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A27 Arundel Bypass

Design Review

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Friday 9 July 2021

Our reference: DCC/0965

National Highways Design Review Panel: A27 Bypass

Dear ██████████ ██████████

Thank you for providing the National Highways Design Review Panel with the opportunity to advise on this proposal at the Design Review on Monday 18 October and Tuesday 19 October. We thank the project team for the presentations.

Summary

The proposed scheme relates to the construction of a bypass for the A27 at the town of Arundel as well as detrunking a section of the existing roadway. The scheme includes the construction of 8km of dual carriageway as well as nine new bridges, including: one railway underbridge; one viaduct crossing over the river Arun; four local overbridges of which two are combined green and road bridges; two rife crossings; and one bridleway bridge. The proposed new route ties in with the existing A27 at Walberton in the west, and Crossbush in the east.

Following consultations, National Highways have now settled on Option 5BV1 as their preferred route. While this avoids the South Downs National Park and nearby ancient woodland, the environmental impact of the scheme remains a concern. .

The panel supports National Highway's decision to select route 5BV1 and is pleased to note the the project team are looking at reducing the speed limit from 70mph to 50mph for certain sections of the route. The reduced speed will facilitate a tighter road geometry, in turn allowing for a reduced use of materials, a smaller land take, and an overall reduction in the scheme's impact on the natural environment.

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We are encouraged by the structured approach to mapping wildlife patterns across the scheme area, and acknowledge the work the project team have carried out to establish a credible Biodiversity Net Gain (BNG) approach with a target of 24% BNG and minimum of 10% BNG. However, in line with current advice from the National Infrastructure Commission, we recommend that the BNG approach be expanded from a habitat to a species-level focus. This will help the project team address some of the indirect impacts the scheme is likely to have on the local ecology.

We are not yet convinced by the architectural merit of the proposed structures which feel formulaic and utilitarian. We also have reservations about the landscape strategy which currently does not engage sufficiently with the characteristics of the local landscape. We therefore recommend that the scheme comes back for an additional review prior to the public consultations in 2022. In the meantime, the project team may wish to look at the Lower Thames Crossing for inspiration; a scheme which integrates landscape and architectural rigour with functionality and cost-effectiveness as well as an exemplary Design Narrative document. The A417 Missing Link scheme would also offer a useful comparison for this particular route.

We recommend that a clear and engaging design narrative is developed which captures the vision of the scheme, demonstrates how its component parts come together as a whole – including structures, landscape, ecology, connectivity – and illustrates how different user groups will engage with the scheme. More engaging presentation materials should also be produced as part of this exercise, including 3d drawings of the proposed structures, a drone flyover of the route corridor, and point of view snapshots from the perspective of different user groups.

Developing a clear design narrative and translating it into engaging visualisation will help National Highways communicate the benefits of the scheme to stakeholders and community. It will furthermore reduce the potential for objections and therefore lessen the risk of legal challenge.

Connectivity

The scheme is a strategic project which feeds into other systems – biological, social, economic – across the region, and it is important that it is framed as such, as opposed to solely a piece of highways infrastructure. Making a case for wider transformation and enhancement will be critical to the reception of the scheme, and we advise that the bypass could be usefully framed as an opportunity to give something back to the community rather than as an intervention that requires mitigation.

The western section of the existing A27 will be detrunked to a single carriageway as part of the scheme. We note that this move could lead to positive outcomes for the

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local community which it is worth drawing out in more detail. Detrunking the road also represents a unique opportunity to consult the local community on their hopes and aspirations for Arundel, and we strongly encourage the project team to engage the local community and local authority on the potential use of any redundant carriageway as part of a wider conversation concerning the regeneration of the town centre and future economic growth. We note that the local authority may require significant funding for the maintenance and management of the de trunked route.

We support the proposed use of green bridges across the scheme to provide structural connectivity and accommodate existing species as well as ramblers and cyclists. We are also pleased that the project team has sought to maintain and enhance the public right of way network in the proposed design. However, as the design develops, we encourage the team to produce more visual assets that can help illustrate the benefits of the scheme, such as 3D illustrations of key interventions and a drone video of the route corridor.

