

A1 Birtley to Coal House

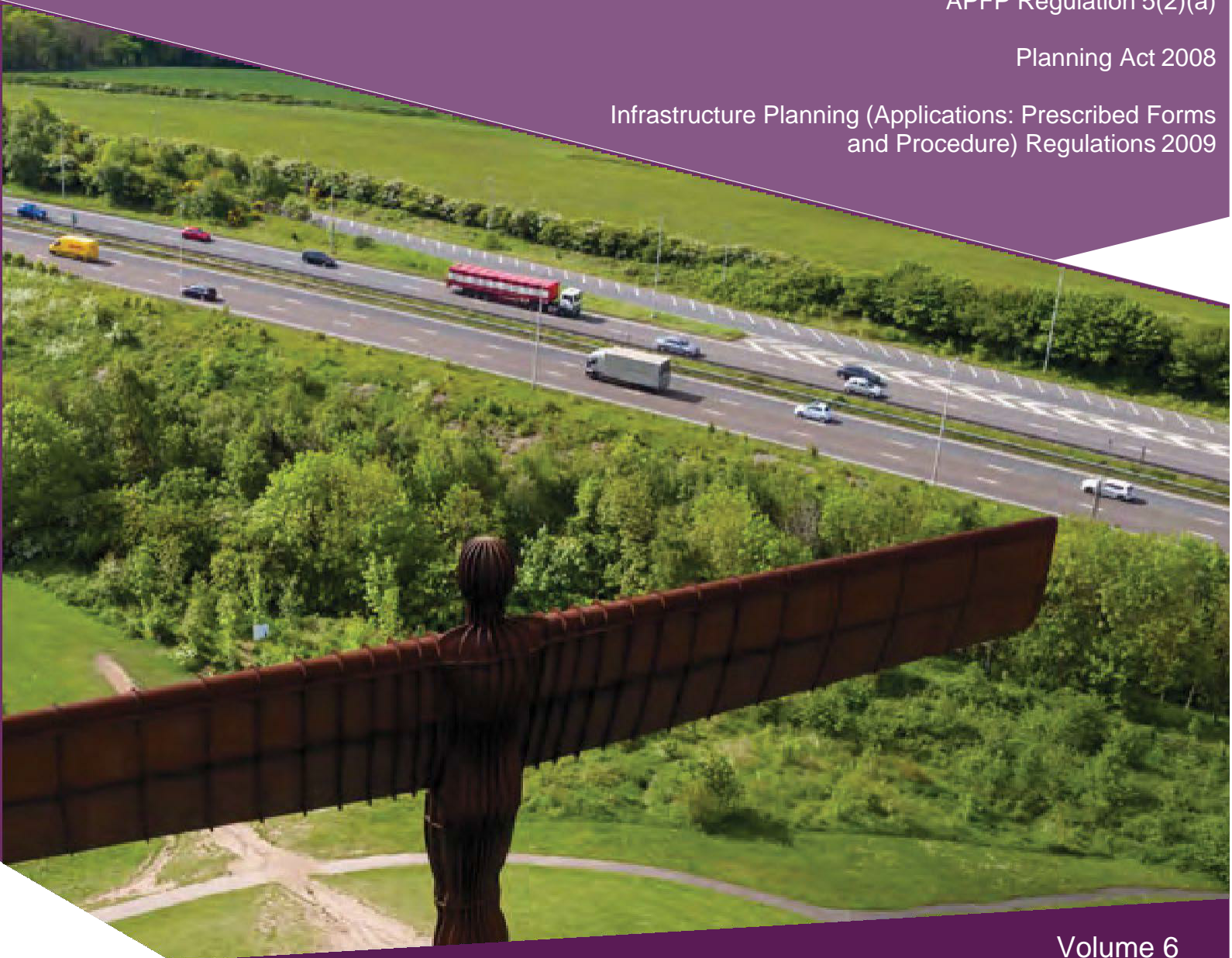
Scheme Number: TR010031

6.4 Environmental Statement- Non-Technical Summary

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms
and Procedure) Regulations 2009



Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

A1 Birtley to Coal House
Development Consent Order 20[XX]

