

M42 Junction 6 Development Consent Order

Scheme Number TR010027

8.58 Applicant's Responses to Examining Authority's Second Round of Written Questions

Planning Act 2008

Rule 8(1)(b)

The Infrastructure Planning (Examination
Procedure) Rules 2010

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M42 Junction 6

Development Consent Order 202[]

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1 Responses to the Examining Authority's 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) second 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 Second Round of Written Questions

No.	Directed to	Question
2.1	General and Cross-topic Questions	
2.1.1	Applicant, CPRE	<p>Legal</p> <p><u>The status of the link road</u></p> <p><i>The construction of the new dual-carriageway link road which forms part of this Scheme appears to fall within sections 22(1)(a) and 22(2) of the 2008 Act because:</i></p> <p><i>22.2.a it will (when constructed) be wholly in England;</i></p> <p><i>22.2.b Highways England, as a strategic highway company appointed by the Secretary of State under Part 1 of the Infrastructure Act 2015, will be the highway authority in respect of the link road; and</i></p> <p><i>22.2.c the area of the development in respect of the link road is approximately 20ha and is therefore greater than the relevant limit set out in section 22(4) of the 2008 Act, which, for the construction of a highway other than a motorway where the speed limit for any class of vehicle is expected to be 50mph or greater, is 12.5ha.</i></p> <p>In those circumstances, please explain why this project should not be regarded as part of the 'national system of routes for through traffic in England' and how that might have a bearing on the status of the link road as part of this NSIP.</p> <p>Answer:</p> <p>Please refer to the answers provided in Response to CPRE Letter dated 15 July 2019 [REP3A-005].</p>

No.	Directed to	Question
2.1.2	Applicant, CPRE, Open Space Society	<p>Legal</p> <p><u>Alternatives to stopped-up rights of way</u></p> <p><i>Section 136 of the Act deals with public rights of way. It requires that:</i></p> <p><i>(1) An order granting development consent may extinguish a public right of way over land only if the Secretary of State is satisfied that:</i></p> <p><i>an alternative right of way has been or will be provided, or</i></p> <p><i>the provision of an alternative right of way is not required.</i></p> <p>There is no obvious statutory test or legal requirement in the Act for an alternative right of way to be 'reasonably convenient'. Nevertheless, the Panel expect to report on the convenience of alternative routes, particularly in relation to severance and the future provision of footpaths and cycleways, in considering the impact of the scheme and to ensure compliance with the NPSNN to make reasonable efforts to foster non-motorised and sustainable travel. Hence, please explain on what grounds (if any) a legal requirement to apply a test of 'reasonable convenience' might exist. And, whether or not such a test might be warranted, please submit any further relevant evidence necessary to address the 'reasonable convenience' of the PROW provision proposed here.</p> <p>Answer:</p> <p>The Applicant can confirm that there is no legal test for reasonable convenience in relation to the diversion of public rights of way.</p> <p>The public right of way strategy that has been proposed by the Applicant as part of the dDCO has evolved through consultation with Solihull Metropolitan Borough Council (SMBC), site walkovers with local Non Motorised User Groups and feedback received from members of the public via the Statutory Consultation and Further Targeted Consultation events held during 2018.</p> <p>These consultation events have led to the following modifications to the Public Rights of Way strategy:</p>

No.	Directed to	Question
		<ul style="list-style-type: none"> Accommodation Bridge included to maintain farmland access and also to mitigate severance of Public Rights of Way M122 and M123. Change introduced at Further Targeted Consultation. A45 pedestrian overbridge relocated from the west of Clock Interchange to the east following feedback from Bickenhill Residents at Statutory Consultation in order to maintain access to key community facilities such as Birmingham International Railway Station, the Arden Hotel and Esso Fuel Garage. Position of A45 Pedestrian Overbridge agreed in consultation with Solihull Metropolitan Borough Council. Section of Public Right of Way M112 proposed to be stopped up running north of land parcel 3/51a at Further Targeted Consultation subsequently reinstated in the Development Consent Order following consultation response received by the Open Spaces Society. <p>In reference to a test for reasonable convenience, the Design Manual for Roads and Bridges TA91/05 - Provision for Non-Motorised Users, Section 3.17 defines that, where rights of way diversions are necessary, it is recommended that they should not normally result in additional journey lengths of more than 10%, unless agreed with the Overseeing Organisation. The proposed alterations to the Public Rights of Way have been assessed by the Applicant and reported in Chapter 13 of the Environmental Statement [APP-058/Volume 6.1]. The proposals submitted as part of this dDCO have been agreed with SMBC as the Local Authority, which meets the test outlined in TA91/05.</p>
2.1.3	Applicant, CPRE	<p>Legal</p> <p><u>Alternative schemes</u></p> <p><i>Section 104 of the Act requires that, where a relevant NPS has effect, regard must be given to it in making a decision. The NPSNN indicates (at paragraph 4.27) that 'Where projects have been subject to full options appraisal in achieving their status within Road or Rail Investment Strategies ... option testing need not be considered by the ExA or the decision maker. For national road and rail schemes, proportionate option consideration of alternatives will have been undertaken as part of the investment decision making process. It is not necessary for the Examining Authority and the decision maker to reconsider this process.'</i></p>

No.	Directed to	Question
		<p>As that is the case here, please identify on what basis the Panel might be required to consider alternative road schemes put forward by interested parties, having regard especially to section 104 of the Act, the NPSNN or any relevant caselaw.</p> <p>Answer: Please refer to the answers provided in Response to CPRE Letter dated 15 July 2019 [REP3A-005].</p>
2.1.4	The Applicant, SMBC, WCC, Extra MSA Solihull Ltd and Applegreen plc	<p>MSA and junction 5a</p> <p>It is evident from DMRB TD 22/06 figure 5/2 that the dumb-bell arrangement proposed would normally offer connections to 2-directional slip roads (in this case, N and S facing slips). How many junctions on English motorways are laid out in a dumb-bell arrangement but only with uni-directional slip roads?</p> <p>Answer: In relation to motorways in England, following an initial review the Applicant can confirm that nine junctions have been identified which meet these criteria. An additional junction meeting these criteria is currently progressing through the planning process (A30 Chiverton to Carland Cross).</p> <p>The Applicant refers the ExA to Appendix 1 which presents aerial photography of these junctions.</p> <p>The guidance in section 2.2 of TD 22/06 states:</p> <p><i>"The design of junctions is affected by decisions taken on the degree of access to be provided on the scheme. It is important to consider from the outset how much access should be allowed. It may not be possible to cater for the full predicted demand. The fact that other roads are crossed, does not imply that a junction should be provided, or that if one is provided, it should be omni-directional."</i></p>

No.	Directed to	Question
		The Applicant considers that north-facing slip roads will not add value to the Scheme and therefore have not been included. South facing slip roads only are sufficient for this Scheme to deliver the Scheme objectives. Whilst this layout does not match the typical layouts presented in TD 22/06, it is not a departure from standard.
2.1.5	The Applicant, SMBC, WCC, Extra MSA Solihull Ltd and Applegreen plc	<p>MSA and junction 5a</p> <p>Please revisit and reassess the advantages claimed for the proposed dumb- bell design for junction 5a in the answer to ExQ1.0.10 in relation to the free- flow design suggested by Applegreen in their Technical Note appended to REP3-024.</p> <p>Since a consequence of the proposed design necessitates the widening of the western roundabout and a section of the link road in order to accommodate MSA traffic, please include all those alterations in the reassessment (particularly, the additional lanes and the additional span of Solihull Road Bridge required).</p> <p>In the light of that reassessment, does the published layout in the dDCO provide the optimum junction arrangement and meet the scheme objectives as defined in the Planning Statement?</p> <p>Answer:</p> <p>The Applicant has reviewed the layout presented by Applegreen at deadline 3 and identified a number of sub-standard geometric features. This layout was subsequently reproduced and developed to comply with the DMRB to a standard that is comparable to the dDCO dumb-bell layout. The Applicant has used this design standard compliant layout as the basis of its assessment.</p> <p>Applegreen has not provided any construction methodology or details of land temporarily required to construct their layout. The Applicant has therefore not been able to consider these matters in its comparative assessment.</p> <p>A high level review of the Applegreen free-flow layout with standard compliant geometry was conducted in a similar manner to the review of the design presented by Mr Cuthbert, which was the subject of question 1.0.10 of the Examining Authority's first round of questions. This consisted of undertaking a qualitative comparison between this free-flow junction layout and the dDCO junction layout, including the alterations specified in Q2.1.5. The Applicant</p>

No.	Directed to	Question
		<p>would reiterate however, that it would be for the promoter of the MSA to bring forward these alterations, which are not part of the dDCO scheme.</p> <p>The findings of the assessment are outlined below:</p> <ul style="list-style-type: none"> • The free-flow layout would require an approximately 12% increase in land take in comparison to the dDCO layout around Junction 5A as altered to accommodate the MSA (and around a 22% increase in comparison to the dDCO Scheme). This includes the land locked area between the two carriageways west of the M42 motorway. However, this increase does not include the additional land that would be required to install all associated highway features such as the attenuation features north-west of Junction 5A, • The impact on the ancient woodland would be approximately 800sq m less when compared to the dDCO layout • The free-flow layout would have a greater adverse impact on the operational safety of road users and operations and maintenance personnel. This is due to the continuous high speed traffic movements through the junction, the interface with operations and maintenance personnel through the junction, and access and egress arrangements for operation and maintenance personnel into the landlocked area. • The free-flow layout precludes any opportunities to connect additional road infrastructure with Junction 5A in the future, and so precludes any opportunities for future development aspirations to connect with the strategic road network (SRN), unless significant disruption and abortive works are carried out to Junction 5A and the adjacent trunk road network. In comparison, the dDCO layout does not preclude opportunities for economic growth and connectivity with the SRN. The dDCO layout provides inherent flexibility and resilience to allow connections to the SRN for future development infrastructure with minimal abortive works.

No.	Directed to	Question								
		<p>The table below compares how each proposal performs when assessed against the Scheme objectives:</p> <table> <tr> <th rowspan="2">Scheme Objectives</th><th colspan="2">Review's findings</th></tr> <tr> <th>Published dDCO layout</th><th>Applegreen's comparable layout</th></tr> <tr> <td>a. Making the network safer: Promote reliable and safe operation of the road network.</td><td>Basic provision of improved safety due to capacity released at J6. Slight theoretical reduction in safety due to introduction of conflict points at J5A offset by the more controlled slow speed turning movements at the roundabouts. Plus greater operational flexibility and network resilience to deal with recurrent and winter maintenance activities and ability to respond to major incidents.</td><td> <p>Basic provision of improved safety due to capacity released at J6. Slight theoretical improvement in safety due to less conflict points at J5A offset by the higher speed of southbound traffic negotiating tight radii reverse curves. Enforcement of reduced speed limits required.</p> <p>The landlocked area of land between free flow slips cannot be safely accessed for maintenance purposes.</p> <p>Limited operational flexibility and network resilience to deal with recurrent and winter maintenance activities and</p> </td></tr> </table>	Scheme Objectives	Review's findings		Published dDCO layout	Applegreen's comparable layout	a. Making the network safer: Promote reliable and safe operation of the road network.	Basic provision of improved safety due to capacity released at J6. Slight theoretical reduction in safety due to introduction of conflict points at J5A offset by the more controlled slow speed turning movements at the roundabouts. Plus greater operational flexibility and network resilience to deal with recurrent and winter maintenance activities and ability to respond to major incidents.	<p>Basic provision of improved safety due to capacity released at J6. Slight theoretical improvement in safety due to less conflict points at J5A offset by the higher speed of southbound traffic negotiating tight radii reverse curves. Enforcement of reduced speed limits required.</p> <p>The landlocked area of land between free flow slips cannot be safely accessed for maintenance purposes.</p> <p>Limited operational flexibility and network resilience to deal with recurrent and winter maintenance activities and</p>
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					ability to respond to major incidents – southbound mainline link road traffic would be marooned if the M42 mainline is closed.	
			b. Support the smooth flow of traffic: Increase the capacity of the junction supporting smoother flow of traffic around the M42 Junction 6.	Construction of a new Junction 5A would release the required capacity at Junction 6 and thus meets this objective.	Construction of a new Junction 5A would release the required capacity at Junction 6 and thus meets this objective.	
			c. Encourage economic growth: To improve access to key businesses and support economic growth in the area from the new HS2 Birmingham interchange station and connectivity to Birmingham Airport.	<p>Contributes to objective being met through capacity being released at Junction 6.</p> <p>In addition, this caters for SMBC, Birmingham Airport and NEC desire for future improvements to facilitate economic growth.</p> <p>Capable of straight forward incremental improvements to facilitate future development such as UK Central or the MSA.</p>	<p>Contributes to objective being met through capacity being released at Junction 6.</p> <p>Does not cater for stakeholder development aspirations and associated growth.</p> <p>Major reconfiguration required to facilitate future development such as UK Central or the MSA.</p>	

No.	Directed to	Question			
				Support is articulated in responses to the Statutory Consultation, in subsequent Relevant Representations and in the response to the first round of written questions.	SMBC response to the first round of written questions stated: 1.0.10 "We would not support this proposal...We consider that the current HE proposal is the most efficient and would allow for future expansion."
		As a result of this high level review, the Applicant remains confident that the layout presented in the dDCO, when assessed on balance against the constraints outlined above, provides the optimum junction arrangement and meets the Scheme objectives as defined in the Planning Statement [APP-173/Volume 7.1] .			
2.1.6	Applegreen plc	MSA and junction 5a Unless otherwise confidential, please name the consultant responsible for the free-flow design set out in the Technical Note appended to REP3-024			
		Answer: N/A			
2.1.7	The Applicant, SMBC, WCC, Extra MSA Solihull Ltd and	MSA and junction 5a In answer to ExQ1.0.4, it is indicated that an agreed mitigation measure to off-set the operational impacts of north facing slip roads at the proposed junction 5a is the upgrade of the M42 'smart motorway' to an 'all lanes running' regime from the 'dynamic hard shoulder running regime' currently in place. Can this agreement be confirmed? Who will finance that work? And, will it be implemented only if the MSA materialises or is it anticipated as part of a planned programme to accommodate other elements of future growth?			

