users' attitudes, knowledge and behaviour, it is proposed that standard questions are asked of the local population and local road users annually. These can be used to track changes over time.

Using established questions will enable the Vision Zero Partnership to benchmark against national results and those from other areas, and be confident in the wording of the questions used. The Transport Survey Question Bank is a tool to search questions asked in main transport surveys conducted since 2000 (Department for Transport, 2017). The tool incorporates questions from a large number of existing surveys, including: Active People Survey, British Social Attitudes, THINK!, Transport Choices Segmentation Study, and young driver safety amongst others. Appendix A – Public Survey Questions on page 42 lists some example questions from the British Social Attitudes Survey, taken from the tool, which could be used by the Vision Zero Partnership annually.

An aerial photograph of a city landscape. In the foreground, a large, modern building complex with multiple wings and a central tower is surrounded by green trees and parking lots. A multi-lane highway with an overpass structure runs diagonally across the middle of the image. The background shows a dense urban area with various buildings and a large green field with a pond. The overall scene is captured from a high angle, providing a comprehensive view of the city's infrastructure and green spaces.

TOWARDS 2030
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Structure



Adopting a new approach

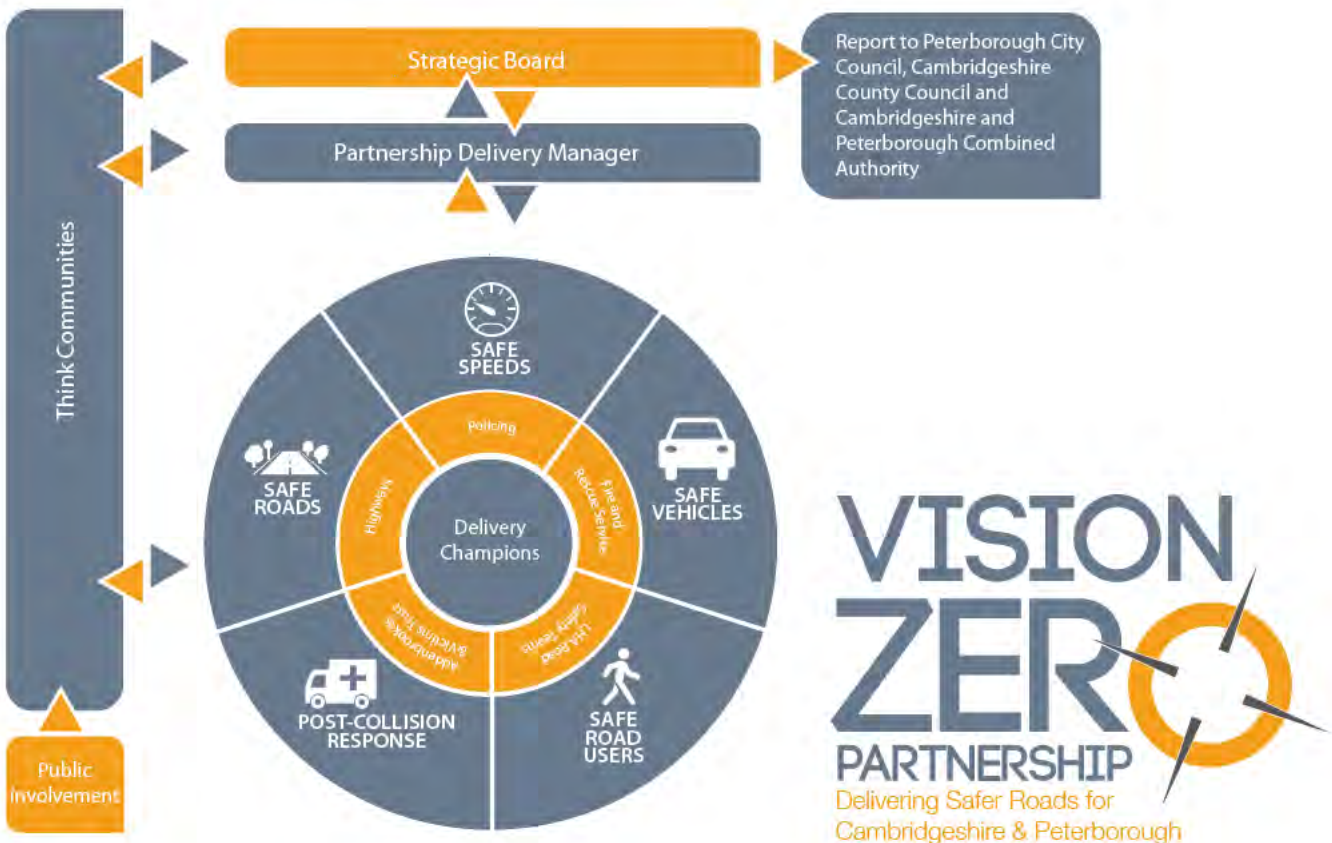
The adoption of a new strategy necessitates a review of the Partnership’s structure. An appraisal of previous working practices was undertaken, thinking about strengths and weaknesses and where changes could be made to assist a complete move to a Safe System approach. Figure 5 shows the new Partnership’s structure with more detail on the Terms of Reference on page 17.

The new structure formalises the relationship with the people of Cambridgeshire and Peterborough. More information on Think Communities is provided later in this Strategy, but essentially it is a mechanism for empowering and working with local communities to harness their energy to deliver local priorities, like road safety. It provides an opportunity for local communities to influence the activities undertaken by the partnership, in return for

providing a resource to enhance the capabilities of the partner organisations. It means that the public has an opportunity to influence all levels of the Partnership.

Day-to-day activities and partnership projects will be delivered by Safe System Workstreams, a new approach based on international best practice. The creation of these workstreams acknowledges the different skills and expertise of partner members, playing to their strengths and recognising the road safety activities delivered as part of core business, adding value through co-ordination of resources. It embeds the Safe System approach into working practices. Each workstream will have a ‘lead’ organisation, responsible for co-ordinating efforts and reporting upwards, through the Partnership Delivery Manager to the Strategic Board. The workstreams are represented in a circular relationship to demonstrate how all parts are needed to deliver the Safe System.

Figure 5 – New Partnership Structure





The Partnership Delivery Manager will oversee the work of the Safe Systems workstreams and support delivery, ensuring co-ordination between activities. The role will include challenging the workstreams to ensure that evidence and data are at the core of intervention and activity design. Each Safe System workstream will have SPIs to measure progress against and which will be reported on by the Partnership Delivery Manager to the Strategic Board. The Partnership Delivery Manager will lead on the implementation of best practice, using the latest research and evaluation results to ensure an evidence-led approach. The expertise, knowledge and experience pooled in Safe Systems Workstreams will be dedicated to co-ordinated problem solving, ensuring that a range of evidence-led solutions are implemented and are outcome-focused with reference to the SPIs and road safety targets.

The Strategic Board and the Safe System workstreams are independent from one another, to facilitate scrutiny and rigour. As such, the Partnership Delivery Manager (PDM) role is integral to communications and accountability. The PDM will report the activities of the Safe Systems Workstreams to the Strategic Board, whilst also co-ordinating, supporting, guiding and monitoring the workstreams delivered by the Safe Systems Workstreams.

The Strategic Board, as budget holder, will oversee the work of the Partnership, approving spend and 'Plans on a Page' for the forthcoming year. The Board will ensure that the direction of the Vision Zero Partnership is evidence-led and focused on achieving the SPIs, casualty targets and the ultimate aim of no deaths or serious injuries.





Safe System Workstreams

The creation of Safe System Workstreams is an innovative new way of formalising the Safe System approach into the Vision Zero Partnership. Whilst a fresh approach, it is a move based on international best practice and also plays to the strengths of the partners.

There are certain tasks which can only be performed by particular partners. For example, traffic enforcement primarily belongs to the police – other partners cannot process offence detections for prosecution. However, partners have supporting roles. Whilst the police undertake speed enforcement; the local highways authorities and Highways England have responsibility for setting appropriate speed limits; local communities can support enforcement through Community Speed Watch activities; and all partners can communicate with road users to promote compliance with those posted limits.

For each of the Safe System components, it means that there is a natural 'lead' within the Vision Zero Partnership, however, no lead can work in isolation. Multiple partners will be involved in each of the Safe System Workstreams and each Workstream must work with the other Workstreams and upwards and outwards from the Partnership in order to create the Safe System.

² The CPCA has a Local Transport Plan, which aligns with this Road Safety Strategy. (Cambridgeshire & Peterborough Combined Authority, 2020)

Terms of Reference

Vision

Our vision is for roads free from death and serious injury, where the people of Cambridgeshire and Peterborough can enjoy active lives and sustainable transport.

Structure

The Partnership will have two levels of operation, a Strategic Board and a set of Safe System Workstreams. Coordination and support will be provided by the Partnership Delivery Manager (PDM).

The structure is designed to ensure there is a clear distinction between the Safe System Workstreams and the Strategic Board. Whilst the same partner organisations will be represented at both levels, no individual representatives will sit at both the delivery level and on the Board. The connection between the two levels is the PDM.

Governance

The Strategic Board will report directly to PCC & CPCA² / CCC Highways Committee

Aims

- To prevent road users from being killed or seriously injured (KSI) through a coordinated approach, using Safe System principles.





- To reduce the social impact of road casualties, at an individual, family and community level.
- To reduce the cost to public agencies in dealing with the impact of road collisions.
- To develop a financially sustainable model of delivering road safety activity across Cambridgeshire and Peterborough.



Objectives

- To reduce year on year the numbers of people killed and seriously injured on Cambridgeshire and Peterborough roads, to a point where there are no fatalities or seriously injured casualties.
- To work within the Safe System to deliver a co-ordinated approach to achieve Vision Zero
- To support the victims of road collisions and reduce the social impact for individuals, families and communities.
- To undertake targeted road safety enforcement as part of a strategy to reduce KSIs.
- To identify vulnerable road users and deliver targeted initiatives to prevent collisions resulting in death and serious injuries.
- To provide the best possible post-incident response, both at the roadside and in the health setting.
- To identify high risk collision locations and develop preventative measures (including road engineering solutions) to decrease the risk of future collisions,

alongside reviewing the network to reduce road danger through a roads assessment programme.

- To encourage and facilitate utilisation of the safest possible vehicles and equipment.
- To share data and intelligence across public agencies to prevent future road collisions.
- To work across other Partnership areas to identify methods of reducing partnership costs.
- To lobby and influence organisations, companies and government departments where appropriate.

Strategic Board

Membership

- Cambridgeshire County Council
- Peterborough City Council
- Cambridgeshire Constabulary
- Tri-force road policing
- Highways England
- Cambridgeshire Fire and Rescue Service
- East of England Ambulance Service
- Public Health
- Addenbrooke's Hospital
- Roads Victim's Trust
- Magpas Air Ambulance

Frequency of Meetings

Quarterly

Elected Positions

Chair	TBC
Vice-Chair	TBC

The Strategic Board will elect one of its members to Chair the meetings for the year. A Vice-Chairman will also be elected for the year. Elections will take place annually in March and the existing Chairman and Vice-Chairman may be re-elected up to a maximum tenure of three-years.

A meeting will require the attendance of seven member organisations to be considered quorate.



Safe System Workstreams

Table 2 – Safe System Workstreams

Workstream	Lead Agencies
Safe Roads	Cambridgeshire County Council (Highways) / HE/Peterborough City Council (Highways)
Safe Speeds	Cambridgeshire Constabulary
Safe Vehicles	Cambridgeshire Fire & Rescue
Safe People	Cambridgeshire County Council / Peterborough City Council (Road Safety Teams).
Post Collision Response	Addenbrookes / Roads Victims Trust

The expectation is that the officers within each Workstream will routinely:

- Take ownership of and update the relevant 'Plan on a Page' for their area.
- Gather and analyse data from across partners
- Research national best practice, policy and trends and understand their implications for Cambridgeshire and Peterborough.
- Identify trends and common issues from Partnership data and intelligence
- Share data and best practice both regionally and nationally, feeding findings back into the partnership.

The Partnership will not have a dedicated communications function, instead each lead agency would be expected to utilise their own communications resource whilst keeping partner agencies and PDM fully involved and informed.



Approval for new schemes of work and / or funding will be made to the PDM using the approved template. Where appropriate the request will be considered by the Strategic Board.

The workstreams **must not** be considered as 'silos'; they are areas of responsibility that will interlink with each other and other organisations, areas and communities on a regular basis. Openness and clarity of communication will be essential to ensure the success of this model.

Partnership Delivery Manager (PDM)

The PDM will support, guide, advise and monitor the individual workstreams, as well as providing the liaison between the Strategic Board and Safe System Workstreams. The PDM will also ensure that the workstreams do not clash in terms of messaging, outputs, timings or resources, whilst looking for funding opportunities that could be accessed by elements of the Partnership.

Think Communities

Think Communities (Cambridgeshire County Council, 2020) has been developed through a collaboration between Cambridge City Council, Cambridgeshire Council, Peterborough City Council, Cambridgeshire Constabulary and the district councils of East Cambridgeshire, Fenland, Huntingdonshire and South Cambridgeshire.

It is a co-operation between those organisations to create a shared vision, approach and priorities for building Community Resilience across Cambridgeshire and Peterborough partner organisations.

The vision is based on three components, which align well to the Safe System approach:

- **People:** Resilient communities across Cambridgeshire and Peterborough where people can feel safe, healthy, connected and able to help themselves and each other.
- **Places:** New and established communities that are integrated, possess a sense of place, and which support the resilience of their residents.



- **System:** A system wide approach in which partners listen, engage and align with communities and with each other, to deliver public services and support community-led activity. (Cambridgeshire County Council, 2018)

This approach encourages an exchange between communities and the Vision Zero Partnership, where they can work together to create healthy, safe communities. The approach is evidenced-led and is a two-way exchange, where the Partnership is committed to work with communities to improve lives, whilst at the same time, empowering communities to identify and implement their own solutions.

The pledge of Think Communities partners is that together they:

- Empower and enable communities to support themselves and encouraging community-led solutions and intervention. (*People*)
- Work with communities to harness their local capacity targeted towards those in the community requiring the most help. (*Places*)
- Support active, healthy communities to play a clear and evidenced role in improving people's lives, thereby preventing, reducing or delaying the need for more intrusive and costly public services. (*Places*)
- Align resources to create multi-agency support which can flexibly meet the changing needs of our communities. (*Systems*)

- Be prepared to be experimental in our approach, in order to deliver individual local solutions and support ideas that can be replaced. (*Systems*) (Cambridgeshire County Council, 2018)

There are a variety of ways in which the Think Communities approach can support this Strategy, and it is envisaged that the opportunities will grow over time.

Community Speedwatch is a current example of how communities and partners work together through identifying a problem of speeding in a place-based approach and supporting local residents to take ownership of the solution.

Communities know their streets. This Strategy is about using evidence to create a Safe System. The knowledge held within communities can be harnessed to support the Strategy. Those within local communities can be empowered to collect data to inform activities undertaken by the Vision Zero Partnership and monitor its progress over time. Embedding data into the Think Communities process will ensure that residents understand the expectation that priorities need to be evidence-led and that there will be a process to collect data and interpret the findings.

Think Communities can be used to train residents to collect baseline and monitoring data on non-compliance levels on traffic offences, such as mobile phone use and seatbelt wearing rates, to inform the activities of the

Table 3 - Strategic Priorities and Actions

	Priority Area	Example Action
Priority 1:	Communities are connected and work together toward shared goals.	Develop a joined up, multi-agency campaign to promote the different ways vulnerable people and high-risk communities can be supported by community-led activity.
Priority 2:	Take a place-based approach to service design and delivery of services.	Identify key communities where a place-based approach in keeping with the Think Communities vision can be piloted
Priority 3:	Communities feel they are supported to help themselves.	Development of a shared toolkit which will offer access to consistent levels of support to community groups and organisations across Cambridgeshire and Peterborough.

(Cambridgeshire County Council, 2018)



Partnership and for long-term monitoring. In exchange for data collection services, the Vision Zero Partnership could commit to undertake suitable interventions, including specific enforcement activities or remedial engineering (not necessarily related to the data collection but based on evidence of an issue).

The power of schools and youth-based organisations could also be harnessed through Think Communities. There is an opportunity to work with local children to educate them on road safety whilst harnessing their influence on parents and local communities, getting the children to use data and evidence to develop targeted interventions, encouraging innovation.

One other existing example of a community-based exchange is Biker Down. This is a national Fire and Rescue Service led scheme, where motorcyclists attend a free course that offers them the opportunity to learn practical skills to help them themselves should they be involved in a collision, but also first-aid training and advice on what to do should they find themselves first on the scene of a collision where someone has been injured.

Think Communities provides an exciting opportunity for the Vision Zero Partnership to listen to the needs of local residents and encourage them to work within the Safe System to improve road safety for all. The three Strategic Priorities and Actions are well-suited to road safety and provide a mechanism to expand the interplay between partners and communities, which will develop with time, with pilots developed in particular places and rolled out more widely.

There are other mechanisms for community engagement that must be considered and engaged with, such as Community Safety Partnerships (CSP's). The PDM will ensure that workstreams are liaising with such groups at the appropriate time.

Plans on a Page

As repeatedly stressed, the activities of the Vision Zero Partnership must be evidence-led in order to build a Safe System. This requires an approval process for those activities, to ensure that work is consistent and collaborative across the Safe System workstreams.

There are two parts to this approval process. The first is to submit a workstream approval document, as shown in Appendix D - Workstream Approval Template. This form asks partners to:

- Describe the intervention
- Detail the evidence base and data sources to show the need for the intervention
- Indicate if the intervention links to air quality, health improvements and/or active travel
- Describe the resources required to deliver (funding and staff time) and the details of partner organisations' commitment to the intervention
- Describe the intended outcomes of the intervention (such as improvements in knowledge, skills, attitudes, behaviour change, training), including the links to any specific performance indicators
- Detail the timescales of the intervention
- Describe the evaluation plans, including methodologies, costs and timescales
- Detail who is proposing and approving the intervention

Each intervention conducted by partners under the Safe System workstreams should have a workstream approval document, whether it is business as usual, a current intervention or one proposed for the future. This allows the Partnership to review activities and understand how they align with the evidence and the safety performance indicators. The collated interventions will be summarised in a 'Plan on a Page', with one of these produced and updated annually to reflect current activities in each Safe System workstream. Partners will use a template 'Plan on a Page' for annual updates.



Figure 6 - Example Plan on a Page for Post Collision Response 2020



Delivering for Cambridgeshire & Peterborough



Our Vision - We want to reduce the number of collisions on our roads and therefore the number of people killed or seriously injured as a result and the subsequent impact on individuals, their families and the community. Our ultimate vision is for no-body to die on the roads of Cambridgeshire. The Partnership consists of the following organisations:

- Cambridgeshire County Council
- Peterborough City Council
- Cambridgeshire Constabulary (Response – local policing)
- Joint Protective Services (Roads Policing)
- Highways England
- Cambridgeshire Fire and Rescue Service
- East of England Ambulance Service
- Public Health - Lead Agency for Post Collision Response**
- Addenbrooke's Hospital
- Roads Victim's Trust - Lead Agency for Post Collision Response**

What should we do?

- Work with the local health sector to identify local improvements in post-collision care.
- Biker Down.
- Promotion of location apps (what3words / RealRider)
- Promotion of 1st aid training for vulnerable road user groups (cyclist / equestrian) on Biker Down model.
- Timely crash investigation & prosecution.

- Rapid reinstatement of the network.
- Timely intervention with bereaved relatives.
- Availability of support for PTSD etc.
- All interventions will be based on evidence and data.
- All interventions will be evaluated (where appropriate).
- All interventions will be based on systems-thinking (working with partners and understanding the impact on other parts of the system).

What do we want to achieve?

The Partnership is collectively working towards a long-term strategic goal of Vision Zero, where there are no deaths and serious injuries on the Partnership's roads. This is an ambitious goal and will need time and effort to be achievable. With this Strategy starting in 2020, the goal is to achieve zero deaths or severe1 serious injuries in the Partnership area by 2040.

This Plan on a Page will be updated annually, to reflect changes in collision data, SPIs, survey data and re-search into the effectiveness of interventions. This allows the Partnership to respond dynamically to local needs and international best practice.

Innovation is also encouraged within the Partnership and with partners, allowing new interventions to be tried and tested, thinking about the current evidence base and how an understanding of the issue or the intervention's effectiveness could improve what is known about best practice.

Road Users must be given the best possible chance of survival and recovery following an incident on the road network. We will coordinate the immediate and longer term response to these incidents, promoting the best possible outcomes for the victims, their families, other parties and the wider community.

What have we achieved?

- Proposed evaluation delivered in service plan year, to encompass qualitative outcomes above the numbers provided in KPI measurement.
- Improved post collision response by the three emergency services.
- Improved A&E response time for road collision victims.
- Promotion & delivery of Biker Down and similar initiatives.
- Improved network reinstatement rates.
- Improved take up rate for the Road Victims Trust.

What are we measuring? Safety Performance Indicators (SPI's)

Measure	Target	Value	RAG
Post Collision Ambulance Category 1 Response Time	7 minutes mean	%	
Post Collision Ambulance Category 2 Response Time	18 minutes mean	%	
Post Collision Police Response Time			
Post Collision Fire & Rescue Urban Response Time	9 minutes	%	
Post Collision Fire & Rescue Rural Response Time	12 minutes	%	
Admit, transfer or discharge at least 95 per cent of A&E patients	Within 4 hours	%	
Percentage of emergency incidents attended by Highways within 2 hours	90%	%	
Road Victims Trust Take Up Rates	?	%	
Numbers of attendees of Biker Down courses	?	Number	

What does the data tell us?

- Paramedic and/or ambulance response times
- Police response times
- Fire and rescue service response times
- Number of collisions where the air ambulance or MAGPAS attended
- Numbers of extractions from collisions (and methods used)
- Waiting times at A&E
- Network reinstatement rates
- Length of time for legal processes
- Numbers of road victim referral uptakes
- Number of people training in first aid through Biker Down
- Number of students receiving first aid in schools

An aerial photograph of a city, showing a complex highway interchange with multiple overpasses and ramps. In the foreground, there is a large, multi-story building complex, possibly a university or government facility, surrounded by greenery and parking lots. The background shows a dense residential or commercial area with many smaller buildings. The entire image has a semi-transparent blue overlay.

TOWARDS 2030
MAKING OUR ROADS SAFER FOR ALL

Safe System Workstreams



In the Safe System Explanation on page 7, it was stated that to create a Safe System in road safety, it requires a systematic, multi-disciplinary and multi-sectoral approach to address the safety needs of all users.

This section takes each Safe System workstream in turn, discussing a variety of activities which have been or could be undertaken by those within the Vision Zero Partnership, and with external organisations, to strengthen each part of the System.

