

# **Preliminary Outline Assessment of the impact of A303 improvements on the Outstanding Universal Value of the Stonehenge Avebury and Associated Sites World Heritage property**

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## REVISIONS

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### Executive Summary

The Government have asked the Highways Agency to prepare feasibility studies for the improvement of six strategic highways in the UK. One of these is the A303 including the single carriageway passing Stonehenge. This study has been commissioned by English Heritage and the National Trust to make an outline preliminary assessment of the potential impact of such road improvements on the Outstanding Universal Value of the World Heritage property.

A full impact assessment, compliant with the ICOMOS guidance and with EU and UK regulations for Environmental Impact Assessment (EIA) would be a much larger task than this preliminary assessment. It would be prepared by the promoter of a road scheme and would require more supporting material and more detailed analysis of impacts. The present study is an outline preliminary assessment intended to inform the advice provided by the National Trust and English Heritage to the Highways Agency and the Department for Transport. It deals only with impact on Outstanding Universal Value and does not examine impacts on other nationally or locally significant heritage.

The objectives of the study can be summarised as:

1. Review changes in international and national policy and in our understanding of the Outstanding Universal Value of the World Heritage property to set the context for the assessment of impact of potential options for improvement of the A303;
2. Assess the impact of four options for bored tunnels and associated road construction within the World Heritage property on its Outstanding Universal Value in the light of those changes, benchmarked against a 4.5km bored tunnel and the existing A303 road.

#### The Policy Context (see Chapters 4, 7)

Highway improvements of the A303 were last considered in 2003 – 2007 when the Published Scheme for a 2.1km tunnel was put forward. Since 2004, when the Public Inquiry was held into this scheme, there have been significant changes to international and national policy.

Internationally, the UNESCO World Heritage Committee, through successive editions of the Operational Guidelines to the World Heritage Convention, has placed more emphasis on the need for effective management to protect the Outstanding Universal Value, as agreed by them, of each World Heritage property. Heritage Impact Assessment is now requested for developments affecting World Heritage property. The Committee has endorsed the guidance for this developed by ICOMOS International (ICOMOS 2011).(see Chapter 3 for the methodology used in this study)

Nationally, there is now a greater focus on the need to identify and protect significance. The National Planning Policy Framework and its accompanying Policy Guidance have confirmed this, as well as emphasising the need to protect setting. They also contain guidance on the need specifically to protect the Outstanding Universal Value of World Heritage properties, which are regarded as heritage designations of the highest significance. Substantial harm to them should be wholly exceptional and only justifiable by substantial public benefits outweighing the harm. World Heritage properties should have Management Plans. Relevant policies in them should be taken into account in local authorities' spatial plans and decisions on development proposals.

A Statement of Significance, developed with the steering groups for Avebury and Stonehenge, was submitted by the UK government and agreed by the UNESCO World Heritage Committee in 2008. It was subsumed into an overall Statement of Outstanding Universal Value (now including assessments of integrity and authenticity) agreed by the Committee in 2013. The 2009 Stonehenge World Heritage Site Management Plan defined seven attributes of Outstanding Universal Value, based on the Statement of Significance, along with assessments of integrity and authenticity.

The Statement and Management Plan make clear that all Neolithic and Early Bronze Age funerary and ceremonial monuments and associated sites, together with their relationships with each other and with the landscape are attributes of Outstanding Universal Value and need to be treated as such. This is a decisive move away from the focus on Stonehenge and the Stonehenge Bowl which underpinned the 1999 EH/ NT Master Plan, the 2000 Management Plan and the Highways Agency Published Scheme, to a much wider view of the Outstanding Universal Value of the property which means that all the physical attributes of Outstanding Universal Value have to be given more equal consideration.

#### Assessment of the impact of alternative improvement schemes for the A303 on the Outstanding Universal Value of the World Heritage property (see Chapters 5, 6, 7)

The study assesses the impact of four options for bored tunnels and their associated dual carriageway and infrastructure. The length of each option was determined by the location of its portals. As a base line the current impact of the A303 on the World Heritage property was assessed. As a benchmark the impact of the 4.5km tunnel proposed by some conservation bodies in 2004 was also evaluated. Assessment methodology was based on the ICOMOS guidance. Each of these six situations was assessed against the seven attributes of Outstanding Universal Value, and the integrity and authenticity of the World Heritage property.

The impact of the current A303 has (using the ICOMOS HIA terminology) a major adverse impact of very large significance on the World Heritage property. There are major visual and aural impacts on Stonehenge itself and on a large number of other sites which are attributes of Outstanding Universal value. Because of its high visibility in the landscape, it has a major adverse impact of very high significance on the various visual linkages between monuments and between the monuments and the landscape. Because of its traffic load, it also acts as an effective divider of the World Heritage property which is a major adverse impact on the property's integrity, as are the aural and visual effects.

A bored 4.5km tunnel, starting in the present A303 cutting close to Countess Road roundabout and finishing west of the western boundary of the World Heritage property, would remove the A303 from the property, apart from c1km of existing dual carriageway on its eastern side and located in cutting. This would be a major beneficial change of very large significance (the highest rating possible under the ICOMOS guidance).

The four bored tunnel options have different impacts:

The 2.1km Published Scheme put to the 2004 Public Inquiry started just to the east of King Barrow Ridge and finished north of Normanton Gorse. There would be no road visible from Stonehenge itself. Access between the two halves of the World Heritage property would be improved. Because of the tunnel's depth, it would be constructed by cut-and-cover in Stonehenge Bottom which could have a long-term visual impact. Its eastern portal would have an adverse visual and aural impact on monuments along King Barrow Ridge. At its western end, it could have a physical impact on the long barrow just next to the portal (because 30m of tunnel next to the portal has to be constructed by cut-and-cover technology in any of the four options) and would certainly have a major adverse visual impact on that barrow group. The Published Scheme would necessitate the largest amount (1.6km) of new dual carriageway construction within the World Heritage property on the surface or within cutting which would have an adverse impact on integrity and authenticity. The junction with the A360 would still be very close to the Winterbourne Stoke Barrow Group. Balancing the adverse impacts against the positive ones, the overall assessment of the 2.1km tunnel (the Published Scheme) in the context of the current definition of Outstanding Universal value is that it would have a negligible beneficial impact of slight significance on the World Heritage property as a whole.

The remaining options all had the same eastern portal a further 200m away from King Barrow Ridge. The western portal for the 2.5km scheme would be 200m west of that for the Published Scheme and that for the 2.9km online scheme a further 700m west in the bottom of the small dry valley north of Normanton Gorse. The remaining option was for an offline route, also 2.9km long, with its portal in the bottom of the dry valley west of Normanton Gorse and a new road line running to a junction with the A360 700m south of the current one. In each case the new road would be dual carriageway in cutting with potentially positive impacts on visibility and noise.

All these options would have the same positive impacts as the Published Scheme in the central part of the World Heritage property, and without the impact of a cut-and-cover tunnel section in Stonehenge Bottom. Additionally, the location of their eastern portal would reduce impact on the monuments along King Barrow Ridge down to Coneybury Barrow. They would not have the same negative impact on the barrow group north of Normanton Gorse and the length of new dual carriageway road in the World Heritage property would be less (1.4km for the 2.5km tunnel and 1km for both 2.9km options). The two on-line options (2.5 and 2.9km bored tunnels) would still have junctions close to the Winterbourne Stoke Barrow Group whereas the 2.9km offline route would significantly reduce adverse impact on that group, though it might be intrusive in views between the Lake and Winterbourne Stoke Barrow Groups.

In ICOMOS HIA terminology, all three options (2.5km and 2.9km online and 2.9km offline) can be assessed as having a moderate beneficial impact of large/ very large significance. Within that scale of judgement, on present information the 2.9km offline version has the most positive benefits for

the World Heritage property. The next best alternative would be the 2.9kms tunnel online option, followed by the 2.5km option. Any of these three tunnel options would achieve a beneficial change of large/ very large significance in the impact of the A303 on the Stonehenge component of the Stonehenge, Avebury and Associated Sites World Heritage property.

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## **Chapter 1 Introduction**

The Department for Transport is carrying out a feasibility study of the potential improvement of the A303 as a major trunk route to the west of England, which includes considering its future where it crosses the Stonehenge component of the Stonehenge, Avebury and Associated Sites World Heritage property. This is one of six studies being carried out on potential road schemes in the UK. In addition to deciding on its response to any proposals within the context of UK legislation and needs, the Government will also need to consider its commitment under the 1972 World Heritage Convention to identify, protect, conserve, present and transmit to future generations places of Outstanding Universal Value 'to the utmost of its own resources' (UNESCO 1972, Article 4).

The last attempt to improve the A303 here was the A303 Stonehenge Improvement Scheme, leading to a public inquiry in 2004. Since then, there have been changes in planning and conservation policy both nationally and internationally, requiring a new review of the impact of potential schemes on the Outstanding Universal Value of the World Heritage property, and a review of the implications of that impact on what solution may be acceptable.

This study has been commissioned by English Heritage and the National Trust as a preliminary outline assessment of the impact of potential proposals for improvement of the A303 on the Outstanding Universal Value of the World Heritage property. There are two components to the work. The first is a review of the direct and indirect impacts of new road construction resulting in physical loss of the whole or part of archaeological sites and monuments which are attributes of the OUV of the WHS. This work (Chapter 6) has been undertaken by Dr. Nick Snashall, National Trust Archaeologist for Stonehenge and Avebury WHS. The second component is a review of changes in international and national policy and guidance since 2004, and also a review of the non-physical direct and indirect impacts on the attributes of Outstanding Universal Value. This component was commissioned from Dr Christopher Young, heritage consultant (see Appendix 1 for the brief for this component). Both aspects of the work feed into the outline conclusions as an integrated whole. The conclusions and the Non-Technical Summary have been written jointly by both authors. Throughout, we have worked together to ensure that the assessment reflects the full range of factors affecting each option.

The tasks required of the report are to:

1. Summarise the context in which the work has been commissioned and the methodology adopted to carry it out. (Chapters 2 and 3)
2. Review changes in international and national policy and guidance; in management policies for this WHS; in our understanding of the archaeological significance of the WHS; and in the articulation of its Outstanding Universal Value as agreed by the UNESCO World Heritage Committee under the terms of the World Heritage Convention and seen by them as the baseline for the future management of the property. (Chapter 4)

3. Consider the relative *direct and indirect* impacts, including physical impacts on archaeological features, of each option upon Outstanding Universal Value in the light of current policy, guidance and understanding of significance. The work will consider each option (2.1km tunnel (the 'Published Scheme'); 2.5km bored tunnel; 2.9km bored tunnel on-line, 2.9km bored tunnel off-line) with regard to the Statement of Outstanding Universal Value, including its assessments of integrity, authenticity and its definition of needs for future management and protection. This must take into account the articulation in the 2009 WHS Management Plan of Attributes identified in the Statement of Outstanding Universal Value, and have regard to impacts on setting (aural and visual, including lighting), physical loss of the whole or part of archaeological sites and monuments, and on access insofar as relevant information is available within the constrained timescale necessary to complete the work. (Chapters 5 and 6)
4. In addition to the impact of the tunnel options themselves, the study will consider the impact of dual carriageway construction within the WHS on Outstanding Universal Value outwith the tunnelled part of each option. (Chapters 5 and 6)
5. To provide both a baseline and spectrum of the impact on Outstanding Universal Value, the assessment should also consider the impact on Outstanding Universal Value of the current road within the WHS and of the 4.5km tunnel. (Chapter 5)

This study is solely a preliminary outline assessment of the perceived impacts on the property's Outstanding Universal Value of the existing road, the 4.5kms tunnel for benchmark purposes and the four tunnel options specified by the National Trust and English Heritage, and made within the limitations of the available information. It is not a recommendation for an actual solution but intended to provide input into considering what that might be. Any decision on an actual route will need to be taken within the constraints of Government policy, bearing in mind the UK's international responsibilities for Stonehenge under the World Heritage Convention. The four options provided the basis for assessment but the actual designed solution will need careful consideration to ensure the protection of the Outstanding Universal Value of the World Heritage property and to avoid putting it at risk of being included on the World Heritage in Danger list or even delisted altogether as was the case with Dresden Elbe Cultural Landscape.

## Chapter 2 Context

The improvement of the A303 at Stonehenge is a potential scheme within a Department for Transport (DfT) Feasibility Study of route options on the A303/A30/A358 Corridor. Stonehenge will be considered along with other potential improvements along the corridor. The Study is in a competitive process as one of six routes nationally. The renewed focus on the A303 presents an opportunity to achieve a solution to reunite the World Heritage property, improve the setting, create a more tranquil and permeable landscape for visitors within the Stonehenge component of the Stonehenge, Avebury and Associated Sites World Heritage Site (WHS) and tackle the ongoing road performance issues. It also carries risks in the potential for harm to the Outstanding Universal Value (OUV) of the Stonehenge WHS as options to be considered by DfT may include surface dualling.

Surface dualling of the whole route through the Stonehenge component of the World Heritage property, whether on-line or off-line, would cause substantial harm to the significance and Outstanding Universal Value of the WHS, and DfT has been advised accordingly. Exhaustive work was undertaken to assess the impact of surface dualling options within the WHS as part of the work to identify an acceptable route option in the 1990s and 2000s. The significant adverse impacts that such options were likely to have on Outstanding Universal Value were identified at the time and the current context for Outstanding Universal Value impact assessment will certainly reinforce those conclusions. As a result, surface dualling options across the whole World Heritage property without bored tunnels are not considered further in this study.

Since the 2.1 km Published Scheme (A303 Stonehenge Improvement) was last considered at the 2004 Public Inquiry and in the Highways Agency's (HA) Options Appraisal in 2006-7, there have been changes in international and national policy and guidance; in management policies for this WHS; in our understanding of the archaeological significance of the WHS; and in the articulation of its Outstanding Universal Value as agreed by the UNESCO World Heritage Committee under the terms of the World Heritage Convention and seen by them as the baseline for the future management of the property. These changes mean that the advice to DfT/HA provided by both EH and NT on the 2.1km Published Scheme, both as part of the A303 Stonehenge Improvement options appraisal in 2006 and previously, is unlikely to remain valid. A fresh, outline preliminary assessment of impact on Outstanding Universal Value based on current criteria, policy and guidance is required to inform their mutual positions on what may form an acceptable road scheme at Stonehenge.

At the 2004 Public Inquiry (from which sprang the 2006 Highways Agency options appraisal), English Heritage supported the 2.1km twin-bored tunnel (the Published Scheme), whilst the National Trust supported a longer bored tunnel that was as long as possible. Although the Public Inquiry accepted on balance the case for the 2.1km tunnel, the scheme was cancelled by Government in December 2007, following the Highways Agency options appraisal of 2006. While cancelling the scheme, the government restated its view that *due to significant environmental constraints across the whole of the World Heritage Site, there are no acceptable alternatives to the 2.1km bored tunnel scheme. However, when set against our wider objectives and priorities, we have concluded that allocating more than £500m for the implementation of this scheme cannot be justified and would not represent*

*best use of taxpayers' money* (Department for Transport 2007). The government therefore accepted that no surface scheme through or round the World Heritage property would be acceptable.

The 2004 Inquiry and subsequent decisions were made under the international and national policy guidance and regulations then applying, and within policies of the 2000 *Stonehenge World Heritage Site Management Plan* (English Heritage 2000). Since then, there have been changes

1. in policy and guidance ;
2. in management policies for this WHS;
3. in our understanding of the archaeological significance of the WHS; and
4. in the articulation of its Outstanding Universal Value as agreed by the UNESCO World Heritage Committee under the terms of the World Heritage Convention.

In policy and management guidance terms these changes include revisions in the 2005 and later editions of the UNESCO *Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO 2002, 2005, 2013) the *National Planning Policy Framework*, (DCLG 2012); the *Planning Practice Guidance* (DCLG 2014), the English Heritage published guidance *The Setting of Heritage Assets*, (English Heritage 2011) and *Conservation Principles*, (English Heritage 2008); ICOMOS *Guidance on Heritage Impact assessments for Cultural World Heritage Properties*, (ICOMOS 2011), the Statement of Outstanding Universal Value for the World Heritage Property adopted by the World Heritage Committee in June 2013; and the revised WHS Management Plan 2009-2015 (English Heritage 2009a).

The present DfT Feasibility Study raises once again the potential for achieving a sustainable road improvement scheme through the WHS Stonehenge. Accepting the overarching principle that a bored tunnel is the only road improvement method that has the potential to avoid substantial harm to the WHS, this report assesses the relative benefits versus harm to Outstanding Universal Value that a range of bored tunnel options may present. A 4.5kms tunnel as proposed at the last Inquiry by a number of conservation bodies is considered as a benchmark. The existing surface road which marks the other end of that range is also assessed as a baseline against which to judge the impacts of the options for a bored tunnel.

### Chapter 3 Methodology

This report addresses two aspects of what is necessary to assess the impact of various options for the improvement of the A303 through the Stonehenge World Heritage property. Firstly the policy and guidance context in which any impact must be assessed is considered. Secondly the potential impact of four specific options for bored tunnels of different lengths, including an assessment of the impact of dualling sections of the road within the World Heritage property in a cutting (Tata 2014, 12), is assessed. Apart from the 2.1 km Published Scheme, the lengths of the other bored tunnel options are determined by suitable locations for the tunnel portals (see pp. 27 - 28 for further discussion of this)

The evaluation is divided into an assessment of permanent direct and indirect impacts of new road construction resulting in physical loss of the whole or part of archaeological sites and monuments which are attributes of the Outstanding Universal Value of the WHS, and of the non-physical impacts on attributes of Outstanding Universal Value. This study looks solely at the implications for the World Heritage property. It concentrates on the impact on attributes of Outstanding Universal Value and therefore on the property's international values. It does not focus on impacts on cultural heritage of national or local significance except insofar as these also have international significance. It is beyond the study's scope to examine any wider implications, such as, for example, the Winterbourne Stoke bypass or other improvements further west. These clearly will need to be borne in mind both for their impact on heritage assets, natural or cultural, of national or local significance, as well as for their impact on the Outstanding Universal Value of the World Heritage property in its wider setting in the development of any scheme.

#### Changes in policy and guidance since 2004

The first task is to identify changes in the policy framework since the last Public Inquiry in 2004 and the subsequent review of options by the Highways Agency in 2006. The policy and regulatory areas reviewed are:

1. Changes and developments since 2004 in policy and guidance for the implementation of the UNESCO World Heritage Convention in respect of the protection of World Heritage properties, particularly with regard to the *Operational Guidelines for the Implementation of the World Heritage Convention*(UNESCO 2013a);
2. Guidance produced by the Advisory Bodies to the World Heritage Convention and endorsed by the World Heritage Committee, particularly the ICOMOS *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*(ICOMOS 2011) which has been recommended for use in many of its decisions;
3. Changes and developments since 2004 in policy and guidance for the implementation of the English planning system for the protection and sustainable use of the historic environment, particularly the introduction of the National Planning Policy Framework (NPPF) in 2012 (Department for Communities and Local Government 2012), and of the Planning Policy Guidance in 2014 (Department for Communities and Local Government 2014);

4. Significant policy statements since 2004 by English Heritage on the methodology to be used for the protection of the historic environment, particularly the English Heritage *Conservation Principles, Policy and Guidance* (2008), and *The Setting of Heritage Assets: English Heritage Guidance* (2011);
5. The Statement of Outstanding Universal Value for the Stonehenge, Avebury and Associated Sites World Heritage property, proposed by the UK Government in January 2011 and adopted by the UNESCO World Heritage Committee as the baseline for the future protection of the World Heritage property;
6. Changes in policies in the *Stonehenge World Heritage Site Management Plan 2009* (English Heritage 2009a), compared to those in the 2000 version.

In each section the position in 2004 is briefly summarised. Changes in the last decade are then described and their implications discussed. This section of the report finishes with an analysis of the impact of various changes on the overall approach required for any assessment of impact of changes to the A303 on the Outstanding Universal Value of the Stonehenge component of the Stonehenge, Avebury and Associated Sites World Heritage property.

#### Impact assessment

It has not been possible to carry out a full Heritage Impact Assessment of any of the options outlined in the brief for improvement of the A303 as no detailed, designed scheme has been proposed. It would in any case be the responsibility of the Project Sponsor for a road scheme to produce a full Heritage Impact Assessment.

The position of the tunnel portals has been assigned for each option. It is taken as a given that any tunnel will be bored, not cut-and-cover (it should be noted here that the 2.1km Published Scheme which is assessed here was planned to be a bored tunnel for most of its length with a cut and cover component at Stonehenge Bottom). Beyond that, nothing is certain. The assessment is made on the basis of assumptions informed by the A303 Tunnel Feasibility Review commissioned by the National Trust from Tata Steel Projects (Tata 2014). Apart from the Published Scheme (a small part of which outside the tunnel would have been at surface at the west end but otherwise in cutting), these assumptions include the construction of surface elements of each option in cutting with vertical 'green walls' to minimise visual and aural impact. Tata have also provided estimates of the amount of landtake required for each option as well as comments on potential lighting and other needs. The Published Scheme proposed a flyover at the Countess Road junction on the eastern edge of the World Heritage property, within the footprint of the existing dual carriageway and cutting. For the junction of the A303 and A360, the Published Scheme proposed a grade-separated junction with the A360 at grade over the A303 in a cutting. The present junction at Longbarrow Crossroads is very sensitive because of its closeness to the Winterbourne Stoke Barrow Group. Only permanent Impacts have been assessed and no attempt has been made to assess temporary impacts during construction.

The basic methodology used has been that recommended in the ICOMOS *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011). This has effectively been endorsed by the UNESCO World Heritage Committee through various decisions and therefore provides a model likely to be acceptable to them. It is also similar to the methodology developed in the Highways Agency *Design Manual for Roads and Bridges* which has been tried and tested in England, not least at Stonehenge. One of the key aspects of the methodology is that the impact on Outstanding Universal Value has to be assessed as a whole and not atomised into impact on individual attributes which can be misleading. However, in order to reach such an overall assessment it is still necessary to assess impact on individual attributes as the basis for the final conclusions.

In carrying out this preliminary assessment of impact on Outstanding Universal Value, we have received no full scoping opinion and have no details of any potential road scheme from HA or DfT. We have been instructed to consider the impact of four different combinations of portal locations, with resultant bored tunnels of 2.1km, 2.5km, 2.9 km (all online) and 2.9km offline, with the remainder of the road dualled in cutting, except for a short length of the 2.1km Published Scheme which would be on the surface in the hollow just east of the junction with the A360. Essentially though we have focused on the key elements of the ICOMOS HIA methodology:

- Identification of heritage at risk and its contribution to the Outstanding Universal Value of the property
- How change or development will impact on Outstanding Universal Value, positively or negatively

Impact has been scored according to the ICOMOS methodology. This postulates a scale of values for attributes of:

- Very high
- High
- Medium
- Low
- Negligible
- Unknown

All attributes of Outstanding Universal Value considered in this case have been ranked as 'Very High' because they are by definition of international significance. The scale of impact of proposed changes has been ranked as:

- No change
- Negligible change
- Minor change
- Moderate change
- Major change

Change can be adverse or beneficial. This gives a nine-point scale with ‘neutral’ as its central point:

- Major beneficial
- Moderate beneficial
- Minor beneficial
- Negligible beneficial
- Neutral
- Negligible adverse
- Minor adverse
- Moderate adverse
- Major adverse

The significance of the impact of the change is scored as a function of the importance of the attribute and the scale of change. For any feature of international significance (ie World Heritage properties and their attributes of Outstanding Universal Value), the result of this scoring is as follows:

| VALUE OF HERITAGE ASSET                                   | SCALE & SEVERITY OF CHANGE/IMPACT                                       |                   |                 |                  |              |
|---|---|-------------------|-----------------|------------------|--------------|
|   |   | Negligible change | Minor change    | Moderate change  | Major change |
| For WH properties Very High – attributes which convey OUV | SIGNIFICANCE OF EFFECT OR OVERALL IMPACT (EITHER ADVERSE OR BENEFICIAL) |                   |                 |                  |              |
|   | Neutral   | Slight            | Moderate/ Large | Large/very Large | Very Large   |

Fig 1: significance of impacts on World Heritage properties and their attributes (ICOMOS 2010, 9)

According to the ICOMOS HIA Guidance, therefore, any moderate or major impact on an attribute of Outstanding Universal Value results in a large or very large beneficial or adverse impact.

This is an unusual HIA in that the property is already affected by a large/ very large adverse impact on its Outstanding Universal Value in the form of the present A303. Any of the proposed options would lessen this impact though large/ very large adverse impacts to individual attributes would remain and additional adverse impacts may also be introduced in some instances. The removal of an adverse impact from any attribute so that it no longer exists in the new situation is in fact a positive impact on that attribute and needs to be recorded as such.

This assessment has been carried out for each physical attribute selected for examination in this study. Following that process, it has been necessary to aggregate the results to give an overall assessment of impact on Outstanding Universal Value of the Stonehenge part of the World Heritage

property as a whole. This has inevitably involved the use of professional judgement, particularly as, for each of the bored tunnel options, gains in one part of the World Heritage property may be accompanied by losses in another.

Outstanding Universal Value has been agreed for the whole World Heritage property and attributes have been previously defined for the Stonehenge component in the 2009 Management Plan which has been endorsed by all the key stakeholders (English Heritage 2009a pp28-33). The seven identified attributes, all securely based in the agreed Statement of Outstanding Universal Value, are:

1. Stonehenge itself as a globally famous and iconic monument.
2. The physical remains of the Neolithic and Bronze Age funerary and ceremonial monuments and associated sites.
3. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the landscape.
4. The design of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the skies and astronomy.
5. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to each other.
6. The disposition, physical remains and settings of the key Neolithic and Bronze Age funerary, ceremonial and other monuments and sites of the period, which together form a landscape without parallel.
7. The influence of the remains of Neolithic and Bronze Age funerary and ceremonial monuments and their landscape settings on architects, artists, historians, archaeologists and others.

The first two of these are physical attributes consisting of surviving archaeological sites above or below ground. No. 6 singles out the landscape formed by the interrelationship of the physical attributes with their natural environment and thus applies holistically to the whole property. It relates closely to the integrity of the property. Nos. 3 and 5 are about the relationships of the individual physical attributes with the landscape and with each other. No. 4 deals with astronomical alignments and is therefore also about relationships of the physical attributes, in this case with beliefs and their physical expression. No. 7 is about the influence of the physical attributes and their relationships, particularly in the landscape, on artists, architects and other disciplines.

Integrity and authenticity are also deemed by the UNESCO World Heritage Committee to be part of the Outstanding Universal Value of the property. The impact of the A303 as it is now, and the changes in that impact resulting from the various bored tunnel options must also be assessed.

The present A303 has been rapidly assessed for its impact on those attributes selected for assessment, supported by field visits as necessary and as time permitted. The scale and system used for measuring impact is that recommended by ICOMOS, as was that used for grading assets. Following that, the same process was applied for the impact of a 4.5kms tunnel. These provide the two extreme positions of maximum and minimum impact of the A303 on the Outstanding Universal Value of the World Heritage property, given that the brief for this study ruled out on-line surface dualling through the full width of the World Heritage property (see above **Chapter 2 Context**). The

same process was then applied to the four bored tunnel options provided by English Heritage and the National Trust. Only the impact of permanent changes has been assessed.

There are over 661 known archaeological sites and monuments within the Stonehenge component of the World Heritage property (Wessex Archaeology 2012). Many of these are physical attributes of the Outstanding Universal Value of the site, as the physical remains of Neolithic and Bronze Age funerary and ceremonial monuments and associated sites. They are also parts of other attributes dealing with relationships between them and their landscape. Many of them will be in view of the A303, or interlinkages between them will be affected by the A303. It has not been possible with the time or resources available to assess every possible impact.