No.	Directed to	Question
	Applegreen plc	<p>Answer:</p> <p>The all-lane running regime is intended to be implemented if the Motorway Service Area (MSA) proposal receives planning permission. It is part of the MSA planning application [PL/2015/51409/PPOL] and would be financed by the MSA developer and secured through a S278 agreement.</p>
2.2	Cultural Heritage ES Chapter 7	
2.2.1	Applicant, SMBC, WCC	<p>Archaeology</p> <p>It is understood that the trial trenching has now been completed and that a period of about 4 weeks should see the completion of the written report.</p> <p>Please submit this report by Deadline 4 (2 September 2019). That will help to define the extent and importance of any archaeological remains present and provide information essential for avoiding damage or devising appropriate mitigation measures when there is still time to discuss such matters in the course of the Examination. If that Deadline cannot be met, please indicate when the written report of the archaeological investigation will be available.</p> <p>Answer:</p> <p>The Applicant can confirm that the archaeological trenching report has been submitted to the ExA for consideration as part of Deadline 4 [Volume 8.51 Archaeological Investigation Report].</p>
2.2.2	Applicant, SMBC and English Heritage	<p>Methodology: Conservation Areas</p> <p>Are the 2 'levels of value' assigned to Conservation Areas and referred to in answer to ExQ1.5.6 derived from Table 6.1 in DMRB Volume 11 Section 3 Part 2? If so, the Panel are concerned that the apparent methodology may not properly reflect that guidance. Although 'high value' Conservation Areas may be associated with a high number of highly graded Listed Buildings, which also have a group value, those are not requirements necessitated by the guidance. Indeed, it would be unrealistic if it were so, as less than 3% of Listed Buildings are Grade I and less than 6% are Grade II*. Please reconsider the assessment and, in</p>

No.	Directed to	Question
		<p>doing so, please address the relevant matters raised by SMBC (REP2-034).</p> <p>Also, please explain the reasoning leading to the assertion that the Listed Buildings in the Bickenhill and Hampton in Arden Conservation Areas do not define the special interest of the designated areas and thus do not raise the value of those Conservation Areas. Again, please also address the relevant matters raised by SMBC (REP2-034).</p> <p>Answer:</p> <p>Regarding Hampton in Arden and Bickenhill Conservation Areas, the Applicant acknowledges that the conservation areas contain heritage assets of high value. In assessing the heritage value of conservation areas, the assessment makes use of Table 6.1 in Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 2 – Cultural Heritage as well as professional judgement as per the guidance provided in DMRB. A conservation area's value is considered to be the sum of its parts and not all aspects of a conservation area will contribute equally to its significance, or necessarily make a contribution at all.</p> <p>The Applicant's interpretation of Table 6.1 is that rather than simply containing highly-designated assets, those assets should define the character of the conservation area as a whole in order to raise the value of the conservation area to 'high' value. The 'high' value category is a high test that is necessarily restrictive of change. In an area the size of most conservation areas and with the tendency for conservation areas to designate areas of settlement, this restriction of change would prove to be extremely limiting. This dictates that the 'high' category should be applied only to those conservation areas demonstrating significant historic integrity as a whole, that is drawn from assets of the highest value, to form an area that is highly sensitive to change.</p> <p>Whilst the highly designated buildings and scheduled monuments in Hampton-in-Arden Conservation Area are acknowledged as making a key contribution to some of the key positive attributes of the conservation area, they are not considered to characterise the conservation area as a whole, or to contribute to all aspects of the conservation area's special interest. Rather they form part of one character area within the wider conservation</p>

No.	Directed to	Question
		<p>area. The conservation area as a whole is therefore not considered to be of the same degree of special interest as these individually designated assets, and asset groupings.</p> <p>As such the applicant believes that the stated level of heritage value as 'medium', reflecting a 'conservation area containing buildings that contribute significantly to its historic character', is the appropriate level of heritage value for the conservation area as a whole.</p> <p>Likewise, at Bickenhill Conservation Area, although the Grade I St Peter's Church is acknowledged as being a pre-eminent building in conservation area that is visually prominent, it is not considered to characterise the conservation area as a whole, or to contribute to all aspects of the conservation area's special interest which is drawn also from its historic residential streetscape and rural character. It is also not considered that the presence of one highly-designated building within the conservation area is sufficient in itself to raise to the value of the conservation area as a whole to the 'high' threshold.</p> <p>As such the Applicant believes that the stated level of heritage value as 'medium', reflecting a 'conservation area containing buildings that contribute significantly to its historic character', is the appropriate level of heritage value for the conservation area as a whole.</p> <p>The Applicant considers that the impacts to the assets of high value, both individually, and in so far as they contribute to group values and settings of other assets and the conservation areas, is adequately captured in the assessment of the individual assets. The conservation areas are assessed as a whole as per relevant policy and guidance.</p>

No.	Directed to	Question
2.2.3	Applicant, SMBC and English Heritage	<p>Bickenhill Conservation Area</p> <p>In spite of the linear features referred to in answer to ExQ1.5.9, the landscape around Bickenhill is surprisingly 'intimate'; it also exhibits evident remnants of an historical pattern. As the scheme would be in scale with those 'large' 'linear features', please explain why it would not encroach further into the intimate landscape remaining instead of being 'absorbed'? Please expand on the reasoning advanced in the answer to ExQ1.5.9 with reference to the relevant matters raised by SMBC (REP2-034).</p> <p>Answer:</p> <p>The Applicant refers the ExA to the points raised in its response to ExQ1.5.9 of Deadline 2. As noted in that response, it is a robust fieldscape which, whilst it has its origins in the medieval period, has been subjected to further field sub-division in the 19th century.</p> <p>The Scheme would result in the loss of minor elements of this fieldscape, such as field boundaries. Only minor elements on the western periphery of the landscape around Bickenhill would be lost. The Scheme would not be out of scale with the other linear features in the area, and therefore would not be at odds. As stated in Table 7.3 of in DMRB Volume 11 Section 3 Part 2 Cultural Heritage, a minor magnitude of impact is described as "<i>Changes to few key historic landscape elements...resulting in limited changes to historic landscape character.</i>"</p>
2.3	Biodiversity – ES Chapter 9 and HRA	
2.3.1	Applicant, Natural England, SMBC and Warwickshire Wildlife Trust	<p>Mitigation and monitoring: Bickenhill Meadows SSSI (SE unit)</p> <p>The answer to ExQ1.7.10 is welcome. Please submit an agreed position on V.9 of the Technical Note by Deadline 4 (2 September 2019).</p> <p>Please indicate whether the consequent controls necessitated should be contained within the DCO or accommodated in a separate Section 106 Agreement.</p>

No.	Directed to	Question
		<p>Answer:</p> <p>The Applicant has prepared a Position Statement with contributions from Natural England, Warwickshire Wildlife Trust, and Solihull Metropolitan Borough Council, and has submitted this at Deadline 4 as requested by the ExA (see 8.54 Bickenhill Meadows SSSI Position Statement).</p> <p>The Applicant proposes to include measures to secure the mitigation in the dDCO and will put forward a Requirement to this effect in the next draft of the DCO at Deadline 5.</p>
2.3.2	Applicant, Natural England, SMBC and Warwickshire Wildlife Trust	<p>Mitigation and monitoring: Bickenhill Meadows SSSI (SE unit)</p> <p>The Panel welcome the consideration being given to the possibility of a new Requirement to deliver the monitoring necessary to mitigate the effects of the scheme on the Bickenhill Meadows SSSI (SE unit). Please submit the necessary documentation by Deadline 4.</p> <p>Answer:</p> <p>The dDCO secures the monitoring of the SSSI as Commitment G17 of the Register of Environmental Actions and Commitments (REAC) [APP-172/Volume 6.11] states that the Applicant will continue to monitor the SSSI SE unit on a monthly basis for two years following submission of the DCO application.</p> <p>Furthermore, during Operation, the Applicant commits to continue hydrological and ecological monitoring for 5 years following the opening of the relevant part of the Scheme to which the monitoring applies. This commitment and any other commitment arising from discussions on the Position Statement will be added to an updated version of the REAC. Requirement 4(3)(a) of the dDCO, requires the CEMP to reflect the mitigation measures in the REAC.</p> <p>An updated REAC is in the process of being prepared and will be submitted at D5, to coincide with the updated version of the dDCO.</p>

No.	Directed to	Question
2.3.3	Applicant, Natural England, SMBC and Warwickshire Wildlife Trust	<p>Mitigation and monitoring: Ancient Woodland</p> <p>It is understood that the woodland soil survey was completed in June 2019. Please submit the results of that survey by Deadline 4 (2 September 2019).</p> <p>Do the results support the translocation of ancient woodland from Aspbury's Copse? And, if not, where should such translocation take place?</p> <p>Answer:</p> <p>The Applicant can confirm that the soil survey report has been submitted to the ExA for consideration as part of Deadline 4 [See Volume 8.55 Soil Survey Report].</p> <p>The results of the survey support the proposed translocation site identified within Chapter 9 Biodiversity of Volume 1 of the Environmental Statement (ES) [APP-054/Volume 6.1] and as presented on Figure 8.8 within Volume 2 of the ES [APP-095/Volume 6.2].</p> <p>Accordingly, no alternative location is considered necessary.</p>
2.4	Geology and Soils – ES Chapter 10	
2.4.1	Applicant	<p>Agricultural land</p> <p>The NPSNN makes no distinction between agricultural land of Grades 1, 2 and 3a; all are classified as best and most versatile agricultural land (BMV). Can the Applicant explain the basis for attributing a medium importance or sensitivity to the agricultural soil resource of Grade 2 and 3a agricultural land, rather than high, as for Grade 1 (Table 10.1)? Can the Applicant also clarify whether there is any inconsistency with attributing a medium importance or sensitivity to Grade 2 agricultural land in Table 10.1 and the high sensitivity attributed to the same in Table 13.1?</p>

No.	Directed to	Question
		<p>Answer:</p> <p>In order to demonstrate a relative graded distinction between the sensitivity of Grade 1 and Grade 2/3a land, Table 10.1 within Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1], attributes different levels of importance/sensitivity in relation to the agricultural land classes.</p> <p>It is acknowledged that Grades 1, 2 and 3a are all classified as best and most versatile agricultural land. As such, it is agreed that all may be considered as having a high importance/sensitivity, albeit no Grade 1 or 2 agricultural land has been identified in the assessment as being lost to the Scheme.</p> <p>Taking account of the ExA's request, if the Grade 3a land were to be graded as high sensitivity (rather than medium), when the medium magnitude of impact is applied the resulting effect of the Scheme on agricultural land would be raised from the previously assigned 'moderate adverse' to a rating of 'major adverse'. Notwithstanding this increase, in both cases the effect would remain classified as a significant effect.</p> <p>The Applicant acknowledges there is an inconsistency between the agricultural assessment presented in Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1] and that in Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1]. This is a result of the different methodologies and professional judgement applied within those respective assessments and an absence of nationally accepted assessment criteria on the subject.</p> <p>In considering the likely significant effects of the Scheme on best and most versatile agricultural land, the Applicant recommends the ExA bases its judgement on the conclusions reported in Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1].</p>
2.4.2	Applicant	<p>Agricultural land</p> <p>ES Table 10.2 attributes a high magnitude of impact for the loss of over 50 ha of BMV agricultural land, whereas Table 13.4 sets the threshold at 20ha.</p> <p>Can the Applicant explain whether there is any inconsistency in this approach?</p>

No.	Directed to	Question
		<p>Answer:</p> <p>Paragraph 13.3.36 – 13.3.37 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] explains the basis and origins of the 20ha threshold constituting a high magnitude of impact for agricultural land in the Population and Health assessment. This threshold is referenced in DMRB Volume 11, Section 3, Part 6 – Land Use and represents the quantum of loss of best and most versatile agricultural land at which a developer should consult the relevant authority (this being Natural England in the case of the Scheme).</p> <p>Paragraph 10.3.34 within Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1] identifies a 50ha threshold as constituting a high magnitude of impact for the loss of best and most versatile agricultural land. The Applicant can confirm that paragraph 10.3.34 erroneously states that the thresholds adopted in the assessment are defined in the Town and Country Planning (Development Management Procedure) (England) Order 2015. For clarity, Schedule 4 of this legislation only defines a 20ha consultation threshold, which is consistent with the 20ha threshold noted in the Population and Health assessment (as noted in paragraph 10.2.20).</p> <p>The Applicant can confirm that the identification of the 50ha and 20ha magnitude of impact thresholds applied in the Geology and Soils assessment were partly informed by the consultation threshold contained in Schedule 4 but were principally established using professional judgement. These thresholds were identified and applied in the assessment in the absence of any nationally agreed methodology or appropriately structured criteria for determining the effects of a development on best and most versatile agricultural land.</p> <p>Notwithstanding these differences in thresholds and criteria, the Applicant has reviewed both assessments in light of the 21.7 ha of un-surveyed agricultural land noted in its response to ExQ2.4.3 and has identified that the effect on best and most versatile agricultural land would remain significant as a consequence of the Scheme, irrespective of which methodology is applied.</p>