For each Safe System workstream, there is case study which details a particular example of best practice activities. The case studies have been selected because they:

- Are based on evidence and data
- Have been evaluated (where appropriate)
- Are based on systems-thinking (working with partners and understanding the impact on other parts of the system)

Data and good quality information are at the heart of the Vision Zero Partnership. The PDM will co-ordinate access to data, with analysts and data managers from partner organisations working with the workstreams to ensure they have access to appropriate data to monitor performance and identify casualty issues. Some analysts will be embedded in all workstreams whereas others hold specialist data sets, not applicable to all.

Each Safe System workstream also has a number of safety performance indicators (SPIs), which can be monitored over time to see the contributions the activities are providing to moving towards Vision Zero.

There are two levels of SPIs: top-level indicators, which have been suggested by the Parliamentary Advisory Council for Transport Safety (PACTS) (Anderson, 2018); and local outcome measures, based on the types of data regularly collected.

Appendix C – Evaluation Stages sets out a number of stages to be considered when thinking about evaluating interventions. At the beginning of each project, partners should think about how data could be collected to monitor SPIs and also how evaluations could inform the Partnership (and others) as to what is most effective. Evaluations should be embedded into the thought process of starting a new project.

There are also a number of activities described in this section. The examples of activities included in this Strategy are not exhaustive. Instead, it outlines the types of activities and interventions which can be undertaken, prompting partners to think about the evidence base and how the workstreams sit within the wider Safe System. Plans on a Page will be updated annually, to reflect changes in collision data, SPIs, survey data and research into the effectiveness of interventions. This allows the Partnership to respond dynamically to local needs and international best practice.

Innovation is also encouraged within the Partnership and with partners, allowing new interventions to be tried and tested, thinking about the current evidence base and how an understanding of the issue or the intervention's effectiveness could improve what is known about best practice.





Figure 7 - Safe System Workstreams





Safe Road Users

Safety Performance Indicators

The following high-level safety performance indicators for the Safe Road Users workstream are:

- Percentage of traffic complying with speed limits on national roads
- Percentage of traffic complying with speed limits on local roads
- Percentage of drivers who do not drive after consuming alcohol or drugs
- Percentage of car occupants using a seatbelt/child seat
- Proportion of drivers not using an in-car phone (hand held or hands free)

These indicators will be monitored annually, using consistent data collection processes. Reference should be made to best-practice in the analysis of this data, both within the UK and globally. There is currently no defined methodology for any of the indicators mentioned, although work is taking place within the European Union and International Transport Federation to standardise collection, allowing international comparisons.

Outcome Measures

Ongoing data collection will be collected on the following:

- Numbers of road users receiving interventions
- Number of road traffic offences recorded
- Number of people reached through campaigns
- Number of people trained
- Brand awareness of publicity campaigns
- Number of people agreeing with questions in annual survey

Understanding mistakes and non-compliance

In a Safe System, it is acknowledged that people are vulnerable, and people make mistakes. The vulnerability of human beings cannot be changed, although vehicles and road environments can be improved to protect human beings and reduce levels of vulnerability. It is impossible to completely prevent people from making mistakes, but it is necessary to encourage the correct use of the road network. It is also essential to highlight the shared responsibility for the creation of a Safe System – road designers and vehicle manufacturers will strive to create the safest roads and vehicles but people need to ensure that they use them safely, and within the traffic laws.

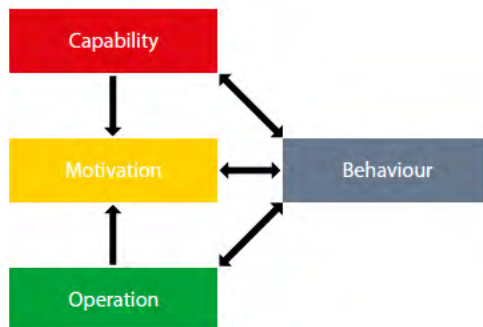
There are two approaches to the delivery and development of interventions to encourage road users to be safe: ensuring that people know how to use the system correctly; and ensuring that people are compliant with the rules of the system. The first approach is about using training and skills-based education to assist road users to know the rules of the road and how to physically use the facilities or vehicles provided. The second approach is about understanding why road users might not be complying with the rules of the road and identifying the correct mechanism for encouraging them to do so.

A useful tool for tailoring both types of approach is the COM-B model³, which states that capability, opportunity and motivation can all influence behaviour. (Michie, Atkins, & West, 2014) More information on how the model can be used to understand how to assist road users to comply with the rules and correctly use the system can be found in Appendix B – COM-B Model on page 46.

³ There are lots of different models to help road safety practitioners understand behaviour, and the Vision Zero Partnership will select the most appropriate for the problem behaviour in question. COM-B is provided here as an example to show there are lots of different influences on behaviour, and these need to be recognised before effective interventions can be designed and delivered.



Figure 8 – COM-B Model (Michie, Atkins, & West, 2014)



Activities being delivered

The Vision Zero Partnership is already using many of these tools described in COM-B to support Safe Road U Information campaigns such as 'I'm Des (Christmas Drink Drive)', 'Project Pictogram', 'Be Safe, Be Seen' campaign for cyclists and pedestrians, Highways England's 'Distressed' campaign and THINK resources are used to ensure that road users are aware of the rules of the road and the consequences of not following them. There are also promotional events, designed to inform the public about the activities of the Partnership and raise awareness of specific road safety topics, including safe motorcycling events and motorcycle week or month.

There are specific training resources provided, with the Partnership adopting a 'cradle to grave' approach where road users of all ages are given skills-training to use the roads correctly. These include 'Bikeability' (cycle training) and pedestrian, scooter and equestrian training. 'BikeSafe' is a national-scheme where motorcyclists have their riding assessed and are then sign-posted to post-test training to improve their skills. For novice riders, 'RideFree' offers enhanced Compulsory Basic Training and the Partnership's role here is to promote attendance of the scheme (more information on 'RideFree' is provided overleaf as a case study).

In schools, educational programmes include 'Drive IQ' and Highways England's young driver app and learning hub

for novice drivers and the 'Children's Traffic Club' and the 'Junior Travel Ambassador' scheme for younger road users.

Targeted enforcement is undertaken for those who choose not to comply with road rules, with 'Operation Dragoon' targeting the most dangerous drivers and 'Operation Velo' seeking to reduce the risk to cyclists through sharing road safety advice to drivers and cyclists.





RideFree

RideFree is an initiative developed in the East of England between Highways England, the Driver and Vehicle Standards Agency (DVSA), road safety partnerships (including the Vision Zero Partnership), motorcycle industry representatives and approved training bodies.

RideFree involved a lengthy evidence-led process. It started with a review of motorcycle initiatives in the East of England, alongside in-depth collision analysis. These revealed that young motorcyclists were often not the focus of road safety interventions, despite being involved in collisions.

Experts from the region came together to understand the reasons why young motorcyclists are involved in collisions, examining the casualty data and other research. A 'behavioural diagnosis' was performed, to understand the influences on behaviour and the opportunities to engage with them.

The result was the development of two enhanced versions of Compulsory Basic Training (CBT), created with industry experts and psychologists. These were tested in a randomised controlled trial (RCT) to understand the effect of the enhancements.

The results were positive, particularly for the version involving pre-learning. As such, DVSA is rolling out the scheme nationally to enable all young novice riders to benefit from being better prepared and having the time to improve their knowledge and attitudes before their training.

RideFree is a good example of partnership working and of looking out and up to other agencies who can support the development of an evidence-led scheme (national government, industry associations and research bodies). RideFree embedded data and evaluation in its development and has been recognised in national road safety awards.

The Vision Zero Partnership was heavily involved in the development of the scheme and its role now is to promote the benefits of RideFree and signpost new riders to local trainers who are delivering it. This makes it a low-cost but effective intervention for the Partnership.



What to target

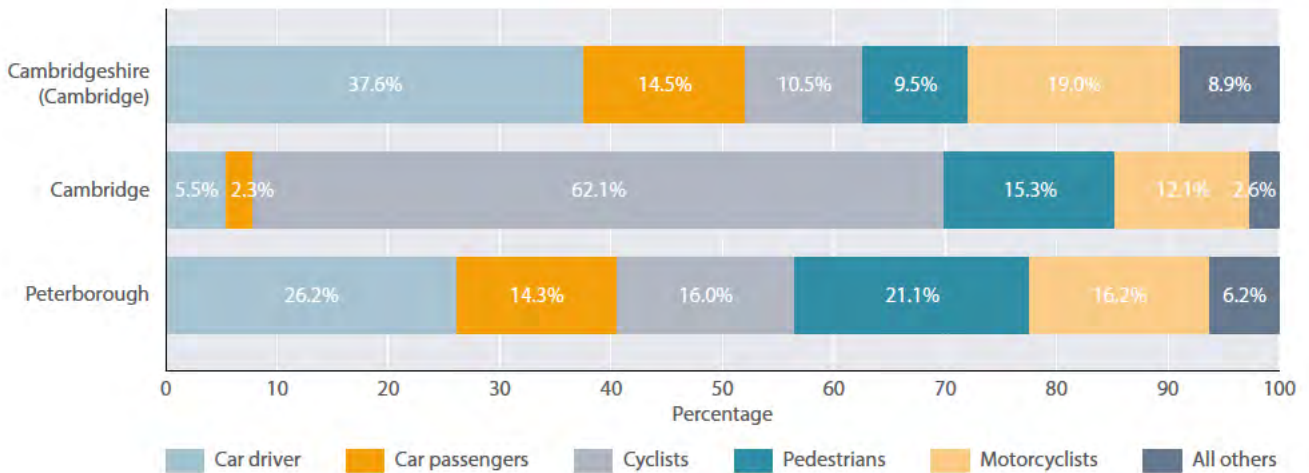
Whilst the overall goal is to reduce the severity of collisions across the Vision Zero Partnership area, it should be remembered that the risk of death or serious injury differs for various users. This is where data analysis is important for understanding where and for whom the system needs to be made safer.

Figure 9 shows the percentages of adjusted KSI casualties in the Partnership area by road user group and local

authority between 2014 and 2018. It splits out the rest of Cambridgeshire from Cambridge City. Each area has a different high-risk group: for Cambridge City, 62.1% of the KSI casualties were cyclists, whilst 21.1% of Peterborough's KSI casualties were pedestrians and 37.6% of the KSI casualties injured in Cambridgeshire outside of Cambridge were car drivers.



Figure 9 - Adjusted KSI Casualties by Road User Group (2014-2018) in the Vision Zero Partnership area



Age profiles are different in the various areas of the Partnership, with higher percentages of children killed or seriously injured (adjusted figures) in Peterborough than elsewhere and slightly higher percentages of adults and

older casualties in Cambridgeshire (outside of Cambridge) and young adults in Cambridge.

The data suggest that interventions will need to be tailored to local needs within the Partnership area.

Table 4 - Age Groups of Adjusted KSI Casualties (2014-2018)

Age Group	Peterborough	Cambridge	Cambridgeshire (-Cambridge)
Preschool Children (0-4 years)	2.6%	0.0%	0.9%
School Age Children (5-15 years)	7.9%	4.6%	4.5%
Young Adults (16-24 years)	19.4%	20.5%	19.2%
Mid-Age Adults (25-64 years)	59.5%	59.8%	62.7%
Senior Adults (65+ years)	8.7%	9.5%	11.1%





Safety Performance Indicators

The following high-level safety performance indicator for the Safe Roads workstream is:

- Percentage of roads with appropriate safety rating (broken into the following stages):
 - Establish baseline measure and 2030 target (2020/21)
 - 1st monitoring point (2023/24)
 - 2nd monitoring point (2026/27)
 - Final monitoring point (2029/2030)

There is no international standard on this indicator, although the iRAP system is widely used. In order to establish and monitor the percentage of roads that meet an appropriate safety rating, a phased approach is proposed. This means that the first stage of this indicator is to devise an appropriate methodology and determine what the baseline percentage of roads meeting the standard is. This will allow 2030 targets for improvement to be set, with three monitoring points over the time period.

Outcome Measures

Ongoing data collection will be collected on the following:

- Monitoring schemes against specified aims (if collision reduction is being measured, it should account for Regression to Mean (RTM) and over an appropriate length of time to the size of effect expected)
- Maintenance regimes
- The number of design and construction schemes delivered

Activities being delivered

Data analysis plays an important role in the Safe Roads workstream. Investment in road schemes and remedial measures is based on cluster analysis (the identification of specific locations on the road network where safety can be

improved) and route analysis (the identification of specific lengths of roads where safety can be improved).

Clusters could occur at specific junctions, bends or outside particular places, such as schools, libraries or shops. The purpose of the analysis is to understand what remedial actions would help to improve the safety of that location, which could range from improved signage and lining to a re-design of the road.

Route analysis uses a similar approach but takes in a much longer stretch of road, which might require a combination of treatments to improve safety. Often, there is a reliance on engineering measures to improve safety on a route, but the A1307 case study below shows how a partnership, holistic approach can be utilised.

Serious consideration needs to be given to assessing the relative and comparative risk of clusters and routes. Density analysis (treatable collisions per cluster, or collisions per mile) is a basic approach and is best used in conjunction with a risk analysis taking into account traffic levels. Traffic count data is a useful data source when considering prioritisation and aligns with other studies of risk published annually by the Road Safety Foundation.

There are a number of guidance and design manuals which set out how roads should be designed, assessed, maintained and operated. These provide clear standards on how changes to the road network are currently implemented in the UK.

Safe Systems guidance on road design also exists to support infrastructure that accounts for people making mistakes and aims to reduce their vulnerability.

Street design has a crucial effect on how people use and experience roads. When streets are designed and implemented for safety, they limit driving to appropriate speeds.

Street design has a strong interrelationship with speed management and enforcement. It can reduce or eliminate conflicts between modes of transport



and make it easier for people to understand how the space is divided or shared by different modes, which makes walking, cycling, and accessing public transport much safer and more appealing. Street design has a strong interrelationship with mobility and transport choice. By being more “forgiving” – that is, by reducing the opportunity for errors to occur and the impacts of those errors when they do occur – it can reduce the likelihood that a collision is fatal. (World Resources Institute and Global Road Safety Facility, 2018, p. 41)

The guidance provides suggestions on how to use proven distinct design techniques for the different needs of rural

roads, urban streets and highways, thinking about speed control, segregation of vulnerable road users and types of junction appropriate for the type of use and type of conflict. Taken alongside existing guidance on design, these suggestions provide an opportunity to re-engineer roads using a Safe System approach.

Partner organisations are also members of the National Modeshift STARS (Modeshift STARS, 2020) school travel planning scheme. This scheme encourages schools to undertake an audit of engineering and safety measures in the vicinity of the school, with the local highways authorities working with the schools to implement an action to plan to increase walking and cycling to school.

A1307 Fourwentways to County Boundary

The A1307 is 22.3 miles long from Girton in Cambridge to the Suffolk border near Haverhill. Apart from the villages of Linton and Abington, it was a national speed limit rural route, with high traffic flows and high numbers of serious and fatal incidents.

With a changed focus on route treatments and a more holistic approach to collision reduction, and closer working relationships across the various road safety service team and external partners, a range of interventions were deployed.

Although the approach to each individual element of the scheme was still to have the specialist team delivering their own part of the works, the innovation was to manage the funding and programme the works to target the same route within a relatively short period.

The theory was that by focusing on the route and interlinking the elements, the whole project would deliver greater results than the sum of its parts.

Engineering solutions included widening the road at a specific location to accommodate a ghost island right turn facility, pedestrian refuge islands and street lighting, alongside speed limit reductions, new safety camera sites and road safety message boards along the whole route.

Education and publicity were taken with a partnership approach, including with neighbours at Suffolk County Council and Suffolk RoadSafe. High levels of media coverage were attained from radio adverts, internet advertising, posters, bus backs and radio and telephone interviews.

Enforcement days were accompanied by a major media presence, including filming of a police drive along the route with accompanying commentary.

The combined effort resulted in significant reductions in casualties along the route and demonstrated that an evidence-led, partnership and Safe System approach can be highly successful.

<https://www.cambridgeshire.gov.uk/asset-library/imported-assets/Appendix%20-%20Complementary%20Education%20Measures.pdf>





What to target

As with road users, the Partnership covers a wide network of different road types. Figure 10 shows the number of adjusted KSI casualties across the Vision Zero Partnership area, according to whether the collision occurred on rural or urban roads. Rural roads are major and minor roads outside urban areas and having a population of less than 10 thousand, with urban roads being major and minor roads within an urban area with a population of 10 thousand or more. It shows that Cambridge City has predominantly

urban roads, with Peterborough being more evenly split between urban and rural. The rest of Cambridgeshire (outside of Cambridge) is predominantly rural, with two-thirds of the adjusted KSI casualties occurring on these roads. This information is reinforced in Table 5, which shows the road class where the casualties occurred and reflects the diverse nature of the Partnership area. It is interesting to note that for all areas of the Vision Zero Partnership, A roads have high percentages of KSI casualties in comparison to the percentage of the network they represent.

Figure 10- Adjusted KSI Casualties by Rural or Urban Roads (2014-2018) in the Vision Zero Partnership area

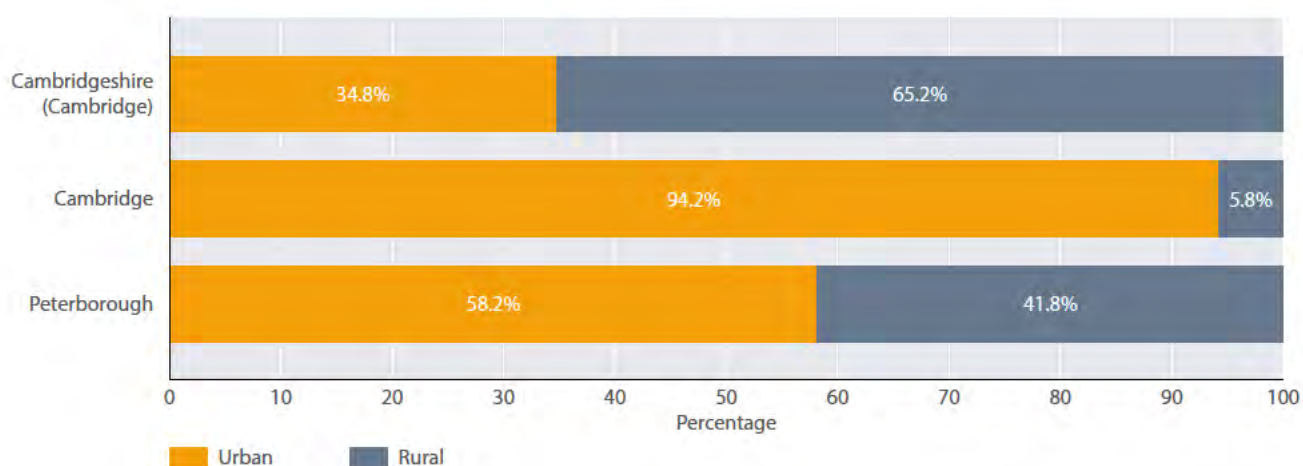


Table 5 – Road Class of Adjusted KSI Casualties (2014-2018) (with percentage of the network each class represents in brackets)

Road Class	Peterborough	Cambridge	Cambridgeshire (-Cambridge)
Motorway	0.0% (0.0%)	1.2% (0.0%)	1.3% (1.2%)
A (M) Road	0.0% (0.0%)	0.0% (0.0%)	0.7% (2.4%)
A Road	41.8% (13.1%)	40.2% (15.2%)	48.6% (15.0%)
B Road	3.2% (6.0%)	1.2% (1.1%)	18.8% (12.7%)
C Road	8.7% (21.8%)	9.8% (10.5%)	8.8% (24.2%)
Unclassified Road	46.5% (59.1%)	47.4% (73.2%)	21.9% (44.6%)



Safe Vehicles

Safety Performance Indicators

The following high-level safety performance indicator for the Safe Vehicles workstream is:

- Percentage of new passenger cars achieving a sufficient safety rating, or equipped with specific technologies.

This indicator cannot be measured for the fleet of vehicles using the roads in Cambridgeshire at present and is not subject to an agreed international definition. One option, however, is to use the published Euro NCAP ratings for vehicles, or better still, the fitment of vehicle safety systems that align with Safe System principles. Again, this cannot currently be assessed for the vehicles using the roads in Cambridgeshire, but it could be adopted for a subset of the vehicles in use, as discussed later.

Outcome Measures

Ongoing data collection will be collected on the following:

- Numbers of car occupants using a seatbelt
- Numbers of children using correctly fitted child restraints
- Numbers of extended rear facing seats purchased
- Proportion of Partnership fleets which are NCAP5* rated vehicles
- Number of construction and use checks (Police and DVSA)

Activities being delivered

Traditionally, it may appear that road safety partnerships have focused on elements of road safety other than Safe Vehicles. However, as with the other workstreams, there are interrelationships with other elements of the Safe System, alongside distinct ways to ensure safe vehicles are used on the local network. It is about providing information on selecting the safest possible vehicles and equipment, as well as working with internal and external partners to influence the vehicles and equipment available.

Safe Vehicles is inextricably linked to Safe People, Safe Speeds and Post Collision Care. It encompasses all facets of ensuring that road users are accessing, maintaining, and correctly using safe vehicles on the network. This includes working with fleets and those who drive for work; heavy goods vehicle owners and drivers; motorcycles and equipment; lowering emissions and improving air quality; use of safety equipment within vehicles and the incorporation of automated vehicles into the fleet.

Working with the Safe People workstream, there is an educational arm to improving the standard of vehicle and equipment used on the roads. For parents, carers and health care professionals, information and training can be provided on the safest child car seats that can be purchased, what their benefits are, and how to fit them correctly. Fleet purchasing decisions can also be influenced, encouraging procurement, fleet and health and safety managers to choose vehicles with EuroNCAP5* ratings or cabs with improved visibility for urban lorries. It will also be important to engage with the agricultural community around ensuring loads are safe and secure. There are also potential opportunities to promote domestic vehicle checks in times of increased travel or poor weather.

Looking outside of the Partnership, the Safe Vehicle workstream can influence 'out and up' through advocacy and promotional activities. This can include the promotion of EuroNCAP5* and key safety measures in the procurement policies of partners, local transport services and the public. Local businesses have a key part to play with safe vehicles beyond procurement, and through membership of schemes such as CLOCS (Construction Logistics and Community Safety, 2020), FORS (Fleet Operator Recognition Scheme, 2020) and Driving for Better Business (Driving for Better Business, 2020) which support businesses in procurement and maintenance standards. There are also opportunities to work with child seat retailers to improve the quantity, range and promotion of 'extended rear facing' stock. Engaging with Governmental Departments and Agencies on legislative changes, regarding mobile phone regulations and the widespread installation of 'black boxes'



could be a role for this workstream, alongside working with vehicle manufacturers regarding the inclusion of information consoles in vehicles.

