

# A27

## Arundel Bypass

Preliminary Environmental Information Report

Volume 1

Non-Technical Summary

11 January 2022 – 8 March 2022



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## About this report

Thank you for taking part in our statutory public consultation on the proposed A27 Arundel Bypass Scheme. This consultation is an important step towards delivering the Scheme, which will bring many benefits to local communities and the region's economy, whilst making journeys quicker and safer, and freeing Arundel town and neighbouring communities from congestion.

To inform this consultation, we have prepared a suite of information which you can find on National Highway's website ([www.nationalhighways.co.uk/our-work/south-east/a27-arundel-bypass](http://www.nationalhighways.co.uk/our-work/south-east/a27-arundel-bypass)), and which includes this Preliminary Environmental Information Report (PEI Report). This report is set out in four volumes and describes the environmental setting of the Scheme and our preliminary assessments of the Scheme's potential significant environmental effects as described below:

**Volume 1 - PEI Report Non-Technical Summary (NTS), a short summary which uses non-technical language.**

Volume 2 - PEI Report, a detailed technical report (in two parts), which introduces the Scheme and describes its details, the alternatives considered, and the approach taken for the environmental assessment. The PEI Report presents and then summarises the preliminary assessment of the likely significant environmental effects of the Scheme as well as considers the potential inter-relationships between the topics covered, and between the Scheme and other developments in the surrounding area.

Volume 3 – PEI Report Figures, which provide further information in the form of figures to support the initial findings presented in Volume 2.

Volume 4 – PEI Report Technical Appendices, which provide further information in the form of technical information (in three parts) to support the initial findings presented in Volume 2.

Each volume's Contents Page lists all the topics discussed. Due to their size, Volume 2 is presented in two parts (2a and 2b) and Volume 4 is presented in three parts (4a, 4b and 4c). It should be noted that those topics that are not included in the individual sub-volumes are greyed out.

This report should be read alongside the other supporting consultation materials such as the consultation brochure, which will explain where you can find more details regarding the Scheme and how to provide your comments.

This consultation is an important opportunity for you to share your comments on the Scheme ahead of submission of our Development Consent Order application, which is expected to happen later in 2022. We'd like to hear what you think, so please share any ideas, local knowledge or concerns that you may have. Your feedback to this consultation is important and will continue to help shape the design of the Scheme.

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## 1. Introduction

- 1.1.1 National Highways proposes to improve the A27 at Arundel by providing a new dual two-lane carriageway extending approximately 8 km, located to the south of the existing A27, which is referred to in this report as ‘the Scheme’. In the west, the Scheme will tie in approximately 1 km east of the A27/A29 Fontwell East roundabout to the west of Arundel. In the east, the proposed bypass will tie into the existing Crossbush Junction, which will be reconfigured. The proposed route of the proposed bypass is shown in Figure 1 below.
- 1.1.2 The Scheme aims to improve safety, reduce congestion by increasing capacity and protect the quality of the surrounding environment, as described in the Scheme objectives presented below.



**Figure 1: Scheme location plan**

- 1.1.3 This Scheme is defined as a Nationally Significant Infrastructure Project under the Planning Act 2008 which means that an application for development consent will need to be made to the Secretary of State for Transport (Secretary of State) for permission to build and operate the Scheme.
- 1.1.4 Before an application for a Development Consent Order (DCO) is submitted, the local community and other stakeholders must be formally consulted on the proposals. These proposals include the key elements of the Scheme, the potential likely significant environmental effects of our proposals and the measures we would take to manage them, and the alternatives considered.

- 1.1.5 As well as holding this statutory consultation, we are continuing to gather environmental information to confirm the potential impacts of the Scheme and developing measures to avoid or minimise any adverse impacts and enhance the benefits – a process known as Environmental Impact Assessment (EIA).
- 1.1.6 We have prepared a Preliminary Environmental Information Report (PEI Report) to describe the environmental setting and potential impacts and subsequent likely significant effects of the Scheme on the environment. The PEI Report has been developed to assist the consultation process and presents information currently available from the ongoing EIA. This document provides a summary of the PEI Report in non-technical language.
- 1.1.7 The design of the Scheme continues to evolve and will be developed using the feedback from consultation. The information contained within this document is preliminary and findings will be developed before we produce the Environmental Statement (ES). The ES will present the full results of the EIA and will be submitted with the DCO application.
- 1.1.8 At this time, National Highways is seeking feedback on all aspects of the PEI Report.

## 2. The Proposed A27 Arundel Bypass Scheme

### 2.1 Environmental context

- 2.1.1 The Scheme would be constructed on the relatively flat Sussex coastal plain between Chichester and Arundel, located mostly within open countryside predominantly made up of agricultural land with the South Downs National Park (SDNP) just north of the Scheme.
- 2.1.2 When selecting the preferred route for the Scheme, an option was chosen which remained outside the SDNP as far as possible, which is an important consideration in planning policy terms. However, the eastern end of the Scheme proposals, which was common to all the routes considered at the time of the Preferred Route Announcement, cannot be constructed without some minor incursions into the SDNP. These incursions relate primarily to works within the existing highway boundary of the A27 and are a direct consequence of the need to connect the new route with the existing highway infrastructure. In addition, some small incursions are required to provide habitat enhancements in line with the statutory purposes of the National Park designation; these incursions are minor in nature.
- 2.1.3 Furthermore, the downgrading of the existing A27 carriageway may involve some works within the SDNP, given that a large section of it is located within the designated area.

#### **Cultural heritage**

- 2.1.4 The area surrounding the Scheme encompasses an array of cultural heritage assets which contribute to the heritage value in the area. There

are 275 listed buildings within 1 km of the Scheme. Within Arundel there are 11 highly graded listed buildings, including six at Grade II\* and five at Grade I. Of these, one of particular note is the Grade I listed Arundel Castle, which lies within 1 km of the Scheme and just north of the existing A27 within the town of Arundel (Arundel Castle is also a scheduled monument and sits within a Grade II\* Registered Park and Garden (RPG)). Due to the nature of these assets and wider influence of their setting within the local environment, there is the potential for these buildings to be affected by changes associated with the Scheme.

- 2.1.5 There are six scheduled monuments and five conservation areas located within the 1 km study area around the Scheme. There are 13 further Grade I listed buildings, 15 Grade II\* listed buildings and 14 scheduled monuments within the 5 km study area. There is a large number of non-designated heritage assets within the study area.

### **Biodiversity**

- 2.1.6 Within the area surrounding the Scheme there are seven internationally designated sites, two nationally designated sites, eight designated local wildlife sites and one designated road verge. One nationally designated site and two local nature reserves are also located within 200 m of the affected road network.
- 2.1.7 There are several notable habitats located within 2 km of the Scheme, including priority habitats deciduous woodland, wood pasture and parkland, ancient and veteran trees, ponds, coastal floodplain and grazing marsh and orchard. The River Arun is a notable habitat representing river, coastal saltmarsh, mudflats and intertidal foreshore habitats. The habitats within the study area are known to support a wide variety of protected and notable fauna and flora species.

### **Woodland**

- 2.1.8 Whilst it is unlikely that the Scheme would have any direct impacts on ancient woodland, there are areas of woodland, including ancient woodland and ancient and veteran trees, which are located within 2 km of the Scheme. The woodland is crossed by footpaths for recreational use.

### **Agricultural land**

- 2.1.9 Both grazing and arable land of varying soil quality are featured within the study area.

### **Urban areas**

- 2.1.10 The principal urban areas within 5 km of the Scheme are Arundel and Littlehampton. Several smaller settlements and villages are also located within 5 km of the Scheme. These include, but are not limited to, Crossbush, Lyminster, Tortington, Binsted, Walberton, Eastergate, Yapton, Barnham, Fontwell and Slindon. The Scheme is located within the county of West Sussex and the Arun District. The population of Arun District was 161,123 in 2020 whilst the population of West Sussex was 867,635.



## Watercourses and floodplains

- 2.1.11 The River Arun flows north to south and is tidal at the point the Scheme would cross the river. Other watercourses, including Binsted Rife and Tortington Rife, are crossed by the Scheme. Several ordinary watercourses and drainage ditches are also located within 5 km of the Scheme.
- 2.1.12 Floodplains are present within the River Arun, Binsted Rife and Tortington Rife catchments. The Scheme would pass through each of these floodplains.

## 2.2 What is 'the Scheme'?

- 2.2.1 The new bypass will be approximately 8 km long and consist of a new dual carriageway, which will tie in at the western end of the Scheme slightly west of Tye Lane and re-join the existing A27 in the east at Crossbush Junction.
- 2.2.2 The new bypass will include the following key features, which have underpinned the initial assessments contained within the preliminary environmental information. Further information regarding these features can be found in the Consultation Brochure. From west to east:

### Fontwell East Roundabout to Tye Lane

- a. Fontwell East roundabout would be the start and finish of a new 50 mph speed limit. From Fontwell East roundabout the 50 mph speed limit will continue until the new dual carriageway passes the Church of St Mary's, Binsted.
- b. The left-turn access onto Arundel Road (heading towards Fontwell Village) from the westbound carriageway of the A27 would be closed. Traffic from Arundel Road in this location would be able to join the westbound carriageway of the A27, heading towards the Fontwell East Roundabout.
- c. The existing junction at Arundel Road, opposite the entrance to Silver Wings, would be closed, preventing direct access on and off the A27 in this location. An alternative access for the properties on this section of Arundel Road would be created by linking Arundel Road (at Greenlands Farm) to the section of Arundel Road by the entrance to Fordingbridge Plc.
- d. The new dual carriageway would diverge from the existing A27 in a south east direction where Bridleway 392 crosses.
- e. A section of Bridleway 392 at Copse Lane would be realigned to the east of its current alignment to allow a new Bridleway Overbridge (BR392) to provide safe access across the A27 in this location.
- f. An eastbound off-slip road is proposed to link eastbound traffic with the existing A27 eastbound.
- g. The existing A27 just west of Tye Lane would be de-trunked and transferred to West Sussex County Council as the local highway

authority to the point where it joins with Crossbush Junction. This de-trunked section of road would be retained for local traffic, public transport and alternative transport (walking and cycling).