**It must be stressed that a full impact assessment, fully compliant with the ICOMOS guidance and with EU and UK regulations for Environmental Impact Assessment (EIA) would be a much larger piece of work than has been possible within the time and resources available for this preliminary assessment. It would also require much more supporting material such as a full description of the Stonehenge component of the World Heritage property with a gazetteer of all the sites considered. There would also need to be a much more thorough and detailed analysis of impacts on relationships. This study is a preliminary assessment intended for the National Trust and English Heritage to inform their response to the Highways Agency. It is in no way a full impact assessment which remains to be done in the future.**

For the part of the study not dealing with the physical impact of new road construction on archaeology, the approach therefore has necessarily had to be selective. We have attempted a rapid assessment of key attributes of Outstanding Universal Value (see Chapter 5) with the main focus on visual relationships (Attributes 3, 5, 6). This has been addressed by selecting 17 key groups of attributes, such as barrow groups and Stonehenge itself, whose relationships are affected by the visible presence or absence of the A303. It is hoped that this will produce a preliminary but clear result representative of the outcome of a full HIA based on a more detailed scheme. The method of assessing impacts is that recommended by the ICOMOS guidance.

Listed roughly from north-east to south-west, these are (See Fig. 2):

- |   |   |
|---|---|
| 1. Durrington Wall  | 10. The Cursus W end  |
| 2. Woodhenge  | 11. Cursus Barrows  |
| 3. The Avenue east of King Barrow Ridge                           | 12. Stonehenge  |
| 4. Unnamed barrow group either side of this stretch of the Avenue | 13. Stonehenge Down Barrows   |
| 5. King Barrows (Old and New)                                     | 14. Normanton Down Barrows  |
| 6. Coneybury Henge  | 15. The unnamed group either side of the A303 close to the potential positions of Portals B and C |
| 7. Coneybury Barrow (King Barrow) south of Coneybury Henge        | 16. Lake Barrows  |
| 8. The Cursus E end   | 17. Winterbourne Stoke Barrows  |
| 9. The Cursus centre  |   |

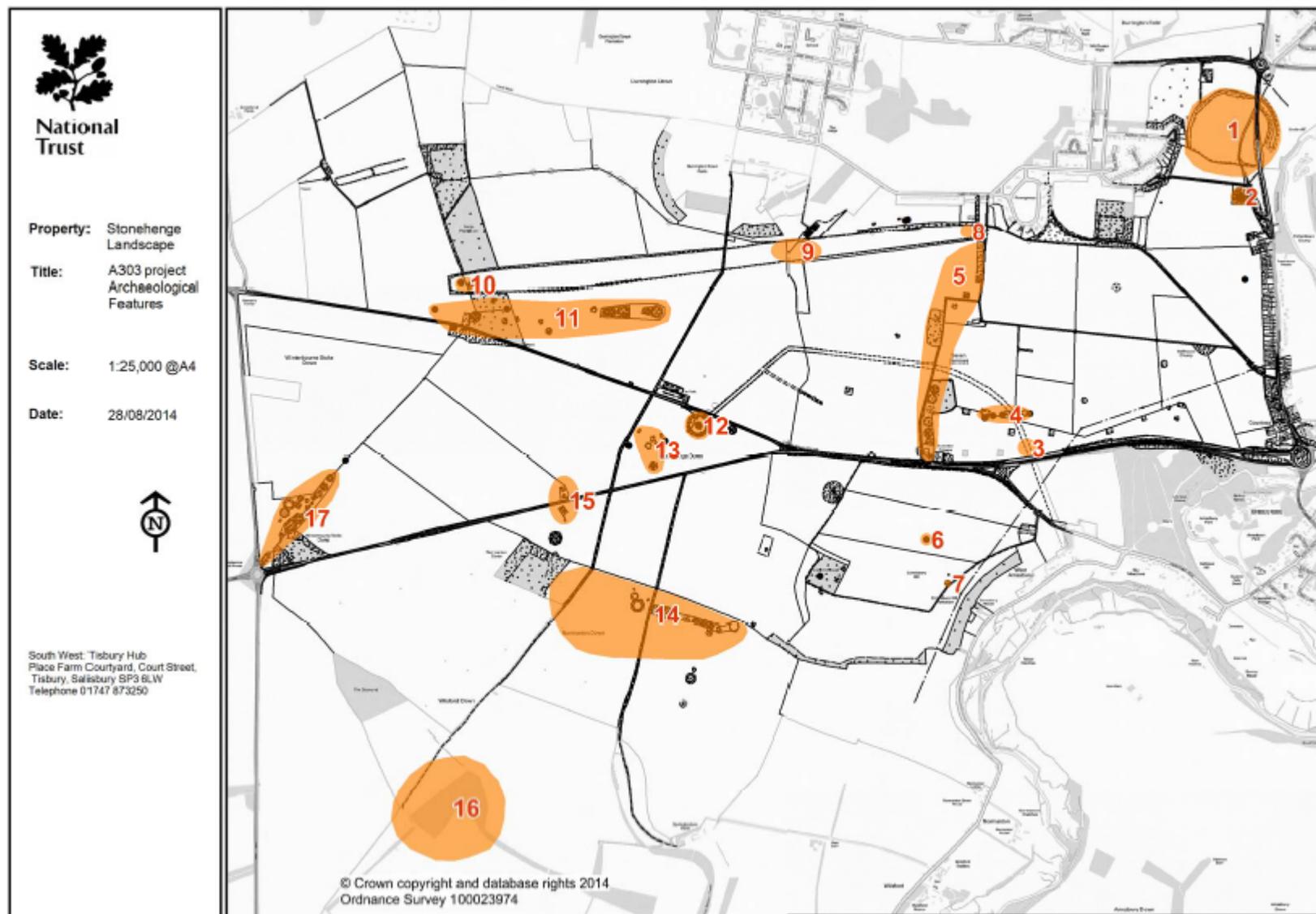


Fig 2 map of 17 key groups of attributes whose relationships are affected by the A303

For linear monuments or extended barrow groups, it has been necessary to select a focus from which to judge visual impact. For the Avenue east of King Barrow Ridge (3), this is the point at which the line of the Avenue crosses the A303, and for the associated barrow group to the north of the A303 (4), it is the point at which the Avenue intersects the east-west line of burial mounds. The Cursus is so long, and its visual connections so varied, that it has been divided into three sectors, the high east (8) and west (10) ends, and the low part where it crosses Stonehenge Bottom (9). For barrow groups, we have used the approximate centre as the focal point.

Results are based on field observation and map work and no digital analysis has been possible in the time available. It has only been possible to access rights of way and National Trust permissive open access land where it was not under crop at the time of field visits (spread over three days between 7<sup>th</sup> and 17<sup>th</sup> July), as was the case with Coneybury Henge. We have also made use of observations reported in *Stonehenge Landscapes* (Exon, Gaffney, Woodward, Yorston 2000) where these are applicable. In many cases viewsheds are obscured by woodland, particularly during July when the site visits were made, and here reasoned judgements have had to be made as to what should be visible. This is also the case with sites which it was not possible to access physically.

The ICOMOS guidance also advises assessment of impact on the integrity and authenticity of the World Heritage property, and this too has been attempted for each option. A baseline for this is provided by the 2009 World Heritage Management Plan which contains brief assessments of the integrity and authenticity of the Stonehenge component of the World Heritage property.

In order to undertake this work, details of the expected road and tunnel construction were required. The National Trust commissioned Tata Steel Projects to provide this technical detail in their A303 Tunnel Feasibility Review, (Tata Steel Projects 2014). The Tata Steel report examines the technical aspects of tunnel and highways construction for the four options and draws on all the available details of the 2006 2.1km Published Scheme, making clearly stated assumptions where detail was lacking or new portal locations required technical detail amendment. As part of this work Tata Steel set out putative footprints for the four road options and their related infrastructure.

The assessment of the impact of physical damage to archaeological sites caused by new construction work first identified all archaeological sites and monuments which are attributes of the Outstanding Universal Value of the World Heritage Site which are located either within the footprint, or immediately adjacent to the footprint, of each road option. In line with the Statement of Outstanding Universal Value this has been taken to mean all Neolithic and Bronze Age funerary and ceremonial monuments and associated sites dating to between 3700 and 1600 BC (i.e. Neolithic or Early Bronze Age in date). For the purposes of this study all ring ditches (including undated examples) have been assumed to be the relict remains of Early Bronze Age round barrows and therefore to be attributes of Outstanding Universal Value of the World Heritage property.

Sites and monuments were identified using the Wiltshire Historic Environment Record (HER) supplemented by information from interim plots and reports from the Stonehenge Hidden Landscapes Project (an extensive geophysical survey being undertaken within the World Heritage

property by the University of Birmingham and the Ludwig Boltzmann Institute). Potential physical impact on those sites and monuments was then assessed according to the ICOMOS methodology.

Because of the nature of this assessment no distinction has been drawn between scheduled and unscheduled monuments. Only the physical impacts on archaeological sites and monuments that are attributes of the Outstanding Universal Value of the WHS have been assessed. Where these are also Scheduled Monuments the Scheduled Monument number has been provided in addition to the Wiltshire HER reference. Scatters of surface material and spot finds have been excluded from the assessment as lithic scatters in particular, though varying greatly in density, appear to be ubiquitous across much of the Stonehenge World Heritage Site.

The assessment on physical archaeological impacts was undertaken on a portal by portal basis and the results then combined to provide an assessment of the impact of each of the four road options. Chapter 7 brings together these conclusions with those of other sections of this report to reach an overall assessment of impact.

## Chapter 4 Policy developments since 2004

### The World Heritage Convention

The UNESCO World Heritage Convention (UNESCO 1972) states that it is the responsibility of each state party to identify, protect, conserve, present and transmit to future generations its property of Outstanding Universal value to the utmost of its own resources (Article 4). It is up to each state party to choose the ways in which it does so. The Convention provides for sites at risk to be placed on the World Heritage in Danger List as an indication of the need for support and help from the international community to resolve problems.

How the Convention should be implemented is articulated in *The Operational Guidelines for the Implementation of the World Heritage Convention*. First adopted in 1976 by the Convention's governing body, the UNESCO World Heritage Committee, they have been periodically amended since then. The last major revision was completed in 2005 (UNESCO 2005) and the current 2013 edition is essentially that of 2005 with some relatively minor amendments (UNESCO 2013a).

The 2004 Inquiry and the subsequent roads review by the Highways Agency therefore took place in the context of the 2002 Operational Guidelines (UNESCO 2002). These were quite light on management and protection. While containing guidance on the operation of the procedures for in-danger listing and deletion of properties from the World Heritage List, there was little on management. States parties were asked to *prepare plans for the management of each natural site nominated and for the safeguarding of each cultural property nominated* (UNESCO 2002, para 21).

The 2002 Guidelines said that, to be considered of Outstanding Universal Value, a property must meet at least one of the criteria for Outstanding Universal Value, must have *authenticity in design, material, workmanship or setting and in the case of cultural landscapes their distinctive character and components* (UNESCO 2002, para 24 (b) (i)) if it is a cultural property, and integrity if it is a natural one. At that point, there was no requirement for cultural World Heritage properties to have integrity.

The 2002 Guidelines said that properties must:

*have adequate legal and/or contractual and/or traditional protection and management mechanisms to ensure the conservation of the nominated cultural properties or cultural landscapes. . . . Assurances of the effective implementation of these laws and/or contractual and/or traditional protection as well as of these management mechanisms are also expected. Furthermore, in order to preserve the integrity of cultural sites, particularly those open to large numbers of visitors, the State Party concerned should be able to provide evidence of suitable administrative arrangements to cover the management of the property, its conservation and its accessibility to the public.* (UNESCO 2002, para 24 (b) (ii))

There was no requirement for a property to have a clear official statement of why it had Outstanding Universal Value. To find out why a site had been inscribed on the World Heritage List, it was necessary to check back to the record of Committee decisions which often contained no justification

for inclusion on the List, and to the evaluation of the property submitted by the Advisory Bodies (IUCN for natural, and ICOMOS International for cultural ones) to the Committee.

The 2005 Operational Guidelines (UNESCO 2005) introduced a number of significant changes. These were:

1. The introduction of a definition of Outstanding Universal Value *as cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity* (UNESCO 2005, para 49).
2. Integrity (the definition of the wholeness and completeness of the property) is now a condition of Outstanding Universal Value for cultural properties as well as natural ones, alongside the existing requirement for authenticity (UNESCO 2005, paras 87-88).

*Integrity is a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes. Examining the conditions of integrity, therefore requires assessing the extent to which the property:*

- a) includes all elements necessary to express its Outstanding Universal Value;*
- b) is of adequate size to ensure the complete representation of the features and processes which convey the property's significance;*
- c) suffers from adverse effects of development and/or neglect.*

*For cultural properties, the physical fabric of the property and/or its significant features should be in good condition, and the impact of deterioration processes controlled. A significant proportion of the elements necessary to convey the totality of the value conveyed by the property should be included. Relationships and dynamic functions present in cultural landscapes, historic towns or other living properties essential to their distinctive character should also be maintained* (UNESCO 2005 para 89).

3. The Committee decided that *To be deemed of Outstanding Universal Value, a property must also meet the conditions of integrity and/or authenticity and must have an adequate protection and management system to ensure its safeguarding* (para 78). Meeting one or more criteria for Outstanding Universal Value, having integrity and/or authenticity, and the existence of adequate protection and management are seen as the three pillars supporting Outstanding Universal Value as a whole. Failure to meet any of these three can jeopardise the property's overall status on the World Heritage List.
4. The Committee also decided that:

*At the time of inscription of a property on the World Heritage List, the Committee adopts a Statement of Outstanding Universal Value (see paragraph 154) which will be the key reference for the future effective protection and management of the property.* (UNESCO 2005 para 51)

*The Statement of Outstanding Universal Value should include a summary of the Committee's determination that the property has Outstanding Universal Value, identifying the criteria under which the property was inscribed, including the assessments of the conditions of integrity or authenticity, and of the protection and management in force and the requirements for protection and management. The Statement of Outstanding Universal Value shall be the basis for the future protection and management of the property. (UNESCO 2005 para 155)*

For sites already inscribed on the World Heritage List, the Committee has adopted retrospective Statements of Outstanding Universal Value, based on documentation considered by them at the actual time of inscription.

5. The Committee also adopted more substantial guidance on protection and management of World Heritage properties (UNESCO 2005, paras 96 – 119). The broad requirements outlined in 2005 (paras 108 – 114) were in line with current UK practice but stated these explicitly for the first time as necessary for meeting responsibilities to implement the Convention.

This section was subsequently modified in 2011. The full section of the Guidelines as they exist in 2014 (UNESCO 2013a) is attached at Appendix 2. Changes since the 2005 edition are shown in red in Appendix 2. Apart from clarification and elaboration of the wording, the principal changes have been to emphasise the needs for integrated planning, both within the World Heritage property and in its wider setting, and to introduce a specific requirement for impact assessment of development proposals.

There are therefore some significant shifts from the position in 2002 which applied during the previous consideration of the A303 Published Scheme for a 2.1km bored tunnel a decade ago. In particular, the introduction of Statements of Outstanding Universal Value as the baseline for management of individual properties provides much firmer foundations for assessment of impact of development proposals. This is very much in line with developments within the English planning system which bases management of the historic environment on its significance. It also means that in future it should be much more possible to state clearly whether a development proposal does have a positive or negative impact on Outstanding Universal Value.

The effect of these changes on the operation of the World Heritage Committee has been gradual. A Statement of Significance, covering just the first pillar of OUV was adopted for Stonehenge and Avebury in 2008 (English Heritage 2009a, pp.26-7), and a full Statement of Outstanding Universal Value in 2013. The latter (Appendix 3) is now the basis for the assessment of the impact of any future proposals affecting either part of the World Heritage property. The attributes identified in the 2009 Stonehenge World Heritage Site Management Plan are an elaboration of what has become the first section of the Statement of Outstanding Universal Value.

In recent years, the Committee's decisions on the state of conservation of individual properties have increasingly focused on the need to have impact assessments. Guidance has now been published for both cultural and natural properties (see below for discussion of ICOMOS guidance). Many decisions

now mention the need for, or request a Heritage Impact Assessment in line with the ICOMOS Guidance. Should the Committee consider that Outstanding Universal Value is at risk, it can offer advice or assistance, and in severe cases can place a property on the List of World Heritage in Danger. If the Committee decides that Outstanding Universal Value has been irretrievably damaged, it can remove a property from the World Heritage List, as happened in the Dresden case. Any action such as this would apply to the World Heritage property as a whole and not just to its Stonehenge component.

The Committee has also shown itself since 2004 to be very concerned over the impact of major transport infrastructure projects on World Heritage properties. Examples in Europe include the construction of bridges in the Dresden Elbe property, eventually removed from the World Heritage List because of the impact of this bridge, in the Middle Rhine Valley, and across the Golden Horn in Istanbul. These cases all involved bridges but any major new road construction in a World Heritage property is likely to attract their attention and concern.

#### Advice produced by the Advisory Bodies

The World Heritage Committee has asked for increasing amounts of guidance over the last decade. This has been produced principally by the three Advisory Bodies recognised formally in the World Heritage Convention, the International Union for the Conservation of Nature (IUCN), the International Council of Monuments and Sites (ICOMOS) and the Rome Centre for Conservation (ICCROM). While both IUCN and ICOMOS have national committees in the UK, it is their international centres which are the direct advisors to the Committee and the UNESCO World Heritage Centre.

Guidance includes resource manuals on *Managing Disaster Risks for World Heritage* (UNESCO 2010), *Managing Natural World Heritage* (UNESCO 2012) and *Managing Cultural World Heritage* (UNESCO 2013b). All focus on the need to protect Outstanding Universal Value, as does *Preparing World Heritage Nominations* (UNESCO 2011). This last manual has an extensive discussion on Outstanding Universal Value, emphasising the need to consider all three pillars (attributes; integrity/ authenticity; adequate protection and management) in assessing it as a whole for a property, and the need for that definition to be the focus of future management of the property. Compared to 10 years ago, the emphasis on clear definition of Outstanding Universal Value in the first place, followed by its use as the baseline for management of a World Heritage property, has increased enormously.

Both IUCN and ICOMOS have published guidance on impact assessment. That produced by ICOMOS (ICOMOS 2011) was first published in 2010 and has been widely used. It is compatible with systems used in the UK and has provided the basic methodological approach used in this report (see Chapter 3).

#### Changes in the English planning system

While each state party to the Convention has accepted the responsibility to protect its World Heritage properties 'to the utmost of its resources', it is up to each national government to decide

how it is going to do this. In the UK, the Convention has never been adopted formally into UK primary legislation and its provisions have been applied through policy and guidance and through some regulation in the spatial planning system. The UK Government therefore protects World Heritage properties in England in two ways:

- individual buildings, monuments and landscapes are designated under the Planning (Listed Buildings and Conservation Areas) Act 1990 and the 1979 Ancient Monuments and Archaeological Areas Act,
- through the UK Spatial Planning system under the provisions of the Town and Country Planning Acts.

The first guidance on the protection of World Heritage properties in England was published 20 years ago in Planning Policy Guidance no. 15 (PPG15) (Department of the Environment 1994). This (see Appendix 4 for full text) stated that World Heritage properties were a key material consideration in the planning system and that local authorities should include appropriate policies for their protection in their development plans, placing great emphasis on the need to protect them for future generations. It was recognised that development in or near World Heritage properties might be appropriate but should always be carefully scrutinised for their likely effect on the site or its setting in the longer term. Formal environmental assessment of proposals would normally be required. The development of management plans for each property was recommended. This remained the basis for protection of English World Heritage properties for 15 years, and was in force when the previous A303 scheme was under consideration.

In 2010 PPG15 was replaced by Planning Policy Statement 5 (PPS 5), supported by English Heritage Practice Guidance. These had been supplemented by a DCLG Circular CLG07/09 on protection of World Heritage (Department for Communities and Local Government 2009). This reiterated and elaborated what had been said in PPG15, and consolidated subsequent advice.

The Circular placed more emphasis on the need for sustainable use of World Heritage properties, when compatible with the protection of their Outstanding Universal Value, and on the involvement of local communities. The main objective remained the protection of each World Heritage Site through conservation and preservation of its Outstanding Universal Value. Use of local plans was still seen as the primary way of achieving this. Emphasis was placed on the role of World Heritage Site Management Plans, relevant policies of which should be treated by local authorities as key material considerations in making plans and planning decisions. Emphasis was placed on the protection of the setting of World Heritage properties so that their Outstanding Universal Value, integrity, authenticity and significance is not adversely affected by inappropriate change or development. The setting of a World Heritage Site was defined as the area around it in which change or development is capable of having an adverse impact on the World Heritage Site, including an impact on views to or from the Site.

The Circular provided that local authorities must refer to the Secretary of State planning applications affecting World Heritage properties *to which English Heritage maintains an objection and which would have an adverse impact on the outstanding universal value, integrity, authenticity and significance of a World Heritage Site or its setting, including any buffer zone*, for him to consider

whether to call them in for his own decision. World Heritage properties were added to Article 1(5) Land so that permitted developments within them was restricted in line with what happens in National Parks and Areas of Outstanding Natural Beauty. The Circular was supported by additional English Heritage guidance (English Heritage 2009b). The Circular was cancelled when the Government's Planning Practice Guidance was published in March 2014.

The English planning system underwent major changes following 2010, so that basically there are now two major government advisory documents. These are the National Planning Policy Framework (Department for Communities and Local Government 2012) and Planning Practice Guidance (Department for Communities and Local Government 2014) (see Appendix 5 for the main provisions of both relating to World Heritage). Underpinning the whole system is the need for sustainable development to underpin the economy and communities. Sustainable development was defined as having three roles – economic, social and environmental. The last should contribute to protecting and enhancing our natural, built and historic environment.

The National Planning Policy Framework summarised the major provisions of PPS5 with an increased emphasis on the need to protect significance (in the case of World Heritage properties defined as Outstanding Universal Value). Local authorities should include a positive strategy for the historic environment in their Local Plans, recognising that heritage assets are an irreplaceable resource and conserving them in a manner appropriate to their significance (para 126). World Heritage properties are defined as designated assets for the purposes of the Framework.

Assessment of significance of a heritage asset is seen as a key element in coming to a decision on whether or not to permit a development. When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be (para 132). Substantial harm to heritage assets of the highest significance, including World Heritage properties, should be wholly exceptional. In such cases, consent should be refused unless it can be clearly and convincingly demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss (para 133). Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use (para 134)

Para 138 recognises that not all elements of a World Heritage Site will necessarily contribute to its significance. Loss of an element which makes a positive contribution to the significance (ie Outstanding Universal Value) of the World Heritage Site should be treated either as substantial harm or less than substantial harm, as appropriate, taking into account the relative significance of the element affected and its contribution to the significance of the World Heritage Site as a whole. In para 137 local planning authorities are advised to look for opportunities for new development within World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to, or better reveal the significance of the asset should be treated favourably.

The Planning Practice Guidance published in March 2014 contains more advice on World Heritage properties brought forward mainly from Circular 09/07 (Department for Communities and Local Government 2014). Generally, the Guidance continues the emphasis on the need to manage the historic environment within the planning system to protect significance. This emphasis is carried through to the need to protect World Heritage properties. The agreed Outstanding Universal Value for each property indicates its importance as a heritage asset of the highest significance. Effective management of World Heritage properties involves the identification and promotion of positive change that will conserve and enhance their Outstanding Universal Value, authenticity and integrity, with modification or mitigation of changes which have a negative impact on their values.

The Guidance says that Statements of Outstanding Universal Value are key reference documents for the protection and management of each property. National Planning Policy Framework policies apply to Outstanding Universal Value as they do to any other heritage significance. The Framework also makes clear that significance derives from the setting as well as from the physical presence of the heritage asset. The same requirements in local plan making are applied to World Heritage properties as previously. Local authorities should aim to satisfy the following principles:

- protecting the World Heritage Site and its setting, including any buffer zone, from inappropriate development;
- striking a balance between the needs of conservation, biodiversity, access, the interests of the local community, the public benefits of a development and the sustainable economic use of the World Heritage Site in its setting, including any buffer zone;
- protecting a World Heritage Site from the effect of changes which are relatively minor but which, on a cumulative basis, could have a significant effect;
- enhancing the World Heritage Site and its setting where appropriate and possible through positive management;
- protecting the World Heritage Site from climate change but ensuring that mitigation and adaptation is not at the expense of integrity or authenticity.

World Heritage Management Plans are still a requirement and relevant policies in them need to be taken into account by local planning authorities both in strategies for the historic environment and in determining relevant planning applications. Local authorities must still refer to the Secretary of State for consideration for call-in any planning applications for which they are minded to grant consent to which English Heritage continues to maintain an objection and which would have an adverse impact on Outstanding Universal Value, integrity and authenticity. World Heritage properties remain defined as Article 1(5) Land which restricts permitted development rights. World Heritage sites are sensitive areas for the purposes of determining if an Environmental Impact Assessment is required and lower size thresholds apply in them to the requirement for Design and Access Statements. It is noted that the ICOMOS guidance on Heritage Impact Assessments may be helpful to applicants.

Overall, government policy for the protection of World Heritage properties has been maintained through these most recent changes, and has been updated to take account of the key role of Statements of Outstanding Universal Value in the management and protection of World Heritage

properties. The recognition of the Statements as key reference documents for the protection and management of each site is crucial to the sustainable future of all English World Heritage properties.

Wiltshire Council's emerging draft Core Strategy reflects this government guidance:

### Core Policy 59

#### **The Stonehenge, Avebury and associated sites World Heritage Site**

The Outstanding Universal Value (OUV) of the World Heritage Site and its setting will be protected and enhanced by:

- i. giving precedence to the protection of the OUV of the World Heritage Site and its setting
- ii. development not adversely affecting the OUV of the World Heritage Site, its significance, authenticity or integrity, or its setting. This includes the physical fabric, character, appearance, setting or views into or out of the World Heritage Site
- iii. seeking opportunities to support and sustain the positive management of the OUV of the World Heritage Site through development that delivers improved conservation, presentation and interpretation and reduces the negative impact of traffic and visitor pressure
- iv. requiring developments to demonstrate that full account has been taken of their impact upon the OUV of the World Heritage Site and its setting. Proposals will need to demonstrate that the development will have no individual, cumulative or consequential adverse affect upon the OUV. Consideration of opportunities for enhancing OUV should also be demonstrated. This will include proposals for climate change mitigation and renewable energy schemes.

**Targets:** Progress towards objectives of the adopted WHS Management Plans.

**Monitoring and Review:** WHS Co-ordinators.

**Delivery Responsibility:** Wiltshire Council.

The commentary in the draft core strategy notes that particular reference should be made to the Statement of Outstanding Universal Value for the property and to its Management Plan. The Plan also says that an acceptable solution to the need for dualling the A303 is needed, which must incorporate environmental measures to mitigate impacts upon the Stonehenge WHS and other outstanding landscapes.

Until this Core Strategy is adopted, the existing 2012 South Wiltshire Core Strategy remains in place. It includes policies for protection and enhancement of Stonehenge. The need to find a solution to return Stonehenge to a more respectful status in keeping with its international status is a part of Strategic Objective Five, and Core Policy 13 says:

#### **Core Policy 13 - Stonehenge**

New visitor facilities will be permitted where they:

- Return Stonehenge to a more respectful setting befitting of it World Heritage Site status
- Include measures to mitigate the negative impacts of the roads
- Introduce a greatly enhanced visitor experience in a high quality visitor centre
- Implement an environmentally sensitive method of managing visitors to and from Stonehenge

- Include a tourist information element, which highlights other attractions and facilities on offer in the surrounding area and raises the profile of Wiltshire.

It also saved some policies from the 2003 Salisbury District Local Plan, including CN24 which refers to Stonehenge:

#### Policy CN24

There are additional restrictions on development in the vicinity of Stonehenge in order to protect the landscape setting of the monument and the archaeological importance of the surrounding land. Permitted development rights relating to agricultural and forestry operations within an area of seven and a half square miles around Stonehenge have been withdrawn since 1962 by a Direction under Article 3 of the Town and Country Planning General Development Order 1950 (now Article 4 of the 1988 Order). Consideration will be given to extending the Article 4 Direction to cover the entire World Heritage Site.