Environmental Statement

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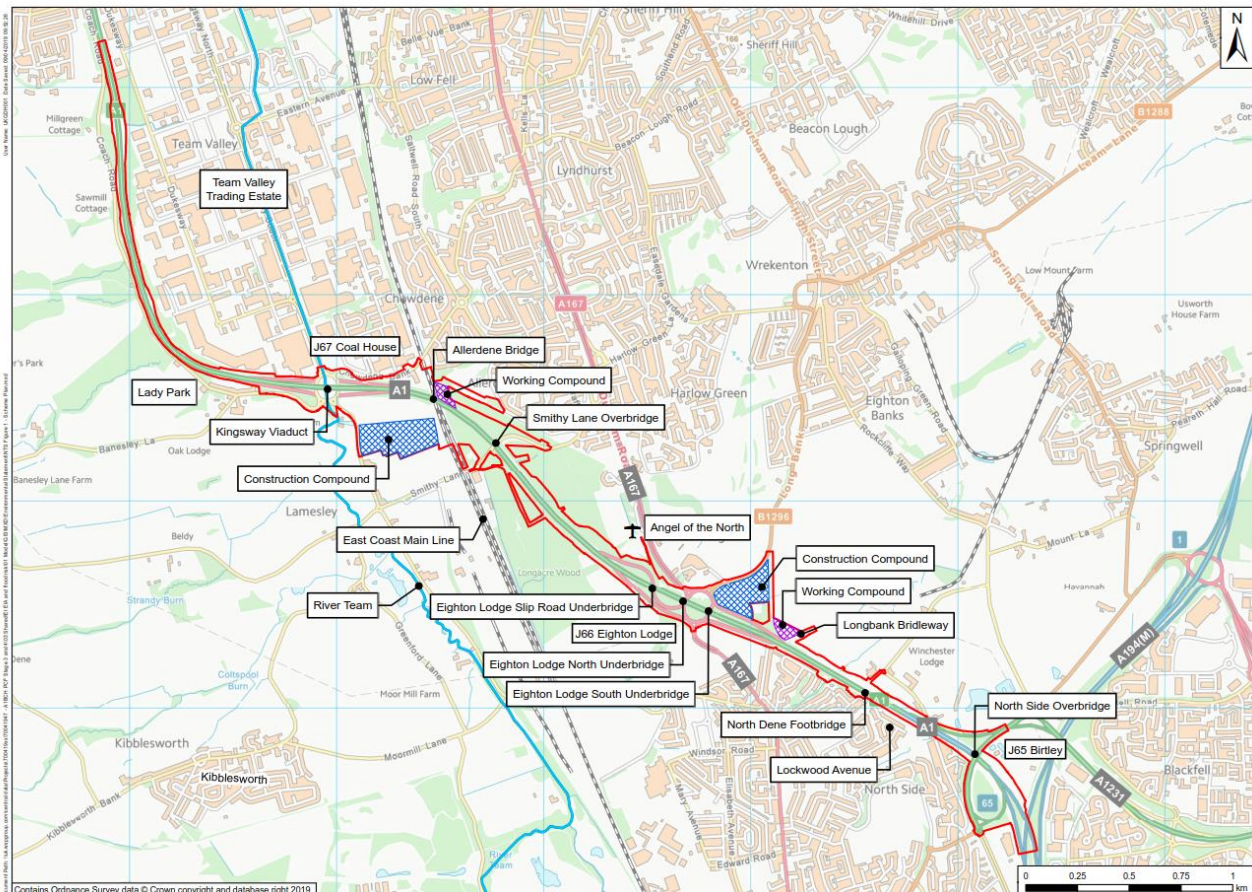
INTRODUCTION

Highways England is a government-owned company responsible for the operation, maintenance and improvements of the strategic road network in England on behalf of the Secretary of State for Transport. The road network totals around 4,300 miles of motorway and major A roads and carries a third of all traffic by mileage and two thirds of all heavy goods vehicles.

As set out in the government's Road Investment Strategy (RIS), Highways England is expected to deliver £15 billion of investment on the road network, £11 billion of which is committed between 2015 and 2020.

As part of the RIS, the Department for Transport (DfT) committed to improving the A1 between junction 65 (Birtley) and junction 67 (Coal House) in Gateshead (see **Figure 1** below).

Figure 1 - Scheme plan



This document is a Non-Technical Summary (NTS) of the Environmental Statement (ES) which forms part of the application for a Development Consent Order (DCO) for the A1 Birtley to Coal House (the "Scheme"). The application has been submitted to the Planning

Inspectorate (the Inspectorate) by Highways England (the Applicant) and will be determined by the Secretary of State for Transport.

The ES reports the findings of the Environmental Impact Assessment (EIA) which has been carried out in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The purpose of the EIA is to identify and assess the likely significant effects on the environment resulting from the construction and operation of the Scheme and to recommend appropriate mitigation to reduce the impact of identified effects. The results of the EIA are presented in the ES.

The NTS provides a summary description of the Scheme and the ES in non-technical language to ensure that the outcomes of the EIA are readily communicated and understood by the general public, consultees and decision makers.

WHY THE SCHEME IS NEEDED?

The Scheme is located on the A1 Newcastle-Gateshead Western Bypass (NGWB) which extends between junction 65 (Birtley) to junction 80 (Seaton Burn). The A1 NGWB is a critical part of the strategic road network.

The A1 between junction 65 (Birtley) and junction 67 (Coal House) currently experiences significant congestion leading to delays, increased driver stress, safety issues and limits economic growth in the area.

In addition, traffic in the region is forecast to grow in the future, largely due to new housing and employment developments planned within the Gateshead and Newcastle area. This additional traffic demand will intensify the existing congestion and capacity issues on the A1.