- h. The Mill Road/Tye Lane junction of the existing A27 would be reconfigured into a limited movements junction.
- i. As the new dual carriageway continues south east from Arundel Road to Tye Lane, it would be in a shallow cutting as it passes north of Hooe Farm Industrial Estate.
- j. Tye Lane would be severed by the new dual carriageway, which would be in a cutting approximately 3 m below ground level and would pass under the realigned Tye Lane. The realigned Tye Lane would be on an embankment and would pass over the new dual carriageway via a new bridge (Tye Lane Overbridge) at a height of approximately 5.3 m above the carriageway. Tye Lane Overbridge would be one-way, southbound only. A westbound on-slip road would allow traffic from the existing westbound A27 to join the new dual carriageway via Tye Lane. A T-junction south of the new dual carriageway would provide access to Hooe Farm Industrial Estate as well as access to the westbound on-slip road. Tye Lane to the north of the A27 would be used as a connector road between the existing A27 and slip road.
- k. South of the new dual carriageway, the existing section of Tye Lane towards Walberton would be stopped up and would become a no-through road. A new footway/cycleway connection would connect the stopped up Tye Lane to the Tye Lane Overbridge, maintaining two-way pedestrian and cycle access along the whole of Tye Lane.

### **Tye Lane to Binsted Rife**

- a. From Tye Lane continuing south east, the new dual carriageway passes through the Avisford Park Golf Club and south of the Avisford Park Hotel. As it passes through the golf course, the new dual carriageway progresses into cutting on the approach to Yapton Lane, and then turns east to pass under Yapton Lane, passing immediately north of the access to Avisford Grange housing development which is currently under construction. Yapton Lane would pass over the new dual carriageway on a bridge (Yapton Lane Overbridge) and remain on its current alignment, approximately at ground level. Avisford Park Road, which is used to access the Avisford Park Golf Club, would be realigned approximately 50 m north of its current alignment - this provides space for the new dual carriageway and also maintains access for the Avisford Park Golf Club. Access would be maintained to the Avisford Grange housing development.
- b. The new dual carriageway continues south east with the depth of cutting, moving onto a short section of embankment before crossing over Binsted Rife (rife is a local term for a watercourse draining to tidal waterbodies), south west of the Church of St Mary's, Binsted. The new dual carriageway would cross Binsted Rife on an underbridge (Binsted

Rife Underbridge) with a squared portal structure, approximately 30 m clear span, 27 m wide and 6 m high at its maximum extents. The proposed road level across the underbridge is approximately 11.5 m above ground level at the point it crosses the existing watercourse.

- c. Public Right of Way (PRoW) 350 would be realigned beneath the underbridge structure. The Binsted Rife watercourse would also be realigned beneath the underbridge structure.

### **Binsted Rife to Tortington Lane**

- a. East of the crossing of Binsted Rife, the new dual carriageway would continue south east, transitioning into cutting approximately between 1 m and 2 m below ground level.
- b. Binsted Lane would be severed by the new dual carriageway in two locations, near Oakleys Barn and south of Meadow Lodge. Binsted Lane would be realigned so that it runs from west to east on the north side of the new dual carriageway. A T-junction would provide a link to a bridge over the new dual carriageway (Binsted Lane Overbridge) to connect with the existing Binsted Lane south of the new dual carriageway. The realigned Binsted Lane would be built up on an embankment and the overbridge would pass over the new dual carriageway at a height of approximately 8 m. The new dual carriageway would be in a shallow cutting at this location as it passes beneath the realigned Binsted Lane. PRoW 354 would be realigned over the overbridge alongside Binsted Lane to retain connectivity. This solution would allow the existing road to remain open for as long as possible during the construction stage. The Binsted Lane Overbridge is proposed to be a 'green bridge' structure. In addition to maintaining road and footpath connectivity, this overbridge would provide ecological connectivity across the new dual carriageway.
- c. East of Binsted Lane, the new dual carriageway continues eastwards on an embankment before crossing over Tortington Rife. The new dual carriageway would cross Tortington Rife on an arched underbridge (Tortington Rife Underbridge), with an approximate 29 m span, approximately 31 m wide and 6 m high at its maximum extents. The proposed road level across the underbridge would be approximately 10.2 m above ground level at the point it crosses the existing watercourse.
- d. East of Tortington Rife, the new dual carriageway transitions from embankment into a slight cutting approximately 320 m east of Tortington Rife. As the road continues east, the level rises from a cutting to an embankment approximately 90 m west of Tortington Lane.

### **Tortington Lane to Arun Valley Railway**

- a. The new dual carriageway crosses a small section of common land at Tortington Lane.

- b. Tortington Lane would be realigned to the east of the existing Tortington Lane and cross the new dual carriageway as part of a green bridge (Tortington Lane Overbridge) with embankment approaches to the north and south. The realigned Tortington Lane would tie into the existing Tortington Lane to the south of the new dual carriageway at Rookery Cottages, and to the north of the new dual carriageway approximately 100 m north of Broad Green Cottages.
- c. The green bridge would provide ecological connectivity over the new dual carriageway at Tortington Lane. It would also incorporate the realigned PRow 3403, as well as providing vehicle access.
- d. East of Tortington Lane, the level of the new dual carriageway would continue to rise until it approaches the western end of the proposed Arun Valley viaduct, west of Ford Road, approximately 180 m south of Tortington Priory scheduled monument. The viaduct would cross over Ford Road and continue for approximately 1.5 km eastwards to a point approximately 175 m west of the Arun Valley railway line. Between these points the viaduct would cross the River Arun and the Arun floodplain.
- e. Between the Arun Valley viaduct and the railway line, there would be a short section of embankment before the new dual carriageway crosses the Arun Valley railway line on a single span bridge (Arun Valley Railway Overline Bridge).

### **Arun Valley Railway to Crossbush Junction**

- a. Under the eastern side of the Arun Valley Railway Overline Bridge, space would be provided between the railway line and the embankment to allow footpath 2207 to be diverted and to provide a new farm access; maintaining connectivity between the fields on either side of the new dual carriageway.
- b. East of the Arun Valley Railway Overline Bridge, the new dual carriageway continues on a short section of embankment before transitioning into a section of cutting through Crossbush Junction where it ties in with the existing A27.
- c. The existing Crossbush roundabout would be removed and a new grade separated dumbbell junction constructed. The new dual carriageway would tie into the existing A27 dual carriageway to the east of the new Crossbush Junction.
- d. New on and off-slip roads would be provided to give access to a reconfigured Crossbush Junction from and to the westbound carriageway of the new dual carriageway. The current slip roads at Crossbush Junction that connect to the existing A27 eastbound dual carriageway would be incorporated into the Scheme.

2.2.3 Utility diversions will be required at locations along the whole Scheme and land has been included within the current area of land needed to build and

operate the Scheme (known as the draft Order Limits) to facilitate these diversions.

- 2.2.4 The preliminary assessments are based on the maximum area of land likely to be required for construction and operation of the Scheme features outlined above.

## 2.3 The Promoter

- 2.3.1 National Highways is the Promoter and is responsible for managing and improving England's motorways and major A roads, helping the public have safer, smoother and more reliable journeys.

## 2.4 Scheme objectives

- 2.4.1 The Scheme has a number of key objectives that address identified problems or take advantage of the opportunities that new infrastructure would provide:
- a. Improve the safety of the public along the A27 and, consequently, the wider local road network.
  - b. Ensure that the needs of customers and communities are fully considered throughout the design and delivery stages.
  - c. Improve capacity of the A27 whilst supporting local planning authorities to manage the impact of planned economic growth.
  - d. Reduce congestion, reduce travel time and improve journey time reliability along the A27.
  - e. Improve accessibility for all users to local services and facilities.
  - f. Deliver a Scheme that minimises environmental impact and seeks to protect and enhance the quality of the surrounding environment through its high-quality design.
  - g. Respect the SDNP and its special qualities in our decision-making.

# 3. Scheme history, alternatives studied and ongoing design development

## Historic options

- 3.1.1 Proposals for the improvement of the A27 at Arundel have been the subject of extensive study and consultation since 1987. The history and process of options identification and route selection for the Scheme is summarised in Chapter 3 of the PEI Report, but is summarised below:
- a. Between 1987 to 1993 a variety of route options was considered with several public consultations held. A series of Government reviews were undertaken which determined that the proposals were to be placed in a long-term project pipeline.

- b. Between 2002 to 2003 a study was carried out (South Coast Multi Modal Study) for the Government recommending a new bypass at Arundel based on the previous options. This option was rejected by the Secretary of State, who requested for a further investigation of less environmentally damaging options.
  - c. During 2005 to 2006 further investigation of options was carried out by the Highways Agency/Highways England (now National Highways).
  - d. In 2014 to 2015 the A27 Corridor Feasibility Study considered seven route options developed as part of further investigations and concluded that an investment case existed for a dual carriageway bypass at Arundel.
  - e. In 2017 to 2018 three route options were under consideration, including progressing through public consultation. This work resulted in a Preferred Route Announcement in May 2018.
  - f. In October 2018 further option selection work was undertaken, which included the identification of a range of potential new Scheme options. Following the public consultation, modifications were made to the options to avoid and reduce impacts.
  - g. In 2018 to 2019 a range of potential new Scheme options were developed which were set out in the Stage 2 Environmental Assessment Report and the Interim Scheme Assessment Report. A further public consultation took place to provide people with the opportunity to comment on the options.
  - h. On 15 October 2020 the Preferred Route was selected, namely option '5BV1', otherwise known as the 'Grey route'.
- 3.1.2 The Preferred Route was selected on the basis of:
- a. How well the proposed designs would meet the Scheme objectives.
  - b. Potential impacts on local communities and the environment around Arundel.
  - c. The extent to which the proposals would comply with planning policy.
  - d. Feedback received during our public consultation process.
  - e. The cost of delivering the Scheme and the value-for-money that would be achieved by doing so.