#### Advice from English Heritage

English Heritage has also published its *Conservation Principles* (2008) and its guidance on setting (English Heritage 2011). Both documents place an emphasis on the management of the historic environment in general to protect significance which accords well with similar moves by the UNESCO World Heritage Committee and its advisors to make Outstanding Universal Value the focus for the protection of World Heritage properties.

*Conservation Principles* set out six principles for the sustainable management of the historic environment, as a self-contained text under six headlines:

- 1 The historic environment is a shared resource
- 2 Everyone should be able to participate in sustaining the historic environment
- 3 Understanding the significance of places is vital
- 4 Significant places should be managed to sustain their values
- 5 Decisions about change must be reasonable, transparent and consistent
- 6 Recording and learning from decisions is essential

Key to this approach is the definition and understanding of the significance of historic places, and using that significance as the basis for their management. Conservation is defined as the process of managing change to a significant place in its setting in ways that will best sustain its heritage values, while recognising opportunities to reveal or reinforce those values for present and future generations.

*Conservation Principles* advise that assessment of significance should be based on the evaluation of four groups of heritage values:

- Evidential value: the potential of a place to yield evidence about past human activity.
- Historical value: the ways in which past people, events and aspects of life can be connected

through a place to the present - it tends to be illustrative or associative.

- Aesthetic value: the ways in which people draw sensory and intellectual stimulation from a place.
- Communal value: the meanings of a place for the people who relate to it, and for whom it figures in their collective experience or memory.

This focus on the identification and protection of significance fits well with current approaches to the identification and protection of the Outstanding Universal Value of World Heritage properties.

Both national and international guidance note the need to protect historic places within their setting. This is defined in English Heritage's *The Setting of Heritage Assets* (English Heritage 2011) and in the National Planning Policy Framework (NPPF) as the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Setting is a well-established concept in the UK planning system. Essentially, the English Heritage guidance elaborates and enlarges on existing government statements. A key development that has come about subsequent to discussions of setting in the context of the last A303 scheme is the recognition that archaeological sites not visible above ground have a setting.

Within and around the Stonehenge World Heritage property individual attributes will have their own setting. The World Heritage property will also have its own setting surrounding it.

### The Statement for Outstanding Universal Value for Stonehenge, Avebury and Associated Sites (Appendix 3)

A major change since the last A303 scheme has been the development and adoption in 2013 of a Statement of Outstanding Universal Value for the World Heritage property. In the run up to the 2004 public inquiry and in the preparation of 2000 Management Plan, there was no authoritative statement of why Stonehenge and Avebury had been inscribed on the World Heritage List. While the landscape qualities and wide extent of archaeological features were recognised, there was a tendency for plans for the A303 to focus on the protection of Stonehenge and its immediate setting, known as the Stonehenge Bowl, and bounded by the closer ridge lines rather than on the World Heritage property as a whole (see English Heritage 2000, Fig. 3 and Appendix C). One of the principal aims of the Highways Agency's Published Scheme was to remove the main roads from within sight of Stonehenge itself. The 2.1 km bored tunnel would have achieved this but the remainder of the road would have been a new dual carriageway partly on the surface but mostly in cutting within the World Heritage property.

For Stonehenge and Avebury, the first stage was the adoption by the World Heritage Committee of a Statement of Significance in 2008. Based on the ICOMOS evaluation of the original nomination dossier, prepared in 1986, it was able to achieve greater precision in its definition of Outstanding Universal Value. While there is necessarily a focus on the great stone circles of Avebury and Stonehenge, there is also much more attention paid to the complex of and relationships between Neolithic and Bronze Age funerary and ceremonial monuments and associated sites which together form a landscape without parallel.

Following this the UK proposed the draft Statement of Outstanding Universal Value for Stonehenge and Avebury which was drafted in consultation with the steering groups of both parts of the property and was adopted by the World Heritage Committee in June 2013. The first part of the Statement is almost identical to the 2008 Statement of Significance. There is therefore the same assessment of the importance of all these sites as a complex in a landscape and of the landscape itself. The remainder of the Statement of Outstanding Universal Value deals first with Integrity and Authenticity and then with protection and management. The statement of Integrity notes the extensive nature of the Avebury and Stonehenge landscapes which capture the relationships between the monuments as well as their landscape setting. The statement of Authenticity says that the form and design of the principal monuments are well-preserved and that their location, setting and interrelationships, in combination representing landscapes without parallel, can be easily appreciated. The adverse impacts of roads severing relationships between monuments are specifically noted. The definition of Outstanding Universal Value is thus more clearly and also more broadly defined than was the case in the run up to the 2004 Inquiry.

#### The Management Plan for Stonehenge, Avebury and Associated Sites

World Heritage Management Plans reflect the context in which they were prepared. Stonehenge has had two World Heritage Site Management Plans. The first was published in 2000 and the second in 2009. A third iteration, being prepared jointly for both Stonehenge and Avebury, is currently being prepared.

The 2000 Plan was written within the context of government/ English Heritage/ National Trust initiative to deal with the problems of the main roads running through the property and of the obtrusive and inadequate visitor facilities at Stonehenge itself. A Master Plan to achieve these objectives had been published by English Heritage and the National Trust in 1999. The Management Plan contained a policy to place the A303 in a tunnel of appropriate length to free the Stonehenge Bowl of traffic. A significant part of its focus was facilitating the objectives dealing with the road and the removal of the visitor centre.

The 2009 Plan was prepared in the aftermath of the government decision in December 2007 not to go forward with the Published Scheme. At the time, it seemed likely that there would be no progress on the A303 for many years, and the Plan merely said that the long-term objective of reducing the impact of the A303 should be kept under review, with the intention of having firm proposals in the next revision of the Plan.

It did however make considerable advances in the recognition of the property's Outstanding Universal Value. Much of the Plan is based on the Statement of Significance adopted by the World Heritage Committee in 2008, recognising that the concept of a core zone around Stonehenge itself was no longer a useful tool for site management (para 2.4.2). The Statement was used to develop a more detailed set of attributes of Outstanding Universal Value for the Stonehenge component of the World Heritage property. These attributes then formed the basis for the management policies in the Plan:

1. Stonehenge itself as a globally famous and iconic monument.
2. The physical remains of the Neolithic and Bronze Age funerary and ceremonial monuments and associated sites.
3. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the landscape.
4. The design of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the skies and astronomy.
5. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to each other.
6. The disposition, physical remains and settings of the key Neolithic and Bronze Age funerary, ceremonial and other monuments and sites of the period, which together form a landscape without parallel.
7. The influence of the remains of Neolithic and Bronze Age funerary and ceremonial monuments and their landscape settings on architects, artists, historians, archaeologists and others.

These attributes recognise the overall significance of the World Heritage property as a whole. The Management Plan also contained the first attempts to define the integrity and authenticity of the Stonehenge component of the property. Together these form a more holistic approach to the Outstanding Universal Value of the World Heritage property. The introduction of a requirement for cultural properties to meet the conditions of integrity is a significant shift in understanding of the significance of such World Heritage properties.

### Conclusion

Taken as a whole, the policy changes at international, national and local levels since 2004 mark a decisive shift towards values-led heritage management with a great focus on managing historic places to protect and enhance their significance. This is linked to a clear move towards the better definition of significance, in the case of World Heritage properties through the adoption of Statements of Outstanding Universal Value for each property. Within the World Heritage system there is now great emphasis on the need for impact assessment, with particular use of the ICOMOS guidance on Heritage Impact Assessment.

In England, government guidance has taken on board many of the changes made by the UNESCO World Heritage Committee. Outstanding Universal Value is recognised as a form of significance, and Statements of Outstanding Universal Value are recognised as the baseline for the management of World Heritage properties. The Planning Practice Guidance notes the potential usefulness of the ICOMOS guidance on Heritage Impact Assessment.

Any proposal for dealing with the A303 will have to take into account these changes in policy and the clarification of the definition of the property's Outstanding Universal Value. This means that all options for bored tunnels have to be evaluated in this new context.

## **Chapter 5      Impacts of the A303 on the Outstanding Universal Value of the Stonehenge component of the World Heritage property**

*The Stonehenge, Avebury and Associated Sites World Heritage Site was inscribed in 1986. It is in two parts, some 27 km apart, focused respectively on the great stone circles of Stonehenge and Avebury.*

*Stonehenge is among the most iconic and best known internationally of archaeological sites. The Stonehenge part of the World Heritage Site (WHS) covers 2,600 hectares around Stonehenge itself, and comprises one of the richest concentrations of early prehistoric monuments in the world. Stonehenge monument itself attracts around 900,000 visitors each year, but the WHS is also a place where people live and work and much of it is farmed. Managing the various interests and concerns affecting the Site to protect and enhance its Outstanding Universal Value (OUV) is complex and challenging. (English Heritage 2009, 10)*

While the focus of the Stonehenge component of the property is obviously Stonehenge itself, the area of the property is large and includes very many archaeological sites associated with ceremonial and funerary use in the Neolithic and Bronze Age. Stonehenge lies at the heart of a very dense archaeological landscape comprising a significant group of long barrows, ridge-top cemeteries mainly of round barrows, and other major monuments such as henges and their avenues, and the Cursus. Used over a period of around two millennia, the area had become a focus for ritual activity before Stonehenge itself was constructed. Interrelationships between the various monuments clearly remained important over thousands of years.

The topography is rolling downland with a series of ridges and dry valleys on the southern edge of Salisbury Plain. In the bottom of the dry valleys views are normally confined but can be surprisingly long. From the ridge tops, which are often flattish and wide, there are long distant views. From higher points in the property, it is possible to see over 8kms east and west to Beacon Hill and Yarnbury Castle with distant views of the A303 climbing both ridges. Even so, some areas of the property are very self-contained visually. East of King Barrow Ridge, for example long views are outside the property to the east and south-east rather than to the west. Within the property, the A303 is very visible, and audible, from many places and runs close to some key archaeological sites including Stonehenge itself. As one of the two principal routes from London to the south-west, it is a major transport artery.

The A303 runs from east to west as far as Stonehenge Bottom. From its junction with the former A344, the road then runs slightly south of west to its junction with the north-south A360 (the western boundary of the World Heritage property) at Longbarrow Crossroads, close to the Winterbourne Stoke Barrow Group. The total length of the A303 within the World Heritage property between the Countess Roundabout in the east and the Longbarrow junction in the west is 5.5kms. Of this 1.8kms at the eastern end are dual carriageway which finishes at the top of King Barrow Ridge. The easternmost 1 km of this stretch is in deep cutting around Vespasian's Camp and is not visible from most viewpoints. From the top of King Barrow Ridge the road is single carriageway through the rest of the World Heritage property. The road runs on a high embankment in Stonehenge Bottom and is embanked again across a small dry valley west of Normanton Gorse. The road is slightly elevated from there to the Longbarrow junction.

The A303 is therefore a prominent intrusive feature within the World Heritage property. This was noted in the 2000 Management Plan and its removal has been a long-term aim for decades and was a key objective of that Plan. The 2009 Management Plan also notes the adverse impact of the A303 on the integrity and authenticity of the World Heritage property, as does the Statement of Outstanding Universal Value proposed by the UK government and agreed by the UNESCO World Heritage Committee.

It is therefore necessary to assess the current impact of the A303 on the Outstanding Universal Value of the property so that the changes possible through the various options under discussion can be assessed. An assessment of the potential impact of the 4.5kms tunnel proposed in 2004 is also included for comparative purposes.

The other four tunnel options, specified by the National Trust and English Heritage, are then considered. In each case the tunnel length, as noted in Chapter 3, is determined by the preferred portal locations, chosen to minimise impact (Fig 3). It should be noted also that the Tata report suggests that the construction of each portal will require 30m of cut-and-cover construction and this needs to be taken into account in assessment of impact.

This chapter assesses the direct and indirect non-physical impacts of the proposed options on each of the attributes of Outstanding Universal Value, as well as on the property's agreed integrity and authenticity. Direct physical impacts of new construction are considered in Chapter 6. Based on these analyses, the overall impact on the Outstanding Universal Value of the property as a whole for the existing A303, the 4.5km tunnel (as a benchmark) and for each tunnel option is summarised in Chapter 7.



**Fig 3** locations of tunnel portals for 2.1km published scheme (Portal C & D), 2.5km on-line tunnel (Portals E & B), 2.9km on-line tunnel (Portal E & A2), 2.9km off-line tunnel (Portal E & A1) (Tata 2014, Appendix B, 1)

The options are:

**1 4.5 km bored tunnel as proposed by some conservation bodies during the public inquiry in 2004 (included as a benchmark)**

The eastern entrance to the tunnel would have started 600m east of the start of the 2.1km Published Scheme. This would have been to the east of the point at which the line of the Avenue crosses the present road, within the stretch which is currently in a cutting.

The western terminal of the tunnel would have been outside of the western boundary of the World Heritage property. This would mean that the junction with the A360, currently next to the Winterbourne Stoke Barrow Group, would have been moved down the slope of the Till valley and away from this important barrow group.

This option would remove from the World Heritage property 1km of dual carriageway and 3.5km of single carriageway. 1km of existing dual carriageway, in cutting, would remain running from Countess Roundabout at the east end of the A303 in the World Heritage property.

**2 2.1 km tunnel (Highways Agency Published Scheme in 2004): portal D to portal C (Fig 4)**

This tunnel would have begun approximately 30 metres east of Stonehenge Cottages, just over King Barrow Ridge and out of sight of Stonehenge itself (Fig 4, Portal D). Within the footprint of the existing A303 the actual monument itself is thought not to have survived the construction of the dual carriageway.

The western terminal was just over a slight crest of the road by Normanton Down (Fig 4), Portal C), and so also out of sight of Stonehenge. It is just to the west of the so-called unnamed barrow group which is divided by the current A303. The tunnel portal would have been very close to this barrow group. If 30m cut-and-cover construction is essential for building the portal, this would have come very close to, if not actually impacted on the long barrow in this group. The remaining 1.6km of the road from there to a new grade-separated junction with the A360 just to the south of the Winterbourne Stoke Barrow Group would have been partially in a cutting so that the A360 would have remained at ground level above the A303.

The tunnel would have been bored except in Stonehenge Bottom, within view of Stonehenge itself. Here its crown would have been so shallow that this stretch would have had to be constructed by cut-and-cover.

This option would remove 2.1km of single carriageway and replace 1.6km of single carriageway with dual carriageway. This would result in 3.4km of dual carriageway on surface or in cutting in the World Heritage property.

### **3 2.5km bored tunnel: portal E to portal B <sup>1</sup>(Figs 5)**

This proposal locates the east portal 200m east of the eastern entrance to the 2.1km tunnel (Fig 3, Portal E). This would move the entrance further away from the concentration of monuments along the crest of King Barrow Ridge. The line of the Avenue east of the Ridge would be severed by the cutting running into the tunnel.

The western terminal would be 200m west of Portal C for the 2.1km Published Scheme (Fig 5, Portal B). This would be further away from the unnamed barrow group and from the Normanton Down Group. This position would also place the portal lower down the slope of the small dry valley west of Normanton Gorse. There would be a further 1.4kms of new dual carriageway in cutting, to the western edge of the World Heritage property and the junction with the A360.

This option would remove 2.3km of single carriageway and, at the eastern end, 0.2km of dual carriageway. At the west end 1.4km of single carriageway would be replaced with dual carriageway, giving a total length of 3km of dual carriageway on surface or in cutting in the World Heritage property.

### **4 2.9km bored tunnel on line: portal E to portal A2 (Figs 6)**

The eastern terminal would remain as for the 2.5 km tunnel. The western terminal would be a further 400m to the west of Portal B in the dip in the ground west of Normanton Down (Fig.6, Portal A2). This would have the advantage of bringing the tunnel out at a less visible point at the lowest point of this small dry valley. From there the new dual carriageway would run for around 1km to the junction with the A360.

This option would remove 2.7km of single carriageway and, at the eastern end, 0.2km of dual carriageway. 1.4km of single carriageway would be replaced by dual carriageway at the western end. The end result would be 2.6km of dual carriageway on surface or in cutting in the World Heritage property. With the exception of the 4.5km tunnel, of the online options, this would have the shortest stretch of new dual carriageway within the World Heritage property.

### **5 2.9km tunnel off line: portal E to portal A1(Fig 7)**

The eastern portal of this proposal would be in the same position as for Option 3 above. The tunnel would then run off the line of the A303 to a western entrance in the low ground some 400m south of the present road. From there a new road would run to a new junction with the A360 south of the present Longbarrow junction. This would free up the Winterbourne Stoke Barrow Group. It would create around 1km of new dual carriageway but would remove a further 1km stretch of the existing A303 within the World Heritage property compared with the online options.

3.7km of single carriageway and, at the eastern end, 0.2km of dual carriageway of the present A303 would be removed. 1km of new dual carriageway would be created in the World Heritage property on a new alignment but further away from the sensitive Winterbourne Stoke Barrow Group.

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<sup>1</sup> NB that this is not the same tunnel as proposed by the National Trust in 2004

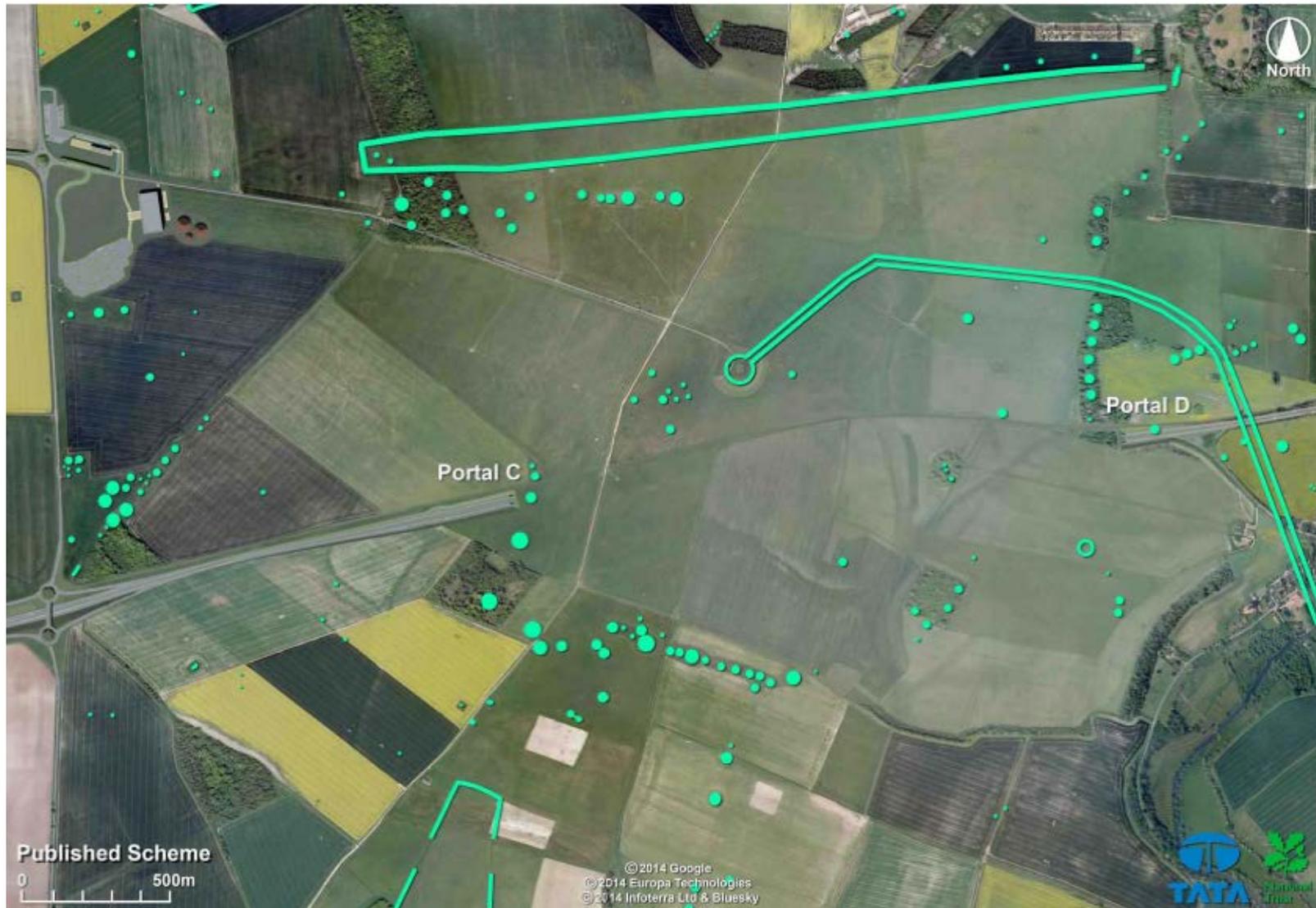


Fig 4 A303 Published Scheme (Tata 2014, Appendix B, 2b)

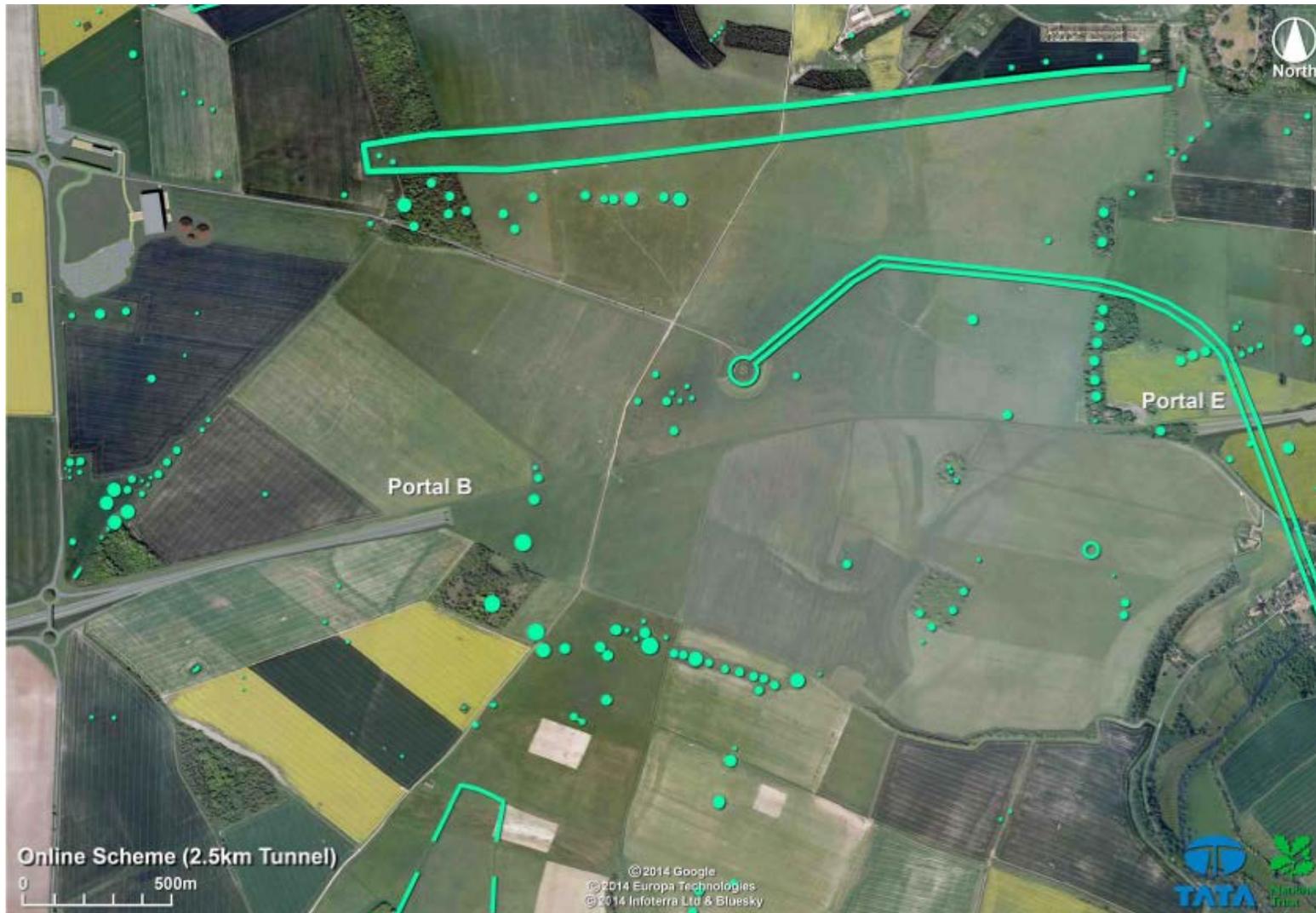


Fig 5 A303 2.5km online bored tunnel (Tata 2014, Appendix B, 2c)

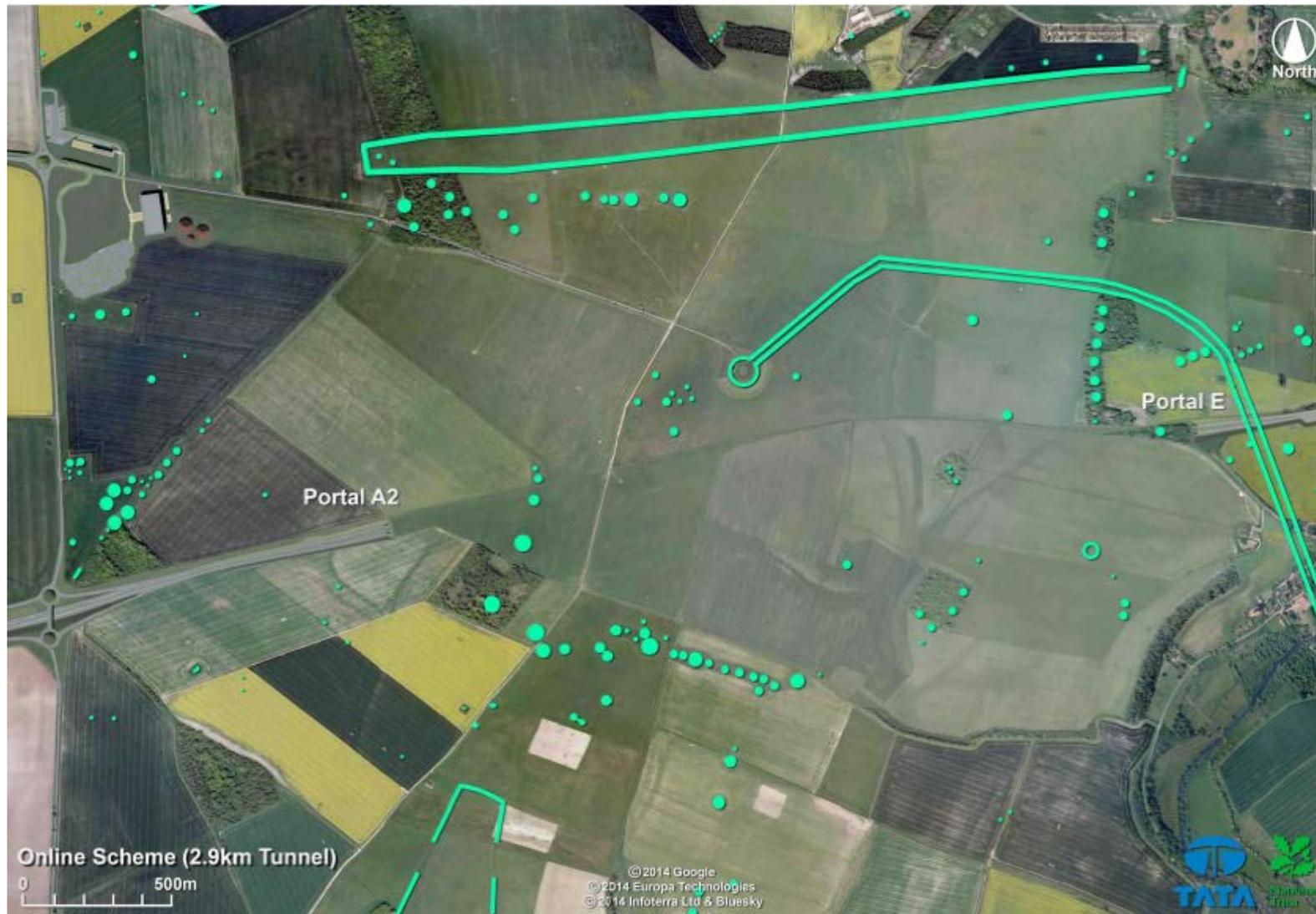


Fig 6 A303 2.9km online bored tunnel (Tata 2014, Appendix B, 2e)

