

M42 Junction 6 Development Consent Order

Scheme Number TR010027

8.68 Applicant's Responses to Examining Authority's Third Round of Written Questions

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M42 Junction 6

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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) third round of written questions.
- 1.1.2 These can be found in **Table 1-1** below.

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

No.	Directed to	Question
3.1	General and Cross-topic Questions	
3.1.1	Applicant	<p>Lighting:</p> <p>Please provide to the Examination a copy of the review report referred to in paragraph 8.3.6 of the ES [APP-053], at paragraph 8.1.2 [REP2-021] and quoted in ExQ 1.0.2 [PD- 006].</p> <hr/> <p>Answer:</p> <p>The Applicant can confirm that the reference contained in paragraph 8.1.2 of the Lighting Technical Note [REP2-021] to an assessment of the street lighting design, and the references to a review of the lighting proposals forming part of the Scheme made in paragraph 8.3.6 of Chapter 8 Landscape of Volume 1 of the Environmental Statement [APP-053/Volume 6.1] and made in ExQ 1.0.2 [PD-006] do not relate to a particular report. Rather these are referring to the process of continual scoping undertaken prior to and during the landscape and visual impact assessment.</p> <p>The Landscape assessment scoped-out night-time visual effects on receptors from road lighting on the basis of these not being significant, as confirmed in paragraph 8.3.6 of Chapter 8 Landscape of Volume 1 of the Environmental Statement [APP-053/Volume 6.1].</p>

No.	Directed to	Question
3.1.2	Applicant	<p>Work No. 69 (main site compound):</p> <p>Is it intended that the Outline Environmental Management Plan [APP-172] is to be updated to include the Outline Management Plan for the Main Site Compound [REP3A-003] or are changes to be made to the dDCO [REP3-002] that will ensure that it is secured by Requirement 4?</p>
		<p>Answer:</p> <p>The Applicant can confirm that the draft Development Consent Order [AS-036/Volume 3.1(b)] submitted at Deadline 5 included a reference to REP3A-003 to ensure that it is secured by Requirement 4.</p>
Environmental Statement [APP-046 to APP-164]		
3.2	Air Quality ES Chapter 6	
3.2.1	Applicant and SMBC	<p>Air quality directions:</p> <p>The Panel would welcome an update on the progress made in ensuring that SMBC can fulfil its obligations relating to Ministerial Directions on air quality.</p>
		<p>Answer:</p> <p>As set out in the Statement of Common Ground with SMBC [Volume 8.8(c)] both SMBC and the Applicant agree that this is matter which is distinct and separate to the Development Consent Order application. SMBC has requested baseline traffic data and assumptions around M42 Junction 6 construction traffic to feed into its own traffic model for the stretch of the A45. This information will enable SMBC to discharge its own requirements for managing air quality effects in this area set by the Ministerial Direction. The Applicant has agreed to provide this data to SMBC which will be an ongoing activity from now until the commencement of construction.</p>

No.	Directed to	Question
3.3	Cultural Heritage ES Chapter 7	
3.3.1	Applicant and SMBC	<p>Archaeology:</p> <p>The ExA would welcome the comments of the Applicant and SMBC the County Archaeologist on the implications of the findings of the Archaeological Investigation Report [REP4-004] for the conclusions of Chapter 7 of the ES [APP-052].</p> <hr/> <p>Answer:</p> <p>The Applicant has reviewed the findings of the Archaeological Investigation Report [REP4-004/Volume 8.51] to determine whether these alter the conclusions presented within Chapter 7 Cultural Heritage of Volume 1 of the Environmental Statement [APP-052/Volume 6.1].</p> <p>The Applicant can confirm that the archaeological evaluation trenching works have been carried out in accordance with the approved Written Scheme of Investigation [APP-123/Volume 6.3], the results of which identified ridge and furrow cultivation, seven field boundary ditches and four undated pits. These features were all found to relate to post-medieval agricultural practices or were natural in origin.</p> <p>The review has concluded that the identified features support the results of the geophysical survey [APP-125/Volume 6.3] previously undertaken, and that the findings would only alter the assessment of archaeological potential presented within paragraph 7.6.58 of Chapter 7 Cultural Heritage of Volume 1 of the Environmental Statement [APP-052/Volume 6.1] in relation to the potential for discovering previously unrecorded prehistoric and Roman deposits. Based on the evaluation trenching results, the Applicant considers that the reported level can now be reduced to 'low potential' from the previously reported 'medium potential'.</p> <p>The review has also concluded that the results of the evaluation trenching support the assessment of archaeological potential presented within paragraph 7.6.62 of Chapter 7 Cultural Heritage of Volume 1 of the Environmental Statement [APP-052/Volume 6.1] in relation to the potential for discovering remains of early medieval, medieval and post-medieval date. The Applicant considers that the reported level of 'low potential' remains based on these findings.</p>

No.	Directed to	Question
		The Applicant is of the view that these findings do not require any modification or update to the assessment as there is no change to the reported likely significant effects on archaeology. Accordingly, no change to the Environmental Statement is proposed.
3.4	Landscape ES Chapter 8	
3.4.1	Applicant, SMBC, CPRE and Mr Philip O'Reilly	<p>Lighting:</p> <p>The scheme would introduce street lighting into locations which currently have little or limited lighting. This includes:</p> <ul style="list-style-type: none"> • The area of the main line link road approach to Junction 5A as it emerges from cutting and rises to the elevated dumbbell roundabouts and overbridge, which would be lit with lighting columns between 12m and 15m in height. • Barber's Coppice roundabout and approaches which would be lit with 12m and 15m high columns, located close to residential receptors at Four Winds. <p>The ExA note the Applicant's previous responses (ExQ 1.6.9-1.6.11 REP2-007). But, given the information in [REP2-21], is there potential for the night time views to have a significant effect on Viewpoints S, T and EE, given the quantum and height of luminaries relative to existing ground levels and proposed planting? And, is there potential for receptors at Viewpoint EE to experience effects from parts of the lighting for Junction 5A and Barber's Coppice Roundabout in combination?</p> <p>Answer:</p> <p>As noted in the Applicant's response to ExQ 3.1.1, the Landscape assessment scoped out night-time visual effects on receptors from road lighting on the basis of these not being significant, as confirmed in paragraph 8.3.6 of Chapter 8 Landscape of Volume 1 of the Environmental Statement [APP-053/Volume 6.1]. Notwithstanding this, the contribution of road lighting to the change in visual outlook from representative visual receptors has been considered within the landscape and visual assessment, as detailed within the individual summaries of operational</p>