No.	Directed to	Question
2.4.3	Applicant	<p>Agricultural land</p> <p>ES paragraph 10.4.11 states that the agricultural land which has not been surveyed has been conservatively assumed as Grade 3a for the purpose of the assessment. However, ES paragraph 10.9.19 states that the construction of the Proposed Development would result in the loss of approximately 21.4ha of Grade 3a agricultural land, which only corresponds to that found in the surveyed area.</p> <p>Can the Applicant explain why the 21.7ha of agricultural land which was not surveyed was not subsequently included and what the effects would be if it were?</p> <p>Answer:</p> <p>Based on the assumptions made in paragraph 10.4.11 of Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1], the Applicant can confirm that the 21.7 ha of surveyed land (conservatively assumed as Grade 3a) should have been added to the 21.4 ha of Grade 3a agricultural land to give 43.1 ha of Grade 3a agricultural land loss.</p> <p>Notwithstanding this, the 43.1 ha of Grade 3a agricultural land still falls within the loss category of between 20 ha and 50 ha of best and most versatile agricultural land. Accordingly, this would still result in a 'medium' magnitude of impact and in turn there would be no change to the findings or conclusions reported on this asset in the Geology and Soils assessment.</p>
2.4.4	Applicant	<p>Sensitivity and Areas of Nature Conservation</p> <p>Can the Applicant provide any further explanation for the River Blythe, Bickenhill Meadow, Coleshill and Bannerly Pools SSSIs and the ancient woodland being assessed as medium sensitive receptors, as set out in in ES paragraph 10.6.66? Is there a contradiction with the criteria for sensitivity set out in Table 10.1?</p>

No.	Directed to	Question												
		<p>Answer:</p> <p>The Applicant acknowledges the highlighted inconsistencies in terminology / sensitivity assignment. The Applicant’s response to ExQ2.4.5 details the outcome of a review of this and presents the alterations applicable to the assessment. In applying these alterations, the sensitivity rating of ‘moderate’ reported in paragraph 10.6.66 of Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1] should be replaced with ‘high’.</p> <p>Taking into account the alterations referred to above, the Applicant has reviewed its assessment and can confirm that these alterations do not change the findings or conclusions as presented within Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1].</p>												
2.4.5	Applicant	<p>Sensitivity</p> <p>Is there a contradiction between Table 10.1 and the sensitivity attributed to receptors in Table 10.13, particularly in terms of human health?</p> <p>Answer:</p> <p>The Applicant acknowledges that there are inconsistencies in terminology / sensitivity assignment within Table 10.13 within Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1]. The Table below amends these inconsistencies and the updated content presented supersedes that within Table 10.13.</p> <table><tr><th>Receptor</th><th>Importance/ Sensitivity (From Table 10.13)</th><th>Importance/ Sensitivity (Updated)</th><th>Comments</th></tr><tr><td>Receptors susceptible to land contamination and ground hazard impacts</td><td></td><td></td><td></td></tr><tr><td>Human Health – Off-site receptors</td><td>Medium</td><td>High</td><td>Residential areas are present within 50 m of construction works resulting in high importance/sensitivity. Paragraph 10.9.6 would in turn result in a change in significance from ‘minor adverse (not significant)’ to ‘moderate adverse (significant)’. Despite this change from not significant to significant, it is not considered this will have</td></tr></table>	Receptor	Importance/ Sensitivity (From Table 10.13)	Importance/ Sensitivity (Updated)	Comments	Receptors susceptible to land contamination and ground hazard impacts				Human Health – Off-site receptors	Medium	High	Residential areas are present within 50 m of construction works resulting in high importance/sensitivity. Paragraph 10.9.6 would in turn result in a change in significance from ‘minor adverse (not significant)’ to ‘moderate adverse (significant)’. Despite this change from not significant to significant, it is not considered this will have
Receptor	Importance/ Sensitivity (From Table 10.13)	Importance/ Sensitivity (Updated)	Comments											
Receptors susceptible to land contamination and ground hazard impacts														
Human Health – Off-site receptors	Medium	High	Residential areas are present within 50 m of construction works resulting in high importance/sensitivity. Paragraph 10.9.6 would in turn result in a change in significance from ‘minor adverse (not significant)’ to ‘moderate adverse (significant)’. Despite this change from not significant to significant, it is not considered this will have											

No.	Directed to	Question			
					any implications on the overall assessment conclusions as no additional mitigation will be required over and above what is already discussed.
		Human Health – Future site users	Low	N/A	No change.
		Human Health – Construction and maintenance workers	Medium	N/A	No change to assessment, although paragraph 10.6.64 should note medium sensitivity (not high) for consistency with later assessment.
		Controlled Waters – Groundwater (Secondary A and B aquifers and abstractions)	Medium	N/A	No change.
		Controlled Waters – Surface Waters (watercourses and protected drinking water safeguarding area)	Medium	N/A	No change.
		Construction Materials	Medium	N/A	No change.
		Surrounding Land Uses – (Grade3a Agricultural Land)	Medium	See comments column	These receptors have been erroneously duplicated in Table 10.13 and so it is considered that these rows should be removed with all appropriate details/updates shown in the entries at the bottom of this table.
		Surrounding Land Uses – (Grade 3b Agricultural Land)	Low	See comments column	

No.	Directed to	Question			
		Sensitive Sites (ecological receptors)	Medium	Low to High	The update reflects the varying sensitivities of the sensitive sites identified.
		Property (residential and commercial properties, agricultural crops, livestock and infrastructure such as below ground utilities)	Medium	High	Residential areas are present within 50 m of construction works resulting in high importance/sensitivity.
		Soil and geological resources			
		Sensitive Sites (minerals safeguarding areas, LGS, active mineral sites)	Medium	N/A	No change.
		Agricultural soil resources			
		Surrounding Land Uses – (Grade 3a Agricultural Land)	Medium	High	Receptor should have read as 'Grade 3a' not 'Grades 2 and...' (updated in this version here). As detailed in the Applicant's response to ExQ2.4.1, Grade 3a agricultural land may be considered as having a high importance/sensitivity. Paragraph 10.9.20 would in turn result in a change in significance from 'moderate adverse (significant)' to 'major adverse (significant)'. However, this is not considered to have any implications on the overall assessment of the effect, which in both cases is considered to be 'significant'.
		Surrounding Land Uses – (Grade 3b Agricultural Land)	Low	N/A	No change aside from grammatical amendment to remove the 's' from 'Grades 3b' under the receptor column.

No.	Directed to	Question
2.4.6	Applicant	Soil Investigation and Contamination Can the Applicant explain how the recommendations set out in ES paragraphs 10.6.74 and 10.6.75 would be secured?
		Answer: <p>In relation to the recommendations set out in paragraph 10.6.74 within Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1], Appendix L: Outline Pollution Prevention Plan contained within the Outline Environmental Management Plan (OEMP) [APP-172/Volume 6.11] states that checks will be carried out during the construction phase and may include on-site monitoring of groundwater (and surface water) using visual observations, field measurement devices and (where required) water sampling and laboratory testing.</p> <p>The recommendations concerning further testing on the actual soils excavated as referenced within Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1] would form part of standard good practice, as detailed within Appendix E: Outline Soil Management Plan contained within the OEMP [APP-172/Volume 6.11].</p> <p>As noted in Chapter 11 of Volume 1 of the Environmental Statement (see paragraph 11.9.13) [APP-055/Volume 6.1], site-won material would be used in accordance with a Materials Management Plan.</p> <p>Both recommendations will be secured through Requirement 4(3)(d)(v) and (xii) of the dDCO.</p>
2.4.7	Applicant	Conclusions Paragraph 10.10.1 refers to the assessment of effects summarised in Table 10.18. However, the latter does not appear to have been provided. Can the Applicant address this or highlight where it can be located?
		Answer: <p>The Applicant can confirm that the reference to Table 10.18 is incorrect and should not be present within paragraph 10.10.1 of Chapter 10 of Volume 1 of the Environmental Statement [APP-055/Volume 6.1].</p>

No.	Directed to	Question
2.4.8	SMBC and the Environment Agency	Conclusions Can SMBC and the Environment Agency confirm their position on the conclusions reached in the geology and soils assessment, as reported in ES Chapter 10.
		Answer: N/A
2.5	Materials and Waste – ES Chapter 11	
2.5.1	Applicant	Material resources ES paragraphs 11.9.7 – 11.9.24 set out the targets for materials resources, excavated materials and waste against which the magnitude of impacts are to be assessed. It is explained at Paragraph 11.9.13 that excavated material would be used in accordance with a Materials Management Plan, a framework for which is presented within the OEMP. Can the Applicant explain what approach would be applied to ensuring that the targets for material resources, recycling and recovery rates for waste arisings would be achieved and how the magnitude of impacts would be assessed?
		Answer: Appendix B of the Outline Environmental Management Plan (OEMP) [APP-172/Volume 6.11] contains an Outline Site Waste Management Plan for the Scheme. This document sets out the approaches, processes and management responsibilities to be followed to meet relevant targets, the requirement to apply the waste hierarchy, requirements for the reuse, recycling and recovery of materials, and the key performance indicators that will be used to measure performance standards during construction of the Scheme. Requirement 4 of the dDCO requires a Construction Environmental Management Plan (CEMP) to be developed for the Scheme based on the content of the OEMP. The CEMP will include a detailed Site Waste Management Plan.

No.	Directed to	Question
		<p>Table B.3 within the Outline Site Waste Management Plan identifies that the Principal Contractor's appointed Site Materials and Waste Manager will be responsible for ensuring waste is disposed of legally, economically and safely in line with the Site Waste Management Plan and all relevant legislation.</p> <p>The Applicant is unclear as to the ExA's reference to assessing the magnitude of impacts. The Applicant is not proposing to re-run the Material Assets and Waste assessment based on actual figures recorded during construction of the Scheme; however, a post-scheme evaluation of performance against the assessment conclusions could be undertaken by the Principal Contractor and the findings presented in their Handover Environmental Management Plan.</p>
2.5.2	Applicant	<p>Surplus excavated material</p> <p>ES paragraph 11.9.17 states that off-site management routes for surplus excavated materials are currently unknown and will be the responsibility of the contractor. Can the Applicant explain what options, if any, are available to ensure the quantity of surplus excavated materials requiring disposal in landfill is minimised?</p> <p>Answer:</p> <p>Appendix I of the Outline Environmental Management Plan (OEMP) [APP-172/Volume 6.11] contains an Outline Materials Management Plan for the Scheme. Requirement 4 of the dDCO requires a Construction Environmental Management Plan (CEMP) to be developed for the Scheme based on the content of the OEMP.</p> <p>The CEMP will include a detailed Materials Management Plan, which will set out how excavated materials will be managed during construction of the Scheme and the management techniques to be employed to reduce waste. The content of this plan will focus on measures that reuse excavated materials wherever possible, identifying waste prevention opportunities, and minimising the need for materials and waste to be disposed offsite to landfill. Section B.4.4 of the OEMP presents the approaches that will be applied in this respect.</p>

No.	Directed to	Question
2.5.3	Applicant	<p>Monitoring</p> <p>ES paragraph 11.10.1 states that as the assessment has recorded that no significant effects would arise from construction of the Proposed Development in relation to material assets and waste. Accordingly, there would be no requirement to monitor the effects of the Proposed Development during this phase. Can the Applicant explain how the targets for excavated material, materials resources and waste would be monitored to ensure that they are achieved and potentially enforced if necessary?</p> <p>Answer:</p> <p>The Applicant refers the ExA to the response provided to ExQ2.5.1.</p> <p>Section B.7.6 of the Outline Site Waste Management Plan sets out the reporting and auditing actions that will be carried out and enforced by the Principal Contractor (or their Site Materials and Waste Manager / Site Manager). The Outline Site Waste Management Plan identifies that the Principal Contractor will be responsible for reviewing, updating and monitoring materials and waste estimates throughout the design and construction of the Scheme.</p> <p>The Principal Contractor will be responsible for reviewing the Site Waste Management Plan at least once every six months during the lifetime of the Scheme to ensure that key performance indicator targets are being achieved. These reviews will involve the completion and submission of a monitoring report.</p>
2.6	Noise and Vibration – ES Chapter 12	
2.6.1	Applicant and SMBC	<p>Noise policy and significant adverse effects</p> <p><i>The Government's policy [on noise] is set out in the Noise Policy Statement for England. It promotes good health and a good quality of life through effective noise management.</i></p> <p>In the light of that policy and the criteria that the Secretary of State should take into account, as set out in paragraph 5.195 of the NPSNN, please explain why the daytime SOAEL is set at 68dB LA10,18h (façade). While that might reflect the 'daytime trigger level' imposed by the Noise Insulation Regulations, those</p>

No.	Directed to	Question
		<p>Regulations (now somewhat long in the tooth) do not obviously relate to the aims of current Government policy on noise.</p> <p>Answer:</p> <p>The SOAEL values define the level above which the first aim of Government noise policy applies to avoid significant adverse effects on health and quality of life.</p> <p>The daytime SOAEL is based on the Noise Insulation Regulation threshold. The Noise Insulation Regulation threshold has a history of use in UK noise policy as it has previously been incorporated into planning guidance (the now revoked 'Planning Policy Guidance 24') on the acceptability of sites for new residential developments. It is the external level which corresponds to an internal level, with a closed single glazed window, which would meet the internal daytime criteria of 35 dB $L_{Aeq,16h}$ specified in BS 8233 (2014) as desirable for resting in living rooms.</p> <p>The Defra Study NANR316¹ suggested SOAEL values for road traffic noise based on annoyance at 66 dB $L_{Aeq,16h}$ (with a range of 64-68) and due to cardiovascular effects at 67 dB $L_{Aeq,16h}$. $L_{Aeq,16h}$ is converted to $L_{A10,18hr}$ by $L_{Aeq,16h} + 2dB$. Therefore, the SOAEL of 68 dB $L_{A10,18hr}$ correlates to annoyance and is slightly less than the DEFRA suggested SOAEL for cardiovascular effects.</p> <p>The operational road traffic noise SOAEL of 68 dB $L_{A10,18h}$ (façade) or 63 dB $L_{Aeq,16hr}$ equivalent has been used successfully by the Applicant for numerous road schemes in recent years, including schemes which have been determined through the Planning Act 2008 procedures.</p> <p>Schemes where a DCO has been granted include A19/A184 Testos Junction Improvements, M20 J10A, M4 J3 to J12 Smart Motorway, A14 Cambridge to Huntingdon and A19/A1058 Coast Road Junction Improvement. Recently submitted DCO applications by the Applicant using this SOAEL include A303 Amesbury to Berwick Downs, A303</p>

¹ NANR316 Possible Options for the Identification of SOAEL and LOAEL in Support of NPSE, By AECOM with assistance from Berry Environmental Ltd and Centre for Environment and Health, Imperial College, published in 2015.