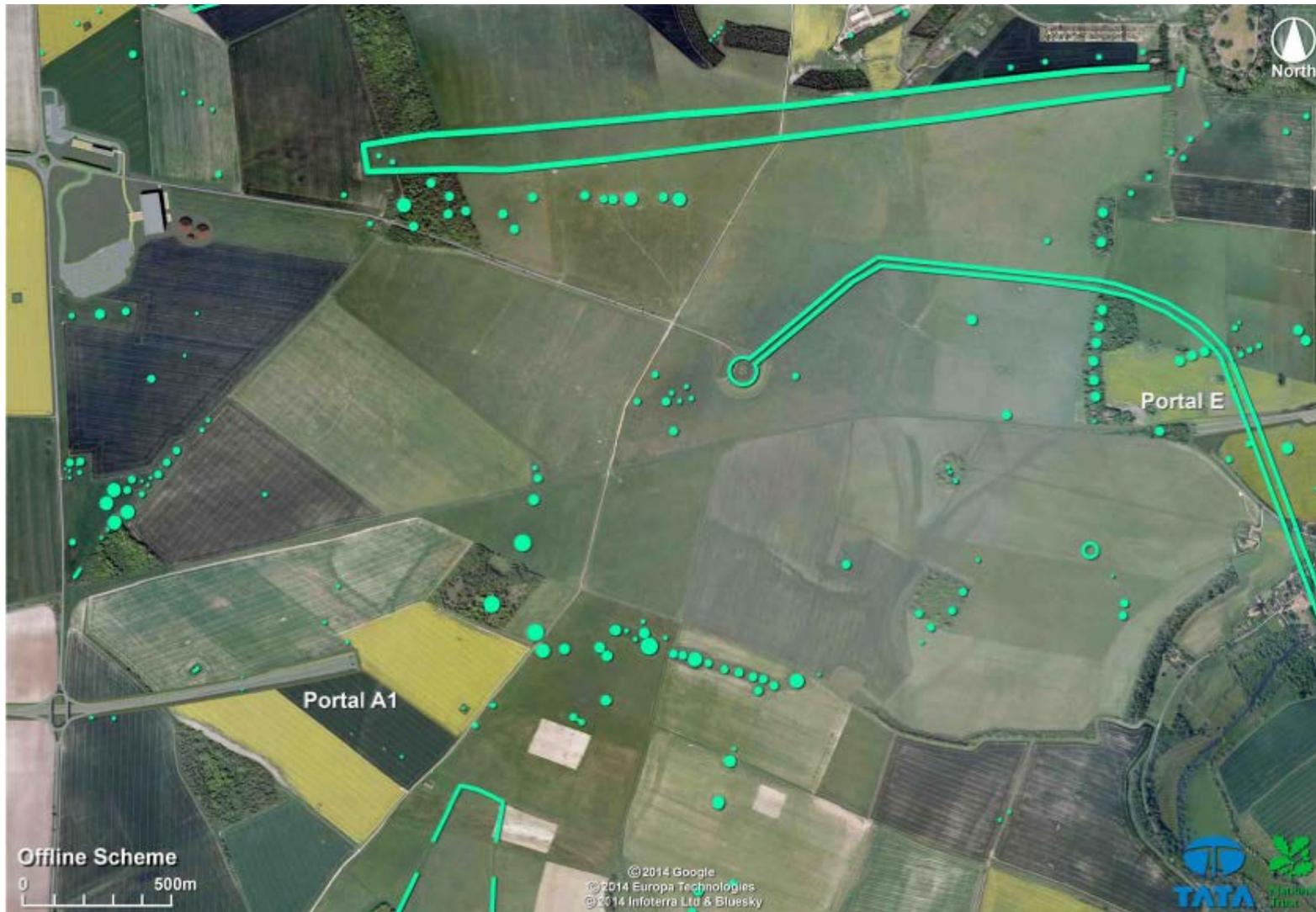


Fig 7 A303 2.9km offline bored tunnel (Tata 2014, Appendix B, 2d)

The methodology used in this assessment is described in Chapter 3 (pp. 6 – 12). The key part of this is to assess the current impact of the A303 together with that of a putative 4.5km tunnel and the four bored tunnel options included in the brief for this study and listed above. This assessment is of the impact on the Outstanding Universal Value as set out in the agreed Statement of Outstanding Universal Value for the property (Appendix 3). The first part of the agreed Statement is taken from a shorter Statement of Significance (not including integrity and authenticity) agreed by the World Heritage Committee in 2008 (see English Heritage 2009, 26-27). Each of the six situations is assessed against the attributes of Outstanding Universal Value elaborated in the 2009 Management Plan (English Heritage 2009, 28-32), and in terms of its impact on the integrity and authenticity of the World Heritage property.

The seven identified attributes of Outstanding Universal Value are:

1. Stonehenge itself as a globally famous and iconic monument.
2. The physical remains of the Neolithic and Bronze Age funerary and ceremonial monuments and associated sites.
3. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the landscape.
4. The design of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the skies and astronomy.
5. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to each other.
6. The disposition, physical remains and settings of the key Neolithic and Bronze Age funerary, ceremonial and other monuments and sites of the period, which together form a landscape without parallel.
7. The influence of the remains of Neolithic and Bronze Age funerary and ceremonial monuments and their landscape settings on architects, artists, historians, archaeologists and others.

Direct impacts of new road construction are examined in the next Chapter and the overall result of the assessment is pulled together in Chapter 7. Looking at the impacts on each of these attributes in turn, and using the HIA scales of assessment (see pp. 7 - 8), our assessment is as follows.

## **1 Stonehenge itself as a globally famous and iconic monument**

The image of Stonehenge in its downland landscape is world-renowned. It is an important and enduring symbol of humanity's prehistoric past and an internationally recognised symbol of Britain. This iconic view has long been adversely impacted by the roads close to it. Heavy traffic in particular mars the view and distracts visitors from it. Since 2013, the closure of the A344 next to the monument has lessened the visual and aural impact of traffic. The adverse impacts of heavy traffic on the A303 remain, particularly in views to the east up King Barrow Ridge. This affects both views of the monument itself, and also views from the monument of its place in the landscape, as well as causing an adverse aural impact.

This is a major adverse impact on the monument of very high significance. Any of the four bored tunnel options would remove this impact and would constitute a major beneficial impact on the monument. However, the 2.1km tunnel would be constructed by cut and cover in Stonehenge Bottom. This would be a major adverse impact on Stonehenge during construction and would leave a scar in the landscape for a long period which should probably be assessed as a moderate adverse impact of large significance. It is also possible that there may remain an adverse aural impact from the locations of the western tunnel portal for the 2.1km and 2.5km bored tunnel options. It would nonetheless be an improvement on the present position.

## **2. The physical remains of the Neolithic and Bronze Age funerary and ceremonial monuments and associated sites.**

Physical impacts of new road construction are dealt with in the next section. The A303 is close to many of the physical attributes of Outstanding Universal Value but, as far as is known, has had direct physical impacts on comparatively few of them. During the construction work during the previous widening of the A303, a Later Neolithic pit containing a decorated chalk plaque and almost certainly of ceremonial significance was discovered by Faith Vatcher close to King Barrow Ridge. It is possible that the A303 may have destroyed other attributes of Outstanding Universal Value when it was first constructed or during subsequent modifications. Nonetheless the A303 is a prominent feature in the setting of many surviving physical attributes of Outstanding Universal Value, and so has adverse visual impacts on them. Visual impacts in the context of the relationship of the sites and monuments in relation to the landscape, and their relationship to each other (attributes 3, 5 and 6) are dealt with below. General setting impacts are touched on in this section.

The major existing physical impacts on the physical remains of the Neolithic and Bronze Age funerary and ceremonial monuments and associated sites from east to west are:

- The Avenue east of King Barrow Ridge has been severed by the A303. It is probable that nothing survives beneath the footprint of the existing A303 but removal of the road could allow the line of the Avenue to be better appreciated.
- On the west slope of King Barrow Ridge a round barrow has been partially removed by the remodelling of the single carriageway part of the road in the late 1960's.
- The road also passes between a long barrow to its south and two round barrows to its north in the small unnamed barrow group north of Normanton Group (attribute 15). Evaluation by Wessex Archaeology for the Published Scheme showed that the long barrow had been badly disturbed, though not by construction of the A303 (Leivers, Moore 2008, 19-21). Similarly, their work showed that the road had not disturbed the round barrow across on the north side of the A303 (Leivers, Moore 2008, 30-31).

There is a major adverse visual impact of very large significance on the setting of these monuments. More generally, the current A303 has a major adverse impact of very large significance on the setting of all monuments from which it is visible.

The work carried out by Wessex Archaeology involved intensive field survey and trial trenching along the line of the A303. While a variety of new archaeological features were discovered, few of them were identifiable as attributes of Outstanding Universal value (Leivers, Moore 2008).

Clearly the present impact of the road on the Avenue east of King Barrow Ridge and on the truncated barrow on the western slope of the ridge must be recognised as major adverse impacts on attributes of Outstanding Universal Value, and of very large adverse significance for those particular attributes. The impact on the long barrow and round barrows near Normanton Gorse is clearly an adverse one since the road divides what was presumably a coherent barrow group. This again can be considered to be a major adverse impact of very large significance for those attributes, as is that on the setting of other sites in view of the A303, giving a major adverse impact of very large significance for the property as a whole.

The removal of the road in all the Options 2 – 5 would free the barrow on the west slope of the King Barrow Ridge and the small unnamed barrow group, as well as having a major beneficial impact on the setting of all those sites no longer in view of the A303. However, the western portal of the 2.1km tunnel is so close to the long barrow that the 30m stretch of cut and cover tunnel east of the portal would be very close indeed to the long barrow, if not actually impacting on it.

In terms of setting, the 2.1km tunnel would still have a major adverse impact on the small barrow group near Normanton Gorse because the western portal would be located so close to it. It might also impact physically on the long barrow. This could still constitute an adverse impact on this group of barrows, reducing the overall positive impact of the 2.1km Published Scheme. Overall the impact of three longer options on this barrow group can probably be assessed as moderately beneficial of large/ very large significance but that of the 2.1kms as only negligible beneficial of slight significance.

The Avenue east of King Barrow Ridge would be positively affected only by the 4.5km tunnel,. The remaining options, apart probably from the Published Scheme, would all place this part of the A303 in a cutting approaching the eastern tunnel portals and would remove any evidence which **might** remain on the road line plus any evidence, for example of the ditches, which survives on either side, in land to be taken into the road cutting. This must be considered as a minor adverse impact on the Avenue given the degree of damage that has already occurred in this location. The significance of this impact on the Avenue as an attribute of Outstanding Universal Value would be moderate/ large, according to the ICOMOS HIA methodology. Given the importance of the Avenue within the World Heritage property, this might count as a minor adverse impact on the World Heritage property as a whole.

However, in considering the effects of Options 2 – 5 the adverse impact on the Avenue has to be offset against the positive impact on the other sites which are directly impacted by the A303. There would be major improvements to the setting of monuments no longer in view of the A303, but the impact on the setting of other monuments east and west of the tunnel portals would remain. Its extent would depend on how the road is designed and how much of it would be in cutting. This remains a particular issue for Winterbourne Stoke barrows. The effect of creating new dual carriageway in the World Heritage property could also be adverse aurally though the extent of this

would depend on how much of the new road is in cutting and on the dampening effect of vertical 'green cuttings'.

Any overall assessment of the impact on this attribute of the Outstanding Universal Value of the World Heritage property has to balance the very positive gains to many sites against the continued adverse impacts on others. The impact on this attribute is therefore assessed at minor to moderate beneficial of moderate to very large significance to the World Heritage property as a whole on the basis of this very preliminary outline assessment. Because of the adverse impact of the 2.1km tunnel on the barrow group next to its western portal and the length of new dual carriageway in the World Heritage property, its benefit is significantly less than that of the other options. Probably with regard to this attribute, the impact of the 2.1km bored tunnel (the Published Scheme) should be assessed as negligible beneficial impact of slight significance while the longer tunnels would be of moderate beneficial impact of large/ very large significance.

**3. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the landscape.**

This attribute is discussed further below with attributes 5 and 6.

**4. The design of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the skies and astronomy.**

A number of sites within the World Heritage property are aligned on the midsummer sunrise and midwinter sunset axis. Of these, the only one affected by the A303 is the midsummer sunrise/ midwinter sunset solstitial axis at Stonehenge itself. This midwinter sunset occurs south-west of the monument behind an apparent horizon outside the World Heritage property to the west. The axis crosses the line of the A303 slightly to the east of the junction of the road with Byway 12. The lights of traffic along the present road adversely affect the ability to observe the midwinter sunset so that there is currently an adverse impact, probably to be assessed as minor, with a moderate adverse significance according to the HIA scale. Direct impact on the line of the axis will cease with any of the tunnel options, a beneficial impact, but excessive or inappropriate lighting of the road to the west could have some adverse impact on this alignment. This would be least likely with the 4.5km tunnel in which the whole of the road in the World Heritage property would be in tunnel. The Tata report (Tata Steel 2014) notes that, with a speed limit of 60mph, lighting of the surface carriageway would not be required, though the tunnels themselves would have to be lit. Overall, any of the tunnel options can be seen as providing a minor beneficial change, of moderate/ large significance.

**3. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the landscape.**

**5. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to each other.**

**6. The disposition, physical remains and settings of the key Neolithic and Bronze Age funerary, ceremonial and other monuments and sites of the period, which together form a landscape without parallel.**

All these attributes are essentially about the visual relationships of physical attributes within the World Heritage property. The siting and visibility of the A303 can affect the ability to understand and appreciate the relationship of monuments to the surrounding landscape (Attribute 3). The road can also affect the ability to appreciate the way in which these monuments form a landscape without parallel (Attribute 6). Lastly and most directly, the road interferes visually with relationships between monuments which are themselves attributes of Outstanding Universal Value (Attribute 5).

Study of visual relationships has focused primarily on this last aspect but, in doing so, also demonstrates the extent to which the road affects the ability to appreciate and understand the other two relationship-based attributes. To some extent therefore, assessment of Attribute 5 has been used as a proxy for assessing Attributes 4 and 6. This is unavoidable in the short time available for carrying out this work.

As noted in Chapter 3 (pp.9 – 10 and Fig 2), the methodological approach has been to select 17 monuments or groups of sites visible from the A303 and then to analyse how the A303 affects relationships between them. The selected physical attributes are:

- |   |   |
|---|---|
| 1. Durrington Walls   | 10. The Cursus W end  |
| 2. Woodhenge  | 11. Cursus Barrows  |
| 3. The Avenue east of King Barrow Ridge                           | 12. Stonehenge  |
| 4. Unnamed barrow group either side of this stretch of the Avenue | 13. Stonehenge Down Barrows   |
| 5. King Barrows (Old and New)                                     | 14. Normanton Down Barrows  |
| 6. Coneybury Henge  | 15. The unnamed group either side of the A303 close to the potential positions of Portals B and C |
| 7. Coneybury Barrow (King Barrow) south of Coneybury Henge        | 16. Lake Barrows  |
| 8. The Cursus E end   | 17. Winterbourne Stoke Barrows  |
| 9. The Cursus centre  |   |

Table 1 shows visual links between the 17 sites/ groups of sites within the provisos listed in Chapter 3. Table 2 shows the same information but giving the distances between sites where visual linkages do exist since it is thought that distance will influence the quality of the view. 70 linkages are identified.

Table 3 takes all the linkages identified in Tables 1 and 3 and assesses the present impact of the A303 and the change in that impact arising from the implementation of Options 1 to 5. Impact is assessed from both ends of each linkage since it may differ according to the direction of view.

- Impact has been assessed as major or very large significance when the A303 severs a visual connection or is very prominent in a view of one (eg the view from Stonehenge to Old and New King Barrows).
- Impact has been assessed as moderate or large/ very large significance where the A303 is visible but does not sever the viewline and is not central in the view.

- Impact is assessed as minor of moderate/ large significance when the A303 is barely visible or a distant backdrop in a view (eg the view from Durrington Walls to Woodhenge).
- Where there is no impact, the value has been given as none

The effect of the various tunnel proposals is varied. In most cases, the adverse impact is removed in which case the result is noted as an equivalent positive benefit to the previous adverse impact (ie a major adverse impact will be replaced by a major beneficial impact, a minor adverse impact by a minor beneficial one). Where an adverse impact is not totally reversed, the new level of impact is stated as such.

Overall the tables show that the A303 currently has a major adverse impact of very large significance on the relationships of the 17 sites/ site groups selected. It can therefore be judged as having a major adverse impact of very large significance on the World Heritage property as a whole.

Of the various tunnel possibilities, the 4.5km tunnel included for comparative purposes has the biggest positive impact on the Outstanding Universal Value of the World Heritage property, since it removes virtually all adverse visual impacts. Because the eastern tunnel portals would be within the cutting of the existing A303 and the western ones outside the World Heritage property altogether there would be very few negative impacts and overall a major beneficial impact of very great significance. In particular there would be considerable benefits for the Avenue and for the Winterbourne Stoke Barrows Group and its links to other physical attributes in the western part of the World Heritage property.

The four shorter tunnel options would not significantly reduce the adverse impacts on the Avenue east of King Barrow Ridge. The siting of the portal for Options 3 – 5 (2.5kms and 2.9kms bored tunnels) would have a minor beneficial impact of moderate/ large significance on the monuments along King Barrow Ridge by moving the start of surface dual carriageway further away from them and thus reducing both visual and aural impact. They would all remove most of the adverse impacts in the central areas of the World Heritage property around Stonehenge and more widely. It is uncertain how far they would reduce adverse impacts on visual links to the western part of the World Heritage property since this would depend to some extent on how the new road was constructed. *Prima facie* the longer the tunnel the less the overall impact on the World Heritage property would be.

There may be significant differences between the visual impacts of the 2.9km on-line and off-line options. This is particularly relevant to the Winterbourne Stoke Barrow Group, visible in many long views from the east, for example from Coneybury and from King Barrow Ridge. However, the linkages with the Lake Group to the south are also important and need to be considered. All the tunnel options interpose new dual carriageway within this visual linkage. The effect might be greater for Option 5 since the new road would be overlooked from the higher ground of both the Lake and Winterbourne Stoke Groups and might be more visible, even in cutting. On the other hand, the on-line routes remain very close to the Winterbourne Stoke Group and would mean that the junction with the A360 would also remain next to that barrow group.

Overall, for these three attributes, all dealing with visual linkages, the impact of any of the four tunnel options on the whole World Heritage property can be assessed as moderate beneficial of large/very large significance.

**Table 1 Visual interlinkages between selected sites in the Stonehenge WHS (Y = visual link exists; N = there is no visual link)**

|    |                                    | 1                | 2         | 3                             | 4                        | 5                        | 6               | 7                | 8            | 9             | 10           | 11             | 12         | 13                      | 14                     | 15                             | 16           | 17                         |
|----|------------------------------------|------------------|-----------|-------------------------------|--------------------------|--------------------------|-----------------|------------------|--------------|---------------|--------------|----------------|------------|-------------------------|------------------------|--------------------------------|--------------|----------------------------|
|    |                                    | Durrington Walls | Woodhenge | Avenue E of King Barrow Ridge | Barrow group near Avenue | King Barrows (Old & New) | Coneybury Henge | Coneybury Barrow | Cursus E end | Cursus centre | Cursus W end | Cursus Barrows | Stonehenge | Stonehenge Down Barrows | Normanton Down Barrows | Unnamed group nr Portals B & C | Lake Barrows | Winterbourne Stoke Barrows |
| 1  | Durrington Wall                    |                  | Y         | Y                             | Y                        | N                        | Y               | Y                | N            | N             | N            | N              | N          | N                       | N                      | N                              | N            | N                          |
| 2  | Woodhenge                          | Y                |           | Y                             | Y                        | Y                        | Y               | Y                | N            | N             | N            | N              | N          | N                       | N                      | N                              | N            | N                          |
| 3  | Avenue E of King Barrow Ridge      | Y                | Y         |                               | Y                        | Y                        | Y               | Y                | N            | N             | N            | N              | N          | N                       | N                      | N                              | N            | N                          |
| 4  | Barrow group near Avenue           | Y                | Y         | Y                             |                          | Y                        | Y               | Y                | N            | N             | N            | N              | N          | N                       | N                      | N                              | N            | N                          |
| 5  | King Barrows (Old & New)           | N                | Y         | Y                             | Y                        |                          | Y               | Y                | Y            | N             | Y            | Y              | Y          | Y                       | Y                      | Y                              | Y            | Y                          |
| 6  | Coneybury Henge                    | Y                | Y         | Y                             | Y                        | Y                        |                 | Y                | Y            | Y             | N            | Y              | Y          | Y                       | Y                      | Y                              | Y            | Y                          |
| 7  | Coneybury Barrow                   | Y                | Y         | Y                             | Y                        | Y                        | Y               |                  | Y            | Y             | N            | Y              | Y          | Y                       | Y                      | Y                              | Y            | Y                          |
| 8  | Cursus E end                       | N                | N         | N                             | N                        | N                        | Y               | Y                |              | N             | Y            | Y              | Y          | Y                       | Y                      | Y                              | Y            | Y                          |
| 9  | Cursus centre                      | N                | N         | N                             | N                        | N                        | Y               | Y                | N            |               | N            | N              | Y          | N                       | N                      | N                              | N            | N                          |
| 10 | Cursus W end                       | N                | N         | N                             | N                        | Y                        | N               | N                | Y            | N             |              | Y              | N          | N                       | N                      | N                              | N            | N                          |
| 11 | Cursus Barrows                     | N                | N         | N                             | N                        | Y                        | Y               | Y                | Y            | N             | Y            |                | Y          | Y                       | N                      | N                              | N            | Y                          |
| 12 | Stonehenge                         | N                | N         | N                             | N                        | Y                        | Y               | Y                | Y            | Y             | N            | Y              |            | Y                       | Y                      | N                              | Y            | N                          |
| 13 | Stonehenge Down Barrows            | N                | N         | N                             | N                        | Y                        | Y               | Y                | Y            | N             | N            | N              | Y          |                         | Y                      | N                              | N            | N                          |
| 14 | Normanton Down Barrows             | N                | N         | N                             | N                        | N                        | Y               | Y                | Y            | N             | N            | N              | Y          | Y                       |                        | Y                              | Y            | Y                          |
| 15 | Unnamed group near Portals B and C | N                | N         | N                             | N                        | Y                        | Y               | Y                | Y            | N             | N            | N              | N          | N                       | Y                      |                                | Y            | Y                          |
| 16 | Lake Barrows                       | N                | N         | N                             | N                        | Y                        | Y               | Y                | Y            | N             | N            | N              | Y          | N                       | N                      | Y                              |              | Y                          |
| 17 | Winterbourne Stoke Barrows         | N                | N         | N                             | N                        | Y                        | Y               | Y                | Y            | N             | N            | Y              | N          | N                       | Y                      | Y                              | Y            |                            |

**Table 2 Visual interlinkages between selected sites in the Stonehenge WHS showing distances between them (N = no visual link exists)**

|    |                                    | 1                | 2         | 3                             | 4                        | 5                        | 6               | 7                | 8            | 9             | 10           | 11             | 12         | 13                      | 14                     | 15                             | 16           | 17                         |
|----|------------------------------------|------------------|-----------|-------------------------------|--------------------------|--------------------------|-----------------|------------------|--------------|---------------|--------------|----------------|------------|-------------------------|------------------------|--------------------------------|--------------|----------------------------|
|    |                                    | Durrington Walls | Woodhenge | Avenue E of King Barrow Ridge | Barrow group near Avenue | King Barrows (Old & New) | Coneybury Henge | Coneybury Barrow | Cursus E end | Cursus centre | Cursus W end | Cursus Barrows | Stonehenge | Stonehenge Down Barrows | Normanton Down Barrows | Unnamed group nr Portals B & C | Lake Barrows | Winterbourne Stoke Barrows |
| 1  | Durrington Wall                    |                  | 0.4       | 2.0                           | 1.8                      | N                        | 2.3             | 2.5              | N            | N             | N            | N              | N          | N                       | N                      | N                              | N            | N                          |
| 2  | Woodhenge                          | 0.4              |           | 1.7                           | 1.6                      | 1.8                      | 2.4             | 2.5              | N            | N             | N            | N              | N          | N                       | N                      | N                              | N            | N                          |
| 3  | Avenue E of King Barrow Ridge      | 2.0              | 1.7       |                               | 0.1                      | 0.7                      | 0.7             | 0.8              | N            | N             | N            | N              | N          | N                       | N                      | N                              | N            | N                          |
| 4  | Barrow group near Avenue           | 2.0              | 1.7       | 0.1                           |                          | 0.4                      | 0.7             | 0.9              | N            | N             | N            | N              | N          | N                       | N                      | N                              | N            | N                          |
| 5  | King Barrows (Old & New)           | N                | 1.8       | 0.7                           | 0.4                      |                          | 0.9             | 1.1              | 0.7          | N             | 2.6          | 1.8            | 1.3        | 1.5                     | 2.0                    | 2.0                            | 3.3          | 3.3                        |
| 6  | Coneybury Henge                    | 2.3              | 2.4       | 0.7                           | 0.7                      | 0.9                      |                 | 0.3              | 1.6          | 1.6           | N            | 2.1            | 1.3        | 1.7                     | 1.6                    | 1.8                            | 2.8          | 3.2                        |
| 7  | Coneybury Barrow                   | 2.5              | 2.5       | 0.8                           | 0.9                      | 1.1                      | 0.3             |                  | 1.8          | 1.9           | N            | 2.5            | 1.5        | 1.6                     | 1.7                    | 2.0                            | 2.8          | 3.3                        |
| 8  | Cursus E end                       | N                | N         | N                             | N                        | N                        | 1.6Y            | 1.8              |              | N             | 2.7          | 1.8            | 1.8        | 2.0                     | 2.6                    | 2.6                            | 4.0          | 3.7                        |
| 9  | Cursus centre                      | N                | N         | N                             | N                        | N                        | 1.6             | 1.9              | N            |               | N            | N              | 1.0        | N                       | N                      | N                              | N            | N                          |
| 10 | Cursus W end                       | N                | N         | N                             | N                        | 2.6                      | N               | N                | 2.7          | N             |              | 0.8            | N          | N                       | N                      | N                              | N            | N                          |
| 11 | Cursus Barrows                     | N                | N         | N                             | N                        | 1.8                      | 2.1             | 2.5              | 1.8          | N             | 0.8          |                | 1.0        | 0.8                     | N                      | N                              | N            | 1.8                        |
| 12 | Stonehenge                         | N                | N         | N                             | N                        | 1.3                      | 1.3             | 1.5              | 1.8          | 1.0           | N            | 1.0            |            | 0.4                     | 0.9                    | N                              | 2.3          | N                          |
| 13 | Stonehenge Down Barrows            | N                | N         | N                             | N                        | 1.5                      | 1.7             | 1.6              | 2.0          | N             | N            | N              | 0.4        |                         | 0.8                    | N                              | N            | N                          |
| 14 | Normanton Down Barrows             | N                | N         | N                             | N                        | N                        | 1.6             | 1.7              | 2.6          | N             | N            | N              | 0.9        | 0.8                     |                        | 0.5                            | 0.4          | 1.7                        |
| 15 | Unnamed group near Portals B and C | N                | N         | N                             | N                        | 2.0                      | 1.8             | 2.0              | 2.6          | N             | N            | N              | N          | N                       | 0.5                    |                                | 1.6          | 1.3                        |
| 16 | Lake Barrows                       | N                | N         | N                             | N                        | 3.3                      | 2.8             | 2.8              | 4.0          | N             | N            | N              | 2.3        | N                       | N                      | 1.6                            |              | 1.7                        |
| 17 | Winterbourne Stoke Barrows         | N                | N         | N                             | N                        | 3.3                      | 3.2             | 3.3              | Y            | N             | N            | Y              | N          | N                       | 1.7                    | 1.3                            | 1.7          |                            |

