A303 Amesbury to Berwick Down

TR010025

Volume 8

Deadline 9
8.60 – Scientific Committee Meeting Minutes

APFP Regulation 5(2)(q)

Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

September 2019

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

A303 Amesbury to Berwick Down

Development Consent Order 20[**]

Scientific Committee Meeting Minutes

Regulation Number:	Regulation 5(2)(q)
Planning Inspectorate Scheme Reference	TR010025
Application Document Reference	8.60
Author:	A303 Amesbury to Berwick Down Project Team, Highways England

Version	Date	Status of Version
Rev 0	25.09.2019	Deadline 9 Issue

Table of Contents

05 October 2017

Minutes **A303 Stonehenge – Amesbury to Berwick Down**

Title:	**Scientific Committee**				
Date:	05 October 2017	**Time:**	10:30 – 16:30	**Location:**	Holiday Inn, Solstice Park, Amesbury, Wiltshire SP4 7SQ

Attendees:

Scientific Committee

[redacted]

HMAG

[redacted]

Secretariat

[redacted]

Presenters

[redacted]

Apologies

[redacted]

Chair: [redacted]

Agenda Item	**Action**
Review and Discussion of Terms of Reference and Working Arrangements	
Terms of Reference • All attendees confirmed that that they did not have any contracted affiliation with any other organisation for the provision of advice relating to the Stonehenge WHS or the scheme being promoted by Highways England. It was requested that any such affiliations be made known to the committee if they occur. • The committee agreed to record that membership of the committee does not imply any form of agreement to the A303 Stonehenge scheme proposed by Highways England. • A discussion was held over the composition of the committee. Highways England explained that those asked to be on the committee were chosen to cover a wide variety of relevant specialisms based on advice received from a variety of heritage organisations. • The committee had been constituted to represent individuals' views and not those of organisations or organisations that members may be part of. • It was noted that HMAG has already been involved in providing advice to Highways England as part of their statutory consultees' role. • Concerns were raised that HMAG would filter the committee's advice. HMAG confirmed that they would not filter the range of views expressed by the committee and that the committee's views would be made public through the publication of the minutes of any Scientific Committee meeting. • It was agreed that the committee can ask for specific third party advice to	

ensure relevant expert advice can be incorporated into the committee's advice. • Subject to some minor amendments, the Terms of Reference of the Scientific Committee were agreed. The revised Terms of Reference are attached to these minutes. • The committee discussed the creation of a dedicated website that would hold all the documentation relating to the committee and its workings. The information of the website would be made available to anyone wishing to access it. • Further consideration needs to be given to the handling of working documents v publically accessible documents. • MK-P agreed to look at options for the creation of the website. • A proposal that David Field should be invited to the Scientific Committee was accepted. Highways England will invite David onto the committee. • With respect to press releases, it was agreed that the committee should be consulted on any proposed releases by Highways England, with the chair having final 'sign off' on any press release. • The frequency of meetings was discussed. It was agreed that a programme of regular quarterly meetings should be set up with additional meetings arranged on specific topics as required. • Discussion was held on the meetings' quorate. It was agreed that a quorate would be reached with a minimum of 7 members of the committee attending, not including members of HMAG. • Consideration will be given to future meetings being held in suitable city centres with a train station for ease of access.	**M P-K** **Highways England** **Highways England**
Presentation by Highways England of; **a. The design development to date, including key constraints and likely principal asks of the committee.** **b. The scheme programme, process and constraints.**	
Through the presentation Highways England explained that: • The scheme needed to balance the four scheme requirements of transport, economic growth, cultural heritage, and environment and communities • The route had been modified from that taken to consultation to address issues raised as part of the consultation process • The line of the preferred route had been chosen to minimise direct impact on buried archaeology • The A303 must remain open throughout the construction phase as there are no suitable diversion routes • Highways England will be seeking advice from the committee on the portals' design and road infrastructure through the WHS and how best to mitigate the impact on the OUV of the WHS. • Highways England will present visualisation of the options for consideration by the committee. • The scheme is working to a programme that has statutory consultation commencing in February 2018 with the DCO submission in September 2018.	**Highways England**
Q&A on presentation	
• The committee asked whether the western portal could be located outside of the WHS. Highways England explained that due to topographical constraints (the portal needs to exit in a hill face); the nearest alternative portal location would be over 500m to the west of the existing Longbarrow roundabout. • This would add another 2km to the length of the tunnel and add over £600m to the cost of the scheme. This would make the scheme unaffordable and would reduce the value for money assessment (Benefits to Cost Ratio) of the scheme below the threshold required for it to progress.	

• The committee expressed the view that the benefits to the WHS of a longer tunnel would outweigh the additional construction costs due to the unique setting of the WHS. It was a once in a lifetime opportunity that warranted the additional expenditure and that the opportunity should exist to present this argument to the government. • In discussion it was noted that by promoting a tunnel solution, the government is already committing to spend over £1bn on heritage improvements to the WHS above the do minimum solution of an at-grade dual carriageway through the WHS. • A discussion was had regarding the setting of the barrows in the vicinity of the A360 junction. It was agreed that diverting the A360 to the west of the existing junction will improve the setting of these barrows. • Highways England introduced the concept of green bridges to provide connectivity across the new A303. The committee recommended that a suitable location for one of these bridges would be at the Longbarrow Junction along the line of the existing A360. • The committee asked whether the width of the bridges and their frequency could be extended to provide more coverage of the new A303 through the WHS. • Highways England explained that there are limits on the width of the bridge before it is considered a tunnel. At the meeting this length was given as 200m, subject to further confirmation. *Post Meeting Note –"A road tunnel is a subsurface highway structure enclosed for a length of 150m, or more" - ref: DMRB, Vol 2, Section 2, Part 9, BD78/99, clause 1.2.* • A discussion took place on whether the road through the WHS at the western end should be in cut to hide the traffic from critical views or at existing ground level, and whether if in cut the cut slopes should be formed of soft green slopes or engineered vertical walls. • Having the new road at existing ground level would allow part of the existing A303 to be used as the eastbound carriageway in the final road layout. This would minimise the amount of new construction within the WHS. • The committee was of the view that having traffic visible would not outweigh the benefit of re-use of the existing carriageway and would have a greater adverse impact on the OUV. • Having the road raised above existing ground level such that the existing archaeology is protected below the new road construction was also not considered a suitable option for similar reasons. • Minimising the footprint of the road within the WHS was a key requirement. • The committee therefore ruled out the use of soft cut slopes through the WHS as these would more than double the width of the cut, and advised that the cut should be formed with vertical walls. • To soften the visual impact at the top of the walls, a short height of soft slope would be desirable. • Highways England will present the visual impact of the scheme in cut through the WHS with the incorporation of green bridges where the bridges provide beneficial mitigation to any adverse impacts and seek the committee's further views at a future meeting.	**Highways England**
Presentation on archaeological work done to date	
• Andrew Holmes presented the extent of the geophysical work (Gradiometer and targeted Ground Penetrating Radar) undertaken through the Options Phase of the scheme leading to the announcement of the Preferred Route. • Andrew Manning then presented the results of the trial trenching field evaluation. • Copies of the available Geophysical and Evaluation reports were handed over to the members of the committee.	

Q&A on presentation	
• The committee challenged the amount of top soil sampling that had taken place during the trial trenching and there was a general view that the percentage sampling should have been higher. • It was agreed that the Evaluation Strategy would need to include an agreed top soils sampling standard for future work.	
Outline discussion of Archaeology Principles and Strategy going forwards	
• A draft of the proposed Archaeological Evaluation Strategy is to be issued in the next few weeks for review and comment by the committee. • It was agreed that any soil disturbance to any areas in the WHS will be subject to appropriate archaeological investigation. • Following earlier discussions it was agreed that 4% soil sampling should be the minimum. • Committee members with specialist views and experience of soil sampling were asked to forward their ideas to M P-K • The committee would also like other testing methods such Geochemical, Resistivity and Electro Magnetic techniques to be considered within the strategy. • Walkover surveys and hill wash methods (rain or artificial wash) were advised. • There was agreement that all reports on archaeological investigations undertaken are to be prepared in line with appropriate publication standards within three years of completion of the excavation works.	**Various**
AOB	
• Phil McMahon raised the need for immediate work on the Wilsford G1 barrow and that the evaluation strategy for this work will be circulated to the committee for comment in the near future. • Phil McMahon offered a full landscape tour to supplement the shorter tour that had been organised for the day. A selection of dates will be provided.	**Phil McMahon**
Tour of the site • Following the meeting a number of the committee members were taken on a tour of the site to view the landscape from various critical viewpoints and to begin to get a better understanding of where the proposed new road will sit within the Stonehenge landscape.	

