

**National Highways: A303 Amesbury to
Berwick Down Project, Development
Consent Order Application**

Scheme Reference: TR010025

Environmental Information Review

**Response to Secretary of State's call for further
representations on his Statement of Matters
Bullet Point 4**

for

**The Stonehenge Alliance
(Reference No. 2001870)**

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Prepared by:

Dr Kate Fielden

Andy Norfolk, Dip.LA, MSc.

with reference to submissions to the DCO Examination by:

Dr George Reeves, Clive Bentley and Rupert Thornely-Taylor

Response to Secretary of State’s call for further representations on his Statement of Matters Bullet Point 4: Environmental Information Review

Introduction

We address the new information considered by National Highways (NH) as supplement or ‘further information’ to that which it produced up to and including the Examination and post-Examination periods before 12.11.20. With the exception of environmental matters on which other submissions are made by Alliance specialists, we comment on aspects of this supplementary information in the order presented by NH in Document Reference ‘Redetermination – 1.4’, hereafter referred to as [‘NH 1.4’](#).

In addition to our response here, it is understood that National Highways (NH) has made no changes to the Scheme as Examined in 2019 ([NH 1.4](#), paras. 1.3.3–4) and we therefore ask the Secretary of State, in his reconsideration of the DCO application, to take into account all representations made by or on behalf of the Stonehenge Alliance to the 2019 Examination and the Secretary of State’s subsequent consultations.

1. Environmental Assessment Methodology: Legislative and Policy Framework

1.1. NH says that

‘Overall, the review of national and local planning policy has not identified any changes that would result in changes to the environmental information.’ ([NH 1.4](#), para. 1.4.1)

We suggest, however, that new *guidance* in respect of cultural heritage and landscape assessment argues strongly for reappraisal of certain environmental information supplied in the original DCO application, notably in respect of cultural heritage and landscape (see paras. 2.1–6 and Section 3, below).

2. Cultural Heritage (Covered by NH in NH 1.4, Section 3))

Legislative and Policy Framework (NH 1.4, Section 3.1.)

2.1. At NH 1.4, para 3.1.4, NH states that the revised national Planning Practice Guidance relating to the Historic Environment ([MHCLG, 2019](#)) clarifies the nature of harm to heritage assets and how this should be categorised. Although it is the decision-maker who judges whether substantial or less than substantial harm would be caused to a heritage asset, the guidance requires that ‘Where potential harm to designated heritage assets is identified, it needs to be categorised as either less than substantial harm or substantial harm (which includes total loss) in order to identify which policies in the [National Planning Policy Framework \(paragraphs 194-196\)](#) apply.’ (MHCLG 2019, para. 018)

2.2. It therefore appears that an applicant is now advised to inform the decision-maker of the level of potential harm (i.e., less than substantial or substantial) a development might cause to any designated heritage asset. However, NH has not categorized such levels of potential harm to individual designated heritage assets in its HIA; it simply reminds us, at NH 1.4, para 3.1.5, that

‘The revised PPG does not alter the application of the equivalent tests required under the NPSNN. The Applicant’s cultural heritage assessment remains consistent with the guidance and the changes do not alter the significance of the effects identified in the 2018 ES, or the conclusions reached on substantial harm / less than substantial harm in the NPSNN Accordance Table submitted with the DCO application as updated during Examination [APP-294].’

2.3. In its NPSNN Accordance Table A1 ([APP-294](#)) NH simply makes blanket statements of less than substantial harm. For example:

‘Less than substantial harm is anticipated to affect designated and non-designated assets, including those within the WHS and this is considered below as per NPSNN Paragraph 5.134. The Scheme does not identify any instance of ‘substantial harm’ or total loss of significance to a designated asset.’ (APP-294, p.A-95, ref. NPSNN para. 132)

2.4. Notwithstanding NH’s use of ICOMOS (2011) guidance in assessing impacts on heritage assets in its HIA, it would have been helpful, in line with the requirement of the NPSNN and the revised PPG, for NH to have revised its HIA to take into account not only the STT’s findings of significantly adverse impacts of the Scheme where NH have hitherto seen none but also to have supplied indications of the levels of less than substantial or substantial harm the Scheme might cause to each heritage asset.