**Table 3 Visual Links between selected groups of monuments in the Stonehenge World Heritage Property**

| <p><b>This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.</b></p> |                               |   |                     |                  |                     |                       |                        |
|---|-------------------------------|---|---------------------|------------------|---------------------|-----------------------|------------------------|
| A   | B                             | C   | D                   | E                | F                   | G                     | H                      |
|   |                               | Scale of Impact of current position and various options |                     |                  |                     |                       |                        |
| View from   | To                            | Current A303  | 4.5 kms tunnel      | 2.1 kms tunnel   | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |
| <b>Durrington Walls</b>   |                               |   |                     |                  |                     |                       |                        |
| 1. Durrington Walls   | Woodhenge                     | Minor Adverse   | Minor Adverse       | Minor Adverse    | Minor Adverse       | Minor Adverse         | Minor adverse          |
| 2. Durrington Walls   | Avenue E of King Barrow Ridge | Moderate adverse  | Moderate beneficial | Moderate adverse | Minor Adverse       | Minor Adverse         | Minor Adverse          |
| 3. Durrington Walls   | Barrows nr Avenue             | Moderate adverse  | Moderate beneficial | Moderate adverse | Minor adverse       | Minor adverse         | Minor adverse          |
| 4. Durrington Walls   | Coneybury Henge               | Moderate  | Moderate beneficial | Moderate adverse | Minor adverse       | Minor adverse         | Minor adverse          |
| 5. Durrington Walls   | Coneybury Barrow              | Moderate  | Moderate beneficial | Moderate adverse | Minor adverse       | Minor adverse         | Minor adverse          |
| <b>Woodhenge</b>  |                               |   |                     |                  |                     |                       |                        |
| 6. Woodhenge  | Durrington Walls              | None  | None                | None             | None                | None                  | None                   |
| 7. Woodhenge  | Avenue E of King Barrow Ridge | Moderate adverse  | Moderate beneficial | Moderate adverse | Minor adverse       | Minor adverse         | Minor adverse          |
| 8. Woodhenge  | Barrows nr Avenue             | Moderate adverse  | Moderate beneficial | Moderate adverse | Minor adverse       | Minor adverse         | Minor adverse          |
| 9. Woodhenge  | King Barrows (Old & New)      | Minor adverse   | Minor beneficial    | Minor adverse    | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A  | B                             | C  | D                   | E                | F                   | G                     | H                      |
|--|-------------------------------|--|---------------------|------------------|---------------------|-----------------------|------------------------|
|  |                               | <b>Scale of Impact of current position and various options</b> |                     |                  |                     |                       |                        |
| View from  | To                            | Current A303   | 4.5 kms tunnel      | 2.1 kms tunnel   | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |
| 10. Woodhenge  | Coneybury Henge               | Moderate adverse   | Moderate beneficial | Moderate adverse | Minor adverse       | Minor adverse         | Minor adverse          |
| 11. Woodhenge  | Coneybury Barrow              | Moderate adverse   | Moderate beneficial | Moderate adverse | Moderate adverse    | Minor adverse         | Minor adverse          |
| <b>Avenue east of King Barrow Ridge</b>              |                               |  |                     |                  |                     |                       |                        |
| 12. Avenue E of King Barrow Ridge                    | Durrington Walls              | None   | None                | None             | None                | None                  | None                   |
| 13. Avenue E of King Barrow Ridge                    | Woodhenge                     | None   | None                | None             | None                | None                  | None                   |
| 14. Avenue E of King Barrow Ridge                    | Barrows nr Avenue             | None   | None                | None             | None                | None                  | None                   |
| 15. Avenue E of King Barrow Ridge                    | King Barrows (Old & New)      | None   | None                | None             | None                | None                  | None                   |
| 16. Avenue E of King Barrow Ridge                    | Coneybury Henge               | Major adverse  | Major beneficial    | Major adverse    | Major adverse       | Major adverse         | Major adverse          |
| 17. Avenue E of King Barrow Ridge                    | Coneybury Barrow              | Major adverse  | Major beneficial    | Major adverse    | Major adverse       | Major adverse         | Major adverse          |
| <b>Barrows near Avenue east of King Barrow Ridge</b> |                               |  |                     |                  |                     |                       |                        |
| 18. Barrows nr Avenue                                | Durrington Walls              | None   | None                | None             | None                | None                  | None                   |
| 19. Barrows nr Avenue                                | Woodhenge                     | None   | None                | None             | None                | None                  | None                   |
| 20. Barrows nr Avenue                                | Avenue E of King Barrow Ridge | Major adverse  | Major beneficial    | Major adverse    | Major adverse       | Major adverse         | Major adverse          |
| 21. Barrows nr Avenue                                | King Barrows (Old & New)      | Minor adverse  | Minor beneficial    | Minor beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                                 |                               | B  |                     | C                | D                | E                     | F                      | G                | H                |
|-----------------------------------|-------------------------------|--|---------------------|------------------|------------------|-----------------------|------------------------|------------------|------------------|
|                                   |                               | <b>Scale of Impact of current position and various options</b> |                     |                  |                  |                       |                        |                  |                  |
| View from                         | To                            | Current A303   | 4.5 kms tunnel      | 2.1 kms tunnel   | 2.5 kms tunnel   | 2.9kms on line tunnel | 2.9kms off line tunnel |                  |                  |
| 22. Barrows nr Avenue             | Coneybury Henge               | Major adverse  | Major beneficial    | Major adverse    | Moderate adverse | Moderate adverse      | Moderate adverse       | Moderate adverse | Moderate adverse |
| 23. Barrows nr Avenue             | Coneybury Barrow              | Major adverse  | Major beneficial    | Major adverse    | Moderate adverse | Moderate adverse      | Moderate adverse       | Moderate adverse | Moderate adverse |
| <b>King Barrows (Old and New)</b> |                               |  |                     |                  |                  |                       |                        |                  |                  |
| 24. King Barrows (Old and New)    | Woodhenge                     | None   | None                | None             | None             | None                  | None                   | None             | None             |
| 25. King Barrows (Old and New)    | Avenue E of King Barrow Ridge | Moderate adverse   | Moderate beneficial | Moderate adverse | Moderate adverse | Moderate adverse      | Moderate adverse       | Moderate adverse | Moderate adverse |
| 26. King Barrows (Old and New)    | Barrows nr Avenue             | Minor adverse  | Minor beneficial    | Minor adverse    | Minor adverse    | Minor adverse         | Minor adverse          | Minor adverse    | Minor adverse    |
| 27. King Barrows (Old and New)    | Coneybury Henge               | Major adverse  | Major beneficial    | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       | Major beneficial | Major beneficial |
| 28. King Barrows (Old and New)    | Coneybury Barrow              | Major adverse  | Major beneficial    | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       | Major beneficial | Major beneficial |
| 29. King Barrows (Old and New)    | Cursus E end                  | None   | None                | None             | None             | None                  | None                   | None             | None             |
| 30. King Barrows (Old and New)    | Cursus W end                  | None   | None                | None             | None             | None                  | None                   | None             | None             |
| 31. King Barrows (Old and New)    | Cursus Barrows                | None   | None                | None             | None             | None                  | None                   | None             | None             |
| 32. King Barrows (Old and New)    | Stonehenge                    | Major adverse  | Major beneficial    | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       | Major beneficial | Major beneficial |
| 33. King Barrows (Old and New)    | Stonehenge Down Barrows       | Major adverse  | Major beneficial    | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       | Major beneficial | Major beneficial |
| 34. King Barrows (Old and New)    | Normanton Down Barrows        | Major adverse  | Major beneficial    | Minor adverse    | Major beneficial | Major beneficial      | Major beneficial       | Major beneficial | Major beneficial |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                              |                               | B  |                  | C                | D                | E                     | F                      | G | H |
|--------------------------------|-------------------------------|--|------------------|------------------|------------------|-----------------------|------------------------|---|---|
|                                |                               | <b>Scale of Impact of current position and various options</b> |                  |                  |                  |                       |                        |   |   |
| View from                      | To                            | Current A303   | 4.5 kms tunnel   | 2.1 kms tunnel   | 2.5 kms tunnel   | 2.9kms on line tunnel | 2.9kms off line tunnel |   |   |
| 35. King Barrows (Old and New) | Barrows nr Portals B & C      | Major adverse  | Major beneficial | Minor adverse    | Minor adverse    | Major beneficial      | Major beneficial       |   |   |
| 36. King Barrows (Old and New) | Lake Barrows                  | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |   |   |
| 37. King Barrows (Old and New) | Winterbourne Stoke Barrows    | Major adverse  | Major beneficial | Moderate adverse | Moderate adverse | Minor adverse         | Major beneficial       |   |   |
| <b>Coneybury Henge</b>         |                               |  |                  |                  |                  |                       |                        |   |   |
| 38. Coneybury Henge            | Durrington Walls              | Major adverse  | Minor adverse    | Moderate adverse | Moderate adverse | Moderate adverse      | Moderate adverse       |   |   |
| 39. Coneybury Henge            | Woodhenge                     | Major adverse  | Minor adverse    | Moderate adverse | Moderate adverse | Moderate adverse      | Moderate adverse       |   |   |
| 40. Coneybury Henge            | Avenue E of King Barrow Ridge | Major adverse  | Major beneficial | Moderate adverse | Moderate adverse | Moderate adverse      | Moderate adverse       |   |   |
| 41. Coneybury Henge            | Barrows nr Avenue             | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |   |   |
| 42. Coneybury Henge            | King Barrows (Old & New)      | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |   |   |
| 43. Coneybury Henge            | Coneybury Barrow              | None   | None             | None             | None             | None                  | None                   |   |   |
| 44. Coneybury Henge            | Cursus E end                  | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |   |   |
| 45. Coneybury Henge            | Cursus Centre                 | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |   |   |
| 46. Coneybury Henge            | Cursus Barrows                | Major  | Major            | Major            | Major            | Major                 | Major                  |   |   |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                       | B                             | C  | D                   | E                   | F                   | G                     | H                      |
|-------------------------|-------------------------------|--|---------------------|---------------------|---------------------|-----------------------|------------------------|
|                         |                               | <b>Scale of Impact of current position and various options</b> |                     |                     |                     |                       |                        |
| View from               | To                            | Current A303   | 4.5 kms tunnel      | 2.1 kms tunnel      | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |
|                         |                               | adverse  | beneficial          | beneficial          | beneficial          | beneficial            | beneficial             |
| 47. Coneybury Henge     | Stonehenge                    | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 48. Coneybury Henge     | Stonehenge Down Barrows       | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 49. Coneybury Henge     | Normanton Down Barrows        | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 50. Coneybury Henge     | Barrows nr Portals B & C      | Major adverse  | Major beneficial    | Minor beneficial    | Minor beneficial    | Major beneficial      | Major beneficial       |
| 51. Coneybury Henge     | Lake Barrows                  | Minor adverse  | Minor beneficial    | Minor beneficial    | Minor beneficial    | Minor beneficial      | Minor beneficial       |
| 52. Coneybury Henge     | Winterbourne Stoke Barrows    | Major adverse  | Major beneficial    | Moderate adverse    | Moderate adverse    | Minor adverse         | Major adverse          |
|                         |                               |  |                     |                     |                     |                       |                        |
| <b>Coneybury Barrow</b> |                               |  |                     |                     |                     |                       |                        |
| 53. Coneybury Barrow    | Durrington Walls              | Major adverse  | Minor adverse       | Moderate adverse    | Moderate adverse    | Moderate adverse      | Moderate adverse       |
| 54. Coneybury Barrow    | Woodhenge                     | Major adverse  | Minor adverse       | Moderate adverse    | Moderate adverse    | Moderate adverse      | Moderate adverse       |
| 55. Coneybury Barrow    | Avenue E of King Barrow Ridge | Major adverse  | Major beneficial    | Moderate adverse    | Moderate adverse    | Minor adverse         | Minor adverse          |
| 56. Coneybury Barrow    | Barrows nr Avenue             | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 57. Coneybury Barrow    | King Barrows (Old & New)      | Major  | Major               | Major               | Major               | Major                 | Major                  |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                      |                            | B  |                     | C                   | D                   | E                     | F                      | G                   | H                   |
|------------------------|----------------------------|--|---------------------|---------------------|---------------------|-----------------------|------------------------|---------------------|---------------------|
|                        |                            | <b>Scale of Impact of current position and various options</b> |                     |                     |                     |                       |                        |                     |                     |
| View from              | To                         | Current A303   | 4.5 kms tunnel      | 2.1 kms tunnel      | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |                     |                     |
|                        |                            | adverse  | beneficial          | beneficial          | beneficial          | beneficial            | beneficial             | beneficial          | beneficial          |
| 58. Coneybury Barrow   | Coneybury Henge            | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    | Moderate beneficial | Moderate beneficial |
| 59. Coneybury Barrow   | Cursus E end               | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 60. Coneybury Barrow   | Cursus Centre              | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 61. Coneybury Barrow   | Cursus Barrows             | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 62. Coneybury Barrow   | Stonehenge                 | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 63. Coneybury Barrow   | Stonehenge Down Barrows    | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 64. Coneybury Barrow   | Normanton Down Barrows     | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    | Moderate beneficial | Moderate beneficial |
| 65. Coneybury Barrow   | Barrows nr Portals B & C   | Major adverse  | Major beneficial    | Minor adverse       | Minor adverse       | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 66. Coneybury Barrow   | Lake Barrows               | Minor adverse  | Minor beneficial    | Minor beneficial    | Minor beneficial    | Minor beneficial      | Minor beneficial       | Minor beneficial    | Minor beneficial    |
| 67. Coneybury Barrow   | Winterbourne Stoke Barrows | Major adverse  | Major beneficial    | Moderate adverse    | Moderate adverse    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| <b>Cursus East End</b> |                            |  |                     |                     |                     |                       |                        |                     |                     |
| 68. Cursus E end       | King Barrows (Old & New)   | Moderate   | Moderate            | Moderate            | Moderate            | Moderate              | Moderate               | Moderate            | Moderate            |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                    |                           | B  |                     | C                   | D                   | E                     | F                      | G                   | H                   |
|----------------------|---------------------------|--|---------------------|---------------------|---------------------|-----------------------|------------------------|---------------------|---------------------|
|                      |                           | <b>Scale of Impact of current position and various options</b> |                     |                     |                     |                       |                        |                     |                     |
| View from            | To                        | Current A303   | 4.5 kms tunnel      | 2.1 kms tunnel      | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |                     |                     |
|                      |                           | adverse  | beneficial          | beneficial          | beneficial          | beneficial            | beneficial             | beneficial          | beneficial          |
| 69. Cursus E end     | Coneybury Henge           | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 70. Cursus E end     | Coneybury Barrow          | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 71. Cursus E end     | Cursus W end              | None   | None                | None                | None                | None                  | None                   | None                | None                |
| 72. Cursus E end     | Cursus Barrows            | None   | None                | None                | None                | None                  | None                   | None                | None                |
| 73. Cursus E end     | Stonehenge                | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    | Moderate beneficial | Moderate beneficial |
| 74. Cursus E end     | Stonehenge Down Barrows   | Moderate   | None                | None                | None                | None                  | None                   | None                | None                |
| 75. Cursus E end     | Normanton Down Barrows    | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 76. Cursus E end     | Barrows nr Portals B & C  | Major adverse  | None                | Moderate adverse    | Minor               | None                  | None                   | None                | None                |
| 77. Cursus E end     | Lake Barrows              | Major adverse  | None                | None                | None                | None                  | None                   | None                | None                |
| 78. Cursus E end     | Winterborne Stoke Barrows | Major adverse  | Major beneficial    | Moderate adverse    | Moderate adverse    | Minor adverse         | Major beneficial       | Major beneficial    | Major beneficial    |
| <b>Cursus Centre</b> |                           |  |                     |                     |                     |                       |                        |                     |                     |
| 79. Cursus Centre    | Coneybury Henge           | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 80. Cursus Centre    | Coneybury Barrow          | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                      |                          | B                |                     | C  | D                   | E                     | F                      | G                   | H                   |
|------------------------|--------------------------|------------------|---------------------|--|---------------------|-----------------------|------------------------|---------------------|---------------------|
|                        |                          |                  |                     | <b>Scale of Impact of current position and various options</b> |                     |                       |                        |                     |                     |
| View from              | To                       | Current A303     | 4.5 kms tunnel      | 2.1 kms tunnel   | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |                     |                     |
| 81. Cursus Centre      | Stonehenge               | Moderate adverse | Moderate beneficial | Moderate beneficial  | Moderate beneficial | Moderate beneficial   | Moderate beneficial    | Moderate beneficial | Moderate beneficial |
| <b>Cursus West End</b> |                          |                  |                     |  |                     |                       |                        |                     |                     |
| 82. Cursus W end       | King Barrows (Old & New) | Moderate adverse | Moderate beneficial | Moderate beneficial  | Moderate beneficial | Moderate beneficial   | Moderate beneficial    | Moderate beneficial | Moderate beneficial |
| 83. Cursus W end       | Cursus E end             | Moderate adverse | Moderate beneficial | Moderate beneficial  | Moderate beneficial | Moderate beneficial   | Moderate beneficial    | Moderate beneficial | Moderate beneficial |
| 84. Cursus W end       | Cursus Barrows           | Minor adverse    | Minor beneficial    | Minor beneficial   | Minor beneficial    | Minor beneficial      | Minor beneficial       | Minor beneficial    | Minor beneficial    |
| <b>Cursus Barrows</b>  |                          |                  |                     |  |                     |                       |                        |                     |                     |
| 85. Cursus Barrows     | King Barrows (Old & New) | Moderate adverse | Moderate beneficial | Moderate beneficial  | Moderate beneficial | Moderate beneficial   | Moderate beneficial    | Moderate beneficial | Moderate beneficial |
| 86. Cursus Barrows     | Coneybury Henge          | Major adverse    | Major beneficial    | Major beneficial   | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 87. Cursus Barrows     | Coneybury Barrow         | Major adverse    | Major beneficial    | Major beneficial   | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 88. Cursus Barrows     | Cursus E end             | None             | None                | None   | None                | None                  | None                   | None                | None                |
| 89. Cursus Barrows     | Cursus W end             | None             | None                | None   | None                | None                  | None                   | None                | None                |
| 90. Cursus Barrows     | Stonehenge               | Major adverse    | Major beneficial    | Major beneficial   | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |
| 91. Cursus Barrows     | Stonehenge Down Barrows  | Major adverse    | Major beneficial    | Major beneficial   | Major beneficial    | Major beneficial      | Major beneficial       | Major beneficial    | Major beneficial    |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                              | B                          | C  | D                   | E                   | F                   | G                     | H                      |
|--------------------------------|----------------------------|--|---------------------|---------------------|---------------------|-----------------------|------------------------|
|                                |                            | <b>Scale of Impact of current position and various options</b> |                     |                     |                     |                       |                        |
| View from                      | To                         | Current A303   | 4.5 kms tunnel      | 2.1 kms tunnel      | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |
| 92. Cursus Barrows             | Winterbourne Stoke Barrows | None   | None                | None                | None                | None                  | None                   |
| <b>Stonehenge</b>              |                            |  |                     |                     |                     |                       |                        |
| 93. Stonehenge                 | King Barrows (Old & New)   | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 94. Stonehenge                 | Coneybury Henge            | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 95. Stonehenge                 | Coneybury Barrow           | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 96. Stonehenge                 | Cursus E end               | Minor adverse  | Minor beneficial    | Minor beneficial    | Minor beneficial    | Minor beneficial      | Minor beneficial       |
| 97. Stonehenge                 | Cursus Centre              | Minor adverse  | Minor beneficial    | Minor beneficial    | Minor beneficial    | Minor beneficial      | Minor beneficial       |
| 98. Stonehenge                 | Cursus Barrows             | None   | None                | None                | None                | None                  | None                   |
| 99. Stonehenge                 | Stonehenge Down Barrows    | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 100. Stonehenge                | Normanton Down Barrows     | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 101. Stonehenge                | Lake Barrows               | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| <b>Stonehenge Down Barrows</b> |                            |  |                     |                     |                     |                       |                        |
| 102. Stonehenge Down Barrows   | King Barrows (Old & New)   | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                             | B                        | C  | D                   | E                   | F                   | G                     | H                      |
|-------------------------------|--------------------------|--|---------------------|---------------------|---------------------|-----------------------|------------------------|
|                               |                          | <b>Scale of Impact of current position and various options</b> |                     |                     |                     |                       |                        |
| View from                     | To                       | Current A303   | 4.5 kms tunnel      | 2.1 kms tunnel      | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |
| 103. Stonehenge Down Barrows  | Coneybury Henge          | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 104. Stonehenge Down          | Coneybury Barrow         | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 105. Stonehenge Down Barrows  | Cursus E end             | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 106. Stonehenge Down Barrows  | Cursus Barrows           | None   | None                | None                | None                | None                  | None                   |
| 107. Stonehenge Down Barrows  | Stonehenge               | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 108. Stonehenge Down Barrows  | Normanton Down Barrows   | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| <b>Normanton Down Barrows</b> |                          |  |                     |                     |                     |                       |                        |
| 109. Normanton Down Barrows   | King Barrows (Old & New) | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 110. Normanton Down Barrows   | Coneybury Henge          | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 111. Normanton Down Barrows   | Coneybury Barrow         | Minor adverse  | Minor beneficial    | Minor beneficial    | Minor beneficial    | Minor beneficial      | Minor beneficial       |
| 112. Normanton Down Barrows   | Cursus E end             | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 113. Normanton Down Barrows   | Stonehenge               | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 114. Normanton Down Barrows   | Stonehenge Down Barrows  | Major  | Major               | Major               | Major               | Major                 | Major                  |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                                   | B                          | C  | D                | E                | F                | G                     | H                      |
|-------------------------------------|----------------------------|--|------------------|------------------|------------------|-----------------------|------------------------|
|                                     |                            | <b>Scale of Impact of current position and various options</b> |                  |                  |                  |                       |                        |
| View from                           | To                         | Current A303   | 4.5 kms tunnel   | 2.1 kms tunnel   | 2.5 kms tunnel   | 2.9kms on line tunnel | 2.9kms off line tunnel |
|                                     |                            | adverse  | beneficial       | beneficial       | beneficial       | beneficial            | beneficial             |
| 115. Normanton Down Barrows         | Barrows nr Portals B & C   | Major adverse  | Major beneficial | Moderate adverse | Minor adverse    | Major beneficial      | Major beneficial       |
| 116. Normanton Down Barrows         | Lake Barrows               | None   | None             | None             | None             | None                  | None                   |
| 117. Normanton Down Barrows         | Winterbourne Stoke Barrows | Major adverse  | Major beneficial | Moderate adverse | Moderate adverse | Moderate adverse      | Major beneficial       |
| <b>Barrows near Portals B and C</b> |                            |  |                  |                  |                  |                       |                        |
| 118. Barrows nr Portals B & C       | King Barrows (Old & New)   | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |
| 119. Barrows nr Portals B & C       | Coneybury Henge            | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |
| 120. Barrows nr Portals B & C       | Coneybury Barrow           | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |
| 121. Barrows nr Portals B & C       | Cursus E end               | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |
| 122. Barrows nr Portals B & C       | Normanton Down Barrows     | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |
| 123. Barrows nr Portals B & C       | Lake Barrows               | Major adverse  | Major beneficial | Major beneficial | Major beneficial | Major beneficial      | Major beneficial       |
| 124. Barrows nr Portals B & C       | Winterbourne Stoke Barrows | Major adverse  | Major beneficial | Moderate adverse | Minor adverse    | Minor adverse         | Major beneficial       |
| <b>Lake Barrows</b>                 |                            |  |                  |                  |                  |                       |                        |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| A                                 | B                          | C  | D                   | E                   | F                   | G                     | H                      |
|-----------------------------------|----------------------------|--|---------------------|---------------------|---------------------|-----------------------|------------------------|
|                                   |                            | <b>Scale of Impact of current position and various options</b> |                     |                     |                     |                       |                        |
| View from                         | To                         | Current A303   | 4.5 kms tunnel      | 2.1 kms tunnel      | 2.5 kms tunnel      | 2.9kms on line tunnel | 2.9kms off line tunnel |
| 125. Lake Barrows                 | King Barrows (Old & New)   | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 126. Lake Barrows                 | Coneybury Henge            | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 127. Lake Barrows                 | Coneybury Barrow           | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 128. Lake Barrows                 | Cursus E end               | Major adverse  | Major beneficial    | Major beneficial    | Major beneficial    | Major beneficial      | Major beneficial       |
| 129. Lake Barrows                 | Stonehenge                 | Minor adverse  | Minor beneficial    | Minor beneficial    | Minor beneficial    | Minor beneficial      | Minor beneficial       |
| 130. Lake Barrows                 | Normanton Down Barrows     | Moderate adverse   | Moderate beneficial | Moderate beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 131. Lake Barrows                 | Barrows nr Portals B & C   | Major adverse  | Major beneficial    | Moderate adverse    | Minor adverse       | Major beneficial      | Major beneficial       |
| 132. Lake Barrows                 | Winterbourne Stoke Barrows | Major adverse  | Major beneficial    | Moderate adverse    | Moderate adverse    | Moderate adverse      | Moderate adverse       |
| <b>Winterbourne Stoke Barrows</b> |                            |  |                     |                     |                     |                       |                        |
| 133. Winterbourne Stoke Barrows   | King Barrows (Old & New)   | Major adverse  | Major beneficial    | Moderate adverse    | Moderate adverse    | Minor adverse         | Major beneficial       |
| 134. Winterbourne Stoke Barrows   | Coneybury Henge            | Major adverse  | Major beneficial    | Moderate adverse    | Moderate adverse    | Minor adverse         | Major beneficial       |
| 135. Winterbourne Stoke Barrows   | Coneybury Barrow           | Major adverse  | Major beneficial    | Moderate adverse    | Moderate adverse    | Minor adverse         | Major beneficial       |

**This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.**

| <b>A</b>                        | <b>B</b>                 | <b>C</b>   | <b>D</b>              | <b>E</b>              | <b>F</b>              | <b>G</b>                     | <b>H</b>                      |
|---------------------------------|--------------------------|--|-----------------------|-----------------------|-----------------------|------------------------------|-------------------------------|
|                                 |                          | <b>Scale of Impact of current position and various options</b> |                       |                       |                       |                              |                               |
| <b>View from</b>                | <b>To</b>                | <b>Current A303</b>  | <b>4.5 kms tunnel</b> | <b>2.1 kms tunnel</b> | <b>2.5 kms tunnel</b> | <b>2.9kms on line tunnel</b> | <b>2.9kms off line tunnel</b> |
| 136. Winterborne Stoke Barrows  | Cursus E end             | Moderate adverse   | Moderate beneficial   | Minor adverse         | Minor adverse         | Minor adverse                | Moderate beneficial           |
| 137. Winterborne Stoke Barrows  | Cursus Barrows           | Moderate adverse   | Moderate beneficial   | Moderate beneficial   | Moderate beneficial   | Moderate beneficial          | Moderate beneficial           |
| 138. Winterbourne Stoke Barrows | Normanton Down Barrows   | Major adverse  | Major beneficial      | Major adverse         | Major adverse         | Major adverse                | Major beneficial              |
| 139. Winterbourne Stoke Barrows | Barrows nr Portals B & C | Major adverse  | Major beneficial      | Major adverse         | Major adverse         | Moderate adverse             | Major beneficial              |
| 140. Winterbourne Stoke Barrows | Lake Barrows             | Major adverse  | Major beneficial      | Moderate adverse      | Moderate adverse      | Moderate adverse             | Moderate adverse              |

**7. The influence of the remains of Neolithic and Bronze Age funerary and ceremonial monuments and their landscape settings on architects, artists, historians, archaeologists and others.**

Stonehenge in particular has been the subject of numerous artists, including J M W Turner, and figures in many books, both fiction such as *Tess of the D'Urbervilles* and academic. It has also inspired many architects from Inigo Jones onwards and has been the subject of antiquarian and archaeological study and speculation for more than three hundred years. The present A303 is highly visible in many views in the landscape and must be a deterrent to artistic appreciation. On the other hand, the view of Stonehenge from vehicles descending from King Barrow Ridge to Stonehenge Bottom is highly appreciated by many, though it would still be possible to appreciate it on foot. Overall, the A303 should probably be judged to have a minor adverse impact of moderate/ large significance on this attribute. Any of the tunnel options would remove the A303 from the key views which have inspired artists and others over the years. This can be judged as a minor beneficial change of moderate/ large significance.