16 November 2017

Minutes **A303 Stonehenge – Amesbury to Berwick Down**

Title:	**Scientific Committee**				
Date:	16 November 2017	**Time:**	10:30 – 16:30	**Location:**	Holiday Inn, Solstice Park, Amesbury, Wiltshire SP4 7SQ

Attendees:

Scientific Committee

[redacted]

HMAG

[redacted]

Secretariat

[redacted]

Presenters

[redacted]

[redacted]

Chair: [redacted]

Agenda Item	**Action**
Welcome	
• No comments on the minutes from the previous meeting	
Presentation and Discussion around the website for the Scientific Committee	
• Presentation by MPK: why the website was created, the website layout and the ownership of the website. • Confirmation that the designer, Chris Franklin, is independent from Highways England, HMAG and the Scientific Committee. • A discussion was held over the 'members only area' – an aura of secrecy is not desirable – a description of what is held in the area should be added to the home page. • Feedback for the website to be sent to MPK by email. • The website will be live before the next Scientific Committee meeting. • Note from Melanie Pomeroy-Kellinger: We would be grateful if members of the Committee could open the following link and have a look at the draft web site. [redacted] The site is not live yet so you will need to enter the [redacted]: [redacted] We hope to go live with the web site when we have received feedback from the Committee, hopefully by the end of the year at the latest. Can you please let us know: what you think and any areas for improvement, any additional photos or images you would like included, and most importantly a little biography (max 100 words) of yourselves with a photo. Could you please also confirm what title you would like to be used on the web site e.g. Dr, Prof etc. Please can you pass all feedback and information to go onto the web site by 15th December directly to melanie.pomeroy-kellinger@wiltshire.gov.uk	

Minutes **A303 Stonehenge – Amesbury to Berwick Down**

Tour of the Landscape	
• AThe Eastern and Western Portal locations were viewed from NT land • The topography and route were discussed at each location in relation to the principal monument groups. • The potential visibility of the portals and approach cutting was discussed. • The potential for colluvium to be present at the portal locations was also discussed. •	
Presentation on the Evaluation Strategy by AmW	
• Presented the provisional Red Line Boundary (RLB) - as well as the road line itself the boundary includes possible compound areas. • Confirmation that not all land within the RLB will be required for construction. • CM pointed out where the landscape tour took place in regards to the RLB. • The Strategy sets out a series of principles for evaluation based on those published in the WHS Management Plan, reviews the extent, scope and robustness of previous surveys/evaluation along the route, and proposes a programme of further evaluations to augment the results of previous work. • CM presented previous surveys in the RLB relating to the 2004 scheme as well as the current Scheme – areas within the WHS where further survey will be required will be the western portal and approaches, the eastern portal and approaches. Outside the WHS land at Longbarrow and for junction improvement at Rollestone Corner will also need evaluating. Land at Countess East has been subject to extensive survey and additional survey may not be necessary here. • The location and potential changes to Blick Mead were also disucssed; MA circulated some information on the sequence in the Avon floodplain here, which included peat deposits. • • The Evaluation Strategy will be circulated to the Committee for comment. Digital copies requested when available as well as hard copies.	
Presentation on the Overarching WSI by AmW	
• Purpose and scope of the OWSI was explained – together with the Archaeological Evaluation Strategy this forms a framework for site-specific WSIs (SSWSIs) that will detail the known archaeological context, relevant research questions (with reference to the published WHS research framework) and specific objectives of each package of evaluation. • The OWSI will also be circulated to the Committee for comment. • MA to feed in change of interpretation of the palaeoenvironment – to send to AmW but cc in the Scientific Committee. • SSWSIs for sections of the Scheme within the WHS will be circulated to the Scientific Committee for comment. • CVs of excavation team to be circulated to HMAG as they need to be experienced in artefact recognition.	
Presentation on the Scoping HIA by AmW	
• The HIA is a non-statutory document being prepared by AmW in line with the recommendations from ICOMOS. • An HIA scoping report is being prepared following the ICOMOS Guidance 2011. • Purpose of the HIA is to assess the impact of the Scheme on the OUV of the WHS – this is distinct from the statutory Environmental Impact Assessment but the results will be fed into the Environmental Statement.	

• Design team are developing the design, keeping heritage at the forefront of the minds of all those working on and inputting to the design. HMAG members also attend design team meetings and input to the design as it is being developed. The design is being developed to minimise adverse impacts on the OUV of the WHS. The Scheme will remove the sight and sound of the existing A303 from the landscape and provide opportunities to reconnect the WHS landscape for public access. • The impacts on the OUV of the WHS will be assessed against the 7 attributes set out in the WHS management plan, and the authenticity and integrity of the WHS. The attributes relate to the Neolithic and Bronze Age ceremonial and funerary monuments and associated sites. The relevance of artefact scatters as evidence of Neolithic and Bronze Age settlement is recognised. • The HIA Scoping Report will be circulated to the Committee for comment once it has been agreed with HMAG, Highways England and DCMS.	
AOB	
• BC has received a copy of correspondence from Rachel Hosier with a 10 page letter ranging from asbestos to ordinance to druids to destruction of archaeology. • A discussion was held over suspected damage to archaeology on Mrs Hosier's land. • BC suggested that David Jacques should be be invited to give a short presentation to the Committee to explain the importance of his excavations at Blick Mead. • Plan to have the next Scientific Committee meeting in Birmingham or another location to facilitate attendance by all members in the second half of January.	

23 February 2018

Minutes A303 Stonehenge – Amesbury to Berwick Down

Title:	**Scientific Committee**				
Date:	23 February 2018	**Time:**	10:00 – 16:30	**Location:**	The Bowman Centre, Shears Drive, Amesbury, Wiltshire, SP4 7XT

Attendees:

Scientific Committee **HMAG**

[redacted]

Apologies

[redacted]

Chair: [redacted]

Agenda Item	Action
Welcome	
• No comments had been received on the minutes from the previous meeting	
Presentation on Blick Mead by David Jacques (DJ) and Tony Brown	
• The Chair welcomed DJ and TB to the meeting. He explained that the committee was keen to learn details of the Mesolithic site at Blick Mead, arising from the excavation, to enable it to arrive at an understanding of the effects of the rerouting of the A303 on the archaeology of the site. The waterlogging of the site and the possible effects of a lowering of the water table were of particular concern • In their presentation DJ and TB made the following points. • The Andrew's Map of 1773 shown showing Blick Mead in relation to the River Avon floodplain • The Blick Mead excavation teams were able to dig for only 14 days between 2005 and 2010 due to land access restrictions. The Antrobus family are reticent about allowing access (mentions Pitt Rivers and Charles Darwin being refused access) so time restrictions were respected stringently by the excavators. • 3 trenches extending below 50cm were started in 2010 • Overburden from 1960's road widening sealed deposits with unstratified microliths ranging in date from early- late Mesolithic. • This represents a very significant assemblage, cited Darvill, T's 2006 comment that '*little can be said about either the technological or cultural relationships of the 7th -5th millennium BC from the material around Stonehenge as there is simply not enough of it to judge'.* • The water table was encountered in all trenches at c. 0.5m below ground level.	

- 100% sieving of deposits from Trench 19 through 5mm and 2mm mesh sizes using bespoke equipment designed by Tony Legge.
- Currently only 190 square metres have been excavated.
- Faunal remains - approximately 2500 well preserved animal bone fragments have been recovered with little or no sign of rolling, indicating this is not a secondary deposit. The bulk of the animal bone was found in trench 19, this includes an unusually high proportion of auroch bones, but includes other species (cited Simon Parfitt's analysis) such as marten, salmon and trout and a toad bone (that may show signs of having been cooked).
- Cited Sophie Charlton's ZOOMS analysis which showed that of 20 identified bones 12 were from aurochs.
- Some evidence of cut marks on bone.
- Isotopic analysis of a dog tooth of 5th Millennium date shows evidence of long distance migration.
- Only 3 trenches (19, 22 & 23) within the spring area have been excavated into the waterlogged areas to a depth greater than 0.5m (below the water table).
- Trench 19, measuring 18 square metres has produced a density of 3000 pieces of struck flint and 9000 pieces of burnt flint per square metre from the Mesolithic horizon.
- Radio carbon date range from 8000BC to early- mid Neolithic with a concentration in the late 5th millennium BC.
- Confirmation that work up to the 2016 season will be published on 1st March
- Tony Brown presented on the environmental setting.
- Mentioned work by Reading University (2013, to be included in forthcoming publication) who put a transect (not complete) of boreholes across the site from the terrace edge into the floodplain.
- A question was asked as to whether the waterlogged deposit extends up to the current A303 corridor. The answer given was yes, and beyond this, there is an extensive floodplain aquifer.
- 3 boreholes represent a transect from the edge of the dry land site, from the old river bank out onto the floodplain.
- Enough peat was retrieved to allow pollen analysis in 2 locations (site 2 and site 1), but these were not directly linked to the archaeology and the basal date was 2620 cal BC so too late for the site, but shows that pollen sequences are preserved.
- Beetle evidence from the waterlogged trenches, (19 & 22) and within the Mesolithic horizon showed an interesting range of habitats, even from the preliminary analysis. Water beetles from slow moving water, probably a cut off channel. Temporary grassland, ponds, decaying vegetation, a weevil that lives on clover and a wood ant. No evidence of species living in closed canopy woodland.
- LIDAR data shows a series of scars from a palaeochannel which originated in the late glacial period, becoming a secondary channel by the Mesolithic period. The main channel probably lay to the south of Blick Mead. There is evidence of two or three superimposed palaeochannels banked up against the edge of the floodplain.
- The edge of the floodplain and the surface aquifer coincide at this point.
- The borehole closest to the edge of trench 24 produced a very good range of dryland grasses, including plantain.
- 41 pollen types found – overall indication is that in the Mesolithic the site lay in a large clearing at the edge of the floodplain. Fungal spores from dung were also found, indicating the presence of herbivorous mammals.
- This core contained a microlith.