2.5. It is, perhaps, its use of blanket statements on levels of harm in its assessments that led NH to anticipate, in respect of NPSNN para.5.134, that the Scheme would cause less than substantial harm to

‘the loss of archaeological remains within the Scheme footprint, which collectively contribute to the understanding of activity in this part of the WHS, but are not considered to contribute to OUV.’ (APP-294, Table A.1, p. A-97)

Road engineering would cause the total removal, i.e., loss, of an unknown quantity (some without full record) of currently ‘undesigned’ remains of sites of OUV Attribute 2: the physical remains of the Neolithic and Bronze Age funerary and ceremonial monuments and associated sites. That these remains should be arbitrarily dismissed as not contributing to OUV and their loss categorized as less than substantial is clearly illogical. Independent specialist archaeologists emphasise the exceptional importance of such sites in the proposed western and eastern cutting areas (see, e.g., comments by Dr Mike Parker Pearson, Professor of British Later Prehistory, Institute of Archaeology, UCL, in our submission on Alternatives at para. 5.3.5).

2.6. NH's assessments of less than substantial harm to heritage assets within the WHS (including the WHS itself) also lack credibility in view of its claim that substantial harm to WHS OUV would probably occur in respect of (alternative) Corridor A route options to the north of and *outside* the WHS:

'Corridor A would reduce severance within the WHS, and could also result in some benefit to the WHS. However, the harm it would cause to the setting of the WHS and key assets within it (e.g. Durrington Walls) mean substantial harm to the OUV of the WHS is probable and, on balance potential harm to the OUV of the WHS would outweigh the benefits associated with the removal of the A303.' ([NH 1.1.](#), para 8.2.2.)

This assessment of substantial harm also lacks credibility, viewed alongside NH's assessment of the less than substantial harm that would be caused by the Proposed Scheme to the WHS and its OUV by the massive western cutting and Longbarrow Interchange of the Proposed Scheme. It is simply not credible that a scheme which affects the setting of a heritage asset, whose impact is therefore reversible could be claimed to cause substantial harm whereas a scheme which includes irreversible physical destruction on a significant scale is somehow claimed to cause 'less than substantial harm'.

Assessment of setting (NH 1.4, paras. 3.2.16-18)

2.7. NH 1.4., paras. 3.2.17–18 mention relevant updated advice in LA 107 *Landscape and visual effects* (Highways England 2020). Pointing to Note 1 in [LA 107](#) (p.11), that

'effects on landscapes of historical, cultural or archaeological significance are assessed in LA 106 Cultural heritage assessment',

NH goes on to assert that its cultural heritage assessment therefore

'remains consistent with the guidance and the changes do not alter the significance of the effects identified in the 2018 ES.

This fails to acknowledge that the revised landscape assessment values required under LA 107 have significant implications for the cultural heritage assessment of the WHS landscape, including the settings of numerous heritage assets.

2.8. In its ES, NH considered landscape assessment without taking into account the exceptional nature of the WHS landscape:

'the ExA notes that the matrices adopted do not cater for 'international importance' or 'very high value' in assessing either landscape or visual baseline conditions (ES Appendix 7.2, LVIA Methodology [APP-222]). These are categories which seem appropriate for a WHS despite the Applicant's submission in paragraphs 4.1.2 to 4.1.5 of its Comments on Written Representations [REP3-013].' ([ExAR](#), para. 5.12.70)

2.9. Our own landscape specialist Andy Norfolk also pointed out this anomaly. As reported by the ExA, he

‘contends that the LVIA misrepresents landscape and visual effects and omits adequate mention of adverse impacts in summaries. In addition, significant locations and visitor receptors are ignored, such as those from the existing A303 which would become a PRoW, in the viewpoints considered [RR-1898]’. (ExAR, para. 5.12.43)

‘The SA observes [REP2-137] that the SoOUV for the WHS explicitly refers to interrelated monuments and their associated landscapes. The designation encompasses ‘landscapes without parallel’ as well as archaeological and cultural considerations and, were it to be designated now, it would be regarded as a ‘cultural landscape’. (ExAR, para. 5.12.44)

2.10. Despite these criticisms it appears that NH has not amended its approach to landscape assessment in relation to the Scheme as it would affect the cultural heritage of the WHS. Please see also Andy Norfolk’s contribution to this submission, below.