**Integrity**

Integrity is part of one of the three pillars of Outstanding Universal Value. According to the *Operational Guidelines*

*Integrity is a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes. Examining the conditions of integrity, therefore requires assessing the extent to which the property:*

- a) includes all elements necessary to express its Outstanding Universal Value;*
- b) is of adequate size to ensure the complete representation of the features and processes which convey the property's significance;*
- c) suffers from adverse effects of development and/or neglect.(UNESCO 2005 paras 87-88)*

*For cultural properties, the physical fabric of the property and/or its significant features should be in good condition, and the impact of deterioration processes controlled. A significant proportion of the elements necessary to convey the totality of the value conveyed by the property should be included. Relationships and dynamic functions present in cultural landscapes, historic towns or other living properties essential to their distinctive character should also be maintained (UNESCO 2005 para 89).*

The agreed Statement of Outstanding Universal Value says that *the presence of busy main roads through the World Heritage property impacts adversely on its integrity*. It also says that *The A303 continues to have a negative impact on the setting of Stonehenge, the integrity of the property and visitor access to some parts of the wider landscape* (see Appendix 3). Integrity of the property was further evaluated in the 2009 Management Plan (English Heritage 2009, 33-4), which noted the major adverse impact of the A303 and A344, and also noted that more intensive use of the roads had had an impact on the visual integrity of the property since it was inscribed in 1986. The A344 has now been removed.

The A303 has visual, aural and access impacts on the World Heritage property:

Visual: this is the most apparent impact on integrity since, as noted above, the A303 cuts across the landscape and disrupts many visual links and the ability to appreciate the landscape as a whole. At times when the traffic is heavy or even stationary it can have a very high impact on visual aspects of this part of the property.

Aural: traffic noise can be considerable at Stonehenge itself and elsewhere along the line of the A303. The extent of the impact can vary according to weather conditions and the amount of traffic but is often oppressive. The reduction of traffic noise resulting from the closure of the A344 is notable away from the A303.

Access: in many ways the greatest adverse impact of the A303 on the integrity of the property is its role as a barrier between the whole north and south of the World Heritage property. There are no controlled crossing points of the A303 within the World Heritage property. While the A303 is crossed by Byway 12, actually crossing the road is very dangerous in most traffic conditions. Access to the World Heritage property for most visitors is *de facto* confined to its northern part. Most visitors, indeed, are probably unaware that around half of the World Heritage property is south of the A303

Overall the impact of the A303 on the integrity of the World Heritage property is major adverse of very large significance. Any of the road alternatives under consideration would improve the integrity of the property. All will greatly improve the ability to access all parts of the World Heritage property by removing significant lengths of the A303. They would also reduce aural and visual impact where the road would be in a tunnel.

The 4.5kms tunnel would have the most positive effect, reuniting the World Heritage property for most of the length of the road. The four tunnel options included in the brief would allow access across the former line of the A303 between King Barrow Ridge in the east and the western portal position. This would be a very substantial improvement. Noise levels would be greatly reduced where the A303 is placed in a tunnel, though aural impact could be greater where new dual carriageway is created even if in a cutting. This would hopefully be reduced by the use of 'green cuttings' since vegetation on the sides of the cuttings would absorb some sound. Visual impact of the A303 would be removed where the A303 is placed in a tunnel. These would be major beneficial change.

However, where the road was not in a tunnel, there would be stretches of new dual carriageway road of between 1 and 1.6kms. These would have an adverse impact on the Outstanding Universal Value of the World Heritage property. This adverse impact would be greatest for the Published Scheme and least for either of the two 2.9km bored tunnel options.

| Option                | Area of existing road removed (m2)* | Area of new above ground road required (m2) | Net increase in above ground road area over existing A303 (m2) |
|-----------------------|-------------------------------------|---|--|
| Published scheme      | 51,000                              | 63,750                                      | 12,750   |
| 2.5km on-line tunnel  | 51,000                              | 52,500                                      | 1,500  |
| 2.9km on-line tunnel  | 51,000                              | 42,500                                      | 8,500 decrease   |
| 2.9km off-line tunnel | 51,000                              | 44,500                                      | 6,500 decrease   |

**Table 4: Net areas of new road required for each option**

(The calculations have assumed that the existing A303 between Countess and Longbarrow Crossroads roundabouts would be removed and that all new above-ground road is on new alignments, as was the case for the published scheme; source Tata 2014, p.12)

None of the tunnel options would deal with the severance of the line of the Avenue. New dual carriageway outwith a tunnel will inevitably have an adverse impact on the property's integrity. A further factor is the location and design of the junction between the A303 and the A360 and its impact on the Winterbourne Stoke Barrow Group. This is probably a moderate adverse impact of large/ very large significance.

It is necessary to balance the beneficial and negative impacts on the integrity of the property. The 4.5km tunnel can be assessed as major beneficial change of very large significance as there are no negative impacts on integrity. The 2.1km Published Scheme can be assessed as having a negligible beneficial impact of slight significance. The remaining three tunnel options can be assessed as moderate beneficial change of large/ very large significance, since the adverse impact of new dual carriageway within the World Heritage property has to be taken into account. The most advantageous in terms of impact on Outstanding Universal Value would be one of the 2.9km routes.

### **Authenticity**

Authenticity is about the truthfulness of the evidence for Outstanding Universal Value and the ability to appreciate that evidence. The *Operational Guidelines* (para 82) list a number of tests for authenticity including form and design, materials and substance, location and setting, and spirit and feeling. Authenticity is considered in the 2009 Management Plan (English Heritage 2009, 32-33). The impact of the road on materials and substance and form and design is comparatively limited (see discussion of Attribute 2 above). The road has a greater impact on location and setting and spirit and feeling. It is a dominant feature in many views of the World Heritage property with an adverse impact on the setting of the property and both its visual and aural impact is disruptive to the spirit and feeling of the property.

Overall, the A303 has a major adverse impact, of very large significance, on the authenticity of the property. As with the assessment of integrity, the 4.5km tunnel would be a major change of very large beneficial significance. For the same reasons, including the impact of new road construction, as in the assessment of integrity, the 2.1km Published Scheme can be assessed as having a negligible beneficial impact of slight significance. The remaining three tunnel options can be assessed as moderate beneficial change of large/ very large significance.

## **Chapter 6 Physical impacts of new road construction on archaeological features of Outstanding Universal Value**

It is not possible accurately to assess the physical impacts of the construction of the existing A303 as there is no way of knowing what archaeological sites and monuments were destroyed without record during its original construction. The adverse impacts that are still evident or were recorded in subsequent widening of the A303 in the 1960s are set out in outline in Section 5 (above). No attempt has been made here to assess the physical impacts of the construction of a 4.5km bored tunnel (option 1) on archaeological sites and monuments that are attributes of Outstanding Universal Value as these would be limited to the impacts of any eastern portal and any associated infrastructure (such as control buildings) and no details of these are available. It is likely that such impacts would in any case be within the existing cutting of the present A303 dual carriageway.

The methodology used to assess the physical impacts on archaeological sites and monuments that would occur as a result of the construction of bored tunnel options 2-5 together with their associated above ground dual carriageway and related infrastructure is set out in **Chapter 3 Methodology** (above). The results of that assessment are set out on a portal by portal basis in Tables 5 to 10. These results have then been aggregated (Tables 11 to 14) to show the permanent impacts of the construction of the various options. All of the impacts assessed are adverse as destruction of physical remains of the Neolithic and Bronze Age funerary and ceremonial monuments and associated sites that are themselves an attribute of Outstanding Universal Value can only be a negative impact. The assessment of whether the impact is negligible, minor, moderate or major is necessarily a matter of subjective professional judgement. Factors taken into consideration when making that assessment included:

- The proportion of the site or monument affected
- The degree to which the part of the site or monument would be affected; this could range between minor surface disturbance and wholesale destruction.
- The condition of the site or monument at present

In accordance with the ICOMOS impact assessment Guidelines, as all of the archaeological features identified as subject to physical impacts are attributes of Outstanding Universal Value and therefore of high importance negligible impacts will be of slight significance; impacts of minor scale will be of moderate / large significance; impacts of moderate scale will be of large / very large significance and major impacts will be of very large significance.

In summary the number of archaeological attributes of Outstanding Universal Value that are impacted is low for all four bored tunnel options. The highest level of adverse impact would result from the 2.1 km Published Scheme, followed by the 2.9km off line option. Both of these options could be assessed as having a minor adverse impact of moderate significance to the World Heritage Property as a whole (although the adverse impact of the 2.9km off line option could be reduced further by moving the road line a few metres south of the footprint identified in the Tata report which would reduce the adverse impacts further). The 2.5km bored tunnel and the 2.9km on-line bored tunnel would both result in negligible adverse impacts of slight significance to the OUV of the World Heritage Property.

**Table 5 Physical impacts on archaeological sites and monuments that are attributes of OUV: portal A1 to western WHS boundary**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument<br>No.          | <b>Site name / description</b>  | <b>Impact</b>                       | <b>Comments</b>   |
|--|---|-------------------------------------|---|
| <b>SU14SW62K</b><br>SM 10481                                       | A circular mark visible on aerial photographs. Possibly plough truncated remains of a round barrow ditch. | Major Adverse<br>(but see comments) | Dropping line of road 50 metres further south would avoid adverse impact to this monument without creating further adverse direct archaeological impacts to attributes of OUV. This would result in an impact of No Change  |
| <b>SU14SW997</b>   | Possible levelled long barrow visible as a soil mark.   | Major Adverse                       | Known only from aerial photographs  |
| <b>SU14SW807, 808,<br/>809,810,811,812,813,<br/>814</b><br>SM10480 | Bronze Age barrows  | No change                           | Proposed A1 road / cutting runs immediately south of this asset. No direct physical impact on the archaeology of the Scheduled Monument (or the individual assets within it) but dropping the line of the road further south (as recommended above) would ensure no unintended adverse impacts during construction works. |
| <b>SU14SW64G</b>   | Ring ditch. Site of an undated round barrow   | Major adverse                       | Known only from aerial photographs. Any surviving elements of ring ditch likely to be totally destroyed as a result of road construction.   |

**Table 6 Physical impacts on archaeological sites and monuments that are attributes of OUV: portal A2 to western WHS boundary**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument<br>No. | <b>Site name / description</b> | <b>Impact</b> | <b>Comments</b>                                   |
|---|--------------------------------|---------------|---|
| <b>SU14SW839</b><br>SM 10477                              | Round barrow                   | No change     | No direct physical impact to archaeological asset |

**Table 7 Physical impacts on archaeological sites and monuments that are attributes of OUV: portal B to western WHS boundary**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument<br>No. | <b>Site name / description</b>   | <b>Impact</b> | <b>Comments</b>  |
|---|----------------------------------|---------------|--|
| <b>SU14SW184</b>  | Two excavated Bronze Age burials | No change     | No longer extant, fully excavated (Leivers & Moore 2008)   |
| <b>SU14SW839</b><br>SM 10477                              | Round barrow                     | Minor adverse | Asset in very close proximity to footprint of road / cutting. Some direct physical impact to archaeological asset during construction therefore assessed as likely to be unavoidable |

**Table 8 Physical impacts on archaeological sites and monuments that are attributes of OUV: portal C to western WHS boundary**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument<br>No. | <b>Site name / description</b>              | <b>Impact</b> | <b>Comments</b>  |
|---|---|---------------|--|
| <b>SU14SW184</b>  | Two excavated Bronze Age burials            | No change     | No longer extant, fully excavated (Leivers & Moore 2008)   |
| <b>SU14SW839</b><br>SM 10477                              | Round barrow                                | Minor adverse | Asset in very close proximity to footprint of road / cutting. Some direct physical impact to archaeological asset during construction therefore assessed as likely to be unavoidable                         |
| <b>SU14SW127</b><br>SM10313                               | Long Barrow north of Normanton Gorse        | Minor adverse | Asset in very close proximity to footprint of road / cutting / cut and cover portion of tunnel. Some direct physical impact to archaeological asset during construction therefore assessed as highly likely. |
| <b>SU14SW836, 837, 838</b><br>SM 103<br>12                | Three bowl barrows north of Normanton Gorse | No change     | SU14SW836 and SU14SW 837 extant, SU14SW838 now levelled  |

**Table 9 Physical impacts on archaeological sites and monuments that are attributes of OUV: portal D to eastern WHS boundary plus cut and cover at Stonehenge Bottom**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument<br>No. | <b>Site name / description</b>   | <b>Impact</b> | <b>Comments</b>  |
|---|--|---------------|--|
| <b>SU14SW758</b><br>SM 10497                              | An undated levelled barrow East of King Barrow Ridge   | Minor Adverse | Partially excavated in 1980. The southern half was destroyed by the construction of the present A303. Asset in such close proximity to footprint of road that some direct physical impact to archaeological asset during construction is assessed as likely to be unavoidable.                                       |
| <b>SU14SW141</b>  | Later Neolithic pit containing Grooved Ware, flint work and macrofossils (including beans)                 | Major Adverse |  |
| <b>SU14SW175</b>  | Ditches, pits & post-holes containing Bronze Age pottery, worked flint, stone, animal bone & plant remains | Major Adverse |  |
| <b>SU14SW168</b><br>SM 10390                              | The Avenue   | Minor Adverse | Geophysical survey by the Hidden Landscape team immediately south of the point where the A303 cuts the Avenue has shown that the truncated ditches survive below ground. No similar survey has been undertaken immediately north of the A303 but it is likely the ditches survive in similar condition in that area. |
| <b>SU14SW889</b><br>SM 10498                              | Undated levelled bowl barrow.  | Major Adverse |  |

**Table 10 Physical impacts on archaeological sites and monuments that are attributes of OUV: portal E to eastern WHS boundary**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument<br>No. | <b>Site name / description</b> | <b>Impact</b>        | <b>Comments</b>  |
|---|--------------------------------|----------------------|--|
| <p><b>SU14SW168</b></p> <p>SM 10390</p>                   | <p>The Avenue</p>              | <p>Minor Adverse</p> | <p>Recent geophysical survey carried out as part of the Hidden Landscapes Project immediately to the south of the present A303 where it crosses the Avenue have shown that despite the effects of ploughing the truncated ditches survive below ground. Although no similar survey has yet been undertaken immediately north of the A303 it is likely that the truncated ditches also survive in similar condition in this area.</p> |

**Table 11** 2.1km bored tunnel with cut and cover at Stonehenge Bottom ('Published Scheme') portal C to portal D: Physical impacts on archaeological sites and monuments that are attributes of OUV

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument No. | <b>Site name / description</b>  | <b>Impact</b> |
|--|---|---------------|
| <b>SU14SW839</b><br>SM 10477                           | Round barrow  | Minor adverse |
| <b>SU14SW127</b><br>SM10313                            | Long Barrow north of Normanton Gorse  | Minor adverse |
| <b>SU14SW758</b><br>SM 10497                           | An undated levelled barrow East of King Barrow Ridge  | Minor Adverse |
| <b>SU14SW141</b>                                       | Later Neolithic pit containing Grooved Ware, flint work and macrofossils (including beans)  | Major Adverse |
| <b>SU14SW175</b>                                       | Features including ditches, pits and post-holes containing Bronze Age pottery, worked flint, stone, animal bone and plant remains | Major Adverse |
| <b>SU14SW168</b><br>SM 10390                           | The Avenue  | Minor Adverse |
| <b>SU14SW889</b><br>SM 10498                           | Undated levelled bowl barrow.   | Major Adverse |

**Table 12 2.5km bored tunnel portal B to portal E: Physical impacts on archaeological sites and monuments that are attributes of OUV**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument No. | <b>Site name / description</b> | <b>Impact</b> |
|--|--------------------------------|---------------|
| <b>SU14SW839</b><br>SM 10477                           | Round barrow                   | Minor adverse |
| <b>SU14SW168</b><br>SM 10390                           | The Avenue                     | Minor Adverse |

**Table 13 2.9km on-line bored tunnel portal A2 to portal E: Physical impacts on archaeological sites and monuments that are attributes of OUV**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument No. | <b>Site name / description</b> | <b>Impact</b> |
|--|--------------------------------|---------------|
| <b>SU14SW168</b><br>SM 10390                           | The Avenue                     | Minor Adverse |

**Table 14 2.9km off-line bored tunnel portal A1 to portal E: Physical impacts on archaeological sites and monuments that are attributes of OUV**

| <b>Wilts. HER Pref. Ref.</b><br>Scheduled Monument No. | <b>Site name / description</b>  | <b>Impact</b>                       |
|--|---|-------------------------------------|
| <b>SU14SW62K</b><br>SM 10481                           | A circular mark visible on aerial photographs. Possibly plough truncated remains of a round barrow ditch. | Major Adverse<br>(but see comments) |
| <b>SU14SW997</b>                                       | Possible levelled long barrow visible as a soil mark.   | Major Adverse                       |
| <b>SU14SW64G</b>                                       | Ring ditch. Site of an undated round barrow   | Major adverse                       |

## **Chapter 7      Conclusions and Recommendations**

This chapter pulls together the various strands covered in earlier sections of the report to offer an overall view of the potential impact on the Outstanding Universal Value of the World Heritage property of four bored tunnel options for the improvement of the A303, along with necessary lengths of new dual carriageway within the Stonehenge component of the property. This is a preliminary outline assessment. It is not a full Heritage Impact Assessment. Such a study would need to be much more thorough and would take much longer. It would also need to have a much clearer scoping opinion from the Highways Agency as to the potential design of any of the four options we were asked to consider.

This study, therefore, outlines developments in the policy context for conservation of the historic environment, and particularly of World Heritage properties, since the public inquiry into the Published Scheme for a 2.1km bored tunnel in 2004 (Chapter 4). In the light of this discussion it then provides a preliminary outline assessment of the perceived impacts on the property's Outstanding Universal Value of the existing road, the 4.5kms tunnel benchmark and the four tunnel options specified by the National Trust and English Heritage (Chapters 5 and 6). The assessment is made within the limitations of the available information, though it has been informed by the helpful Tata study *A303 Feasibility Review* (Tata 2014), which was commissioned by the National Trust as part of their input to the review.

The study is not a recommendation for an actual solution but intended to provide input into considering what that might be. Any decision on an actual route will need to be taken within the constraints of Government policy and available funding, bearing in mind the UK's international responsibilities for Stonehenge under the World Heritage Convention. The four options provide the basis for assessment but the actual designed scheme will need careful discussion and negotiation to achieve optimum positioning, design and mitigation within the constraints of Government policy and of the Government's obligation to maintain the Outstanding Universal Value of the World Heritage property in accordance with UK membership of the World Heritage Convention. Failure to meet those obligations could put the property at risk of being included on the World Heritage in Danger list or even delisted altogether as was the case with the Dresden Elbe Cultural Landscape when the UNESCO World Heritage Committee decided that a new bridge fatally damaged the property's Outstanding Universal value.

### **Policy Background**

The policy background has moved decisively since 2004 towards values led management and the need to protect significance. Internationally, the UNESCO World Heritage Committee, through successive editions of the Operational Guidelines to the World Heritage Convention, has placed more emphasis on the need for effective management to protect the Outstanding Universal Value, as agreed by them, of each World Heritage property. Heritage Impact Assessment is now requested for developments affecting World Heritage property. The Committee has endorsed the guidance for this developed by ICOMOS International (ICOMOS 2011) (see Chapter 3 for the methodology used in this study).

These were key themes in PPS5 and English Heritage's Conservation Principles and they have been carried through into the National Policy Planning Framework (NPPF) and Planning Practice Guidance (PPG). English Heritage has also published Setting Guidance spelling out the importance of protecting the setting of a heritage place in order to protect its significance. A key change from 2004 is the explicit recognition that an archaeological site which may be invisible on the surface is capable of having a setting.

The NPPF and PPG say that World Heritage properties are designations of the highest importance and should be managed to protect their Outstanding Universal Value, as set out in the Statement of Outstanding Universal Value agreed by the UNESCO World Heritage Committee. Protection of agreed Outstanding Universal Value is therefore a key requirement within English planning guidance.

A Statement of Outstanding Universal Value was adopted by the World Heritage Committee in 2013. It was proposed by the UK government and drafted in discussion with the Stonehenge and Avebury Steering Groups. The Statement makes clear that all funerary and ceremonial archaeological sites of Neolithic and Early Bronze Age, together with their relationships with each other and with the landscape are attributes of Outstanding Universal Value and need to be treated as such. The Statement also comments on the impact of roads on the integrity of the World Heritage property. The 2009 Management Plan elaborates the definition of these attributes and makes clear the need to manage the whole World Heritage property to protect its Outstanding Universal Value. The Statement of Outstanding Universal Value and the Management Plan have together moved us decisively away from the focus on Stonehenge and the Stonehenge Bowl which underpinned the 1999 English Heritage/ National Trust Master Plan, the 2000 Management Plan and the Highways Agency Published Scheme, to a much wider view of the Outstanding Universal Value of the property which means that all the physical attributes of Outstanding Universal Value have to be given more equal consideration.

These changes in policy and the fuller recognition of the character of the Outstanding Universal Value of the property justify the view of the Trust and English Heritage view that North or South surface alternatives within the World Heritage property would be wholly unacceptable in terms of impact on Outstanding Universal Value, let alone archaeology and landscape of national or local significance. The changes also justify the English Heritage and National Trust decision to examine again the potential for a bored tunnel to improve the situation vis-à-vis the A303. A bored tunnel of appropriate length has the potential greatly to improve the integrity of the World Heritage property and to reverse past damage to its Outstanding Universal Value.

### **Assessment of the impact on Outstanding Universal Value of the A303 and the various tunnel options**

The National Trust and English Heritage have therefore commissioned this study of four potential bored tunnels of different lengths, determined by the location of the portals of each option. They also requested an assessment of the current impact of the present A303 on the Outstanding Universal Value of the World Heritage property to provide a baseline against which the impacts of the different tunnel options can be compared. As a benchmark, we were also asked to review the

impact of a 4.5km tunnel such as was suggested by a number of conservation bodies during the 2004 Public Inquiry into the Published Scheme for a 2.1km bored tunnel. This study does not review impact on heritage of national, regional or local value. Nor has it assessed the impact of temporary works associated with any road improvements, such as contractors' compounds or bunded de-watering recharge areas.

This section of the conclusions summarises the impact on Outstanding Universal Value of the current position, a 4.5km tunnel and the four options outlined by the National Trust and English Heritage. It brings together for each of these cases the relevant information from the more detailed discussions in Chapters 5 and 6. For each case, the permanent impact on the seven agreed attributes of Outstanding Universal Value, and on integrity and authenticity is assessed. The methodology used for this impact assessment is based on that recommended in *ICOMOS Guidance on Heritage Impact Assessment* (ICOMOS 2011) and is discussed further in Chapter 3.

### The impact of the current A303

The A303 as presently built has a major adverse impact of very large significance on the World Heritage property. It has a major visual and aural impact on Stonehenge itself and on a large number of sites which are attributes of Outstanding Universal Value. Past road construction has caused physical damage to the Avenue east of King Barrow Ridge and to at least one barrow on the western slope of King Barrow Ridge. It is unknown what other damage may have been caused during past phases of road construction going back to the 18<sup>th</sup> century. The A303 passes very close to other burial mounds and has a major adverse impact on their setting.

The A303 is highly visible in the landscape. It therefore has a major adverse impact on the various visual linkages between monuments and between the monuments and the landscape, as well as to the ability to perceive their disposition within the landscape. Traffic on the A303 also provides light pollution on at least one key astronomical alignment. Lastly, the A303 has introduced a large amount of tarmac into this downland landscape. Because of its traffic levels, it also acts as an effective divider of the World Heritage property so that access across it is very dangerous. It therefore impacts on the integrity of the property visually, aurally and in terms of access.

### The impact of the 4.5km bored tunnel

This bored tunnel option, as described in 2004, would have started in the cutting of the present dual carriageway at the eastern side of the World Heritage property. Its western portal would be outside the western boundary of the World Heritage property. Apart from 1km of existing dual carriageway in cutting past Vespasian's Camp on the eastern edge of the World Heritage property, the A303 would be removed altogether from the property. There is limited visibility of this stretch of road from north and south. In the rest of the World Heritage property all the present adverse impacts of the road would be removed. It would be possible to restore the line of the Avenue east of King Barrow Ridge. Such a tunnel would have a major beneficial impact of very large significance.

### The impact of a 2.1km on-line bored tunnel (the Published Scheme) (Fig. 3 Portal D to Portal C)

The tunnel would begin 100m east of Stonehenge Cottages on King Barrow Ridge and end just to the west of the long barrow north of Normanton Gorse. The remainder of the road from there to Longbarrow Crossroads would be 1.6km of new dual carriageway constructed on the surface or mainly in cutting. The junction with the A360 would be grade separated and close to the Winterbourne Stoke Barrow Group. This would be a major new construction within the World Heritage property though being mainly in cutting would make it less visible from most directions. It could interfere in some of the views, for example between Lake and Winterbourne Stoke Barrow Groups.

Construction of the portals (requiring 30m of cut-and-cover tunnel) could have a physical impact on the long barrow north of Normanton Gorse. It would in any case have a major adverse impact on the setting of this barrow and the round barrows to its north on the other side of the present A303. At the eastern end, the position of the portal is close to King Barrow Ridge so there would still be some adverse impact on the setting of monuments along that ridge.

More positively, the scheme would remove 2.1km of road from the central part of the World Heritage property. This would improve the setting of all the sites within the so-called Stonehenge Bowl. Noise would be greatly reduced for visitors to Stonehenge and the surrounding landscape and access between the northern and southern parts of the World Heritage property would be improved. Because of the relatively shallow depth of this tunnel, cut-and-cover construction would be necessary in Stonehenge Bottom. This would have considerable visual and aural impacts during construction. There would be some risk to any extant archaeology along the line of the cut-and-cover section and in the construction compound. There would probably be a long-term scar showing the line of the cut-and-cover section.

Balancing these beneficial and adverse impacts to arrive at an overall assessment of impact on the Outstanding Universal Value of the World Heritage property is not easy and is essentially a matter of professional judgement. Given the impacts on the barrow group north of Normanton Gorse, continuing impact on the setting of King Barrow Ridge, including the Coneybury monuments, and the amount of new road construction outside the tunnel and within the World Heritage property, the overall assessment is that the impact of the Published Scheme on the Outstanding Universal Value, including integrity and authenticity, of the property would be negligible beneficial of slight significance.

### The impact of a 2.5km on-line bored tunnel (Fig. 3 Portal E to Portal B)

The eastern portal of this scheme is 200m east of that for the published scheme and the western one 200m west of that for the published scheme. The scheme would require 1.4km of new dual carriageway at the west end leading to the Longbarrow Crossroads junction with the A360.

Because the portal is lower down the side of the small dry valley crossing the A303 to the west of Normanton Gorse, the new dual carriageway would be in cutting for its whole length and probably less visible. The road junction at Longbarrow Crossroads would still be close to Winterbourne Stoke

Barrow Group. Depending on how deep the cutting is, the new road could interfere in some of the views, for example between Lake and Winterbourne Stoke Barrow Groups.

At the east end, moving the portal east by 200m will help to reduce the impact of the A303 on the monuments along King Barrow Ridge, including Coneybury Henge and Coneybury Barrow. There will be an adverse impact on the Avenue since its line will be severed by the cutting leading to the tunnel portal.