The Scheme would widen the existing carriageway between junction 65 (Birtley) and junction 67 (Coal House) to provide additional lanes with the aim of increasing capacity and relieving congestion. It would also include changes to signage and road markings between just south of junction 68 (Lobley Hill) to north of junction 67 (Coal House).

The existing Allerdene Bridge, which carries the A1 over the East Coast Main Line (ECML), would also be replaced as part of the Scheme. The bridge was built nearly 40 years ago and regular monitoring and maintenance of the bridge is required, which results in road closures and disruption to the travelling public. This structure also has fewer lanes than the road either side and acts as a pinch point increasing the congestion seen on this route.

SCHEME OBJECTIVES

The Scheme has been designed with the following key objectives in mind:

- **Supporting economic growth:** The Scheme forms part of a wider government initiative for growth in the north-east and aims to support economic growth by improving the road to the Newcastle and Tyneside area.

- **A safe and serviceable network:** The Scheme aims to reduce accidents and improve journey time reliability which will lead to a reduction in driver stress and delays.
- **A more free-flowing network:** The traffic model used to design the Scheme predicts that road users travelling through the Scheme will benefit significantly from reduced journey times as a result of the proposal.
- **Improved environment:** The environmental effects resulting from the Scheme have been considered during previous stages of development. Measures to mitigate potential effects on the local environment have been identified and will be further refined as the Scheme design is finalised. Opportunities to improve the local environment are also being sought as part of the final Scheme design.
- **An accessible and integrated network:** The Scheme will provide improved connectivity with the local road network. Access and safety for pedestrians, cyclists and horse riders will be considered as part of the Scheme. We are upgrading the road to accommodate abnormal loads which will future proof the route and reduce the impact on the local road network.

SCHEME HISTORY AND DEVELOPMENT

A Feasibility Study, undertaken in 2014 by the Highways Agency (and published in 2015), recommended that widening the A1 from two lanes to three lanes between junction 65 (Birtley) and junction 67 (Coal House) including the replacement of Allerdene Bridge would help address current congestion and the forecasted increase in traffic demand along this stretch. The history of the Scheme is summarised in **Table 1** below:

Table 1 - Scheme history

Year	Route Development
2015	<p>The Feasibility Study led to the definition of the scope of work for improvement to the A1 NGWB from junction 67 (Coal House) to junction 65 (Birtley) (including Allerdene Bridge) as announced in the RIS in December 2014, which was progressed to the Options Identification Stage.</p> <p>At the Option Identification stage three options were identified. The three options each had the same alignment and cross section at junctions 66 and 65. The main difference between the options was the approach to replacing Allerdene Bridge, either in the existing footprint or to the south of the existing structure.</p> <p>The Options Identification stage concluded that the benefits for all three options were similar but the costs for Option 3 were significantly higher with more land-take and a larger impact on the surrounding environment. Consequently, this option did not offer better value for money compared to Options 1 and 2 and the decision was therefore made that Option 3 would not be developed any further.</p>

Year	Route Development
2015 – 2017	<p>At the Option Selection Stage, a further Scoping exercise was carried out to review the scope of assessment identified at the previous stage to ensure it was still appropriate and proportionate in line with guidance.</p> <p>The two options shortlisted at the Option Selection stage (Options 1a and 1b) were taken to non-statutory public consultation in autumn 2016 (further details are provided below).</p> <p>In July 2017, a Preferred Route was announced for the Scheme. The preferred route included widening from three to four lanes between junction 65 and 67 on the southbound carriageway; and widening three lanes with an additional lane to help manage traffic joining and leaving the A1 between junctions on the northbound carriageway. The preferred route also retained the existing layout of junction 67 (Coal House) and allows for the offline replacement of Allerdene Bridge.</p>

ALTERNATIVES CONSIDERED

Work on identifying solutions to the issues on the A1 has been underway since 2014. Initially three options were considered, each of the three options had the same alignment and cross section at junction 66 (Eighton Lodge) and junction 65 (Birtley). The main difference was the approach to replacing Allerdene Bridge, either in the existing footprint or to the south of the existing structure.

Two options were shortlisted at the Option Selection stage and presented for public consultation in autumn 2016. These are as follows:

- Option 1a - Offline Replacement of Allerdene Bridge – Allerdene Bridge would be reconstructed south of its current location, improving the existing road alignment (see **Figure 2**).
- Option 1b - Online Replacement of Allerdene Bridge – Allerdene Bridge would be replaced in its current location. This would require a temporary bridge to be constructed to carry traffic over the A1 while the new bridge is constructed. This option would be a more complex scheme to construct requiring more traffic management and a longer construction period (see **Figure 3**).