Photomontages (NH 1.4., paras. 3.2.19-25)

2.11. NH asserts that it followed relevant advice in the preparation and presentation of photomontages. Nevertheless, The Examining Authority in its report (ExAR) found that

‘During the course of the Examination, requests were made for further visual representations, principally through FWQ LV.1.9 [PD-008]. These were generally supplied, where technically possible. However, none of the requested night time representations were supplied, nor was the digital model of the site, requested by several interested parties, which would have allowed representations arising from free movement within the site. The Applicant has provided justification for withholding the digital model which the ExA understands, given the type of model used. However, three dimensional and virtual reality modelling is increasingly used to assist assessment and would have been particularly useful in this case.’
(Examining Authority’s Report ([ExAR](#)), para. 5.12.73)

2.12. NH has not attempted to remedy this situation to assist in the redetermination process. We note, however, that an ‘immersive virtual reality tool’ has been prepared for an anticipated WH Centre/ICOMOS advisory mission invited for this spring, enabling participants to ‘experience the state of the property on completion of the scheme’ (DDCMS, [State of Conservation Report](#), February 2022, p.19). This tool ought to have been presented by NH as a part of its ‘further information’, so that IPs might usefully comment on it: we hope that this omission will be remedied.

Baseline information and conclusion (NH 1.4, paras. 3.3.1-18; 3.4.1-4)

2.13. Section 3.3. of NH 1.4 deals with new archaeological records and assessments of designated and undesignated heritage assets identified since the Scheme Examination;

these have been added as supplementary to the baseline information for the Scheme. NH finds no changes to its overall assessment of impacts on the WHS or its OUV and heritage assets, arising from these new data and concludes (at NH 1.4, para. 3.4.1) that

‘The 2018 ES (including the HIA) and related environmental information remain consistent with the legislative and policy framework and assessment guidance. Assessment of updated baseline information (see Appendix 3.1 of this document) has identified additional likely significant effects (Large beneficial residual effects). The new assets in the baseline and the new beneficial likely significant effects constitute further environmental information, for consideration by the Secretary of State in his redetermination. In all other respects the baseline information (in the 2018 ES including the HIA and in the environmental information including the 2020 ES Addendum and HIA Addendum submitted in the post-examination period), remains comprehensive and the significance of the effects identified in the 2018 ES and the rest of the environmental information is not altered. Other than as identified here, there is no other further environmental information to be submitted for consideration by the Secretary of State in relation to this topic, in order for a decision to be made on the Scheme.’

Again, NH has noticeably failed to take into account the Secretary of State’s findings of significantly adverse impacts on the WHS’s OUV, authenticity, Integrity and certain heritage assets (see our submission on Alternatives at para. 2.9). All HIA assessments should have been adjusted accordingly and this has not been done, rendering the HIA unreliable for purpose.

2.14. Comments on WHS prehistoric sites and features are made in a separate submission to the Secretary of State’s Re-determination of the Application for Development Consent by the Consortium of Stonehenge Experts which we have seen and to which the Alliance gives its support.

3. Landscape and Visual (Section 4 of NH 1.4)

3.1. Section 4 of NH 1.4., dealing with Landscape and Visual issues, has been appraised for the Stonehenge Alliance by Andy Norfolk, Dip LA, MSc., who also made submissions on this topic to the Examination for the Alliance which remain relevant for the current consultation (see: [REP2-137](#) (Written Representation) and [REP4-056](#) (Response to Highways England’s comments (REP3-013) on Written Representation on Landscape and Visual Aspects of the LVIA (REP2-137))).

3.2. It is noted that the Applicant, based on *Technical Guidance Note 02/21: Assessing landscape value outside national designations* (TGN 02/21: the revision of LA107 (2020), which replaces DMRB Interim Advice note 135/10 (2010)), has reassessed the landscape receptors, noting raised sensitivity in 16 of them, 12 of which relate to the WHS (NH 1.4, para. 4.2.26 and Table 4.3).

It was argued by the Alliance at the Examination of the Scheme that inclusion of a very high sensitivity level in assessing landscape and visual impacts should have been done in the earlier assessments for the original Environmental Statement (see, e.g., our Written Representation [REP2-137](#), paras. 9-18 under 'Landscape and Visual Effects Methodology in the Environmental Statement (ES)'; and [ExAR](#) 5.12.43-48). This is now recognised by the Applicant:

“... there is a difference between LA107 and IAN 135/10 in the categorisation of visual sensitivity, mainly for the visual receptors within the WHS and with views of the WHS.” (NH 1.4, para. 4.2.33)

3.3. It is therefore difficult to reconcile acceptance in NH 1.4, para. 4.2.33 and Table 4.4 that there should now be higher (including very high) sensitivity categories for visual assessments with the clearly unreasonable statement in the same paragraph that

“...this change would not alter the 2018 LVIA methodology of a visual receptor's sensitivity being assessed via their value and susceptibility and that where a receptor's view was of the WHS, the receptor had the potential to be assessed at the highest tier of visual sensitivity.”