West of King Barrow Ridge, there will be major beneficial changes of very large significance for Stonehenge and the monuments within sight of it. There will also be significant improvements to integrity through the reduction of visual and aural impact of the road. Access between the northern and southern parts of the World Heritage property would be greatly improved.

Balancing the beneficial and adverse impacts, this scheme is a significant improvement on the Published Scheme since the movement of the portals lessens or removes many of the negative impacts noted for that option. There will still be some negative impacts at the western end as a result of the construction of 1.4km of new dual carriageway. Overall, the impact on the Outstanding Universal Value, including integrity and authenticity, of the World Heritage property can be assessed as a moderate beneficial impact of large/ very large significance.

#### The impact of a 2.9km on-line tunnel (Fig. 3 Portal E to Portal A2)

The eastern portal is in the same position as for the 2.5km option. The western portal would be a further 400m to the west at the bottom of the small dry valley west of Normanton Gorse. It should therefore be less visible than for the 2.1 and 2.5km options. Only 1km of new dual carriageway would need to be constructed at the western end of the World Heritage property. All this road would be in cutting to the junction with the A360 close to the Winterbourne Stoke Barrow Group. Depending on how deep the cutting is, the new road could interfere in some of the views, for example between Lake and Winterbourne Stoke Barrow Groups.

Impacts at the eastern end of the tunnel and in the centre of the World Heritage property would be the same as for the 2.5km scheme. There would be similar improvements to integrity through reduction of visual and aural impact. Improvements to access between the two halves of the World Heritage property would also be similar.

At the west end, impact would be reduced, compared to the 2.5km scheme because there would be less new road within the World Heritage property. The road junction would still be very close to the Winterbourne Stoke Barrow Group.

Balancing the beneficial and adverse impacts, this scheme is a significant improvement on the shorter schemes. There will still be some negative visual impacts at the western end as a result of the construction of 1.0km of new dual carriageway. Overall, the impact on the Outstanding Universal Value, including integrity and authenticity, of the World Heritage property can be assessed as a moderate beneficial impact of large/ very large significance.

### The impact of a 2.9km off-line tunnel (Fig. 3 Portal E to Portal A1)

The eastern portal is in the same position as for the previous two options. The tunnel would however be constructed off-line with its western portal about 500m south of the present line of the A303 low down in the dry valley running west of Normanton Gorse. From the portal, 1km of dual carriageway would run in cutting on a new line to a new junction with the A360 c.700m south of the present Longbarrow Crossroads junction, and there would need to be no road on the current line of the A303. This would significantly lessen the impact of the new road on the Winterbourne Stoke Barrow Group. Depending on how deep the cutting is, the new road could interfere in some of the views, for example between Lake and Winterbourne Stoke Barrow Groups.

As presently suggested, the new road could have some direct physical impacts on known archaeological features which are probably burial mounds. This could be a significant adverse impact of very large significance. These impacts would be avoided if the road line could be moved a further 50m to the south than where it was nominally assigned for this study.

Impacts at the eastern end of the tunnel and in the centre of the World Heritage property would be the same as for the 2.5km scheme. There would be similar improvements to integrity through reduction of visual and aural impact. Aural impact close to the Winterbourne Stoke Barrow Group would be considerably reduced. Improvements to access between the two halves of the World Heritage property would also be similar.

At the west end, impact would be reduced, compared to the 2.5km scheme because there would be less new road within the World Heritage property. It would be further reduced compared to the 2.9km on-line option because the new road would be further away from the Winterbourne Stoke Barrow Group as would the relocated junction with the A360.

Balancing the beneficial and adverse impacts, this scheme is a significant improvement on the other options, particularly if the road line can be moved to avoid direct physical impacts on archaeological features. There will still be some negative visual impacts at the western end as a result of the construction of 1.0km of new dual carriageway. Overall, the impact on the Outstanding Universal Value, including integrity and authenticity, of the World Heritage property can be assessed as a moderate beneficial impact of large/ very large significance.

### **Overall impact on Outstanding Universal Value of WHS**

Table 15 attempts to summarise the overall impact of the present A303, the 4.5kms tunnel and the four options for tunnels on the seven attributes of Outstanding Universal Value, Integrity and Authenticity. The last row of the table gives an overall assessment of the impact of the A303 on the Outstanding Universal value of the World Heritage property. The argumentation on which the table is based is contained in the previous sections of this chapter as well as in Chapters 5 and 6. This is of course only a preliminary outline assessment and not a full Heritage Impact Assessment. Any actual solution will need careful discussion and negotiation to achieve optimum positioning, design and mitigation which ensures the protection of the Outstanding Universal Value of the WHS.

Overall, the A303 can be assessed as now having a major adverse impact of very large significance on the Outstanding Universal Value, including integrity and authenticity, of the World Heritage property. The biggest positive change would be provided by the 4.5kms tunnel, included here as a benchmark. This has been rated as a major beneficial impact of very large significance. The Published Scheme for a 2.1km tunnel can be rated as minor beneficial impact of moderate/ large significance. The remaining three options for bored tunnels are rated as having a moderate beneficial impact of large/ very large significance. The reasons for this are the continuing impact on the line of the Avenue east of King Barrow Ridge, and the impacts of new road construction within the western edge of the World Heritage property for up to 1.4kms.

Within the ICOMOS HIA methodology, it is difficult to differentiate the impact of these three bored tunnels on the Outstanding Universal Value of the property as a whole. It is possible to achieve some differentiation by examining the detail impacts on individual physical attributes as set out in Table 3. In particular, the four tunnel options affect the Winterbourne Stoke Barrow Group to differing extents by reason of their proximity to the group, by the length of new dual carriageway close to the Group, and by their impact on views to and from the Winterbourne Stoke Group from other physical attributes of Outstanding Universal Value, particularly in western parts of the property.

In a different approach, Table 16 has attempted a numerical scoring of the different impacts. While this may appear somewhat mechanistic, it does provide a means of analysing further the differences between options which in the ICOMOS HIA system score the same. On the basis of the information currently to hand the 2.9kms offline tunnel has the most beneficial impact on the World Heritage property, provided that the new road is not too intrusive in views from Lake to Winterbourne Stoke. The next best alternative would be the 2.9kms tunnel online option, followed by the 2.5km option. Any of these three tunnel options would achieve a beneficial change of large/ very large significance in the impact of the A303 on the Stonehenge component of the Stonehenge, Avebury and Associated Sites World Heritage property.

**Table 15 Overall Assessment of impacts on Outstanding Universal Value of the World Heritage property**

| This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance. |   |                     |                       |                     |                       |                        |
|---|---|---------------------|-----------------------|---------------------|-----------------------|------------------------|
| A   | B   | C                   | D                     | E                   | F                     | G                      |
|   | Scale of Impact of current position and various options |                     |                       |                     |                       |                        |
|   | Current A303  | 4.5 kms tunnel      | 2.1 kms tunnel        | 2.5kms tunnel       | 2.9 kms online tunnel | 2.9 kms offline tunnel |
| Attribute of Outstanding Universal Value  |   |                     |                       |                     |                       |                        |
| 1 Stonehenge itself as a globally famous and iconic monument  | Major adverse   | Major beneficial    | Major beneficial      | Major beneficial    | Major beneficial      | Major beneficial       |
| 2. The physical remains of the Neolithic and Bronze Age funerary and ceremonial monuments and associated sites.   | Major adverse   | Moderate beneficial | Negligible beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 4. The design of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the skies and astronomy.   | Minor adverse   | Minor beneficial    | Minor beneficial      | Minor beneficial    | Minor beneficial      | Minor beneficial       |
| 3. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the landscape.<br>5. The siting of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to each other.<br>6. The disposition, physical remains and settings of the key Neolithic and Bronze Age funerary, ceremonial and other monuments and sites of the period, which together form a landscape without parallel.  | Major adverse   | Major beneficial    | Moderate beneficial   | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| 7. The influence of the remains of Neolithic and Bronze Age funerary and ceremonial monuments and their landscape settings on architects, artists, historians, archaeologists and others.   | Minor adverse   | Minor beneficial    | Minor beneficial      | Minor beneficial    | Minor beneficial      | Minor beneficial       |
| <b>Integrity</b>  | Major adverse   | Major beneficial    | Negligible beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |
| <b>Authenticity</b>   | Major adverse   | Moderate beneficial | Negligible beneficial | Moderate beneficial | Moderate beneficial   | Moderate beneficial    |

| <p><b>This table measures the scale of impact of the present A303 and of proposed changes to the A303. The significance of these impacts is a function of their scale and of the importance of the asset affected. As attributes of Outstanding Universal Value, all the features and relationships here are of very high importance. This means that a current impact or future change of minor scale is of moderate/ large significance, a moderate one is of large/ very large significance, and a major impact is of very large significance.</b></p> |  |                            |                              |                                   |                                   |                                   |
|---|--|----------------------------|------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| <b>A</b>  | <b>B</b>   | <b>C</b>                   | <b>D</b>                     | <b>E</b>                          | <b>F</b>                          | <b>G</b>                          |
|   | <b>Scale of Impact of current position and various options</b> |                            |                              |                                   |                                   |                                   |
|   | <b>Current A303</b>  | <b>4.5 kms tunnel</b>      | <b>2.1 kms tunnel</b>        | <b>2.5kms tunnel</b>              | <b>2.9 kms online tunnel</b>      | <b>2.9 kms offline tunnel</b>     |
| <b>Overall assessment of impact on the Outstanding Universal Value of the Stonehenge component of the Stonehenge, Avebury and Associated Sites World Heritage property</b>  | <b>Major adverse</b>   | <b>Major beneficial</b>    | <b>Negligible beneficial</b> | <b>Moderate beneficial</b>        | <b>Moderate beneficial</b>        | <b>Moderate beneficial</b>        |
| <b>Overall assessment of the significance of the impact on the Outstanding Universal Value of the Stonehenge component of the Stonehenge, Avebury and Associated Sites World Heritage property</b>  | <b>Very large negative</b>                                     | <b>Very large positive</b> | <b>Slight positive</b>       | <b>Large/ very large positive</b> | <b>Large/ very large positive</b> | <b>Large/ very large positive</b> |

**Table 16:** Numerical outcomes of impact assessment on Outstanding Universal Value of the World Heritage property

|                                       | Current A303 | 4.5 km       | 2.1 km     | 2.5 km     | 2.9km on-line | 2.9km off-line              |
|---------------------------------------|--------------|--------------|------------|------------|---------------|-----------------------------|
| Durrington Walls                      | -14          | +10          | -14        | -10        | -10           | -10                         |
| Woodhenge                             | -14          | +14          | -14        | -6         | -5            | -5                          |
| Avenue east of KBR                    | -8           | +8           | -8         | -8         | -8            | -8                          |
| Barrows near Avenue east of KBR       | -14          | +14          | -10        | -7         | -7            | -7                          |
| King Barrows                          | -37          | +37          | +8         | +14        | +21           | +27                         |
| Coneybury Henge                       | -45          | +45          | +29        | +29        | +32           | +31                         |
| Coneybury Barrow                      | -56          | +42          | +22        | +12        | +13           | +16                         |
| Cursus E                              | -33          | +22          | +12        | +13        | +16           | +22                         |
| Cursus Centre                         | -11          | +11          | +11        | +11        | +11           | +11                         |
| Cursus W                              | -8           | +8           | +8         | +8         | +8            | +8                          |
| Cursus Barrows                        | -19          | +19          | +19        | +19        | +19           | +19                         |
| Stonehenge                            | -29          | +29          | +29        | +29        | +29           | +29                         |
| SH Down Barrows                       | -23          | +23          | +23        | +23        | +23           | +23                         |
| Normanton Barrows                     | -29          | +29          | +15        | +16        | +22           | +29                         |
| Barrows near Portals B & C            | -28          | +28          | +21        | +22        | +22           | +28                         |
| Lake Barrows                          | -27          | +27          | +13        | +14        | +20           | +20                         |
| Winterbourne Stoke Barrows            | -30          | +30          | -19        | -19        | -15           | +23                         |
| <b>Sub-total adverse / beneficial</b> | -425         | +396         | -65 / +210 | -50 / +220 | -45 / +259    | -30 / +306                  |
| <b>Sub-total aggregate</b>            | -425         | +396         | +145       | +170       | +214          | +276                        |
| <b>Direct archaeological impacts</b>  | Not assessed | Not assessed | -20        | -4         | -2            | -12 (*or -8)                |
| <b>Total adverse / beneficial</b>     | -425         | +396         | -85 / +210 | -54 / +220 | -47 / +259    | -42 / +306 (*or -38 / +306) |
| <b>Total Aggregate</b>                | -425         | +396         | +125       | +150       | +195          | +255 (*or +259)             |

\* Alternative score if footprint of road adjusted to run slightly to the south at the western end  
**Aggregate subtotals for the current A303 and 4.5km tunnel are not adjusted for direct impacts, which were not assessed. Total aggregate scores may therefore understate the adverse impacts of these benchmarks in comparison with the other tunnel options.**

Numeric values have been ascribed on the following basis:

|                  |    |                    |    |
|------------------|----|--------------------|----|
| Major adverse    | -4 | Minor adverse      | -2 |
| Moderate adverse | -3 | Negligible adverse | -1 |

|                       |    |                     |    |
|-----------------------|----|---------------------|----|
| No change             | 0  | Moderate beneficial | +3 |
| Negligible beneficial | +1 | Major beneficial    | +4 |
| Minor beneficial      | +2 |                     |    |

**Appendix 1: Brief for the preliminary assessment of A303 proposals on the Outstanding Universal Value of the Stonehenge, Avebury and Associated Sites World Heritage property**

**BRIEF FOR HERITAGE CONSULTANCY SERVICES**

**IN CONFIDENCE**

***Stonehenge A303 Improvement Options: outline preliminary assessment of OUV impact***

**1. BACKGROUND**

The A303 at Stonehenge has been shortlisted as a potential scheme as part of a Department for Transport (DfT) Feasibility Study of route options on the A303/A30/A358 Corridor. Stonehenge will be considered along with other potential improvements along the corridor, and the Study is in a competitive process as one of six routes nationally. The renewed focus on the A303 may present an opportunity to achieve the tunnelling of the road through a substantial part of the Stonehenge, Avebury & Associated Sites World Heritage Site (WHS). It also carries risks in the potential for harm to the Outstanding Universal Value (OUV) of the Stonehenge WHS as options to be considered by DfT may include surface dualling.

Surface dualling, whether on-line or off-line, would cause substantial harm to the significance and Outstanding Universal Value of the WHS. We are clear on the scale of these new impacts and DfT has been advised accordingly. Exhaustive work has been undertaken to assess the impact of surface dualling options within the WHS as part of the work to identify an acceptable route option in the 1990s and 2000s. The significant adverse impacts that such options were likely to have on Outstanding Universal Value were identified at the time and current Outstanding Universal Value impact assessment criteria will certainly reinforce those conclusions. As a result, surface dualling options are not considered further in this Brief.

Since the A303 Stonehenge Improvement was last considered in 2006-7, within the Highways Agency's (HA) Options Appraisal, there have been changes in national policy & guidance; in management policies for this WHS; in our understanding of the archaeological significance of the WHS; and in the articulation of its Outstanding Universal Value as agreed by the UNESCO World Heritage Committee under the terms of the World Heritage Convention and seen by them as the baseline for the future management of the property.

In policy and management guidance terms these changes include the National Planning Policy Framework, 2012; the Planning Practice Guidance (NPPG); 2014, the EH published guidance "The Setting of Heritage Assets", October 2011; Conservation Principles, 2008;; ICOMOS Guidance on Heritage Impact assessments for Cultural World Heritage Properties, 2011, the Statement of Outstanding Universal Value for the WHS adopted by the World Heritage Committee in June 2013; and the revised WHS Management Plan 2009-2015.

To varying degrees, either subtly or profoundly, these documents change how we understand, assess and quantify harm and/or benefits arising from development proposals affecting the WHS.

Additionally, there have been substantial advances in archaeological research within the WHS which gives us a greater understanding of the significance of the property and its landscape. These include:

- Durrington Walls has been shown to be the site of one of the best preserved Neolithic settlements in Europe. Dating suggests it belongs to the builders of Stonehenge (Stonehenge Riverside Project).
- A direct link has been demonstrated between Durrington Walls and Stonehenge - via a ceremonial Avenue and the River Avon. (Stonehenge Riverside Project and archaeological mitigation undertaken as part of the Stonehenge Environmental Improvements Project).
- Extensive geophysical surveys have revealed previously unknown sites and monuments across the Stonehenge landscape - many of them apparently of Neolithic and Bronze Age date, (and therefore expressions of the attributes of Outstanding Universal Value of the WHS). (Hidden Landscapes Project – Birmingham University & the Ludwig Boltzmann Institute; Bournemouth University and the German Archaeological Institute).

These changes mean that the advice to DfT/HA provided by both English Heritage and the National Trust on the A303 Stonehenge Improvement options appraisal 2006 is unlikely to remain valid and a fresh, outline assessment of Outstanding Universal Value impact based on current criteria, policy & guidance is required to inform our mutual positions on what may form an acceptable road scheme at Stonehenge.

At the 2004 Public Inquiry (from which sprang the 2006 HA options appraisal), English Heritage supported the 2.1km twin-bored tunnel known as the Published Scheme, whilst the National Trust supported a longer bored tunnel that was as long as possible. Although the Public Inquiry accepted on balance the case for the 2.1km tunnel, the scheme was later shelved by Govt. on cost grounds.

The present DfT Feasibility Study raises once again the potential for achieving a sustainable road improvement scheme at Stonehenge. Accepting the overarching principle that a bored tunnel is the only road improvement method that has the potential to avoid substantial harm to the WHS, this Brief sets out the scope of an outline assessment methodology that may allow both English Heritage and the National Trust to understand the relative benefits vs. harm to OUV that a range of tunnel options may present. The Brief is mindful of DfT's Feasibility Study criteria, that schemes being put forward to Govt. must be *Affordable, Deliverable and Value For Money*.

## **2. SCOPE OF THIS OUTLINE ASSESSMENT**

The outline assessment will consider the impact upon Outstanding Universal Value of three tunnel options and their anticipated construction impacts (see plan, Appendix 1, for location of these options). Two of these will be on-line options: the 2.1km Published Scheme considered at Inquiry in 2004 and a 2.5km option which seeks additional benefits to Outstanding Universal Value by relatively modest extensions of the Published Scheme to east and west. The third option to be considered is a 2.9km tunnel with an eastern portal in the same location as the 2.5km options and whose western portal is off-line, to the south of the present road. This location is intended to take

advantage of the natural land form in this area to minimise adverse impacts to the Outstanding Universal Value of the WHS.

The outline assessment should also consider the Outstanding Universal Value impact of dual carriageway construction within the WHS outwith the tunnelled part of each option. The work will have the benefit of the results of engineering assessments commissioned by the National Trust and undertaken by their consultants Tata to inform the potential impacts of each option.

The work will comprise two aspects. Part 1. A review of the *direct and indirect* impacts resulting in physical loss of the whole or part of archaeological sites and monuments which are attributes of the OUV of the WHS. This will be undertaken by Dr. Nick Snashall, National Trust Archaeologist for Stonehenge and Avebury WHS. This work is being directly undertaken by the National Trust and does **not** form part of the work to be commissioned under this Brief. The work to be commissioned via this Brief (Part 2) will consider the relative *direct and indirect* impacts, but not including physical impacts on archaeological features (covered in Part 1 of the review), of each option upon OUV in light of current policy, guidance and understanding of significance, as outlined above and to include the 2011 ICOMOS guidance on Heritage Impact Assessments in Cultural World Heritage Properties. However both reviews of *direct and indirect* impacts are of equal importance in arriving at outline conclusions in terms of Outstanding Universal Value impacts. Both aspects of the work will feed into the outline conclusions as an integrated whole. To this end the author of the assessment commissioned via the Brief must work in conjunction with Dr Snashall to ensure that the assessment reflects the full range of factors affecting each option.

As noted above, the work to be commissioned via this Brief (Part 2) will consider the relative *direct and indirect* impacts, but not including physical impacts on archaeological features (covered in Part 1 of the review), of each option upon Outstanding Universal Value in light of current policy, guidance and understanding of significance, as outlined above and to include the 2011 ICOMOS guidance on Heritage Impact Assessments in Cultural World Heritage Properties.

The work will consider each option with regard to the Statement of Outstanding Universal Value, including its assessments of integrity, authenticity and its definition of needs for future management and protection, taking into account the articulation in the 2009 WHS Management Plan of Attributes identified in the Statement of Outstanding Universal Value, and with regard to impacts on setting (aural and visual, including lighting) and access insofar as relevant information is available within the constrained timescale necessary to complete the work. Information will be available to inform the work from a number of sources including DfT, Highways Agency and their consultants CH2M Hill, but also via the National Trust commissioned engineering studies carried out by Tata, who will provide the results of their work to inform the study on 9<sup>th</sup> July 2014. Where such information is not available, the assessment will caveat its conclusions accordingly.

The assessment report should summarise the context in which it has been commissioned and the methodology adopted. To provide both a baseline and spectrum of Outstanding Universal Value impact, the assessment should briefly consider the impact on Outstanding Universal Value of the current road within the WHS and of the 4.5km tunnel. This latter option would result in the least

harm to Outstanding Universal Value, but is acknowledged as being beyond the criteria in which DfT are presently considering road improvements – *Affordable, Deliverable and Value for Money*.

The commissioning bodies will provide the consultant with a digital copy of a map showing the three options for tunnels (2.1km, 2.5km, 2.9km).

### **3. Timescale**

This rapid outline assessment will take place in a compressed timescale made necessary by DfT's own very short timescale for delivery of their recommendations to Govt. DfT's deadline for the receipt of comments and advice is the 15<sup>th</sup> August 2014. It is essential that we have the results of the study in hand before this date. This document will inform EH & NT's proposals to address "*the range of solutions that may address the traffic problems along the route*" (DfT Feasibility Study Scope Document February 2014). It is a key opportunity for English Heritage and the National Trust to advise on the nature of an acceptable scheme within the Stonehenge WHS.

It is essential that we feed into the DfT's work within their timescale. Given the need for each organisation to understand and discuss the emerging conclusions of the work before we advise DfT, we will require the results of the assessment to be available before mid August 2014. The results must therefore be presented to English Heritage and the National Trust at or prior to our outline assessment review meeting in the second week of August.

The outline assessment report will be provided in both digital and printed copies.

The outline assessment of Outstanding Universal Value (Part 2) is estimated to take 10 working days, with a contingency of 2 working days

**Cost details removed**

### **5 Monitoring**

The English Heritage Inspector of Ancient Monuments, Phil McMahon, and the National Trust A303 Project Manager, Cassandra French, will monitor the work. Due to the very short timescale involved, it is not envisaged that formal monitoring meetings will take place during the course of the work, beyond the August meeting (date to be arranged) to receive the outline assessment report.

Day-to-day monitoring will take place via an email circle. All correspondence and draft reports etc should be circulated to each member of the project board, which will comprise Cassandra French, Dr Nick Snashall (National Trust) and Phil McMahon (English Heritage). In the event of an urgent matter arising, the Consultant should contact one or more of the members. Contact details for relevant personnel are:

**Contact details removed**

Appendix 2      **Operational Guidelines 2013 Text on Protection and Management.**

**NB changes in 2011 shown in red**

**II.F      Protection and management**

96 Protection and management of World Heritage properties should ensure that their Outstanding Universal Value, **including** the conditions of integrity and/or authenticity at the time of inscription, are sustained or **enhanced over time. A regular review of the general state of conservation of properties, and thus also their Outstanding Universal Value, shall be done within a framework of monitoring processes for World Heritage properties, as specified within the *Operational Guidelines*.**

97 All properties inscribed on the World Heritage List must have adequate long-term legislative, regulatory, institutional and/or traditional protection and management to ensure their safeguarding. This protection should include adequately delineated boundaries. Similarly States Parties should demonstrate adequate protection at the national, regional, municipal, and/or traditional level for the nominated property. They should append appropriate texts to the nomination with a clear explanation of the way this protection operates to protect the property.

Legislative, regulatory and contractual measures for protection

98 Legislative and regulatory measures at national and local levels should assure the survival of the property and its protection against development and change that might negatively impact the Outstanding Universal Value, or the integrity and/or authenticity of the property. States Parties should also assure the full and effective implementation of such measures.

Boundaries for effective protection

99 The delineation of boundaries is an essential requirement in the establishment of effective protection of nominated properties. Boundaries should be drawn to ensure the full expression of the Outstanding Universal Value and the integrity and/or authenticity of the property.

100 For properties nominated under criteria (i) - (vi), boundaries should be drawn to include all those areas and attributes which are a direct tangible expression of the Outstanding Universal Value of the property, as well as those areas which in the light of future research possibilities offer potential to contribute to and enhance such understanding.

101 For properties nominated under criteria (vii) - (x), boundaries should reflect the spatial requirements of habitats, species, processes or phenomena that provide the basis for their inscription on the World Heritage List. The boundaries should include sufficient areas immediately adjacent to the area of Outstanding Universal Value in order to protect the

property's heritage values from direct effect of human encroachments and impacts of resource use outside of the nominated area.

102 The boundaries of the nominated property may coincide with one or more existing or proposed protected areas, such as national parks or nature reserves, biosphere reserves or protected historic districts. While such established areas for protection may contain several management zones, only some of those zones may satisfy criteria for inscription.

#### Buffer zones

103 Wherever necessary for the proper **protection** of the property, an adequate buffer zone should be provided.

104 For the purposes of effective protection of the nominated property, a buffer zone is an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection. The area constituting the buffer zone should be determined in each case through appropriate mechanisms. Details on the size, characteristics and authorized uses of a buffer zone, as well as a map indicating the precise boundaries of the property and its buffer zone, should be provided in the nomination.

105 A clear explanation of how the buffer zone protects the property should also be provided.

106 Where no buffer zone is proposed, the nomination should include a statement as to why a buffer zone is not required.

107 Although buffer zones are not part of the nominated property, any modifications to **or creation** of buffer zones subsequent to inscription of a property on the World Heritage List should be approved by the World Heritage Committee **using the procedure for a minor boundary modification (see paragraph 164 and Annex 11). The creation of buffer zones subsequent to inscription is normally considered to be a minor boundary modification.**

#### Management systems

108 Each nominated property should have an appropriate management plan or other documented management system which **must** specify how the Outstanding Universal Value of a property should be preserved, preferably through participatory means.

109 The purpose of a management system is to ensure the effective protection of the nominated property for present and future generations.

110 An effective management system depends on the type, characteristics and needs of the nominated property and its cultural and natural context. Management systems may vary

according to different cultural perspectives, the resources available and other factors. They may incorporate traditional practices, existing urban or regional planning instruments, and other planning control mechanisms, both formal and informal. **Impact assessments for proposed interventions are essential for all World Heritage properties.**

111 In recognizing the diversity mentioned above, common elements of an effective management system could include:

- a) a thorough shared understanding of the property by all stakeholders;
- b) a cycle of planning, implementation, monitoring, evaluation and feedback;
- c) **the monitoring and assessment of the impacts of trends, changes, and of proposed interventions;**
- d) the involvement of partners and stakeholders;
- e) the allocation of necessary resources;
- f) capacity-building; and
- g) an accountable, transparent description of how the management system functions.

112 Effective management involves a cycle of **short, medium and long-term** actions to protect, conserve and present the nominated property. **An integrated approach to planning and management is essential to guide the evolution of properties over time and to ensure maintenance of all aspects of their Outstanding Universal Value. This approach goes beyond the property to include any buffer zone(s), as well as the broader setting.**

113 Moreover, in the context of the implementation of the *Convention*, the World Heritage Committee has established a process of Reactive Monitoring (see Chapter IV) and a process of Periodic Reporting (see Chapter V).

114 In the case of serial properties, a management system or mechanisms for ensuring the co-ordinated management of the separate components are essential and should be documented in the nomination (see paragraphs 137 – 139)

115 In some circumstances, a management plan or other management system may not be **fully** in place at the time when a property is nominated for the consideration of the World Heritage Committee. The State Party concerned should then indicate when the management plan or system will be fully in place, and how it proposes to mobilize the resources required **to achieve this**. The State Party should also provide **documentation** which will guide the management of the site until the management plan or system is finalized fully in place.