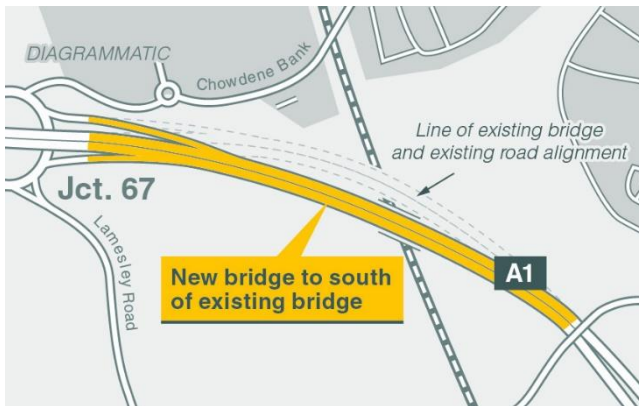
Option 1a was selected as the preferred option as:

- It is the most cost-effective option.
- Was identified during the non-statutory consultation period as the preferred option for 73% of respondents.
- Has a shorter construction period resulting in potentially less disruption.
- Offers an improved alignment.

- It is a better option for road users as the speed and lane restrictions would be significantly less than Option 1b during construction.

Figure 2 - Option 1a (the preferred option)

Figure 3 - Option 1b



SCHEME DESCRIPTION

It is proposed that through junction 67 (Coal House) both carriageways would be widened from two lanes to three. Kingsway Viaduct, which carries the A1 over junction 67 (Coal House) roundabout, would be retained and widened to accommodate the additional lanes south of the existing structure.

Between junction 67 (Coal House) and junction 66 (Eighton Lodge) the A1 would be widened from two lanes to three on the northbound carriageway; and from two lanes to four on the southbound carriageway. From junction 66 (Eighton Lodge) the A1 would be widened from two lanes to four on the southbound carriageway and from two lanes to three on the northbound carriageway. All three of the bridges in this section would be widened.

Between junction 66 (Eighton Lodge) and junction 65 (Birtley) both carriageways would be widened from three lanes to four. Of the three existing bridges in this section; North Side Overbridge would be retained; North Dene Footbridge would be demolished and reconstructed; and Longbank Bridleway Underpass would be widened.

The speed limit for the southbound carriageway would remain 50mph through junction 67 (Coal House) and would change to national speed limit (70mph) to the east of Allerdene Bridge at a similar location to the existing bridge. The existing 50mph speed limit would be maintained for the northbound carriageway for the length of the Scheme.

The Scheme would also install new traffic signage and undertake modifications to the road markings to provide driver information along the road.

The existing Allerdene Bridge would be demolished, and the replacement bridge would be located approximately 40 metres to the south of the current structure between junction 67 (Coal House) and Smithy Lane Overbridge.

Two design options are proposed for the replacement Allerdene Bridge, both have been included in the DCO application and the EIA to provide flexibility to allow further analysis to be conducted when detailed design is carried out. The options are:

- Embankment option – a single span bridge supported by embankments (a raised bank made of compacted soil).
- Viaduct option – a multi span viaduct structure (a long high bridge structure).

Much of the construction work for the Scheme would take place within the existing highway boundary, however some additional land (both temporary and permanent) would be required alongside the A1 at certain points to enable the extra lanes to be constructed. To allow construction to start some services would need to be diverted including telecommunications, power, water and gas (for example Northern Gas Networks).

CONSTRUCTION

Two main construction compounds and two working construction compounds would be set up to enable the Scheme to be built. The two main construction compounds would be located as follows:

- To the north of the A1, north east of Eighton Lodge roundabout.
- To the south of the A1, east of Coal House roundabout on NGN land.

These main compounds would include staff parking, site accommodation, materials storage, road sweepings management, facilities to wash vehicles and plant and vehicle maintenance areas. The main compounds would be secure; gated, fenced and 24-hour security provided.

The working compounds would be smaller compound areas set up for specific works at to widen Longbank Bridleway Underpass and to demolish Allerdene Bridge. These working compounds would comprise a secure fenced and gated area with site welfare, parking and materials storage. The working compounds would be located as follows:

- To the north of the A1, west of Longbank Bridleway Underpass.
- To the north east of the existing Allerdene Bridge.

Table 2 provides an overview of the construction programme.

Table 2 - Indicative construction schedule

Activity	Year
NGN diversion works	Spring 2020 – Spring / Summer 2021
Site mobilisation	Winter 2020/21
Main construction works	Winter 2020/21 – Winter 2023/24

Activity	Year
Site demobilisation and reinstatement	Winter 2023/24

The appointed contractor would manage the site under a Construction Environmental Management Plan (CEMP), which would ensure that the commitments made in the ES are met and to:

- Protect sensitive environmental assets including plants, animals, the water environment, heritage assets and the environment that people live in
- Minimise impacts to local communities
- Control emissions including dust
- Minimise disturbance from noise
- Prevent pollution
- Manage the use, delivery, storage and handling of fuels and materials

ENVIRONMENTAL IMPACT ASSESSMENT

The approach to the EIA comprised gathering information to establish the environmental setting or baseline, considering the potential impacts of the Scheme, developing measures to avoid, prevent or reduce adverse impacts and then assessing the likely significant effects of the Scheme on local communities and the environment. The EIA has followed industry standard methods, including for establishing significance, set out in Highways England's Design Manual for Roads and Bridges along with topic-specific guidance as appropriate. Each topic chapter in the ES provides further detail regarding the specific methodology applied.