### **Alternatives considered**

- 3.1.3 Since the preferred route announcement, National Highways has considered a number of alternatives as part of the design development of the Scheme. Consideration of these alternatives has been an important part of developing the Scheme design for statutory consultation.
- 3.1.4 Reasons why specific alternatives have been rejected or taken forward for inclusion in the Scheme design, including the environmental implications, are reported in Chapter 3 of the PEI Report, but in summary are:

- a. **Western tie-in** – the preferred option is the alignment with a reduced speed of 50 mph. This was considered the best option from an environmental perspective as it reduced impacts on important habitat and nearby residents, including maintaining access to the Avisford Grange housing development. This option is also considered preferable from a planning policy and buildability perspective.
- b. **Binsted Rife alignment** – the preferred option is the one furthest south from the Church of St Mary’s, Binsted. This option has a crossing height that provides sufficient clearance for bats whilst limiting the height to reduce impacts on views to and from the church. The preferred alignment option does not impact on the veteran tree that would require removal if other options were to be selected.
- c. **Binsted Rife crossing** – the preferred option of an underbridge limits impacts on the rife, maintains important bat routes and allows the setting of the Church of St Mary’s, Binsted, to be respected. This option is also the best solution with regard to buildability, cost and maintenance issues.
- d. **Binsted Lane** – the preferred option of a green bridge crossing the new dual carriageway in cutting would move traffic further away from existing residents on Binsted Lane. It is also considered preferable as it impacts fewer landowners, limits the loss of existing hedgerow habitat and provides an ecological link by introducing the green bridge. There are also fewer structures being proposed under this option, meaning that access will be easier to maintain during construction and ongoing maintenance requirements will be less complex.
- e. **Tortington Rife crossing** – the preferred option is the single span bridge as it was considered the better design solution with regard to buildability, in particular, in terms of construction programme, cost and maintenance requirements. While it was recognised that the viaduct is the better option from an environmental perspective in terms of landscape and flood risk, the underbridge would help create more habitat within the rife, which would be seen as an enhancement for biodiversity.
- f. **Tortington Lane** – the preferred option is to construct the Scheme in cutting, with the existing Tortington Lane realigned to the east on a green bridge. This was the better option from a biodiversity perspective due to the habitat connectivity provided by the green bridge, and construction of the Scheme in cutting is likely to be the best solution from a noise perspective with respect to operational traffic.
- g. **Floodplain crossing** – the full viaduct was chosen as the preferred option as it provides the best solution from a flood risk, biodiversity, landscape and air quality perspective. It is also the best solution from a buildability and planning policy perspective.
- h. **Floodplain crossing alignment** – the preferred option for the Scheme is the northern alignment as it avoids any loss of reed bed habitat and

would also reduce any disruption caused by the gas main diversion works that would be extensive for other alignment options. This is considered the better option in terms of buildability and maintenance, given the shorter crossing of the River Arun and reduced disruption from the gas main diversion.

### **Design refinements**

- 3.1.5 National Highways is still refining the height that the Arun Valley viaduct crosses the Arun Valley Railway Line. In these locations, given the required clearances over Ford Road, the River Arun and the Arun Valley Railway Line, there is an opportunity to lower the alignment across these three locations, which would have a number of implications with regard to land take, buildability, flooding, landscape and biodiversity. As such, further time will be taken to consider this design refinement, particularly in relation to feedback obtained from statutory consultation.

### **Ongoing design development options**

- 3.1.6 There are two potential ongoing design options for the Scheme that are still being explored for the potential reprovision of Avisford Park Golf Club and the alignment of the Yapton Lane crossing. These options are still subject to ongoing design development and engagement with stakeholders to determine the best solution. We are actively seeking views on these two options.

#### *Options for Avisford Park Golf Club reprovision*

- 3.1.7 The Scheme will directly affect Avisford Park Golf Club, resulting in a loss of, or direct impact on, approximately nine of the 18 holes, car parking spaces, the existing golf club access onto Yapton Lane, and loss of the clubhouse within the grounds of the Avisford Park Hotel. Provisional assessment work undertaken by consultants acting independently of National Highways identifies that, whilst Avisford Park Golf Club, an existing sports facility, cannot be considered surplus to requirements, all other golf courses within a 20-minute drive radius of the club provide similar 18-hole facilities. This indicates that a general need exists in the area for smaller facilities, which serve beginners or time constrained golfers, such as nine-hole golf courses or golf courses with driving range facilities. This assessment has been informed by discussions with Arun District Council, England Golf and Sports England.

- 3.1.8 The two options for the potential replacement of golf facilities are:
- Option 1: Nine-hole golf course with driving range or practice facilities.
  - Option 2: Replacement 18-hole golf course, utilising land at Binsted Farm.

#### *Option for raised vertical alignment with offline Yapton Lane overbridge*

- 3.1.9 Due to emerging potential issues associated with high groundwater in this location and the safe construction of the Scheme, an alternative, 'offline' option for Yapton Lane is being considered. This option would raise the



alignment of the new dual carriageway by approximately 4 m compared with the 'on-line' option. This would reduce the amount of cut that is required in this location. The existing Yapton Lane would also be realigned offline approximately 30 m to the east, and slightly raised to approximately 2 m so that it can cross over the new dual carriageway on an overbridge. Arrangements to maintain access for properties on Yapton Lane and Manser Road would be incorporated into the Scheme

- 3.1.10 Further details regarding these options can be found in section 17 of this NTS and the PEI Report, available at:

<https://a27arundelbypass.consultation.ai/>

## 4. The Environmental Impact Assessment (EIA)

- 4.1.1 Under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, the Scheme is defined as the type and scale of development that requires an EIA. Accordingly, an EIA is being undertaken to meet the requirements of legislation and to consider the effects of the Scheme on the environment.
- 4.1.2 The EIA considers impacts during the construction and operation of the Scheme. The construction phase assessment addresses both the temporary activities involved in constructing the Scheme and the subsequent permanent presence of the Scheme once completed. Where relevant, these temporary and permanent effects are described separately. The operational assessment considers the situation when the Scheme is being used by traffic.
- 4.1.3 During its construction, most of the Scheme's potential adverse impacts will be avoided or reduced by the use of industry standard practice and control measures, which will be contained within an Environmental Management Plan (EMP).
- 4.1.4 Potential impacts have been avoided further by ensuring that certain mitigation is 'embedded' within the Scheme design to prevent significant effects or reduce the level of significance.
- 4.1.5 The results of the EIA will be reported in the ES, which will be submitted with the DCO application. The DCO application will also include a draft of the EMP.
- 4.1.6 The PEI Report presents the preliminary findings of the EIA, which outline the potential impacts of the Scheme and the effects they might have in relation to the features identified within the relevant topic study areas. The study areas do differ by topic as certain effects, such as those on views, could be experienced much further away. The specific study areas applied to each topic are identified in the PEI Report. Further work continues to be undertaken as part of the EIA process to confirm the preliminary findings as summarised below.

## 5. Air Quality

### 5.1 What is the air quality like in Arundel?

- 5.1.1 Air quality is generally very good within the local area surrounding the Scheme, which is to be expected given its predominantly rural location. The background concentration levels for nitrogen dioxide and particulate matter with diameters under 10 micrometres (the equivalent of 0.01 mm) are below the national Air Quality Strategy (AQS) objectives that are written into law.
- 5.1.2 Air quality is generally poorer alongside roads. However, due to the low background concentrations in the study area, the majority of roadside locations considered within the assessment experience concentrations of nitrogen dioxide that are below the AQS objective.
- 5.1.3 There are two areas that already experience nitrogen dioxide concentrations above the AQS objective. As a result, there are two Air Quality Management Areas (AQMAs) that have been designated for nitrogen dioxide, namely the Worthing Grove Lodge/Lyons Farm AQMA and the Horsham AQMA No1 in Horsham. These AQMAs are the subject of ongoing management by Adur and Worthing Council and Horsham District Council respectively.

### 5.2 What will happen during construction?

- 5.2.1 There is a risk of temporary adverse impacts from dust emissions during the construction works at residential properties and designated habitats located close to the Scheme. The locations with the greatest number of residential properties within 200 m of the proposed construction works are:
- Properties around the Causeway Roundabout and Chichester Road
  - North-east Fontwell
  - Binsted Lane
  - Yapton Lane and Avisford Grange
  - Broad Green Cottages
  - Crossbush, and the intersection of Poling Street and the A27
- 5.2.2 However, it is unlikely that temporary significant adverse dust impacts will occur, given that control measures will be implemented throughout the construction phase in accordance with the EMP. This includes measures such as wheel washing, dampening down of stored soil and dust screening where required.
- 5.2.3 Adoption of such measures will minimise the risk of significant adverse dust effects on residential properties and designated sites during Scheme construction.
- 5.2.4 Lorry movements will be required to bring in construction materials and remove any waste material that cannot be reused on site. Dust impacts will

be minimised by creating a haul road along the length of the Scheme, which will also help minimise impacts on the local road network.

- 5.2.5 Further work will be undertaken during the EIA to characterise air quality impacts from material transportation if estimated HGV numbers during the construction phase are above the DMRB criteria for an extended period (i.e., more than 24 months). In addition, further air quality work will be reported in the ES, taking account of traffic re-routing patterns due to construction phase traffic management. Until further assessment can be undertaken for the construction phase traffic management and construction HGVs, there remains a risk that there could be changes in air quality that could worsen air quality requiring an evaluation of whether predicted effects are potentially significant.
- 5.2.6 Air quality impacts on the local road network due to Scheme effects will be reduced through the implementation of traffic management procedures to limit the extent and duration of any required traffic re-routing.

### 5.3 Will the Scheme cause pollution during operation?

- 5.3.1 Overall, it is unlikely that the Scheme will result in any significant air quality effects during operation. This is mainly due to the existing good local air quality within the surrounding environment and the expected continuing improvement in air quality as a result of cleaner vehicles becoming increasingly common in the UK.
- 5.3.2 The Scheme will result in reduced traffic flows through Arundel and Storrington, the latter forming the Horsham AQMA, due to traffic travelling on the Scheme and relieving pressure on other roads. Therefore, residential properties within these areas are likely to experience an improvement in local air quality.
- 5.3.3 Some detrimental air quality impacts are expected near to the Scheme and along the wider A27 corridor, including around the Crossbush Junction and in some areas of Walberton, and further afield in Worthing (east of the Scheme) and between Avisford and Chichester (west of the Scheme) as a result of the expected increase in traffic flows along the route of the Scheme. However, increases in air quality concentration as a result of the Scheme are predicted to remain below the AQS objectives set for the protection of public health, and so are unlikely to result in a significant adverse air quality effect.