No.	Directed to	Question
		<p>lighting effects within Appendix 8.1 Visual Baseline and Impact Schedules of Volume 3 of the Environmental Statement [APP-127/Volume 6.3].</p> <p>The Applicant can confirm that the lighting columns proposed at M42 Junction 5A would be located approximately 400m away from Viewpoint S. Given the height of the columns and the combination of intervening distance, landform, trees, vegetation and existing lighting spill from the M42 motorway, the scoping of potential night-time visual effects concluded that this lighting source would not itself give rise to a significant effect during operation of the Scheme. The visual impact assessment of Viewpoint S has acknowledged that this lighting would be conspicuous and will be a contributing element to the Moderate Adverse (significant) effect recorded from this location in the Winter Year of Opening, reducing to a Slight Adverse (not significant) effect in the Design Year (Year 15) following the establishment of landscape mitigation.</p> <p>Similarly, the lighting columns proposed at M42 Junction 5A would be located approximately 250m away from Viewpoint T. The visual impact assessment of Viewpoint T has identified that, in the Design Year (Year 15) and following the establishment of landscape mitigation, the increased lighting associated with the new lighting columns would remain a visible element in the context of existing views of the already lit M42 corridor. The visual impact of this lighting has been assessed as a contributing factor in the Moderate Adverse (significant) effect recorded from this viewpoint.</p> <p>In relation to Viewpoint EE, the visual impact assessment acknowledged that the proposed mainline link road and the reconfiguration of the local roads would be a major feature in the view, with landscape mitigation assisting their integration once established. The large scale changes to the view, which include the introduction of lighting columns associated with the new Barber's Coppice roundabout, would occur within an outlook which already features general light spill in the night sky from nearby transportation, aviation and commercial infrastructure. Given this general light spill and intervening distance to Junction 5A no in-combination effects of road lighting associated with Barber's Coppice Roundabout and Junction 5A were identified in the assessment. Accordingly, the proposed lighting columns would be a contributing element to the Large Adverse (significant) effect recorded in both the Winter Year of Opening and the Design Year (Year 15).</p>

No.	Directed to	Question
3.4.2	Applicant, SMBC and CPRE	<p>Lighting:</p> <p>Is there the potential for the lighting at junction 5a and at Barber's Coppice Roundabout to have a significant effect on the landscape, given the relative isolation of both locations in relation to major lit developments such as the NEC and Birmingham Airport, and given that much of the M42 in this location is in cutting?</p> <p>Answer:</p> <p>As recorded in paragraph 8.3.6 of Chapter 8 Landscape within Volume 1 of the Environmental Statement [APP-053/Volume 6.1], the scoping of potential landscape and visual effects concluded that the M42 motorway corridor and development such as the National Exhibition Centre and Birmingham Airport are already lit, and are the principal source of light spillage in existing night time views within the landscape.</p> <p>Although the night-time effects of road lighting within the landscape were scoped out of further consideration on the basis that they would not, in isolation, result in a significant effect, the Applicant can confirm that the influence of new lighting sources on landscape character has been an intrinsic part of the landscape assessment as it forms an integral component of the new road infrastructure proposed at M42 Junction 5A and Barber's Coppice roundabout.</p> <p>Paragraphs 8.9.28 to 8.9.35 of Chapter 8 Landscape within Volume 1 of the Environmental Statement [APP-053/Volume 6.1] confirm that the proposed works at M42 Junction 5A and Barber's Coppice roundabout would be undertaken within the southern extents of Landscape Character Area 2 (LCA 2) – Blythe Valley Parkland Farmland.</p> <p>The baseline conditions of LCA 2 described within paragraphs 8.6.19 to 8.6.23 of Chapter 8 Landscape within Volume 1 of the Environmental Statement [APP-053/Volume 6.1]. These record that the character of the southern (and western) extents of LCA 2 near to the M42 and A45 corridors is already disrupted by the presence of lighting and other infrastructure.</p> <p>Notwithstanding this influence, the assessment of effects on the character of LCA 2 concluded that the introduction of new highway infrastructure – which includes new lighting columns at M42 Junction 5A and Barber's Coppice</p>

No.	Directed to	Question
		<p>roundabout – would result in a Large Adverse (significant) effect in the Winter Year of Opening, reducing to a Moderate Adverse (significant) effect in the Design Year (Year 15) following the establishment of landscape mitigation.</p> <p>Based on the review of existing landscape character and giving consideration to the influence of existing lighting sources in night-time views, the introduction of new lighting sources at M42 Junction 5A and Barber's Coppice roundabout would themselves not result in a significant effect on LCA 2.</p>
3.4.3	Applicant and SMBC	<p>Lighting:</p> <p>Please indicate what mechanisms are proposed to ensure that the latest lighting technology with the most appropriate lantern and colour temperature will be installed to minimise light-spill and reduce night time visual effects. [REP2-007 ExQ 1.0.1 and REP2-037 ExQ 1.0.1 and 1.0.2, refer]</p> <p>Answer:</p> <p>Obligation G6 in the REAC [APP-114/Volume 6.3], requires lighting to be “confined to locations where road safety is a priority so as to limit spill at night”. Obligation G35 requires the Contractor “to utilise low carbon design specifications such as energy-efficient lighting”. Within the scope of these obligations, the Applicant would expect the highway authorities to comply with the latest design standard.</p> <p>Paragraph 7.1.3 of the Lighting Technical Note [REP2-021/Volume 8.23] states:</p> <p>To mitigate light pollution, the street lighting design will include the following aspects from Guidance Notes for the Reduction of Obtrusive Light GN01 (2011):</p> <ul style="list-style-type: none"> • Appropriate products are chosen and their location will reduce spill light and keep glare to a minimum. • Low mounting heights will be selected to allow lower main beam angles, which will assist in reducing glare. • The use of full horizontal cut off luminaires installed at 0° uplift will help minimise visual intrusion within the open landscape and reduce Sky Glow in the surrounding area.