ENVIRONMENTAL EFFECTS

Figure 4 below shows the location of sensitive environmental receptors potentially affected by the Scheme. The predicted environmental effects of the Scheme on these receptors are reported in detail within the ES.

A summary of the main findings of the EIA is provided below, together with details of the mitigation measures proposed to further reduce the environmental impacts of the Scheme.

The environmental assessment considered impacts in the following years:

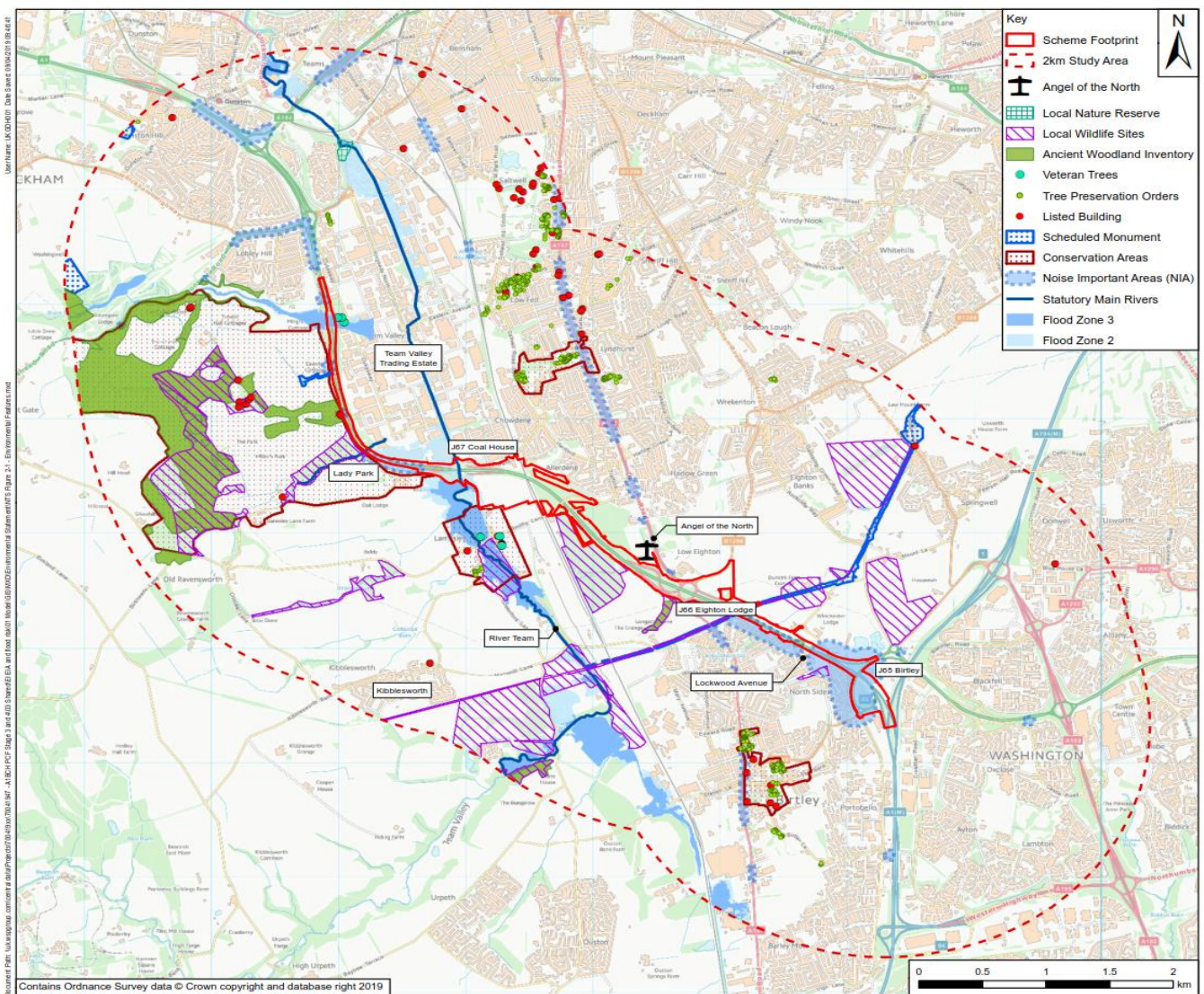
- 2020 - the 'construction year' when construction starts
- 2023 - the 'opening year' when the Scheme is open to traffic
- 2038 - the 'design year' when mitigation measures are expected to mature

Some topics assess all three years, some only two, and some only one, depending on the needs of the topic.