Enforcement operations can include targeted police campaigns to conduct intelligence-led vehicle checks, examining personal vehicles, as well as light and heavy goods vehicles, and passenger carrying vehicles. Tyre safety checks can be undertaken with accompanying

publicity campaigns, such as DfBB (DfBB, 2020), which is included as a case study. There is the promotion of the Vehicle Safety Checks campaign (Department for Transport, 2020) delivered by Highways England the Department for Transport's Think! team. This campaign provides advice on the vehicle checks that should take place before every journey and advises on what to do in a breakdown.

Driving for Better Business

Driving for Better Business is a government-backed Highways England programme to help employers in both the private and public sectors reduce work-related road risk, decrease the associated costs and improve compliance with current legislation and guidance. The programme works on the simple idea that employers have a role to play in the safety of drivers.

The programme provides information and resources to employers to help them make effective interventions with their drivers and vehicles to improve safety and risk management.

Working in partnership with organisations across all sectors that employ drivers for work, the programme ensures businesses understand and are compliant with the current legislation and appreciate the benefits this can bring. The effectiveness of the scheme is evidenced within individual case studies of those organisations who have completed the seven steps and are able to demonstrate ongoing commitment and good practice. These organisations will give prominence to the procurement of EuroNCAP5* vehicles, those that have employees using their own vehicles (grey fleet) will have robust policies governing their use. Many companies will benefit from the use of in-vehicle telematics to monitor driving behaviours, ideally rewarding positive actions before sanctioning negative ones. Scheduled maintenance, including daily & weekly checks will also be considered and included as part of the policy governing vehicle use.

With around 1 in 3 crashes involving someone who is at work¹, the Vision Zero Partnership should embrace this initiative, working proactively with local companies and organisations to signpost and facilitate engagement.

¹ <https://www.brake.org.uk/facts-resources/15-facts/1292-work-related-road-safety>





Safety Performance Indicators

The following high-level safety performance indicators for the Safe Speeds workstream are:

- Percentage of traffic complying with speed limits on national roads
- Percentage of traffic complying with speed limits on local roads

These indicators will be monitored annually, using consistent data collection processes. Consideration should be given to whether compliance in individual speed limits should be measured in more detail e.g. 20mph. Also, the level of free-flow-traffic within urban areas would need to be measured to achieve a true estimate of compliance. This methodology has not yet been demonstrated to any great extent internationally, but it is recognised as the gold standard.

Outcome Measures

Ongoing data collection will be collected on the following:

- Number of speed offences recorded (through cameras and police enforcement)
- Number of people completing National Driver Offender Retraining Scheme (NDORS) courses
- Number of vehicles checked by Community Speed Watch

- Percentage of vehicles checked by Community Speed Watch exceeding enforcement threshold
- Number of Community Speed Watch communities
- Number of Vehicle Activated Signs (VAS) deployed

Activities being delivered

Ensuring safe speeds within the system involves a two-fold approach. Firstly, there is a need for appropriate and credible speed limits to be set. These need to be suitable for the desired function of the road, ensuring safety and encouraging compliance. Set a speed limit too high and the risk of collisions between different types of road users increases; set a speed limit too low and the risk of non-compliance increases if drivers don't believe it is appropriate for the location.

Speed determines the severity of crashes and injuries. It also affects the potential to avoid a crash, because higher speeds reduce drivers' capacity to stop in time, reduce manoeuvrability in evading a problem, make it harder to negotiate curves or corners, and cause others to misjudge the timing of approach vehicles. Even small increases in speed result in significant increases in risk. Speed management is increasingly recognised as a key mechanism for road safety.

Speed can be managed through many elements of the system, including sound road design and management, appropriate speed limits, speed limit regulation, and education on the impacts of vehicle speed. Speed also determines the level of safety features and physical separation between road users





required in the transport system. (World Resources Institute and Global Road Safety Facility, 2018, p. 44)

The Safe System approach makes speed management a focus for safety, using the other workstreams to assist by:

- ensuring that roads are designed to limit speeds to the safe limit (through the use of speed humps, roundabouts, chicanes, road narrowing and raised pedestrian crossings)
- using signs and gateways to stagger reduction to the limit and encourage compliance
- setting speed limits appropriate for the type of road and safety of the roads, with speeds on rural roads and highways managed to levels that favour the probability of survival in a side-impact, head on, and off-road crashes
- encouraging and advocating for vehicle-based speed limiting
- developing effective automated (camera) and police enforcement to discourage speeding, with strong communications in support of these programmes (World Resources Institute and Global Road Safety Facility, 2018)

Whilst local highways authorities will be responsible for reviewing and setting speed limits in this workstream and the police for enforcing those limits, they will need to work with those in the Safe Roads, Safe People and Safe Vehicles workstreams to co-ordinate a successful speed management plan.

The Safe Roads workstream will be responsible for designing a safe road network, which includes the installation of gateways to highlight the entrance to a parish, town or village and/or speed limit, making the change of limit and the need to slow down more prominent. It can also include using psychological traffic calming, through narrowing the road with kerb buildouts, central islands, coloured surfacing and lane markings; or installing speed cushions, humps or tables.

Research has shown that not all speeders are the same – Appendix B – COM-B Model talks about the different influences on behaviour and speeding is a good example of this. There are some speeders for whom there could be a knowledge gap who were unaware of the speed limit at the time they were detected or for whom it was a momentary lapse in concentration. For others, it could have been an intentional act, because they think they are better drivers than others or they feel that everyone speeds so it is acceptable behaviour. Communications are important to ensure that drivers are aware of how to recognise speed limits, understand the reasons why speed limits are in place and what the consequences are of not complying with them. Speed enforcement is obviously important for encouraging drivers to comply with the speed limit.

In the Partnership area, there are a variety of enforcement tools used to encourage compliance with the speed limit. Firstly, there is safety camera enforcement, managed by Cambridgeshire Constabulary, working alongside the partners in the Vision Zero Partnership. With the original Cambridgeshire Safety Camera Partnership established in 2001, the unit uses a variety of camera technologies, including fixed cameras, average speed cameras and mobile enforcement. Locations for camera enforcement are selected based on the history of the site, prioritising those with levels of collisions and speed issues. Average speed cameras are included as a case study.

Additional police speed enforcement is undertaken by the Tri Force Road Policing Unit (RPU) of the three police forces of Cambridgeshire, Hertfordshire and Bedfordshire. The unit works together across the three counties and consists of specialist teams who undertake forensic collision investigation; liaising with agencies and local authorities on traffic management; vehicle recovery and vehicle examination; and using Automatic Number Plate Recognition (ANPR) to locate stolen and uninsured vehicles, and those involved in crime. Alongside this work, the RPU also engages in intelligent tasking, where speed and other traffic offence enforcement is carried out at locations based



on casualty data or other intelligence, ensuring targeted use of resources. These collaborative functions of three police forces includes the Cameras Tickets Collisions team and Joint Protective Services Roads Policing, with shared responsibility for speed enforcement across these units.

Local policing teams manage local speed enforcement and Community Speedwatch schemes (CSW). The various police units work together to prioritise resources, identify sites and coordinate speed enforcement activities.

The community has a strong role to play in encouraging compliance with local speed limits. CSW is a community-led initiative to reduce speeding vehicles in cities, towns and villages. The CSW Scheme trains volunteers from the community to be actively involved in monitoring the speed of vehicles travelling through their neighbourhood. In Cambridgeshire, it is used in areas where speeding has been identified as a priority at quarterly neighbourhood panel meetings. In Peterborough, speedwatch volunteers can apply directly to the Police. Speed indicator devices

(SIDs) are used to display vehicle speeds and the registered owner of any vehicle seen exceeding the speed limit is sent an advisory letter by the Constabulary, explaining that speeding is unacceptable to the local community and asking them to be more considerate. This scheme has many benefits: it supports police activities and relieves their resources; it engages the community in taking ownership of road safety in their area; and it informs drivers and addresses negative attitudes and social norms by stressing how unacceptable it is to speed.

In Cambridgeshire, mobile vehicle-activated signs (VAS) are used in other locations and can be requested by parish and town councils. These signs are activated by a vehicle exceeding a certain speed and display the speed limit, or the actual speed of the vehicle (SID). VAS are most effective when they are rotated around different roads in a village or town to stop drivers becoming too familiar with them, and when positioned near downhill gradients to remind drivers who may be inadvertently speeding.

Speed Enforcement

Cambridgeshire and Peterborough Road Safety Partnership has operated a network of safety cameras for over 20 years. Between 2018 and 2020 Cambridgeshire County Council, Peterborough City Council and Beds, Cambs & Herts Police have worked jointly to review the sites and procure new digital camera systems. The partnership currently has 29 fixed camera sites and seven average speed camera systems, with a further average speed camera system expected to be installed in 2020/21. These are supplemented by the deployment of mobile camera vans at additional agreed sites across the network.

A review of the operation of the county's safety camera operations in 2018 supported national research (Allsop, 2013) highlighting that the use of safety cameras across Cambridgeshire and Peterborough has significantly reduced the number of fatal and serious collisions in the vicinity of fixed camera sites. Taking account of background reductions, on average, fixed camera sites saw fatal and serious collisions fall 29-51%.





Post Collision Care

Safety Performance Indicators

The following high-level safety performance indicator for the Post-Collision Care workstream is:

- Percentage of emergency medical services arriving at collision scene within 18 minutes

This indicator will be monitored annually, using consistent data collection processes. This will require working with partners to establish what data are available and how can these relate to collisions specifically.

Outcome Measures

Ongoing data collection will be collected on the following:

- Paramedic and/or ambulance response times
- Police response times
- Fire and rescue service response times
- Number of collisions where the air ambulance or

Magpas Air Ambulance attended

- Numbers of extractions from collisions (and methods used)
- Waiting times at A&E
- Network reinstatement rates
- Length of time for legal processes
- Numbers of road victim referral uptakes
- Number of people training in first aid through Biker Down
- Number of students receiving first aid in schools

Activities being delivered

Post-collision care is an integral part of the Safe System, with survivability and the impact of a collision on a person's future way of life linked to the physical and psychological support received in the aftermath of a collision.

One way of working with the local community to improve initial care at the scene of a collision is through Biker Down (Cambridgeshire Fire and Rescue Service, 2020). This is a national Fire and Rescue Service led scheme, where





motorcyclists attend a free course that offers them the opportunity to learn practical skills to help themselves should they be involved in a collision, but also first-aid training and advice on what to do should they find themselves first on the scene of a collision where someone has been injured. It includes initial scene management so that the motorcyclist and the casualty are both kept safe until the emergency services arrive.

The Vision Zero Partnership is fortunate to have the Road Victims Trust as a partner, providing specialist emotional and practical help to those affected by death or life

changing injuries resulting from a collision. Referrals come from the police, Police and Crime Commissioner Victim Support Services and from victims themselves, with a variety of support mechanisms used to assist with mental and physical health, bereavement and social interactions. Space is provided to express the feelings that come with the loss and horror following a fatal road collision and the repercussions of receiving life changing injuries. Support can be given in the investigation, inquest and court hearing process. They also provide advice on finances, benefits, education, skills, employment and housing.

Road Victims Trust

Each year, about 40 people die as a result of road collisions on Cambridgeshire's roads. This represents an enormous loss. Each person killed or injured will be someone's parent, partner, child, a favourite relative or best friend.

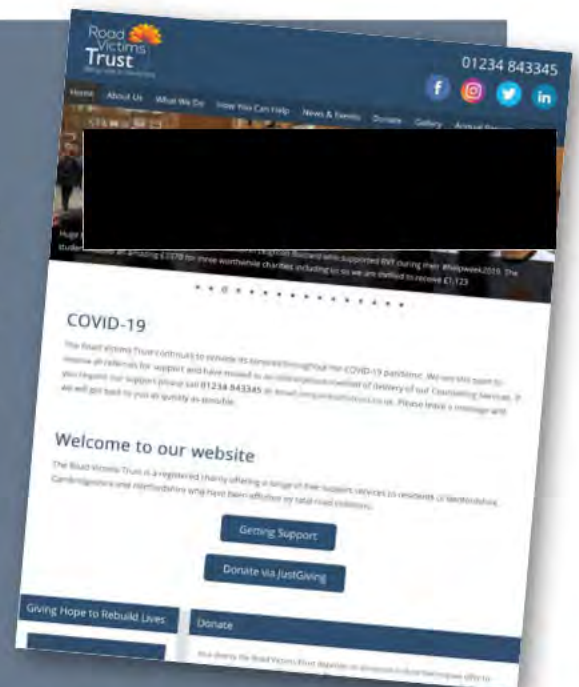
The need to provide effective, personal support to those affected by death or life changing injuries resulting from road collisions is a significant issue. There are formal legal processes following a serious road collision that involve the Police, Coroner, Crown Prosecution Service and personal injury lawyers.

However, the work to complete these legal processes does not include the provision of specialist emotional and practical support that is so often needed by victims following the collision. Victims include bereaved individuals and families, those that were involved in the collision or who witnessed it.

The Road Victims Trust (RVT) seeks to fill the gap by providing support for the bereaved and people otherwise affected by road death or life changing injuries, who are resident in Bedfordshire, Cambridgeshire and Hertfordshire. Cambridgeshire has been involved in the scheme since 2013.

All fatal collisions in Bedfordshire, Cambridgeshire and Hertfordshire are referred directly to the RVT by the police Forensic Collision Investigation Unit and contain details of those that have been affected – bereaved individuals and families, those involved in the collision and witnesses.

They offer their service to all affected people unless they have indicated to the police that they do not want any contact. They also take referrals from GPs and other agencies or self-referrals from people who contact them directly. Initial contact following a police or agency referral will be by letter or a telephone call from a Trust Coordinator who will aim to get an understanding of what is needed. The majority of support is offered as weekly, one-hour sessions at the victim's home, in our office or by telephone.





References

- Amos, L., Davies, D., & Fosdick, T. (2015). *Road Safety Since 2010*. London: RAC Foundation and PACTS.
- Anderson, E. (2018). *Developing Safe System Road Safety Indicators for the UK*. PACTS, in association with Ageas. Retrieved from [REDACTED]
- Breen, J., McMahon, K., Robertson, E., Salter, E., Stephenson, C., Thomas, P., & Goodsell, B. (2018). *Road Safety Management Capacity Review*. SYSTRA.
- Cambridgeshire & Peterborough Combined Authority. (2020). *The Cambridgeshire & Peterborough Local Transport Plan*. London: Steer. Retrieved May 19, 2020, from [REDACTED]
- Cambridgeshire County Council. (2018, August). *Think Communities*. Retrieved April 15, 2020, from Cambridgeshire County Council: [REDACTED]
- Cambridgeshire County Council. (2020). *Community resilience*. Retrieved April 15, 2020, from Cambridgeshire County Council: [REDACTED]
- Cambridgeshire Fire and Rescue Service. (2020). *Biker Down*. Retrieved April 17, 2020, from Cambridgeshire Fire and Rescue Service: [REDACTED]
- Construction Logistics and Community Safety. (2020). *What is CLOCS*. Retrieved April 17, 2020, from CLOCS: <https://www.clocs.org.uk/>
- Department for Transport. (2015). *Estimating clinically seriously injured (MAIS3+) road casualties in the UK*. London: Department for Transport.
- Department for Transport. (2017, August 29). *Transport survey question bank*. Retrieved March 17, 2020, from Department for Transport: [REDACTED]
- Department for Transport. (2020). <https://www.think.gov.uk/campaign/vehicle-safety-checks/>. Retrieved April 17, 2020, from Think!: [REDACTED]
- Driving for Better Business. (2020). *Driving for Better Business*. Retrieved April 21, 2020, from Driving for Better Business: [REDACTED]
- European Commission. (2019). *Commission Staff Working Document: EU Road Safety Policy Framework 2021-2030 – Next steps towards “Vision Zero”*. Brussels: European Commission.
- Fleet Operator Recognition Scheme. (2020). FORS. Retrieved April 17, 2020, from FORS: [REDACTED]
- ITF. (2016). *Zero Road Deaths and Serious Injuries: Leading a Paradigm Shift to a Safe System*. Paris: OECD Publishing.
- Michie, S., Atkins, L., & West, R. (2014). *The Behaviour Change Wheel: A Guide to Designing Interventions*. London: Silverback Publishing.
- Modeshift STARS. (2020). *What is a Travel Plan?* Retrieved April 16, 2020, from Modeshift STARS: [REDACTED]



- Nunn, J., Barnes, J., Morris, A., Petherick, E., Mackenzie, R., & Staton, M. (2018). Identifying MAIS 3+ injury severity collisions in UK police collision records. *Traffic Injury Prevention*, 19(Sup 2), S142-S144.
- Office for National Statistics. (2019). *Estimating and adjusting for changes in the method of severity reporting for road accidents and casualty data: final report*. London.
- PACTS. (2016). *Safe System*. Retrieved March 9, 2020, from PACTS: <http://www.pacts.org.uk/safe-system/>
- RoadSafe. (2020). *The Safe System*. Retrieved March 9, 2020, from RoadSafe: <http://www.roadsafe.com/safesystem>
- ThirdGlobalMinisterialConferenceonRoadSafety: Achieving Global Goals 2030. (2020, February 21). *Stockholm Declaration*. Retrieved March 11, 2020, from Road Safety Sweden: <https://www.roadsafetysweden.com/contentassets/b37f0951c837443eb9661668d5be439e/stockholm-declaration-english.pdf>
- Towards Zero Foundation. (2020). *50 by 30 Memorandum*. Retrieved March 12, 2020, from Towards Zero Foundation: <http://www.towardszerofoundation.org/wp-content/uploads/2020/01/50by30-Memorandum.pdf>
- Towards Zero Foundation. (2020). *The Safe System*. Retrieved March 10, 2020, from Towards Zero Foundation: <http://www.towardszerofoundation.org/thesafesystem/>
- TyreSafe. (2020). *TyreSafe*. Retrieved April 17, 2020, from TyreSafe: <https://www.tyresafe.org/>
- United Nations. (2020). *Goal 3: Ensure healthy lives and promote well-being for all at all ages*. Retrieved March 11, 2020, from United Nations Sustainable Development Goals: <https://www.un.org/sustainabledevelopment/health/>
- World Resources Institute and Global Road Safety Facility. (2018). *Sustainable & Safe: A Vision and Guidance for Zero Road Deaths*. Washington D.C.: World Resources Institute.



Appendix A – Public Survey Questions

Question Wording	Answer options
Please tell me how much you agree or disagree with the following statement: It is too dangerous for me to cycle on the roads	<input type="radio"/> Agree strongly <input type="radio"/> Agree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Disagree <input type="radio"/> Disagree strongly
Please tick one box for each of these statements to show how much you agree or disagree:	<input type="radio"/> Agree strongly <input type="radio"/> Agree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Disagree <input type="radio"/> Disagree strongly
Speed cameras save lives	<input type="radio"/> Agree strongly <input type="radio"/> Agree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Disagree <input type="radio"/> Disagree strongly
Speed cameras are mostly there to make money	<input type="radio"/> Agree strongly <input type="radio"/> Agree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Disagree <input type="radio"/> Disagree strongly
There are too many speed cameras	<input type="radio"/> Agree strongly <input type="radio"/> Agree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Disagree <input type="radio"/> Disagree strongly
People should drive within the speed limit	<input type="radio"/> Agree strongly <input type="radio"/> Agree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Disagree <input type="radio"/> Disagree strongly
The number of speed cameras should be increased	<input type="radio"/> Agree strongly <input type="radio"/> Agree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Disagree <input type="radio"/> Disagree strongly
It is perfectly safe to talk on a hand-held mobile phone while driving	<input type="radio"/> Agree strongly <input type="radio"/> Agree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Disagree <input type="radio"/> Disagree strongly



All use of mobile phones while driving, including hands-free kits is dangerous	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly
All use of mobile phones while driving, including hands-free kits should be banned	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly
The law on using mobile phones whilst driving is not properly enforced	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly
If someone has drunk any alcohol, they should not drive	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly
Anyone caught drink-driving should be banned for at least five years	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly
Most people don't know how much alcohol they can drink before being over the legal drink-drive limit	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly
If someone has taken any illegal drugs, they should not drive	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly
Average speed cameras measure speed based on the time taken to travel a distance between two camera sites. Fixed speed cameras measure speed at a single site. Please tick one box to show how much you agree or disagree.	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly
Average speed cameras are preferable to fixed speed cameras?	<input type="checkbox"/> Agree strongly <input type="checkbox"/> Agree <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Disagree strongly



How often do you cycle nowadays?	Every day
	More than twice a week but not every day
	Once or twice a week
	Once or twice a month
	Once or twice a year
	Less than once a year
	Never
How confident would you say you feel about cycling on the roads?	Very confident
	Fairly confident
	Not very confident
	Not at all confident
	Don't know
I would travel less by car if there more cycle lanes on roads	Strongly agree
	Tend to agree
	Neither agree nor disagree
	Tend to disagree
	Strongly disagree
I would travel less by car if there more and better sited secure cycle parking facilities	Strongly agree
	Tend to agree
	Neither agree nor disagree
	Tend to disagree
	Strongly disagree
I would cycle (more) if it was difficult to find somewhere to park the car	Strongly agree
	Tend to agree
	Neither agree nor disagree
	Tend to disagree
	Strongly disagree
On a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied, how would you score the overall quality of the cycling conditions in your area	0-10
What, if anything, would encourage you to walk or cycle for some of your journeys? (select up to 3 answers)	Better street lighting
	Better maintained pavements
	More road crossings
	More CCTV cameras
	More cycle lanes on roads
	More cycle tracks away from roads
	Less traffic on the roads
	Lower speed limits
	Having more time available



- No car available
- Higher costs of motoring
- Higher public transport fares
- More traffic congestion
- More direct walking routes
- Adult cycle training
- More secure and convenient cycle parking facilities
- A cycle mileage allowance for journeys to work or for business
- Better driver attitudes towards cyclists
- More local shops and other facilities
- More publicity about the benefits walking and cycling has on health, the environment and congestion
- Nothing would encourage me to walk or cycle for some of these journeys



Appendix B – COM-B Model

Understanding the influencers of behaviour (whether it is incorrect or non-compliant use of the system), is important. The following is a high level of summary of the COM-B model and identifies what might need to change (there are many other models of behaviour which could be used and the Partnership is encouraged to use the most appropriate for the target audience and/or problem):

Capability

- **Physical Capability** – this is having the skills to do the correct behaviour. This might be the skills to cross the road correctly, ride a bicycle safely, or learn to drive a car. Improving or developing skills can be achieved through providing training or through enablement.
- **Psychological Capability** – this is having the knowledge, skills, memory or behavioural regulation to do the correct behaviour; it means knowing how to perform the behaviour, understanding the consequences of doing/not doing it, and how to recognise and overcome the mental barriers that prevent the road user doing the right thing. It might be that road users don't know the consequences of using their mobile phone at the wheel – that it could result in a collision but it could also result in penalty points and a fine, and for new drivers, the revocation of their driving licence if they receive 6 or more penalty points in the first two years of driving. Training, education and enablement interventions can all be used to support psychological capability.