No.	Directed to	Question
3.4.4	Applicant and SMBC	<p>Assessment:</p> <p>It appears from REP3-011 that the Residential Visual Amenity Assessment technical note was not considered within the LVIA and that neither the Landscape Character Assessment (SMBC 2016) nor the Local Character Guide (SMBC 2016) were reviewed to establish the baseline environment for the LVIA. Please explain why these omissions may, or may not, affect the findings of the LVIA.</p> <p>Answer:</p> <p>The Applicant can confirm that the absence of reference to the Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19 within Chapter 8 Landscape of Volume 1 of the Environmental Statement [APP-053/Volume 6.1] is not an omission. As this technical guidance note was not published by The Landscape Institute until after the submission of the DCO application, the Applicant was unable to consider its content whilst undertaking and reporting the landscape and visual impact assessment of the Scheme.</p> <p>Notwithstanding this, the Applicant has reviewed the requirements of the Technical Guidance Note to determine whether this influences the content and findings of the landscape and visual impact assessment. As the landscape and visual impact assessment of the Scheme has been prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment (3rd Edition) (GLVIA3), this provides an appropriate starting point for reviewing the need for an RVAA.</p> <p>The Applicant can confirm that although the assessment recorded significant (adverse) effects on the outlook and/or on visual amenity of a number of residential receptors associated with representative viewpoints, this does not imply there is a need to undertake an RVAA on those properties.</p> <p>An RVAA is generally only justified when the effect on Residential Visual Amenity could reach the Residential Visual Amenity Threshold, the contributing factors of which include whether a development is 'overwhelming in views in all directions', 'inescapably dominant' or 'unpleasantly encroaching', as set out within the Technical Guidance Note. The assessment of visual effects and the associated visualisations depicted on Figure 8.7 Viewpoint Location Plan B (Sheet 1 to 9) of Volume 2 of the Environmental Statement [APP-094/Volume 6.2]</p>

No.	Directed to	Question
		<p>demonstrate that the Scheme would not emerge in views as ‘overwhelming in views in all directions’, ‘inescapably dominant’ or ‘unpleasantly encroaching’ during operation.</p> <p>Considering the above, the Applicant is of the opinion that there is no requirement to undertake an RVAA of the Scheme.</p> <p>In relation to the ExA’s query regarding SMBC’s published Landscape Character Assessment (2016) and Local Character Guide (2016) not being referenced in the landscape assessment, the Applicant has reviewed both documents and provides the following clarifications and observations.</p> <p>The Landscape Character Assessment (2016) divides the Solihull district into ten distinct LCAs. From these LCAs, the Applicant has identified that following areas are associated with the assessment study area:</p> <ul style="list-style-type: none"> • LCA 1 Solihull Fringe (Sub-Area LCA 1A) – this has a medium value and sensitivity, and a low capacity to accommodate change. • LCA 9 Motorway corridor – this has a medium value and sensitivity, and a low capacity to accommodate change. <p>The Local Character Guide (2016) expands on these assessments and provides detailed information on each LCA’s key characteristics, sensitivities and pressures.</p> <p>The Applicant’s assessment presented in Chapter 8 Landscape of Volume 1 of the Environmental Statement [APP-053/Volume 6.1] identifies three distinct LCAs, namely:</p> <ul style="list-style-type: none"> • LCA 1 Arden Farmland – this is considered to be moderate value with a moderate susceptibility. Sensitivity towards change is assessed as being moderate. • LCA 2 Blythe Valley Parkland Farmland – this is considered to be of high value and moderate susceptibility. Sensitivity towards change is assessed as being high. • LCA 3 Transport Interchange, NEC and Business Park – this is considered to be of low value and low susceptibility. Sensitivity towards change is assessed as being low.

No.	Directed to	Question
		<p>The Applicant's defined LCA 1 and LCA 2 largely follow the boundaries of SMBC's LCA Sub-Area 1A and LCA 9 respectively, and present comparable findings in relation to baseline character and the evaluation of the rural area, its settlements, and the influence of the M42, A45 airport and NEC on their susceptibility to accommodate change. The Applicant's assessment has, however, ascribed a higher sensitivity rating to the landscapes associated with LCA 9 than is reported within the Local Character Assessment (2016).</p> <p>Based on a comparison of the documents, were the medium sensitivity rating for LCA 9 applied in the Applicant's assessment of LCA 2, this would reduce the reported significance of effect in the Winter Year of Opening from Large Adverse to Moderate Adverse, and in the Design Year (Year 15) from Moderate Adverse to Slight Adverse.</p> <p>On this basis, the Applicant contends that no update of the assessment reported in Chapter 8 Landscape of Volume 1 of the Environmental Statement [APP-053/Volume 6.1] is required.</p>
3.5		<p>Biodiversity – ES Chapter 9 and HRA</p>
3.5.1	Applicant, Natural England, SMBC and Warwickshire Wildlife Trust	<p>Mitigation and monitoring: Surveys:</p> <p>The Panel would welcome an indication of when the 'biodiversity off-setting report' (referred to in REP2-033) and the Fungi surveys will be made available to the Examination. In addition, is any further comment required in relation to the Lichen Survey [REP4-003] or the GCN survey [REP4-005]?</p> <p>Answer:</p> <p>The Applicant can confirm that the Fungi Survey Report has been submitted to the Examination at Deadline 6 [Volume 8.65].</p> <p>In relation to the Interim Biodiversity Offsetting Report, the Applicant can confirm that it intends to submit this to the Examination at Deadline 7.</p>