3.4. We also note that in NH 1.4, para. 4.4.3 NH says that, despite changes in methodology resulting in the identification of higher significant effects, this is not due to a change in professional judgement. If that is the case, how and why are these higher significant effects now judged appropriate?

3.5. The Examining Authority pointed out

“The ES provides short general narratives in section 7.9.6 onwards and 7.9.80 onwards of Chapter 7, Landscape and Visual [APP-045] but not of the effects on individual receptors in specific detail. Instead, it relies to a large extent on a standardised tabular evaluation. Moreover, the ExA notes that the matrices adopted do not cater for 'international importance' or 'very high value' in assessing either landscape or visual baseline conditions (ES Appendix 7.2, LVIA Methodology [APP-222]). These are categories which seem appropriate for a WHS despite the Applicant's submission in paragraphs 4.1.2 to 4.1.5 of its Comments on Written Representations [REP3-013].” ([ExAR](#) 5.12.70)

That the Applicant now puts forward revised, higher values for receptor sensitivity relating to the WHS, including eight judged to be of “very high value”, must be considered a radical and significant change in assessment and cannot be dismissed by the Applicant as irrelevant and leading to no change in overall assessment.

3.6. Nevertheless, despite revised guidance and value assessments, the LVIA part of the ES has not been significantly altered to take into account the new receptor sensitivity levels. Our original criticisms of the ES in respect of landscape and visual effects, and our conclusions about the significant adverse impacts of the proposed scheme therefore remain unchallenged by this new review. They also concur with the findings of the ExA in respect of

landscape and visual impacts (e.g., [ExAR 5.7.1](#) (link to OUV attribute 6); 5.12.112-19 and 5.12.149 (Longbarrow Junction, the western approach cutting, and portal); 5.12.126-142 (eastern portal, cutting, and Countess Roundabout); and 10.2.6 (Consideration of findings and conclusions: “*considerable harm to landscape character and visual amenity*”)).

3.7. The Examining Authority states that

“In accordance with NPSNN, paragraphs 5.149 and 5.157, the adverse landscape and visual impacts are matters that the SoS should consider and judge in reaching his decision. These considerable harms fall to be weighed in the overall planning balance.” (ExAR 7.2.55)

3.8. In the absence of detailed advice on LVIA from Historic England which may in any case not have the specialist expertise to provide it, the SoS has the benefit of independent advice from the Examining Authority. Were the Examination to be re-opened, as we believe it should be, in order to consider the further information supplied by the Applicant, the views of the Examining Authority (and others) on LVIA might well be strengthened in the light of the raised “very high” values the Applicant now supplies for visual receptors relating to the WHS.

3.9. There seems to be an entirely unwarranted assumption on behalf of the Applicant that people will become accustomed to changes in the WHS landscape so that their long-term impacts will be lessened. This is not correct. The Longbarrow junction adjacent to the World Heritage Site would have a lasting and significant effect on the way the WHS is perceived – it would continue to be a very large modern engineering structure right beside a landscape designated for its prehistoric archaeology and deliberate disposition of monuments and sites. This would result in a jarring contrast and adversely affect the settings of the WHS and its heritage assets, contrary to Policy 1d of the WHS Management Plan (WHSMP) that “*Development which would impact adversely on the WHS, its setting and its attributes of OUV should not be permitted*”. Indeed, the Secretary of State himself found that when viewed from above, the Longbarrow Junction would ‘dwarf all other individual features, including the Stones’ (ExAR 5.7.243 and adopted by the SoS at his Decision Letter, para.10). Large modern engineering structures within the WHS (recognised as a ‘landscape without parallel’ for its prehistoric remains) such as the road cuttings would also have an enduring effect on the way in which the WHS and the interrelationships between the prehistoric components of its landscape are perceived. Those who visit the WHS will expect to see a coherent cultural landscape, not one with incongruous and very large engineering structures imposed upon it (see, e.g., [REP2-137](#), paras. 30-31; and 41-42).