Opportunity

- **Physical Opportunity** – this is having the correct environmental context and resources to perform the right behaviour. Environmentally, it might be that there are not appropriate crossing facilities for a pedestrian to get across a busy road, or that a cyclist does not have access to a helmet. Training could be used to help the pedestrian in this situation by teaching them the skills to cross a busy road where the facilities are not available, or the road design could be changed to support that crossing. Restrictions can also be put in place to stop someone from misusing the system; for the pedestrian, high fences could be installed that prevent them crossing at that location. The cyclist could be encouraged to use a helmet, by helmets being provided or the benefits of them are explained and it is made easier for them to store and use one.
- **Social Opportunity** – this is about understanding the social influences on the way people act in the road network. If road users think that people they respect are not complying with road rules, they may think it is acceptable for them to do the same. The influences of peers and role models are important here, as is the language used when talking about the behaviour. If organisations talk about high levels of non-compliance, it normalises the behaviour and people could



make excuses for them doing the same, because “everyone else is doing it.” To change social opportunity, restrictions could include enforcement and the application of penalty points; it could mean changing the environment to limit the opportunities to engage in the behaviour; or it could entail using positive role models or encouraging social support and peer-led approaches to doing the right thing.

Motivation

- **Reflective Motivation** – this is about understanding what people believe they are capable of and what the consequences are of doing the right or wrong thing. It is wrapped up with goals and intentions and how the behaviour is related to their identity. There could be a number of reasons why a driver does not comply with the speed limit. For some, it could be related to psychological capability, in that they don't know how to recognise the speed limits. For others, it could be that they believe that they are good drivers and are perfectly capable of driving at excessive speeds. It could be that they are unaware of the consequences of speeding behaviour; this is not only about the likelihood of a collision occurring, but also the impact of penalty points and a fine, damage to their vehicle and the related loss of freedom. It could be that they are goal-driven and believe that speeding will enable them to get to their destination significantly quicker. There are a variety of ways to address these, including using education, persuasion, incentivisation and coercion to increase knowledge about the behaviour and its consequences; help people plan ahead; encourage them to comply with the speed limit; and support their belief that they are capable of driving within the limit.
- **Automatic Motivation** – this is about understanding the role of optimism, reinforcement, identity and emotion in influencing behaviours, specifically through habits, routines and previous experience. There are lots of different ways to change habits and routines, including using role models and peer groups, encouraging the creation of better habits and providing rewards or incentives for doing the right thing.

As can be seen from this summary of the influencers on behaviour, there are times when education is appropriate because there is an information or skills deficit, or education could be used to influence social norms. Road users who are not complying with the rules of the road may benefit from education if it tells them the consequences of their behaviour or helps them form new habits. However, there are other times when other tools, such as restricting behaviour through enforcement or changing the road environment would be more suitable.



Appendix C – Evaluation Stages

Evaluations are an integral part of measuring effectiveness and understanding if road safety interventions are achieving what they set out to. In road safety, many interventions are not evaluated and the results of those that have been are not always publicly available.

The design of an evaluation will differ, depending on a number of factors, including the intervention type, budget, stage of delivery and type of data that can be collected to measure effectiveness. For example, a high-cost re-engineering of a major stretch of road will use different evaluation methodologies to a small-scale trial of a schools-based educational intervention. It means that there should be flexibility when thinking about evaluations.

However, there are some standardised steps that should be followed when designing a new intervention.

- 1 Firstly, think about the purpose of the evaluation. Is it to:
 - a Demonstrate success?
 - b Inform policy decisions?
 - c Improve delivery of an intervention?
 - d Share best practice?
 - e Show value for money?
 - f Ensure the intervention does no harm?
- 2 It is likely that the evaluation will measure many (perhaps all) of these, but it is useful to think about *why* the evaluation is taking place, in order to think about how to design it. A process evaluation is examining how to improve the delivery process whereas an outcome evaluation is looking to show the effectiveness of an intervention, and these will use different approaches.
- 3 All interventions should start with the data, identifying what the problem is and what the solution might entail. Data analysis will influence the shape of the evaluation – if it transpires that the problem is a behavioural one (like speeding) and the evidence suggests that it is related to attitudes, then the evaluation will need to measure how attitudes might change as a result of the intervention.
- 4 This leads on to setting aims and objectives. Aims are the overall goal of the intervention and objectives are the measurable outcomes. These should be SMART⁴ and directly related to what the intervention is seeking to achieve (e.g. a 20% improvement in attitudes towards driving at safe speeds after the intervention, compared to before).
- 5 Designing an evaluation is dependent on many different factors, including:
 - a Where in the delivery cycle the intervention is at? If it is at the design stage, there will be an opportunity to collect baseline data, to compare with after delivery. This could be offending rates/attitudes/knowledge levels, for example.

⁴ Specific, Measurable, Achievable, Realistic and Time-bound



Appendix D - Workstream Approval Template

WORKSTREAM APPROVAL DOCUMENT

This document is to be completed and approval obtained in writing before any new schemes of work are undertaken within the Vision Zero Partnership Partnership. The document should be submitted to the Partnership Delivery Manager in the first instance, who will refer it to the Strategic Group if appropriate. Please note that this document should be completed for all schemes, regardless of whether funding is being requested. Please speak to the Partnership Delivery Manager for guidance.

Scheme Title

Scheme Owner

Scheme Description

What elements does your intervention include? Please select all that apply and provide details of your selection(s) in the space provided.

- Large scale presentation (e.g. Theatre in education)
- Small scale presentation (e.g. Presentation to a classroom of school children)
- Training courses (e.g. Older driver workshops)
- Stands at public events or in public places
- Poster or leaflet campaign
- Outdoor advertising
- Web-based publicity (e.g. YouTube video clip / website)
- Highways Engineering
- E-learning
- Enforcement
- Diversionary measure (e.g. Speed awareness)
- Radio / TV / Cinema advertising
- Social media
- Self-selecting training (e.g. Refresher driver training)
- One-to-one advice and / or training
- SMS messaging



- Lobbying
- Other

500 words maximum

Start writing here....

Justification

Why have you chosen to focus on this specific issue? (i.e. how can you demonstrate that there is a need for an intervention). Please select all that apply and provide details of your selection(s) in the space provided.

- Anecdotal observation
- Systematic observation
- Research and evaluation reports
- Complaints from the public
- Local knowledge
- Traffic speed data
- Traffic volume data
- Recorded traffic offences
- Demographic data
- Public consultation
- Stats 19 / CRASH data
- Academic research
- Road Safety Observatory / Knowledge Centre
- There is no evidence yet
- Other

500 words maximum, to include evidence of need, data and research. Please attach relevant documents as appendices.

Start writing here....

Action Plan

Does your intervention link to any of the following subject areas? Please select all that apply and provide details as part of the detail in the space provided.

Air quality

Health improvement (including mental health)

Active travel



1000 words maximum, to include details of funding requested, staff time required (with grade) and details of partner organisations' commitment. Please attach relevant documents as appendices.

Start writing here....

Intended Outcomes

What and who do you hope to change by your intervention? Your aim should relate to a **measurable** outcome. You should identify who or what you are trying to change or influence and who will benefit from it.

For example, are you trying to improve the knowledge, skills or attitude of your audience? Are you signposting to further training or promoting a specific change in behaviour? Is your goal to facilitate a change in a company policy or practice, or promote a different approach by a partner organisation?

Which Workstream Safety Performance Indicator does this scheme of work address?

500 words maximum, to feature any identified performance indicators. These should include quantitative indicators (numbers of people engaged) and qualitative outcomes (change to legislation).

Start writing here....

Timescale

500 words maximum, to include details of significant milestones in the scheme.

Start writing here....

Evaluation

500 words maximum, to include details of proposed output & outcome measurement.

Start writing here....



Proposed by:

Name:

Title:

Organisation:

Date:

Approved by:

Name:

Title:

Organisation:

Date:



Prepared by
Agilysis and Traject



Commissioned by
The Office of the Police and Crime Commissioner for Cambridgeshire and Peterborough
(on behalf of the Vision Zero Partnership)
Hinchingsbrooke Park, Huntingdon, Cambridgeshire PE29 6NP

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Appendix to Q3.12.2.2



ASBESTOS REFURBISHMENT REPORT

For

AECOM (HEAD OFFICE)

Of

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**Produced by SOCOTEC Asbestos Ltd,
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Report Issue date: 08/12/2021

EXECUTIVE SUMMARY & RECOMMENDATIONS

A Refurbishment asbestos survey was carried out at 2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE. This survey includes full material and priority risk scores at the request of the customer.

Asbestos was found in 2 samples.

Table 1 Summary of ACM's

Sample Reference	Risk Score	Building	Area Description	Material	Material Risk	Priority Risk	Action	Timescale for Action
010	7	0	Ground Floor - 008-Outbuilding	Cement profile roof	6	1	Remove	Prior to Refurbishment
007	4	0	External - Ext-External	Cement undercloaking to rear extension roof	4	0	Remove	Prior to Refurbishment

Table 2 Summary of Areas of Limited, Restricted or Partial Access

Area No	Building	Area Description	Reason
002	0	Ground - Lounge Behind timber fireplace	Fixed construction
Ext	0	External - External Above 3 meters	Height Restriction

The table above provides a list of locations of limited access at the time of inspection by the surveyor with reasons for access issues. Such areas must be assumed to contain asbestos until inspected.

FULL SURVEY REPORT

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SECTION 1 INTRODUCTION

- 1.1 SOCOTEC Asbestos Limited was instructed by Daniel Wallington of AECOM (Head Office), to carry out a Refurbishment asbestos survey of 2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE in accordance with HSE document HSG 264 and in-house approved documented method SCI/ASB/001.
- 1.2 The scope of the works was to carry out an Asbestos Refurbishment Survey on the premises as instructed by the customer as follows: to carry out an asbestos refurbishment survey in line with the requirements detailed in client document 'Brook Cottage_Opening_up and asbestos survey_revised Oct 2021'.

The scope of works as amended on site is as follows: Dan Wallington of AECOM was on site to discuss info within "Brook Cottage_Opening_up and asbestos survey_revised Oct 2021".

Due to their being no loft hatch on the 1st floor the ceiling material was inspected prior to AECOM's builders accessing the roof void, to inspect the fabric of the 18th century building material.

Areas of existing damage or small inspection holes were made / used for the survey inspections, which were sealed with small pieces of melamine board.

It was agreed that the wood fireplace would not be removed from the wall during survey.

The rear extension had a more in-depth refurbishment survey as damage to this non-listed area was deemed acceptable.

All above points agreed with Dan Wallington of AECOM.
- 1.3 The following areas were not accessed during the survey following initial discussions with the customer: below floor slabs, within live electrics and within Cottage No1
- 1.4 The extent and type of the asbestos containing materials on site was to be summarised in a written report including a detailed site register, survey report sheets and plans.
- 1.5 The title to this report is vested in the customer named but title to copyright is retained. The Contracts (Rights of Third Parties) Act 1999 does not apply to the contract with the customer and the provisions of the said Act are hereby excluded.
- 1.6 The inspection report shall not be reproduced except in full without the approval of the inspection body and the customer.
- 1.7 This report is issued in confidence to the customer and SOCOTEC Asbestos Limited cannot accept any responsibility to any third parties to whom this report may be circulated, in part or in full, and any such parties rely on the contents of the report solely at their own risk.
- 1.8 SOCOTEC Asbestos Ltd is accredited by UKAS as a Type C Inspection Body for surveying for asbestos in premises. Opinions, interpretations, priority risk assessments and total risk scores are outside the scope of accreditation.
- 1.9 Fibrous materials may exist within the property which is not ACMs. Where, in the judgment of the surveyor, the material is clearly not asbestos then the surveyor will record the findings in the Construction Register. However the material will have been inspected unless it was in an area of no access or is specifically excluded from the report.

SECTION 2 SITE DESCRIPTIONS

- 2.1 The site consisted of Semi detached circa 18th century house with out buildings.

2.1: Summary of buildings surveyed and survey type at 2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE.

Property Ref / UPRN	Building Description	Survey Type
00	18th century 2 storey masonry building with thatched roof, with more modern extension to rear and outbuildings	Refurbishment

SECTION 3 SPECIFIC NOTES

- 3.1 The scope and terms of works were as agreed during the tender process with the customer, including a discussion on areas of possible no-access (see section 1.2 and 1.3). We confirm that in preparing this report that we have exercised all reasonable skill and care bearing in mind the project objectives, the agreed scope of works and prevailing site conditions.
- 3.2 Asbestos containing materials (ACMs) concealed behind other asbestos containing materials may not have been located during the survey due to the potential for fibre release. It should be assumed that further asbestos containing materials may be present until proven otherwise.
- 3.3 During the course of the survey all reasonably practicable efforts were made to identify the presence of materials containing asbestos within areas of the building as agreed with the customer. We have not inspected structural or poured concrete elements within the building unless specified within the scope of works for the survey. Asbestos materials are frequently concealed within the fabric of buildings or within sealed building voids, accordingly, it is not possible to regard the findings of any survey as being definitive. It must always remain a possibility therefore that further asbestos containing materials may be found during other site activities.
- 3.4 The customer is advised to make provision during the course of any demolition or refurbishment of structural or poured concrete for the additional services of a suitably experienced surveyor to provide advice, take samples and provide supplementary reports in the event that additional ACMs are uncovered.
- 3.5 Water absorption tests have not been carried out on board or cement materials and thus such materials which have been referred to within this report as asbestos insulating board (AIB) or asbestos cement are done so based solely upon their physical appearance and using the technicians judgement. A water absorption measurement test, as detailed in paragraph 17 of L143 Work with materials containing asbestos ACOP, is required to determine whether a material is legally classified as asbestos cement or not. Asbestos cement in a dry state absorbs less than 30% water by weight.
- 3.6 This report may be used as a basis for the preparation of a specification, but should not be used as the specification. Note that all dimensions referred to in this report are approximate and should not be used for the calculation of priced measures.

SECTION 4 SURVEY AND SAMPLING METHODOLOGY

4.1 Refurbishment or Demolition Survey

- 4.1.1 This purpose of this survey was to locate and describe so far as reasonably practicable, all ACMs with the scope of works and may have involved destructive inspection, as necessary to gain access to all areas if safe access was practicable. A full sampling programme was undertaken to identify possible ACMs.
- 4.1.2 Each room/area was visually inspected for materials suspected to contain asbestos and representative samples were taken for confirmation. Every effort was made to investigate all aspects of the building fabric in so far as was practicable. Invasive techniques were used for access.
- 4.1.3 The survey was carried out in accordance with HSG 264, SOCOTEC Asbestos Limited's internal procedure SCI/ASB/001 and the specific requirements of the Customer.

4.2 Abbreviations used in the text

AWS	Associated with sample. Visually consistent with the sampled material.
ACM	Asbestos Containing Material
NSR	No sample required (Area has been inspected and no suspicious samples identified)
NA	No Access (Access not reasonably practicable)
P	Presumed to contain asbestos. Sample required to confirm absence or presence of asbestos in item
CAR	Control of Asbestos Regulations (2012)
X	All samples prefixed with an X were not taken by SOCOTEC Asbestos, however the data was provided by the client for inclusion within the report and the integrity of the data has been reviewed by SOCOTEC Asbestos Ltd in accordance with our internal procedures.

SECTION 5 BULK SAMPLE ANALYSIS METHODOLOGY

- 5.1 Bulk sample analysis was carried out in accordance with SOCOTEC Asbestos Limited's internal procedure SCI/ASB/007, based on the Health and Safety Executive publication HSG 248.
- 5.2 SOCOTEC Asbestos is a UKAS-accredited testing body No. 1089, ensuring compliance with the requirements of BS EN ISO/IEC 17025:2017 General criteria for the operation of various types of bodies performing testing.

SECTION 6 RISK ASSESSMENT

6.1 Risk Assessment Methodology & Interpretation

- 6.1.1 Each location of asbestos has a risk assessment which is composed of two elements:
- Material Risk Assessment
 - Priority Risk Assessment
- 6.1.2 The table below identifies the differences between the two elements, their purpose and the guidance to which it relates and which SOCOTEC Asbestos Limited adhere.

Table 6.1: Summary of Risk Assessment

Risk Assessment Type	Purpose	Guidance and Algorithm used by SOCOTEC Asbestos Limited
Material Risk Assessment	Identification of the type and condition of the ACM and the ease with which it will release fibres if disturbed	<ul style="list-style-type: none"> • HSG 264 – ‘Asbestos – The survey guide.’ – Appendix 4. • In house procedure SCI/ASB/001, based on the above
Priority Risk Assessment	Identification of the likelihood of disturbance	<ul style="list-style-type: none"> • HSG 227 – ‘A comprehensive guide to managing asbestos in premises’ • In house procedure SCI/ASB/001, based on the above

6.1.3 The combined Material and Priority Risk Assessment scores provide a Total Risk Score for the asbestos material and may be used to determine the appropriate management procedure.

6.1.4 The Priority and Material Assessments were made based upon the conditions of the materials and their application at the time of survey/inspection, and as such SOCOTEC cannot accept liability for assessments provided when changes in condition and/or use have occurred subsequent to the survey. The duty holder should be aware that if the use of the building changes, then the assessment should be reviewed by a responsible person as part of the ongoing management plan, and this is the responsibility of the duty holder to manage.

Table 6.2 Material Risk Assessment Algorithm

Sample variable	Score	Example of scores
Product type (or debris from product)	1	Asbestos reinforced composites (plastics, resins, mastics, roofing felts, vinyl floor tiles, asbestos cement)
	2	AIB, millboards, textiles, gaskets, ropes and asbestos paper
	3	Thermal Insulation (e.g. pipe and boiler lagging), sprayed asbestos
Extent of damage /deterioration	0	Good condition, no visible damage
	1	Low damage, a few scratches, broken edges on board, tiles etc.
	2	Medium damage; significant breakage of materials or several small areas of damage revealing loose asbestos fibres
	3	High damage or delamination of materials, sprays and thermal insulation. Visible asbestos debris
Surface treatment	0	Composite materials: reinforced plastics, resins, vinyl tiles
	1	Enclosed sprays and lagging, AIB (with exposed face painted or encapsulated) asbestos cement sheets etc.
	2	Unsealed AIB, or encapsulated lagging and sprays
	3	Unsealed lagging and sprays
Asbestos type	0	No Asbestos Detected
	1	Chrysotile
	2	Amphibole excluding Crocidolite
	3	Crocidolite

Score	Potential to release asbestos fibres
10 or more	High
7-9	Medium
5-6	Low
4 or less	Very low

Table 6.3 Priority Risk Assessment Algorithm

Assessment Factor	Score	Examples of score variables
1. Normal Occupant Activity Main type of activity in area	0 1 2 3	Rare disturbance activity, e.g. little used store room) Low disturbance activities, (e.g. office type activity) Periodic disturbance (e.g. industrial or vehicular activity which may contact ACMs) High levels of disturbance, (e.g. Fire door with AIB sheet in constant use)
2. Likelihood of Disturbance a) Location b) Accessibility c) Extent/Amount	0 1 2 3 0 1 2 3 0 1 2 3	Outdoors Large rooms or well ventilated areas Rooms up to 100m ² Confined spaces Usually inaccessible or unlikely to be disturbed Occasionally likely to be disturbed Easily disturbed Routinely disturbed Small amounts or items (e.g. strings, gaskets) ≤10m ² or ≤10m pipe run >10m ² to ≤50m ² or >10m to ≤50m pipe run >50m ² or >50m pipe run
Average Score = a + b + c / 3		
3. Human Exposure Potential a) Number of occupants b) Frequency of use of area c) Average time area in use	0 1 2 3 0 1 2 3 0 1 2 3	None 1 to 3 4 to 10 >10 Infrequent Monthly Weekly Daily <1 hour >1 to <3 hours >3 to <6 hours >6 hours
Average Score = a + b + c / 3		
4. Maintenance Activity a) Type of maintenance activity b) Frequency of maintenance activity	0 1 2 3 0 1 2 3	Minor disturbance (e.g. possibility of contact when gaining access) Low disturbance (e.g. changing light bulbs in AIB ceiling) Medium disturbance (e.g. lifting one or two AIB ceiling tiles to access a valve) High levels of disturbance (e.g. removing a number of AIB ceiling tiles to replace a valve or for re-cabling) ACM unlikely to be disturbed for maintenance <1 per year >1 per year >1 per month
Average Score = a + b / 2		
Total Priority Assessment Score =1 + 2 + 3 + 4		



Appendix A

SITE REGISTER(S)

SITE REGISTER

 Survey Report Ref: **154738-957911-0**

 Site Address: **2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE**

 Building Reference / UPRN: **00**

 Building Address: **2 Brook Cottages, Great North Road, Chawston, Bedford**

 Client: **AECOM (Head Office)**

 Date of Inspection **30/11/2021**

ASBESTOS REGISTER

Area No	Area Description	Material Description	Approx size of item	Sample or Associate Sample Reference	Material Risk				Material Risk Rating	Priority Risk				Priority Risk Rating	Overall Risk Score	Recommended Actions & Timescales	
					Asbestos Type	Product Type	Extent of Damage	Surface Treatment		Normal Occupant Activity	Likelihood of Disturbance	Human Exposure Potential	Maintenance Activity				
001	Ground Floor - Store	Roof felt above plasterboard ceiling	8 m ²	002	0					N/A					N/A	N/A	No Action
002	Ground Floor - Lounge			No sample required													Inspection Required in Limited Access Area / Behind timber fireplace : Limited - Fixed construction
003	Ground Floor - Lounge Inc. Cup'd & Oven			No sample required													
004	Ground Floor - Cupboard			No sample required													
005	Ground Floor - Kitchen	Acoustic pads to sink	1 Small Amounts	003	0					N/A					N/A	N/A	No Action
005	Ground Floor - Kitchen	Roof felt above plywood panel to ceiling in front of back door	2 m ²	004	0					N/A					N/A	N/A	No Action

KEY: All scores are subjective only and are based on information available at the time of the assessment. Inspections may be samples or associated samples (AWS). Comments and observations are outside the scope of UKAS accreditation. All information within this register must be read in conjunction with all other sections of the report. Please refer to Section 6.4 for information regarding Priority Risk Scores

