

Date: 24 October 2019



A27 Arundel Bypass
Highways England
A27ArundelBypass@highwaysengland.co.uk

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

BY EMAIL ONLY

A27 Arundel Bypass Public Consultation

Natural England welcomes the opportunity to provide our advice on the route options included for the A27 Arundel Bypass. Our comments pertain to Landscape and Biodiversity impacts of the various options.

Overview

We welcome the fact that online options are again included for consideration in the options appraisal for the Arundel Bypass. The location of this scheme which is both directly within, and within the setting of, the South Downs National Park is of national importance for wildlife and landscape. It contains a suite of priority and irreplaceable habitats which support an outstanding assemblage of species including rare and notable species. The area has been identified as of national/international importance for bats which indicates the quality and permeability of this exceptional landscape. The loss of and deterioration of these habitats presented by the options is of considerable concern to Natural England We therefore welcome Highways England's decision to reconsider less damaging online options in this new public consultation.

Natural England considers that online routes offer the greatest opportunity for addressing the environmental impacts and to reduce the currently forecasted impacts of this complex scheme. The reduced costs of online options present an opportunity for an exemplar approach, befitting this special landscape and its cultural heritage.

We have advised Highways England that the impacts on wildlife and landscape are considerably greater with offline schemes. This is because offline schemes include both habitat loss and the permanent severance of remaining habitats affecting the resilience and functionality of this extraordinary ecosystem, and diminishing its ability to adapt to the effects of climate change. Furthermore our landscape advice remains that, the online schemes offer the potential for the least damaging scheme in terms of landscape character and visual amenity.

We have advised that in order to ensure a robust assessment of the impacts of severance the critical factor is to assess each option in an integrated way at a landscape scale. We have provided Highways England with a joint letter from Natural England, the South Downs National Park, Environment Agency and the Forestry commission (appended to this letter) presenting our united concerns, of which severance is an overarching theme.

It is with concern therefore that we advise that the impact of severance has not yet been adequately assessed in the brochure or accompanying supporting evidence. Without a clear and balanced assessment which highlights this major impact, a judgement of the true scale of environmental

impact presented by offline options cannot be made. We look forward to continuing to work with Highways England to address this.

This letter highlights our considerable concerns regarding landscape and the impacts that the options have for biodiversity via loss and severance of habitats. We will reiterate our advice that this area is extraordinary, necessitating a bespoke approach to assessment across the suite of priority and irreplaceable habitats and the associated array of species that this nationally important environment contains.

Landscape and Visual advice

The location of the proposed options for the scheme lie within, and in the setting of, the South Downs National Park (SDNP). The landscape within which the scheme is proposed is of national importance and exceptional quality. All the route options run through a group of local Landscape Character Areas, some of which straddle the park boundary. These landscapes and their component features combine to create an intricate and special landscape which gives this location its unique sense of place and helps to define the natural beauty of the area.

Our review of the information and evidence presented in the Environmental Assessment Reports and Interim Scheme Assessment Reports lead us to the conclusion that little to no consideration has been given as to how the design principals for the scheme will seek to moderate the most adverse impacts to an acceptable level, deliver high environmental standards and provide for environmental enhancements. These are requirements of national planning policy for schemes located within designated landscapes whilst for schemes located within the setting of such designations they should be designed with sensitivity in order not to comprise the purposes of the designation.

Due to the size, scale and limitations of the scheme for all of the route options proposed Natural England advises that the scheme will have a significant adverse impacts on the special qualities of the National Park and its setting. All the route options presented will have a significant adverse effect on the valued landscape character and visual amenity afforded by the natural beauty of this place. All route options will result in the direct loss key landscape features, the severance of others e.g. hedgerows, ancient woodland blocks which contribute to the special qualities of the national park. The statutory purposes of the national park will therefore be adversely effected.