3.10. Article 4 of the World Heritage Convention (1972) says:

“Each State Party to this Convention recognizes that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage referred to in Articles 1 and 2 [i.e. World Heritage Sites] and situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where

appropriate, with any international assistance and co-operation, in particular, financial, artistic, scientific and technical, which it may be able to obtain.”

3.11. One of the reasons for the Stonehenge World Heritage Site’s designation is due to its historic landscape. Criterion (iii) in its designation states ‘The complexes of monuments at Stonehenge and Avebury provide an exceptional insight into the funerary and ceremonial practices in Britain in the Neolithic and Bronze Age. Together with their settings and associated sites, they form landscapes without parallel.’

The synthesis of the Statement of Outstanding Universal Value for the [WHS Management Plan](#), (WHSMP), p. 26ff.) explicitly refers to interrelated monuments and their associated landscapes. The WHS designation is not only an archaeological and cultural designation, but were it to be designated now it would be specifically a cultural landscape designation (see WHSMP, para. 2.2.3). With respect to the consideration of landscape and visual effects it is clearly an internationally valued landscape.

The Stonehenge World Heritage Site Management Plan (WHSMP) says in Policy 1d that *“Development which would impact adversely on the WHS, its setting and its attributes of OUV should not be permitted”*

3.12. The National Policy Statement for National Networks (NPSNN) in paragraphs 5.131 and 5.132 recognises that World Heritage Sites are heritage assets of the highest significance and that substantial harm to them should be “wholly exceptional”.

Given landscape value was a key criterion in the reason for the designation of the WHS, the WHS should be treated as akin to a nationally designated site as set out in NPSNN 5.150. This is supported by the new technical guidance note listed above. As such, permission should be refused except in exceptional circumstances where it can be demonstrated to be in the public interest (NPSNN 1.151).

3.13. Further, and in any event, clearly the effects of the proposed highway engineering works within, and adjacent to, the WHS require a proper recognition of its status. That this should be so is recognised in the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3). See GLVIA3 5.21 and 5.45 for reference to internationally acclaimed landscapes.

There would be significant adverse landscape and visual effects that could not be mitigated. These include the imposition of extremely large highway engineering structures into what should be a landscape with the highest level of protection, which would impact *adversely on the WHS, its setting and its attributes of OUV*. These harms would significantly outweigh any benefits.

4. Biodiversity (Section 5 of NH 1.4)

*Environmental Information
Baseline*

4.1. It is noted that updated baseline ecological surveys and reports have been produced on certain plant and protected animal species (NH 1.4, para 5.3.1). We are strongly of the opinion that the content of these reports needs to be tested by independent experts, in a re-Examination context. Assurance by NH that agreements will be reached and licences sought between NH and/or the Contractor and Natural England are not sufficient to ensure that suitable mitigation is in place. For example, we consider below our own concerns about just two of the surveys (Butterfly and Great Crested Newt) undertaken since the Examination, the latter outside the WHS.

Butterflies (cf. Butterfly and Pollinator Survey Report (2020) Document reference: Redetermination 2.8 ([NH 2.8](#)))

4.2. The butterfly report is the first we have seen in connection with the Proposed Scheme. It 'outlines the methodology and results for the butterfly and pollinator pre-construction baseline survey for the Scheme' and was carried out in 2020 (NH 2.8, para. 1.1.3.). It is mentioned (*ibid.*, para.1.1.2) that

'The Scheme will lead to a loss of existing arable habitat and some associated field margins but will create extensive new calcareous grassland adjacent to Parsonage Down Site of Special Scientific Interest (SSSI), and extending along much of the new highway. This together with some new planting of woodland is expected to increase the habitat available for butterflies and other pollinators and improve connectivity to help species move west to east to colonise other areas of habitat.'

It should be pointed out, however, that the intended benefits would not be achieved until some years after start of construction, during which time, ground works, dust etc. would cause considerable disturbance and loss of habitat. No assessment has been made of this.