Asbestos Type	Product Type	Extent of Damage	Areas of No / Limited Access
0 = No asbestos detected in sample	0 = No asbestos detected in sample	0 = No visible damage	FS = Fixed Seating SD = Service Ducts FV = Floor Voids FD = Floor Ducts SB = Structural Boxing SV = Structural Voids DL = Dry Lining or Boxing FC = Fixed Ceilings UC=Under Fitted Floor Covering CV=Ceiling Voids PV=Partition Wall Void SC=Above Suspended Ceiling LA=Loft / Attic EE=Electrical Equip. HE=Heating Equipment FP=Fixed Panelling DF=Within Door Frame WF=Within Window Frame HL=High Level PE = Plant / Equipment (includes lift machinery)
1 = Chrysotile (white) asbestos	1 = Plastics, mastics, felts, vinyl floor tiles, paints, dec. finishes, cement etc.	1 = Few scratches / marks, broken edges etc	
2 = Amosite (brown) asbestos	2 = AIB, textiles, gaskets, rope, paper etc;	2 = Sig breakage / many small areas of damage to friable material	
3 = Crocidolite (blue) asbestos	3 = lagging, spray coatings, loose asbestos etc	3 = High damage / visible debris	

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 Date of Inspection **30/11/2021**

Area No	Area Description	Material Description	Approx size of item	Sample or Associate Sample Reference	Material Risk				Material Risk Rating	Priority Risk				Priority Risk Rating	Overall Risk Score	Recommended Actions & Timescales
					Asbestos Type	Product Type	Extent of Damage	Surface Treatment		Normal Occupant Activity	Likelihood of Disturbance	Human Exposure Potential	Maintenance Activity			
006	Ground Floor - Tank Room			No sample required												
007	Ground Floor - Bathroom			No sample required												
008	Ground Floor - Outbuilding	Roof felt roll	5 Linear M	AWS 004	0				N/A					N/A	N/A	No Action
008	Ground Floor - Outbuilding	Cement profile roof	20 m ²	010	1	1	3	1	6	0	1	0	0	1	7	Remove - Prior to Refurbishment
008	Ground Floor - Outbuilding	Bitumen paint to corrugated metal	20 m ²	011	0				N/A					N/A	N/A	No Action
009	Ground Floor - Shed	Roof felt	12 m ²	012	0				N/A					N/A	N/A	No Action
101	First Floor - Bedroom			No sample required												
102	First Floor - Bedroom	Hessian backed lino below carpet	12 m ²	001	0				N/A					N/A	N/A	No Action

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2 = Amosite (brown) asbestos	2 = AIB, textiles, gaskets, rope, paper etc;	2 = Sig breakage / many small areas of damage to friable material	
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 Date of Inspection **30/11/2021**

Area No	Area Description	Material Description	Approx size of item	Sample or Associate Sample Reference	Material Risk				Material Risk Rating	Priority Risk				Priority Risk Rating	Overall Risk Score	Recommended Actions & Timescales
					Asbestos Type	Product Type	Extent of Damage	Surface Treatment		Normal Occupant Activity	Likelihood of Disturbance	Human Exposure Potential	Maintenance Activity			
103	First Floor - Store			No sample required												
Ext	External - External	Paper lined bitumen roof felt to bathroom roof	8 m ²	005	0				N/A					N/A	N/A	Inspection Required in Limited Access Area / No Action / Above 3 meters : Limited - Height Restriction
Ext	External - External	Roof felt to bathroom roof	8 m ²	006	0				N/A					N/A	N/A	Inspection Required in Limited Access Area / No Action / Above 3 meters : Limited - Height Restriction
Ext	External - External	Cement undercloaking to rear extension roof	5 Linear M	007	1	1	1	1	4	0	0	0	0	0	4	Inspection Required in Limited Access Area / Remove - Prior to Refurbishment / Above 3 meters : Limited - Height Restriction
Ext	External - External	Putty to windows and door of rear extension	5 Linear M	008	0				N/A					N/A	N/A	Inspection Required in Limited Access Area / No Action / Above 3 meters : Limited - Height Restriction
Ext	External - External	Putty to windows main house	4 Linear M	009	0				N/A					N/A	N/A	Inspection Required in Limited Access Area / No Action / Above 3 meters : Limited - Height Restriction

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					Asbestos Type	Product Type	Extent of Damage	Surface Treatment		Normal Occupant Activity	Likelihood of Disturbance	Human Exposure Potential	Maintenance Activity			
Ext	External - External	Putty to porch	4 Linear M	013	0				N/A					N/A	N/A	Inspection Required in Limited Access Area / No Action / Above 3 meters : Limited - Height Restriction
Ext	External - External	Roof felt to porch between wood ceiling and tiles	2 m ²	014	0				N/A					N/A	N/A	Inspection Required in Limited Access Area / No Action / Above 3 meters : Limited - Height Restriction

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 Building Address: **2 Brook Cottages, Great North Road, Chawston, Bedford**

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 Date of Inspection **30/11/2021**

CONSTRUCTION REGISTER

Area No	Area Description	Floor	Walls	Ceiling	Other
001	Ground Floor - Store	Brick masonry	Fibrous plaster to masonry, timber window and door frames	Plastered plasterboard to timber framework, with S002 roof felt above	
002	Ground Floor - Lounge	Carpet to underlay to concrete	Fibrous patterned plaster to masonry, timber window and door frames	Patterned plaster to lathe & plaster to timber beams	Metal and timber fire place
003	Ground Floor - Lounge Inc. Cup'd & Oven	Carpet to underlay to concrete	Fibrous plaster to masonry, timber window and door frames	Plaster to lathe & plaster to timber beams	Brick fire place with modern wood burner with metal flue, metal panels and plasterboard to ceiling within fireplace recess to plaster to ceiling, metal door and frame to old brick oven, redundant metal pipes within bricked low wall with large quarry clay tile, understairs cupboard of timber construction
004	Ground Floor - Cupboard	Concrete	Plaster to lathe & plaster, wattle & daub, bricked chimney breast	Plaster to lathe & plaster, wattle and daub	Timber door and frame
005	Ground Floor - Kitchen	Concrete, brick masonry	Fibrous plaster to brick and lathe & plaster, timber doors, frames with no packers, timber infill above door to bathroom	Papered fibrous plaster to timber to underside of concrete tiles, plywood panel to timber framework with S004 roof felt & papered plasterboard both with MMMF insulation and timber underside of roof above plasterboard	S003 acoustic pad to sink, timberboxing around modern consumer units, fibreboard cladding to timber beam
006	Ground Floor - Tank Room	Concrete	Fibrous plaster to masonry and plaster to breeze	Plasterboard with MMMF insulation above and timber underside to roof	Plastic water tank, foam insulated emersion tank

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Building Address: **2 Brook Cottages, Great North Road, Chawston, Bedford**

Building Reference / UPRN: **00**

Client: **AECOM (Head Office)**

Date of Inspection **30/11/2021**

Area No	Area Description	Floor	Walls	Ceiling	Other
007	Ground Floor - Bathroom	Ceramic tiles to concrete	Brick, plasterboard to plastic to MMMF insulation to plaster to masonry	Timber tongue & groove to MMMF insulation to plasterboard to MMMF insulation to timber underside of roof	Timber boxing around pipework and back of ceramic cistern, timber panel to metal bath with metal feet, UPVC sil around timber window frame, timber door and frame
008	Ground Floor - Outbuilding	Concrete, AWS004 roof felt roof	Timber, S011 bitumen painted (internally and externally) corrugated metal, plastic corrugated sheets	S010 cement profile roof, part corrugated metal and plastic	
009	Ground Floor - Shed	Timber	Timber with timber ply and polystyrene insulation, modern consumer unit	Timber	S012 roof felt under plastic sheeting
101	First Floor - Bedroom	Carpet to underlay to timber floor boards to original timber floorboards over narrow void to lathe and plaster ceiling below	Papered fibrous plaster to original wattle & daub with timber frame work, timber window frame, timber door and frame	Papered fibrous plaster to lathe & plaster to timber frame work	Modern plaster to timber around window
102	First Floor - Bedroom	Carpet to underlay to S001 hessian backed lino to timber floor boards to original timber floorboards over narrow void to lathe & plaster ceiling below, timber stairs	Papered fibrous plaster to original wattle & daub with timber frame work, timber window frame, timber door and frame	Papered fibrous plaster to lathe & plaster to timber frame work	Timber panels to stairs, brick to chimney breast, modern plaster to timber around window
103	First Floor - Store	Original timber flooring	Plaster to lathe & plaster, wattle & daub, bricked chimney breast	Plaster to lathe & plaster, wattle and daub	Timber door and frame



SITE REGISTER

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Building Reference / UPRN: **00**

Building Address: **2 Brook Cottages, Great North Road, Chawston, Bedford**

Client: **AECOM (Head Office)**

Date of Inspection **30/11/2021**

Area No	Area Description	Floor	Walls	Ceiling	Other
Ext	External - External	Concrete, earth	Painted/santex to brick, concrete, lead flashing, brick to chimney with quarry tiles, render to brick, no visible damp proof course	Thatched roof, timber soffit, fascia and framework, concrete tiles to kitchen roof	S005 & 006 roof felt to bathroom, S007 cement undercloaking, S008 & 009 putty to windows rear and front, plastic guttering, wooden porch with S013 putty, S014 roof felt with clay tiles



Appendix B

MATERIAL ASSESSMENT SHEETS

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	001
		Floor:	Ground
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	Store
Building:	00	Material Description:	Roof felt above plasterboard ceiling
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A

Asbestos Type: 0 - No asbestos detected

Sample No: 002

Position: Internal

Approx Size of Item: 8 m²

Product Type:

COMMENTS AND RECOMMENDATIONS:

Extent of Damage:

Timescale for Recommendation : No action

Surface Treatment:

Recommendation: No further action required

Priority Risk: N/A

Normal Occupant Activity:

Comments:

Likelihood of Disturbance:

Human Exposure Potential:

Maintenance Activity :

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	005
		Floor:	Ground
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	Kitchen
Building:	00	Material Description:	Acoustic pads to sink
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Product Type:

Extent of Damage:

Surface Treatment:

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Human Exposure Potential:

Maintenance Activity :

Sample No: 003
Position: Internal
Approx Size of Item: 1 Small Amounts

COMMENTS AND RECOMMENDATIONS:

Timescale for Recommendation : No action

Recommendation: No further action required

Comments:

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	005
		Floor:	Ground
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	Kitchen
Building:	00	Material Description:	Roof felt above plywood panel to ceiling in front of back door
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Sample No: 004

Position: Internal

Approx Size of Item: 2 m²

Product Type:

COMMENTS AND RECOMMENDATIONS:

Extent of Damage:

Timescale for Recommendation : No action

Surface Treatment:

Recommendation: No further action required

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Comments:

Human Exposure Potential:

Maintenance Activity :

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	008
		Floor:	Ground
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	Outbuilding
Building:	00	Material Description:	Cement profile roof
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk:	6
Asbestos Type:	1 - Chrysotile
Product Type:	1 - Asbestos composites, decorative finishes, AC
Extent of Damage:	3 - High damage
Surface Treatment:	1 - Enclosed sprays and lagging, AIB, AC sheets etc
Priority Risk:	1
Normal Occupant Activity:	0 - Rare Disturbance
Likelihood of Disturbance:	1 - Low Likelihood of Disturbance
Human Exposure Potential:	0 - Very Low Human Exposure Potential
Maintenance Activity :	0 - Minor Risk Maintenance Activity

Sample No:	010
Position:	External
Approx Size of Item:	20 m ²

COMMENTS AND RECOMMENDATIONS:

Timescale for Recommendation : Prior to Refurbishment

Recommendation: Remove

Comments:

Total Risk Score: 7

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	008
		Floor:	Ground
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	Outbuilding
Building:	00	Material Description:	Bitumen paint to corrugated metal
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Product Type:

Extent of Damage:

Surface Treatment:

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Human Exposure Potential:

Maintenance Activity :

Sample No: 011

Position: Internal/External

Approx Size of Item: 20 m²

COMMENTS AND RECOMMENDATIONS:

Timescale for Recommendation : No action

Recommendation: No further action required

Comments:

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	008
		Floor:	Ground
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	Outbuilding
Building:	00	Material Description:	Roof felt roll
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Sample No: AWS - 004
Position: Internal
Approx Size of Item: 5 Linear M

Product Type:

COMMENTS AND RECOMMENDATIONS:

Extent of Damage:

Timescale for Recommendation : No action

Surface Treatment:

Recommendation: No further action required

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Comments:

Human Exposure Potential:

Maintenance Activity :

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	009
		Floor:	Ground
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	Shed
Building:	00	Material Description:	Roof felt
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A

Asbestos Type: 0 - No asbestos detected

Sample No: 012

Position: External

Approx Size of Item: 12 m²

Product Type:

COMMENTS AND RECOMMENDATIONS:

Extent of Damage:

Timescale for Recommendation : No action

Surface Treatment:

Recommendation: No further action required

Priority Risk: N/A

Normal Occupant Activity:

Comments:

Likelihood of Disturbance:

Human Exposure Potential:

Maintenance Activity :

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	102
		Floor:	First
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	Bedroom
Building:	00	Material Description:	Hessian backed lino below carpet
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Product Type:

Extent of Damage:

Surface Treatment:

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Human Exposure Potential:

Maintenance Activity :

Sample No: 001

Position: Internal

Approx Size of Item: 12 m²

COMMENTS AND RECOMMENDATIONS:

Timescale for Recommendation : No action

Recommendation: No further action required

Comments:

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	Ext
		Floor:	External
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	External
Building:	00	Material Description:	Paper lined bitumen roof felt to bathroom roof
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A

Asbestos Type: 0 - No asbestos detected

Sample No: 005

Position: External

Approx Size of Item: 8 m²

Product Type:

COMMENTS AND RECOMMENDATIONS:

Extent of Damage:

Timescale for Recommendation : No action

Surface Treatment:

Recommendation: No further action required

Priority Risk: N/A

Normal Occupant Activity:

Comments:

Likelihood of Disturbance:

Human Exposure Potential:

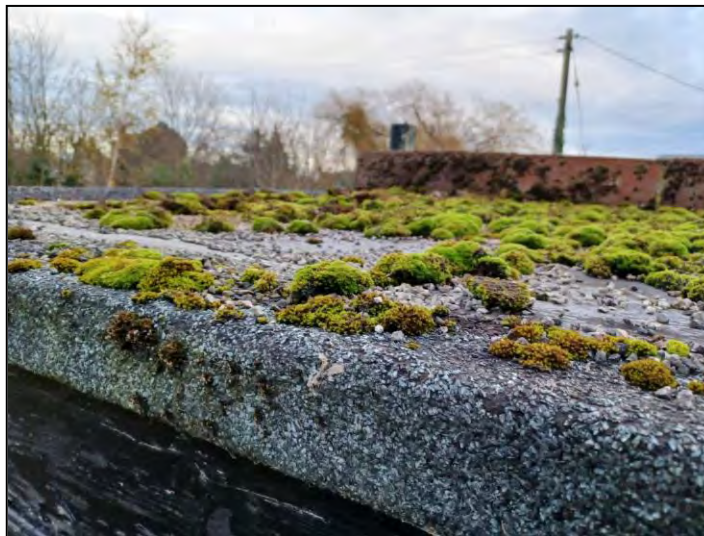
Maintenance Activity :

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	Ext
		Floor:	External
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	External
Building:	00	Material Description:	Roof felt to bathroom roof
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Sample No: 006

Position: External

Approx Size of Item: 8 m²

Product Type:

COMMENTS AND RECOMMENDATIONS:

Extent of Damage:

Timescale for Recommendation : No action

Surface Treatment:

Recommendation: No further action required

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Comments:

Human Exposure Potential:

Maintenance Activity :

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	Ext
		Floor:	External
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	External
Building:	00	Material Description:	Cement undercloaking to rear extension roof
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk:	4
Asbestos Type:	1 - Chrysotile
Product Type:	1 - Asbestos composites, decorative finishes, AC
Extent of Damage:	1 - Low damage
Surface Treatment:	1 - Enclosed sprays and lagging, AIB, AC sheets etc
Priority Risk:	0
Normal Occupant Activity:	0 - Rare Disturbance
Likelihood of Disturbance:	0 - Very Low Likelihood of Disturbance
Human Exposure Potential:	0 - Very Low Human Exposure Potential
Maintenance Activity :	0 - Minor Risk Maintenance Activity

Sample No:	007
Position:	External
Approx Size of Item:	5 Linear M

COMMENTS AND RECOMMENDATIONS:

Timescale for Recommendation : Prior to Refurbishment

Recommendation: Remove

Comments:

Total Risk Score: 4

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	Ext
		Floor:	External
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	External
Building:	00	Material Description:	Putty to windows and door of rear extension
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Product Type:

Extent of Damage:

Surface Treatment:

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Human Exposure Potential:

Maintenance Activity :

Sample No: 008
Position: External
Approx Size of Item: 5 Linear M

COMMENTS AND RECOMMENDATIONS:

Timescale for Recommendation : No action

Recommendation: No further action required

Comments:

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	Ext
		Floor:	External
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	External
Building:	00	Material Description:	Putty to windows main house
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Product Type:

Extent of Damage:

Surface Treatment:

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Human Exposure Potential:

Maintenance Activity :

Sample No: 009
Position: External
Approx Size of Item: 4 Linear M

COMMENTS AND RECOMMENDATIONS:

Timescale for Recommendation : No action

Recommendation: No further action required

Comments:

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	Ext
		Floor:	External
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	External
Building:	00	Material Description:	Putty to porch
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A

Asbestos Type: 0 - No asbestos detected

Product Type:

Extent of Damage:

Surface Treatment:

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Human Exposure Potential:

Maintenance Activity :

Sample No: 013

Position: External

Approx Size of Item: 4 Linear M

COMMENTS AND RECOMMENDATIONS:

Timescale for Recommendation : No action

Recommendation: No further action required

Comments:

Total Risk Score: N/A

MATERIAL ASSESSMENT SHEET

SITE / AREA / INSPECTION DETAILS

Client:	AECOM (Head Office)	Area No:	Ext
		Floor:	External
Site Address:	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Area Description:	External
Building:	00	Material Description:	Roof felt to porch between wood ceiling and tiles
Building Address:	2 Brook Cottages, Great North Road, Chawston, Bedford	Survey Report Reference:	154738-957911-0



ASSESSMENT

Material Risk: N/A
Asbestos Type: 0 - No asbestos detected

Sample No: 014

Position: External

Approx Size of Item: 2 m²

Product Type:

COMMENTS AND RECOMMENDATIONS:

Extent of Damage:

Timescale for Recommendation : No action

Surface Treatment:

Recommendation: No further action required

Priority Risk: N/A

Normal Occupant Activity:

Likelihood of Disturbance:

Comments:

Human Exposure Potential:

Maintenance Activity :

Total Risk Score: N/A




Appendix C


DRAWINGS


Client	AECOM
Site Address	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE
Survey Reference	154738-957911
Date of Survey/Inspection	30/11/2021
Surveyors	Celia Mitchell

Key:

Inspection Reference Location 

Asbestos Present 

Inaccessible Areas 

Beyond Remit of Survey 

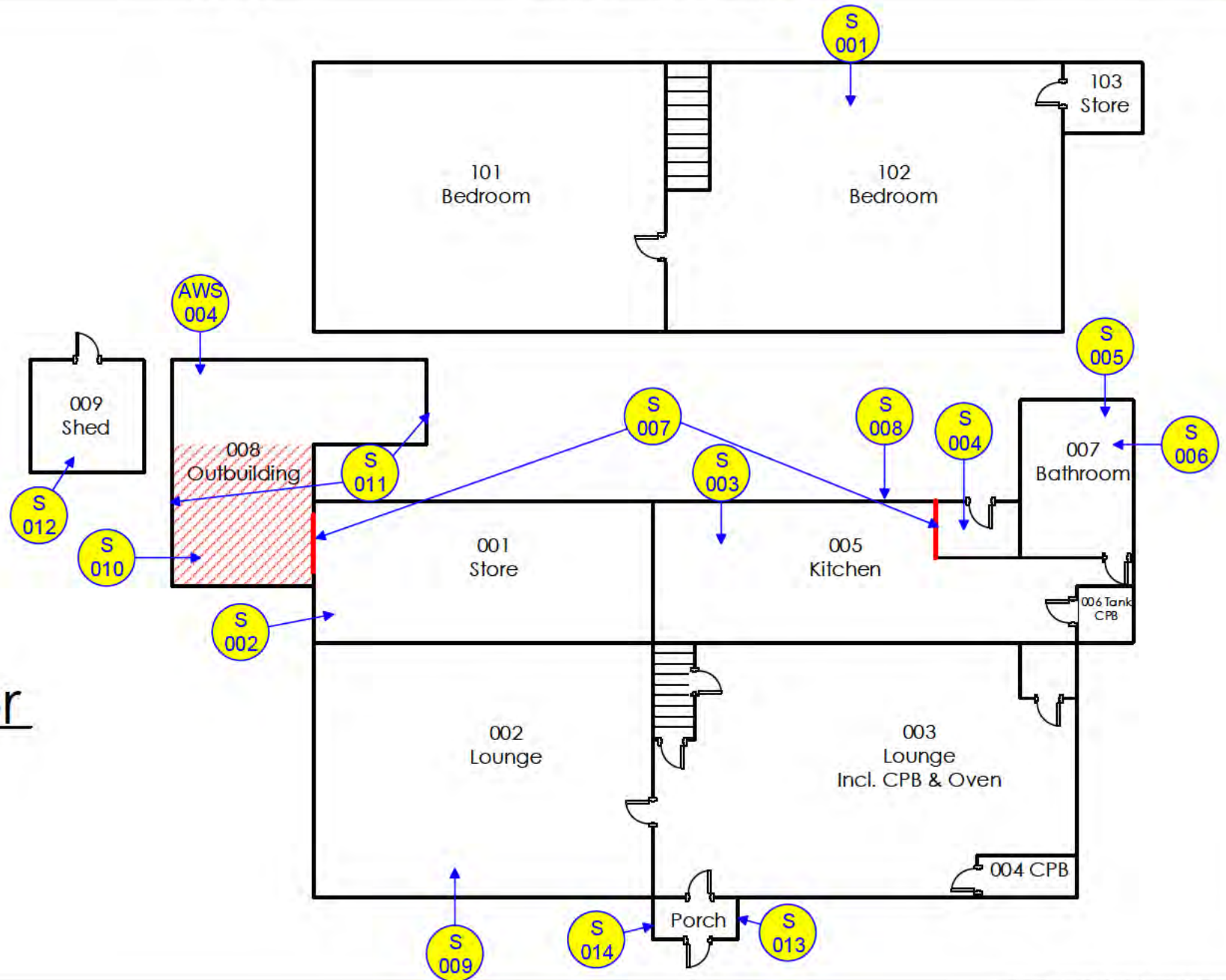
As With Sample = AWS
Sample Presumed = P

PAGE 1 OF 1

Not to Scale

First Floor

Ground Floor





Appendix D

LABORATORY TEST CERTIFICATE(S)

CERTIFICATE FOR IDENTIFICATION OF ASBESTOS FIBRES

SOCOTEC Asbestos Limited

Unit 20, The Falcon Business Centre,
Ashton Road,
Harold Wood,
Romford.
RM3 8UR

Telephone: 01708 330760
E-mail: ecs.romford@socotec.com

Client	AECOM (Head Office)	Delivered/Collected	Collected
Address	63-77 Victoria Street, St. Albans, Herts , AL1 3ER	Analysis Report No	R153592
Attention	Daniel Wallington	Report Date	03/Dec/2021
Site Address	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Site Ref No	154738-957911
Date Sample Taken	30/11/2021	Page No	1 of 2
Date Sample Received	02/12/2021	No of Samples	14
Date of Analysis	03/12/2021		

SOCOTEC Asbestos SAMPLE No	CLIENT SAMPLE No	SAMPLE LOCATION & DESCRIPTION*	FIBRE TYPE DETECTED	ANALYSIS No
001		First Floor - Bedroom 102 - Hessian backed lino below carpet	NADIS	154738-957911-0-001
002		Ground Floor - Store 001 - Roof felt above plasterboard ceiling	NADIS	154738-957911-0-002
003		Ground Floor - Kitchen 005 - Acoustic pads to sink	NADIS	154738-957911-0-003
004		Ground Floor - Kitchen 005 - Roof felt above plywood panel to ceiling in front of back door	NADIS	154738-957911-0-004
005		External Floor - External Ext - Paper lined bitumen roof felt to bathroom roof	NADIS	154738-957911-0-005
006		External Floor - External Ext - Roof felt to bathroom roof	NADIS	154738-957911-0-006
007		External Floor - External Ext - Cement undercloaking to rear extension roof	CHRYSTILE	154738-957911-0-007
008		External Floor - External Ext - Putty to windows and door of rear extension	NADIS	154738-957911-0-008
009		External Floor - External Ext - Putty to windows main house	NADIS	154738-957911-0-009
010		Ground Floor - Outbuilding 008 - Cement profile roof	CHRYSTILE	154738-957911-0-010

KEY: NADIS - No Asbestos Detected in Sample.
All samples will be retained for a minimum of 6 Months.