## 6. Cultural Heritage

### 6.1 How historically important is Arundel?

- 6.1.1 The local area around Arundel has a rich and varied history from the palaeolithic to the modern era. This longstanding history of human settlement within Arundel and West Sussex has led to a rich cultural heritage within the area surrounding the Scheme that includes:

- a. 20 scheduled monuments within 5 km of the Scheme, including Tortington Augustinian Priory and Ponds, located approximately 150 m north of the Scheme. Arundel Castle, Maison Dieu, Goblestubbs Copse Earthworks and Madehurst Woods Earthworks are all located north of the existing A27 and the Scheme. The Ringwork 400 m north-north west of Batworthpark House is located approximately 950 m northeast of the eastern extent of the Scheme.
- b. 275 listed buildings within 1 km of the Scheme. The majority of these are located within Arundel (202 listed buildings). Of the remaining 73 listed buildings outside Arundel, the majority are listed at Grade II and are located within the surrounding villages, or as isolated buildings, such as farmhouses. There is one building listed at Grade I (Parish Church of St Mary, Walberton) and four buildings listed at Grade II\* (Walberton House, Priory Farmhouse, Tortington Priory Barn to the north of Priory Farm and the Church of St Mary's, Binsted). Within Arundel, there is a number of listed buildings, including six at Grade II\* and five at Grade I. Notable among these is the Grade I listed Arundel Castle, which is also a scheduled monument and set within a Grade II\* Registered Park and Garden (RPG). The remaining listed buildings within Arundel are Grade II.
- c. The Grade II\* Arundel Castle RPG is the only RPG within 1 km of the Scheme and lies just north of the existing A27 within the town of Arundel.
- d. There are five conservation areas located within the study area. This includes conservation areas at Slindon and Lyminster and two in Walberton (Walberton Green and Walberton Village). There is also a conservation area in Arundel, encompassing the area to the south of the River Arun.
- e. There are many non-designated heritage assets within the study area. A few of these heritage assets are non-designated historic buildings, but most are archaeological in character, including upstanding monuments and buried archaeological remains.

## 6.2 Will construction affect cultural heritage assets?

- 6.2.1 Construction of the Scheme would likely result in potential significant effects on a small number of known cultural heritage assets as well as on the historic landscape. A few non-designated archaeological assets may be removed entirely or partially by construction activities, such as excavation, topsoil storage, spoil deposition, compound locations or permanent landscaping.
- 6.2.2 There is a potential for significant effects on previously unrecorded paleoenvironmental and archaeological remains dating to prehistoric periods as well as to the Roman, medieval and post-medieval periods.
- 6.2.3 National Highways is currently implementing a programme of Archaeological Trial Trenching (ATT) to investigate and explore unrecorded

archaeology further. The results of the ATT will be used to develop a programme of archaeological mitigation, through excavation, that will be implemented prior to Scheme construction.

- 6.2.4 Scheme construction will introduce new infrastructure and permanent changes to the setting of heritage assets. Some of these setting changes have the potential to cause significant adverse effects due to the proximity of the Scheme in conjunction with the sensitivity of the setting. This includes setting effects on Arundel Castle, the Church of St Mary's, Binsted, and Morley's Croft. The Scheme has been designed to minimise these setting impacts as much as practicable and is subject to further review and potential refinement.

### 6.3 Will the Scheme detract from the setting of historic features?

- 6.3.1 The Scheme will benefit several heritage assets as a result of downgrading the existing A27 between Yapton Lane and Lyminster Road and the associated relocation of traffic. This includes beneficial effects on the setting of Arundel Castle, Goblestubbs Copse, four Grade I listed buildings, four Grade II\* listed buildings and 182 Grade II listed buildings, resulting from reduced noise. These effects may be significant and will be assessed further in the ES.
- 6.3.2 The operation of the Scheme is likely to result in some adverse effects on prominent heritage assets within Arundel, specifically Arundel Castle and the Arundel Conservation Area. The proximity of the Scheme to assets along Binsted Lane is likely to result in adverse operational effects due to noise impacts. The inclusion of low noise surfacing and a reduced speed limit reduces these potential adverse effects on the Grade II\* listed Church of St Mary's, Binsted; however, there is the potential for significant effects to remain.

## 7. Landscape and Visual

### 7.1 What is special about the local landscape?

#### Landscape

- 7.1.1 The landscape surrounding Arundel is predominantly rural and relatively flat in nature. The SDNP is recognised for its selection of special qualities and exceptional natural beauty. The South Downs International Dark Sky Reserve was designated by the International Dark Sky Association. There are also many heritage assets across the study area, including Arundel Castle and its grounds to the north of Arundel, which were built at the end of the 11<sup>th</sup> century. Arundel Castle sits above the level of the Scheme and would have extensive views across to the Scheme.
- 7.1.2 A section of the Arun Valley Railway Line runs between Barnham and Ford to the south of the Scheme. Beyond the railway line to the south, the landscape is mostly flat and, as a result, existing landscape features,

including hedgerows and mature woodland, are such that the route of the Scheme is screened or barely perceptible.

### **Visual**

- 7.1.3 Those with the potential for views of either the construction or operation of the Scheme include:
- a. Residents
  - b. People travelling on roads and public transport
  - c. Recreational users
  - d. Visitors
  - e. Employees
  - f. Institutional users (for example, people in schools) and astronomers
- 7.1.4 A total of 56 viewpoints has been identified to represent the views that could be experienced by those listed above.

### **Trees**

- 7.1.5 Surveys are ongoing to identify the types of tree that will be impacted by the Scheme. Over 2,000 tree features (individual trees, hedges, groups of trees and woodland) have been surveyed to date. Of the trees surveyed, some have been identified as likely to be considered ancient or veteran.

## **7.2 How would the landscape be affected during construction of the Scheme?**

### **Landscape**

- 7.2.1 The Scheme construction phase is likely to have an impact on the prevailing landscape character as well as views from surrounding residential properties, PRow and tourist features. There will be a variety of construction related activities, including the clearing of trees, noise from machinery, artificial lighting, digging of soils, setting up and operation of construction compounds and demolition of structures.
- 7.2.2 The Scheme construction compounds will be designed to minimise their temporary impact on the landscape and views, including at night. Control measures will be put in place during the construction phase in accordance with the EMP, which would be secured through the DCO, including keeping construction sites and compounds tidy, keeping night-time works to a minimum, siting compounds and other construction areas sympathetically within the landscape and methods for visually screening construction works.
- 7.2.3 After taking account of the mitigation measures included within the Scheme, there are still likely to be temporary significant adverse effects to the following Local Landscape Character Areas (LLCAs) as a result of construction activity:

- a. LLCA 2: Walberton Settled Woodland
- b. LLCA 3: Hooe Farm
- c. LLCA 4: Avisford Park
- d. LLCA 5: Walberton
- e. LLCA 6: Binsted Farmland
- f. LLCA 7: Binsted Rife
- g. LLCA 8: Binsted
- h. LLCA 9: Tortington Rife
- i. LLCA 10: Tortington Valley Sides
- j. LLCA 11: Lower Arun Valley Floodplain
- k. LLCA 12: Lyminster Arun Valley Sides.

### **Visual**

7.2.4 Residents, tourists and those using PRoW also have the potential to experience temporary adverse significant effects from views of construction activity. Receptors likely to be experience such effects include:

- a. Visitors to the SDNP and Arundel.
- b. Residents of Arundel with views across the River Arun floodplain.
- c. Residents of Tortington, Binsted, and Walberton where there will be close views of construction activity.
- d. Residents at Ford with views north across the River Arun floodplain.
- e. Recreational users of PRoW crossed by or close to the Scheme, including adjacent to the Church of St Mary's, Binsted, and Tortington Manor.
- f. Road and rail users.

### **Trees and woodland**

7.2.5 It is currently estimated that the Scheme is likely to require the removal of trees as follows:

- a. 226 individual trees, of which 41 are of high quality, 107 are of moderate quality and 78 are of low quality.
- b. 102 full tree groups or hedges, of which one is of high quality, 25 are of moderate quality and 77 are of low quality.
- c. Parts of 55 tree groups, hedges or woodlands, of which four are of high quality, 20 are of moderate quality and 31 are of low quality.
- d. 26 individual trees and three tree groups are considered unsuitable for retention for more than 10 years and, therefore, will also be removed.

7.2.6 Whilst no ancient woodland is being lost to the Scheme, eight individual potentially veteran trees and two potentially ancient trees are likely to

require removal. A further five potentially veteran trees are currently undergoing further assessment to determine whether they will be lost. Four potentially veteran trees may be impacted by the Scheme but are not considered likely to require removal at this stage.

- 7.2.7 The final number of trees to be removed or impacted is subject to further review but will be confirmed in the ES.
- 7.2.8 The mitigation strategy for addressing the loss of trees and woodland will be developed once impacts have been confirmed. The strategy, which will include development of an appropriate landscape design, will be progressed in conjunction with key stakeholders, including the South Downs National Park Authority, Arun District Council, Natural England and the Forestry Commission.

### 7.3 Will the Scheme be visible?

- 7.3.1 When the Scheme is operational, it will be visible to some residents and those enjoying tourist features and PRoW. However, where possible, the Scheme is being designed to avoid or mitigate adverse impacts and maximise opportunities for landscape integration and enhancement.

#### **Landscape**

- 7.3.2 Following landscape mitigation, operation of the Scheme is likely to result in potentially adverse significant effects on the following LLCAs due to the introduction of new highway infrastructure within the open landscape:
- LLCA 3: Hooe Farm
  - LLCA 4: Avisford Park
  - LLCA 7: Binsted Rife
  - LLCA 8: Binsted
  - LLCA 9: Tortington Rife
  - LLCA 10: Tortington Valley Sides
  - LLCA 11: Lower Arun Valley Floodplain.
- 7.3.3 Significant adverse landscape effects on the SDNP are not expected as a result of the Scheme's operation. There is potential for the Scheme to bring beneficial effects to the tranquillity of the SDNP and Arundel through the reduction in traffic following along the existing A27 and improvements for walkers, cyclists and horse riders.