No.	Directed to	Question
3.5.2	Applicant, Natural England, SMBC and Warwickshire Wildlife Trust	<p>Mitigation and monitoring: Protection:</p> <p>Are measures required in the OEMP to ensure the protection of the white-clawed crayfish in the Shadow Brook catchment located to the east of the proposed scheme?</p>
		<p>Answer:</p> <p>The Applicant can confirm that the Outline Environmental Management Plan [APP-172/Volume 6.11] contains a sub-plan within Appendix C for the management of Invasive Species during construction. This sub-plan includes specific control measures that the Principal Contractor will be required to implement during construction of the Scheme to manage the confirmed presence of Signal Crayfish, for the protection of White-Clawed Crayfish in Shadow Brook.</p>
3.5.3	Natural England, SMBC, WCC, NWBC and Warwickshire Wildlife Trust	<p>Mitigation and monitoring: Ecology:</p> <p>Are there any outstanding concerns raised by the Applicant's responses set out in section 5.2 of REP3-011 in connection with the effects of the scheme on the SSSI at Coleshill and Bannerly Pools and the ecological connectivity of the area?</p>
		<p>Answer: N/A</p>

No.	Directed to	Question
3.5.4	Natural England, SMBC, WCC, NWBC and Warwickshire Wildlife Trust	<p>Mitigation and monitoring: Bickenhill Meadows SSSI:</p> <p>The ExA would welcome the Applicant's response to the comments from Natural England [REP4-017] regarding the 'Bickenhill Meadows SE Unit Draft Position Statement'.</p>
		<p>Answer:</p> <p>The Applicant has reviewed the points raised by Natural England in their response [REP4-017] to the Bickenhill Meadows SE Unit Draft Position Statement [REP4-006] and notes their request for further technical detail in relation to the definition of appropriate triggers, monitoring and measures to secure the conservation of the SSSI going forwards.</p> <p>The Applicant can confirm that following ongoing dialogue with Natural England and other stakeholders, it is currently preparing a SSSI Monitoring and Management Plan to cover these outstanding matters. The Applicant intends to share a draft of this plan for initial review and comment with these parties prior to its submission to the Examination at Deadline 7.</p>
3.5.5	Natural England, SMBC, WCC, NWBC and Warwickshire Wildlife Trust	<p>Mitigation and monitoring: Ancient Woodland:</p> <p>The ExA would welcome comments from Natural England, The Woodland Trust and SMBC on the Applicant's Soil Survey Report [REP4-007] submitted at Deadline 4.</p>
		<p>Answer: N/A</p>

No.	Directed to	Question
3.6	Geology and Soils ES Chapter 10	
3.6.1	Applicant and SMBC	<p>Contamination: Please explain why it may or may not be necessary to test more than 4 groundwater samples within the DCO site. If additional testing would be necessary, please indicate when this data may become available to the Examination?</p> <p>Answer: Chapter 10 Geology and Soils of Volume 1 of the Environmental Statement [APP-055/Volume 6.1] noted that four groundwater samples from the study area were reviewed as part of the geology and soils assessment.</p> <p>As noted in paragraph 10.6.74 of Chapter 10 Geology and Soils of Volume 1 of the Environmental Statement [APP-055/Volume 6.1], it was recommended that, in order to provide additional data and a robust controlled waters risk assessment, the preliminary assessment based on the four samples should be revisited after further groundwater monitoring and sampling had been undertaken, particularly from standpipes installed in the glaciofluvial deposits within the northern part of the Scheme, located north of Hollywell Brook.</p> <p>The Applicant can confirm that the additional post-fieldwork monitoring has been undertaken with a 'full' (water level/ground gas/water sampling) baseline round having been undertaken in July 2018 with monthly monitoring from December 2018 onwards. Since the 'full' baseline round in July 2018, there has been a further two 'full' rounds undertaken in January 2019 and July 2019 respectively. In total, 31 additional groundwater samples have been obtained over and above the four originally assessed.</p> <p>The additional data will be assessed and the Environment Agency consulted over the findings of the assessment at the detailed design stage.</p> <p>Notwithstanding the above, based on an initial high level review of the additional groundwater data available, it is considered unlikely that there will be any changes or alterations to the overall conclusions as presented within Chapter 10 Geology and Soils of the Environmental Statement [APP-055/Volume 6.1] and unlikely that any further groundwater sampling would be required to further characterise the risk to controlled waters.</p>

No.	Directed to	Question
3.7	Noise and Vibration ES Chapter 12	
3.7.1	Applicant and SMBC	<p>Noise policy and significant adverse effects:</p> <p>The Panel understand the responses to ExQ 2.6.1 and 2.6.2, but they do not agree with them; the responses confuse a SOAEL with an unacceptable noise environment. The NIR offer an insulation package to reduce external noise to an acceptable internal level, eg 35dB LAeq, 16hr ≈ 37dB LA10, 18hr, (not achievable by a closed single glazed window, normally resulting in a reduction of only about 25dB(A)). The internal level might be acceptable, but the external noise level would remain ‘unacceptable’ and, for that reason, the original guidance (now revoked) was that ‘planning permission should not normally be granted’ for residential development in areas falling within NEC-C (≈ 68dB LA10, 18hr and above). Such a noise environment might engender material changes in behaviour; not sitting out in the garden or keeping windows closed, both contributing to a diminished quality of life. But, those changes in behaviour do not identify the SOAEL currently suggested; the derivation is the other way around. The Defra Study quoted (NANR316) falls into the same trap; there is no cogent reason why 20%, rather than 10%, of the population must be ‘highly annoyed’ for the effect to be ‘significant’.</p> <p>In contrast, the WHO guidance is derived from observed changes in behaviour, attitudes or other physiological responses (all examples of the outcomes from an appropriately defined SOAEL, according to Government Guidance - 30-005-20190722, updated July 2019), since 55dB LAeq,16h ≈ 57dB LA10, 18hr is taken to engender the onset of serious community annoyance. Moreover, that level is confirmed in the latest WHO Environmental Noise Guidelines (2018) since it is strongly recommended that noise from road traffic should be below 53dB Lden ≈ 55dB LAeq, 16hr ≈ 57dB LA10, 18hr as ‘road traffic noise above this level is associated with adverse health effects. Although the NIR have served as the basis for a SOAEL in several previous NSIPs, that does not justify the fallacy, particularly in a rural location where people might reasonably be expected to experience the ‘quiet enjoyment’ of their gardens (see also ExQ3.7.2, below).</p> <p>Please provide any additional explanation necessary as to why a day-time SOAEL should be set at a level which might preclude the ‘quiet enjoyment’ of residents’ gardens.</p>