National Planning Policy

The National Policy Statement (NPS) for National Networks sets out the tests by which proposals which fall within the boundary (and setting) of a designated landscape are judged (para 5.150 – 5.154). In Table 7-1, page 7-3 of the report, selective text from para. 5.154 has been included. Para. 5.154 refers to the setting of the designation. The relevant paragraph for the policy test for proposals which lie within a designated landscape (therefore all options except the Grey route) is contained within Para 5.152. The policy is clear in its intent:

*'There is a strong presumption against any significant road widening or the building of new roads and strategic rail freight interchanges in a National Park, the Broads and Areas of Outstanding Natural Beauty, unless it can be shown there are compelling reasons for the new or enhanced capacity and with any benefits outweighing the costs **very significantly**. Planning of the Strategic Road Network should encourage routes that avoid National Parks, the Broads and Areas of Outstanding Natural Beauty'.*

Para 5.153 goes on to state:

'Where consent is given in these areas (designated landscapes), the Secretary of State should be satisfied that the applicant has ensured that the project will be carried out to high environmental standards and where possible includes measures to enhance other aspects of the environment. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered'.

The NPS therefore sets very high tests, both in terms of cost benefits and the environmental standards which are inherent within the schemes overall design, which such schemes have to pass

prior to the granting of approval by the Secretary of State. In addition other measures intended to enhance other aspects of the environment should be included where these are possible. We note that table 7-1 includes extracts from the NPPF (2018). Although a material consideration this is not the relevant policy by which the scheme will be determined. The tests set out in the NPPF at para. 172 are also contained in the NPS at para. 5.151. We note the reference to 'exceptional circumstances' and the need for project proposal to demonstrate this as well as the need for such schemes to assess the extent to which detrimental aspects on the host designated landscape can be moderated.

The NPS also requires a scheme to be of 'good design'. Para. 4.28 states;
'Applicants should include design as an integral consideration from the outset of a proposal'.

Whilst para. 4.29 states;

'Visual appearance should be a key factor in considering the design of new infrastructure, as well as functionality, fitness for purpose, sustainability and cost. Applying "good design" to national network projects should therefore produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, matched by an appearance that demonstrates good aesthetics as far as possible'.

Statutory Purpose of the South Downs National Park

The prime statutory purpose of the SDNP is the conservation and enhancement of the natural beauty of the designation. Natural beauty manifests itself differently in each National Park (and AONB) and is often expressed in terms of the special qualities of the designation. These frequently take the form of statements or descriptions and are clearly set out in the designation's Management Plan. The special qualities (7 in total) for the SDNP are set out in the latest Management Plan (2014 – 2019) on page 11 and in greater detail on the website¹.

The A27 Environmental Assessment Report makes reference to them at 7.6.3.2 whilst further references are made within the text describing the landscape character areas affected by the scheme options. Chapter 15 section 15.3.4 (page 15-6) sets out how the methodology assesses the significance of the effect of the scheme on these special qualities. This is essentially based upon the DMRB process supplemented with professional judgement.

Natural England wishes to see a narrative judgement provided which provides sufficient evidence to fully explain both the nature and significance of the effect of all route options on these special qualities. The assessment should draw upon the conclusions of the LVIA and clearly state which landscape character areas and which visual receptor groups are affected. The assessment should be done as soon as is possible in order that the conclusions are available to inform the route selection process and design principals for the scheme.

At 15.3.5.1 the text states that *'the outcomes of the SDNP special qualities assessments will be provided to the SDNP Authority for its consideration'*. Natural England is the Government's statutory adviser for landscapes and a statutory consultee for NSIPs. Consequently we expect the outcomes of the assessment to provide to us for comment as well.

Scheme Design Principals

In order to pass the policy tests set out in NPS National Network the design of the scheme needs to be of *'high environmental standards'* and *'where possible includes measures to enhance other aspects of the environment'*.

We note that 2 of scheme's 7² objectives relate to the environmental setting of scheme. These are:
6. Deliver a scheme that minimises environmental impacts and seeks to protect and enhance the quality of the surrounding environment through its high-quality design'

7. Respect the South Downs National Park and its special qualities in our decision-making'.

Whilst the scheme is not yet at a detailed design stage there are a number of design principals

¹ <http://www.southdowns.gov.uk/discover/why-are-we-a-national-park/>

² <https://highwaysengland.citizenspace.com/he/a27-arundel-bypass-further-consultation/>

which can be adopted now to define the over-arching design approach for both option selection process and detailed design stage. This would greatly assist in the realisation of the scheme's objectives. For A417 'Missing Link' scheme (located wholly within the Cotswolds Area of Outstanding Natural Beauty) HE are committed to delivering a landscape-led scheme. The Preliminary Environmental Information Report for this scheme at 2.3.3 Scheme Design Principles (p.14)³ states:

'Landscape is a primary consideration in every design decision. The landscape led approach for the proposed scheme is to sensitively integrate the proposed scheme into this nationally important AONB landscape, looking to ensure that the proposed scheme is designed to 'meet the character of the landscape' and reduce negative impacts of the proposed scheme on the surrounding environment. The scheme vision aims to maximise opportunities for landscape, historic and natural environment enhancements within the Cotswolds AONB. The scheme vision would look to improve landscape and ecological connectivity through landscape and habitat restoration and creation including measures to enhance local communities' quality of life and visitors' enjoyment of the area'.

Natural England wishes to know why such an approach has not adopted for the A27 Arundel by-pass scheme. In particular how respect for the SDNP will manifest itself in the route selection process and final scheme design.

Natural England advises that as with the A417 Highways England adopts the same approach to design for the A27 Arundel By-pass scheme. The environmental impact and national importance of the location of this scheme is at least equal to that of the A417 and Natural England sees no reason why the same design principals should not been applied. Such an approach would help steer the final design so that it realises the aspirations of the Road Investment Strategy to deliver schemes that will be "trail-blazers for the future". And ensures that the policy tests set out in the NPS for National Networks are passed and the objectives for the scheme 'high-quality design' are realised.

Scheme Design as set out in the Environmental Assessment Report

In the previous iterations and associated consultations for the scheme Natural England has provided clear advice as to our preferred route option. This advice has not changed. Our preferred route option i.e. the least worst option(s) in terms damage to landscape character and visual amenity is 1V5 and 1V9. To repeat our reasoning; both of these options minimise the direct effects within the SDNP and therefore best fulfil policy as set out in the NPS i.e. the 'strong presumption against any significant road widening or the building of new roads...in a National Park...' Although option 5BV1 also fulfils this policy requirement this option has a far greater impact on the setting of the SDNP and thereby fails the policy requirement to 'avoid compromising the purposes of the designation' (NPS para. 5.155). Although options 1V5 and 1V9 also fail this test they do so to a lesser extent in that the location of the proposed embankment / viaduct is closer to Arundel, in a position of the upper Arun valley which is already in part characterised by transport infrastructure and urban development. As a consequence the setting of the SDNP, particularly views towards Arundel Castle from the lower Arun valley, would be compromised to a lesser extent by options 1V5 and 1V9.

In undertaking the option selection process Natural England advises that Highways England should pay close regard to the policy tests contained in the NPS and clearly set out how the scheme's design principals will address these. Elements of the scheme's design principals, particularly the embedded design elements, which specifically address the need for 'high environmental standards' and 'measures to enhance other aspects of the environment' should be clearly set out. In addition the NPS requirement for good design (visual appearance and sensitivity to place, para. 4.28) should also be accounted for.

From our review of the Environmental Assessment Report Natural England fails to understand how the tests in the NPS have been addressed within the scheme's design principals. None of the

³ https://highwaysengland.citizenspace.com/he/a417-missing-link-public-consultation/supporting_documents/Preliminary%20Environmental%20Information%20Report.pdf

supporting material, including the fly-through videos, show any form of mitigation measure or embedded design feature which seek to deliver these policy requirements.

For instance the information (including the fly-through videos) makes reference to the potential to provide a viaduct over the river Arun and its flood plain. However the '*possible viaduct variant*' would use of Designated Funds. Designated Funds are not a part of the funding for this scheme; they would be outside of the budget allocated to the DCO. The 'possible' viaduct would not be embedded within the design of the scheme and would be subject of a successful bid to the Designated Funds budget. Natural England does not consider this to be an appropriate means to fulfil NPS policy requirements. We set out below our reasoning and advise that the only opportunity to reduce the scale of the adverse effect on the setting of the SDNP (for all route options) would be through the use of a viaduct.