- Results of DNA analysis not yet available (delayed by PCR, but is now in sequencing in Grenoble). Site has good potential for DNA sampling, being waterlogged and has also been protected from drying out by the 1960's road building spoil.
- Bone is well preserved and material is proximal
- Simple approach to DNA sampling has been used, metabar coding, using a p6 loop on the chloroplasts of plants and the most reliable mammal prime.
- DNA seems to bind best to clay, and then remains stable so there is enough with 50 base pairs or more to get good results.
- The Chair thanked the presenters for an effective presentation which demonstrates the value of the site and it's potential. .
- A question was asked about the potential for further sites in the area with similar levels of preservation in association with lithic scatters. DJ cited the work by Wessex Archaeology to the north of the A303 and the geophysics results from the Stonehenge Hidden Landscapes project which are suggestive of waterlogged conditions.
- A discussion of the stratigraphic integrity of the site concluded that horizons within the dry areas on the bank of the palaeochannel can be directly related to those within the waterlogged areas, which is a rare occurrence.
- A discussion was held around the possibility of peat on the site – peat bodies have been identified closer to the Countess Roundabout and the potential should be considered for these to survive beneath the existing roundabout and approaches. This could be of great environmental potential in relation to Blick Mead and the other Mesolithic deposits recorded on the north side of the A303.
- Evidence was found during excavations by Geoff Wainwright that some of this peat was removed when the road was constructed between 1963-1968.
- [Post-meeting note: the preliminary geotechnical report for the 2005 published scheme quotes work undertaken by Halcrow in 2000 as part of a an options report for Countess junction. This geotechnical work found that:
    - The existing embankment is formed of very dense fill of placed and compacted chalk.
    - Comparison of trial pit logs with those of the 1965 boreholes indicates that the soft, alluvial materials [including peat] were removed, prior to placement of this fill, with the embankment being founded on the river gravels (or possibly an engineered granular starter layer).
- An accompanying profile and test pit logs from the Halcrow 2000 report are appended to these minutes, for information]
- CM commented that even if some peat remains the effects of surcharging from weight of the embankment are likely to already have happened.
- AC described the details of the Proposed Scheme in the zone close to Blick Mead.
- PM confirmed that the Planning Act and NPPF made clear that allowing substantial harm to archaeology of the highest significance should be wholly exceptional. In seeking to avoid substantial harm, the recently updated Historic England guidance on preservation of remains in situ is relevant, notably Appendix 3 which deals with remains in water environments. These guidelines have been sent to the committee. A detailed assessment using the tiered approach given in the guidelines in relation to the results from Blick Mead needs to be prepared and circulated.
- CM noted that discussions between AmW and PM and Jim Williams, EH chief scientific adviser are ongoing and the iterative approach set out in the Historic England guidance to assessing the potential effects of dewatering, principally on the aquifer, of the scheme will be undertaken.

• DJ asked what the current programme to submission of the DCO is, and whether local monitoring of ground water would take place at Blick Mead over the seasonal cycle to inform this. • AC replied that the DCO is currently due to be submitted in late summer. Hydrogeological modelling of the chalk aquifer across the Stonehenge area has been undertaken using Environment Agency data and bespoke borehole data and monitoring undertaken over the last 18 months as well as data gathered for the published scheme. • TB noted that the work undertaken at Star Carr showed that having a shallow ground water model at a sub 10 metre scale is essential to effectively model potential impacts on waterlogged environments as the relative amounts of water are small and the loss of 10-20 cm of groundwater would have major impact on shallow deposits. Inserting a series of dip wells for gathering data of this kind is not an onerous task (either in terms of labour or cost). • VG noted that having the finer grained analysis of the local water environment is just as important as understanding the broader scale hydrogeology. • DJ noted that detailed assessment has not yet been carried out at Blick Mead. • The Chair asked if the types of modelling outlined by TB and in the guidelines would be insisted on by Historic England. PM replied that this must be the case. • CS noted that this would need to be of at least twelve months duration to cover seasonal variations. • TB indicated that he would be prepared to work with the project team to monitor variations in the water table in the immediate vicinity of the site over a period of time. • BC stated that the Committee would work to ensure that the construction methods used on the road sector past the site would have as little impact on the archaeology as possible. Preservation would be preferred to mitigation.. • DJ aims to make a proposal to National Trust for a bigger trench to assess survival of ecofacts moving away from Blick Mead (north of the A303). • DJ asked for an opportunity to come back for another presentation. • A discussion was held around working in collaboration with DJ with future work for the A303 scheme. • The chair thanked DJ and TB for offering such a full and interesting presentation of the site and said that the committee would welcome an update in due course. TB's offer of collaborating in the monitoring of the water table was particularly valuable. He hoped it would be acted on as a matter of urgency. He said that the Committee were concerned to ensure that any effects that roadworks might have on the archaeology of the area would be mitigated in the most effective way possible and to the highest of standards	
Minutes and Actions	
• SSWSIs for the eastern and western portals and for investigations relating to GI works at Stonehenge Bottom had been circulated to members for information. It was noted that the minutes of the previous meeting recorded that SSWSIs would be circulated for comment. This had not been done. It was explained that time had been very short and the SSWSI's closely followed the guide lines laid down in the Evaluation Strategy and the Overarching WSI which had been circulated in draft and commented on. The Chair said that if any member had comments they could be sent in for consideration. • Minutes accepted	

Minutes **A303 Stonehenge – Amesbury to Berwick Down**

Kate Fielden's Letter	
• BC received a paper from Kate Fielden on OUV. With KF's permission it had been circulated to members. The paper was discussed. • Confirmation was received from PM that all work on OUV has been done in accordance with published guidance. • BC suggested that HE should be asked for a written response to the issues raised in KF's paper and that both should be placed on the Members only section of the website for future reference. • PM to provide Historic England's position on OUV.	PM
ICOMOS Mission	
• Confirmation that the next Advisory Mission is in early March and only for three days. • Itinerary will be one day on the scheme, one day on archaeology and one day on stakeholders; • Detail of the third day to be circulated early next week. • The Chair has been invited by Highways England to meet the Mission as a representative of the Scientific Committee. Scientific Committee members will be able to comment on the consultation as individuals, a consensus Committee position is not required under the Terms of Reference.	PM
Scientific Committee Website	
• Thanks to all who have sent photos and biographies for the website. Just one member left and MPK will chase • Members only section up and running and a reminder of the username and password was circulated at the meeting. MPK agreed to amend the access to this part of the web site as currently the login is difficult to find.	MPK
Preferred Scheme Presentation	
• Presentation by AC – description of the scheme given while running through visualisation video of the Proposed Scheme. • Confirmation that no extra lighting will be added to Countess Roundabout, just upgraded and modernised. • AC confirms that feedback on the scheme is requested now and throughout consultation – feedback forms were given out. • A discussion was held around green bridges and the potential number and locations of these. The consensus was that more and bigger green bridges would be preferred in respect of the western approach cutting.	
Progress to date with ongoing Archaeology	
• CM presented an update on the archaeological evaluation programme. The Evaluation Strategy and Overarching WSI have been circulated for comment; CM confirmed that comments provided by the Scientific Committee have been taken on board. • CM described the 6 SSWSIs that flow from these strategic documents. BC said that he thought these were comprehensive and demanded an exacting standard. • Work is ongoing on site at the Eastern Portal – fieldwalking, test pitting and trial trenching. The committee would visit the work in the afternoon.	
HIA Presentation	

• LS to send HIA Scoping Report to all committee members. *Post meeting note – this has been done.*
• BC thought that HIA Scoping Report is very thorough.
• CM gave an overview of the HIA – purpose and contents.
  ○ OUV of the WHS and the attributes of OUV
  ○ HIA method
  ○ Impact of current A303
	LS

○ Potential impacts of proposed scheme ○ Mitigation measures • Timing of HIA to be in parallel with the EIA and to go into the DCO application (September)	
AOB	
• MPK mentioned that the building we were in "Bowman Centre" was named after an important archaeological find (graves of the 'Amesbury Archer' and Boscombe Bowman) which were found a short distance away in 2001. The excavation has been published by a member of the Committee, Andrew Fitzpatrick. The whole of the housing development, known as King Gate and Archers Gate, has been excavated over the last few years and found to be rich in archaeological remains from the Prehistoric and Roman periods, including five Roman cemeteries.	