No.	Directed to	Question
		<p>Sparkford to Ilchester Dualling, A1 Birtley to Coal House Improvement, M25 J10/A3 Wisley Interchange, A38 Derby Junctions and A19 Downhill Lane Junction Improvements.</p> <p>The same principle of setting the SOAEL based on the relevant Noise Insulation Regulations has also been adopted on other major infrastructure schemes such as the High Speed 2 rail project.</p> <p>Although, the Noise Insulation Regulations were last updated in 1988, the level of impact they relate to in terms of acceptable internal noise levels is unchanged. The Noise Policy Statement for England (NPSE) in 2010 did not suggest any alternative SOAELs were needed as a matter of Government policy. The wording of the NPSE is reflected in the NPSNN, designated in 2014.</p> <p>The Applicant therefore considers that the thresholds set in the Noise Insulation Regulations are still consistent with Government policy.</p>
2.6.2	Applicant and SMBC	<p>Noise policy and significant adverse effects</p> <p>In the light of Government policy and the criteria set out in paragraph 5.195 of the NPSNN, an appropriate daytime SOAEL might be set at 60dB LA10,18h (façade), since that would roughly correspond to the level at which the onset of serious community annoyance would occur in the WHO guidance (namely, 55dB LAeq,16h (façade)). Please re-assess the significance of the operational traffic noise effects against a daytime SOAEL set at 60dB LA10,18h (façade).</p> <p>Answer:</p> <p>As stated in the Applicant's response to ExAQ 2.6.1, the daytime SOAEL is based on the Noise Insulation Regulation threshold which has a history of use in UK noise policy as it has previously been incorporated into planning guidance on the acceptability of sites for new residential developments. It is the external level which corresponds to an internal level, with a closed single glazed window, which would meet the internal daytime criteria of 35 dB LAeq,16h specified in BS 8233 (2014) as desirable for resting in living rooms. It also correlates with Defra research into the setting of the SOAEL for road traffic noise.</p>

No.	Directed to	Question
		<p>The 55 dB $L_{Aeq,16h}$ (façade) relates to the onset of serious community annoyance as set out in the WHO Community Noise Guidelines (CNG) published in 1999. The WHO has since published Environmental Noise Guidelines for the European Region (ENG) in October 2018, at the same time the noise assessment for the Scheme was being finalised. The ENG provides guidelines for specific noise sources including road traffic and therefore supersedes the CNG for situations where a specific noise source, such as road traffic, is dominant. ENG suggests a recommended 53 dB L_{den} for road traffic noise (note L_{den} correlates approximately to $LA_{10,18h}$) based on a 10% risk of being Highly Annoyed.</p> <p>However, as set out on page 20 of ENG, the approach taken by WHO in preparing the ENG differs from the previous guidelines as they are “<i>not meant to identify effect thresholds</i>”. Instead, the ENG are based on the “<i>smallest relevant risk increase</i>” for various effects, and therefore lie slightly above the LOAEL. None of the noise levels identified by the ENG are therefore the same as the level of onset of significant adverse health effects. They are more comparable to the LOAEL than the SOAEL. The ENG does not, therefore, affect the definition of operational traffic noise LOAELs and SOAELs.</p> <p>None of the WHO Guidelines have been formally adopted by the UK government. They have informed policy but have not been accepted as fixed standards. WHO acknowledge that individual national standards take into account the technological, social, economic and political factors within the country.</p> <p>Noise is an inevitable consequence of our current society and many noise making activities provide value to society. Therefore, any noise policy addressing the implications of significant adverse effects on health and quality of life, rather than the onset of an adverse effect, must consider the economic and social benefits of noise generating activity and the impacts on health and quality of life of minimising the adverse effect of noise. This is acknowledged in the Noise Policy Statement for England (NPSE) which states ‘<i>There is a need to integrate consideration of the economic and social benefit of the activity or policy under examination with proper consideration of the adverse environmental effects, including the impact of noise on health and quality of life. This should avoid noise being treated in isolation in any particular situation, i.e. not focussing solely on the noise impact without taking into account other related factors.</i>’</p> <p>On the basis of the above, a SOAEL to be applied in identifying the significant policy effects of a road scheme which is based solely on a WHO guideline level for the onset of a specific impact such as annoyance, without</p>

No.	Directed to	Question
		<p>consideration of other factors is not considered to be appropriate. The value adopted, which aligns with the Noise Insulation Regulations and Defra research, is therefore considered to be appropriate for the purposes of identifying significant policy effects.</p> <p>Accordingly, although it is feasible to repeat the noise impact assessment using an alternative SOAEL, the Applicant does not consider it is appropriate to do this. As outlined above and in the response to ExAQ 2.6.1 the suggested alternative SOAEL is not the industry standard, does not align with Defra research and would be inconsistent with numerous other road and major infrastructure projects. Therefore, the results of an assessment based on such an alternative value could not be relied upon in the Environmental Impact Assessment process or to demonstrate compliance with government policy.</p>
2.6.3	Applicant and SMBC	<p>Noise policy and significant adverse effects</p> <p>In the light of Government policy and the criteria set out in paragraph 5.195 of the NPSNN, please explain why the night-time SOAEL is set at 55dB LAeq,8h (façade) (paragraph 12.3.49, APP-057). As the Night Noise Guidelines (NNG) for Europe (referred to) explain that the 'interim target' of 55 dB Lnight,outside is recommended in situations where the achievement of NNG is not feasible in the short run, is not a health-based limit and should be considered only as a feasibility-based intermediate target which can be temporarily considered by policy-makers for exceptional local situations, what are the exceptional local situations of relevance here?</p> <p>Answer:</p> <p>An external level of 55 dB LAeq,8h (free-field) corresponds to an internal level, with a closed single glazed window, which would be slightly below the night time criteria of 30 dB LAeq,8h specified in BS 8233(2014) as desirable for sleeping in bedrooms.</p> <p>The WHO 2009 Night Noise Guidelines (NNG) explicitly identify the night time LOAEL as 40 dB LAeq,8h (free-field). This LOAEL has been adopted in the assessment. Levels between 40 and 55 dB are identified in the guidelines as where 'adverse' but not significant adverse, health effects are observed among the exposed population. 55 dB is identified in the guidelines as when the risk of cardiovascular disease increases.</p>

No.	Directed to	Question
		<p>Defra Study NANR316² suggested SOAEL values for road traffic noise based on sleep disturbance as 56 dB L_{night} (range of 51-64 dB), which is slightly higher than the SOAEL level adopted.</p> <p>The WHO Environmental Noise Guidelines for the European Region (ENG) published in October 2018, complement the NNG and suggest a recommended 45 dB L_{night} for road traffic noise (note L_{night} is equivalent to L_{Aeq,8h}) based on a 3% risk of being Highly Sleep Disturbed (HSD). However, as set out on page 20 of ENG, the approach taken by WHO in preparing the ENG differs from the previous guidelines as they are 'not meant to identify effect thresholds'. Instead the ENG are based on the 'smallest relevant risk increase' for various effects, and therefore lie slightly above the LOAEL, as explicitly defined in the NNG. The ENG does not, therefore, affect the definition of operational traffic noise LOAELs and SOAELs.</p> <p>As for the daytime, the night time operational road traffic noise SOAEL of 55 dB L_{Aeq,8h} (free-field) has been used successfully by the Applicant for numerous road schemes in recent years, including schemes which have successfully been determined through the Planning Act 2008 procedures (as noted in the Applicant's response to ExAQ 2.6.1).</p> <p>No special circumstances have been identified for the Scheme which suggest an alternative SOAEL should be adopted.</p> <p>The same night time SOAEL has also been adopted on other major infrastructure schemes such as the High Speed 2 rail project.</p>

² NANR316 Possible Options for the Identification of SOAEL and LOAEL in Support of NPSE, By AECOM with assistance from Berry Environmental Ltd and Centre for Environment and Health, Imperial College, published in 2015.

No.	Directed to	Question
2.6.4	Applicant and SMBC	<p>Noise policy and significant adverse effects</p> <p>In the light of Government policy and the criteria set out in paragraph 5.195 of the NPSNN, an appropriate night-time SOAEL might be set at 45dB LAeq,8h (façade), since that would roughly correspond to the noise level outside a partially open window at which the onset of sleep disturbance would occur inside bedrooms, as set out in the WHO guidance (namely, 30dB LAeq,8h (inside)). Please re-assess the significance of the operational traffic noise effects against a night-time SOAEL set at 45dB LAeq,8h (façade).</p> <p>Answer:</p> <p>As stated in the Applicant's response to ExAQ 2.6.3, the night time SOAEL is based on the external level which corresponds to an internal level, with a closed single glazed window, which would be slightly below the night time criteria of 30 dB LAeq,8h specified in BS 8233(2014) as desirable for sleeping in bedrooms. It also correlates with Defra research into the setting of the SOAEL for road traffic noise.</p> <p>WHO Environmental Noise Guidelines for the European Region (ENG) published in October 2018 suggests a recommended 45 dB L_{night} for road traffic noise (note L_{night} is equivalent to LAeq,8h) based on a 3% risk of being Highly Sleep Disturbed (HSD) However, as set out on page 20 of ENG, the approach taken by WHO in preparing the ENG differs from the previous guidelines as they are 'not meant to identify effect thresholds'. Instead the ENG are based on the 'smallest relevant risk increase' for various effects, and therefore lie slightly above the LOAEL, as explicitly defined in the NNG.</p> <p>None of the WHO Guidelines have been formally adopted by the UK government. They have informed policy but have not been accepted as fixed standards. WHO acknowledge that individual national standards take into account the technological, social, economic and political factors within the country.</p> <p>Noise is an inevitable consequence of our current society and many noise making activities provide value to society. Therefore, any noise policy addressing the implications of significant adverse effects on health and quality of life, rather than the onset of an adverse effect, must consider the economic and social benefits of noise generating activity and the impacts on health and quality of life of minimising the adverse effect of noise. This is</p>

No.	Directed to	Question
		<p>acknowledged in the Noise Policy Statement for England (NPSE) which states '<i>There is a need to integrate consideration of the economic and social benefit of the activity or policy under examination with proper consideration of the adverse environmental effects, including the impact of noise on health and quality of life. This should avoid noise being treated in isolation in any particular situation, i.e. not focussing solely on the noise impact without taking into account other related factors.</i>'</p> <p>On the basis of the above, a SOAEL to be applied in identifying the significant policy effects of a road scheme which is based solely on a WHO guideline level for a specific impact such as sleep disturbance, without consideration of other factors is not considered to be appropriate.</p> <p>Although it is feasible to repeat the noise impact assessment using an alternative SOAEL, the Applicant does not consider it is appropriate to do this. As outlined in the discussion above and in the response to ExAQ 2.6.3 the suggested alternative SOAEL is not the industry standard, does not align with Defra research and would be inconsistent with numerous other road and major infrastructure projects. Therefore, the results of an assessment based on such an alternative value could not be relied upon in the Environmental Impact Assessment process or to demonstrate compliance with government policy.</p>
2.6.5	Applicant and SMBC	<p>Accuracy of modelled noise changes</p> <p>The noise monitoring results provided in Table 12.11 [APP-057] do not always accurately reflect the predicted LA10,18h traffic noise levels derived from the modelled annual average weekday traffic flow. In relation to the DMRB classification of noise impact (Table 12.6, APP-057) a 'difference' in one location (ML7a) would be large enough to constitute a 'major' 'short term' change, while the 'differences' in 5 locations (ML2, ML5, ML6, ML7b and ML8) would amount to 'moderate' 'short term' changes. Although physical screens may account for some of those differences (perhaps at ML5 and ML7b), systematic influences may also operate, so that the identified 'changes in traffic noise levels' (eg Table 12.12, APP-057) may be significantly underestimated. Please explain why that may or may not be so and reassess any currently estimated changes in traffic noise that might need to be altered.</p>

No.	Directed to	Question
		<p>Answer:</p> <p>An exact match between measured and predicted noise levels would not be expected for a number of reasons. For example:</p> <ol style="list-style-type: none"> 1) the noise predictions are based on annual average weekday traffic conditions, not the particular traffic conditions prevailing during the noise monitoring 2) the prediction method is designed to be conservative, being based on adverse wind conditions (i.e. moderate wind blowing from the road to the receptor) 3) local screening, such as private garden fences, may result in lower measured noise levels, whilst such features are not included in the noise models as their acoustic performance and future maintenance is uncertain <p>Paragraph A4.45 of DMRB Volume 11, Section 3, Part 7 Noise and Vibration states 'The preferred method for calculating noise levels from road traffic is by prediction rather than by measurement'.</p> <p>DMRB recommends that road traffic noise is calculated using the Calculation of Road Traffic Noise (CRTN) and this prediction methodology was used for the assessment reported in Chapter 12 of Volume 1 of the Environmental Statement [APP-057/Volume 6.1]. It is also the method that the National Policy Statement for National Networks (NPSNN) (paragraph 5.191) states should be used. The CRTN method is based on measurements at over 2000 sites, is considered robust and is the accepted method in the UK for the calculation of road traffic noise levels.</p> <p>As the Scheme has not yet been constructed, it is not possible to base an assessment on the measured levels for the opening and future year. Similarly, it is not possible to measure the future Do Minimum scenarios. It is not good practice to base a noise assessment on a mixture of measured and predicted noise levels.</p> <p>The Applicant therefore concludes that a reassessment of any currently estimated changes in traffic noise levels is not required.</p>