All route options presented for the scheme include an embankment and the '*possible viaduct variant*'. The Defra Single Voice statement on this issue (15th July 2019) sets out why we consider the viaduct option to be an essential design element of the scheme. Natural England reiterates the following; an embankment will permanently sever the floodplain of the River Arun and sever Arundel from its lower valley setting resulting in significant adverse effects on valued landscape character, visual amenity and cultural heritage. The lower valley of the River Arun (from Arundel downstream to Ford) is a key component on the setting of the SDNP with the uninterrupted views available from this location to Arundel and the downs beyond. These views allow people outside of the national park to enjoy the natural beauty afforded by it. The introduction of an embankment into this landscape would completely alter its character and become the dominant feature within the lower Arun Valley.

Although a viaduct has the potential to be a more sympathetic presence in the landscape, by providing a more porous visual effect as opposed to a solid barrier such as an embankment, a viaduct in itself not would provide sufficient mitigation to negate the harm caused by an embankment. Such a structure would still have a detrimental effect; it would simply be a least worst option and not itself constitute good design. Good design could only be achieved if the design of the structure was sympathetic to location and character of the area, had a clear design objective to minimise both its size, scale and dominance in the landscape and sought to maintain a visual link between Arundel and the lower Arun valley. As depicted in the fly-through videos the structures shown do not enhance the proposals in either landscape or visual terms.

In order fulfil the policy test set out at 5.154, '*to avoid comprising the purposes of these areas (designated landscape)*' and the need for sensitive design Highways England needs to give urgent consideration to both ensuring that a viaduct is a part of the scheme's design principals i.e. it is embedded mitigation but also of a design which is sympathetic to character and inter-visibility of the lower Arun valley.

At point 8.13.1.3 in the SAR Highways England have assessed the comparable environmental impacts of a viaduct versus an embankment and state that that there is no difference in impacts between the two options. Natural England does not agree with this assessment for the reasons set out above.

We also note for all the overbridges depicted in the fly-through videos no attempt has been made to either design them sympathetically or provide for other environmental enhancements. In addition opportunities for landscape and ecology connectivity through the provision of green bridges, unlike for the A417 scheme, has not be taken. Whilst it is accepted that detailed design for the scheme will only commence once the route selection process has been completed that does not prevent Highways England committing to these design principals now and at least indicatively illustrating in the fly-through videos what such structure could look like or might be located.

Landscape and Visual Impact Assessment Methodology and conclusions

We consider that there are significant shortcomings in the Landscape and Visual Impact Assessment (LVIA) methodology. Natural England is concerned that the LVIA methodology as currently defined underestimates the likely landscape and visual impacts of the scheme on landscape and visual receptors and fails to relate how these effects would affect the special

qualities of the SDNP. It is of critical importance that the LVIA provides robust evidence on the likely significant effects resulting from the scheme on the statutory purposes of the SDNP in order that the Secretary of State can make a fully informed decision.

Robust evidence allows for confident conclusions from which suitable mitigation measures and other environmental enhancements can be developed. We acknowledge that the scheme design is not yet fully realised but for the reasons provided above we have serious concerns about the likely effect of the scheme on the SDNP and its setting. The degree to which these effects can be moderated, the feasibility and efficacy of embedded design elements to reduce this severity of effects and the appropriateness of mitigation measures all need to be informed by robust LVIA evidence.

We have a number of concerns about some of the aspects of the LIVA methodology and provide a few of these below as examples.

1. Natural England disagrees that all users of surrounding public rights of way (located outside of the National Park) in non-designated landscapes are of medium sensitivity as cited in the LVIA section 7.6.7.5. We advise that for users of the PROW located on the western bank of the River Arun who are benefiting from the visual amenity of views towards the SDNP (Arundel Castel and the Down beyond) their sensitivity should be high. As the highlighted in the LVIA highlights;

'Of particular importance are the views in a northerly direction from many positions across the floodplain, taking in the dramatic silhouettes of Arundel Castle and Arundel Cathedral, which rise imposingly from the edge of the South Downs forming an iconic view'.

As already outlined Natural England advises that the offline route options effectively sever Arundel from its valley and would significantly change the experience of the views for users of this footpath. Furthermore this iconic view has not been adequately represented by a series of viewpoints, providing evidence of the experience of the walk along this valley.