10 May 2018

Minutes A303 Stonehenge – Amesbury to Berwick Down

Title:	**Scientific Committee**				
Date:	10 May 2018	**Time:**	09:30 – 16:00	**Location:**	Holiday Inn, Amesbury, Wiltshire, SP4 7SQ

Attendees:

Scientific Committee **HMAG**

[redacted]

Apologies

[redacted]

Chair: [redacted]

Agenda Item	Action
Welcome and Apologies	
• As well as apologies for the meeting, the Chair has received a letter from Julian Richards, retiring from the Committee due to other commitments.	
Minutes and Actions	
• Last set of minutes approved, with a small amendment.	**AC & MPK**
Blick Mead Publication	
• Chair recorded the thanks of the Scientific Committee to David Jacques for his engagement and for the provision of a copy of his publication for the committee's benefit. • The chair read out a note from Nicky Milner noting the significance of the Blick Mead site and drawing similarities between it and Star Carr. • Further comment was made about the high quality of the publication and the level of clarity and information contained within it. • Further discussion was had regarding the evidence presented and the impact that it has in relation to the importance of the site. • Information was provided relating to meetings the project team had with David Jacques, with reference to a meeting with Tony Brown and Historic England's Scientific Advisor that made good progress in agreeing a way forward, this includes the tiered assessment in line with Historic England's guidance. • A request was made to try and identify and investigate any potential issues caused by the PH of road drainage and if this is having an impact on the site.	**AMW**

• Future monitoring of ground water should provide evidence to compare with assessments undertaken to date. The benefit of longer term monitoring is that it will allow proactive mitigation to be undertaken if de-watering occurs as the result of other impacts on the ground water.	**AMW/HE**
Matters Arising	
• ICOMOS Mission – attended site 5th to 8th March, which compressed the 5-day agenda into 3 days, and made for a very compact visit. The mission will produce their report in advance of the WHC in June, so we anticipate publication of the report in May. Committee members commented on their engagement at the Civil Society day and their part in the process. The chair had reported to the mission on the workings of the Scientific Committee. • Highways England gave a summary of the consultation, including reference to the extended duration because of severe weather impacts. Current evaluation of responses shows fewer replies than the previous consultation; this ties in with many comments of the "just get on with it" nature. The Statutory bodies provided an overview of their responses, and that they were generally in agreement with each other. Highways England confirmed their commitment to the current timescale as it stands with a DCO application being submitted in Autumn 2018. • Update on the Website; there was a request that a link to a report on the road scheme in 'Salon' be provided. MPK requested any other ideas to be emailed to her.	
Progress with Archaeological Evaluation	
• AMW provided an overview of the results of the archaeological evaluation along with representation from Wessex Archaeology. • An overview of the current programme was given; Geophysics is almost complete for the entire scheme footprint, including work by Historic England and the Hidden Landscapes Project, and large amounts of the test pitting and trial trenching are underway/complete. • It was noted that contrary to current media articles about the weather conditions, the archaeological evaluation has been undertaken to a high professional standard, with ongoing monitoring by HMAG and WCAS. As a result of the wet weather encountered and in alignment with the Written Scheme of Investigation, the wet weather clause of standing down site works was enacted at least twice, to ensure the sites are protected from damage. WCAS are highly aware of the impact that wet weather can have, and it is high on their priority when monitoring the site works and are confident that no damage was caused during the evaluation. • Site reports continue to be drafted and will be issued out in due course.	
AOB	
• AMW noted that they have employed an archeoastronomer, Dr Frank Prendergast, to ensure the HIA undertaken is robust in this regard. Clive Ruggles approved the choice. • Wiltshire are holding their Archaeology in Wiltshire Conference II on Sunday in Devizes. • Attention was drawn to the recent publication by Mike Pitts in British Archaeology with regards to the breadth of findings and archaeological investigation in and around the Stonehenge WHS. MPK highlighted that commercial archaeology has a high curatorial oversight and is required to have research aims, and that these are the focus of the works undertaken. Additionally, the most highly significant archaeological remains are preserved in situ rather than developed, as in the case of the Bulford Double Henges featured in Mike's article. A request was made to have a link included on the committee website to the article.	

• Comment was made about a second visit to the Western Portal and approaches site, so that the trenching phase can be viewed. HE to arrange.	**HE**

03 August 2018

Minutes A303 Stonehenge – Amesbury to Berwick Down

Title:	**Scientific Committee**				
Date:	03 August 2018	**Time:**	10:30 – 14:00	**Location:**	Aldgate Tower, London, E1 1FE

Attendees:

Scientific Committee

[redacted]

HMAG

[redacted]

HE/AmW

[redacted]

Apologies

[redacted]

Chair: [redacted]

Agenda Item	Action
Welcome and Apologies	
•	
Minutes and Actions	
• Minutes agreed by all present.	
Matters Arising	
• ICOMOS Mission Report has been received, DCMS attended the WHC in Bahrain representing the State Party. The WHC Decision accepts the location of the Eastern Portal, has requested that the State Party reviews the design of the Western Portal and approach road to minimise adverse impact to the WHS. Notes the proposed link between BOATs 11 and 12. The decision also accepts that alternative routes outside the WHS have been satisfactorily investigated and closed out. • Supplementary Consultation is running at present. This is covered in the AmW presentation. • Site visit to the western portal. The visit was restricted due to the presence of a pair of breeding Stone Curlew, however the crouched Beaker burial was viewed and its location and significance was discussed.	
Presentation by AmW and Discussion	
• Progress with Archaeological Evaluation o Eastern portal, Presentation covered the findings from the Draft Report, results included Mesolithic flints in a location to the north of the road in the vicinity of Countess Farm West; there was also discussion and presentation on the buried soils within the colluvial sequence as seen on site by some committee members.	

○ Western Portal, Overview from initial results, draft report has not been received yet. Discussed the evaluation approach and location of specific features. The exclusion from the evaluation of a c.4m diameter hengiform monument located by multi-channel GPR and the Scheduled Wilsford G1 bowl barrow was noted. All top soil sieving was undertaken as agreed – except that the area of the former pig field has yet to be test-pitted (as agreed on site with the Scientific Committee as the conditions on site at the time were not favourable), all other areas have been completed. Several features have been identified within the area, predominately from the Beaker Period. As well as the crouched burial, Beaker period pottery, including coarse and finewares and a near-complete plain vessel has been found. A discussion was held, and a request was made for the soil sieving in the former pig area to be undertaken once sufficient time has been given to allow for establishment of suitable ground conditions. • Proposed Scheme Design Update. ○ Presentation of the history of the development of the scheme, highlighting how heritage issues have influenced design decisions at every stage of the process. ○ Blick Mead: monitoring of the water table was requested by the SC as part of the approach to mitigate impacts of the scheme. This is being progressed through the tiered assessment approach outlined in Historic England's guidance. Monitoring will commence once land access has been agreed with the landowner. This will be for a period of at least 12 months. ○ Historic reporting/investigation indicate that the majority of soft organic material, between the River Avon bridge and the vicinity of Vespasian's Camp, was excavated in the 1960s as part of the Amesbury bypass scheme. • The Supplementary consultation exercise was presented. ○ Covering three changes to the proposed scheme; a move east of the Rollestone Junction put forward at statutory public consultation; removal of the proposed byway link for motorised traffic; and the relocation of Green Bridge No. 4, to be within the WHS and to be up to 150m in width. It also includes further clarification of the scheme and wider area Public Rights of Way. This was in response to criticism that the previous consultation was insufficiently clear on this point. • HIA Progress. ○ Highways England have always recognised the need for HIA, The HIA Scoping has been undertaken and presented to the mission in 2018, this was recognised by the mission advisors as being appropriate for assessment purposes. ○ The 2015 WHS Management Plan is a key document, identifying the attributes of OUV and the priorities and policies in relation to the roads within the WHS, these set the framework for the HIA. ○ Groupings of assets expressing attributes of OUV have been identified as part of the assessment approach to both HIA and EIA. A discussion was held around the groupings, the importance of the relationships between the long barrows in the western part of the WHS – the HIA needs to take account of impacts on this widespread grouping. ○ HIA should also encompass the recent trends of finds relating to the Early Bronze Age in the western approach road area, this may be related to settlement, and is therefore important in HIA terms.	

○ The longevity of the landscape, with activity from the Mesolithic onwards needs to be considered. Attention was drawn to the significance of recent Electro-magnetic Induction (EMI) survey in the WHS – this has identified numbers of previously unknown pit features, excavation of one of these (east of King Barrow Ridge) has indicated a Mesolithic date – this emphasises the long duration of activity in the landscape. It was noted that Paul Garwood had recently presented an overview of this project and its outline findings to members of HMAG and the AmW heritage team. It was noted, however, that the Mesolithic activity is not what gives the WHS Outstanding Universal Value, it is the activity in the Neolithic and Early Bronze Age that provides this. ○ Tools used to assist in the HIA assessment process were presented, including Zone of Theoretical Visibility, Dark Skies mapping, Tranquillity Model, were noted. ○ Engagement with stakeholders and consultations undertaken ensure that the information is distributed and helps gain feedback and inform scheme development. ○ How the current A303 impacts on the WHS. Information contained within the statement of OUV and the 2015 Management Plan highlight this issue and helps the HIA detail the impacts. ○ Scheme Legacy was also covered. • Emerging HIA Conclusions ○ The emerging conclusions were discussed at length and the Scientific Committee raised some points for AmW to take away and consider.	
AOB	
• None.	

Next Meeting: Doodle Poll to be set up around the End of October, this meeting will be used to discuss the final conclusions and how earlier recommendations have been incorporated, or not.

18 December 2018

Minutes **A303 Stonehenge – Amesbury to Berwick Down**

Title:	**Scientific Committee**				
Date:	18 December 2018	**Time:**	11:00 – 14:00	**Location:**	Mace, 155 Moorgate, London, EC2M 6XB

Attendees:

Scientific Committee

[redacted]

HMAG

[redacted]

HE/AmW

[redacted]

Wessex Archaeology

[redacted]

Apologies

[redacted]

Chair: [redacted]

Agenda Item	Action
Welcome and Apologies	
• Noted Apologies received from Members.	
Minutes and Actions	
• Minutes agreed by all present.	
Matters Arising	
• Blick Mead Press Interest. Following press reports about drilling at Blick Mead Sir Barry Cunliffe emailed David Jacques to find out what had gone wrong. David Jacques provided a selection of emails to Barry in confidence, Barry provided a summary of the essential points: o 16th April 2018, Meeting Held between Highways England, David Jacques, Tony Brown, and Historic England, at which it was agreed that Highways England would undertake monitoring upon completion of an Historic England Tiered assessment. o 25th May 2018, emails between David Jacques and Chris Moore – Confirming that monitoring would be for a period of at least 12 months. o 14th September 2018, Email from Tracey Merritt (landowners Solicitor) to Highways England, response from Highways England Correspondence Officer sent on October 2nd. o 2nd October 2018, David Jacques emailed Phil McMahon and Tony Brown asking why monitoring had not begun, no reply was received. o 2nd November 2018, Jane Sladen (Highways England) emailed David Jacques saying monitoring equipment would be installed on site in November and provided locations of monitoring points.	