Analysed by:	Name: David O'Flaherty	Authorised signature:	Name: GEORGE ELLIS
	Position: Laboratory Bulk Analyst		Position: Admin

BULK005-VER 16 01-March 2019

Samples of material referenced above have been examined using our internal procedure SCI/ASB/007, based on HSE's HSG248, Asbestos: The Analysts guide for sampling, analysis and clearance procedures. If samples have been DELIVERED, the site address and actual sample location is as given by the client at the time of delivery. SOCOTEC Asbestos Limited is not responsible for the accuracy or competence of the sampling by third parties, and can therefore not be held responsible for any interpretation of the results shown. The inspection report shall not be reproduced except in full without the approval of the inspection body and the client. *Please note that the sample description, material type and comments/observations are opinions and therefore not within the scope of UKAS accreditation.

CERTIFICATE FOR IDENTIFICATION OF ASBESTOS FIBRES

SOCOTEC Asbestos Limited

Unit 20, The Falcon Business Centre,
Ashton Road,
Harold Wood,
Romford.
RM3 8UR

Telephone: 01708 330760
E-mail: ecs.romford@socotec.com

Client	AECOM (Head Office)	Delivered/Collected	Collected
Address	63-77 Victoria Street, St. Albans, Herts , AL1 3ER	Analysis Report No	R153592
Attention	Daniel Wallington	Report Date	03/Dec/2021
Site Address	2 Brook Cottages, Great North Road, Chawston, Bedford, MK44 3BE	Site Ref No	154738-957911
Date Sample Taken	30/11/2021	Page No	2 of 2
Date Sample Received	02/12/2021	No of Samples	14
Date of Analysis	03/12/2021		

SOCOTEC Asbestos SAMPLE No	CLIENT SAMPLE No	SAMPLE LOCATION & DESCRIPTION*	FIBRE TYPE DETECTED	ANALYSIS No
011		Ground Floor - Outbuilding 008 - Bitumen paint to corrugated metal	NADIS	154738-957911-0-011
012		Ground Floor - Shed 009 - Roof felt	NADIS	154738-957911-0-012
013		External Floor - External Ext - Putty to porch	NADIS	154738-957911-0-013
014		External Floor - External Ext - Roof felt to porch between wood ceiling and tiles	NADIS	154738-957911-0-014

KEY: NADIS - No Asbestos Detected in Sample.
All samples will be retained for a minimum of 6 Months.

Analysed by:	Name: David O'Flaherty	Authorised signatory:	Name: GEORGE ELLIS
	Position: Laboratory Bulk Analyst		Position: Admin

BULK005-VER 16 01-March 2019

Samples of material referenced above have been examined using our internal procedure SCI/ASB/007, based on HSE's HSG248, Asbestos: The Analysts guide for sampling, analysis and clearance procedures. If samples have been DELIVERED, the site address and actual sample location is as given by the client at the time of delivery. SOCOTEC Asbestos Limited is not responsible for the accuracy or competence of the sampling by third parties, and can therefore not be held responsible for any interpretation of the results shown. The inspection report shall not be reproduced except in full without the approval of the inspection body and the client. *Please note that the sample description, material type and comments/observations are opinions and therefore not within the scope of UKAS accreditation.



Appendix E

DEFINITIONS AND GUIDANCE NOTES

Your Survey Recommendations

A.1 Recommendations are made based upon each items assessed potential for fibre release as recommended by the guidance published by the Health and Safety Executive.

A.2 Definition of terms for actions detailed within this report:

i. Add to inspection programme:

Provision of a policy of 12 monthly inspection together with procedures, including but not exclusively limited to action should deterioration be observed, as well as training for staff and persons possibly coming into contact with the material.

ii. Manage & Monitor:

Provision of a policy of regular inspection together with procedures, whilst continually monitoring the condition of the material for further deterioration.

iii. Manage & Label:

Process and provision for the fixing of labels – standard 'red A' label as per Schedule 2 of the Control of Asbestos Regulations (CAR), to the surface of the material to warn of the hazard.

iv. Repair:

Addition of a seal to the material to prevent the further deterioration and breakdown of the material. This action should also be carried out with labelling.

v. Encapsulate:

Provision of paint type coating to effect a continuous seal to surface of the material and thereby prevent fibre release.

vi. Remove:

Complete removal of the material under controlled conditions so as to comply with CAR.



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Gloucestershire
GL7 1YT

FAo Mr Daniel Wallington

Tel: 01285 700593

web: [REDACTED]

Report No: 21_11_PN200171_1_DC_01

14th January 2022

Hazardous Materials Survey – Brook Cottage, Chawston, Bedfordshire, MK44 3BD.

Please find enclosed a copy of our report regarding the recent Hazardous Material Survey of Brook Cottage located in Bedfordshire.

Please do not hesitate to contact me should you have any questions regarding the enclosed report. I am more than happy to discuss any issues you may have regarding the content of the report, or on the investigation generally.

Yours sincerely

On behalf of SOCOTEC UK Ltd.



David Caddy
Water and Environment Consultant
Environment & Safety
SOCOTEC UK Limited

E-mail: david.caddy@socotec.com

M: [REDACTED]

AECOM

Hazardous Materials Survey – Brook Cottage, Chawston, Bedfordshire, MK44 3BD.

Carried out for:

AECOM
Aldgate Tower
2 Lemn Street
London
E1 8FA

Date: 30th November 2021

Report No: 21_11_PN200171_1_DC_01


Hazardous Materials Survey


Brook Cottage, Chawston, Bedfordshire, MK44 3BD.

Project No. PN200171

Carried Out For: AECOM
Aldgate Tower
2 Leman Street
London E1 8FA

Carried Out: 30^h November 2021

Prepared By: David Caddy – Senior Water and Environment Consultant


**Prepared By /
Authorised By:** James Sneddon – Project Manager, Environmental


Date of Issue: 14^h January 2022

Copy No. 1

Revision: 0

SOCOTEC Report No: 21_11_PN200171_1_DC_01

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1 Introduction

1.1 General

- 1.1.1 At the request of AECOM, David Caddy from SOCOTEC UK Limited's Environment & Safety Division visited Brook Cottage located near Chawston in Bedfordshire.
- 1.1.2 The purpose of the visit was to carry out a hazardous materials scoping and sampling survey prior to the dismantling and relocation of the building as part of the conservation of the property.
- 1.1.3 A hazardous materials scoping and sampling survey was undertaken to determine the risk, if any to any workers and to the surrounding environment from potential contaminated materials present in the building's construction or from substances left in the property. Disposal pathways for any contaminated materials will also be outlined.

1.2 Site Specific

- 1.2.1 The building due for demolition includes the Grade II listed property Brook Cottage and an adjoining property that are both located on the A1 near Chawston in Bedfordshire. Access to the site was via the A1.
- 1.2.2 Brook Cottage is a two storey Grade II listed cottage that had been extended to the rear with a kitchen and bathroom on the ground floor. The building was of wooden frame and brick construction with traditional wattle and daub style walling and plasterwork construction. Traditional lath and plasterwork was noted within the ceilings of the property. The adjoining property was occupied at the time of the survey and could not be accessed. No comments can be made with regard to any hazardous materials that may be present within the adjoining property. As such, it is recommended that the adjoining property be surveyed fully prior to any demolition works being undertaken.
- 1.2.3 The Brook Cottage consists of a kitchen and bathroom to the rear on the ground floor. The rest of the ground floor consists of two living rooms with a pantry/store room to the rear. A narrow staircase led to the first floor, which consists of two bedrooms.
- 1.2.4 The exterior of Brook Cottage consists of a large garden area to the rear and a driveway to the front. Several sheds are located within the property boundary.



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Fig. 1: General exterior view of the south side of Brook Cottage.



Fig. 2: General exterior view of the west side of Brook Cottage.



Fig. 3: General exterior view of the adjoining sheds to the rear of Brook Cottage.



Fig. 4: General exterior view of the north side of Brook Cottage.



Fig. 5: General interior view of a first floor bedroom within Brook Cottage.



Fig. 6: General interior view of a first floor bedroom within Brook Cottage.



Fig. 7: General interior view of the ground floor dining room.



Fig. 8: General interior view of the lounge.



Fig. 9: General interior view of the ground floor bathroom to the rear.



Fig. 10: General interior view of the workshop area



Fig. 11: General view the workshop area.



Fig. 12: General interior view of a garden shed.



Fig. 13: General exterior view of a typical shed to the rear of the property.

1.3 Restrictions and Caveats

- 1.3.1 This report is produced solely for the benefit of AECOM and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise. This report refers, within the limitations stated, to the condition of the site at the time of the inspection. No warranty is given as to the possibility of future changes in the condition of the site. This report is based on a site inspection in the accessed areas as noted, the physical investigation as detailed and information supplied by those parties referenced in the text.
- 1.3.2 Some of the opinions are based on unconfirmed data and information and are presented as the best that can be obtained without further extensive dismantling and disturbance. The impact of our assessment on other aspects of the development requires evaluation by other involved parties.
- 1.3.3 The possibility of the presence of hazardous materials elsewhere on the site where not accessed, cannot be discounted. Whilst the findings detailed within this report reflect our best assessment, because there are no exact UK definitions of these matters, being subject to risk analysis, SOCOTEC UK Limited are unable to give categorical assurances that they will be accepted by authorities or funds without question as such bodies have unpublished more stringent objectives.

2. Hazardous Materials

2.1 Introduction

- 2.1.1 Hazardous materials are classified as those materials and substances which due to their presence in a particular building or area pose a potential threat to the health and safety of staff and members of the public.
- 2.1.2 Their presence may be due to their use in the original construction and subsequent use of the building or may alternatively be due to introduction at a later date from activities such as waste tipping or material storage. Alternatively in the case of moulds and fungi, their presence may be due to degradation of the building due to disrepair.
- 2.1.3 Materials covered in the initial scoping survey and subsequently sampled as part of this survey include (but are not limited to) those explained below:

2.2 Discarded hypodermic syringes/other drug related paraphernalia

- 2.2.1 Used needles pose a risk of stick injuries to staff and members of the public. Diseases such as HIV, Hepatitis C and Hepatitis B have been known to be transmitted by accidental stick injuries.
- 2.2.2 The presence of other drug related paraphernalia such bongs, foil, and crack pipes are indication that used syringes and hypodermics may be present among general rubbish and debris in the area.
- 2.2.3 In former medical facilities such as hospitals, clinics and First Aid rooms, medicines and other medical related materials may be present. Many of these are controlled materials due to their nature or pose a serious health risk to health if used in a non-prescribed manner.

2.3 Lead and lead oxides

- 2.3.1 Lead is a very soft and malleable silver grey metal that is easily melted, casted, rolled and extruded. It has been used widely in batteries and solders, as an anti-knock additive in motor fuel, in glass and glazes in the ceramics industry and as pigment in paint. Paint systems of various ages on older structures and premises are increasingly likely to contain lead.
- 2.3.2 Lead has been described as purely toxic. It has no nutritional value or provides any positive biological effects. Lead is potentially damaging to human health at very low exposure levels. Exposure to lead can cause a range of clinical effects including headaches, stomach pains and anaemia. More serious symptoms include kidney disease, nerve and brain damage and infertility. Lead poisoning is widely associated with mental / cognitive impairment in children.
- 2.3.3 Lead and lead oxides were used for many years in various paints and coatings and whilst its current use is strictly controlled, many older buildings and structures contain copious amounts of paint containing high levels of lead.

- 2.3.4 Up until the mid-1960s white lead (lead carbonate/lead sulphate) was added in substantial quantities as the main white pigment in some paint products intended for use as a primer or top coat over metal and wood, both internally and externally.
- 2.3.5 The lead-based pigments, lead tetroxide and calcium plumbate (red lead) were widely used as an anti-corrosive primer coating over exterior steelwork up until the early 1970s whilst red, yellow, orange or green lead based pigments (lead chromate) were added to a limited number of decorative coloured gloss and wall paints.
- 2.3.6 The Control of Lead at Work Regulations applies to proposed works involving the possible disturbance of coatings or removal of dust which may be contaminated with paint debris from buildings or structures.
- 2.3.7 The Control of Lead at Work Regulations 2002 (the 'CLAW Regulations') came into force on 21st November 2002 to protect the health of people at work that are exposed to lead. The CLAW Regulations apply to any type of work activity such as handling, processing, repairing, maintenance, storage and disposal that may expose employees or other persons to lead as defined in the regulations:
- metallic lead, its alloys, and all its compounds including lead alkyls; and
 - lead when it is a component of any substance or material.

The lead must also be in a form in which it is likely to be:

- inhaled (dust, fume or vapour);
 - ingested (lead powder, dust, paint or paste); or
 - absorbed through the skin.
- 2.3.8 The CLAW Regulations places a duty on the employer to make a 'suitable and sufficient' risk assessment if an employee's exposure to lead is liable to be significant (see section 7). The employer must also identify and implement measures to prevent or adequately control exposure, and record any significant findings of the risk assessment as soon as it is practicable.
- 2.3.9 An employee's exposure to lead is significant if any of the following conditions is satisfied:
- exposure exceeds half the occupational exposure limit (OEL) for lead;
 - there is a substantial risk of the employee ingesting lead; or
 - there is a risk of an employee's skin coming into contact with forms of lead that can be absorbed through the skin (e.g. lead alkyls or lead naphthenate).

2.3.10 Measures to prevent or adequately control exposure include:

- providing employees with protective clothing;
- monitoring lead-in-air concentrations; and
- placing employees on medical surveillance.

- 2.3.11 The employer has a duty to provide suitable and sufficient washing facilities where employees are exposed to lead at work. This is required by the *Workplace (Health, Safety and Welfare) Regulations 1992*. The employer is also required by the CLAW Regulations to ensure employees do not eat, drink or smoke in any place liable to be contaminated by lead. This duty extends to all employees including contractors and tradesmen.
- 2.3.12 The CLAW Regulations places a duty on employers to provide employees with suitable and sufficient information, instruction and training. This must include:
- information on the health risks associated with lead;
 - details of the appropriate OEL's for lead;
 - the results of the employer's risk assessment of the work;
 - the appropriate precautions and actions they should take to protect themselves and other employees from exposure to lead; and
 - the results of any air monitoring or health surveillance that relate to them personally.
- 2.3.13 This will enable employees to comply with the duties of the CLAW Regulations placed on them.
- 2.3.14 HSE publication L132 Control of lead at work (3rd Edition) – Approved code of practice and guidance (the 'Lead ACOP') supports and clarifies the provisions of the CLAW Regulations as discussed above. The Lead ACOP implies that working with materials that contain more than 1% (w/w) total lead is liable to result in significant exposure. Further information on safe working with lead can be found on the HSE website www.hse.gov.uk.
- 2.3.15 Finally, the control of lead in the workplace should not be achieved at the detriment of the wider (external) environment. Releases of lead dust to the environment, for instance, are controlled by Part 1 of the *Environmental Protection Act 1990* (EPA). The EPA establishes an air pollution control system enforced by the local authorities in England and Wales. Accordingly, the employer should consult with the appropriate environmental enforcing authority for advice and guidance on complying with the relevant regulations before any work is undertaken.

2.4 Arsenic, Cadmium and Chromium in Plastics, Paints and Coatings

- 2.4.1 Arsenic, Cadmium and Chromium are all naturally occurring metals which together with many of their compounds, exhibit a wide range of hazardous and toxic properties.
- 2.4.2 Historically arsenic and chromium were used as additives in various paints and coatings.
- 2.4.3 Arsenic salts such as copper arsenite were used in Victorian times in paints to produce yellow or green colouration and in addition were used as pigments in wallpaper and other decorative materials such as curtains. Over time, wallpaper and material degrades leading to generation of contaminated dusts and fibres being released into the air. Certain types of mould are also thought to metabolise arsenic compounds, leading to the release of arsine gas.

- 2.4.4 Chromium salts such as lead chromate were used in paint to produce bright yellow colours whilst zinc chromate was widely used in primers for painting metal.
- 2.4.5 Various cadmium salts are used in paint pigments, with the use of cadmium sulphide as a yellow pigment being the most common. Cadmium selenide is a red pigment, commonly called cadmium red whilst cadmium sulphoselenide is used in orange pigments. The main use for these compounds is within polymers and plastics due to their vibrant colours and durability. Hence they have been found in brightly coloured plastic furniture.
- 2.4.6 Cadmium was (and still is) widely used as a protective coating for metal components especially in hostile environments where additional protection was/is required. As such it is often found in hostile industrial environments as well as in marine, aerospace and military applications. The metal is usually placed on the substrate to be protected via electroplating, mechanical plating or more lately ion deposition.
- 2.4.7 Cadmium is also found as an additive in plastic components such as PVC building products (UPVC windows and rainwater goods). Cadmium was used in the 1960's and 70's as heat, light, and weathering stabilisers. These have been replaced in current usage by barium-zinc, calcium-zinc and organo-tin compounds.

2.5 Chemicals, paints and other substances left in buildings

- 2.5.1 Numerous chemical products are used by industry and partially filled unidentifiable containers or residues may well be present in premises. Many of these may be toxic, corrosive or otherwise harmful to health and come under the Control of Substances Hazardous to Health (Amendment) Regulations 2004 (COSHH).

2.6 Oils and other hydrocarbon residues present on site

- 2.6.1 A wide range of hydrocarbon based products are used by industry and partially filled unidentifiable containers or residues may well be present in premises. Many of these are suspected carcinogens and come under the Control of Substances Hazardous to Health (Amendment) Regulations 2004 (COSHH).
- 2.6.2 Many oils and other hydrocarbons are also flammable or pose risks to the wider environment (e.g contamination of watercourses, harmful to aquatic life). In addition, the actual structure of buildings may be contaminated with hydrocarbons due to leaks from storage tanks or supply pipes etc.

2.7 Dusts, debris and other solid substances which may be hazardous to health

- 2.7.1 A wide range of products giving rise to dusts are used by industry and partially filled unidentifiable containers or residues may well be present in premises. Many of these pose a risk to health and come under the Control of Substances Hazardous to Health (Amendment) Regulations 2004 (COSHH).
- 2.7.2 Other materials are present in the form of bulk solids and may be present as residues or by products of other reactions or processes which occurred on site.

2.7.3 Air extract and other ventilation related ductwork provides the ideal environment for dust and debris to settle out of air flows and accumulate over time. Many of these dusts contain residues of whatever contaminant was being extracted with the air.

2.8 Polychlorinated biphenyls (PCBs)

2.8.1 PCB is the common term used to describe a range of chemicals which are called Polychlorinated biphenyls. PCBs belong to a class of organic compounds known as chlorinated hydrocarbons. There are actually 209 different chemicals within the PCB family, each differing from each other primarily due to changes in their chemical structure. These differing forms of PCB are called congeners.

2.8.2 The most extensive use of PCBs worldwide occurred in dielectric fluids used in electrical capacitors and within insulating oils used in electrical transformers and HV power cables. PCBs were added to insulating oils due to their fire resistant/retardant properties and inherent chemical stability.

2.8.3 Over time, many capacitors and cables develop leaks due to either metal seams in the casing breaking open or in the case of cable, splits in insulation. In these instances oil containing PCBs, can contaminate the outer casings or their surroundings

2.8.4 With regard to electrical transformers, many small low voltage units were of the sealed for life variety and again sometimes developed leaks due to failed seals and seams. Larger hi voltage units (2KV and above) were designed to be in service for longer periods and were subject to regular insulating oil changes.

2.8.5 Over time, insulating oil degrades due to oxidation and off gassing resulting in a reduction in insulating capability and in severe cases, unit failure due to explosion. As such the insulating oil is regularly changed, being drained out via drainage valves fitted near the bottom of the units. Many large units also have oil reservoir tanks mounted above the units to ensure adequate oil is always present around the internal cores.

2.8.6 During oil changes, leaks often occurred both during draining and refilling. In addition drain valves were often subject to leakage and transformer units sometimes leaked due to failure of welds and corrosion. These leaks resulted in contamination of the soil under and around transformers.

2.8.7 PCBs were also widely used as major additives/components in heat transfer fluids, hydraulic fluids, cutting oils, building felts, chemical reactive papers and within dyes and inks. Lesser quantities of PCBs were used in plasticizers for polymers, paints, adhesives, bituminous felt building products and caulking/sealant compounds.

2.8.8 Direct exposure by humans to PCBs can cause *chloracne*, a severe facial acne that is particularly painful and persistent that can leave the individual badly disfigured. There is also evidence that PCBs have caused liver damage in mammals.