No.	Directed to	Question														
2.6.6	Applicant	<p>Noise from the WGAA</p> <p>In relation to the latest reconfiguration of the WGAA pitches (8.21, REP2-019), please set out how the average (LAeq) noise level from the 3 combined WGAA pitches at relevant NSRs was derived from Sport England’s guidance that 58dB LAeq,1hr is a ‘typical’ noise from a sports pitch at 10m from the half-way line. (Alternatively, please submit the document containing that information.)</p>														
		<p>Answer:</p> <p>As stated in the Applicant’s response to Mr O’Reilly’s critique of the Warwickshire Gaelic Athletic Association (WGAA) assessment [REP2-059], it was not possible to undertake measurements at the WGAA facilities at the time of undertaking the noise assessment. The source level of 58 dB LAeq,1hr at 10 m from the side line half way marking, taken from Sport England guidance, was used and this approach was confirmed as acceptable by the Environmental Health Officer at SMBC.</p> <p>The sports pitch noise model has been updated with the latest reconfiguration of the WGAA pitches [REP2-019] and the sports pitch noise levels have been predicted at the relevant NSRs using the noise level of 58 dB LAeq,1hr at 10 m from the half way line based on Sport England Guidance. An area noise source was created for each pitch and calibrated by adjusting the sound power level per square meter to achieve 58 dB at 10 m from the half way line.</p> <p>Those predicted noise levels are shown in Table 1 below, along with the predicted noise levels based on the existing pitch configuration as reported in Chapter 12 of Volume 1 of the Environmental Statement [APP-057/Volume 1] and the supporting Appendix 12.4 within Volume 3 of the Environmental Statement [APP-153/Volume 3].</p> <p>Table 1: The predicted noise levels of the reconfigured pitches (based on document 8.21) along with the predicted noise levels based on the existing pitch configuration</p> <table><tr><th rowspan="2">NSR</th><th colspan="2">Predicted LAeq,1hr, dB</th><th rowspan="2">Difference, dB</th></tr><tr><th>Existing current Layout(baseline)</th><th>Reconfiguration option</th></tr><tr><td>Four Winds</td><td>46.6</td><td>47.9</td><td>1.3</td></tr><tr><td>Solihull Music School</td><td>34.1</td><td>34.7</td><td>0.6</td></tr></table>	NSR	Predicted LAeq,1hr, dB		Difference, dB	Existing current Layout(baseline)	Reconfiguration option	Four Winds	46.6	47.9	1.3	Solihull Music School	34.1	34.7	0.6
NSR	Predicted LAeq,1hr, dB			Difference, dB												
	Existing current Layout(baseline)	Reconfiguration option														
Four Winds	46.6	47.9	1.3													
Solihull Music School	34.1	34.7	0.6													

No.	Directed to	Question																								
		<table><tr><td>The Dale, Catherine De Barnes Lane</td><td>51.8</td><td>47.5</td><td>-4.3</td></tr><tr><td>Oak Tree Lodge, Shadowbrook Lane</td><td>47.3</td><td>45.8</td><td>-1.5</td></tr><tr><td>Meadow View, Shadowbrook Lane</td><td>45.0</td><td>43.6</td><td>-1.4</td></tr><tr><td>The Paddocks, Shadowbrook Lane</td><td>44.6</td><td>43.7</td><td>-0.9</td></tr><tr><td>Green Acre, Shadowbrook Lane</td><td>44.4</td><td>42.4</td><td>-2</td></tr><tr><td>The Pleck, Shadowbrook Lane</td><td>43.5</td><td>42.5</td><td>-1</td></tr></table> <p><i>Note: the noise levels presented in Table 1 do not include contributions from road traffic.</i></p> <p>The predicted noise levels for the reconfigured pitches are below the daytime WHO Guidelines lower criterion of 50 dB L_{Aeq}, referenced in the Sport England Guidance. However, as shown in Table 1, the reconfigured sports pitches would result in an increase compared to the existing layout at Four Winds and Solihull Music School. Based on the impact criteria in Table 1-2 in Appendix 12.4 of Volume 3 of the Environmental Statement [APP-153/Volume 3] the reconfiguration layout would result in a slight adverse impact at Four Winds and Solihull Music School. It has been assumed that the sports pitches would not be used during the night time period.</p> <p>When comparing the predicted noise levels against the existing ambient baseline noise levels, the predicted sports pitch noise levels are lower than the baseline noise levels for the properties on Catherine de Barnes Lane and Shadowbrook Lane. The existing ambient noise levels at the rear of Four Winds are, as expected, lower than the noise levels at the front of the property which is adjacent to Catherine-de-Barnes Lane. The predicted sports pitch noise levels based on the latest reconfiguration layout are lower than the existing daytime ambient noise levels at the rear of Four Winds. The assessment has concluded that the latest reconfiguration of the WGAA facility is not considered to generate significant adverse noise effects at nearby NSRs.</p>	The Dale, Catherine De Barnes Lane	51.8	47.5	-4.3	Oak Tree Lodge, Shadowbrook Lane	47.3	45.8	-1.5	Meadow View, Shadowbrook Lane	45.0	43.6	-1.4	The Paddocks, Shadowbrook Lane	44.6	43.7	-0.9	Green Acre, Shadowbrook Lane	44.4	42.4	-2	The Pleck, Shadowbrook Lane	43.5	42.5	-1
The Dale, Catherine De Barnes Lane	51.8	47.5	-4.3																							
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The Pleck, Shadowbrook Lane	43.5	42.5	-1																							

No.	Directed to	Question
2.6.7	Applicant and SMBC	<p>Noise from the WGAA</p> <p>Sport England's guidance that 58dB LAeq,1hr is a 'typical' noise from a sports pitch, explicitly assumes that the impact noises associated with hockey can be mitigated by incorporating shock absorbing noise reduction measures. Such measures are unlikely to be installed at the WGAA and may even be inappropriate for 'hurling'. It is thus necessary to incorporate the percussive sounds inevitably associated with hurling into the noise assessment. One possibility would be to add a correction factor to reflect the distinctive percussive characteristic of the estimated noise, analogous to the mechanism adopted in BS 4142, but there may be others. Please address the percussive nature of the noise from the WGAA pitches in assessing the impact on relevant NSRs.</p> <p>Answer:</p> <p>A hurling wall is not proposed as part of the reconfiguration option. As such, there will not be the noise of a ball repetitively hitting a solid wall.</p> <p>Sport England's guidance assumes that impact noises of hockey ball hitting perimeter strike board and goal back boards are more noticeable than the ball striking hockey sticks in open play. Hurling pitches do not have perimeter strike boards or goal back boards. These impact noises of hitting a perimeter strike or goal back boards do not therefore occur in hurling.</p> <p>It should be noted that the hurling pitches currently exist and so will the percussive character of the sliotar hitting the hurley during a game.</p> <p>The noise assessment is based on the change in noise levels resulting from the change from the current layout to the reconfigured layout. Consequently, if a character correction was to be applied, it would be applied to both the current and proposed layout and the outcome of the assessment would remain the same.</p> <p>BS 4142 states in Section 1.3 that it is not intended for the assessment of recreational activities.</p>

No.	Directed to	Question																														
2.6.8	Applicant	<p>Noise from the WGAA</p> <p>In relation to the latest reconfiguration of the WGAA pitches (8.21, REP2-019), please set out how the L_{max} noise levels have been calculated at the relevant NSRs from the assumptions made at the hurling wall (Table 1.9, REP2-019) and in the car park (Table 1.10, REP2-019).</p> <p>Answer:</p> <p>The hurling wall is not part of the reconfiguration layout and is not part of the DCO application.</p> <p>The sports noise models have been updated with the latest reconfiguration layout and the L_{max} noise levels have been recalculated based on a single door slam at the closest car parking location to the relevant noise sensitive receptors (NSRs) as a worst case scenario.</p> <p>The L_{max} of a car door slam has been taken from measurements during previous assessments, which is 78 dB L_{max} at 2m.</p> <p>Table 2 below shows the predicted L_{max} noise level of a single car door slam based on the existing and latest reconfiguration layout.</p> <p>Table 2: the predicted L_{max} noise level of a single car door slam based on the existing and latest reconfiguration layout</p> <table><tr><th rowspan="2">NSR</th><th colspan="2">Predicted L_{Amax} dB</th><th rowspan="2">Difference, dB</th></tr><tr><th>Existing Current Layout (baseline)</th><th>Reconfiguration option</th></tr><tr><td>Four Winds</td><td>26.5</td><td>21.7</td><td>-4.8</td></tr><tr><td>The Dale, Catherine De Barnes Lane</td><td>34.4</td><td>36.0</td><td>1.6</td></tr><tr><td>Oak Tree Lodge, Shadowbrook Lane</td><td>33.1</td><td>25.7</td><td>-7.4</td></tr><tr><td>Meadow View, Shadowbrook Lane</td><td>30.7</td><td>25.0</td><td>-5.7</td></tr><tr><td>The Paddocks, Shadowbrook Lane</td><td>32.5</td><td>25.4</td><td>-7.1</td></tr><tr><td>Green Acre, Shadowbrook Lane</td><td>30.6</td><td>24.4</td><td>-6.2</td></tr></table>	NSR	Predicted L_{Amax} dB		Difference, dB	Existing Current Layout (baseline)	Reconfiguration option	Four Winds	26.5	21.7	-4.8	The Dale, Catherine De Barnes Lane	34.4	36.0	1.6	Oak Tree Lodge, Shadowbrook Lane	33.1	25.7	-7.4	Meadow View, Shadowbrook Lane	30.7	25.0	-5.7	The Paddocks, Shadowbrook Lane	32.5	25.4	-7.1	Green Acre, Shadowbrook Lane	30.6	24.4	-6.2
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No.	Directed to	Question				
		<table><tr><td>The Pleck, Shadowbrook Lane</td><td>29.8</td><td>24.0</td><td>-5.8</td></tr></table> <p>It has been assumed that the car park is used during both the day time and night time periods. Table 2 shows for all NSRs apart from The Dale, the predicted L_{\max} levels are lower than for the existing scenario. But all predicted levels are significantly below the night time outdoor L_{\max} WHO guideline value of 60 dB L_{\max}.</p>	The Pleck, Shadowbrook Lane	29.8	24.0	-5.8
The Pleck, Shadowbrook Lane	29.8	24.0	-5.8			
2.6.9	Applicant and SMBC	<p>$L_{A\max}$ events</p> <p>The WHO guidelines indicate that the disturbance or annoyance due to an $L_{A\max}$ noise level event can depend on the incidence and frequency of the event.</p> <p>The noise assessment [APP-057] does not appear to address either. Please explain how the incidence and frequency of $L_{A\max}$ events might be considered and assess those impacts on NSRs.</p> <p>Answer:</p> <p>Based upon the assumption that the car park is used during both the day time and night time periods, Table 2 within the response to ExQ2.6.8 shows that for all NSRs the predicted L_{\max} noise levels are significantly below the night time outdoor L_{\max} WHO guideline value of 60 dB L_{\max}. The incidence and frequency of the event would not change this outcome.</p> <p>An alternate form of assessment would be to consider the predicted L_{\max} values from the WGAA facility (car parking activity only as the hurling wall is not proposed as part of the DCO) against existing ambient noise levels at the NSRs. At Four Winds and other properties on Catherine-de-Barnes Lane/Shadowbrook Lane, the predicted L_{\max} values presented in Table 2 within the response to ExQ2.6.8 are significantly below the lowest measured existing ambient L_{\max} noise levels of approximately 70 dB and 81 dB respectively.</p>				

No.	Directed to	Question
2.6.10	Applicant	<p>L_{Amax} events</p> <p>As stated at paragraph 12.2.5 [REP2-019], the WHO guidelines only use L_{Amax} indicators in relation to sleep disturbance in bedrooms at night. An analogous day-time indicator might thus relate to living rooms during the day and evening. It is not clear how the suggested day-time outdoor threshold of 65dB L_{Amax} has been derived (paragraph 12.2.5, REP2-019). However, it does not appear to be used in the assessment. Is that correct? If not, please explain how this indicator has been derived.</p>
		<p>Answer:</p> <p>As stated at paragraph 12.2.5 [REP2-019], there is a 15 dB difference between the WHO night time L_{Aeq} (inside bedroom) and L_{Amax} criteria, therefore the same difference has been applied to the WHO 50 dB L_{Aeq} daytime guideline value (moderate annoyance outside during daytime and evening) to determine an equivalent daytime L_{Amax} threshold of 65 dB L_{Amax}.</p> <p>The daytime L_{Amax} threshold has been used in the assessment as stated in paragraph 12.5.8 [REP2-019]. However, the hurling wall is not included in reconfigured layout of the WGAA facility as part of this DCO.</p>
2.7	Population and Health – ES Chapter 13	
2.7.1	Applicant	<p>Agricultural land</p> <p>Please see ExQ2.4.1, the same point applies in ES Table 13.1. Given the approach in the NPSNN, could the Applicant explain the basis for assessing Grade 3a agricultural land as having a medium sensitivity, as opposed to a high sensitivity for Grades 1 and 2 (Table 13.1)?</p>
		<p>Answer:</p> <p>Please refer to the Applicant's response to ExQ2.4.1 which provides explanation as to the appropriate sensitivity rating for Grade 3a agricultural land.</p>