○ 7th November 2018, Jack Parris (Highways England) told David Jacques that monitoring would be installed the following week – (which did not happen due to access). ○ 8th November 2018, Landowner emailed Jack Parris, requesting that David Jacques be totally involved in terms of location of monitoring equipment. ○ 26th November 2018, Highways England (Aecom) start works on site for two days, installing 5 monitoring points. Landowner and David Jacques requests works to stop, work is halted on site. David Jacques meeting. agreed with Highways England. Barry noted that it was unfortunate that this occurred, why was David Jacques not invited to site to agree the siting of boreholes at the time of installation? Andrew Clark confirmed that it was an unfortunate series of events leading to this occurring. The issue boils down to a miss-communication between informing David Jacques of the borehole locations and not inviting him to observe the works. Andrew confirmed that he would be meeting David Jacques on site on the 21st December to agree a way forward for further monitoring points. Highways England was operating with the best intentions to make progress having received earlier criticism of not advancing the works. It should also be noted that Highways England placed wooden stakes on site on the 22nd August 2018, to mark potential boreholes, and it would have been very obvious to the Blick Mead team throughout their dig during October 2018. Chris Moore further presented slides detailing the known location for the Blick Mead trenches and the borehole locations as installed, these show that the boreholes have not been installed in any excavated trench. (Slides attached) In addition, it was explained that the method of installation of the boreholes involved an initial hand dug section, down to a depth of up to 1.2m during which the Mesolithic Horizon was not encountered. The extracted cores from the monitoring tube installation did not reveal any evidence of the Mesolithic layer.	
Presentation by AmW and Wessex on the Evaluation and following Discussion – Attached slide pack	
Chris Moore presented the DCO process and explained the importance of Relevant Representations. He encouraged the committee members to make relevant representations so that the Examination can focus in on key issues that the committee may have. Questions were raised with regards to timing of the process, timings of the works, and how works (including temporary works) would be managed on site. Response was given relating to the approach to documentation and how these are worked up prior to and during examination, but then how they are bound to the DCO and as such they must be delivered upon. Matt Leivers of Wessex Archaeology then provided a thorough update on the completed evaluation across the site, highlighting results of finds, including burials, cremations, pottery and numerous flints both worked and burnt. There was discussion about the relevance of some of the finds and their relationship to Blick Mead and associated sites. Barry asked whether the committee members, in retrospect, considered the methodology to be appropriate and to have achieved the desired outcome? Conclusion was that it was a valuable approach (specifically the test pitting for ploughzone finds)	

Points made with regards to the potential to correlate lithics to identified features, useful form of evidence even when unrelated to features. Statement made on the usefulness of the square trenches within the approach to help identify discreate features. Also noting the success of the Geophysics stage at strongly identifying the features in the ground. Question was raised on the finds of ancient crops, some were identified and sampled but were shown to be intrusive and not evidential.	
AOB	
• Tony Brown sent Barry a note on the hydrological importance for Blick Mead appended to these minutes for information.	

Next Meeting: Doodle Poll to be set up during January to look at dates at the end of February and early April. Meeting will focus on the Detailed Archaeological Mitigation Strategy (DAMS).

17 April 2019

Minutes **A303 Stonehenge – Amesbury to Berwick Down**

Title:	**Scientific Committee**				
Date:	17 April 2019	**Time:**	11:00 – 14:00	**Location:**	Wiltshire and Swindon History Centre Cocklebury Road, Chippenham, SN15 3QN.

Invited Attendees:

Scientific Committee

[redacted]

HMAG

[redacted]

Highways England

[redacted]

Chair: [redacted]

Agenda Item	Action
1. Welcome and Apologies Apologies were received from the following members: Professor Mike Parker Pearson Professor Nicky Milner Professor Oliver Craig Professor Tim Darvill Professor Clive Ruggles Dr Mike Allen Andrew Clark (Highways England) Neil Macnab (AmW) Hayley McParland (Historic England)	
2. Minutes of Last Meeting and Actions Minutes accepted by all present	
3. Matters Arising None	
4. Update on DCO process and Examination Presentation by AmW Preliminary issues published by PINS in R.6 letter. Preliminary meeting held 2nd April, examination now runs to 2nd October 2019. Examination timetable published in R.8 letter:	

• Accompanied Site Inspection scheduled for 21st May • Open Floor hearings scheduled for 22nd–23rd May • Issue-specific hearings scheduled for 4th–7th June and 11–14th June • Further hearings (if required) scheduled for 26th–30th August	
5. Recent Documents issued – Evaluation Reports and DAMS 11 archaeological evaluation and geophysical survey reports were submitted to the Examination on 12th April. These will be available through the PINS website. Working Draft of the DAMS circulated to the meeting – ahead of the submission of a Draft for Examination at deadline 2 (3rd May)	
6. Presentation by Wessex Archaeology on Flint and Tree Hollow Distributions Presentation reviewed flint and tree hollow distributions across the Scheme and outlined proposal for further sampling of ploughzone artefact content in 5 areas. Discussion raised a number of comments on the approach to lithic distributions: – areas of knapped material are culturally significant. They result from past activity which should be investigated. – 1% test pit sample from evaluation should be enhanced by further investigation of a greater % – need to address research questions to the flint scatters in relation to other material – why not 100% sampling of potential Beaker settlement at western portal. – if not to be 100% sampled then consider applying Dutch practice of removal of topsoil m^2 by m^2 and archiving it (i.e. long term storage). – low density blade material might mean Early Neolithic activity – if so, low density might not be insignificant. – the committee would expect 100% excavation of subsurface features – debate concerns topsoil and extent to which it should be sampled. Wessex Archaeology invited members to view lithic material assemblage at their offices in Salisbury. Action: Highways England to circulate dates when this can be accommodated. *[Post Meeting Note: Availability of May 16th has been given]* Presentation to be circulated with minutes of this meeting, for information.	**HighE** **AmW**
7. Draft Archaeological Mitigation Strategy Presentation of draft DAMS by AmW. Members comments: – concern that final DAMS principle (re. archaeological remains of OUV) might be misread – a strategy for digital recording should be included – acknowledged that Highways England have taken huge amounts of care in the preparation of the project: unprecedented on any road project in his experience. Further comments invited in writing – comments received by 24th April could be considered in time for submission of draft DAMS for examination, comments received after this can be considered during later development of the DAMS. Request that all members copy all in on their suggestions for research questions.	

A further SC meeting would be helpful before finalisation of DAMS, this would likely be in July. Examination timetable to be circulated with relevant deadlines highlighted with regard to provision of members' comments and timing of further meeting.	**HighE**
8. Discussion of Mike Parker Pearson's proposals for mitigation works This will be picked up at the next meeting	
9. Update on Blick Mead The Chair has received copies of correspondence from David Jacques and Andrew Clark (Highways England). Evidently there has been a breakdown of communications between the parties: The Blick Mead Project considers that further monitoring was promised, Highways England does not. – 5 water monitoring meters were installed around the site in November. – water monitoring data has been submitted to the Examination – requested that Highways England presents this data to the committee, explaining why were the meters put where they were, what are the results and what would additional monitoring points add (or not) re the hydrogeology? It was agreed that members of the Blick Mead Project be invited to attend for part of the next SC meeting to bring members up to date. Highways England /AmW specialist also to be invited.	**HighE**
10. AOB – Kate Fielden has sent a copy of her response to Historic England's comments on her paper on OUV to the Chair. The chair asked if it could be submitted to the SC via the secretary, Dr Fielden said she preferred to send it herself. Not all members have yet received it. – concern that Iron Age/Roman remains could be affected at the Parsonage Down excavated material deposition area. This has been noted that the area has been appropriately surveyed, and confirmed that the fill area has been designed with preservation in mind and mitigation proposals outlined in the draft DAMS, which would be developed further in consultation with WCAS. – at the Preliminary Meeting, counsel for Highways England stated that the outstanding evaluation reports had been delayed because the Scientific Committee meeting scheduled for 3 March was not quorate. Could this please be clarified? Request that Highways England add in the record from the Preliminary Hearing to these minutes meeting and clarify to the Inspector. *[Post Meeting Note – PINs has yet to publish the record, this will be circulated when complete.]*	**HighE**
11. Date of next meeting To be confirmed.	

02 July 2019

Minutes A303 Stonehenge – Amesbury to Berwick Down

Title:	**Scientific Committee**				
Date:	02 July 2019	**Time:**	11:00 – 14:00	**Location:**	Wiltshire and Swindon History Centre Cocklebury Road, Chippenham, SN15 3QN.

Invited Attendees:

Scientific Committee

[redacted]

HMAG

[redacted]

Highways England

[redacted]

Chair: [redacted]

Agenda Item	Action
1. Welcome and Apologies Apologies were received from the following members: Dr Heather Sebire (English Heritage) Dr Mike Allen Professor Clive Ruggles Professor Tim Darvill	
2. Minutes of Last Meeting and Actions Minutes accepted by all present. Hydrology report is in the Examination HE to follow up.	**AC**
3. Matters Arising Blick Mead SoCG when agreed to be circulated to members for information.	**AC**
4. Discussion Points a. Overview of updates/changes since D2 submission – *AmW presentation (15 mins)* Deadline 4 DAMS has been circulated to committee members as part of the submission, main change is Archaeological Research Strategy is its own section.	