2. The LVIA shows that the proposals will have a direct effect upon:

- LACA2: Fontwell Upper Coastal Plain
- LCA4: Lower Arun Valley
- LCA5 Arundel
- LCA1 Western Downs

However the report assesses the Fontwell Upper Coastal Plain LCA as having a medium sensitivity. We disagree with this classification and advise that the sensitivity should be high as this LCA lies within the SDNP. GLVIA guidelines categorises land within designated landscapes as having a high sensitivity. We therefore question the classification in the LVIA, particularly given the impact through the direct loss of landscape features and valued character the offline options would cause. This LCA encompasses a suite of landscape features and interconnected habitat types. The construction of the road would delimitate these and remove the tranquil and secluded nature of this landscape.

Biodiversity advice

It is clear that this environment is of exceptional importance for biodiversity. The survey work highlights this as an area that contains a suite of key, priority and irreplaceable habitats and species. These long established networks and associations have persisted in an environment which, notably is largely undeveloped and highly varied in nature. The interconnected nature of this environment is reflected in the presence of an outstanding assemblage of species. The presence of maternity roosts of rare bats including Barbastelle, bechsteins and the alcathe bat is one of both of particular note and of concern to Natural England as it demonstrates the exceptional importance of this environment and the need for its protection.

Environmental Assessment Report (EAR)-Summary of Concerns

We are very concerned that the EAR currently presents a highly unclear assessment of impact and we advise that this is revised as a matter of urgency. This is of great concern to Natural England. We have consistently advised that a tailored, landscape-scale assessment is required in order to demonstrate with confidence that any proposed mitigation is fit for purpose. This scale of assessment is critical in order to appraise the options and impacts with confidence. The South Downs National Park, Environment Agency, Forestry Commission and Natural England have referred to the need to provide a landscape-scale assessment in our single voice letter as follows:

As an overarching principle we have advised that any option for the bypass should be considered in an integrated way at a landscape scale. This will ensure that impacts on a complex and interconnected ecosystem, set within a wider hydrological catchment, are fully understood alongside any impacts on the historic landscape

It is essential that landscape, biodiversity, hydrology and cultural heritage are considered together in an environmental masterplan in order to appropriately address severance and resilience and to avoid the potential for addressing one issue to the detriment of another

It is not however clear how this advice has been addressed. The EAR includes an assessment of individual habitats and their importance (which we wish to provide comments on); but an integrated appraisal of the functionality of the area and how each option would affect it has not been included. The assessment of severance appears only as a description and in tabulated form and not for all habitats or species. This present's unclear and misleading information regarding this issue which we have advised is of critical importance for this scheme. Without this information, presented in an integrated cumulative way at the appropriate landscape level, we advise that the true impact of the Arundel Bypass cannot be assessed and therefore cannot be relied upon to provide a reliable assessment of alternatives for the Preferred Option. To highlight this when judging environmental impact the online options appear to be more damaging than offline schemes. We advise that this is because the integrated approach addressing functionality has not been included.

At present it is difficult to gauge the level of loss and deterioration of ancient woodland for example. Of further concern is that the Report currently provides a number of statements which are incorrect (see below) and misleading. We wish to question the significance criteria and discussion regarding the significance of severance (below).

We have advised that the applicants follow the mitigation hierarchy (see below) when appraising the impacts of each scheme option and in the absence of the required level of assessment of impact, this cannot be achieved.

Furthermore the accompanying brochure provides misleading information as it presents only impacts to woodland and not the impacts of severance and the impacts of other key priority habitats which offline options would sever and remove.

It is essential that a balanced assessment is included to ensure that in an environment such as this the avoidance of one priority or irreplaceable habitat for example does not detriment another, and that the resilience of this special environment is maintained. We welcome the radio-tracking surveys which have been conducted for bats. These highlight the permeability of this landscape, rich in opportunities for roosting and foraging. It is of critical importance that this permeability is maintained and that Highways England can demonstrate that they have followed the mitigation hierarchy to ensure that the least damaging option is chosen.

Mitigation Hierarchy

We have advised that Highways England demonstrates that the option with the least environmental impact is pursued. In order to achieve this Highways England must ensure they have followed the mitigation hierarchy when appraising each route option and to do this the evidence base must

include a landscape-scale assessment.