During the presentation, the project team discussed opportunities to develop connectivity between Arundel and South Downs National Park. We are supportive of this intervention, which we believe can provide useful amenity to the local community, and we encourage the project team to further develop this opportunity in partnerships with stakeholders such as South Downs National Park, National Trust and the local authority.

The existing Ford Road roundabout is a significant piece of infrastructure which currently services circa 30,000 cars per day. With the introduction of the new bypass, this level of use is expected to fall considerably, and we urge the project team to develop an alternative approach for the roundabout, such as reducing the size of the roundabout or reclaiming space from vehicle users to create assets for the local community.

The existing Crossbush roundabout is a demonstration of overengineering and is both aesthetically unappealing and dysfunctional. The proposed alterations do not address the considerable landtake which is problematic as it prioritises car users over other communities. As with the Ford Road roundabout, we encourage the project team to explore opportunities to provide benefit to the local community by reducing the landtake and adopting a strategy which improves conditions for non-motorised users (NMUs).

The construction of the new road corridor represents an opportunity to support local economies in new ways. While we understand that the introduction of an additional junction will require the production of a business case to free up funding, we nevertheless encourage National Highways to work together with the local planning authority to identify opportunities to facilitate local development and growth.

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Structures

We understand that affordability is critical to the proposed project, and that a positive cost-benefit ratio must be achieved across the scheme. However, higher architectural quality need not necessarily come at an increased cost – particularly when considering the long-term cost of structures that are likely to be in place for many decades, if not centuries – and we strongly encourage the project team to work on the architectural quality of the structures which currently we cannot support.

The scheme is an opportunity to make a strong architectural statement, and we believe a bolder design approach can increase the architectural value of the scheme, help tie the landscape together, and ultimately aid and derisk the DCO process. It is critical that the proposed infrastructure interventions come together as a family of structures, with each individual design participating in and articulating a clear, overarching design concept and language. This will require attention to details such as geometry, colour schemes, materials, and the design of key features such as parapets. It also is important that the team explores ways to minimise visual clutter through a considered approach to gantries and signage as the scheme moves into detailed design.

Overall, we find the structures to be too utilitarian and would like to see the project team explore a more sculptural approach, particularly for key interventions such as the Arun river viaduct and the green bridges. We note that these structures could be improved by small, considered adaptations such as the introduction of curved concrete walls, curve in plan, and V-shaped columns for the viaduct which furthermore would have the added benefit of reducing the latter's span.

As the project team develop their design approach, we advise them to bring in an acknowledged, independent architect with experience of developing designs for major infrastructure schemes; potentially as a secondment from another practice or as a design advisor/consultant. An independent architect would likely bring a fresh approach and ideally would collaborate well with the current team. We also encourage the team to take inspiration from existing infrastructure projects of outstanding architectural quality such as the Atlantic Road in Norway, the Barbers Dale Crossing, the Thames Crossing, and the Ribbleshead viaduct.

For major pieces of infrastructure there is a risk that poor management of maintenance activities can lead to contamination events with adverse consequences for the nearby natural environment, and it is therefore important that maintenance is designed into the structures from the outset. As the designs develop, we thus encourage the project team to demonstrate how a structured maintenance regime can be achieved and delivered for each of the infrastructure interventions.

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The choice of materials is also of importance to the functionality and long-term soundness of the interventions, and we acknowledge that the design team have had to consider multiple factors, such as the proximity to the sea, in the emerging designs. While this is understandable, it nevertheless has led to a focus on concrete structures which appear ordinary and risk averse. We recommend the team reconsiders this approach and aims for greater creativity in the set of structures along this route.

Concrete has a particularly high embodied carbon figure which is problematic in the context of the climate crisis, and we therefore encourage the project team to explore alternatives to concrete wherever possible. That may include the integration of low carbon mixes, such as composite cement. We also observe that weathering steel represents a useful alternative to concrete which furthermore can help facilitate the creation of more elegant structures.