Appendix D is a single appendix for all details of proposed mitigation responses. PACE is now Appendix E. b. Research strategy – *discussion and request for inputs re. research questions (30 mins)* Contributions requested on specific themes: Mesolithic etc… (on Slide) ML discussed Research Framework. (JP) Think of Both Eastern and Western Portal connected as a transect across the site from the riverside up to the plain. We should seek to identify how the dynamics of landscape use changes from the Early Neolithic through to the Early Bronze Age within this transect. Research questions need to be focussed at the landscape as well as local (site, feature-specific) scale. (MPP) Distribution of long barrows in the west of the WHS is not mirrored to the east, could be that the eastern side was used for settlement whilst the west for funerary activity. (DF) Degree of woodland to grassland not well understood in the early Neolithic. Was it burned regularly in the Neolithic., can we identify when the landscape became open grassland? Transitions between Mesolithic (settlement focussed on the river) and Neolithic (spreading out over the plain). Was this well-established occupation or occasional hunting with the main activities in the valleys? The Till valley section of the Scheme may help understand this and how the landscape looked in this period. (CS) Looking at this in temporal blocks is not the right way to approach this. Interest in Western portal is the continuity of use from Early Neolithic Longbarrow to the later Bronze Age field systems, with a major focus for barrow cemeteries and funerary activity including Beaker flat graves, noting difficulty in finding these until they are excavated. Is it possible to attempt to identify where these may be in advance of excavation? Pits with Grooved Ware found previously south east of Longbarrow. Transitions are important – Mesolithic to Early Neolithic; Late Neolithic to Early Bronze Age. (BC) Look for continuities across transitions not specific periods and discontinuities. Encourage those undertaking the work to look more widely at the Stonehenge landscape not just the road corridor on its own. (MPP) Lithic scatter in Rollestone, we must make sure we don't forget this site as the third area, we must try and find what date this is, through Ploughsoil mitigation. (ML) Most of the Lithics came from a single tree hollow in the southern part of the Rollestone evaluation area, very diffuse scatter across the rest of the site from the test pitting here. (AF) Beaker burials are often stereotyped as single inhumation burials, which glosses over and obscures the considerable variety in which the body was treated at, and after, burial. Accordingly, attention should be paid to characterising the range of secondary burial rites evident in Beaker funerary practices. Careful attention should also be given to finds of complete objects in non-funerary contexts, for example Beaker vessels, as their deposition echoes their selection as grave goods. The Scientific Committee's input on the research framework and suggestion of specific research questions to include was requested. Look at Timing on comments – Comments to be received within a week - 9th July 2019 - to incorporate into the research strategy. Would be submitted as part of the draft DAMS Deadline 6 submission (26th July).	**ALL**

Any additional research questions submitted by the Scientific Committee will be considered for inclusion upfront as overarching themes.

c. Artefact / ploughsoil sampling strategy – *presentation of data/statistical analysis, discussion of scope/extent, methodology (30 mins)*

The draft DAMS submitted at Deadline 4 proposes five areas for artefact recovery, via a scalable (increasing density) test pit sampling strategy.

(JP) Comments on the material viewed at Wessex Archaeology (16th May). Variation in terms of the material (reduction strategies), and a lot that was in relatively good condition. Need to be careful not to write it all off as plough damaged material that will yield little information. Not just a homogenous assemblage – there is spatial variation and condition variability. Material was mostly from the western portal, and here Late Neolithic into Bronze Age flint work. Earlier element within the scatter, but minimal. Cortical flakes and non-cortical flakes show different reduction stages present. Easy to get locked into the Western Portal, Eastern Portal is still significant in its differences to the Western Portal. There is clearly some Early Neolithic material that is otherwise not well represented in the landscape.
(CS) Not a specialist in dating of flint scatters. Interested in HMAG comments.
(NS) agrees with comments made by JP, important to remember scale at which we address the material in the assemblages will enable or limit our understanding of them and their context. And to ensure some ability for reflexivity when the work is ongoing in the field. The lithics either come from being ploughed out of features or from material dropped on open surface sites.
(JP) point of the scatters is that the scale is important. At a localised level much may be linked to temporary shelters / houses etc, so the scatters have been produced in localised areas from day-to-day life and activities.
(CS) matters of the day to day life is more of the unknown than the ritual as it is presently known.
(JP) Material is often pushed into features rather than pulled out of them.
(CM) How do we investigate a representative sample of this material, taking account of relevant research questions. What questions should we ask of the data and for the statistical analysis to try to answer. Suggest comments on this.
(MP) Statistical analysis is not meaningful. If your original sample is not random. Sampling should be based on what we know about the landscape and how it was used.
(MPP) The problem with statistical analysis is that it works for some but not all data. The important stuff from the assemblage is about 1.5% so statistical analysis won't produce a sampling recommendation that will help you to find it.
(MPP Slides) Stonehenge Riverside Project trenches in the Palisade Field, west of Stonehenge. EH and NT required that topsoil was sampled at 100%. Four trenches (SRP trenches 52-55). Trench furthest West (Trench 52) was dense in Lithics, much lower densities in the Easternmost trench (Trench 55). Results from all were well worth doing at 100%. Extreme variance between volumes in adjacent areas. Bronze Age ditch trapping material coming down the hill Trench 53. Most lithics recovered were undistinguished, restricted tool types, very few blades, prolific scrapers. Slide illustrating application of 4% and 16% and 32% sample sizes in retrospect against results for scraper recovery from 100% sieving in Trench 52 (10m x 30m). Even at 64% we get 4 scrapers out of 7, so it is representative of the sample at that level. We need to see the entire assemblage to understand the context. Total area of these trenches was 700m^2, all sieved in approximately 10 working days by a team of 100, average topsoil was 25~30cm thick. Tr. 52 has a concentration of retouched flakes;

16% sample would have missed these. North East corner of the field (Trench 55) showed a minimal scatter, but a surprising number of diagnostic tools. (arrowhead not identifiable). Specialised activity, placed in wider context with geophysics (tree holes), this kind of assemblage could be to do with working in the woodland (in the Early Neolithic). Areas with the Bronze Age ditch (Trench 53), relatively low densities, quite a lot in the early to Middle Bronze Age assemblage: at 16% you would only have recovered 3 of the blades. Other arrow heads, Flint Axe etc. Trench 54, at end of Stonehenge Palisade, very dense distribution with blades, bladelets and blade sized flakes. 16% coverage produces 10 locations, not nearly enough to show the full density. Early part of the Late Neolithic, shows the transition from Blade industries to flake industries. Dense activity before 2500BC, but not a single feature to go with it. Reiterate, within the same area you get extraordinary variances with the assemblage, my hope is that you can tease out the specifics of the individual location. (BC) Can this information be given to the statistician? (MPP) Yes, it should be provided. (MPP and JP) It (100% sieving of topsoil) pays dividends for the material that is identified, economy of scale, bulk shifting it metre by metre the attempt to do less [is labour intensive], you might as well do more. (BC) Can this be compared to the volume of work that was undertaken by the evaluation, so a comparison can be made to (MPP's calculation on work days required to sieve the material to compare. (NS) No hard and fast rule on 100% topsoil sieving within the WHS has been applied by the National Trust, other areas have not been undertaken at 100%. (MPK) The Council does not have any records of the Council having ever asked for 100% topsoil sampling on research excavations in the WHS. (NS) We should be looking at what is the appropriate approach for the particular case. (AF) flip it around, have we considered what happens when you place a trench in an area that has suggested relatively few features / no features to target. (JP) We got good results (in both the Stonehenge and Avebury landscapes) when looking for Neolithic activity from areas where we were not targeting features visible from geophysical survey. (BC) 3 potential ways of undertaking, dig it off by machine, process it in situ by machine, dig it by hand. Are there possible compromises between the strategies across the area? (MPP) Clear conditions for why you wouldn't do it as opposed to not doing it in the first place. Sharp distributions found in the lithic plots. Strategy of targeting the Palisade Field was based on it not having been ploughed heavily, then finding it had been. (DF) Also important to consider material from right across the area, the whole topography rather than selected units. (MPP) Ditches acting as traps for ploughsoil, it is probably Bronze Age that this area is being ploughed for the first time, and the ditches get filled, and thereafter material remains. (NS) Resolution of scale. Previous research has shown scatters retain internal integrity – a holistic approach to assessment of material from scatters and features will allow us to answer research questions about landscape inhabitation. (JP) Lithic scatter material is moved around by plough (there is oscillation of a metre or two around points), but rarely do we see large scale movement. (MPP) Salisbury Museum has recently discarded the non-diagnostic material from the Stonehenge Environs Project. Student did a 25% sample on it, but it is up to the	