The mitigation hierarchy is a key principle of sustainable development is embedded in the National Network NPS which states that:

5.25 As a general principle, and subject to the specific policies below, development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives.

Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought.

In order to clarify our concern with the information provided Natural England wishes to provide a few examples below:

Ancient woodland.

As you are aware ancient woodland is an irreplaceable habitat which once lost cannot be re-created. The wildlife contained within this habitat has established over centuries producing a diverse and rich array species. We have advised that the Arundel Bypass demonstrates how the loss of this irreplaceable habitat can be avoided.

It is of concern that the EAR report does include a summary showing losses of, and indirect impacts to habitats. It is not clear how much of this irreplaceable habitat is affected by the options.

Furthermore to demonstrate compliance with the strong policy protection afforded to irreplaceable habitats we advise Highways England explore opportunities to reduce ancient woodland loss.

The NPPF provides robust protection for ancient woodland as follows:

175 c) “development *resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused unless there are wholly exceptional reasons (footnote 58) and a suitable compensation strategy exists*”.

Furthermore Paragraph 5.35 of the NPS provides strong protection to ancient woodland as follows:

Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the national need for and benefits of the development, in that location, clearly outweigh the loss. Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided.⁷⁹ Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this

We further advise that at present a reflection of the options with regard to the *deterioration of irreplaceable habitats* is yet to be made as the impacts of severance have not been accurately assessed (please see severance assessment below).

Veteran Trees

Natural England does not agree with the EAR with regard to Veteran trees. It is unclear why 8.4.4.43 states that *ancient or veteran trees isolated from a habitat complex containing other ancient or veteran trees are less likely to be of such high importance and are classified as being of County Importance*. The assessment has segregated veteran trees into categories according to the habitat, or situation in which they are found. We advise that veteran trees are of national importance irrespective of whether they form part of an ancient woodland, a cluster of veteran trees or isolated. Natural England is concerned that this assessment incorrectly diminishes the significance of individual trees and that any associated assessment of impact will be unreliable.

In reference to this Natural England would refer you to 5.32 of the NPS National Networks which states

Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided.⁷⁹ Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this.

We advise that the EAR is clearly contrary to this.

With further regard to veteran trees we would be grateful for clarity regarding the numbers of veteran trees affected by each options. It appears that offline options affect (either directly or indirectly) numerous veteran trees but this is not reflected in the numbers presented in the impact table. We refer you to the consultation brochure which clearly shows a large number of veteran trees in the vicinity of the offline options. It is not clear therefore how the assessment of 1/2 trees lost can be substantiated from the information provided.

Wet woodland

Again we wish clarification regarding the assessment of wet woodland which segregates importance according to whether it is isolated or part of an ancient woodland. The assessment states that wet woodland should be classed as:

National (where also part of ancient woodland)

County (where isolated, non-ancient woodland)

Wet woodland is a priority habitat regardless of whether it is part of an ancient woodland. It is also unclear from the assessment which option affects wet woodland as the summary results differ from table 8.6

Orchard

We note that option 4/5A1A effects this habitat but that little information is included regarding this. Furthermore impacts on Binsted Rife and Tortington Rife require further assessment as offline options have the potential to affect these both directly, via habitat loss, and indirectly via pollution to aquatic systems an associated habitats of biodiversity value.

Evaluation of severance

We have advised that the impact of severance and therefore of each option's impact on the future resilience of this special landscape is of critical importance. It is concerning therefore that the evaluation of the severing impact of schemes has been consistently erroneously assessed or not included. Again in order to clarify this we include the following examples:

It is unclear how the following summary conclusion has been made with regard to woodland severance:

1V5 and 1V9 would result in a Large Adverse significance of effect. Option 4/5AV1 would result in a Moderate Adverse significance of effect, as small areas of ancient woodland would be removed from the edge of woodlands with little severance occurring.

We strongly disagree with this assessment. Option 4/5AV1 severs the entire woodland complex from surrounding habitats. Natural England advises that severance here is severe. The road would clearly isolate the woodland and impact functionality. We would welcome clarification on how this conclusion was reached.

Of further note is the following (with regard to woodland):

Option 1V5, Option 1V9 will affect habitats along the northern edge, whereas Option 4/5AV1 will

affect habitats along the southern edge of the LWS. These impacts are regarded as resulting in Large Adverse significance of effects as they are unlikely to completely undermine the integrity of the woodland ecosystem in the LWS.