No.	Directed to	Question
		<p>Answer:</p> <p>The Applicant acknowledges the Panel's observations and question set out in section 3.7 (Noise and Vibration - ES Chapter 12 [APP-057/Volume 6.1]) and its interpretation of guidance, research and policy contained therein with respect to defining SOAELs. However, the Applicant maintains its position that the interpretation set out in the EIA Scoping Report [APP-119/Volume 6.3] ES Chapter 12 Noise and Vibration [APP-057/Volume 6.1] and the responses to ExQ 2.6.1 to 2.6.4 [REP4-010/Volume 8.58] with respect to the setting of daytime and night-time operational road traffic SOAEL values used in the ES Chapter 12 Noise and Vibration [APP-057/Volume 6.1] are appropriate and robust for the proposed development. The values adopted are consistent with SOAEL values used on other similar major transport infrastructure schemes, including those in potentially more sensitive or rural communities.</p> <p>The Applicant also notes that it is possible to identify a significant environmental effect at levels below any particular SOAEL, and conversely it is possible for receptors within the vicinity of a proposed development to be subject to noise levels above any particular SOAEL but not subject to a significant adverse effect in EIA terms as a result of a proposed development. Noise <i>levels</i> above a SOAEL can be useful indicators that a noise level <i>change</i> may be significant for the purposes of the EIA Regulations, but by themselves do not automatically indicate a significant EIA effect.</p> <p>The Applicant appreciates the difference between a SOAEL and an “unacceptable noise environment”, defined in National Policy terms by the “Unacceptable Adverse Effect Level” (UAEL) according to the Government’s Noise Exposure Hierarchy (Ref. 30-005-20190722, updated July 2019) (the Hierarchy). The Applicant does not agree with the view of the Panel that descriptors of potential changes in behaviour, such as “keeping windows closed” (most of the time) and being subject to a “diminished quality of life” are “unacceptable” (i.e. above the UAEL). These behavioural changes are defined in the Hierarchy for levels at the SOAEL, not the UAEL.</p> <p>As stated in the Hierarchy:</p> <ul style="list-style-type: none"> the UAEL is the level at which the following outcomes occur <i>‘Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological</i>

No.	Directed to	Question
		<p><i>stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory' and</i></p> <ul style="list-style-type: none"> • SOAEL is the level at which the following outcomes occur <i>'the noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.'</i> <p>Audible noise from a proposed development can cause small changes in behaviour, including “having to close windows for some of the time”, and result in an overall “small actual or perceived change in the quality of life” (according to the Hierarchy at noise levels at the LOAEL.</p> <p>In relation to PPG 24 (now revoked), NEC D is considered to be equivalent to the UAEL (rather than NEC C as suggested by the ExA Panel), on the basis that, as stated in the guidance, “the insulation package supplied under the Noise Insulation Regulations is inadequate for road traffic noise levels of 78 dB LA10,18h” (≈ 73dB LAeq, 16h). At external noise levels where such an insulation package is inadequate and at which the guidance stated “planning permission should normally be refused”. It is considered appropriate to define these as ‘unacceptable’.</p> <p>Furthermore, whilst the WHO Environmental Noise Guidelines (2018) state that the “guideline exposure levels presented are [therefore] not meant to identify effect thresholds (the lowest observed adverse effect levels for different health outcomes)”, it is clear from the statement “the aim of the current guidelines is to define an exposure level at which effects certainly begin” that the guideline levels are more representative of LOAEL than SOAEL values, which is confirmed by the general consensus of the Institute of Acoustics (IOA) that the WHO 2018 have been set just above the LOAEL.</p> <p>The ExA Panel makes specific reference to the strong recommendation in the Environmental Noise Guidelines (2018) that noise from road traffic should be below 53dB L_{den} (which the panel suggest ≈ 55dB $L_{Aeq, 16hr}$ ≈ 57dB L_{A10},</p>

No.	Directed to	Question
		<p>^{18hr} [1]) as 'road traffic noise above this level is associated with adverse health effects'. By definition these levels, indicative of 'adverse' health effects, would be more representative of LOAEL values. SOAEL values are set where the noise level is associated with 'significant' adverse health effects. In this context, it should be noted, as stated in the Applicant's Response to the ExA's second written questions 2.6.2, that $L_{den} (free-field) \approx LA_{10,18h} (free-field)$ (Ref Defra NANR316). With a +3 dB facade correction, the WHO ENG road traffic noise level indicator of 'adverse' health effects of 53 dB $L_{den} free-field \approx 56dB LA_{10,18h} facade$, which aligns well with the 55dB $LA_{10,18h} facade$ LOAEL value used in ES Chapter 12.</p> <p>To further support this position, Professional Practice Guidance: Planning and Noise (ProPG) (Ref. Association of Noise Consultants/Institute of Acoustic/Chartered Institute of Environmental Health (2017), Figure 1) presents an Initial Site Noise Risk Assessment, which sets out an indicative scale of potential effect based upon combined free-field noise levels from dominant traffic noise sources. Whilst only indicative, the descriptor 'adverse effect' is positioned alongside the 'low' risk section of the scale at around 55-60dB LAeq,16hr free-field (day) ('adverse' being aligned more with the LOAEL), whereas the term 'significant' adverse effect is referenced alongside the 'medium' section of the scale at around 65-70dB LAeq,16hr free-field (day) ('significant adverse' being aligned more so with the SOAEL). The lower 65 dB LAeq,16hr free-field noise level, once converted to a LA10,18hr, facade value, would be approximately 70dB. This is slightly higher than the 68 dB LA10,18hr, facade basis for the SOAEL used in the ES Chapter 12 Noise and Vibration [APP-057/Volume 6.1], but 10 dB LA10,18hr higher than that requested by the ExA Panel (see response to ExQ 3.7.2 below).</p> <p>In response to a query from the Applicant, the Chair of the ProPG working group has confirmed that no changes to ProPG were required as a result of the 2018 WHO Guidance because:</p> <p><i>"1. The new guidelines say the internal recommendations of the CNGs [community noise guidelines] remain valid.</i></p> <p><i>2. The new guidelines say use local/national research based dose responses where available in preference to the generalised recommendations of the new guidelines. We have DMRB, webTAG and SoNA 14.</i></p>