We would like to conclude this section with a point on presentation. We are aware that while the project team presented, plans and cross-sections of the proposed structures, at the time illustrations were not presented. As the scheme develops, it is important that a variety of sketch designs and 3D sketch options should be produced and presented to indicate the rationale of the decision-making process for the final designs. The development of such materials will aid the project team as it develop its thinking, and help National Highways make a stronger case for the scheme in the Environmental Impact Assessment and their application for Development Consent Order.

In addition to illustrations of the structures themselves, we encourage the project team to develop user journeys for the different user groups likely to encounter the scheme, including: drivers, ramblers, cyclists, canoeists, even different animal groups such as bats. These should be presented to stakeholders as part of the community engagement process for feedback. We furthermore encourage the project team to explore opportunities to involve the local community in the design process, by providing them with opportunities to produce illustrations of their own.

Landscape & Heritage setting

The scheme is presented as environmentally-led, and during the presentation the project team provided examples of how it will integrate with the existing rural landscape. However, we note that the current landscape strategy feels rather abstract and that it could be better rooted in local landscape characteristics.

As the vision for the scheme develops, we therefore advise the team to further develop a vision for the scheme which takes local landscape characteristics, such as soil, water, and air, into greater consideration. This will help flag and resolve issues

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with the current scheme, and is furthermore likely to contribute to the creation of thriving environments for plants and animals.

The scheme is adjacent to the South Down National Park and we encourage National Highways to pursue partnerships with South Downs National Park as well as Sussex Wildlife Trusts, Natural England, the Environment Agency and the National Trust. We furthermore note that it is an opportunity to work with local farmers on rewilding along the road which we believe could increase the scheme's Biodiversity Net Gain.

As the scheme develops, we would like to see more detail on the green bridges, including for the planting strategy which currently feels underdeveloped and utilitarian. The scheme involves a series of bunds which we note serve multiple functions – for instance as visual screening and mitigating noise. However, we advise that bunds can be costly and inelegant interventions in the landscape and encourage the team to explore alternative options to reduce the impact of noise.

Biodiversity & Ecology

The project team argued that the scheme will prevent habitat loss and maximise use of acquired land. This includes efforts to reduce land take through a tightened road geometry and the preservation of existing wildlife corridors through the introduction of green overbridges. The team is also proposing to realign Binsted Rife to accommodate a higher skew with the proposed rife structure, and we note that the realignment can be accompanied by wetland habitat creation which we are supportive of.

We commend the project team for their surveys of existing animal populations, particularly their in-depth study of bats which included research into the foraging networks, crossing points, and roosting spots of the multiple bat species found in the area. We also understand that preservation concerns were part of the reason for the proposed reduction in speed limit to 50mph along some sections of the route; we strongly recommend National Highways continue with this approach and consider a 50mph section as a fixed element of the scheme within future design work.

We welcome the stated aim of achieving 24% Biodiversity Net Gain (BNG) across the scheme, with a minimum of 10%. However, we note that BNG only represents one aspect of a wider discussion regarding infrastructure interventions' impact on local ecologies. There are many indirect effects of development which are not captured accurately in BNG measurements – as demonstrated in a recent paper published by the National Infrastructure Commission: 'Natural Capital and Environmental Netgain; a discussion paper' – and we encourage the project team to map and mitigate these.

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Concretely, it is important that the team does not just explore ways to mitigate the scheme's impact on habitats but also consider its effect on local fauna as a whole as well as individual species. Due to the expected longevity of the structures, it is important that the team take into account changes in species and habitats caused by global warming. This includes considering uses appropriate to species not currently considered to be endangered or not currently extant in the local environment.

We encourage the project team to look at developing strategic partnerships to increase the benefit provided by the scheme, for instance by rewilding the Arun valley and floodplain, and understand that conversations are going on with the Sussex Wildlife Trust and the National Trust which we support. We also note that there may be opportunities for wetland habitat creation as part of a Binsted Rife realignment. This is something we would encourage the team to further explore.