No.	Directed to	Question
2.7.2	Applicant	<p>Sensitivity</p> <p>Can the Applicant please provide further explanation as to the differing sensitivity applied to residential buildings and gardens in ES Table 13.3?</p> <p>Answer:</p> <p>With regard to the differing sensitivity of private assets, paragraph 13.3.32 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] states that: <i>“the value and typical descriptors which have been applied to determine sensitivity to the impacts as a result of the Scheme have been based on professional judgment in the absence of guidance within DMRB”</i>.</p> <p>Accordingly, the significance criteria on which the assessment of effects on private assets has been based on were informed by professional judgement and reference to best practice from other assessments of similar transportation projects.</p> <p>The sensitivity criteria provided within Table 13.3 of Chapter 13 Population and Health [APP-058/Volume 6.1] of the Environmental Statement considers factors including the importance of the receptor, the ability of the receptor to react/respond to the impact, and the potential for substitution or access to alternatives.</p> <p>Accordingly, residential buildings have been ascribed a high sensitivity rating as occupants rely on their homes as their principal place to live, and therefore have limited ability to adjust to change should their home be directly affected by physical works involving the full or partial demolition of their dwelling.</p> <p>In comparison, residential land (such as gardens) has been ascribed a medium sensitivity rating. This reduced rating reflects the fact that whilst physical works could result in the permanent loss of garden space, this loss of land within the property curtilage would not necessarily compromise a resident's ability to remain an occupant in the dwelling and would represent a change that a resident could be reasonably expected to accommodate.</p>

No.	Directed to	Question
2.7.3	Applicant	<p>WGAA</p> <p>Having regard to the Applicant's Deadline 2 submission document 'Proposed Proportionate Reconfiguration of the Warwickshire Gaelic Athletic Association Facility' [REP2-019], can Options 1-5, illustrated in Figure 3.5A-E in Volume 2 of the ES [APP-069], now be discounted? Whether or not that is the case, please update the conclusions reported in the ES to include the scheme shown in Figure 8.21 [REP2-019].</p> <p>Answer:</p> <p>The Applicant can confirm that the Proposed Proportionate Reconfiguration of the Warwickshire Gaelic Athletic Association Facility [REP2-019] supersedes the five options for this facility presented in the DCO application, and is now the preferred design solution being taken forward.</p> <p>The assessment of impacts on community facilities reported within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] evaluated the five options, and identified that the Scheme would not result in significant effects on the facility.</p> <p>The Applicant has reviewed this conclusion against the form and layout of the facility presented in the Proposed Proportionate Reconfiguration of the Warwickshire Gaelic Athletic Association Facility [REP2-019] and has identified that this remains applicable to this design.</p>
2.7.4	Applicant	<p>Impact</p> <p>ES paragraph 13.4.12 sets out a number of assumptions, including that land returned to agriculture following construction would be restored to its pre- construction condition. Can the Applicant explain what mechanisms would secure the pre-construction condition of the land, particularly that land to the south of the A45 corridor which would be used for the main site compound (Work No. 69)?</p>

No.	Directed to	Question
		<p>Answer:</p> <p>The Applicant can confirm that the restoration of temporarily acquired agricultural land following the completion of construction activities will be secured through the provisions set out in Article 33(4) of the dDCO [REP3-002], which requires any undertaker to restore land to the reasonable satisfaction of the owners of the land.</p>
2.7.5	Applicant and SMBC	<p>Safeguarded gypsy site</p> <p>ES paragraph 13.6.54 refers to a safeguarded site for gypsies and travellers located on Catherine-de-Barnes Lane to the north of Bickenhill, which is within the Order Limits of the Proposed Development. Can the Applicant and SMBC please confirm whether this is the Avon Caravan Park or an additional site? If the latter could SMBC provide details?</p>
		<p>Answer:</p> <p>The Applicant can confirm that the site referred to within paragraph 13.6.54 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] is the Haven Caravan Park (also known as the Avon Caravan Park).</p>
2.7.6	Applicant	<p>Assessment</p> <p>Please see ExQ2.4.3, which deals with the same point. ES Paragraph 13.9.2 states that a maximum area of 21.4ha of Grade 3a agricultural land would be lost as a result of the construction of the Proposed Development. However, paragraph 13.6.11 acknowledges that the classification of 21.7ha of agricultural land that was not surveyed is unknown. Can the Applicant therefore confirm whether it is possible that the area of Grade 3a agricultural land could be significantly greater than 21.4ha, particularly because the approach taken at paragraph 10.4.11 is to assume that unrecorded areas are Grade 3a?</p>
		<p>Answer:</p> <p>The Applicant refers the ExA to its response to ExQ2.4.3 which explains the categorisation of this land.</p>

No.	Directed to	Question
2.7.7	Applicant	Assessment Having regard to ExQ2.4.3 and ExQ2.7.1, if the sensitivity of Grade 3a agricultural land is high, has the moderate-substantial adverse significance of effects set out in ES paragraph 13.9.3 been understated?
		Answer: The Applicant refers the ExA to its response to ExQ2.4.3 which explains the categorisation of this land.
2.7.8	Applicant	Assessment Can the Applicant explain why the first holding name in Table 13.19 is blanked out? If this is not intentional, can the Applicant confirm whether it is the Hampton Estate?
		Answer: The Applicant can confirm that this blanking out is not intentional and is a document formatting error. It should read "Hampton Estate" as noted by the ExA.
2.7.9	Applicant	Assessment ES paragraph 13.9.9(?) explains that the scale of effects on agricultural holdings is based on the proportion of land required from the holding. However, Table 13.19 lists two holdings west of Catherine-de-Barnes Lane where 100% of the land is required but the scale of effect is described as moderate adverse, the same as that for Woodhouse Farm where the land-take would be just 34.1%. The Applicant is therefore asked to provide an explanation of this apparent inconsistency.

No.	Directed to	Question
		<p>Answer:</p> <p>The Applicant can confirm to the ExA that this observation is not a discrepancy within the assessment. The two agricultural holdings identified by the ExA are located to the west of Catherine-de-Barnes Lane, and both were assigned a medium sensitivity to change rating, as presented in Table 13.14 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1].</p> <p>As with Woodhouse Farm, both were assigned a high impact magnitude based on the predicted permanent effects that construction of the Scheme would result in on both holdings, as presented in Table 13.19 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1].</p> <p>Based on the significance matrix for the assessment of effects on agricultural holdings presented in Table 13.7 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1], all three of the above agricultural holdings will experience a moderate adverse effect on account of the combination of their medium sensitivity to change and the high magnitude of impact predicted.</p>
2.7.10	Applicant, SMBC and Open Space Society	<p>Assessment: footpaths</p> <p>PRoW M112 connects Damson Parkway in the west to St Peters Lane, Bickenhill. The PRoW would be severed by the mainline link road and would be redirected around 2 sides of a triangle over the proposed 'Catherine-de-Barnes north overbridge' near St Peters Lane. However, paragraph 13.9.20 estimates that there would be a 50m reduction in journey lengths. Can the Applicant provide further explanation as to how this would be achieved?</p> <p>Answer:</p> <p>The Applicant can confirm the stated reduction in journey length of 50m reported in paragraph 13.9.20 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] is incorrect.</p> <p>As per the diversion described in the Streets, Rights of Way and Access Plans [APP-010/Volume 2.5] users are predicted to experience an increase in journey length of approximately 290m. This increase in journey length</p>

No.	Directed to	Question
		<p>accounts for pedestrians having to use Catherine-de-Barnes North Overbridge to cross the proposed mainline dual carriageway.</p> <p>Based on increase in journey length of approximately 290m, this would not lead to a significant adverse effect on users.</p>
2.7.11	Applicant, SMBC and Open Space Society	<p>Assessment; footpaths</p> <p>Paragraphs 3.15-3.17 of the NPSNN commits the Government to investing in ‘<i>high-quality cycling and walking environment to bring about a step change in cycling and walking across the country.</i>’ The Panel appreciate the work undertaken in assessing alternative routes between the proposed A45 overbridge and Birmingham International Railway Station [REP3-018], but they consider that the assessment gives insufficient weight to the policies set out in the NPSNN. Please reconsider that assessment in the light of those policies and indicate whether the possibility of implementing ‘route A’ (Table 5.1, REP-018) would require alterations to the DCO or whether other mechanisms (including funding and suitable forms of agreement with the relevant bodies – SMBC, Network Rail etc) would suffice.</p> <p>Answer:</p> <p>Route A, which was reported in the Assessment of Potential Footpath Connectivity between the A45 and Birmingham International railway station [REP3-017] could not be implemented within the DCO without the following alterations being made:</p> <ul style="list-style-type: none"> • The Order Limits would need to be increased to accord for any additional permanent acquisition, temporary possession or temporary with permanent rights that are necessary in order to implement the footway / cycleway connectivity. • The increased order limits would need to be environmentally assessed to ensure that no additional significant adverse effects are created. • A period of consultation would be required for any new landowners introduced within the order limits.

No.	Directed to	Question
		<p>Although the items raised above is not an exhaustive list of the necessary changes to implement Route A, the Applicant considers that the magnitude of these changes would constitute a material change to the order being required.</p> <p>To implement Route A outside of the DCO, this would require agreements with adjoining landowners and be pursued as part of SMBC's wider public right of way strategy.</p>
2.7.12	Applicant	<p>Assessment; drivers</p> <p>ES paragraph 13.9.44 refers to residents of Bickenhill travelling to Catherine- de-Barnes Lane to access community facilities in Solihull, Catherine-de-Barnes and Hampton in Arden. However, no reference is made to the shopping and leisure offer to the north of the A45. Can the Applicant confirm whether this has been considered and if not, how would this affect the conclusions reached in paragraph 13.9.45?</p> <p>Can the Applicant also explain what consideration has been given to the effect on the B&B business on Church Lane.</p> <p>Answer:</p> <p>Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] assesses the effect of the Scheme on the extent to which vehicular users would be separated (severed) from community resources they use and visit. Community resources comprise a range of facilities such as schools, primary healthcare facilities, retail, recreation and leisure facilities.</p> <p>As part of the assessment, severance to journeys to the leisure and retail offering north of the A45 was considered. As stated in para 13.9.42 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1], whilst construction activities may increase journey times, provision of temporary roads would not deter journeys within the study area. During operation of the Scheme, whilst residents in Bickenhill would experience some changes to journeys, access to community facilities and key services would be maintained such that no severance would occur. Paragraph 13.9.45 of Chapter 13 [APP-058/Volume 6.1] describes the improved travelling conditions for residents of Bickenhill when travelling back from Solihull and Hampton in Arden, which are the main locations where these residents access community facilities and services. Therefore, the access to the shopping and leisure</p>

No.	Directed to	Question
		<p>offer north of the A45 has been considered in the assessment as part of the vehicular user severance assessment during construction and operation. The conclusions of this assessment are presented in paragraph 13.9.42 to 13.9.45 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1].</p> <p>The B&B business on Church Lane (Church Farm Accommodation) was identified in paragraph 13.6.47 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] as one of several private assets located within the study area. Impacts on the accessibility to Church Farm Accommodation during construction and operation of the Scheme were considered as part of the assessment of vehicular user severance, the results of which are reported in paragraph 13.9.42 and 13.9.45 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] and concluded that there will be no significant effects.</p> <p>Concerning impacts relating to landtake on Church Farm Accommodation, paragraph 13.9.48 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] acknowledged that the Scheme will result in permanent landtake from commercial properties such as this business. The population and health assessment concluded that effects on commercial properties (including Church Farm Accommodation) will not be significant.</p>
2.7.13	Applicant and IPs	<p>Assessment; property</p> <p>ES paragraph 13.9.47 states that as less than five residential properties would be impacted by the proposed new mainline link road between the M42 Junction 5A and Clock Interchange during construction, the impact on residential properties has not been assessed.</p> <p>That may be correct if 'impact' is intended only to apply to demolition or the physical loss of land, but it cannot be correct if it also entails environmental elements. Can the Applicant identify which properties it considers would be 'impacted' and explain the basis for discounting others?</p> <p>Can the Applicant also explain whether the construction effects on private assets has considered those arising from the positioning of a site compound between Clock Interchange and Bickenhill (Work No. 69)?</p>

No.	Directed to	Question
		<p>Answer:</p> <p>The Applicant can confirm that, in accordance with guidance set out in DMRB Volume 11, Section 3, Part 6 – Land Use, the assessment reported within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] specifically focuses on the demolition of private property and associated landtake. Private property is referred to in the assessment as ‘private assets’, and comprises residential properties, businesses and community facilities.</p> <p>Guidance contained within this part of the DMRB does not provide specific criteria for assessing the magnitude of impact or the significance of effect on residential properties forming part of local communities. Accordingly, a combination of good practice applied on similar assessments of comparable transportation schemes and professional judgement were used – for example the published Environmental Statements for the High Speed 2 rail project (proposed in a similar location and setting as the Scheme) and the A303 Amesbury to Berwick Down.</p> <p>These projects applied an approach comparable to that adopted in the assessment of the Scheme, whereby residential properties were grouped into communities (comprising streets, hamlets, villages and so forth) and a threshold then applied to affected dwellings to determine whether significant community effects arising from demolition and/or landtake would occur, based on whether more than five properties within a community would be affected</p> <p>The Applicant refers the ExA to its response to ExQ2.7.14 which identifies the residential properties that would experience impacts and effects associated with demolitions and landtake arising from Scheme construction. This notes that the total number of residential properties that will be demolished or experience landtake exceeds five properties, but that these properties are scattered across different areas of the Scheme and will experience impacts and effects in isolation from each other. As the affected residential properties do not constitute a sizable proportion of a particular community, the assessment concluded the effects on communities would not be significant and therefore the individual effects did not require detailed consideration in the assessment.</p> <p>The environmental impacts and effects on private assets associated with other topics and parameters – for example air quality and noise – are reported within the respective chapters within Volume 1 of the Environmental Statement. The Applicant did not, therefore, intentionally discount the other identified environmental effects on private assets as these are presented elsewhere throughout that document.</p>