#### **Visual**

- 7.3.4 The potential visual impacts of the Scheme will be mitigated by lowering the level of the road within the landscape or building up embankments known as 'false cuttings' where it is not possible to lower the alignment, and by introducing earth bunds and barriers, and extensive screen planting. Such mitigation will reduce the magnitude of the permanent adverse visual effects during Scheme operation. However, potentially significant adverse



visual effects are still expected to occur for some residents, tourists and users of PRow:

- a. Visitors to the SDNP and Arundel Castle
- b. Residents of Arundel with views across the River Arun floodplain
- c. Residents of Tortington, Binsted and Walberton where there will be close views of the Scheme
- d. Residents at Ford and Arundel with views north across the River Arun floodplain
- e. Users of PRow crossed by the Scheme and in the vicinity of the Scheme
- f. Road users and rail passengers

7.3.5 The Scheme has the potential to have some significant beneficial visual effects within the SDNP and at Arundel by removing signage and introducing planting, and as a result of the reduction in visible traffic on the existing A27.

## 8. Biodiversity

### 8.1 How diverse and important is the flora and fauna around Arundel?

8.1.1 The area surrounding the Scheme has a rich biodiversity. Detailed surveys of many types of species and habitats have been carried out in order to understand how they might be affected by the Scheme.

8.1.2 Whilst there are areas of intensively managed arable fields or grasslands, which are therefore of limited ecological importance, there are several important habitats within the area surrounding the Scheme. The following Habitats of Principal Importance (habitats listed under Section 41 of the Natural Environment and Rural Communities Act 2006, and any habitats listed under the Arun District Local Plan or South Downs National Park Local Plan) have been identified within the study area:

- a. Lowland mixed deciduous woodland
- b. Wet woodland
- c. Wood pasture and parkland
- d. Hedgerows
- e. Lowland meadows
- f. Arable field margins
- g. Lowland fens
- h. Ponds
- i. Reedbeds

- j. Coastal and floodplain grazing marsh
  - k. Intertidal mudflats
  - l. Rivers.
- 8.1.3 These habitats, as well as the agricultural fields to some degree, support a range of ecological species that could potentially be impacted by the Scheme. These include plants, fungi, potential veteran and ancient trees, lichens, badgers, bats, breeding birds, wintering birds, barn owl, hazel dormouse, fish, great crested newt, common toad, terrestrial and aquatic invertebrates, otter, reptiles, water vole, brown hare, harvest mouse, hedgehog and polecat.
- 8.1.4 Additionally, there is a range of designated sites within the wider biodiversity study area that are protected at a National Site Network (Special Protection Areas (SPA) and Special Areas of Conservation (SAC)), national (Sites of Special Scientific Interest (SSSI)) or local (Local Nature Reserves (LNR)) level. These are: Solent and Dorset Coast SPA, Arun Valley SAC, Arun Valley SPA, Arun Valley Ramsar, Singleton & Cocking Tunnels SAC, The Mens SAC, Ebernoe Common SAC, Arundel Park SSSI, Fairmile Bottom SSSI (and LNR), Adur Estuary, Widewater Lagoon LNR and Lancing Ring LNR.

## 8.2 Will construction affect habitats and species?

- 8.2.1 It is currently anticipated that, after taking account of the measures included within the EMP, the following biodiversity features could be potentially significantly affected by Scheme construction:
- a. Potential veteran and ancient trees – there will be a loss and potential disturbance to veteran and ancient trees during construction, either to build the Scheme infrastructure or as a result of construction activity near to these features. The design of the Scheme has evolved and will continue to be developed to minimise impacts, and measures will be taken to avoid or compensate this loss as far as is practicable.
  - b. Bats – Scheme construction will require some habitat removal, but measures will be put in place to minimise the loss of habitat used by bats and protect retained habitat. Severance of bat routes will occur, but the implementation of green bridges and bat underpasses will mitigate these effects. Where bat roosts will be lost to the Scheme, mitigation measures will be provided in line with a Natural England European Protected Species Mitigation Licence. Haulage routes, material storage areas, compounds, generators, lighting and other construction activities will be sited carefully to minimise noise and lighting effects on bats. Lighting will also be designed to reduce light spill on important bat habitat.
  - c. Hazel dormouse – Scheme construction will require the removal of some habitats used by hazel dormice. Habitats that are used by hazel dormouse and are to be retained will be protected. Any impacts to

individual hazel dormice or their habitat will be addressed via best practice measures in line with Natural England European Protected Species Mitigation Licence requirements. This will include the appropriate timing and supervision of the construction works (to avoid direct harm to hazel dormice), the maintenance of connectivity (for example, using dormouse bridges) and the provision of improved and replacement habitat.

- d. Fish – measures to mitigate potential impacts on fish are likely to be required due to construction activity in, or in the vicinity of, watercourses. This will include preventing surface water pollution, avoiding works in the watercourse channel (except for Binsted Rife), introducing measures to minimise noise and vibration during construction, and allowing continued fish passage during the works.
- e. Water voles – measures will be required to address potential impacts on water voles during Scheme construction, including measures to address how their habitat is affected, and noise impacts. Examples of mitigation could include that water voles will be displaced from the working area and/or moved to pre-prepared sites. The mitigation strategy for water voles will be detailed and undertaken in accordance with the appropriate Natural England Protected Species Licence requirements.

8.2.2 Depending on the outcomes of ongoing surveys and more detailed assessment, there may also be temporary adverse effects to fungi, lichens, barn owls and terrestrial invertebrates.

### 8.3 How would the Scheme impact habitats and species?

8.3.1 Once the Scheme has been constructed and is in operation, there is potential for significant effects to occur on the following biodiversity features:

- a. Bats – the Scheme crosses several bat flight paths and so could result in the permanent severance of foraging habitat or even increased vehicle strikes. Two green bridges at Binsted Lane and Tortington Lane and two underpasses at Binsted Rife and Tortington Rife will be provided on key routes used by bats. These features, as well as the viaduct across the River Arundel floodplain, will assist in maintaining habitat connectivity for bats. Lighting is only being incorporated into the Scheme design where it is essential for safety reasons to reduce light spill onto bat habitat.
- b. Barn owls – there remains the potential for a significant adverse effect on barn owls from vehicle strikes. Further assessment work is being undertaken and will be reported in the ES following the completion of barn owl surveys and the analysis of collected data. Measures to mitigate potential impacts on barn owls include the use of fences, mounds and additional planting to deter them from the road corridor, as well as the provision of replacement barn owl nest boxes in areas of

suitable habitat away from the Scheme (located more than 1.5 km from the Scheme, existing roads and railways). At present, a permanent significant adverse effect is predicted due to the potential local reduction of breeding barn owl numbers.

- c. Fungi and Lichens – whilst surveys are still ongoing, fungi and lichens within ancient woodlands adjacent to the existing A27, may significantly benefit from improvements in local air quality due to reduced traffic.

## 9. Geology and Soils

### 9.1 What's in the ground?

- 9.1.1 Within the study area, more recent superficial deposits of clay, sand, silt and gravel sit on top of older bedrock that consists of London clay and various chalk formations. There are no nationally or locally significant geological sites in the study area, although there is a standard geological site without any conservation status located east of Binsted Lane, consisting of a historical tile kiln.
- 9.1.2 The land use within the study area is principally agricultural, dominated by grazing and arable farming. Most of the agricultural land located within the study area is of Agricultural Land Classification (ALC) Grade 3. ALC Grades 1, 2 and 3a are identified as Best and Most Versatile (BMV) agricultural land by national planning policy. At this stage, it is not possible to confirm whether the land impacted by the Scheme is Subgrade 3a (good quality land) or Subgrade 3b (moderate quality land). Therefore, soil surveys will be undertaken in 2022 to identify soil quality in greater detail, and these surveys will be reported in due course in the ES.
- 9.1.3 There are three historical landfill sites within the study area as well as areas of extensive farming operations, and former and current industrial and commercial land uses. Such land uses could have historically resulted in land contamination, which will be investigated further as part of the ES.

### 9.2 How will construction affect our local geology and farmland?

- 9.2.1 The emerging Scheme design aims to avoid historic landfill sites as far as practicable, whilst also minimising effects on agricultural soils. There are unlikely to be any significant adverse effects in relation to contaminated land as any impacts will be mitigated through the EMP, with potential beneficial effects if remediation or removal of existing land contamination is required as part of the Scheme construction works.
- 9.2.2 There is the potential for a standard geological site (reference SU90/86) to experience significant adverse effects should a full 18-hole golf course be provided. As part of the preparation of the ES, engagement will continue with the Sussex Geodiversity Partnership and the local authority to agree the approach to addressing any potential impacts to this site.
- 9.2.3 Given that it is likely that best and most versatile agricultural land will be significantly affected by the Scheme, a Soils Management Plan will be

included as part of the EMP that will accompany and be secured through the DCO application.

### 9.3 Will the Scheme have any effects once it is in use?

9.3.1 No significant effects on geology and soils are anticipated during Scheme operation. The embedded mitigation included in the Scheme design will contain and control any releases of contaminants from the new highway.

## 10. Material Assets and Waste

### 10.1 What resources might be affected?

10.1.1 The western part of the Scheme will be located in a Minerals Safeguarding Area that has been designated for sharp sand and gravel extraction. This area extends eastwards past Binsted towards Tortington Rife. However, there are no licensed sites for the extraction of sharp sand and gravel resources that are directly affected by the Scheme.

10.1.2 There are several Mineral Consultation Areas in West Sussex for active and permitted aggregate recycling sites. However, no Mineral Consultation Areas for aggregate recycling sites are directly affected by the Scheme.