4.3. Section 2.5 of the report deals with survey limitations. These include:

*'The survey provides an indication of the butterfly population within proximity to the Scheme, it is likely that not all butterfly species present were recorded. In addition, **as the surveys were undertaken in July and August the adult flight periods for several butterfly species were missed.** This included key calcareous species including **marsh fritillary** (mid-May to late June), **Duke of Burgundy** (mid-April to mid-June) and the first brood of small blue (early May to late June). Also missed were some common butterfly species such as orange-tip (*Anthocharis cardamines*) (April to June). This is not considered a significant limitation as an assessment of the habitat was undertaken to determine its suitability as breeding habitat for the identified key calcareous butterfly species. The survey was not intended as a comprehensive record of butterfly species throughout a whole season.'* (NH 2.8., para. 2.5.1; our highlighting, including that of fully protected marsh fritillary)

Despite admission that this was not a comprehensive survey and the reasons given why that was not considered significant, it has to be asked whether more definitive (indeed

potentially vital in respect of protected species) information might have been obtained at the optimum period for key calcareous species.

4.4. Furthermore, it is admitted that

*'As the surveys were undertaken at the end of the summer (July and August) in 2020, many of the flower species had gone to seed, giving a relative lack of available flowers to survey. As such, **it was not always possible to survey the target flower species** . . .'* (NH 2.8, para. 2.5.2; our highlighting)

Again, the shortcomings of the survey are rationalised and justified but it appears to us unsatisfactory that the survey was not conducted at the right time of year when very different results might have been obtained. Indeed, given the time since the DCO application was made, there appears little excuse for such a limited survey to assist the application at this late stage.

4.5. We are of the opinion that the survey does not supply a suitable monitoring baseline; nor one which might be used 'to determine whether the baseline is considered to have materially changed compared to the baseline in the 2018 ES' (NH 1.4, para. 5.3.4). We have found no butterfly survey undertaken by NH earlier than 2020 so there is, apparently, no 2018 baseline data for butterflies.

Great Crested Newt: (cf. Great Crested Newt Survey Report (2021) Document reference: Redetermination 2.7 ([NH 2.7](#)))

4.6. We note that one pond in the Till valley ('waterbody 1') within 500m of the Scheme has a breeding population of great crested newts (*Triturus cristatus*; protected under the Habitats Regulations 2019) and that '*the Scheme will cause temporary loss of some of the terrestrial habitat used by the newts*' (NH 1.4, para 5.3.32). The same paragraph goes on to say:

'Great crested newt surveys (Habitat Suitability Index (HSI), eDNA, and population surveys) were undertaken between February – June 2021 to update the previous baseline and inform any further mitigation / licensing requirements. Some changes in routing a water pipeline and change in the population size mean that a European Protected Species licence will be required, for the temporary site clearance in the Till valley, but it does not change the assessment in the 2018 ES. There was possible requirement of a European Protected Species Licence depending on the final detailed design and utilities requirements and updating surveys, stated in the OEMP, PW-BIO2.'

4.7. NH states that

'Waterbody 1 contained a known population of great crested newt. The previous surveys [2017-18] indicated that the population size class was 'Small' (with a peak count of 10 adults). The 2021 update surveys had a peak count of 103 adult male

great crested newts and 59 adult female great crested newts (total peak of 162) and assessed as a population class estimate of 'Large'. (NH 1.4, para.5.3.36)

And, in view of varying climatic and local conditions,

'it is likely that the breeding population of great crested newts will also fluctuate in response to the conditions in both the current year and the breeding success in previous years. Any subsequent updating surveys may show population size class similar to this year, or down to Medium or Small size class. The 2021 survey confirms continuity of use of the waterbody by great crested newts and the growth of the population from a 'Small' to a 'Large' population size class. This increase in population is not considered to be a material change in the baseline' (NH 1.4, para. 5.3.37). This last observation seems surprising, in our view.

4.8. However,

'Due to some slight changes associated with the Preliminary Works (bringing certain activities associated with the installation of the water pipeline closer to Waterbody 1), it will be necessary to apply for a great crested newt European Protected Species Licence. This change in the outline of the Preliminary Works, is a minor change that will be appropriately addressed via the European Protected Species Licencing process and has already been discussed with Natural England during preparation of the licence application. It does not give cause to alter the assessment of impact recorded within the 2018 ES.' (NH 1.4, para. 5.3.38)

4.9. We are reminded at NH 2.7, para.1.2.4 that

'Actions which are prohibited by legislation can be made lawful on the approval and granting of a licence from Natural England (NE), subject to conditions.'

In view of the intended changes in preliminary works, it is necessary to know precisely where these works would take place in relation to waterbody 1, what they are and what potential disturbance they would cause to this apparently significant protected newt population. This is environmental information which should have been supplied to all interested parties for independent consideration, along with any potential licencing conditions that might be required.