No.	Directed to	Question
		The Applicant can confirm that the environmental impacts and effects on private assets arising from the site compound being positioned between Clock Interchange and Bickenhill (Work No. 69) were considered in the assessment and have been reported within the respective chapters of Volume 1 of the Environmental Statement. On review of the above, the Applicant can also confirm that the site compound will be located on agricultural land, which in accordance with the DMRB guidance does not constitute a private asset. There will, however, be some temporary impacts on Church Farm Accommodation (classified as a residential dwelling and commercial bed and breakfast business) located in proximity to the land identified to accommodate the site compound. These temporary impacts will be associated with the proposed temporary Catherine-de-Barnes Lane diversion and the proposed exit from the site compound, the routes of which will pass over land within the curtilage of Church Farm Accommodation.
2.7.14	Applicant and IPs	<p>Assessment; property</p> <p>Can the Applicant provide further justification for the assertion in ES paragraph 13.9.48 that the potential impacts on private assets during operation of the scheme are not considered significant?</p> <p>Can the Applicant also clarify whether there is any missing text from the first sentence of this paragraph?</p>
		<p>Answer:</p> <p>The Applicant refers the ExA to its response to ExQ2.7.13 which explains how landtake of residential properties has been assessed and how the five residential property threshold is applied in determining whether the demolition of (or landtake from) private assets that form part of a community constitutes an impact or effect requiring consideration in the assessment.</p> <p>Paragraph 13.9.48 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] incorrectly refers to operational impacts on both residential and commercial properties. This paragraph does contain typographical errors and should have been reported as part of the construction section (paragraph 13.9.47) as permanent landtake is a consequence of Scheme construction and not its long term operation.</p>

No.	Directed to	Question
		<p>For clarity, the Applicant can confirm that the following demolitions and landtake on individual residential properties will occur as a result of the Scheme:</p> <ul style="list-style-type: none"> • Heath End House (Catherine-de-Barnes Lane) – demolition of the property [note that the Applicant owns this property and does not have a tenant, so Heath End House is not a residential property in reality]. • Cedar Cottage (Clock Lane) – permanent landtake of garden. • Oak Tree Lodge (Shadowbrook Lane) – temporary landtake of garden. • Church Farm Accommodation (Church Lane) – temporary and permanent landtake. • Woodside* (Solihull Road) – permanent landtake of land fronting the dwelling. • Mayfield* (Solihull Road) – permanent landtake of land fronting the dwelling. <p>As all of the above dwellings are geographically dispersed and do not collectively form part of a single community, the five residential property threshold does not apply to these properties. Accordingly, the assessment concluded that no significant community effects would occur as a result of demolitions or landtake.</p> <p>In addition to residential landtake, a number of commercial properties (which includes Church Farm Accommodation as a Bed and Breakfast business) would experience temporary and/or permanent landtake as a result of construction of the Scheme. The landtake impacts on commercial properties are not, however, considered to be of an order that compromises the ability of the affected businesses to continue with their operations. Accordingly, no significant effects on affected businesses are predicted to result from construction of the Scheme.</p> <p>*The permanent landtake identified on the properties Woodside and Mayfield has been reviewed during the examination process, and the Applicant has submitted a non-material amendment request to the ExA. Should this amendment be accepted by the ExA, this would remove the requirement to acquire land fronting these two dwellings and would reduce the total number of individual residential properties affected by landtake.</p>

No.	Directed to	Question
		Other environmental impacts and effects on residential properties associated with construction and operation of the Scheme, for example noise and visual impact, are reported within the relevant chapters of Volume 1 of the Environmental Statement.
2.7.15	SMBC	Assessment; property Can SMBC confirm its position with regards to the conclusion in paragraph 13.9.52 that the proposal would have a slight adverse effect on development land?
		Answer: N/A
2.7.16	Applicant and SMBC	Assessment; property Can the Applicant clarify the assertion in ES paragraph 13.9.54 that there are no planning applications or permissions affected by land required for the operation of the Proposed Development, having regard to the MSA proposals at junction 5a? Can SMBC also confirm whether there are any other applications and permissions that the ExA should be made aware of?
		Answer: The Applicant can confirm that the statement contained within paragraph 13.9.54 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] incorrectly references “planning applications / permissions”. This paragraph should not have referenced planning applications, as these do not form a parameter that is considered within the assessment scope. As explained in paragraph 13.3.63 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1], the only parameters requiring consideration within the assessment of effects on ‘Development Land’ are: 1) unimplemented planning permissions; and

No.	Directed to	Question
		<p>2) local authority development allocations.</p> <p>The content of the operational assessment on 'Development Land' reported in paragraphs 13.9.53 and 13.9.54 within Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] therefore remains accurate, as at the time of undertaking the assessment the MSA proposals were (and still remain) a valid but undetermined planning application lodged with Solihull Metropolitan Borough Council.</p>
2.7.17	Applicant and SMBC	<p>Assessment; environmental effects</p> <p>Can the Applicant provide further justification for the conclusion set out in ES paragraph 13.9.63 that the effect of the Proposed Development on air quality, noise and neighbourhood amenity as a determinant of human health during construction would be neutral.</p> <p>What are the views of SMBC?</p> <p>Answer:</p> <p>Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] (as a component of its assessment of human health) reports the outcomes of the assessment of the Scheme in respect of 'noise, air quality and neighbourhood amenity', this being a determinant of human health. The assessment concluded an overall neutral outcome on this determinant arising from construction of the Scheme. In accordance with para 5.5.1(i) of Chapter 5 Methodology [APP-050/Volume 6.1] of the ES, this assessment takes "account of the role that mitigation and compensation measures would have in reducing" the significance of effects.</p> <p>The human health assessment findings have been reached based on an overall consideration of the assessment of effects reported within the following chapters in Volume 1 of the Environmental Statement:</p> <ol style="list-style-type: none"> 1) Chapter 12 Noise and Vibration [APP-057/Volume 6.1]; 2) Chapter 6 Air Quality [APP-051/Volume 6.1]; and 3) elsewhere within Chapter 13 Population and Health [APP-058/Volume 6.1] in respect of neighbourhood amenity.

No.	Directed to	Question
		<p>The assessed outcomes have been informed by all the assessment conclusions presented within these chapters to provide an overall outcome for the human health determinant for construction and operation.</p> <p>With regard to 'noise, air quality and neighbourhood amenity' the overall neutral outcome assessed during construction was based on the following:</p> <ol style="list-style-type: none"> 1) noise effects experienced at residential properties in the study area (with the majority of residential properties experiencing no significant adverse effects); 2) no significant adverse effects experienced by human receptors in the study area in respect of air quality; and 3) no significant adverse effects on users of public rights of way, community facilities or businesses from construction activities. <p>The assessed outcomes for this determinant have also taken into consideration the identified mitigation measures, including best practicable means, as presented in the Outline Environmental Management Plan [APP-172/Volume 6.11] and the use of temporary noise barriers where required, as outlined in paragraph 12.8.8 within Chapter 12 of Volume 1 of the Environmental Statement [APP-057/Volume 6.1].</p>
2.7.18	Applicant and SMBC	<p>Assessment; environmental effects</p> <p>Can the Applicant provide further explanation for the conclusion set out in ES paragraph 13.9.75 that the Proposed Development would have a positive effect on access to open and natural space as a determinant of human health during operation, given the scale and nature of the proposed Junction 5a and new mainline link road in a largely rural landscape.</p> <p>What are the views of SMBC?</p> <p>Answer:</p> <p>Chapter 13 of Volume 1 of the Environmental Statement [APP-058/Volume 6.1] (as a component of its assessment of human health) assessed the outcomes of the Scheme in respect of 'access to open space and nature', which includes access to recreation and outdoor activities.</p>

No.	Directed to	Question
		<p>Paragraph 3.5.160 within Chapter 3 of Volume 1 of the Environmental Statement [APP-048/Volume 6.1] states that improvements to existing footways and cycleways to the south of Clock Interchange will be implemented as part of the Scheme. Route connectivity will be maintained on all other cycleway and footpaths. Therefore, as a component of the assessment of effects on access to open space and nature, positive effects have been identified as arising from the improvements to existing footways and cycleways, as these will enable non-motorised users to better access the public rights of way network the area and will improve access to natural space.</p> <p>Notwithstanding the scale and nature of the proposed M42 Junction 5A and the new mainline link road being located in a largely rural landscape, these improvements will increase accessibility which represents an overall positive enhancement to the rights of way network, with assessed positive outcomes on human health.</p>
2.8	Assessment of Cumulative Effects – ES Chapter 16	
2.8.1	SMBC and WCC	Does the Short List of Developments in Appendix 16.3 [APP-16.3] contain all that it should?
		Answer: N/A
2.8.2	Applicant	ES paragraph 16.3.4 [APP-161] states that the SMBC planning portal, the Planning Inspectorate's website and the Highways England Improvements and major road projects website were last checked for new developments to add to the Long List of Developments on 26 November 2018. Can the Applicant confirm whether or not this has recently been reviewed?
		Answer: <p>The Applicant can confirm that the Long List of Developments presented in Appendix 16.2 of Volume 3 of the Environmental Statement [APP-162/Volume 6.3] was checked on the 26 November 2018 as part of the final stages of undertaking the cumulative effects assessment reported within Chapter 16 of Volume 1 of the Environmental Statement [APP-061/Volume 6.1].</p>

No.	Directed to	Question
		<p>The development plans and projects identified within the assessment were accurate approximately six weeks prior to submission of the DCO application. In line with accepted practice and guidance relating to the identification and assessment of cumulative environmental effects, this date was selected as the 'cut off' point for schemes to be considered in the assessment and was left as late as possible in the production of Chapter 16 [APP-061/Volume 6.1] to ensure that the information was as up to date, accurate and representative as possible.</p> <p>No further work has been carried out by the Applicant to update the position and status of development plans and projects, in accordance with the guidance contained within the Planning Inspectorate's Advice Note Seventeen: Cumulative effects assessment.</p>
Transport Assessment Report [APP-174]		
2.9	The relationship to other projects and the robustness of the traffic modelling	
2.9.1	The Applicant, SMBC and WCC	<p>The growth gap</p> <p>The Panel welcome the promise to explain the relationship between the LAM, OM, PRISM and NTEM at Deadline 4 (2 September 2019). However, whatever the nature of those relationships, the Panel need to know how the growth anticipated by 2041 is to be accommodated on the road network because all the evidence currently available suggests that the current scheme will be insufficient on its own.</p> <p>We understand that discussions between SMBC and the Applicants held on 16 July 2019 have addressed that conundrum.</p> <p>In the light of those discussions, please explain what new roads, road schemes or road improvements are envisaged to accommodate the growth anticipated up to 2041 and indicate how the current scheme might integrate with those further developments.</p> <p>Please take account of the works to accommodate HS2, the 'people mover' to Birmingham International Airport and the extension of the Midlands Metro to both the Airport and the HS2 interchange station all anticipated by 2026.</p>

No.	Directed to	Question
		<p>Answer:</p> <p>An explanation of the relationship between the LAM, OM, PRISM and NTEM was provided at Deadline 3A within the document: Transport Modelling Hierarchy and Growth in Future Year Traffic [REP3A-006].</p> <p>Highways England is responsible for the strategic road network and its further improvement and development to accommodate future 'known' growth in relation to committed developments and local plans. In relation to accounting for future growth in the process of traffic modelling, paragraph 3.2.4 of the 'Department for Transport TAG Unit M4 – Forecasting and Uncertainty' states that:</p> <p><i>“Local sources of uncertainty categorised as near certain should be included in the core scenario, whilst all sources categorised as hypothetical should be excluded. Between these two categories, an element of judgement may be required, but usually it would be expected that those inputs categorised as more than likely will be included in the core scenario, whilst those categorised as reasonably foreseeable will be excluded.”</i></p> <p>The modelling for the Scheme has accordingly been developed to take account of future land use and infrastructure schemes which are classified as being either 'Near Certain' or 'More than Likely'. These plans and schemes are defined in the Uncertainty Log presented within the Transport Assessment Report [APP-174/Volume 7.2]. Based on the WebTAG guidance, the modelling for the Scheme has not taken account of aspirational future development.</p> <p>In relation to new roads, road schemes or road improvements that are envisaged to accommodate the growth anticipated up to 2041, 'The UK Central Hub - Growth and Infrastructure Plan – Issue 3, UK Central Solihull / Urban Growth Company, 9th January 2018' identifies the need for further infrastructure capacity in order to accommodate the likely generated traffic by the additional development. This document states: <i>“... it is likely that further road capacity will be needed, and one potential solution would be to build link roads between the new M42 Southern Junction and the existing J6 on both sides of the motorway to provide direct access to the UK Central Hub/HS2 Station”</i>.</p> <p>Uncertainty exists surrounding the works envisaged beyond Phase 1 of the UK Central Hub as they are not committed development. As such, these works did not qualify as being either 'Near Certain' or 'More than Likely'</p>