- 116 Where the intrinsic qualities of a property nominated are threatened by action of man and yet meet the criteria and the conditions of authenticity or integrity set out in paragraphs 78 - 95 an action plan outlining the corrective measures required should be submitted with the nomination file. Should the corrective measures submitted by the nominating State Party not be taken within the time proposed by the State Party, the property will be considered by the Committee for delisting in accordance with the procedure adopted by the Committee (see Chapter IV.C).
- 117 States Parties are responsible for implementing effective management activities for a World Heritage property. State Parties should do so in close collaboration with property managers, the agency with management authority and other partners, and stakeholders in property management.
- 118 The Committee recommends that States Parties include risk preparedness as an element in their World Heritage site management plans and training strategies.

#### Sustainable use

- 119 World Heritage properties may support a variety of ongoing and proposed uses that are ecologically and culturally sustainable and **which may contribute to the quality of life of communities concerned**. The State Party and **its** partners must ensure that such sustainable use or **any other change** does not impact **adversely** on the Outstanding Universal Value of the property. For some properties, human use would not be appropriate. **Legislations, policies and strategies affecting World Heritage properties should ensure the protection of the Outstanding Universal Value, support the wider conservation of natural and cultural heritage, and promote and encourage the active participation of the communities and stakeholders concerned with the property as necessary conditions to its sustainable protection, conservation, management and presentation.**

### Appendix 3 Statement of Outstanding Universal Value, agreed June 2013

|                     |  |
|---------------------|--|
| Property            | Stonehenge, Avebury and Associated Sites             |
| State Party         | United Kingdom of Great Britain and Northern Ireland |
| Id.N°               | 373bis   |
| Date of inscription | 1986 – 2008  |

#### Brief synthesis

The World Heritage property Stonehenge, Avebury and Associated Sites is internationally important for its complexes of outstanding prehistoric monuments. Stonehenge is the most architecturally sophisticated prehistoric stone circle in the world, while Avebury is the largest. Together with inter-related monuments, and their associated landscapes, they demonstrate Neolithic and Bronze Age ceremonial and mortuary practices resulting from around 2000 years of continuous use and monument building between *circa* 3700 and 1600 BC. As such they represent a unique embodiment of our collective heritage.

The World Heritage property comprises two areas of Chalkland in southern Britain within which complexes of Neolithic and Bronze Age ceremonial and funerary monuments and associated sites were built. Each area contains a focal stone circle and henge and many other major monuments. At Stonehenge these include the Avenue, the Cursuses, Durrington Walls, Woodhenge, and the densest concentration of burial mounds in Britain. At Avebury they include Windmill Hill, the West Kennet Long Barrow, the Sanctuary, Silbury Hill, the West Kennet and Beckhampton Avenues, the West Kennet Palisaded Enclosures, and important barrows.

Stonehenge is one of the most impressive prehistoric megalithic monuments in the world on account of the sheer size of its megaliths, the sophistication of its concentric plan and architectural design, the shaping of the stones - uniquely using both Wiltshire Sarsen sandstone and Pembroke Bluestone - and the precision with which it was built.

At Avebury, the massive Henge, containing the largest prehistoric stone circle in the world, and Silbury Hill, the largest prehistoric mound in Europe, demonstrate the outstanding engineering skills which were used to create masterpieces of earthen and megalithic architecture.

There is an exceptional survival of prehistoric monuments and sites within the World Heritage property including settlements, burial grounds, and large constructions of earth and stone. Today, together with their settings, they form landscapes without parallel. These complexes would have been of major significance to those who created them, as is apparent by the huge investment of time and effort they represent. They provide an insight into the mortuary and ceremonial practices of the period, and are evidence of prehistoric technology, architecture and astronomy. The careful siting of monuments in relation to the landscape helps us to further understand the Neolithic and Bronze Age.

Criterion (i): The monuments of the Stonehenge, Avebury and Associated Sites demonstrate outstanding creative and technological achievements in prehistoric times.

Stonehenge is the most architecturally sophisticated prehistoric stone circle in the world. It is unrivalled in its design and unique engineering, featuring huge horizontal stone lintels capping the outer circle and the trilithons, locked together by carefully shaped joints. It is distinguished by the unique use of two different kinds of stones (Bluestones and Sarsens), their size (the largest weighing over 40 t) and the distance they were transported (up to 240 km). The sheer scale of some of the surrounding monuments is also remarkable: the Stonehenge Cursus and the Avenue are both about 3 km long, while Durrington Walls is the largest known henge in Britain, around 500 m in diameter, demonstrating the ability of prehistoric peoples to conceive, design and construct features of great size and complexity.

Avebury prehistoric stone circle is the largest in the world. The encircling henge consists of a huge bank and ditch 1.3 km in circumference, within which 180 local, unshaped standing stones formed the large outer and two smaller inner circles. Leading from two of its four entrances, the West Kennet and Beckhampton Avenues of parallel standing stones still connect it with other monuments in the landscape. Another outstanding monument, Silbury Hill, is the largest prehistoric mound in Europe. Built around 2400 BC, it stands 39.5 m high and comprises half a million tonnes of chalk. The purpose of this imposing, skilfully engineered monument remains obscure.

Criterion (ii): The World Heritage property provides an outstanding illustration of the evolution of monument construction and of the continual use and shaping of the landscape over more than 2000 years, from the early Neolithic to the Bronze Age. The monuments and landscape have had an unwavering influence on architects, artists, historians and archaeologists, and still retain a huge potential for future research.

The megalithic and earthen monuments of the World Heritage property demonstrate the shaping of the landscape through monument building for around 2000 years from *circa* 3700 BC, reflecting the importance and wide influence of both areas.

Since the 12th century when Stonehenge was considered one of the wonders of the world by the chroniclers Henry de Huntingdon and Geoffrey de Monmouth, the Stonehenge and Avebury Sites have excited curiosity and been the subject of study and speculation. Since early investigations by John Aubrey (1626-1697), Inigo Jones (1573-1652), and William Stukeley (1687-1765), they have had an unwavering influence on architects, archaeologists, artists and historians. The two parts of the World Heritage property provide an excellent opportunity for further research.

Today, the property has spiritual associations for some.

Criterion (iii): 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 design, position and interrelationship of the monuments and sites are evidence of a wealthy and highly organised prehistoric society able to impose its concepts on the environment. An outstanding example is the alignment of the Stonehenge Avenue (probably a processional route) and Stonehenge stone circle on the axis of the midsummer sunrise and midwinter sunset, indicating their ceremonial and astronomical character. At Avebury the length and size of some of the features such as the West Kennet Avenue, which connects the Henge to the Sanctuary over 2 km away, are further evidence of this.

A profound insight into the changing mortuary culture of the periods is provided by the use of Stonehenge as a cremation cemetery, by the West Kennet Long Barrow, the largest known Neolithic stone-chambered collective tomb in southern England, and by the hundreds of other burial sites illustrating evolving funerary rites.

### Integrity

The boundaries of the property capture the attributes that together convey Outstanding Universal Value at Stonehenge and Avebury. They contain the major Neolithic and Bronze Age monuments that exemplify the creative genius and technological skills for which the property is inscribed. The Avebury and Stonehenge landscapes are extensive, both being around 25 square kilometres, and capture the relationship between the monuments as well as their landscape setting.

At Avebury the boundary was extended in 2008 to include East Kennet Long Barrow and Fyfield Down with its extensive Bronze Age field system and naturally occurring Sarsen Stones. At Stonehenge the boundary will be reviewed to consider the possible inclusion of related, significant monuments nearby such as Robin Hood's Ball, a Neolithic causewayed enclosure.

The setting of some key monuments extends beyond the boundary. Provision of buffer zones or planning guidance based on a comprehensive setting study should be considered to protect the setting of both individual monuments and the overall setting of the property.

The survival of the Neolithic and Bronze Age monuments at both Stonehenge and Avebury is exceptional and remarkable given their age – they were built and used between around 3700 and 1600 BC. Stone and earth monuments retain their original design and materials. The timber structures have disappeared but postholes indicate their location. Monuments have been regularly maintained and repaired as necessary.

The presence of busy main roads going through the World Heritage property impacts adversely on its integrity. The roads sever the relationship between Stonehenge and its surrounding monuments, notably the A344 which separates the Stone Circle from the Avenue. At Avebury, roads cut through some key monuments including the Henge and the West Kennet Avenue. The A4 separates the Sanctuary from its barrow group at Overton Hill.

Roads and vehicles also cause damage to the fabric of some monuments while traffic noise and visual intrusion have a negative impact on their settings. The incremental impact of highway-related clutter needs to be carefully managed.

Development pressures are present and require careful management. Impacts from existing intrusive development should be mitigated where possible.

### Authenticity

Interventions have been limited mainly to excavations and the re-erection of some fallen or buried stones to their known positions in the early and mid-twentieth century in order to improve understanding. Ploughing, burrowing animals and early excavation have resulted in some losses but what remains is remarkable in its completeness and concentration. The materials and substance of the archaeology supported by the archaeological archives continue to provide an authentic testimony to prehistoric technological and creative achievement.

This survival and the huge potential of buried archaeology make the property an extremely important resource for archaeological research, which continues to uncover new evidence and expand our understanding of prehistory. Present day research has enormously improved our understanding of the property.

The known principal monuments largely remain *in situ* and many are still dominant features in the rural landscape. Their form and design are well-preserved and visitors are easily able to appreciate their location, setting and interrelationships which in combination represent landscapes without parallel.

At Stonehenge several monuments have retained their alignment on the Solstice sunrise and sunset, including the Stone Circle, the Avenue, Woodhenge, and the Durrington Walls Southern Circle and its Avenue.

Although the original ceremonial use of the monuments is not known, they retain spiritual significance for some people, and many still gather at both stone circles to celebrate the Solstice and other observations. Stonehenge is known and valued by many more as the most famous prehistoric monument in the world.

There is a need to strengthen understanding of the overall relationship between remains, both buried and standing, at Stonehenge and at Avebury.

### Protection and management requirements

The UK Government protects World Heritage properties in England in two ways: firstly, individual buildings, monuments and landscapes are designated under the Planning (Listed Buildings and Conservation Areas) Act 1990 and the 1979 Ancient Monuments and Archaeological Areas Act, and secondly through the UK Spatial Planning system under the provisions of the Town and Country Planning Acts. The individual sites within the property are

protected through the Government's designation of individual buildings, monuments, gardens and landscapes.

Government guidance on protecting the Historic Environment and World Heritage is set out in National Planning Policy Framework and Circular 07/09. Policies to protect, promote, conserve and enhance World Heritage properties, their settings and buffer zones are also found in statutory planning documents. The protection of the property and its setting from inappropriate development could be further strengthened through the adoption of a specific Supplementary Planning Document.

At a local level, the property is protected by the legal designation of all its principal monuments. There is a specific policy in the Local Development Framework to protect the Outstanding Universal Value of the property from inappropriate development, along with adequate references in relevant strategies and plans at all levels. The Wiltshire Core Strategy includes a specific World Heritage Property policy. This policy states that additional planning guidance will be produced to ensure its effective implementation and thereby the protection of the World Heritage property from inappropriate development. The policy also recognises the need to produce a setting study to enable this. Once the review of the Stonehenge boundary is completed, work on the setting study shall begin. The Local Planning Authority is responsible for continued protection through policy development and its effective implementation in deciding planning applications with the management plans for Stonehenge and Avebury as a key material consideration. These plans also take into account the range of other values relevant to the site in addition to Outstanding Universal Value. Avebury lies within the North Wessex Downs Area of Outstanding Natural Beauty, a national statutory designation to ensure the conservation and enhancement of the natural beauty of the landscape.

About a third of the property at both Stonehenge and Avebury is owned and managed by conservation bodies: English Heritage, a non-departmental government body, and the National Trust and the Royal Society for the Protection of Birds which are both charities. Agri-environment schemes, an example of partnership working between private landowners and Natural England (a non-departmental government body), are very important for protecting and enhancing the setting of prehistoric monuments through measures such as grass restoration and scrub control. Much of the property can be accessed through public rights of way as well as permissive paths and open access provided by some agri-environment schemes. Managed open access is provided at Solstice. There are a significant number of private households within the property and local residents therefore have an important role in its stewardship

The property has effective management plans, coordinators and steering groups at both Stonehenge and Avebury. There is a need for an overall integrated management system for the property which will be addressed by the establishment of a coordinating Stonehenge and Avebury Partnership Panel whilst retaining the Stonehenge and Avebury steering groups to enable specific local issues to be addressed and to maintain the meaningful engagement of the community. A single property management plan will replace the two separate management plans.

An overall visitor management and interpretation strategy, together with a landscape strategy needs to be put in place to optimise access to and understanding of the property. This should include improved interpretation for visitors and the local community both on site and in local museums, holding collections excavated from the property as well as through publications and the web. These objectives are being addressed at Stonehenge through the development of a visitor centre and the Interpretation, Learning and Participation Strategy. The updated Management Plan will include a similar strategy for Avebury. Visitor management and sustainable tourism challenges and opportunities are addressed by specific objectives in both the Stonehenge and Avebury Management Plans.

An understanding of the overall relationship between buried and standing remains continues to be developed through research projects such as the "Between the Monuments" project and extensive geophysical surveys. Research Frameworks have been published for the Site and are regularly reviewed. These encourage further relevant research. The Woodland Strategy, an example of a landscape level management project, once complete, can be built on to include other elements of landscape scale planning.

It is important to maintain and enhance the improvements to monuments achieved through grass restoration and to avoid erosion of earthen monuments and buried archaeology through visitor pressure and burrowing animals.

At the time of inscription the State Party agreed to remove the A344 road to reunite Stonehenge and its Avenue and improve the setting of the Stone Circle. Work to deliver the closure of the A344 will be complete in 2013. The project also includes a new Stonehenge visitor centre. This will provide world class visitor facilities including interpretation of the wider World Heritage property landscape and the removal of modern clutter from the setting of the Stone Circle. Although substantial progress is being made, the impact of roads and traffic remains a major challenge in both parts of the World Heritage property. The A303 continues to have a negative impact on the setting of Stonehenge, the integrity of the property and visitor access to some parts of the wider landscape. A long-term solution remains to be found. At Avebury, a World Heritage Site Traffic Strategy will be developed to establish guidance and identify a holistic set of actions to address the negative impacts that the dominance of roads, traffic and related clutter has on integrity, the condition and setting of monuments and the ease and confidence with which visitors and the local community are able to explore the wider property.

**Appendix 4: Planning Policy Guidance 15: Planning and the Historic Environment**  
**Extracts relating to World Heritage properties**

**2. Development Plans and Development Control**

**World Heritage Sites**

**2.22** Details of World Heritage Sites in England are given in paragraph [6.35](#). No additional statutory controls follow from the inclusion of a site in the World Heritage list. Inclusion does, however, highlight the outstanding international importance of the site as a key material consideration to be taken into account by local planning authorities in determining planning and listed building consent applications, and by the Secretary of State in determining cases on appeal or following call-in.

**2.23** Each local authority concerned, taking account of World Heritage Site designation and other relevant statutory designations, should formulate specific planning policies for protecting these sites and include these policies in their development plans. Policies should reflect the fact that all these sites have been designated for their outstanding universal value, and they should place great weight on the need to protect them for the benefit of future generations as well as our own. Development proposals affecting these sites or their setting may be compatible with this objective, but should always be carefully scrutinised for their likely effect on the site or its setting in the longer term. Significant development proposals affecting World Heritage Sites will generally require formal environmental assessment, to ensure that their immediate impact and their implications for the longer term are fully evaluated (see paragraph [2.13](#) above).

**6.35** The World Heritage Convention (adopted by UNESCO in 1972) was ratified by the United Kingdom in 1984. The Convention provides for the identification, protection, conservation and presentation of cultural and natural sites of outstanding universal value, and requires a World Heritage List to be established under the management of an inter-governmental World Heritage Committee, which is advised by the International Council on Monuments and Sites (ICOMOS) and the World Conservation Union (IUCN). Individual governments are responsible for the nomination of sites, and for ensuring the protection of sites which are inscribed in the List. There are, at present, ten World Heritage Sites in England :

Durham Cathedral and Castle

Fountains Abbey, St. Mary's Church and Studley Royal Park

Ironbridge Gorge

Stonehenge, Avebury and associated sites

Blenheim Palace and Park Palace of Westminster and Westminster Abbey

City of Bath

Hadrian's Wall Military Zone

The Tower of London

Canterbury Cathedral (with St. Augustine's Abbey and St. Martin's Church).

**6.36** Full details of the operation of the World Heritage Convention, including the selection criteria for cultural and natural sites, are contained in the *Operational Guidelines for the Implementation of the World Heritage Convention*.

**6.37** The significance of World Heritage designation for local authorities' exercise of planning controls is set out in section 2 ([paragraphs 2.22-2.23](#)). Local planning authorities are also encouraged to work with owners and managers of World Heritage Sites in their areas, and with other agencies, to ensure that comprehensive management plans are in place. These plans should:

- appraise the significance and condition of the site;
- ensure the physical conservation of the site to the highest standards;
- protect the site and its setting from damaging development;
- provide clear policies for tourism as it may affect the site.

ICOMOS can provide advice and assistance in carrying forward this work.

**Appendix 5: National Planning Policy Guidance and Planning Practice Guidance  
Extracts relating to World Heritage properties**

National Planning Policy Framework:

132. When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II\* listed buildings, grade I and II\* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.

133. Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

- the nature of the heritage asset prevents all reasonable uses of the site; and
- no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and
- conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and
- the harm or loss is outweighed by the benefit of bringing the site back into use.

134. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.

135. The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

136. Local planning authorities should not permit loss of the whole or part of a heritage asset without taking all reasonable steps to ensure the new development will proceed after the loss has occurred.

137. Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably.

138. Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World Heritage Site should be treated either as substantial harm under paragraph 133 or less than substantial harm under paragraph 134, as appropriate, taking into account the relative significance of the element affected and its contribution to the significance of the Conservation Area or World Heritage Site as a whole.

144. When determining planning applications [for mineral extraction], local planning authorities should:

- give great weight to the benefits of the mineral extraction, including to the economy;
- as far as is practical, provide for the maintenance of landbanks of non-energy minerals from outside National Parks, the Broads, Areas of Outstanding Natural Beauty and World Heritage sites, Scheduled Monuments and Conservation Areas;
- ensure, in granting planning permission for mineral development, that there are no unacceptable adverse impacts on the natural and historic environment, human health or aviation safety, and take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a locality;
- ensure that any unavoidable noise, dust and particle emissions and any blasting vibrations are controlled, mitigated or removed at source,<sup>31</sup> and establish appropriate noise limits for extraction in proximity to noise sensitive properties;
- not grant planning permission for peat extraction from new or extended sites;
- provide for restoration and aftercare at the earliest opportunity to be carried out to high environmental standards, through the application of appropriate conditions, where necessary. Bonds or other financial guarantees to underpin planning conditions should only be sought in exceptional circumstances;
- not normally permit other development proposals in mineral safeguarding areas where they might constrain potential future use for these purposes;
- consider how to meet any demand for small-scale extraction of building stone at, or close to, relic quarries needed for the repair of heritage assets, taking account of the need to protect designated sites; and
- recognise the small-scale nature and impact of building and roofing stone quarries, and the need for a flexible approach to the potentially long duration of planning permissions reflecting the intermittent or low rate of working at many sites.

## Annex 2: Glossary

**Designated heritage asset:** A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.

## Planning Practice Guidance

How are World Heritage Sites protected and managed in England?

England protects its World Heritage Sites and their settings, including any buffer zones or equivalent, through the statutory designation process and through the planning system.

The Outstanding Universal Value of a World Heritage Site, set out in a Statement of Outstanding Universal Value, indicates its importance as a heritage asset of the highest significance to be taken into account by:

- o the relevant authorities in plan-making, determining planning and related consents (including listed building consent, development consent and Transport and Works Act Orders)
- o and by the Secretary of State in determining such cases on appeal or following call in

Effective management of World Heritage Sites involves the identification and promotion of positive change that will conserve and enhance their Outstanding Universal Value, authenticity, integrity and with the modification or mitigation of changes which have a negative impact on those values.

## How is the importance of World Heritage Sites reflected in the National Planning Policy Framework?

World Heritage Sites are defined as designated heritage assets in the National Planning Policy Framework. The National Planning Policy Framework sets out detailed policies for the conservation and enhancement of the historic environment, including World Heritage Sites, through both plan-making and decision-taking.

Further guidance on World Heritage Sites.

Related policy:

National Planning Policy Framework

- o Annex 2 – Glossary

## **4. Further guidance on World Heritage Sites**

### **Further guidance on World Heritage Sites**

#### Why are World Heritage Sites important?

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Committee inscribes World Heritage Properties onto its World Heritage List for their Outstanding Universal Value – *cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity*. World Heritage Properties are referred to in the National Planning Policy Framework and in this guidance as ‘World Heritage Sites’ and are defined as designated heritage assets in the National Planning Policy Framework.

The Government is a State Party to the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage (known as the World Heritage Convention) and it was ratified by the UK in 1984.

#### How is the importance of each Site recognised internationally?

A Statement of Outstanding Universal Value is agreed and adopted by the World Heritage Committee for each Site on inscription. The Statement sets out what the World Heritage Committee considers to be of Outstanding Universal Value about the Site in relation to the World Heritage Convention and includes statements of integrity and, in relation to cultural sites or the cultural aspects of 'mixed' Sites, authenticity, and the requirements for protection and management.

Statements of Outstanding Universal Value are key reference documents for the protection and management of each Site and can only be amended or altered by the World Heritage Committee.

#### How many World Heritage Sites are there and where are they?

There are currently 17 cultural World Heritage Sites wholly or partly in England and one natural World Heritage Site. Details of each can be found on the National Heritage List for England available on the English Heritage website.

#### How does the terminology used by UNESCO relate to the policies of the National Planning Policy Framework?

The international policies concerning World Heritage Sites use different terminology to that in the National Planning Policy Framework. World Heritage Sites are inscribed for their 'Outstanding Universal Value' and each World Heritage Site has defined its 'attributes and components' the tangible remains, visual and cultural links that embody that value. The cultural heritage within the description of the Outstanding Universal Value will be part of the World Heritage Site's heritage significance and National Planning Policy Framework policies will apply to the Outstanding Universal Value as they do to any other heritage significance they hold. As the National Planning Policy Framework makes clear, the significance of the designated heritage asset derives not only from its physical presence, but also from its setting.

#### What principles should inform the development of a positive strategy for the conservation and enjoyment of World Heritage Sites?

In line with the National Planning Policy Framework, policy frameworks at all levels should conserve the Outstanding Universal Value, integrity and authenticity (where relevant for cultural or 'mixed' sites) of each World Heritage Site and its setting, including any buffer zone or equivalent. World Heritage Sites are designated heritage assets of the highest significance. Appropriate policies for the protection and sustainable use of World Heritage Sites, including enhancement where

appropriate, should be included in relevant plans. These policies should take account of international and national requirements as well as specific local circumstances.

When developing Local Plan policies to protect and enhance World Heritage Sites and their Outstanding Universal Value, local planning authorities, should aim to satisfy the following principles:

- protecting the World Heritage Site and its setting, including any buffer zone, from inappropriate development
- striking a balance between the needs of conservation, biodiversity, access, the interests of the local community, the public benefits of a development and the sustainable economic use of the World Heritage Site in its setting, including any buffer zone
- protecting a World Heritage Site from the effect of changes which are relatively minor but which, on a cumulative basis, could have a significant effect
- enhancing the World Heritage Site and its setting where appropriate and possible through positive management
- protecting the World Heritage Site from climate change but ensuring that mitigation and adaptation is not at the expense of integrity or authenticity

Planning authorities need to take these principles and the resultant policies into account when making decisions.

#### How is the setting of a World Heritage Site protected?

The UNESCO *Operational Guidelines* seek protection of “the immediate setting” of each World Heritage Site, of “important views and other areas or attributes that are functionally important as a support to the Property” and suggest designation of a buffer zone wherever this may be necessary. A buffer zone is defined as an area surrounding the World Heritage Site which has complementary legal restrictions placed on its use and development to give an added layer of protection to the World Heritage Site. The buffer zone forms part of the setting of the World Heritage Site.

It may be appropriate to protect the setting of World Heritage Sites in other ways, for example by the protection of specific views and viewpoints. Other landscape designations may also prove effective in protecting the setting of a World Heritage Site. However it is intended to protect the setting, it will be essential to explain how this is to be done in the Local Plan.

Decisions on buffer zones are made on a case by case basis at the time of nomination and reviewed subsequently through the World Heritage Site Management Plan review process. Proposals to add or amend buffer zones following inscription are submitted by government for approval by the World Heritage Committee who will consider and adopt the proposals as appropriate.

#### What are World Heritage Site management plans?

Each World Heritage Site has a management plan which contains both long term and day to day actions to protect, conserve and present the Site. Steering Groups, made up of key representatives from a range of national and local bodies, are responsible for the formulation and implementation of

the plan, and public consultation at key stages of its development. The relevant planning authority will often lead the Steering Group.

Management plans need to be developed in a participatory way, fully involving all interested parties and in particular those responsible for managing, owning or administering the Site. Each plan should be attuned to the particular characteristics and needs of the site and incorporate sustainable development principles. Each plan will:

- contain the location and Site boundary details
- specify how the Outstanding Universal Value, authenticity and integrity of each site is to be maintained
- identify attributes
- examine issues affecting its conservation and enjoyment

Management plans will usually cover topics such as its boundaries, development, tourism, interpretation, education and transport.

Given their importance in helping to sustain and enhance the significance of the World Heritage Site, relevant policies in management plans need to be taken into account by local planning authorities in developing their strategy for the historic or natural environment (as appropriate) and in determining relevant planning applications.

#### What approach should be taken to assessing the impact of development on World Heritage Sites?

Applicants proposing change that might affect the Outstanding Universal Value, integrity and, where applicable, authenticity of a World Heritage Site through development within the Site or affecting its setting or buffer zone (or equivalent) need to submit sufficient information with their applications to enable assessment of impact on Outstanding Universal Value. This may include visual impact assessments, archaeological data or historical information. In many cases this will form part of an Environment Statement. Applicants may find it helpful to use the approach set out in the International Council on Monuments and Sites's *Heritage Impact Assessment* guidelines and English Heritage's guidance on setting and views.

World Heritage Sites are 'sensitive areas' for the purposes of determining if an Environmental Impact Assessment is required for a particular development proposal. Lower development size thresholds apply to the requirement for Design and Access Statements within World Heritage Sites as compared with the norm.

#### What consultation is required in relation to proposals that affect a World Heritage Site?

The World Heritage Committee Operational Guidelines ask governments to inform it at an early stage of proposals that may affect the Outstanding Universal Value of the Site and "before making any decisions that would be difficult to reverse, so that the Committee may assist in seeking appropriate solutions to ensure that the Outstanding Universal Value is fully preserved". Therefore, it would be very helpful if planning authorities could consult English Heritage (for cultural Sites) or

Natural England (for natural Sites) and Department for Culture, Media and Sport (DCMS) at an early stage and preferably pre-application.

Planning authorities are required to consult the Secretary of State for Communities and Local Government before approving any planning application to which English Heritage maintains an objection and which would have an adverse impact on the Outstanding Universal Value, integrity, authenticity and significance of a World Heritage Site or its setting, including any buffer zone or its equivalent. The Secretary of State then has the discretion as to whether to call-in the application for his/her own determination. Further information on the Secretary of State's involvement in deciding an application can be found in Determining a planning application section of guidance.

#### Are permitted development rights restricted in World Heritage Sites?

World Heritage Sites are defined as Article 1(5) land in the Town and Country Planning (General Permitted Development) Order 1995. This means that certain permitted development rights are restricted within the Site. Planning authorities can restrict further development by using article 4 and article 7 (minerals operations) directions under the 1995 Order.

#### Where can I find further information about World Heritage Sites?

Further information on World Heritage Sites can be found on the Department for Culture, Media and Sport's website and on the UNESCO website.

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