Major Accidents and Disasters

In accordance with the EIA Regulations, an assessment has been undertaken of the vulnerability of the Scheme to major accidents or disasters. The assessment considered a wide range of events including naturally occurring events such as the presence of unrecorded mines; technological and human induced accidents such as road and traffic accidents; as well as infrastructure failure such as bridge and utilities failure. The assessment has concluded that with the mitigation measures included in the Scheme design, no significant adverse effects from major events would be expected.

Figure 4 - Environmental features plan



AIR QUALITY

Overview

The air quality assessment has considered the Scheme's potential to cause changes to both local air quality and regional air quality during construction and once the Scheme is open to traffic (during operation). The Scheme is not located within an Air Quality Management Area (AQMA), the nearest AQMAs are located over three kilometres from the Scheme in Gateshead town centre, Newcastle city centre and Gosforth. AQMAs are areas that do not meet national air quality objectives indicating that air quality in these areas requires improvement.

Construction

During construction, the Scheme could temporarily affect local air quality as a result of dust arising from construction activities and emissions from construction vehicles. Well established controls would be employed to reduce the impact of fumes and dust on residents and the local area. Such measures include ensuring that equipment and dusty materials are located as far as possible from sensitive receptors, covering dusty materials including any vehicles carrying them, implementing low speed limits within construction compounds and where construction works are being carried out, dampening dry surfaces and dusty materials, sweeping roads with water and switching off all vehicle engines and plant motors when not in use. These controls would be included in the CEMP and Construction Traffic Management Plan (CTMP) for the Scheme and implemented on site by the contractor. With this mitigation in place no significant effects are anticipated during construction as a result of construction dust or construction vehicles.

Operation

During operation, the Scheme has the potential to cause a change in concentrations of traffic related pollutants because of traffic re-routing, changes to types of vehicles using the road and speed limits. Modelling results show however that there are no nearby properties or ecological receptors, for example Shibdon pond Site of Special Scientific Interest (SSSI), that would experience a significant worsening or improvement of air quality in relation to legal air quality objectives and national emissions. No mitigation is required during operation as no significant air quality effects are anticipated.

CULTURAL HERITAGE

Overview

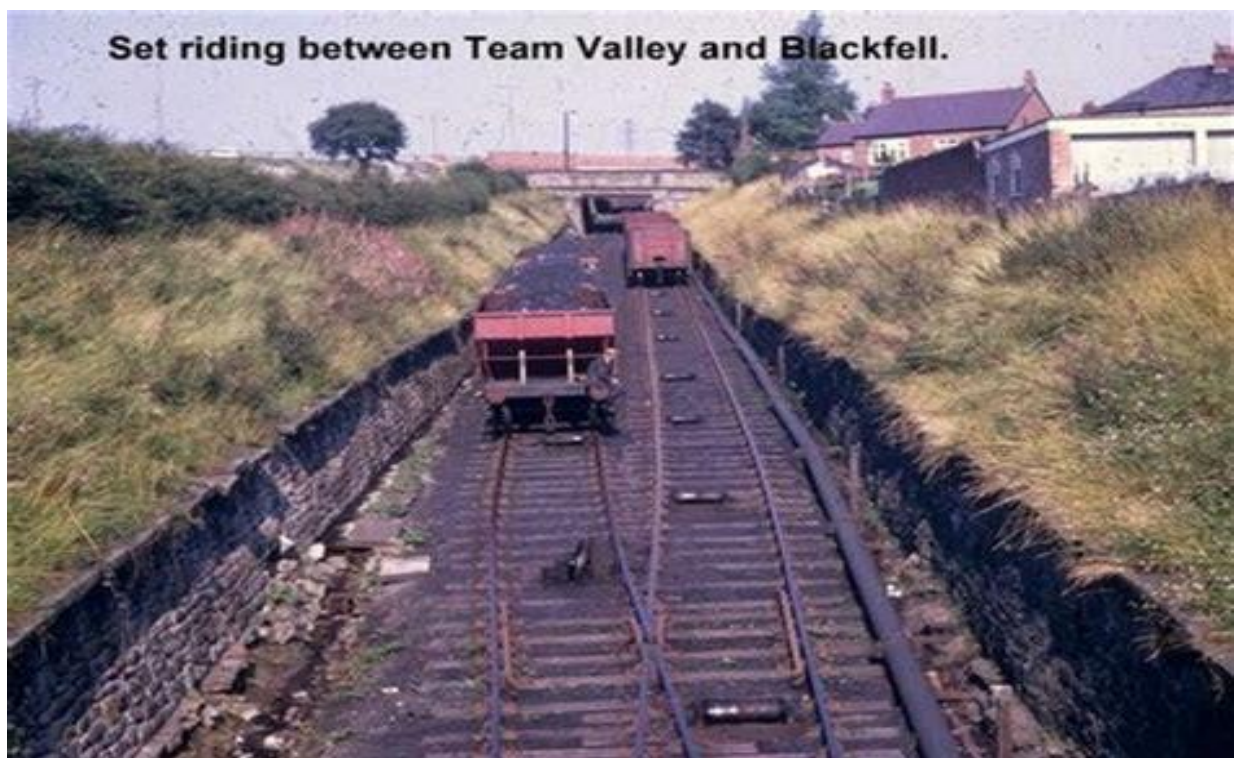
The cultural heritage assessment considers the likely significant environmental effects as a result of the Scheme on cultural heritage assets. Cultural heritage includes archaeological remains, built heritage (historic buildings/structures), historic settings and landscapes.