4.10. The survey limitations include the fact that a large number of identified waterbodies were not surveyed or were ruled out for one reason or another (NH 2.7, para. 2.5.1). Apparently 14 of 18 identified waterbodies were not surveyed (*ibid.*, Table 4). NH remarks that

'As with many ecological surveys, the effectiveness of these surveys is subject to a range of seasonal, environmental and behavioural factors. The absence of evidence of a particular species in a survey should not be taken as conclusive proof that the species is not present or that it will not be present in the future.' (*ibid.*, para. 2.5.3).

The newt survey exercise, along with intended change to the impact of the Scheme on their habitat, leaves uncertainty surrounding mitigation and the proper protection of the species. Thus, NH has not provided sufficient evidence to establish the environmental impact of the proposal and to enable the Secretary of State to reach a decision.

4.11. In respect of butterflies and great crested newts, at least, we cannot be confident in NH's methodology or assertions that

'The updated surveys have informed protected species licensing requirements and update mitigation measures. The surveys have not resulted in any changes to the Biodiversity baseline that would lead to a change in the value of the ecological receptors identified during the 2018 ES or give cause to alter the ecological impact assessment within the 2018 ES or the Habitat Regulations Assessment.' (NH 1.4, para. 5.3.52)

Nor can we agree NH's conclusion that

'This section has . . . found that the conclusions of 2018 ES and the rest of the environmental information remain valid and that therefore in combination with this report, the environmental information is adequate. No further or updated environmental information is required to be submitted for consideration by the Secretary of State in relation to this topic, in order for a decision to be made on the Scheme.' (NH 1.4, Para. 5.4.1)

These conclusions are not based upon robust evidence as is clear from the text of the surveys themselves. This inevitably leads us to question the adequacy of the information supplied on biodiversity.

5. Noise and Vibration (Section 6 of NH 1.4)

5.1. Concerning noise and tranquillity, we refer the Secretary of State to submissions made by our specialist Clive Bentley to the Examination: [REP2-132](#) (Written Representation); and [REP6-063](#) ('Response to ExA's Second Round of Written Questions and information sought on Tranquillity'). He concludes that the Scheme would not bring hoped-for tranquillity for most visitors to the henge.

5.2. In respect of vibration, we refer the Secretary of State to the submissions of our specialist Rupert Thornely-Taylor ([REP2-138](#): 'Written Representation on Principal Issue 11 Vibration from tunnel boring'); and Dr George Reeves (e.g., [REP4-087](#) ('Summary of oral presentation and submissions to ISH 4 on water, geology etc. and ISH 5 on noise, vibration etc.', Sections 3-4; and [REP4-056](#) (Response to Highways England comments (REP3-013) on Written Representation REP2-131 on Flood Risk, groundwater protection and land contamination, pp.23 and 24 of 35).

5.3. The problem of potential damage to archaeological remains resulting from vibration of the tunnel boring machine was not fully resolved at the Examination stage and appears not to have been further addressed by NH in the interim.

5.4. We understand that geotechnical and groundwater reports now supplied by NH still do not give our specialist Dr Reeves confidence that damage to archaeological remains would not arise owing to the impacts of tunnelling. In 2019, he advised that:

'During tunnelling, vibration may cause induced fracture migration and settlement in overlying strata transmitted upwards towards the surface. In the extreme, subsidence could migrate to surface levels, resulting in sinkholes and/or compaction. Grout migration from the TBM systems could lead to extensive permanent areas of Chalk with lowered permeability. The potential loss of fissures, fractures, void spaces, burial features, galleries, tunnels and shafts, at present undiscovered and unidentified, either by grout injection, settlement or the combined effects of both processes, could lead to the permanent loss of potentially important archaeological features. Similar detrimental effects of settlement and grout migration may also cause problems in land drainage and surface/shallow subsurface drainage systems.' ([REP4-056](#), 'General and Cross-topic': 17.1, p.23 of 35)

Dr Reeves is still of that opinion in April 2022 (please see his separate submission for the Alliance on 'Geology, Ground Investigation and Groundwater Monitoring').