[1] It is assumed to be free-field

No.	Directed to	Question
		<p><i>3. The new guidelines are not formulated in the context of national policy and guidance.</i></p> <p><i>4. At a push the new guidelines can be regarded as NOELs/LOAELs as defined in national policy and guidance, although they are self reportedly not LOAELs as defined by WHO (which is a different definition to the NPPG which clearly states they cover average/typical response, rather than the WHO approach)”</i></p> <p>The Applicant does not consider it appropriate to link residents’ expectations to experience the ‘quiet enjoyment’ of their gardens at all (or any) noise levels to either the LOAEL or SOAEL ranges. Above the LOAEL, there will always be some element of “present and intrusive” noise (according to the Hierarchy to result in an adverse reaction. In any event, irrespective of the value of the policy SOAEL used in ES Chapter 12 Noise and Vibration [APP-057/Volume 6.1], the actual change in predicted noise level as a result of the operation of the proposed scheme is negligible or minor (less than 3 dB LA10,18hr) and ‘not significant’ for the purposes of the EIA Regulations at all receptors assessed. Therefore, residents’ ability to quietly enjoy their gardens is limited primarily by the existing ambient sound levels in the area (comprising major road and air transportation sources), rather than the change in noise level due to the proposed scheme.</p>

No.	Directed to	Question
3.7.2	Applicant and SMBC	<p>Noise policy and significant adverse effects:</p> <p>Our suggestion that an appropriate daytime SOAEL might be set at 60dB LA10,18h was based on the WHO Guidelines as indicated above, albeit with 3dB(A) added for simplicity and robustness. Those Guidelines have informed the definition of the NECs in the old PPG24 and they chime with some standards, eg BS 8233 2014. The distinction between the CNG and the ENG is more apparent than real. Not only does the latter largely confirm the level of the former (as indicated above), but also an important indicator of the latter is similar to the former, namely that 10% of the population is 'highly annoyed' by the noise of road traffic. It is recognised that the incidence of 'high annoyance' occurs at lower noise levels (providing the basis for a LOAEL) as well as the onset of ischaemic heart disease where 'road traffic noise is above this level'. The NPSE assiduously avoids identifying any standard. It states that: It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available. Hence, precedents should not automatically apply, and the Panel consider that an appropriate SOAEL should reflect the largely rural characteristics of the area and the residential nature of the affected settlements. Of course, the consideration of the economic and social benefits of this road scheme must be integrated with its adverse environmental effects. But that depends on properly balanced judgement. It should not entail a SOAEL set above a level masking evident significant adverse effects resulting in acknowledged material changes in behaviour. For those reasons, please re-assess the significance of the operational traffic noise effects against a day-time SOAEL set at 60dB LA10,18h.</p> <p>Answer:</p> <p>For the reasons set out in the introductory responses to ExQ 3.7.1 and based upon observations of the character of the area, the Applicant did not consider that the setting of a lower SOAEL was necessary or justified. Whilst the proposed development does pass through some areas currently more distant from major (motorway) road traffic noise sources than others, road traffic noise remains a broadly dominant feature of the existing sound</p>

No.	Directed to	Question										
		<p>environment. In addition, the acoustic character of the study area is also defined by intermittent overhead aircraft noise associated with the nearby Birmingham International Airport. Some other past and present major infrastructure projects, including A303 Amesbury to Berwick Downs, A303 Sparkford to Ilchester Dualling, A1 Birtley to Coal House Improvement and HS2 (various phases), pass through areas remote from existing major sound sources and comprise environments that may be more readily defined as 'rural', potentially allowing residents to 'quietly enjoy' their gardens. Nevertheless, the same or very similar SOAEL values have been adopted for those projects and are not adjusted based upon the changing nature of the environment throughout their study areas.</p> <p>Notwithstanding the above, in order to provide the additional information requested, the Applicant has undertaken further analysis of the DMRB noise assessment results the ExA's preferred lower SOAEL of 60dB $L_{A10,18h}$.</p> <p>Table 1 below reproduces Table 12-23 of the ES Chapter 12 Noise and Vibration [APP-057/Volume 6.1], which shows the number of sensitive receptors within the quantitative DRMB calculation area based upon SOAEL values of ≥ 68 dB $L_{A10,18hr, facade}$ (day).</p> <p>Table 1: Number of Residential Buildings above the 68 dB SOAEL (Daytime)</p> <table border="1" data-bbox="465 927 1126 1270"> <thead> <tr> <th data-bbox="465 927 748 995">Scenario</th> <th data-bbox="748 927 1126 995">Day</th> </tr> </thead> <tbody> <tr> <td data-bbox="465 995 748 1064">2023 DM</td> <td data-bbox="748 995 1126 1064">44</td> </tr> <tr> <td data-bbox="465 1064 748 1133">2023 DS</td> <td data-bbox="748 1064 1126 1133">36</td> </tr> <tr> <td data-bbox="465 1133 748 1201">2038 DM</td> <td data-bbox="748 1133 1126 1201">44</td> </tr> <tr> <td data-bbox="465 1201 748 1270">2038 DS</td> <td data-bbox="748 1201 1126 1270">40</td> </tr> </tbody> </table> <p>Based upon this assessment, there is a slight reduction in the number of residential properties predicted to experience noise levels above the SOAEL after scheme opening (i.e. 2023 DS is lower than 2023 DM and 2038</p>	Scenario	Day	2023 DM	44	2023 DS	36	2038 DM	44	2038 DS	40
Scenario	Day											
2023 DM	44											
2023 DS	36											
2038 DM	44											
2038 DS	40											