10.1.3 For the south-east England region, total landfill capacity at the end of 2020 was approximately 63 million m<sup>3</sup>, with just over 0.55 million m<sup>3</sup> of that capacity located within West Sussex.

### 10.2 How will construction minimise impacts on assets and production of waste?

10.2.1 There is the potential for construction of the Scheme to impact material assets in various ways, including:

- a. Impacts on sites designated for the availability of primary material resources, with the potential for inhibiting any future extraction in these areas.
- b. Impacts on the availability to use reused, recycled and secondary aggregate materials to build the Scheme.
- c. Impacts from on-site generated materials (such as excavated materials and soils) and waste arisings on the available landfill capacity.
- d. Impacts on the operation and capacity of existing and proposed future waste management infrastructure, particularly landfill sites.

10.2.2 There are unlikely to be any potentially significant effects associated with these impacts for the following reasons:

- a. There are no active or allocated mineral sites, Minerals Infrastructure Consultation Areas or peat resources located within the draft Order Limits.

- b. The Scheme will set a target (within the EMP) to achieve at least 70% (by weight) recycling or recovery of non-hazardous construction and demolition waste, with the aim of achieving at least 90% (by weight), and 26% of the aggregates imported to site are to be comprised of reused, recycled or secondary content.
- c. The worst-case quantity of material sent to landfill equates to approximately 0.81% of total regional landfill capacity, which would only result in a slight effect.

### 10.3 Will the Scheme produce any waste during operation?

- 10.3.1 There will be a requirement to undertake ongoing maintenance during operation of the Scheme. Such maintenance activities would require additional materials. Replacement of Scheme components, such as tarmac, will also mean that there would be some waste materials produced. However, waste and materials used from routine maintenance activities are expected to be generally the same (in both type and quantity) as those generated by the existing road and, therefore, these impacts are not being considered as part of the EIA.

## 11. Noise and Vibration

### 11.1 How noisy is it currently around Arundel?

- 11.1.1 The existing traffic noise levels in the area surrounding the Scheme have been calculated using noise modelling software, supplemented with measurements obtained through baseline sound surveys. The modelling and monitoring data suggest a range of sound levels is experienced across the local area.
- 11.1.2 Sound levels in Binsted and Tortington are below the level of noise where adverse effects on health and quality of life can be detected, reflecting the quiet existing environment of the area. Sound levels at properties on The Street and at Yapton Lane in Walberton, as well as many parts of Arundel, are between the level of noise where adverse effects on health and quality of life can be detected and the level at which significant effects start to occur.
- 11.1.3 Sound levels close to the main roads in the area, such as the existing A27, Ford Road and the A284 Lyminster Road, are around the level at which significant effects on health and quality of life start to occur.

### 11.2 Will construction be noisy, or will I feel vibrations?

- 11.2.1 Some Scheme construction activities will likely result in significant temporary adverse noise and vibration effects at sensitive properties close to the works. The properties most at risk of significant adverse effects include residential properties between Tye Lane and Yapton Lane, as well as properties close to the overbridges at Tye Lane, Yapton Lane, Binsted Lane and Tortington Lane.

- 11.2.2 The construction works which are most likely to result in significant adverse noise and vibration effects are earthworks, piling and viaduct construction. It is likely that most of the construction works will be undertaken during the day, although there may be a need for some night-time works for certain activities.
- 11.2.3 Standard measures to control noise and vibration impacts will be included in the EMP, which will be secured through the DCO, to mitigate such effects as far as is reasonably practicable.

### 11.3 Will it be noisier with the Scheme in place?

- 11.3.1 When the Scheme is operational, traffic noise levels in parts of Binsted and Tortington will typically be between levels at which effects on health and quality of life are noticed and levels which can have significant effects on health and quality of life. These effects reduce below the level at which adverse effects are noticed at a distance of approximately 200 m from the Scheme. Only a small number of the very closest properties to the Scheme are expected to experience noise levels at or above the level at which significant effects on health or quality of life can occur. Similarly, traffic noise levels within approximately 100 m of the Scheme north of Walberton are expected to be above the level when effects on health or quality of life can be detected, but below the level at which significant effects can occur.
- 11.3.2 The largest potential increases in traffic noise due to the Scheme are expected to be at properties in an around Walberton, particularly those close to Yapton Lane, Binsted and Tortington. Increases in noise levels are also expected in the vicinity of Dalloway Road and Fitzalan Road in south Arundel and Lyminster Road, south and east of Crossbush Junction. It is likely that a significant adverse noise effect will be experienced in these locations.
- 11.3.3 There are also likely to be increases in traffic noise, which are not considered significant, in parts of Fontwell, Slindon, Arundel, Lyminster and Crossbush as a result of the traffic redistribution.
- 11.3.4 The significant noise effects as detailed above do not take account of potential additional mitigation features that may be included in the Scheme design and, therefore, the stated effects may be considered to be worst-case. Further work is being undertaken to determine where and what type of mitigation is required. Such additional mitigation features will be confirmed in the ES and could include bunds, noise barriers and very low noise surfacing.
- 11.3.5 The Scheme will also result in some locations becoming quieter. Large reductions in road traffic noise (leading to potentially significant beneficial effects) are anticipated for properties in Havenwood Park and parts of Arundel, including Canada Road and the north end of Jarvis Road. Minor road traffic noise reductions are anticipated along Ford Lane to the south of the Scheme as a result of a reduction in traffic volume on this road.

## 12. Population and Human Health

### 12.1 What are the key population and human health factors in the local area?

- 12.1.1 The main urban areas within the study area comprise the villages of Walberton, Binsted and Tortington. The Scheme bypasses the town of Arundel, although there are residential properties in the south of Arundel and around Arundel Station, located to the east of the town.
- 12.1.2 The Scheme runs through mostly agricultural land, although there are a few businesses and recreational land (including Avisford Park Golf Club and Arundel Cricket Club) located within the study area.
- 12.1.3 Community facilities and assets are distributed across the study area. These include a primary school, recreational facilities, health centres, religious facilities, community land and PRow.
- 12.1.4 Seven development planning applications have been identified within the study area. In total, there are six residential development land applications and one commercial development land application.
- 12.1.5 The Scheme passes through agricultural land, intersecting multiple different land parcels and land holdings. The identified farms that are crossed by the Scheme include:
  - a. Broomhurst Farm
  - b. Manor Farm
  - c. Church Farm
  - d. Littleton Farm
  - e. Hooe Farm
  - f. Parcels off Binsted Lane
- 12.1.6 The population of Arundel and Walberton has experienced a slight population decline over the last decade. Between 2011 and 2020, the number of residents in the ward has decreased by 0.6%.
- 12.1.7 The populations of the Arundel and Walberton ward and Arun are considerably more elderly than the regional (south east of England) and national (England) averages.
- 12.1.8 Health and the self-perception of health is generally better in Arundel and Walberton in comparison to Arun, south east England, and the rest of England.

### 12.2 Will construction be disruptive?

- 12.2.1 Construction of the Scheme would require permanent land take from five residential properties on Binsted Lane, which is likely to result in the permanent loss of these properties. Whilst this loss of residential property is acknowledged as having an impact on the occupants and owners, it is not



anticipated to result in significant adverse effects on the community as a whole. The loss of individual properties will be addressed through established procedures relating to compensation.

- 12.2.2 Scheme construction would result in likely significant temporary and permanent adverse effects on some community assets due to the temporary closure of Avisford Park Golf Club (where it is unable to operate for the duration of the Scheme's construction phase) and permanent land take from the golf club.
- 12.2.3 Construction of the Scheme would require permanent partial land take from common land at Broad Green Waste. This is not anticipated to result in significant adverse effects as an equivalent area of replacement common land is to be provided adjacent to the land taken.
- 12.2.4 It is likely that there will be significant temporary and permanent adverse effects on some businesses, including the temporary closure and permanent land take of Avisford Park Golf Club. Land would also be taken permanently from the Billycan Camping.
- 12.2.5 No areas with current planning applications, planning permissions or allocations included within any development plan documents would be significantly affected by the Scheme.
- 12.2.6 Construction may result in temporary and permanent significant adverse effects on agricultural land holdings. This will depend on the amount of land take from holdings and the viability of any agricultural land returned to agricultural use after Scheme construction.
- 12.2.7 Construction of the Scheme will result in likely significant temporary adverse effects with respect to walkers, cyclists and horse riders. This is due to the temporary diversion of certain PRow for extended periods during the construction phase.

### 12.3 Will we be affected by the Scheme?

- 12.3.1 During Scheme operation, it is unlikely that there will be any significant adverse effects at a local community level or on specific community facilities. Whilst it is recognised that there will be operational impacts on the Church of St Mary's, Binsted, these relate to other environmental disciplines, including noise, cultural heritage and landscape and visual.
- 12.3.2 It is likely that there will be a significant benefit for walkers, cyclists and horse riders as the Scheme will increase safe and accessible routes by providing new infrastructure, such as the new Bridleway Overbridge (BR392).
- 12.3.3 In order to understand the health impacts associated with the Scheme, a full assessment of the effects of the Scheme's operation on human health will be undertaken and reported in the ES. However, it is known that the Scheme would result in changes to the levels of traffic congestion on the road network through the redistribution of traffic. This could potentially have effects on noise, landscape amenity, air quality and may potentially affect

local communities differently, and either positively or negatively, depending on the location of the receptors.

## 13. Road Drainage and Water Environment

### 13.1 What water features could be affected by the Scheme?

- 13.1.1 The main water body flowing through the area surrounding the Scheme is the River Arun, which is a navigable river running from north to south towards Littlehampton. Under the requirements of the Water Framework Directive (WFD), the River Arun has been classified by the Environment Agency as being heavily modified, but it does provide ecological value.
- 13.1.2 There are two rifes, a Sussex term for a stream flowing into tidal waters, in the area surrounding the Scheme, namely Binsted Rife and Tortington Rife. Surveys are being undertaken to establish the water quality and aquatic ecology value of these rifes.
- 13.1.3 There are several standing water features, such as ponds and reservoirs, within the study area. These are likely to be connected to the watercourses and groundwater close to the Scheme. Some groundwater and surface water abstraction licences are associated with these features, supporting mainly agriculture uses in the area.