curator for what they keep and don't keep. I think we should collect the material first, not - prejudge the issue on whether a Museum would keep the material or not. (CS) if you sample 16%, and you have the material within the plough soil that is stripped off the site being re-distributed across the scheme, it has to be put somewhere, it is a problem: reused elsewhere on Scheme. (JH) it will be clear that it is re-distributed material. (JP) It is an issue with time and money. Surely there is a way that it can be automated. So that rates of excavation and recovery are increased. (NM) Point of mechanisation, Mesolithic site in Cumbria (Stainton West), series of mixers to wash soil and to extract lithics. Huge quantities of soils were washed and lithics gained. Support 100% sample as the process will account for the relatively intact yet discreet material. At Star Carr also 3D located and recorded the material (probably too much detail for this project) quantities should be spatial as well. Star Carr midden was full of burnt flint, distribution of lithics has helped better understand the use of the area. At Howick, only once a trench was opened did we find the initial 1x1m test pit was in the centre of a structure. Further work at Star Carr suggests that different Mesolithic structures have different lithic signatures. Some have a lot, others very little (kept clean). (JH) Meso-American archaeologists, sampling was applied to identify the area, assuming that we can't answer the questions on that basis. You cannot pitch sampling strategy against 100% sieving – both are chosen for particular purposes and to answer particular questions. (MPP) We should be sampling for the diagnostic material, not the overall assemblage. (HW) Robust series of research questions and strategy required to inform approach. Posed question to Scientific Committee to expand upon what research questions cannot be answered by employing anything less than a 100% sample? (MPP) We couldn't answer the Mesolithic or early Neolithic questions without 100% as these are crucial to answering those questions. We won't learn anything about the context unless we look at 100% plough soil sieving, to understand the spatial relationship of the material in relation to the features excavated. Durrington Walls survival beneath ramparts - we can see how the pits relate to the thin occupation layers that are normally missing. We have to assume likewise, the ploughsoil will contextualise the pits below. (AF) my impression is you get more of the same from the increasing sample size, is there a tipping point where the returns diminish? (MPP) no half measures here, we need to recover the entire WHS assemblage. (MP) helpful to put it into wider context, if we had unlimited funds and unlimited skilled archaeologists, none of us would dispute that the whole thing should be sampled. In the real world, we don't have those resources. We need to focus the available funds and the works on both sampling the topsoil as well as the features beneath. We cannot forget the archaeological features beneath – these need to be the focus of concerted effort. By 100% sieving you do not get more clarity on Mesolithic activity on the plain. Able to isolate areas of settlement by fieldwalking the area frequently. The Stonehenge WHS has been ploughed to oblivion, it's only the diagnostics that help us, what can you tell us from the lithics that we don't already know? (MPK) We are conscious of our obligation to ask for archaeological mitigation in line with the NPPF which refers to be proportionate and reasonable in relation to the significance of the site. We must remember that the road line is a transect through the landscape and the mitigation of the road line offers research opportunities. (JP) noted that the material from the evaluation suggests it is not all plough rolled, some maintains good condition. Even if it isn't in exactly the place where it was	

dropped / denuded, it does maintain spatial distribution. All work is guided by research questions. We must be careful to not be blinkered or constrained by the questions within the current research framework. Have to be careful that the research strategy doesn't pre-judge the answers / results. We know so little about the lithics in these areas and why they are in these particular areas. We have to be careful, we might be able to tell what features have been ploughed out from the plough soil scatters – we need to work at micro- as well as macro-scale. (MPP) field walking and plotting of finds as an undergraduate was redone by an undergraduate some 35~40 years later. The distributions are identical, so we need more faith in the process. (DF) As its generally accepted that 95% of the evidence lies in the ploughsoil it's important to arrive at a strategy to correctly focus on it and to spend more time on retrieving evidence from it. We know about the cut features that are likely to survive beneath the ploughsoil, but they represent only a minor part of the evidence. To get to grips with settlement we need to focus on the evidence in the ploughsoil. (NMac) We need to look at the topography of the landscape, there are dry valleys both in the western and eastern portals and approaches. (MPP) Proportionality needs to be applicable across the board, not linked to scale. (BC) We need to give our best professional advice. I would find it difficult to justify sampling of 100% of the ploughsoil to a member of the public when there are other priorities for public money. In the WHS we should do to the highest of standards. We should be looking to technology to help us and also use our professional understanding of the landscape and the character of the scatters. Professionally, hand sieving of the ploughsoil is an incredibly tedious task for young professional archaeologists to undertake. I know of young archaeologists who have left the profession because they have been undertaking this task. There is a personal factor here which we need to consider. We need to understand, that if we as a Committee insist on 100%, what will that take in terms of person days and costs. (MPP) We should not be looking at the cost, we should be looking at the minimum standards. (BC) We should be looking at providing the best advice as possible. (MPP) If the time and the cost was already in place we wouldn't be debating this. (MPK) We wouldn't need to do 100% everywhere within the WHS. A blanket 100% sampling approach is disproportionate and not everywhere in the WHS, particularly in any areas we know are disturbed or where the evaluation has indicated very low concentrations, will require this approach. (BC) Can we confirm the number of person days it would take to cover the whole corridor at 100%, it won't influence my academic judgement, but we need to cover the point, so we are considering all factors. (MP) We need to consider the wider argument of what are we doing in the WHS that has this expenditure attached to it when compared to equally significant sites outside the WHS. (CS) We are the Scientific Committee and should not be considering the costs, we should be giving advice on the archaeological research value. In a Dutch example, the whole Hoge Vaart site (state funded A24 highway scheme) was extracted in 50cm square c. 5cm deep georeferenced and bar-coded spit samples to be wet sieved off site. I am not suggesting this here, but the approach can be scaled up for topsoil sieving, and it has been done elsewhere using technologies – banks of mechanised sieves. (BC) The advice we give should be based on the standards we think should be adopted. I am not clear in my own mind, are we talking about total sieving of all the plough soil in the WHS? Or are we saying there are some areas in the WHS where total sieving must be done, and other areas where sampling should be undertaken?	

(MPP) Need 100% across the whole WHS where it is impacted by the scheme. (BC) There might be a time when resources are constricted. (MPP) Then the tunnel project should not go ahead. (NM) Star Carr – dry land 100% - other areas very clayey not producing any lithics. Thinking about how we could sieve efficiently, project considered banks of sieves in 4-unit blocks. 4 sieves could sieve 2 tonnes a day with high clay content. There are methods which can speed up the sieving process. (AF) Would rather be in a position where the process is flexible - an absolute yes or no is not helpful. Not persuaded that 100% sieving of all the topsoil is the right approach, particularly in areas with lower density distributions. (MPP) there are very few areas of blank areas in the areas that have been evaluated, I can't see any part where you could say you don't need to do it to the 100% detail. (JP) do we have any blank areas? (ML) It depends on your definition of a blank area. There are test pits in the evaluated distribution which don't have any lithic material from them. (JP) Blank areas still have meaning, it depends on what it is. Where there are just a few lithics the signature may still be important – for instance in relation to short lived occupation or ephemeral structures. (CS) IN relation to cost, there is a point at which it is not worth doing a low percentage sample as it doesn't give you any answers. A lot of the funding for the tunnel project is based on a cultural benefit. So, we should ensure that there is a knowledge benefit to accompany the expenditure, i.e. the sample should not be so small as to be worthless. (MPK) We do have the data we have got from the evaluation which has informed the approach so far. So, we are not approaching this scheme from a position of no knowledge. We have already undertaken a 1% sample test pitting within the WHS. (HM) What mesh sizes for the sieve would you recommend? (MPP) Sieve sizes, Stonehenge Riverside Project used 10mm mesh size, except where floating. Thanks to (NM's) advice a 4mm sieve was used on a 1% sample to recover Mesolithic microliths. (MP) Suppose we sieve 100% of the topsoil and we have found a few microliths. What would that tell us that we don't already know? (MPP) We need a sampling strategy for the Mesolithic – microlithic cores and long blades, we need definition for it and what the strategy for that would be. How much have we learned from the 4mm mesh size sampling? (MP) we know they are there, a sampling for microliths won't change that view, so what would we learn. (MPP) extensive sampling is needed, using the appropriate mesh size, to ensure that we can answer the research questions. (NM) on Dry land we sieved through plough soil and then trowelled, we tend to put that together with the 3D stuff we have recorded. We found that spatial context is well maintained at Star Carr. You can see through the fieldwalking evidence that there is strong correlation with sampled material from the sieved soil and then the excavated material beneath. (NMac) what area of landscape was covered in this way at Star Carr, which is situated by a lake? (NM) covered a 4-mile area of the lake edge with test pitting. The coverage was important, to know where they are undertaking activities and where they were not – both important for understanding landscape use. (NMac) Salisbury plain is a different landscape.	