2.8.9 PCBs also bio-accumulate through the food chain within the body fats of animals and humans, and hence their presence in the environment is particularly serious. Effects in animals are even more severe, with reported symptoms including liver, stomach and thyroid gland injuries, anaemia, behavioural alterations and impaired reproduction.

2.9 Anthrax (animal by-products/hair within building insulation/plaster)

2.9.1 Prior to the introduction of drywall plaster board in the late 1930's the majority of internal walls within the UK were finished with basic lime plaster. This plaster was either laid directly over the brick substrate and smoothed off to form a surface suitable for painting and papering, or alternatively, spread over a wooden lath framework to form a partition wall.

2.9.2 To help bind the plaster together and to provide a degree of additional reinforcement, animal hair was often added to the plaster during mixing. This was in the form of short-medium length hair which would inter-cross to form a flexible but rigid "matting" within the plaster.

2.9.3 When used in lath & plaster construction, several layers of plaster were used. A rough sandy base layer would be applied initially to the wooden framework whilst progressively finer layers would be used to provide the surface finish. The most common type of hair used in plaster was horse hair (taken from the mane and tail) although hair from goats and cattle was also widely used. Whilst much of the hair originated from within the UK, large quantities were imported from abroad to satisfy demand.

2.9.4 Due to the age and nature of much of the plaster found in old buildings, there is a risk that the animal hair used may contain spores of the *Bacillus anthracis* bacterium. Contact with these spores results in the infection known as Anthrax.

2.9.5 Anthrax is a potentially fatal infection caused by the bacterium *Bacillus anthracis*. It is a zoonosis that is a disease that is transmitted from animals to humans. It primarily affects herbivorous animals although all other mammals may be susceptible. The main carriers of the disease are cattle, horses, goats, sheep and pigs. Animals become infected by the consumption of contaminated water, hay or by grazing on contaminated land or through eating contaminated feedstuffs, eg bonemeal. Direct transmission between living animals is not thought to readily occur.

2.9.6 Humans become at risk of incidental infection through contact with diseased animals, their secretions, hides, or other products including hair. Anthrax can occur in humans in a number of forms, although it is rare in the UK. The most common type affects the skin (cutaneous anthrax) and accounts for more than 95% of all cases. Other types are inhalation (pulmonary anthrax) and ingestion (intestinal anthrax).

2.9.7 The routes of transmission of anthrax are therefore through:

- skin lesions (cuts and abrasions) or puncture wounds;
- inhalation of released spores or
- ingestion of contaminated material.

- 2.9.8 If an animal dies of anthrax and is buried immediately, without opening the carcass or skinning, then the bacteria retained within the animal's blood, will also die. However, a diseased animal will often bleed through its "openings" before dying, liberating large numbers of anthrax organisms. When the infected blood comes into contact with air or other materials, the bacteria form spores which may persist in the environment for many years. For humans to contract anthrax, exposure to large numbers of the organism is thought to be essential.
- 2.9.9 Skin contact with contaminated animal hair such as that used in plaster may result in cutaneous anthrax. This is contracted by handling material containing spores from infected animals, the products of these animals, or from the contaminated environment. Similarly, inhalation anthrax can develop from breathing in spore-laden material, for example when plaster work is disturbed during refurbishment works.
- 2.9.10 Controls for the prevention of anthrax in animal hair for use in the construction industry have existed since 1919 although imported hair was not subject to regulation until 1921. Regulations passed at the time specified that all animal hair products used in commercial activities had to be sterilised prior to supply. However, there is no guarantee that hair in plaster originating from prior to this date was not contaminated.

2.10 Biohazards

- 2.10.1 Biological hazards, also known as biohazards, refer to biological substances that pose a threat to the health of living organisms, primarily that of humans. Examples commonly encountered include bodily fluids, human tissue and blood, human/animal waste and waste products from medical/healthcare use.
- 2.10.2 Whilst obvious materials such as blood, sputum and faecal waste can contain diseases and viruses, other non-obvious materials such as wastes arising from laboratories, research and medical/healthcare use could also potentially contain biohazards.
- 2.10.3 Other materials commonly found in buildings such as moulds, yeasts and fungi, also pose a risk to health, especially if spores are allowed to become airborne during work.
- 2.10.4 Under COSHH, Biological hazards are classified according to the risk of infection. The classifications are as follows:

Hazard Group 1 - unlikely to cause human disease

Hazard Group 2 - can cause human disease and may be a hazard to employees; it is unlikely to spread to the community and there is usually effective prophylaxis or treatment available. Examples include Clostridium, E.coli (non-pathogenic strains), Legionella and Streptococcus.

Hazard Group 3 - can cause severe human disease and may be a serious hazard to employees; it may spread to the community, but there is usually effective prophylaxis or treatment available. Examples include E.coli (pathogenic strains), Hepatitis and Bacillus anthracis

Hazard Group 4 - causes severe human disease and is a serious hazard to employees; it is likely to spread to the community and there is usually no effective treatment available. Examples include Lassa fever, Congo Fever and Ebola.

2.11 Man Made Mineral Fibre (MMMF) present in insulation materials

2.11.1 Man-made mineral fibre is known to cause irritation to the upper respiratory tract and skin and is controlled under the Control of Substances Hazardous to Health (Amendment) Regulations 2004.

2.11.2 It is commonly found as rolled insulation material in roof spaces and attics but can also be found as slab insulation within cavities between walls. The other common use is as pipe insulation either as metal clad moulded sections or as loose fill material.

2.12 Stagnant water present on site

2.12.1 Stagnant water may originate from surface runoff or alternatively from drains or sewers. Such water often contains high levels of bacteria some of which may pose a risk to health. Other potentially harmful contaminants such as hydrocarbons, acids and other chemicals may also be present within the water.

2.12.2 Standing water remaining in old boiler systems, radiators and other items of plant may also contain treatment chemicals or additives which could pose a hazard when released.

2.12.3 Standing water in derelict buildings may also contain animal borne pathogens such as Leptospirosis.

2.12.4 Standing water in domestic systems such as cold water storage tanks and hot water cylinders can harbour legionella bacteria. These present a risk to health should the water become atomised or form a fine spray during removal, for example due to pumping out prior to removal of the tanks.

2.13 Blown Insulation Foams

2.13.1 Polymer foams typical of those used as fridge and freezer insulation are formed using chemicals called Blowing Agents. These are usually gases which are blown into liquid polymers to create a highly cellular structure which is light but has relatively high strength when cured.

2.13.2 For many years Chlorofluorocarbons (CFCs) were used as Blowing Agents in manufacturing foams due to their low toxicity, low chemical reactivity and low flammability. However during the 1980's it was discovered that CFCs were responsible for depletion of the Earth's ozone layer due to their persistence within the atmosphere and their reactions with UV light within the upper stratosphere.

- 2.13.3 In 1987, the Montreal Treaty banned the further manufacture of CFC compounds and set out plans for the withdrawal and replacement of such compounds. Following the withdrawal of CFCs, many foams were manufactured using Hydro-chlorofluorocarbons (HCFCs) as Blowing Agents. These compounds do not harm the ozone layer as much as the compounds they replace; however, they do contribute to global warming. As such their use has also been regulated and many foams are now manufactured using simple hydrocarbon gases such as Butane and Pentane.
- 2.13.4 Many polymer foams also contain compounds added to the mix to provide a degree of fire protection, these compounds being fire retardants. A common compound widely used was Hexabromocyclododecane (HBCDD) which is a persistent, toxic and Ecotoxic chemical with bio-accumulative and long-range transport properties.
- 2.13.5 The Stockholm Convention on Persistent Organic Pollutants (POPs) is an international environmental treaty, signed in 2001 and effective from May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants (POPs) including HBCDD.
- 2.13.6 Due to their environmental persistence and the threat posed to the ozone layer, the disposal of materials contaminated with or containing CFCs, HCFCs and HBCDD is tightly controlled.

2.14 Other Materials and Components of note

- 2.14.1 Other materials and components present in buildings may also pose a hazard due to their construction or composition.
- 2.14.2 With regard to lighting units, all Gas Discharge Lamps (GDLs) are included within the scope of the Waste Electrical and Electronic Equipment (WEEE) Directive and are identified under the Hazardous Waste regulations as hazardous waste. Gas discharge lamps are:
- Straight Fluorescent tubes
 - Circular fluorescent tube and compact fluorescent lamps
 - High Intensity Discharge lamps
 - High Pressure Sodium HPS or SON
 - Low Pressure Sodium SOX lamps (street lighting)
 - Metal Halide
 - Ceramic Metal Halide
 - Mercury
 - Xenon
 - Induction
- 2.14.3 Smoke detectors frequently contain a small quantity of radioactive Americium (Am-241) or Radium (Ra-226). As such they are subject to special regulations (Environmental Permitting Regulations) in addition to the WEEE regulations
- 2.14.4 As such all smoke detectors containing a radioactive source should not be disposed of via normal waste routes but should be stored for subsequent disposal by a specialist licenced waste contractor.

- 2.14.5 Refrigeration and Air conditioning units contain refrigerant gases which act as a heat transfer/cooling medium. Various gases may be used the most common being R-134A and R-404A.
- 2.14.6 Nearly all these gases are based on Hydrofluorocarbons (HFCs) and whilst they possess low ozone depletion properties, they are recognised as having high greenhouse gas potential, with thousands of times the warming potential of carbon dioxide. Their atmospheric concentrations and contribution to anthropogenic greenhouse gas emissions are rapidly increasing, causing international concern.
- 2.14.7 As such HFCs should not be released to atmosphere but instead should be captured by degassing and retained for correct disposal.

3. Survey Details

- 3.1 Brook Cottage was secure at the time of the survey and was opened up for the purposes of the survey.
- 3.2 With regard to overall condition of the building, it was found to be in fairly good structural condition throughout, the building and environs having largely been cleared of materials. There were a few materials/products present throughout the building. Waste disposal codes and recommendations have been provided for disposal of these products.
- 3.3 The various paint systems were found to be in a generally good condition at Brook Cottage with some areas of moderate deterioration in the paintwork.
- 3.4 Numerous items of interest were identified within the property including numerous locations containing stagnant water including toilet cisterns and a water tank.



Fig.14: Stagnant water located within toilet pan and cistern in ground floor bathroom.



Fig.15: Typical old dustbin containing stagnant water located to the rear of Brook Cottage.

4. Survey and Sampling and Analysis

4.1 Survey Strategy

- 4.1.1 Hazardous Materials surveys are undertaken in accordance with SOCOTEC's in house documented procedure ENV/030 Hazardous Materials Surveys. As part of the survey, a through walkover of the site was undertaken. All accessible rooms, cupboards, pipe runs, ductwork and voids were accessed.
- 4.1.2 Due note was made of any potential hazardous materials present including their location, physical nature and condition. Where labels were present on products details were taken to enable an assessment of potential hazards to be undertaken. Where applicable, samples were obtained for subsequent laboratory analysis.
- 4.1.3 Each item identified has been uniquely numbered, its position logged and a description of the type of material and hazard present recorded. Photographs of each item location were also taken.
- 4.1.4 It should be noted that this survey does not cover suspected asbestos containing materials (ACMs) which is the subject of a separate report.

4.2 Sampling Methods

- 4.2.1 Based on those materials noted and sampled, the following sampling methods were utilised during the survey.
- 4.2.2 Samples of paint and other wall coatings were taken in accordance with SOCOTEC's in house method ENV/024-01 "Sampling Surface Contamination". Various hand tools including metal spatulas, palate knives and forceps were used to carefully remove samples of surface coatings/contamination which were then placed directly into sealed polythene bags or where appropriate, plastic sample pots. Each sample was labelled with its location and a unique sample number.

4.2.3 Samples of plaster were taken in accordance with SOCOTEC's in house method ENV/020-61 "Sampling Plaster for Presence of Anthrax. The plaster on the walls and ceilings was carefully opened up using a bolster chisel to expose the substrate material below. The exposed interior surface of the plaster was then carefully examined for the presence of animal hair. If hair was clearly present within the mix, a sample was then placed directly into sealed polythene bags and subsequently double bagged for biosecurity.

4.3 Analysis

4.3.1 Paint samples obtained from surfaces in the building were submitted to SOCOTEC's in-house Specialist Chemistry laboratory and homogenised into a fine powder using a pestle and mortar. A portion of the homogenised sample was then digested in concentrated analytical grade nitric acid. The resulting solution was filtered and made up to a known volume with analytical grade de-ionised water. The prepared sample and blank solutions were analysed, quantitatively, by the technique of Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES) for lead. Lead content in each sample is reported as both mg/kg and as a percentage (% w/w).

4.3.2 The plaster samples were subsequently submitted to the Rare and Imported Pathogens Laboratory at UKHSA Porton Down for analysis in accordance with their documented in-house procedures. This is one of the few facilities within the UK licensed to carry out analysis for *Bacillus anthracis*.

5. Hazardous Materials Survey

5.1 Introduction

5.1.1 Inspection of the interior and exterior areas of Brook Cottage revealed evidence of several potentially hazardous materials being present. Details of the various materials found are given below and over page. Advice with regard to relevant health & safety precautions and suitable disposal options are given in section seven of this report.

5.2 Discarded medical supplies, hypodermic syringes and other drug related paraphernalia

5.2.1 Inspection of all areas of the site revealed no evidence of medical supplies, hypodermic syringes or other drug related paraphernalia.

5.2.2 Whilst none were found within the areas inspected, this does not eliminate the possibility that such materials may be present within inaccessible areas and, as such, caution should be taken when disturbing bags of domestic rubbish or overgrown vegetation etc around the building.

5.3 Lead and lead oxides

5.3.1 Given the age of the building is within the period of manufacture and widespread use of lead based paints, the likelihood exists that some surfaces may have been coated with paint that may contain high levels of lead.

5.3.2 Whilst coatings which were in a general good physical condition present little risk unless they are to be removed or disturbed, paint coatings in a poor or damaged condition pose a risk of dust generation leading to the risk of possible accidental inhalation or ingestion.

5.3.3 As part of the project, representative samples of the paint systems present throughout the property were assessed.

5.3.4 Results are given in the tables over page.



5.3.5 The HSE Approved Code of Practice (ACOP L132) associated with the Control Lead at Work Regulations states that materials with less than 1% (w/w) lead content are not liable to result in a significant exposure to Lead-in-Air when work is undertaken on them.

5.3.6 From the results in table one, two of the thirteen samples taken from the internal and external areas of Brook Cottage were found to have a lead content above this 1% (w/w) threshold.

5.3.7 The results highlighted in **RED** in Table One were found to have a lead content above the 1% (w/w) threshold. At these % w/w levels, there is a high likelihood that any work on the paint, generating either dust or fume, could result in a significant exposure to Lead-in-Air. This however can only be confirmed by airborne monitoring during any actual demolition.



- 5.3.8 Based on the results the contractor is required under the CLAW Regulations to carry out a full risk assessment prior to the commencement of any working with lead paint within this area. (an outline of the risk assessment process is provided in appendix of this report).
- 5.3.9 The preparation of painted surfaces in this instance has the potential to expose employees to potentially harmful levels of lead.

Table One (a): Analysis of Paint for Lead Content – Brook Cottage

Sample Ref No.	Area	Description	Lead Content (mg/kg)	Lead content (%w/w)	Photograph
PN200171/1	Brook Cottage – Ground Floor – rear exterior kitchen wall	White paint over brick. Paint showing signs of peeling.	130	0.013	
PN200171/2	Brook Cottage – Ground Floor – metal window frame	White paint over beige paint on metal window frame. Paint showing signs of peeling and flaking.	450	0.045	



Note: results highlighted in **RED** are equal to or above the applicable 1% CLAW threshold limit

Table One (b): Analysis of Paint for Lead Content – Brook Cottage

Sample Ref No.	Area	Description	Lead Content (mg/kg)	Lead content (%w/w)	Photograph
PN200171/3	Brook Cottage – Ground Floor Bathroom - wall	Salmon paint over beige paint on wall. Paint in good condition.	40	0.004	
PN200171/4	Brook Cottage – Ground Floor Porch - wood	Black paint over white paint on wooden porch frame. Paint showing signs of peeling and flaking.	40	0.004	



Note: results highlighted in **RED** are equal to or above the applicable 1% CLAW threshold limit

Table One (c): Analysis of Paint for Lead Content – Brook Cottage

Sample Ref No.	Area	Description	Lead Content (mg/kg)	Lead content (%w/w)	Photograph
PN200171/5	Brook Cottage – Ground Floor Exterior – render on wall.	Cream paint on rendered wall. Paint showing some signs peeling.	40	0.004	
PN200171/6	Brook Cottage – Ground Floor - wooden window frame.	White paint over wooden window frame. Paint showing signs of peeling and flaking.	190	0.019	



Note: results highlighted in **RED** are equal to or above the applicable 1% CLAW threshold limit

Table One (d): Analysis of Paint for Lead Content – Brook Cottage

Sample Ref No.	Area	Description	Lead Content (mg/kg)	Lead content (%w/w)	Photograph
PN200171/7	Brook Cottage – Ground Floor – exterior wooden window sill.	Black on wooden window sill. Paint showing signs of peeling and flaking.	60	0.006	
PN200171/8	Brook Cottage – Ground Floor – pantry wall.	Sky blue paint on plaster skim on pantry wall. Paint showing signs of peeling and flaking.	3200	0.32	

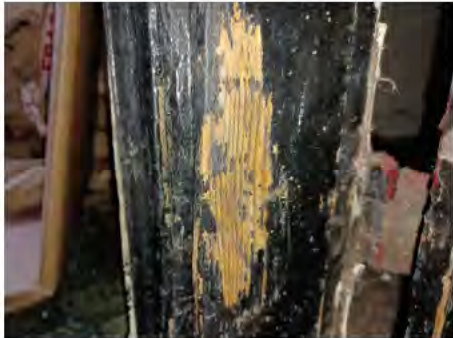

Note: results highlighted in **RED** are equal to or above the applicable 1% CLAW threshold limit

Table One (e): Analysis of Paint for Lead Content – Brook Cottage

Sample Ref No.	Area	Description	Lead Content (mg/kg)	Lead content (%w/w)	Photograph
PN200171/9	Brook Cottage – Ground Floor – pantry wall.	Green paint on plaster skim. Paint showing signs of peeling and flaking.	18,000	1.8	
PN200171/10	Brook Cottage – Ground Floor – lounge wall.	White paint over green paint in lounge wall. Paint in good condition, occasional peeling.	92	0.0092	


Note: results highlighted in **RED** are equal to or above the applicable 1% CLAW threshold limit

Table One (f): Analysis of Paint for Lead Content – Brook Cottage

Sample Ref No.	Area	Description	Lead Content (mg/kg)	Lead content (%w/w)	Photograph
PN200171/11	Brook Cottage – Ground Floor – interior door frame.	Black paint over wooden door frame. Showing signs of peeling.	44,000	4.4	
PN200171/12	Brook Cottage – Ground Floor – ceiling.	White paint over plaster ceiling. Paint in good condition.	50	0.005	

Note: results highlighted in **RED** are equal to or above the applicable 1% CLAW threshold limit

Table One (g): Analysis of Paint for Lead Content – Brook Cottage

Sample Ref No.	Area	Description	Lead Content (mg/kg)	Lead content (%w/w)	Photograph
PN200171/13	Brook Cottage – wall beam on staircase.	Black Paint on wooden wall beam. Paint in good condition.	6800	0.68	

Note: results highlighted in **RED** are equal to or above the applicable 1% CLAW threshold limit

5.4 Chemicals, paints and other substances left in building

- 5.4.1 Inspection of Brook Cottage and the immediate vicinity revealed some evidence of various chemicals and other similar products being left on site.
- 5.4.2 Inspection of the workshop area revealed a part filled drum of *Treble X* Acid Cleaner and De-scaler to be present.



Fig.16: A 25 litre drum of Treble X Acid Cleaner and De-scaler noted in the workshop area.

- 5.4.3 Some evidence of oils or other hydrocarbon-based products were noted on site at Brook Cottage including several different containers of engine oil. These are outlined in more detail in Section Six.



Fig.17: Bottle of Castrol GTX 10W-40 engine oil located in workshop. (Example of oil container present)

- 5.4.4 Some fuel cans were noted within the workshop area and sheds on site. These containers still contained petrol.



Fig.18: Part filled can of petrol located within workshop area.

5.5 Dusts, debris and other solid substances which may be hazardous to health

- 5.5.1 A general examination of the buildings revealed no evidence of dusts debris and other solid substances that may be hazardous to health.
- 5.5.2 A general examination of the buildings revealed no evidence of Man Made Mineral Fibre (MMMF) insulation within the property.


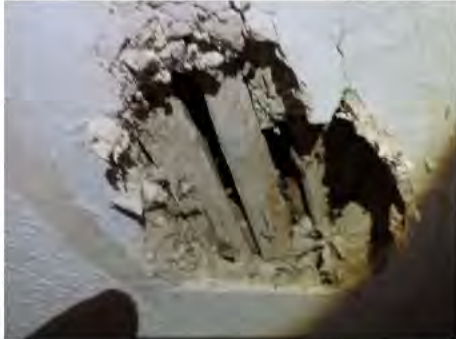
5.6 Polychlorinated biphenyls (PCBs)

- 5.6.1 There was no evidence of transformers or electrical capacitors on site that may contain PCBs.
- 5.6.2 In addition, the lighting units were of an age where any capacitors present would not have contained PCBs.
- 5.6.3 With regard to bitumastic felts, sealants and adhesives, none were found which were of an apparent age where PCBs may have been present.

5.7 Anthrax (animal by-products/hair within building insulation/plaster)

- 5.7.1 Several plaster types were observed including traditional horse hair lath and plaster located within the ground floor and first floor ceilings. A traditional wattle and daub style construction was noted on the walls of the property. A surface layer of plaster skim was noted to contain visible horse hair within the plasterwork.
- 5.7.2 Horse hair was noted in the plasterwork located in the ceilings and walling. Therefore representative samples were taken from the ground floor wall plaster and from the first floor ceiling.
- 5.7.3 The result is given in the table over the page:

Table Two (a): Analysis of Plaster for Presence of Anthrax – Brook Cottage

Sample Ref No.	Area	Description	Presence of <i>Bacillus Anthracis</i>	Photograph
PN200171/14	Brook Cottage – ground floor wall plaster.	Ground Floor horse hair plaster on wall with evidence of animal hair reinforcement present.	Negative	
PN200171/15	Brook Cottage – first floor ceiling lath in plaster.	First Floor horse hair plaster on ceiling with evidence of animal hair reinforcement present.	Negative	

Note: Analysis of plaster carried out by The Rare and Imported Pathogens Laboratory at UKHSA Porton Down.

5.7.4 Analysis of the plaster samples within the walls and ceiling revealed no evidence of *Bacillus Anthracis* to be present.