No.	Directed to	Question										
		<p>DS is lower than 2038 DM) during the daytime. In addition, there are no properties above the SOAEL predicted to experience an increase of ≥ 1 dB $L_{A10,18hr}$ as a result of the proposed development in the short term.</p> <p>Table 2 below presents results for the same residential properties within the quantitative DRMB calculation area based on the lower SOAEL values suggested by the ExA Panel of 60 dB $L_{A10,18hr, facade}$ (day).</p> <p>Table 2: Number of Residential Buildings above the 60dB SOAEL (Daytime)</p> <table border="1" data-bbox="465 576 1126 922"> <thead> <tr> <th data-bbox="465 576 750 644">Scenario</th> <th data-bbox="750 576 1126 644">Day</th> </tr> </thead> <tbody> <tr> <td data-bbox="465 644 750 713">2023 DM</td> <td data-bbox="750 644 1126 713">185</td> </tr> <tr> <td data-bbox="465 713 750 782">2023 DS</td> <td data-bbox="750 713 1126 782">182</td> </tr> <tr> <td data-bbox="465 782 750 850">2038 DM</td> <td data-bbox="750 782 1126 850">186</td> </tr> <tr> <td data-bbox="465 850 750 919">2038 DS</td> <td data-bbox="750 850 1126 919">185</td> </tr> </tbody> </table> <p>It is apparent that there is still a slight reduction in the number of residential properties above the SOAEL in the daytime, at this lower SOAEL (i.e. 2023 DS is still lower than 2023 DM and 2038 DS is still lower than 2038 DM).</p> <p>Also based on the lower SOAEL values of 60 dB $L_{A10,18hr, facade}$ (day) there are three residential properties that are predicted to experience an increase of 1.0 dB as a result of the proposed scheme, just at the ≥ 1 dB threshold. Based upon the significance of effects assessment methodology set out in ES Chapter 12 Noise and Vibration [APP-057/Volume 6.1], these residential properties (located on Shadow Brook Lane and St Peters Lane) 'may' be subject to a significant adverse effect for the purposes of the EIA Regulations, subject to the consideration of a range of other factors. For example, the properties are currently located closer to existing road traffic sources, including Catherine-de-Barnes Lane, than they are to the proposed link road.</p>	Scenario	Day	2023 DM	185	2023 DS	182	2038 DM	186	2038 DS	185
Scenario	Day											
2023 DM	185											
2023 DS	182											
2038 DM	186											
2038 DS	185											

No.	Directed to	Question
3.7.3	Applicant and SMBC	<p>Noise policy and significant adverse effects:</p> <p>The Panel agree that an external noise environment of 55dB $L_{Aeq,8h}$ would result in an internal level of about 30dB $L_{Aeq,8h}$ behind a closed single glazed window. ‘Having to keep windows closed most of the time because of noise’ is one characteristic of a SOAEL set out in the Noise Exposure Hierarchy (30-005-20190722). But although that identifies a ‘material change in behaviour’, it does not identify a level where the onset or incidence of that material change might occur. The WHO Guidelines provide some insight since they suggest that 45dB $L_{Aeq,8h}$ is the level at which the onset of sleep disturbance would occur inside bedrooms behind a partially open window. And, that level is confirmed in the latest WHO Environmental Noise Guidelines (2018), which indicate that the sleep of 3% of respondents is highly disturbed by external noise at roughly 45dB $L_{night} \approx 45dB L_{Aeq, 8hr}$. As above, there is no obvious reason why 45dB $L_{Aeq, 8hr}$ should not be the SOAEL in this location and in relation to the noise sensitive properties affected here; medical effects are not explicitly listed as a ‘descriptive characteristic’ in the Noise Exposure Hierarchy (although they do help to identify an ‘unacceptable adverse effect’) and a LOAEL of 40dB $L_{Aeq, 8hr}$ could still be appropriate.</p> <p>Hence, please provide any additional explanation necessary as to why a night-time SOAEL should be set at a level where more than 3% of residents would be likely to suffer a highly disturbed night’s sleep, unless sleeping behind closed windows.</p> <p>Answer:</p> <p>The Applicant considers that “the level at which the <u>onset</u> of sleep disturbance would occur inside bedrooms behind a partially open window” is aligned more with the LOAEL than a SOAEL. This is supported by the Hierarchy, which states that noise levels above the LOAEL can result in the “Potential for some reported sleep disturbance”.</p> <p>The Applicant maintains its position, based upon the responses provided above, that the night-time SOAEL values used in the ES Chapter are appropriate and robust for the proposed development.</p>

No.	Directed to	Question						
		<p>Furthermore, the Initial Site Noise Risk Assessment presented in ProPG (Ref. Association of Noise Consultants/ Institute of Acoustic/Chartered Institute of Environmental Health (2017) Figure 1), positions the descriptor 'adverse effect' alongside the 'low' risk section of the scale at around 45-50dB $L_{Aeq,8hr}$ free-field (night) ('adverse' being aligned with the LOAEL), whereas the term 'significant' adverse effect is referenced alongside the 'medium' section of the scale at around 55-60dB $L_{Aeq,8hr}$ free-field (night) ('significant adverse' being aligned with the SOAEL). The lower 55 dB $L_{Aeq,8hr}$ free-field night-time value is consistent with the SOAEL used in the ES Chapter 12 Noise and Vibration [APP-057/Volume 6.1].</p>						
3.7.4	Applicant and SMBC	<p>Noise policy and significant adverse effects:</p> <p>For similar reasons to those outlined above, please re-assess the significance of the operational traffic noise effects against a night-time SOAEL set at 45dB $L_{Aeq,8h}$.</p> <p>Answer:</p> <p>Notwithstanding the Applicant's position set out in its response to question 3.7.3, the Applicant has undertaken further analysis of the DMRB noise assessment results to test the effect of a lower SOAEL of 45dB $L_{Aeq,8hr}$, free-field (night)..</p> <p>Table 3 below reproduces the Table 12-23 of the ES Chapter 12 Noise and Vibration [APP-057/Volume 6.1], which shows the number of sensitive receptors within the quantitative DRMB calculation area based upon SOAEL values ≥ 55 dB $L_{Aeq,8hr}$, free-field (night).</p> <p>Table 3: Number of Residential Buildings above the SOAEL (Night-time)</p> <table border="1" data-bbox="465 1157 1126 1361"> <thead> <tr> <th data-bbox="465 1157 750 1225">Scenario</th> <th data-bbox="750 1157 1126 1225">Night</th> </tr> </thead> <tbody> <tr> <td data-bbox="465 1225 750 1294">2023 DM</td> <td data-bbox="750 1225 1126 1294">112</td> </tr> <tr> <td data-bbox="465 1294 750 1361">2023 DS</td> <td data-bbox="750 1294 1126 1361">95</td> </tr> </tbody> </table>	Scenario	Night	2023 DM	112	2023 DS	95
Scenario	Night							
2023 DM	112							
2023 DS	95							