We advise that online options 1V5 and 1V9 affect woodland edge habitats in which a degree of severance by the A27 already exists. Option 4/5A1 however. Introduces an additional impact to the south if the woodland complex. It is therefore inappropriate to judge these different impacts as equal with regard to severance.

A similar statement has been made in the deciduous woodland HPI which has assessed Option 1V5 and Option 1V9 (Large Adverse) and Option 5BV1 and Option 4/5AV1 *will have the lowest significance of effect (Slight Adverse) as small areas of deciduous woodland on the edge of woodlands will be affected which is unlikely to undermine the function of this habitat type.*

Again we would be grateful for clarification here as online options are given a higher level of impact regardless of the fact that they also impact woodland edge.

It is also unclear how the following conclusion regarding impacts to bats have been reached. *Option 5BV1 is more distant from core foraging and roosting locations used by woodland bats.*

We advise that all offline options present significant impacts regarding severance and loss of habitat which are of great concern to Natural England The bats have been shown to use this area in a dynamic way and are clearly foraging over this area as a whole. Severance impacts are of key importance for these species (Please see specific comments regarding bats and mitigation).

The above examples highlight the need to provide of the existing functionality via losses and severance habitats and how each option would affect this. This should not be done by habitat but in an integrated way considering the future resilience of this ecosystem in the round.

We have advised that Highways England demonstrates a *betterment* on the existing environment with regard to severance and that online options provide opportunities for this due to their reduced cost impact and location.

The EAR However does not pay due regard for mitigation by way of wildlife crossings for example for online options. Although the impact of severance is significantly less with online options it remains a factor. Furthermore we would remind Highways England of the requirement in the NPS as follows:

5.36 opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals, for example through techniques such as the 'greening' of existing network crossing points, the use of green bridges and the habitat improvement of the network verge

5.33 Development proposals potentially provide many opportunities for building in beneficial biodiversity or geological features as part of good design.⁸⁰ When considering proposals, the Secretary of State should consider whether the applicant has maximised such opportunities in and around developments. The Secretary of State may use requirements or planning obligations where appropriate in order to ensure that such beneficial features are delivered. Furthermore the NPS developments to be designed and landscaped to provide green corridors and minimise habitat fragmentation where reasonable.

Hedgerows

The key function of a hedgerows in providing networks of habitat for a wealth of species has not been acknowledged and as such their key importance in the functionality of the landscape has not been reflected.

Wetland habitats

With regard to biodiversity, severance of the ditch systems and the species within will be far greater with an embankment than a viaduct option. A viaduct would allow for a more permeable aquatic system. Furthermore severance of the floodplain will have significant implications for its function as flood storage. With regard to flood storage we advise that the advice of the Environment Agency is fully accounted for. The impact of severance is also far greater in landscape and visual terms with an embanked option than with a viaduct. We have cited this in our landscape comments and in our single voice statement.

Biodiversity Net Gain and Natural Capital

We welcome that the assessment includes biodiversity net gain and we would welcome the opportunity to work with Highways England on this matter. Until level of impact to biodiversity is clear the requirements to achieve net gain will be inaccurate.

The NPPF includes strong policy provision for net gain as follows:

170 d). *Planning policies and decisions should contribute to and enhance the natural and local environment by “minimising impacts on and providing net gains for biodiversity*

We have advised that a Natural Capital approach to assessment is undertaken for this scheme and would refer you to the requirements of the Government’s 25 Year Environment Plan with regard to biodiversity net gain and Natural Capital.

We again refer you to the NPS as follows:

5.23 The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.⁷³

The scheme is located in an environment of outstanding importance biodiversity. The importance of this must be reflected in robust, bespoke and innovate mitigation. We have advised that in order to achieve the required landscape scale approach to mitigation an environmental masterplanning approach must be adopted.

We advise that the risk of mitigation efficacy is highlighted. For example the efficacy of wildlife crossings (see also below) is widely debated and far from certain (please see bats and mitigation). We therefore advise that this significant risk is given due weight in the review of mitigation complexity.