(NM) [there are] Other areas where people have collected lithics from other sites. Cannot yet make it clear that water's edge is the only place it is important to look at. Important to sample for Mesolithic activity on the plain. (BC) A good discussion well made. It is clear further work is required by a statistician to provide detail on statistically relevant sampling, what the data we have can tell us and what could be asked and what might be asked. (HW) We have provided Highways England with advice to assist them in compiling a brief to draw as much information out of the statistical analysis as possible in order to help inform the development of the approach to archaeological mitigation further. (BC) As much information as possible should be fed into this process so it would helpful if the work that has been produced by MPP as put forward in his presentation could also be offered to the statistician. d. Excavation & sampling strategy (features) and mechanisms to support its implementation – *proposals and discussion (20 mins)* (CM) Section 6.3 of the draft DAMS contains a selection of minimum sample sizes. Provides a framework on which to start from. (JP) Any linear you feel might be of later prehistoric date, given the possibility of burial deposits within them, it is probably best to go with 100% excavation. (CM) Given that the excavations will be monitored by HMAG we will be firmly directed to the application of the strategy in that way. (BC) Irish norm is for 100% excavation of linears. (JP) suggested placing a 1m^2 test pit into the middle of each tree throw (as identified). (MPK) the smaller ones its necessary to uncover an edge to identify it as a tree throw. (JP) rapidly evaluate each one by the excavation of the 1m^2. (MPP) will all tree throws be trenched to ascertain to see if they contain cultural material? (CM) all tested (hand excavated slot across them) to test that whether they are natural or anthropogenic in nature. (ML) then 10% of the tree throws were excavated (CM) not bound to 10%, proposal is to look at these on an area basis to relate them to the topography, confirmed archaeological features, lithic scatters and cultural material being recovered from them to influence the sampling strategy. (MPP) it is a crucial point in relation to the rates of deforestation in the early prehistoric period. It is important to understand which tree throw has nothing in it and which has cultural material in it - this needs testing. (CM) all are tested in the first instance to help identify the sampling strategy. (MPP) one of the features in the evaluation was a solution hollow. How do we ensure that sufficient investigation is undertaken to an appropriate depth? (BC) features like that require a strategy for them within the DAMS. (MPP) is there something in the strategy to cover these? (MPK) the DAMS has something in it already regarding these features, but probably requires further detail. (AF) assume that you reach the depth required by using machine excavation to reduce the surrounding area in steps? (MPP) How deep is the Wilsford Shaft? (NMac) 30m deep, and it was fully excavated. (AF) Sampling of material from features – need to ensure resources for scientific dating.	

(CM) dating strategy in the DAMS has taken advice from Historic England, how best to target for maximum recovery of dating material. (CS) Email from MPP had reference to Colin and Vince, about Geophysics, Strategy doesn't seem to include a geophysicist? (CM) this is an omission in the team list which needs rectifying. (CS) needs to be an approach in the strategy to cover geophysics to be undertaken after topsoil is cleared. Close interval geophysical survey needs to be undertaken - shows magnetism of the fills of small features had the same correlation to larger features which correlate the two features as of the same period/date (example from a project in Denmark). (BC) would this method be used in areas where the topsoil doesn't come down onto solid chalk? (CS) No we should undertake this on chalk too as this can pick up (for example) post holes which are not visible. (HM) Are you all comfortable with the whole earth environmental sampling strategy as laid out? (BC) No comments made – Assumed that the strategy is ok. e. Public Archaeology and Community Engagement – *proposals and discussion (20 mins)* (CM) Draft DAMS – Big statement of intent to collaboratively engage a wide audience to create a lasting legacy from the archaeology and the works. (BC) should one think be involving one or two universities – getting to large audiences, developing an online course for example, that can be used around the world. E.g. Oxford online courses. (HM) Recently (NM) developed a module focused on the excavation of Star Carr on Future Learn. Requested she provide further detail from her experience as this would be helpful. University of Reading (Silchester) also conducted a similar exercise. (NM) Started on the 1st July, lasts for 4 weeks, going out to 2,000 people. (MP) Presenting the results and engaging the public with the results is good, but such work should be undertaken during the works as well. It's a national issue that locally people would like to engage with. There needs to be an engagement strategy during the works. The public should be given the opportunity for a greater understanding of the principles, methods and the research questions etc. (MPK) absolutely agree with MP, talking to ensure this strategy tries to do that, so that we record and capture and engage during the process. (AF) you need the staff, and to think about it in advance, presenting what you want to know is a good story. Lots of case studies out there, best practice as well. Staff must sign up to the strategy in advance as well to enthuse and engage them in that aspect, to ensure engagement with the public. (BC) appointing one person is not sufficient (AF) There were 2 people full time undertaking Community Archaeology on site on the East Kent Access Road and it was successful. (MPK) what we hope is that more detail will be put into the DAMS, so it is included. An action plan needs to be developed. (CS) Cambridge University excavation – live web cam used and fed to a TV screen at the university. Suggest you look carefully at (Ian Hodder's example) Çatalhöyük project – make all the information available, people's personal views (multi-vocal) individual excavators with their own blogs, so not just "one official" view, continued across a 25yr period. (BC) Liaison with schools etc, is assumed?	

(CM) yes. Whole project engagement, archaeology is one facet of this. (NS) A WHS Learning Group already exists – this needs to be engaged with. (JP) there is a decline in student numbers at university due to schools dropping A-level Archaeology course as well as issues with recruitment. Engaging with schools can help students understand what archaeology is about and how it is undertaken. Think of archaeology as a profession. It's the Stonehenge label that will garner a wider audience. There's considerable potential for out-reach and engagement here. (HW) Is there potential for an archaeology apprenticeship scheme? (JH) Highways England is already engaged on that. (BC) Highways England should work closely with Universities to provide fieldwork opportunities. Engagement could help provide that access. Both sides benefit. f. Implementation and future role of Scientific Committee – *discussion (20) mins* (CM) Appendix A4 sets out the relationships across the project. Involvement of the Scientific Committee within the fieldwork phases and beyond. What happens next - Further submission at Deadline 6 (26th July) continue engagement and take away from today. Research questions in sampling and statistical analysis. Telephone conference opportunity in the next week or so? (JP) Timing is not good. (BC) Research Questions for statistical analysis to be sent in within the next week rather than trying to arrange a call. (CM) General comments on the draft DAMS as issued at Deadline 4 need to be with Highways England by the 17th July latest for consideration in Deadline 6 update of the document. We are being driven by the examination deadlines and running this group in parallel. (BC) AC to provide dates for early August to meet to discuss the Deadline 6 submission.	
5. AOB Nothing Raised	
6. Date of next meeting AC to provide dates for early August to meet to discuss the Deadline 6 submission.	

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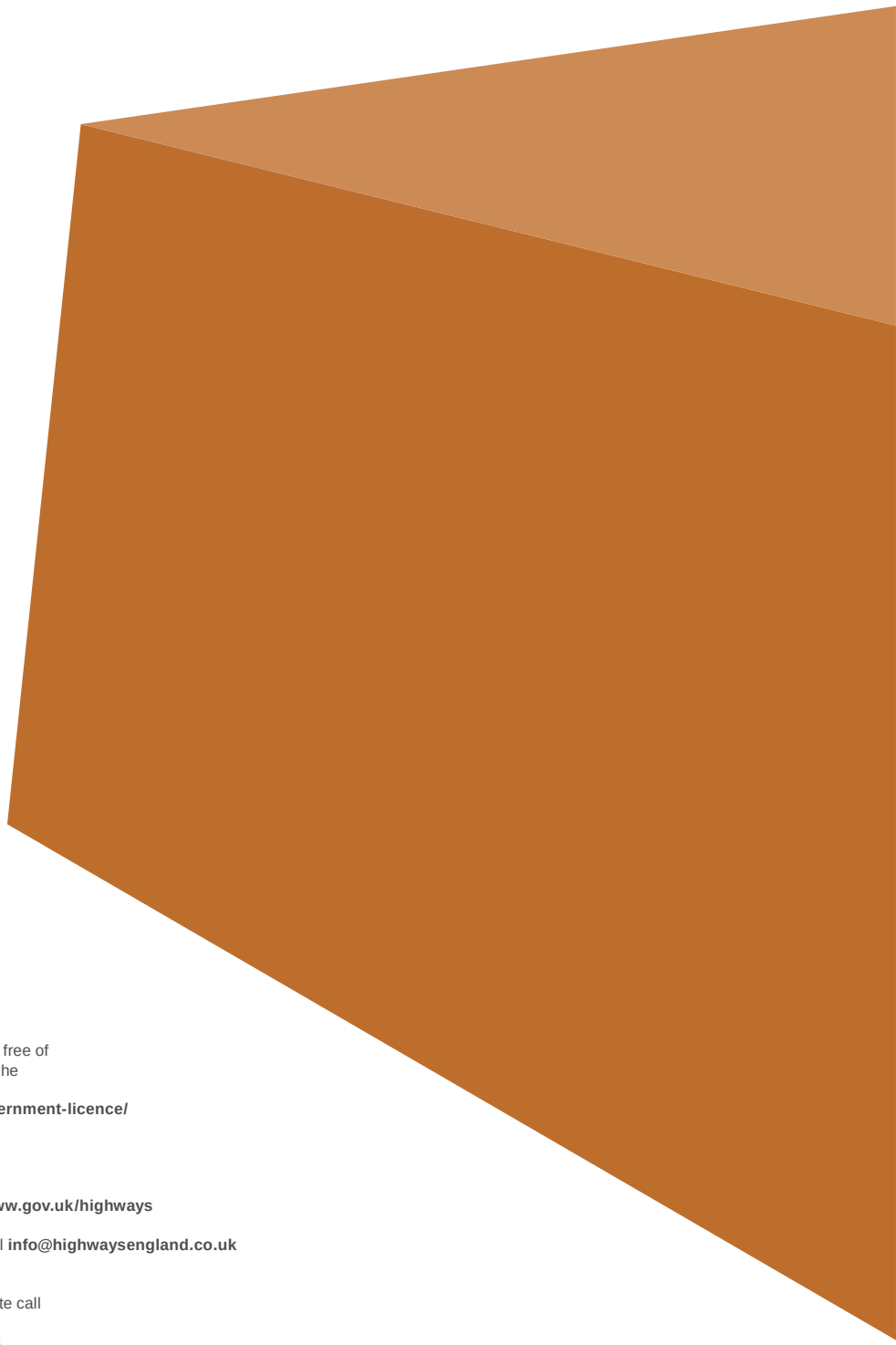

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