A diverse range of heritage features have been identified within 2km of the Scheme (known as the Study Area) (see **Figure 4** above), including listed buildings, Scheduled Monuments

(SM) (e.g. Bowes Railway SM) and Conservation Areas (e.g. Lamesley Village Conservation Area). Conservation Areas are buildings and areas designated due to their special historical or architectural character.

Bowes Railway was opened in 1826 to carry coal mainly from pits in north-west Durham to the Tyne at Jarrow. A photo of the railway is provided at **Figure 5** below. The railway ceased operating in 1974 but is designated as a SM due to its national importance.

Figure 5 - Trucks loaded with coal on the rope-hauled section of the Bowes Railway set within a cutting



Construction

There would be some temporary impacts upon the setting of some of the nearby Conservation Areas, such as Lamesley Village Conservation Area, from, for example, the siting of temporary construction compounds, however it is not considered that the effects would be significant.

The Scheme would directly impact Bowes Railway SM as a section of a wall associated with the SM would be removed in order to extend Longbank Bridleway Underpass. There would also be impacts to the asset's setting from the blocking of key views and temporary loss of public access. These impacts would result in significant effects on the SM.

Following consultation with the Tyne and Wear Archaeology Officer a geophysical survey has been undertaken to investigate the potential for archaeological remains. The survey

revealed no results of archaeological interest or archaeological features other than evidence of past ploughing. Therefore, the potential of unknown archaeological remains is low

A Written Scheme of Investigation (WSI) would be devised in consultation with the Tyne and Wear Archaeology Officer to mitigate for any unknown archaeological remains which may be encountered during construction.

As requested by Historic England, archaeological monitoring would be undertaken of all groundworks within the Bowes Railway SM. Due to previous ground disturbance from other construction works no impacts are anticipated on any other potential below-ground heritage assets (archaeological remains) during construction.

Construction activities could also significantly affect non-designated heritage assets in the immediate vicinity of the Scheme as follows:

- *Lamesley Quarry* located immediately east of Bowes Railway SM: Any archaeology associated with the historic stone extraction would be potentially disturbed by construction related activities associated with widening of the A1 carriageway at this location. The archaeological remains could include evidence for extraction and off-site transportation.
- *Lamesley Wagonway* which extends into the footprint of a proposed temporary compound area north of the existing A1: Any ground moving activities associated with the construction of this compound have the potential to disturb any below or above ground remains associated with this asset, which could include remains of the track, track bed material or drainage ditches.
- *Gateshead to Chester-le-Street Roman road*, the original course of this road is projected to follow the current alignment of Long Bank Road: To enable construction of the Longbank Bridleway Underpass, construction vehicles would access a compound along this lane. Any ground disturbance has the potential to disturb associated remains such as drainage ditches and kerb stones.

The impact on the setting of the Angel of the North has been assessed as potentially beneficial during construction. This is because the landscape and mitigation strategy includes plans for clearance and replanting which would be less dense than existing vegetation. This would enable the Angel of the North to be better seen through less dense vegetation.

Operation

During operation there would be permanent impacts on the setting of Bowes Railway SM due to the loss of original or old building materials, however the effects would not be significant.

There would also be permanent beneficial impacts on the setting of the Angel of the North as a result of reduced planting giving greater potential for views which would improve the experience of the asset. However, views from the road towards the Angel of the North would be slightly more restricted due to the installation of gantries (structures which hold

signs) but the effect would not be significant as there would only be a slightly reduced extent to which road users from the A1 may be able to view the structure. Ways to reduce the impacts from gantries would be investigated further at detailed design.

An interpretation panel would be placed on the section of Bowes Railway SM closest to the proposed works. The panel would be designed to present and interpret the history and importance of the SM. In this way the experience of the SM would be enhanced for the local community.

LANDSCAPE AND VISUAL

Overview

The area surrounding the Scheme is characterised by a combination of uses including residential, urban, rural, industrial, recreational and open space. Much of the area falls within designated Green Belt land, namely the Tyne and Wear Green Belt. The A1 and ECML sever the area and form strong visual and audible elements of the landscape. The assessment has considered impacts and their effects on the local character of the area (with the surrounding areas divided into five Landscape Character Areas) and visual impacts and their effects on existing residents, road users and those who use amenity areas such as footpaths.