### 13.2 Will water features be polluted during construction?

- 13.2.1 Scheme construction could affect water features in a number of ways. This could include excavation resulting in soil being washed into watercourses, the spillage of fuels and other contaminating liquids causing pollution, and the disturbance of any existing contaminated land.
- 13.2.2 The construction works will be undertaken in accordance with the EMP, which will be secured through the DCO, and will include a range of standard control measures to reduce the risks from pollution and any resulting significant effects. The EMP will also include requirements for monitoring water quality, which would identify any incidents so that they can be addressed quickly

### 13.3 Will watercourses be used as drainage for the Scheme and will the Scheme lead to more flooding?

- 13.3.1 During Scheme operation, water from the new highway will be collected and treated prior to discharge to surrounding watercourses and groundwater. The drainage system will include drainage ponds which will collect and filter water from the road before it flows into water features. This system will also control the speed at which water drains into these water features to mitigate any flood risks.
- 13.3.2 As the Scheme will be built partly within the floodplain of the River Arun and the rifes, there is the potential for flooding patterns to be altered. This potential impact has been reduced by choosing a viaduct solution to cross the River Arun floodplain and by installing underbridge structures for the

rifes. In addition, land has been identified for replacement flood storage to compensate for the loss of floodplain due to new structures, such as the viaduct piers and the embankment approaches to the bridges. These measures mean that there would be no significant increase in flood risk, as demonstrated through flood risk modelling and, therefore, the Scheme would be unlikely to result in any significant effects.

## 14. Climate

### 14.1 What is the current climate?

- 14.1.1 Data from the closest meteorological station to the Scheme (Shoreham, approximately 20 km to the east) has been reviewed for the period 1981-2010 to identify relevant climate data.

#### Historical climate data, 1981 to 2010

Climatic variable	Month	Value
Average annual maximum daily temperature (°C)	-	14
Warmest month on average (°C)	August	20.8
Coldest month on average (°C)	February	1.9
Mean annual rainfall levels (mm)	-	722.7
Wettest month on average (mm)	October	87.8
Driest month on average (mm)	May	44.3

- 14.1.2 In addition, historic averages of Met Office data for the 'England South East and Central South' region identifies gradual warming between 1969 and 2018, as well as increasing rainfall.

#### Historical temperature and rainfall averages

Climate period	Mean maximum annual temperatures (°C)	Mean annual rainfall (mm)
1969-1978	13.7	731.9
1979-1988	13.5	777.3
1989-1998	14.4	746.0
1999-2008	14.8	830.1
2009-2018	14.8	799.3

## 14.2 Will the Scheme contribute to climate change?

- 14.2.1 Construction activity will involve the removal of vegetation that currently acts as carbon sinks and the use of plant and machinery that requires energy to operate. Energy will also be required for the transportation of construction and waste materials, and the movement of construction workers. Considerable quantities of materials, such as steel, concrete and bitumen, will also be needed, all of which have their own carbon footprint in the form of the embodied carbon required in their production.
- 14.2.2 The design and construction of the Scheme are being undertaken in a manner that aims to reduce carbon emissions, as well as provide resilience to the potential effects of climate change. The Scheme design includes the use of a sustainable highway drainage system, energy efficient road lighting and signage and construction sites that would be linked to the National Grid. Electric and alternative fuel plant will be used as well as low carbon concrete where practicable.
- 14.2.3 As the Scheme comprises a bypass, the majority of traffic-based carbon emissions will come from traffic relocated from the existing A27 onto the Scheme. However, due to the benefits of the Scheme in terms of faster journey times, there is potential for an overall increase in carbon emissions, although this is likely to fall as diesel and petrol vehicles are phased out and vehicles become mainly electric.
- 14.2.4 It is anticipated that the GHG emissions for this Scheme will fall within the range of other National Highways' schemes. Therefore, it is expected that the full GHG impact assessment undertaken as part of the ES will show that the Scheme would be unlikely to affect the UK's ability to meet its overarching binding GHG reduction targets.
- 14.2.5 Based on the current design information available and professional judgement, the expected Scheme design, mitigation and enhancement measures set out above and the preliminary assessment undertaken to date, it is anticipated that there will be no likely significant effects around the resilience of the Scheme to climate change.

## 15. Cumulative and in-combination effects

- 15.1.1 The methodology for the cumulative and in-combination effects assessment is set out in detail in the PEI Report. Given that full assessment of individual topics has not been completed at this stage, a full cumulative effects and in-combination effects assessment will be undertaken as part of the EIA and reported in the ES, once the level of significance for each effect is confirmed.

## 16. Preliminary Assessment of Potential Likely Significant Effects

### Potential likely significant effects during construction and operation of the Scheme (after embedded mitigation)

Topic	Construction stage	Operational stage
Air quality	Temporary <b>adverse</b> effects could arise from construction phase traffic management and construction HGV movements	No potential significant effects are anticipated
Cultural heritage	<p>Permanent <b>adverse</b> effects on the setting of heritage assets including listed buildings and scheduled monuments along the Scheme corridor</p> <p>Permanent <b>adverse</b> effects on non-designated archaeological assets due to the loss or truncation of archaeological remains</p> <p>Permanent <b>adverse</b> effects on historic landscape</p> <p>Permanent <b>adverse</b> effects on previously unrecorded paleoenvironmental and archaeological remains</p>	<p>Permanent <b>beneficial</b> effects to the setting of heritage assets within Arundel as a result of the de-trunking of the existing A27</p> <p>Permanent <b>adverse</b> effects to Church of St Mary's, Binsted (Grade II* listed building) due to the proximity to the Scheme</p>
Landscape and visual	Temporary <b>adverse</b> landscape effects on the rural landscape are likely in a number of areas directly within the construction footprint and surrounding landscape	Permanent <b>adverse</b> landscape effects as a result of the introduction of new highway infrastructure within the open landscape of the River Arun floodplain and a number of areas adjacent to where the Scheme crosses through the landscape in more intimate rural landscapes of Avisford Park, Tortington and Binsted

Topic	Construction stage	Operational stage
	<p>Temporary <b>adverse</b> visual effects for visitors to the SDNP and Arundel as a result of views from elevated positions, such as Arundel Castle, around Arundel relating to construction activity within the River Arun floodplain</p> <p>Temporary <b>adverse</b> visual effects from views of construction activity for residents in Arundel, Tortington, Binsted, Walberton, Ford and for recreational users of PRow crossed by or in close proximity to the Scheme, including adjacent to the Church of St Mary's, Binsted and Tortington Manor</p> <p>Temporary <b>adverse</b> visual effects for road and rail users relating to construction activity</p>	<p>Permanent <b>adverse</b> visual effects relating to the introduction of Scheme infrastructure into views for visitors to the SDNP and Arundel Castle with views of the viaduct across the River Arun floodplain</p> <p>Permanent <b>adverse</b> visual effects relating to the introduction of Scheme infrastructure into views for residents of Arundel, Tortington, Binsted, Walberton, at Ford and for users of the PRow network crossed by the Scheme and in the vicinity of the Scheme</p> <p>Permanent <b>adverse</b> visual effects relating to the introduction of Scheme infrastructure into views for road users and rail passengers</p> <p>Permanent <b>beneficial</b> effects within the SDNP and at Arundel through the removal of signage, introduction of planting, and a reduction in visible traffic on the existing A27</p>
Biodiversity	<p>Permanent <b>adverse</b> effects to potential veteran or ancient trees</p> <p>Temporary <b>adverse</b> effects to bats, hazel dormice, fish and water voles</p> <p>Temporary <b>adverse</b> effects to fungi, lichens, barn owls and invertebrates (terrestrial)</p>	<p>Permanent <b>adverse</b> effects to barn owls</p> <p>Temporary <b>adverse</b> effects to bats</p> <p>Permanent <b>beneficial</b> effects to fungi, lichens and invertebrates (terrestrial)</p>
Geology and soils	<p>Temporary and permanent <b>adverse</b> effect due to the loss of agricultural soils</p>	<p>No potential significant effects are anticipated</p>

Topic	Construction stage	Operational stage
	<p>Permanent <b>adverse</b> effects due to the potential for damage or loss of a standard geological site</p> <p>Permanent <b>beneficial</b> effects should any existing land contamination require remediation or removal</p>	
Material assets and waste	No potential significant effects are anticipated	Scoped out of the assessment
Noise and vibration	Temporary <b>adverse</b> noise and vibration effects for nearby sensitive receptors, such as residential properties in Walberton, Binsted and Tortington	<p>Permanent <b>adverse</b> noise effects at residential properties in Walberton, Binsted and Tortington</p> <p>Permanent <b>adverse</b> noise effects south of Walberton and in parts of south west Arundel and south and east of Crossbush</p> <p>Permanent <b>beneficial</b> noise effects for residents of Havenwood Park and parts of Arundel close to the existing A27 (such as properties on Canada Road and the north end of Jarvis Road)</p>
Population and human health	<p>Temporary and permanent <b>adverse</b> effects on Avisford Park Golf Club as a community facility</p> <p>Temporary and permanent <b>adverse</b> effects on the business at Avisford Park Golf Club</p> <p>Permanent <b>adverse</b> effects on the business at Billycan Camping</p>	Permanent <b>beneficial</b> effects for walkers, cyclists and horse riders



Topic	Construction stage	Operational stage
	Temporary and permanent <b>adverse</b> effects on agricultural land holdings Temporary <b>adverse</b> effects for walkers, cyclists and horse riders	
Road drainage and the water environment	No potential significant effects are anticipated	No potential significant effects are anticipated
Climate	No potential significant effects are anticipated	No potential significant effects are anticipated
Habitats Regulations Assessment (HRA)	HRA Screening identified a potential adverse effect in relation to the bat populations of Singleton & Cocking Tunnels SAC	

## 17. Assessment of design development options

17.1.1 As stated in section 2 of this NTS, there are two design development options that are being considered as part of the ongoing Scheme design and that National Highways is consulting on during the statutory consultation process. Included below is a summary for each design development option being considered and an assessment of the effects in comparison of each option.