5.5. The ExA reported in 2020 that

'The ExA has concerns about the harm to archaeology through either settlement or vibration, and about the efficacy, control, and consequences of remedial actions were they necessary. It addresses these matters in the Noise and Vibration section of the Report.' (ExAR, para. 5.7.192)

'Vibration effects on archaeological remains also became an important factor considered by the ExA having been raised by several IPs including ICOMOS UK [REP6-055] and the Stonehenge Alliance [REP8-054]'. (ExAR, para. 5.13.101)

'As the Examination progressed it became apparent that the issue of vibration and ground movement as a consequence of the tunnelling was a significant factor that needed to be addressed.' (ExAR, para. 5.13.139)

'The Applicant observes that there are no standard criteria for protecting heritage assets from settlement or vibration. It follows that a bespoke system of mitigation and protection must be adopted, responding to the particular nature of the assets.' (ExAR, para. 5.7.46)

5.6. Nevertheless, the Applicant was confident that

'With regard to any heritage assets located above the line of the tunnel, any potential effects "would be managed through the placement and operation of tunnel movement monitoring stations." as required by the OEMP.' (ExAR, para 5.13.59)

Saying,

'The Ground Movement Monitoring Strategy (GMMS) required by OEMP MW-CH8 [AS-129] allows such a system to be developed in consultation with Wiltshire Council, Historic England and HMAG. It would be approved by the SoS as part of the CEMP, through Requirement 4(8) of the dDCO [AS-121]. The GMMS would establish trigger levels, develop contingencies, and identify measures and responsibility for remedial actions, in consultation.' (ExAR, 5.7.47)

Even though

'The form the monitoring installations would take is not yet agreed, and there are no agreed standards of acceptability, in terms of the effects on archaeological remains, for either settlement or vibration. The DAMS indicates that the GMMS would be subject to consultation with Wiltshire Council, Historic England and, for sites within or affecting the WHS, HMAG.' (ExAR, para. 7.190)

5.7. Concerning responsibilities for monitoring and any remedial action, the ExA reported:

'OEMP MW-CH8 states that the Applicant would be responsible for accepting the GMMS following consultation. Since the GMMS would be appended to the CEMP, approval would be given by the SoS under dDCO Requirement 4 before tunnelling operations begin. However, under OEMP MW-CH1, the HMP (which would be approved by Wiltshire Council) would address ground vibration and ground movement/subsidence, and archaeological mitigation measures deployed for the installation of the movement monitoring stations.' (ExAR, para. 5.7.191)

'Historic England consider it would be appropriate to agree a methodology to identify any significant deviation from the model to enable decisions to be taken to protect archaeological remains.' (ExAR, para. 5.13.142)

And, without full knowledge of the potential impacts of tunnelling through the unique geological conditions of the Stonehenge WHS, Historic England

'go on to advise that if the modelling conducted provides a robust and reliable baseline against which decisions could be made, based on experience from elsewhere the degree of settlement would be unlikely to adversely affect archaeological remains.' (ExAR, para. 5.13.141)

5.8. the ExA apparently decided, despite concerns expressed by our specialist Dr Reeves (see para. 5.4., above) and lack of any known methods of preventing ground movement or subsidence resulting in damage to archaeological remains, let alone in such conditions as exist in the WHS, that:

'In respect of the vibration effects that could occur the ExA are satisfied that with the appropriate mitigation in place as secured through the OEMP and dDCO that no significant adverse effects would occur, and that the development would comply with the requirements of the NPSNN, NPPF and local planning policies.' (ExAR, para. 5.13.156)

5.9. We consider this surprising conclusion to be not only contrary to the ExA's earlier stated view that it

'has concerns about the harm to archaeology through either settlement or vibration, and about the efficacy, control, and consequences of remedial actions were they necessary.' (ExAR, para. 5.7.192)

but also irrational in the light of the multiplicity of unknowns surrounding the matter and how it should be addressed, particularly in such an exceptional case where the archaeological remains are of international significance.

5.10. We are naturally concerned, given the above, that NH has not brought forward, since the Examination and in consultation with Wiltshire Council and others, a convincing method for

- a) monitoring tunnelling impacts on the geology and archaeology of the WHS;
- b) anticipating and preventing adverse impacts before any damage might occur; and
- c) dealing with any damage that does occur.

We remain convinced that this is a key issue of concern which continues to be unallayed and remains to be properly resolved.

6. Geology and Soils (NH 1.4, Section 7); Road Drainage and the Water Environment (NH 1.4, Section 8); and relevant Technical Reports

Please see separate submission on 'Geology, Ground Investigation and Groundwater Monitoring' made on behalf of the Stonehenge Alliance by Dr George M. Reeves.