Bats and mitigation

Again we advise that in line with the mitigation hierarchy of ‘avoid, mitigate, compensate’ the applicant ensures that the option with the least environmental impact is pursued. In order to demonstrate this we have previously advised that the nature of the proposals in this complex and interconnected ecosystem will require an integrated, landscape scale assessment of impact. This scale of assessment is critical in order to appraise each option and its impact.

The woodland is known to contain maternity roosts for two ‘Annex II’ species of bat (barbastelle and bechstein’s) and also of an ‘Annex IV’ species which is currently considered to be extremely rare in England, the alcahloe bat. The presence of maternity roosts for these rare bat species is of exceptional significance and, together with the wider bat species assemblage, indicates the landscape as being of the highest quality. Notwithstanding their inherent ecological value, the mosaic of long-established ghyll and shaw woodland, meadows and riverine habitats represent crucial supporting habitats for these species. It is highly likely that these interconnected habitats are used in their entirety by all bat species present for roosting, commuting and feeding; and potentially for swarming and/or hibernation. The potential impact of severance of these habitats for bat species therefore clearly requires particular consideration to ensure that the species present are not adversely affected by the proposals.

Natural England therefore has significant concerns regarding the proposals set out by Highways England, in particular those relating to the offline routes which deviate from the existing carriageway. The potential impacts to bats from the offline road options with regards to barrier effects, collision mortality, habitat fragmentation and edge effects are considerable and present a

significant concern to Natural England. There is currently no evidence to show that mitigation measures aimed at increasing road permeability and reducing mortality to maintain bat populations close to roads work successfully and only limited evidence of the success of certain crossing structures such as underpasses or green bridges (Berthinussen et al 2014). These concerns are exacerbated by uncertainties surrounding the ecology of the rare bat species concerned, in particular the alcathe bat which has only been discovered in England relatively recently and its ecology is not yet well understood. There are no systematically collected data on the flight and road crossing behaviour of this species, but they are found as road casualties on roads that cut through forest habitat in Europe (Dietz and Kiefer 2014). It is presumed that they are highly sensitive to habitat fragmentation given they exist in small local populations and have restricted ecological requirements and therefore would be severely impacted by the offline options alongside bechstein's. In light of this Natural England would be required to adopt the Precautionary Principle to a high regard when considering any licence application for this species in particular.

It is therefore unclear how the required level of confidence in the efficacy of avoidance, mitigation and/or compensation measures can be demonstrated given the clear significance of this area and the lack of clear evidence to support such measures. Natural England would be unable to satisfy the Favourable Conservation Status test as part of its licensing duty unless sufficient evidence can be provided to demonstrate that the identified impacts to bats from route options could be successfully mitigated for. Based on the current evidence, it is questionable whether the off-line options are licensable.

We urge Highways England to pursue the option with the least damaging impact to the bat species present.

Conclusion

Natural England advises that at present the supporting information pertaining to biodiversity and Landscape is unclear and incomplete and does not provide a full and accurate appraisal of the considerable environmental impacts of the Arundel Bypass. Again we welcome that less damaging online options are included for consultation but we are concerned that the assessment does not reflect their less damaging impact and potential for mitigation, in particular with regard to severance. We advise that a clear cumulative and integrated assessment is currently lacking and therefore a robust appraisal of the options is not possible from the information provided.

Our overarching advice remains that in order for Highways England to deliver a viable road scheme that fulfils the policy and legal protection afforded to Landscape and Biodiversity and the requirements of the mitigation hierarchy, you must demonstrably minimise impacts. In order to do this a landscape-scale integrated assessment is required to accurately assess impacts and provide the level of confidence and quality that *will be required* regarding mitigation of impact in this highly complex, nationally important environment. We welcome the opportunity to continue to work closely with you to provide our advice on these critical matters.

Please do not hesitate to contact me should you wish to discuss this matter in more detail.

Yours sincerely

Rebecca Pearson
Senior Adviser
Natural England
Kent and Sussex Team

References

Berthinussen, A., Richardson, O.C., Altringham, J.D., 2014. Bat conservation: global evidence for the effects of interventions. Pelagic Publishing Ltd.
Dietz, C., Kiefer, A., 2016. Bats of Britain and Europe. Bloomsbury, United Kingdom.