### Options for Avisford Park Golf Club reprovision

Topic	Assessment
Air quality	The options would not affect the alignment of the Scheme or the receptors included in the assessment. There is unlikely to be any difference between the options.
Cultural heritage	<p>The replacement 18-hole golf course option is likely to affect more cultural heritage features due to the requirement for additional land. Cultural heritage features that may be affected include non-designated kilns and non-designated Iron Age earthworks. Church Farmhouse, Binsted Lane may be subject to significant effects from the 18-hole golf course through changes to its setting. This would be subject to the design of any golf course reprovision in this area.</p> <p>Both the 18-hole and nine-hole golf course options would affect the Grade II listed Avisford Park Hotel, although this would depend on the design of the golfing facilities. The nine-hole golf course is likely to result in fewer impacts and potentially significant effects.</p>
Landscape and visual	The reconfiguration of the existing golf course to a nine-hole golf course and supporting facilities is unlikely to result in any localised change in landscape character or visual amenity compared to the current arrangements. The 18-hole golf course would require additional agricultural land, which is likely to have a localised impact on landscape character. The nine-hole golf course is likely to result in fewer impacts and potentially significant effects.

Topic	Assessment
Biodiversity	<p>The provision of a nine-hole golf course is considered to be the better option on account of the reduced land take. However, with careful design the 18-hole golf course would offer opportunities to provide habitat for dormouse and planting to increase habitat connections between Pedlar’s Croft and Little Danes Wood. The nine-hole golf course is likely to be the better option.</p> <p>The land required for the 18-hole golf course is used for agriculture which is common within the study area. Hedgerows are present which could support dormouse and be used by bats for commuting. Ancient woodland is present along the north east boundary of the site. The replacement of this land with a further nine holes would result in the loss of habitat that could be used by protected species, including dormouse and bats. The nine-hole golf course is likely to result in fewer impacts and potentially significant effects.</p>
Geology and soils	<p>The nine-hole golf course is unlikely to have any impacts on geology and soils as development would be confined to the existing golf course. The 18-hole golf course would require additional agricultural land and depending on the final design of the course, may affect a standard geological site (reference SU90/86). The nine-hole golf course is likely to result in fewer impacts and potentially significant effects.</p>
Material assets and waste	<p>Whilst the nine-hole golf course would be confined to the area of the existing golf course, the 18-hole golf course would require increased amounts of construction materials and would result in more waste being produced. The nine-hole golf course is likely to result in fewer impacts and potentially significant effects.</p>
Noise and vibration	<p>The reprovision of both the nine-hole and 18-hole golf course could have potentially significant temporary adverse effects for properties on Binsted Lane north of the Church of St Mary’s, Binsted during construction. There is likely to be a longer construction programme over a greater geographical area, for the 18-hole golf course. The nine-hole golf course is likely to result in fewer impacts and potentially significant effects.</p>

Topic	Assessment
Population and human health	The full replacement of the existing 18-hole golf course (designed as a complete replacement and to the same standard) would remove the significant adverse effect on users of the Avisford Park Golf Club. The nine-hole golf course, whilst providing access to golfing facilities, would still affect members' use of the facilities. Both options may require some additional agricultural land as part of the development, which may impact on local agricultural businesses. The 18-hole golf course is likely to result in fewer impacts and potentially significant effects.
Road drainage and the water environment	The 18-hole golf course would represent an increased level of development compared to the nine-hole option and would require a change in land use from agricultural use. However, in both options the golf course would be designed and profiled such that no likely significant adverse effects associated with the water environment, flood risk and drainage are anticipated. There is unlikely to be any difference between the options.
Climate	The construction of the 18-hole golf course is likely to have a greater carbon footprint than the construction of a nine-hole golf course given the difference in the amount of construction required. However, given that the difference between these two options is largely restricted to the landscaping and development of the course itself, the additional GHG emissions associated with the construction of the 18-hole option is not expected to be significant. There is unlikely to be any difference between the options.

### Option for raised vertical alignment with offline Yapton Lane Overbridge

Topic	Assessment
Air quality	There is unlikely to be any difference between the Scheme and this offline option. The increase in the height of the road would not result in any different effects as the air quality modelling for traffic emissions does not take road height into account. There is unlikely to be any difference between the options.

Topic	Assessment
Cultural heritage	This option would likely be more visually prominent than the Scheme due to the elevated nature of the offline Yapton Lane Overbridge. However, the change in height is unlikely to change how the Scheme affects the setting of heritage assets. There is unlikely to be any difference between the options.
Landscape and visual	The offline option would be more prominent in terms of local views and would segregate the local landscape. There would also be more vegetation removal and potentially more trees lost, although the on-line option included as part of the Scheme would require a temporary offline diversion and so would still be likely to impact the majority of this vegetation. The online option included in the Scheme is likely to result in fewer impacts and potentially significant effects.
Biodiversity	There may be additional habitat loss from this option compared to the Scheme due to construction of the offline Yapton Lane Overbridge. However, this additional loss of habitat would be minimal in the context of the overall Scheme. Additionally, the online option would require some of this increased habitat loss to create a temporary offline diversionary route. There is unlikely to be any difference between the options.
Geology and soils	There are no geological sites in this location and whilst there would be very slightly more permanent land take from agricultural land with this option, it is considered minimal in the context of the overall Scheme. The online option included in the Scheme is likely to be the better option.
Material assets and waste	There would likely be a slight increase in materials used for the construction of the Scheme compared to the current proposed alignment due to the elevated nature of the offline Yapton Lane Overbridge, but there would likely be a reduction in the quantity of earthworks cut required, which potentially means less waste taken off site. There is unlikely to be any difference between the options.

Topic	Assessment
Noise and vibration	When compared to the Scheme, the offline option would lead to greater effects in road traffic noise of up to 1.5 dB at the rear of the properties on Yapton Lane, north of Avisford Park Road. However, the mainline would be lower west of Yapton Lane, leading to a reduction in road traffic noise of up to 2 dB for properties within the Avisford Grange development. Additionally, the realignment of the Yapton Lane Overbridge itself would result in reductions of up to 3 dB in traffic noise at the front of the properties on Yapton Lane closest to the overbridge. These changes are unlikely to change the potential likely significant effects of the Scheme, although the alternative offline option is likely to be the better option.
Population and human health	Whilst there would be more land take associated with this offline option than for the current proposed alignment, it is considered a minimal change in the overall context of the Scheme and would not result in any changes to the baseline conditions, potential impacts and assessment of effects sections of this chapter. Arrangements to maintain access for properties on Yapton Lane and Manser Road would be discussed with stakeholders including homeowners as part of ongoing Scheme development. The online option included in the Scheme is likely to be the better option.
Road drainage and the water environment	Raising the vertical alignment of the Scheme through Avisford Park has the potential to reduce the extent to which groundwater would be impacted. This would reduce the impact on groundwater levels and reduce flows into Binsted Rife. The alternative offline option is likely to be the better option.
Climate	The option is unlikely to result in any noticeable difference in terms of climate, as it would not result in a change in the materials needed to construct the Scheme, or the number of vehicles using the Scheme during operation. There is unlikely to be any difference between the options.

## 18. Consultation and next steps

- 18.1.1 This Non-Technical Summary of the PEI Report has been prepared to help those potentially affected or interested in the Scheme to understand the environmental setting and current anticipated likely significant effects of the Scheme on the environment. These considerations can be taken into account in your responses to the consultation.
- 18.1.2 Your feedback from the consultation will inform our continuing development of the Scheme design. Once we have taken your feedback into consideration, we plan to submit our DCO application in 2022. We will also prepare a report on the consultation, recording the feedback received and our response. This report will also be published with our DCO application.
- 18.1.3 If our application for a DCO is accepted by the Planning Inspectorate, on behalf of the Secretary of State, an Examining Authority will review the application, which will take six months. During the examination stage, anybody with an interest in the Scheme can participate and make representations in writing, or verbally at hearings.
- 18.1.4 The Examining Authority will be given three months to report its recommendation to the Secretary of State, who has a further three months to make a final decision on whether or not to grant a DCO for the Scheme.
- 18.1.5 If you would like any further information on the DCO application process, please visit the Planning Inspectorate's website:  
<https://infrastructure.planninginspectorate.gov.uk/application-process/the-process/>
- 18.1.6 The Inspectorate's website will also provide updates on the Scheme's application process, including providing access to the submitted DCO application documents.

## 19. How to find out more and have your say

- 19.1.1 We are using a virtual consultation room which replicates a face-to-face consultation event. This is found at:  
<https://a27arundelbypass.consultation.ai>
- 19.1.2 Here you can view the proposals and speak to the project team through live chat sessions.
- 19.1.3 The virtual consultation room will host a series of six live chat sessions, which will allow stakeholders to speak privately and directly to our project team experts, who will be online and available to answer questions.
- 19.1.4 We have carefully planned the following events in line with Government guidance on COVID19. As this may change, please check our website or call our customer contact centre on **0300 123 5000** for the latest event information.
- 19.1.5 We are holding events in indoor community venues where you can view all our consultation material and chat to the project team. We are also parking

- our mobile consultation van at three car parks, where you will be able to drop by and find out more.
- 19.1.6 If we need to cancel or rearrange any public consultation event for any reason, including COVID-19 restrictions, we will give as much notice as possible via the Scheme's website.
- 19.1.7 Your feedback is important to us and will help us determine our final proposals, which we will submit in our DCO application. The best way for you to tell us what you think is by providing your response in one of the following ways:
- a. Completing the online feedback form located on the Scheme website: [www.nationalhighways.co.uk/a27arundel](http://www.nationalhighways.co.uk/a27arundel)
  - b. Attending a consultation event where you can meet the project team and complete a paper copy of the feedback form
  - c. Requesting the feedback form by post or picking up a paper copy at one of our document deposit locations. You can post this to **Freepost A27 ARUNDEL**
  - d. You can email your feedback form or free text response to us using: [A27ArundelBypass@highwaysengland.co.uk](mailto:A27ArundelBypass@highwaysengland.co.uk)
- 19.1.8 All responses must be received by **11.59pm on Tuesday 8 March 2022**. Responses received after that date may not be considered.