Noise & Visual impact

We appreciate the consideration the project team has put into the development of noise suppression measures, such as the introduction of bunds at critical points in the road. However, we advise the team to take into consideration the fact that the majority of cars will become electric in the near future. Noise from electric cars will mainly come from the contact of the wheels with the road, rather than the engine. This changes the noise profile and we suggest that investment into low-noise surface material might be more efficient than using bunds, although we appreciate these might serve other functions.

We are reassured that the project team has taken Arundel's Dark Sky Reserve into consideration by limiting the use of artificial lighting only to junctions where this is required for safety. However, we note that there are other sources of light pollution which the project team needs to mitigate through the design such as signage. Similarly, we encourage the team to explore ways to mitigate light pollution caused by headlights, and advise them to review the Stonehenge A303 special environmental scheme for insights on how to model this.

As the scheme develops, we would like to see a full Landscape and Visual Impact Assessment developed further to include key views to help determine the impact on heritage assets such as Torrington Priory, Torrington Manor, St Mary's Church (Grade II*), Arundel Cathedral (Grade I), Arundel Castle (Grade I). It is important that the full landscape settings of these assets is taken into consideration and presented through the key views, which should be primarily eye-level with before and after images demonstrating this intervention to the landscape. We note that the availability of key views is also likely to help derisk the DCO process.

Engagement

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Engagement is important for a scheme of this scale and magnitude and we recognise the varied strategy that the project team presented during the review. The proposed approach feels fairly comprehensive in terms of the groups engaged, however we encourage the team to also consider engaging boat owners from the nearby Littlehampton Harbour as well as the Port Authority. The perspectives of different user groups should be included in the consultation material, and it is important that the experience of the scheme from the Arun is also covered.

The consultations are an opportunity to educate local communities and school children about local wildlife and ecology as well as the importance of infrastructure, and we advise that such an approach can help get buy-in from local communities. Buy-in can also be achieved by enabling consultees to engage actively with the design of the scheme, for instance by producing their own drawings. This may improve the design of the scheme, providing the design team with useful new ideas, but could also ensure members of the community and local stakeholders can feel invested in the design process.

Environmental Impact Assessment (EIA) & Development Consent Order (DCO)

We recognise the importance of derisking the EIA and DCO processes for National Highways, to reduce the potential for future legal challenge. To help derisk the EIA process, we advise the project team to take a holistic approach to the Non-Technical Subject (NTS) document, and note that this output should include contributions from all the relevant disciplines feeding into the scheme.

Presentation is critical for both the EIA and DCO application. It is important to demonstrate that multiple options have been explored for the proposed interventions, and it should be clearly explained why the team has reached the conclusion they are presenting. Such an approach helps demonstrate the thinking that has gone into the scheme, including the development of the proposed designs through iterations of design ideas from earlier design interventions.

It is important to note that high quality visualisations can help prevent misunderstandings and facilitate a smoother application process. We therefore encourage the project team to include supporting visual materials – such as sketches, illustrations, fly-throughs – in the applications, to help illustrate the positive impact of the scheme on the environment and local communities.

During the review there were questions regarding the existing hotel and golf course. . In regards to the golf course, we note that Sport England are keen for new developments to ensure better use of existing facilities, and we therefore encourage the project team to explore whether the scheme can provide amenity through the

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introduction of another hole. We also note that the team must look at ways to keep balls from the road, for instance through fencing.

Finally, a new housing estate has been planned near the proposed new route to the south of Arundel. As far as we understand, it is already designated in the local plan. In order to mitigate the impact of the bypass, we advise the project team to look at creative ways to introduce attractive and efficient noise barriers and furthermore encourage them to continue engaging with the local authority on the matter.

Thank you for the opportunity to work with you at this important stage of the process. We look forward to continuing our engagement as the project develops. Please do not hesitate to contact us to discuss the content of this letter further.

Yours sincerely,

[Redacted signature]

[Redacted line]

[Redacted line]

Design Council

Email: [Redacted email address]

Confidentiality

The advice contained in this letter is offered in confidence for Highways England and the attendees of the design in accordance with the terms and condition of appointment stated in SPaTS Agreement. The Client shall be free to adopt or implement findings or contents expressed in this at their discretion.

Panellists

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