5.7.5 As such it is highly unlikely that working with the existing plaster work within the specific area where plaster remains in the building will result in exposure to *Bacillus Anthracis*.

5.8 Biohazards (including *Legionella* risk)

5.8.1 Some sources/potential locations of stagnant water were noted across the site. These included a waste bin and toilet cistern filled with visibly stagnant water.



Fig.19: Stagnant water located within toilet pan and cistern in ground floor bathroom.



Fig.20: Dustbin containing visibly stagnant water adjacent to workshop area.

5.8.2 The mains fed water system was still live within the building. Some areas of stagnant water may be present within some areas of the pipework making proliferation of *Legionella* bacteria a possibility.

5.9 Chlorofluorocarbons (CFCs)

- 5.9.1 A disused domestic fridge unit was present on site, which depending on its age, may contain CFCs, a major environmental pollutant that can cause atmospheric ozone depletion. Depending on the age of the equipment, CFCs may be present within the refrigerant gases or within the foam insulation within the bodywork of the appliances.
- 5.9.2 Redundant refrigeration equipment should be disposed of via a licenced waste contractor.



Fig.21: Fridge freezer located in the kitchen in Brook Cottage.

5.10 Bacteriological Assessment

- 5.10.1 There was no evidence of mould or damp or any other bacteriological contamination on site that may pose any risk at the time of the survey.

5.11 Other Materials and Components of Note

- 5.11.1 With regard to other materials and components which may pose a hazard during building demolition the following were noted.
- 5.11.2 A smoke detector was located on the ground floor of the building. This could each contain a radioactive source and should be disposed of by a licenced waste contractor.



Fig.22: Smoke detector located within the ground floor lounge.

6 Discussion & Conclusions

6.1 Inspection of Brook Cottage has revealed various hazardous materials to be present on site. A summary of those materials deemed to be potentially hazardous is given in the table below.

Table Three (a): Summary of Hazardous Materials – Brook Cottage

Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Ground Floor – pantry wall.		Brook Cottage – Ground Floor – pantry wall containing lead content above 1%w/w.	<p>Lead Content = 1.8 % (w/w)</p> <p>Follow good practices set out in ACOP L132 – The control of lead at work.</p> <p>Ideally grinding and cutting techniques should be kept to the minimum possible to avoid generating dust. Where possible, the panels should be removed and disposed of intact.</p> <p>Staff should use RPE with an assigned protection factor of 20 such as a FFP3 disposable mask or a suitable half mask respirator fitted with a P3 filter. Disposable overalls should also be worn to avoid transferring contamination off site.</p>

Table Three (b): Summary of Hazardous Materials – Brook Cottage

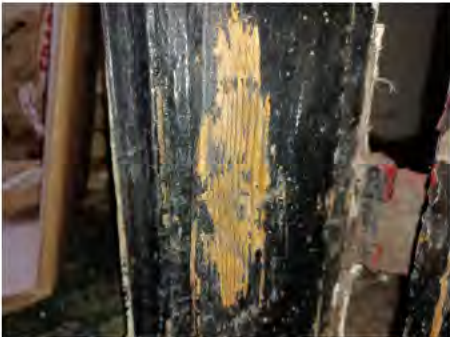

Location	Photograph of General Area	Description of Material Present	Advice
<p>Brook Cottage – Ground Floor – interior door frame.</p>		<p>Brook Cottage – Ground Floor – interior door frame containing lead content above 1%w/w.</p>	<p>Lead Content = 4.4 % (w/w)</p> <p>Follow good practices set out in ACOP L132 – The control of lead at work.</p> <p>Ideally grinding and cutting techniques should be kept to the minimum possible to avoid generating dust. Where possible, the panels should be removed and disposed of intact.</p> <p>Staff should use RPE with an assigned protection factor of 20 such as a FFP3 disposable mask or a suitable half mask respirator fitted with a P3 filter. Disposable overalls should also be worn to avoid transferring contamination off site.</p>
<p>Brook Cottage – Ground Floor Bathroom.</p>		<p>Stagnant water located within the toilets and cisterns – likely to pose biohazard risk.</p>	<p>Suitable PPE should be worn when decommissioning the toilet systems and good hygiene practices followed.</p> <p>Ideally, the system should be thoroughly cleaned and flushed through prior to removal.</p>

Table Three (c): Summary of Hazardous Materials – Brook Cottage

Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Ground Floor Bathroom.		1x <i>Luxell</i> LX - 2890 electric heater.	<p>Wear nitrile gloves when handling.</p> <p>Dispose of as EWC 20 01 36 discarded electrical equipment other than those mentioned in 20 01 21 and 20 01 23 and 20 01 35.</p>
Brook Cottage – Ground Floor Kitchen.		Cooker	<p>Wear nitrile gloves when handling.</p> <p>Dispose of as EWC 20 01 36 discarded electrical equipment other than those mentioned in 20 01 21 and 20 01 23 and 20 01 35.</p>

Table Three (d): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Ground Floor Kitchen		Heating systems and associated pipework, likely to contain some stagnant water.	<p>Carefully drain down cisterns and associated pipework before removal.</p> <p>Outlets should be slowly opened to avoid generating aerosol.</p>
Brook Cottage – Ground Floor Kitchen.		Small tank containing stagnant water.	<p>Employ suitable hygiene techniques when emptying contents.</p> <p>Wear nitrile gloves and disposable overalls. Supply appropriate handwashing facilities and no eating or drinking to occur in this area.</p>

Table Three (e): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Ground Floor Kitchen.		Fridge Freezer.	<p>Wear nitrile gloves when handling.</p> <p>Dispose of as EWC 16 02 11* discarded equipment containing chlorofluorocarbons, HCFC, HFC.</p>
Brook Cottage – Exterior.		Numerous propane gas canisters.	<p>Any canisters still containing gas should be disposed of as EWC 16 05 04* gases in pressure containers (including halons) containing hazardous substances.</p> <p>Any empty canisters should be disposed of as EWC 02 01 10 waste metal.</p>

Table Three (f): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		Petrol lawnmower, may contain residual petrol and two stroke oil.	If possible dispose of lawnmower as entire unit without draining down.
Brook Cottage – Shed.		1x can part filled with petrol.	<p>Unlabelled bottle containing petrol.</p> <p>Oil is classified as potential carcinogen and is a Hazardous Waste.</p> <p>Wear nitrile gloves when handling containers and transfer to suitable sealed containers.</p> <p>Dispose of as EWC 13 07 02* petrol.</p>

Table Three (g): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		<p>Numerous 25 litre drums of <i>Treble X</i> Acid Cleaner and De-scaler.</p>	<p>Classed as a skin and eye irritant. Can cause specific organ toxicity.</p> <p>Wear safety glasses and nitrile gloves when handling container.</p> <p>Disposes of as EWC 20 01 14* acids.</p>
Brook Cottage – Shed.		<p>Propane gas canister.</p>	<p>Any canisters still containing gas should be disposed of as EWC 16 05 04* gases in pressure containers (including halons) containing hazardous substances.</p> <p>Any empty canisters should be disposed of as EWC 02 01 10 waste metal.</p>

Table Three (h): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		1x box <i>Polycell</i> exterior Polyfilla.	<p>Classed as non-hazardous.</p> <p>Wear nitrile gloves when handling containers.</p> <p>Dispose of as EWC 08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09.</p>
Brook Cottage – Shed.		1x bottle <i>Total</i> tyre repair.	<p>Classed as extremely flammable.</p> <p>Wear nitrile gloves when handling container.</p> <p>Dispose of as EWC 16 05 04* gases in pressure containers (including halons) containing hazardous substances.</p>

Table Three (i): Summary of Hazardous Materials – Brook Cottage

Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		1x 600ml bottle <i>Comma 2 Stroke</i> mineral oil.	<p>Oil is classified as Potential carcinogen and is a Hazardous Waste.</p> <p>Wear nitrile gloves when handling containers and transfer to suitable sealed containers.</p> <p>Dispose of as EWC 13 02 05* mineral-based non-chlorinated engine, gear and lubricating oils.</p>
Brook Cottage – Shed.		1x bottle <i>GOOP</i> Instant Puncture Prevention sealant.	<p>Classed as Non-hazardous</p> <p>Wear nitrile gloves when handling container.</p> <p>Dispose of as EWC 08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09.</p>

Table Three (j): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		1x tin <i>Ronseal</i> Damp Seal.	<p>Classed as hazardous.</p> <p>Wear safety glasses and nitrile gloves when handling container.</p> <p>Dispose of as EWC 08 01 11* waste paint and varnishes containing organic solvents or other hazardous substances.</p>
Brook Cottage – Shed.		1 x bottle unbranded concentrate antifreeze.	<p>Can cause eye and respiratory tract irritation. Harmful if ingested.</p> <p>Wear eye protection and nitrile gloves when handling containers.</p> <p>Dispose of as EWC 16 01 14* antifreeze fluids containing hazardous substances.</p>

Table Three (k): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		1 x bottle <i>Turtle Wax Colour Magic Car Polish</i> .	<p>Classified as Hazardous.</p> <p>Wear nitrile gloves when handling material.</p> <p>Dispose of as EWC 20 01 27" paint, inks, adhesives and resins containing hazardous substances.</p>
Brook Cottage – Shed.		Castrol GTX 10W-40 engine oil.	<p>Oil is classified as Potential carcinogen and is a Hazardous Waste.</p> <p>Wear nitrile gloves when transferring contents of motors</p> <p>Dispose of contents of motors as EWC 13 02 06* synthetic engine, gear and lubricating oils.</p>

Table Three (I): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		Unlabelled bottle synthetic engine oil.	<p>Oil is classified as Potential carcinogen and is a Hazardous Waste.</p> <p>Wear safety glasses and nitrile gloves when handling containers</p> <p>Dispose of contents of motors as EWC 13 02 06* synthetic engine, gear and lubricating oils.</p>
Brook Cottage – Shed.		1x spray can <i>Carplan Super De-icer</i> .	<p>Can cause eye irritation, organ damage, drowsiness or dizziness and is flammable.</p> <p>Wear safety glasses and nitrile gloves when handling containers.</p> <p>Dispose of as EWC 16 05 04* gases in pressure containers (including halons) containing hazardous substances.</p>

Table Three (m): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		1x spray can of <i>Carplan</i> Lock De-icer.	<p>Can cause eye irritation, organ damage, drowsiness or dizziness and is flammable.</p> <p>Wear safety glasses and nitrile gloves when handling containers.</p> <p>Dispose of as EWC 16 05 04* gases in pressure containers (including halons) containing hazardous substances.</p>
Brook Cottage – Shed.		<i>Comina</i> DOT 4 Brake and Clutch Fluid.	<p>Can cause acute toxicity, eye irritation and organ damage.</p> <p>Wear eye protection and nitrile gloves when handling container.</p> <p>Dispose of as EWC 16 01 13* brake fluids.</p>

Table Three (n): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		1x bottle Antifreeze and Summer Coolant.	<p>Can cause eye and respiratory tract irritation. Harmful if ingested.</p> <p>Wear eye protection and nitrile gloves when handling containers.</p> <p>Dispose of as EWC 16 01 14* antifreeze fluids containing hazardous substances.</p>
Brook Cottage – Shed.		1x spray can of <i>OUCO</i> De-icer.	<p>Can cause eye irritation, organ damage, drowsiness or dizziness and is flammable.</p> <p>Wear safety glasses and nitrile gloves when handling containers.</p> <p>Dispose of as EWC 16 05 04* gases in pressure containers (including halons) containing hazardous substances.</p>

Table Three (o): Summary of Hazardous Materials – Brook Cottage.



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		Butane gas canisters.	<p>Any canisters still containing gas should be disposed of as EWC 16 05 04* gases in pressure containers (including halons) containing hazardous substances.</p> <p>Any empty canisters should be disposed of as EWC 02 01 10 waste metal.</p>
Brook Cottage – Shed.		1x can part filled with petrol.	<p>Unlabelled bottle containing petrol.</p> <p>Oil is classified as potential carcinogen and is a Hazardous Waste.</p> <p>Wear nitrile gloves when handling containers and transfer to suitable sealed containers.</p> <p>Dispose of as EWC 13 07 02* petrol.</p>

Table Three (p): Summary of Hazardous Materials – Brook Cottage



Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Shed.		Numerous empty and part filled barrels of deionised water.	<p>Classed as non-hazardous.</p> <p>Wear nitrile gloves when handling.</p> <p>Dispose of in general waste.</p>
Brook Cottage – Shed.		Numerous large drums with residues of Adblue.	<p>Wear nitrile gloves when handling container.</p> <p>Dispose of as EWC 16 05 09 discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08.</p>

Table Three (q): Summary of Hazardous Materials – Brook Cottage





Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Exterior.		Numerous containers and dustbins filled with stagnant water.	<p>Employ suitable hygiene techniques when emptying contents.</p> <p>Wear nitrile gloves and disposable overalls. Supply appropriate handwashing facilities and no eating or drinking to occur in this area.</p>
Brook Cottage – Interior – Lounge.		Smoke Detectors	<p>Smoke detectors contain small quantities of radioactive material.</p> <p>Under WEEE Directive these units should be removed from the building prior to demolition, quarantined and disposed of by a licenced waste contactor.</p>

Table Three (r): Summary of Hazardous Materials – Brook Cottage

Location	Photograph of General Area	Description of Material Present	Advice
Brook Cottage – Interior.		Live water systems and associated pipework, likely to contain some stagnant water.	<p>Carefully drain down cisterns and associated pipework before removal.</p> <p>Outlets should be slowly opened to avoid generating aerosol.</p>
Brook Cottage – Interior.		Numerous fire extinguishers.	<p>Arrange for a specialist waste contractor to dispose of.</p> <p>Take care when handling to prevent accidental release of fire suppressant.</p>



Appendix One: Analysis Results

TEST REPORT ASC/51875

Customer: SOCOTEC Cirencester
Unit D
2 Wilkinson Road
Bankside Trade Park
Cirencester
Gloucestershire
GL7 1YT

Testing Facility: Advanced Chemistry and Research
SOCOTEC
Etwall Building
Bretby Business Park
Ashby Road
Burton Upon Trent
DE15 0YZ

Purchase Order Number: PN200171

Date Samples Received: 03 December 2021

Condition of Samples: Ambient and Satisfactory

Authored by: Dan Tunks

Authored by:



Approver's name: Nicola Baker

Job Title: Senior Analyst

Test Report Date: 16 December 2021

Sample and Method Descriptions

Number of Samples Received	Matrix / Sample Description	Method ID	Description
13	Paint Flake	IHM	HOTPLATE DIGESTION – Samples were digested in high-purity concentrated acid, using hotplate assisted heating. Following digestion, the samples were diluted to a known volume with deionised water.
		ASC/SOP/102	OPERATION AND MAINTENANCE OF INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROMETERS (ICP-AES) – Samples were diluted as necessary and analysed by ICP-AES calibrated using certified standards.

Results

Table 1: Lead Results

		Units	mg/kg	%w/w
Method ID (ASC/SOP/xxx)			IHM/102	IHM/102
Instrument Limit of Detection			6/300*	NA
UKAS			NO	NO
Customer Sample Reference	Laboratory Sample Reference	Pb	Pb	
PN200171/1 Exterior white on wall	ASC/51875.001	130	0.013	
PN200171/2 Exterior beige window frame	ASC/51875.002	450	0.045	
PN200171/3 GF interior wall salmon	ASC/51875.003	40	0.004	
PN200171/4 GF Black in porch	ASC/51875.004	40	0.004	
PN200171/5 GF White on plaster	ASC/51875.005	40	0.004	
PN200171/6 Exterior white window frame	ASC/51875.006	190	0.019	
PN200171/7 Exterior black window sill	ASC/51875.007	60	0.006	
PN200171/8 GF sky blue on wall	ASC/51875.008	3200	0.32	
PN200171/9 GF green on wall	ASC/51875.009	18000*	1.8	
PN200171/10 GF white on wall	ASC/51875.010	92	0.0092	
PN200171/11 GF black on door frame	ASC/51875.011	44000*	4.4	
PN200171/12 GF white on ceiling	ASC/51875.012	50	0.005	
PN200171/13 GF Black on wall beam	ASC/51875.013	6800	0.68	

1. Results marked with a * have a corresponding ILoD marked with a *
2. NA means not applicable

END OF TEST REPORT



UKHSA Porton

Rare and Imported Pathogens Laboratory

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Website: [REDACTED]

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FAO: DAVID CADDY
SOCOTEC UK LIMITED
ENVIRONMENT & SAFETY
UNIT D
2 WILKINSON ROAD
BANKSIDE BUSINESS PARK
CIRENCESTER

GL7 1YT

Sender's ref. No. PN 200/71/14
PHE ref. No. P2 1E00 0659
Date received 03.12.2021

Billing reference 0000/827 21
Outbreak/Investig. No
Ilog number
Project code

Date of collection 30.11.2021

Sample type

Sample details

Site Details

Other Sample References

Plaster

EF Wall Plaster

Brook Cottage

Information not provided

Laboratory report

Environmental Anthrax Results

1. *Bacillus anthracis* not isolated



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GL7 1YT

Sender's ref. No. PN 200/71/15
PHE ref. No. P2 1E00 0660
Date received 03.12.2021

Billing reference 00001827 21
Outbreak/Investig. No
Ilog number
Project code

Date of collection 30.11.2021

Sample type

Sample details

Site Details

Other Sample References

Plaster

IF Ceiling Plaster

Brook Cottage

Information not provided

Laboratory report

Environmental Anthrax Results

1. *Bacillus anthracis* not isolated



Appendix Two: Health & Safety - Working with Hazardous Materials

Introduction

Adverse health effects associated with exposure to hazardous substances depend upon the substance(s) to which the subject is exposed. In some cases, substances are 'synergistic' in their effects, whereby the risk from exposure to a mixture of substances is far greater than the sum of the risks from exposure to each substance alone.

Typical health effects from exposure to hazardous contaminants include lung damage, cancers, poisoning, damage to internal organs, central nervous system disorders, reproductive effects, irritation etc. and it is therefore important to obtain accurate information on the types of contaminants present and their concentrations, to allow adequate and suitable control measures to be established.

Safe Working Procedures – Risk Assessments

The undertaking of a "general risk assessment" is a statutory obligation under Regulation 3 of the Management of Health and Safety at Work Regulation 1999 (MHSWR). This regulation requires that the employer must look at all the tasks that make up the work carried out and assess whether the hazards involved (that could affect the health and safety of employees or others) are controlled to a level that is acceptable. The significant findings of an assessment must be recorded.

The main steps to risk assessments are:

- Identify all operators.
- Identify hazards / tasks.
- Identify personnel potentially affected.
- Identify existing control measures.
- Determine whether existing controls are adequate.
- Determine appropriate further control measures.
- Develop an action plan to implement control measures, and
- All risk assessments should be recorded and revised as necessary.

Working with Contaminated Material

When working with hazardous contaminated material, there are a number of precautionary measures, which must be observed by employers and employees. To prevent contamination, all employees should practice good personal hygiene and:

- Make sure that they understand the risks to health caused by exposure to contaminated materials
- That they have all the information and training needed to work safely with contaminated material, including what to do in an emergency.
- Use a safe system of work and wear the protection equipment provided.
- Report any damaged protective equipment and get it replaced.
- Avoid being contaminated.
- Avoid breathing in dusts and fumes from contaminated material.

- Avoid touching their face, or smoking, or eating and drinking, unless they have washed their hands and face thoroughly with soap and water.
- Clean all exposed wounds, however small, which must then be covered with a sterile dressing.

- Leave the workplace and obtain first aid assistance if the eyes become irritated by dusts.
- Change out of contaminated clothing before eating, drinking or smoking.
- Notify their employer if they suffer from skin problems.
- Ensure that all contaminated equipment and clothing is cleaned – contaminated clothing should not be taken home to be washed, but should be dealt with by the employer.

When working with contaminated material the following personal protective equipment measures should be employed:

- All workers should wear appropriate protective clothing, including respiratory protection if required (which should be cleaned after each work period) to avoid exposure to the skin.
- A barrier cream should be used before work and after work, with the hands, face and forearms washed with hot water and soap.

Employers should ensure that:

- The employee is provided with protective clothing including respiratory protection.
- The amount of dust, fumes and vapours in the air are measured and that the employee is informed of the results.
- Adequate welfare facilities are provided, including clean water, soap, nailbrushes, disposable paper towels etc.
- A segregated area is provided for the storage of clean and contaminated equipment, which is separated from eating facilities.
- Adequate first-aid equipment is provided, including clean water or sterile wipes for cleaning wounds and a supply of sterile, waterproof, adhesive dressings.
- Effective arrangements are made for monitoring the health of employees.

Control: Use a HEPA vacuum system to collect the dust at the point of emission, respiratory protection (P3 filter) / arrange training – face fit testing and suitable work wear (gloves, disposable overalls).

Worksite Preparation: Set up the area so that all debris from the work is contained within the worksite. Prevent unnecessary access by others to the worksite.

Occupant Protection: Take appropriate precautions to protect occupants and their belongings during ongoing work that may disturb dust.

Specialised Cleaning: Clean the worksite carefully, using specialised cleaning techniques that are effective in removing metal contaminated dust.

As long as general total inhalable dust levels are controlled to be as low as possible then exposure to airborne levels of particulates should not be significant. If work is likely to cause elevated dust levels then use respiratory protection should be considered but only after all other control options or in addition to. Reference should be made to HSE document “Respiratory protective equipment at work” HSG53, published 2005. Adequate training instruction and face fit testing needs to be provided for the individual.

The powered type respirators, which blows filtered air over the face under a helmet fitted visor, with a P3 (particulate). This type does not require face fit testing and is more suitable for prolonged use.

Precautions should also be taken on site to prevent the release of dust etc. to the environment, which may affect the general population. Where dust is collected or cleaned from surfaces, this should be done with a vacuum cleaner with a HEPA filter, to prevent releasing dust.

Any contaminated waste must be treated as “hazardous waste” and disposed of via a licensed waste contractor. Any contaminated work wear / overalls etc. must be handled with care and contract cleaned to prevent secondary exposure of family members. The disposable paper type overalls are ideal which may be disposed of after use.

Occupational Exposure: From the analysis of a solid substance it is not possible to predict exactly what airborne concentrations of harmful materials will be produced. The main issue is to control dust exposure below 10mg/m³ 8 Hr TWA, for Inhalable dust and below 4 mg/m³ 8 Hr TWA for respirable (pm₁₀) dust. The eight principles of good practice are set out in Schedule 2A of the COSHH Regulations, which must be followed to achieve this.

An Occupational Hygienist can undertake a site monitoring exercise to find out what an individual is exposed to in the breathing zone. In this way the monitoring results may be compared directly to Workplace Exposure Limits (WELS) for Dust / Bitumen / Metals – Lead etc, set by the HSE and further controls appropriate to the risk may be advised.

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