No.	Directed to	Question														
		<table border="1" data-bbox="465 341 1126 480"> <tr> <td>2038 DM</td> <td>94</td> </tr> <tr> <td>2038 DS</td> <td>89</td> </tr> </table> <p data-bbox="465 501 2072 639">Based upon this assessment, there is a slight reduction in the number of residential properties predicted to experience noise levels above the SOAEL after scheme opening. In addition, there are no properties above the SOAEL predicted to experience an increase of ≥ 1 dB $L_{Aeq,8hr}$ as a result of the proposed development in the short term.</p> <p data-bbox="465 660 2042 735">Table 4 below presents results for the same residential properties within the quantitative DRMB calculation area based on the lower SOAEL values suggested by the ExA Panel of 45 dB $L_{Aeq,8hr, free-field}$.</p> <p data-bbox="465 756 1653 788">Table 4: Number of Residential Buildings above the Lower SOAEL (Night-time)</p> <table border="1" data-bbox="465 804 1126 1150"> <thead> <tr> <th>Scenario</th> <th>Night</th> </tr> </thead> <tbody> <tr> <td>2023 DM</td> <td>195</td> </tr> <tr> <td>2023 DS</td> <td>195</td> </tr> <tr> <td>2038 DM</td> <td>195</td> </tr> <tr> <td>2038 DS</td> <td>195</td> </tr> </tbody> </table> <p data-bbox="465 1171 2072 1235">Based upon the lower SOAEL values, all properties assessed are above the night-time SOAEL with or without the scheme.</p> <p data-bbox="465 1256 2085 1362">In addition, there are no properties above the SOAEL predicted to experience an increase of ≥ 1 dB $L_{Aeq,18hr}$ as a result of the proposed development in the short term. Therefore, no further significant adverse effects in EIA terms are identified as a result of the suggested lower night-time LOAEL.</p>	2038 DM	94	2038 DS	89	Scenario	Night	2023 DM	195	2023 DS	195	2038 DM	195	2038 DS	195
2038 DM	94															
2038 DS	89															
Scenario	Night															
2023 DM	195															
2023 DS	195															
2038 DM	195															
2038 DS	195															

No.	Directed to	Question
3.8	Population and Health ES Chapter 13:	
3.8.1	Applicant, SMBC and Open Space Society	<p>Assessment; footpaths:</p> <p>The Panel agree that the implementation of route A [REP3-018] under the DCO would be likely to entail a material change. Although that need not be an insurmountable obstacle to the scheme, it might be administratively easier to pursue the proposal in conjunction with SMBC. The response from SMBC would imply that they believe the current proposals to be adequate. Nevertheless, the Applicant and SMBC are asked to indicate whether or not a joint arrangement to implement route A might be pursued and, if the latter, why it is inappropriate to adhere to the policy set out in paragraphs 3.15-3.17 of the NPSNN in this particular case.</p> <p>Answer:</p> <p>Both SMBC and the Applicant are willing to explore further whether Route A could reasonably be delivered and the mechanisms that would be needed to secure the route. This will be subject to ongoing discussions between both parties.</p> <p>In any event, the Applicant considers that the steps it has taken in the Scheme design to address the needs of cyclists and pedestrians satisfies the expectation in paragraph 3.17 of the NPSNN.</p>
Transport Assessment Report [APP-174]		
3.9	The relationship to other projects and the robustness of the traffic modelling	
3.9.1	Applicant, SMBC and WCC	<p>The growth gap</p> <p>The Panel welcome the responses to ExQ 2.9.1. We now know that although the traffic forecasts for 2041 do not incorporate all the jobs envisaged in the emerging planned vision for Solihull, this scheme is expected to be an integral element to accommodate the overall growth currently anticipated, as follows:</p>

No.	Directed to	Question
		<p>Phase 1 Highway Works were completed in 2016 with the A45 South Bridge over the West Coast Main Line.</p> <p>Phase 2 are the improvements by the Applicant at Junction 6 of the M42.</p> <p>Phase 3 are works by HS2 and UGC to modify junctions on the A45, A452 and A446 due to start by the end of 2019 and to be completed before 2026.</p> <p>Phase 4 would be further improvements to address growth in the Hub area after 2026 and up to 2041 outlined in the UK Central Hub - Growth and Infrastructure Plan. These involve the provision of further road capacity, one potential solution being link roads on both sides of the motorway between the new M42 J5a and the existing J6 providing direct access to the UK Central Hub and the HS2 'Interchange Station'.</p> <p>Is this all the detail currently available? The need for the scheme identified in the Planning Statement includes facilitating the regional growth outlined in the UK Central Hub proposal [APP-173, paragraph 3.3.5]. And, one of the 4 objectives [paragraph 3.5.2] is to encourage continued investment in the regional economy and support new corporate, commercial and residential opportunities, including the proposals by UK Central. Also, a 'strategic objective' set out in the Statement of Reasons is to support new corporate, commercial and residential opportunities including proposals for UK Central [APP-018, paragraph 1.9.14].</p> <p>Hence, if it is available, please provide any further detail of how this scheme might integrate with currently envisaged proposals for future growth.</p> <p>Answer:</p> <p>Beyond the information reported in the Planning Statement and now contained within SMBC's emerging local plan, the Applicant does not have any further detail on proposed growth in the area or phasing. SMBC, as local planning authority for the area, is best placed to provide further detail on future growth plans and phasing.</p>