No.	Directed to	Question
		<p>and were considered to represent aspirational development due to their speculative nature at the time of undertaking the modelling.</p> <p>The Applicant can confirm that the modelling and design work undertaken as part of the Scheme has taken into account the HS2 Birmingham Interchange station, the 'people mover' to Birmingham Airport, and the highway works associated with the HS2 station, on the basis that they represent committed development for which sufficient certainty exists surrounding their delivery.</p> <p>In relation to the Midlands Metro Extension to the Airport and the HS2 station, the modelling work for the Scheme has taken account of these proposals within the PRISM model as its certainty was categorised as 'More than Likely'.</p> <p>The Applicant has confirmed that it has taken into account the above schemes within its Transport Assessment and has factored in additional forecast background growth as described in the Transport Assessment Report. However, the development beyond Phase 1 of the UK Central Hub was not considered by the Applicant to be committed development due to its speculative nature. As it is not possible to say at this stage where the development envisaged in those later Phases will take place, it is not possible to say what changes to the strategic or local road networks are needed to accommodate it.</p> <p>The Applicant understands that Solihull Metropolitan Borough Council (SMBC) is conducting studies to consider and assess what new roads, road schemes and/or improvements may be required to accommodate potential additional future development and growth in the traffic in the area. This work is part of part of the ongoing planning and transport studies for the UK Central Hub Growth and Infrastructure Plan, upon which SMBC can provide further information.</p>

No.	Directed to	Question
2.9.2	Applicant and SMBC	<p>The growth gap</p> <p>It is clear that SMBC envisage a 'phase 3', accommodating improvements around the HS2 Interchange Station and along the A45 and A452 corridors and a 'phase 4' addressing the needs of the Hub and its connections with both the M6 and the M42 motorways beyond 2026 and up to 2041. This raises 2 issues:</p> <ol style="list-style-type: none"> 1. As 'phase 3' is due to be completed barely 6 years after a decision has been made on the current scheme, is it necessary to extend the limits of this DCO in preparation for those imminent proposals? 2. How does this scheme relate physically to the transport proposals required to accommodate the growth envisaged in phases 3 & 4? (Essentially, the same question as ExQ2.9.1) <p>Answer:</p> <p>As set out in its answer to ExA Q2.9.1, the development beyond Phase 1 of the UK Central Hub was not considered by the Applicant to be committed development due to its speculative nature. As it is not possible to say at this stage where the development envisaged in Phases 3 and 4 will take place, it is not possible to say what changes to the strategic or local road networks are needed to accommodate it. In relation to the developments which have been considered within the modelling of the Scheme, the Applicant refers the ExA to the Transport Assessment Report [APP-174/Volume 7.2].</p> <p>Regarding the consideration of future aspirational developments within the modelling, the Applicant refers the ExA to its response to ExAQ 2.9.1.</p> <p>The Applicant believes that SMBC is best positioned to provide a response to this question.</p>

No.	Directed to	Question
2.9.3	The Applicant, Arden Hotel, Applegreen PLC, Birmingham International Airport, The Motorcycle Museum, Extra MSA Solihull Limited, Genting Solihull Limited, NEC Limited, SMBC and WCC	<p>Traffic variability</p> <p>It may well be that the promised explanation of how the various traffic models relate to each other will also provide the answer to this question. However, at first glance from the answer given to ExQ1.11.8, it would appear that the OM accommodates much of the traffic at the upper limit of the variations envisaged in the LAM, the flows in South Way being some 19% higher in the OM than those in the LAM during the AM peak and some 54% higher in the OM than those in the LAM during the PM peak. Please explain how the situations being modelled can be taken to be comparable.</p> <p>Moreover, if the absence of queues in the OM at 2041 (as shown in Figure 7.8, APP-174) encompasses the variation evident in the LAM, how does the OM address the inherent variability of the traffic at junction 6 on the M42?</p> <p>Answer:</p> <p>An explanation of the relationship between the LAM, OM, PRISM and NTEM was provided at Deadline 3A within the document: Transport Modelling Hierarchy and Growth in Future Year Traffic [REP3A-006].</p> <p>The LAM and OM modelling represent a core scenario which has been developed to represent a situation whereby the traffic volumes are generally greater than the average for the National Exhibition Centre (which in the OM is higher than the 85th percentile), and therefore the Applicant considers this modelling to be sufficiently robust.</p> <p>The Applicant notes that, on occasions with variability in demand, traffic volumes may be greater and could potentially be busier at certain times within the peak hours. However, the Applicant contends that it would not be an effective use of public money to design a road scheme that accommodates all possible eventualities, as the frequency of their occurrence would be low.</p>

No.	Directed to	Question
2.9.4	The Applicant, NEC Limited, SMBC and WCC	<p>Effects of the 'high growth' scenario</p> <p>From the answers given to ExQ1.11.8 and ExQ1.11.11, the traffic accommodated by the OM appears to encompass the 'high growth' scenario set out in the LAM. Does it follow that, although several links at junction 6 and the Clock Interchange have V/C>1 (up to about 1.6 sometimes) (Appendix B and Figures 2A-3B [REP2-007]) additional road works will not be required because the OM generally accommodates the flows predicted? Or, is it the case that the reference to the restriction of 'any increase in user benefits when compared with the core scenario' (answer to ExQ1.11.11) implies the existence of 'hidden' queues throughout the network?</p>
		<p>Answer:</p> <p>The Applicant can confirm that the variation between the LAM and the OM is due largely to the different sizes of models and level of detail and not the traffic demand forecast scenarios.</p> <p>The main purpose of the high growth scenario was to provide a sensitivity test to understand the impacts on the network from further development beyond the core growth scenario. In the High Growth scenario, additional interventions may be needed on the strategic or local road networks. However, as this growth is aspirational, it is not possible to say at this stage what interventions will be needed or where. This will need to be addressed when the development proposals are brought forward. For example,</p> <p>The majority of the modelling and design work carried out on the Scheme has been undertaken for the central 'core' traffic demand forecasts, in accordance with the Department for Transport WebTAG criteria. This modelling work shows that the Scheme accommodates the core growth forecast without the need for further interventions.</p>

No.	Directed to	Question
2.10	The effectiveness of the scheme	
2.10.1	The Applicant	<p>The operation of the signalised gyratory</p> <p>The Panel welcome the further information submitted in REP3-019. There are a few instances where the results set out in Table 1.1 appear counter-intuitive and further explanation would be very helpful:</p> <p>Table 1.1</p> <p>2041 <u>Do-minimum</u></p> <p>1A Although the average AM Qs are less than the average PM Qs, the Max Qs are the same. The nearside lane of the A45 would contain a long line of queuing traffic that would sometimes stretch back beyond the joining slip road at the Clock Interchange. Why is an LoS=C appropriate?</p> <p>1G Although the average AM Qs are less than the average PM Qs, the Max Qs are the same. Moreover, all AM Qs are greater than the current situation (2016 Base). Why is the LoS=B rather than C or D?</p> <p>3A The PM Max Q extends on to the M42 mainline, indicating that on occasions queuing traffic must impede through traffic on the M42. Why is this a stable flow (LoS=C)? Please compare this with flows at 6A.</p> <p>2041 <u>Do-something</u></p> <p>1A All the AM Qs are higher than all the PM Qs. Why does the AM LoS=B rather than C, which is the PM LoS?</p> <p>5A All the AM Qs are lower than all the PM Qs. Why does the AM LoS=C rather than B, which is the PM LoS?</p>


No.	Directed to	Question
		<p>Answer:</p> <p>The LoS values are generated by the VISSIM software and may, in some instances, appear counter-intuitive when compared with the modelled queue lengths. The LoS values were listed as a footnote to Table 1.1 and are repeated as follows:</p> <ul style="list-style-type: none"> • LoS A = Free flow (delay < 10 secs) • LoS B = Reasonably free flow (delay > 10 to 20 secs) • LoS C = Stable flow (delay > 20 to 35 secs) • LoS D = Approaching unstable flow (delay > 35 to 55 secs) • LoS E = Unstable flow, operating at capacity (delay > 55 to 80 secs) • LoS F = Forced or breakdown flow (delay > 80 secs) <p>The VISSIM software LoS values are expressed in terms of average delay per vehicle passing through a junction rather than in terms of ratio of flow to capacity (RFC) or degree of saturation (DoS) (these are generally used respectively to report junction performance by ARCADY (for roundabouts) and LinSig (for traffic signals)). For information, both ARCADY and LinSig also report average delay, although the Applicant has not reported these values.</p> <p>For RFC and DoS values there is a more intuitive relationship between the value and length of queue (the higher the value, the greater the queue). This is particularly the case when a junction operates around capacity with RFC values greater than 1.0 or with DoS values greater than 100%. VISSIM does not produce equivalent values and instead reports LoS, which is related to delay rather than capacity. VISSIM does not report on capacity by hour or smaller increments (such as by 15 minutes for ARCADY) as it models capacity in real time, and this can be variable as individual vehicles interact with the road geometry, lanes, other vehicles on the road, traffic signals and so forth. Apart from visual presentation in real time and the production of video clips and/or screen shots, the only way to report junction performance in VISSIM is to record the modelled flow, queue length and LoS.</p>



No.	Directed to	Question
		<p>In certain instances, an LoS of A, B or C can produce a longer queue than an LoS of D, E or F. As noted above, this is because the LoS value is for the average delay per vehicle and not an RFC or DoS.</p> <p>One way of helping to explain this is to consider two example scenarios:</p> <p>For the first scenario, consider a vehicle which is waiting to turn right from a minor road to a major road at a priority junction with a 'give way' marker. If the major road is busy with traffic in both directions, it may take some considerable time for the vehicle wishing to turn right out of the minor road to find a gap in the stream of traffic in both directions on the major road to proceed safely. In this example the hourly flow out of minor road may be low with on average only one or two vehicles queuing at any given time, but the average delay per vehicle may be very large and therefore with an LoS of F.</p> <p>For the second scenario, consider a queue approaching a roundabout where the queue is around 120 metres long with 20 vehicles in one lane. However, the queue is continually moving and it only takes 30 seconds to get from the back to the queue to enter the roundabout. In this scenario the LoS would be C.</p> <p>Therefore, a long queue does not necessarily mean a low LoS, and a low LoS does not necessarily mean a long queue.</p> <p>In relation to the ExA's specific questions on each scenario, the Applicant has provided clarification below.</p> <p><u>2041 Do-Minimum</u></p> <p>1A: As noted above, the LOS in VISSIM represents the average delay per vehicle passing through the junction, whereas the queue values indicate the extent of the queue. Hence, the level of delay for the vehicles approaching the junction from this arm on average being lower than the PM.</p>


No.	Directed to	Question
		<p>1G: It is appreciated the AM queues in the 2041 Do-Minimum are greater than the 2016 base, but the level of delays that vehicles experience is lower. This is due to the green time differences that was assigned to this link in order to maximise the capacity (i.e. resulting in lower delay on average at the stop line).</p> <p>3A: The LOS of C in this case indicates that the queue is continually moving, and the delay that vehicles on average experience to get from the back to the queue to enter the roundabout is considered to be within the definition of LOS of C.</p> <p>6A: Although the queues are lower than 3A, the delays at the junction are greater. This is not because of the flow levels; it is more related to the delay at the stop line as a part of the live 'demand responsive' signal control optimisation of the green time to maximise the capacity for the junction.</p> <p><u>2041 Do-something</u></p> <p>1A: The LOS of B in the AM in this case indicates that the queue is continually moving and the delay that vehicles experience, on average, to get from the back to the queue to enter the roundabout is considered to be within the definition of LOS of B. Whereas during the PM peak the vehicles experience greater delays at the junction, despite the fact the queues are lower.</p> <p>5A: This case can be related directly with the example mentioned above, where the traffic from a minor road is trying to join the traffic at the major road, as this arm operates on a 'give way'.</p> <p>In the AM peak, the demand of vehicles exiting this arm is lower compared with the PM, which results in lower queues, but the major traffic at the gyratory opposing this movement are higher, hence the delay is greater. Whereas at the PM peak hour, the demand exiting this arm is higher hence the queues are greater, but as the major traffic at the gyratory is lower, the delay experienced is lower.</p>

Appendix 1



Table of Uni Directional Dumbbell Junctions in England


<u>Junction Name</u>	<u>Junction Location</u>	<u>Aerial Photography</u>
M6 Toll T7 Churchbridge Interchange	<p>Southeast of Cannock, Staffordshire. Located at the junction of the M6 Toll, A5, A34 and A460.</p> <p>Constructed in 2002-2003.</p>	


<p>M40 Junction 16 Hockley Heath Interchange</p>	<p>South of Hockley Heath, West Midlands. Located at the junction of the M40 and A3400.</p>	
<p>A13 Brickbarn Wood Junction</p>	<p>Located West of Stifford, Essex. Located at the junction of the A13 and A126.</p>	

<p>M65 J9 Rose Grove Interchange</p>	<p>Located East of Blackburn, Lancashire. Located at the junction of the M65 and A679.</p> <p>Opened in 1983.</p>	
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<p>A3(M) J4 Purbrook Interchange</p>	<p>Located North-west of Bedhampton, Hampshire. Located at the Junction of the A3(M) and Purbrook way.</p>	
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<p>A14 J4 Kettering Road Junction</p>	<p>Located south of Rothwell, Northamptonshire. Located at the junction of the A14 and B669.</p>	
<p>A421 / A600 Junction</p>	<p>Located South-East of Bedford, Bedfordshire. Located at the junction of the A421 and A600.</p>	

<p>A1(M) J13 Brooklands Interchange</p>	<p>Located to the North- West of Huntingdon, Cambridgeshire.</p> <p>Located at the junction of the A1 and the B1043</p>	
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<p>M3 J10 Chilcomb Interchange</p>	<p>Located south west of Winchester, Hampshire.</p> <p>Located at the junction of the M3 and the A31.</p>	
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A30 – Chybucca
grade separated
junction

Located at the junction
of the existing A30 and
B4328.

This proposed junction
forms part of the A30
Chiverton to Carland
Cross Development
Consent Order.
Examination closed on
the 06 August 2019