Construction

The removal of roadside vegetation would, in places, expose views of the existing A1, associated construction activity and traffic management. The Landscape Mitigation Design identifies where existing vegetation would be removed and where new planting would be created. The impact of vegetation removal would be minimised due to either the current shape of the land, retained vegetation within the adjacent landscape or existing buildings. There would be a temporary significant effect on Landscape Character Area 1 (see **Figure 6** below) which is characterised by a rural landscape of mixed pasture and arable fields and some large areas of woodland at the southern edge of Gateshead and includes the Angel of the North, Conservation Areas and residential areas namely Kibblesworth. Effects would be associated with the construction of Allerdene Bridge including vegetation removal.

Figure 6 - Landscape Character Area 1 Team Valley – view south from Haggs Lane



There would be temporary significant visual effects for just under 300 residential properties (600 hundred properties have been assessed) and from some of the public rights of ways (PRoW) and highway corridors (he A1 and local road network). These effects are likely to occur where the removal of vegetation exposes views that are currently screened and as a result construction site compounds will be visible from a substantial number of local receptors including residents.

As far as possible the Landscape Mitigation Design has minimised the amount of vegetation removal for the Scheme. Additional construction mitigation measures include keeping lighting to a minimum, limiting night-time activities and fencing off existing trees and shrubs adjacent to construction in order to prevent damage.

Operation

Once the Scheme is operational there would be some changes to the character of the surrounding areas, however these changes would only be significant for Landscape Character Area 1. Landscape Character Area 1 would be significantly affected as a result of the newly constructed Allerdene Bridge (for the viaduct option only) which would be a new and noticeable feature of the landscape, particularly from the flatter areas immediately to the south and within broader views on rising ground to the west. For the Allerdene embankment option, once the replacement or enhanced planting has been established after a few years (normally accepted as the 15th year after opening), the effect would reduce to not significant, however for the viaduct option this would remain as significant.

There would be significant effects to views at Right of Way P3 – located in Lamesley, due to the changes associated with the widening of the Kingsway Viaduct, vegetation loss and a direct line of sight of Allerdene Bridge. **Figure 7** and **Figure 8** show the views of Allerdene

Bridge embankment and viaduct options from Lamesley Road during operation. Following the establishment of landscape planting, adverse effects associated with Allerdene embankment option would be removed but effects would remain significant for the viaduct option.

There would be a permanent significant visual effect on visitors to Longacre Wood as a result of the removal of roadside vegetation. Views for many of the residential and highways receptors would however be comparable with those currently experienced, particularly for those with longer distance views and visual effects on these receptors would not be significant.

Figure 7 - Photomontage of north-east views from Lamesley Road (representing residential properties and visitors to St Andrew's Church) - Embankment option



Figure 8 - Photomontage of north-east views from Lamesley Road (representing residential properties and visitors to St Andrew's Church) - Viaduct option



BIODIVERSITY

Overview

The assessment has considered impacts and their effects of construction and operation of the Scheme on the natural environment.

The natural environment around the Scheme comprises a variety of grasslands, hedgerows, woodland and waterbodies including ponds, such as the one shown in **Figure 9**, and the River Team which passes beneath Coal House Roundabout and Kingsway Viaduct. There are several areas within 2km of the Scheme (see **Figure 4**) designated as LWS as well as Bowes Valley Nature Reserve. These habitats are important as they support key species and habitats and provide 'corridors' which are important routes for wildlife to move in the landscape. Field surveys of these habitats and review of available data found wildlife including fish, bats, birds, great crested newts and invasive species.

Figure 9 - Old fishing pond located 25m east of the Scheme



Construction

Construction of the Scheme would result in the loss of habitat such as semi-natural woodland, broadleaved plantation, coniferous plantation and mixed plantation woodland. The joint biodiversity and landscape design includes the creation of semi-natural woodland which, although a smaller area to that lost due to the Scheme, would be of a higher quality by creating a structure comprising varying tree ages, and with a management regime that creates gaps allowing light to reach the understorey layer in patches. The newly created woodland habitats would however take time to establish and, given the permanent loss of some habitats would result in a short term significant adverse effect.

There would be temporary significant effect on the Longacre Wood LWS as a result of the loss of woodland in an area required to enable the Scheme to be built. The earthworks design has been revised to minimise this loss as far as possible and this means that no

permanent land take in this area would be required. This area would be replanted following construction and the LWS would be linked to habitats in the wider area.

There would be a temporary adverse effect on Bowes Railway LWS as a result of loss of habitat from the widening of Longbank Bridleway Underpass, but this would not be significant.

The Scheme would result in the loss of a bat roost (a place where a single individual bat may use to rest) at Eighton Lodge South Underbridge. Bats also use Longbank Bridleway Underpass as a bat commuting route and would be adversely affected by the widening of the structure. As bats are a protected species a licence for these works would be applied for and mitigation agreed with Natural England. Mitigation would include the provision of bat boxes at Eighton Lodge South Underbridge to provide roosting opportunities. At Longbank Bridleway Underpass trees and hedgerows would be planted to attempt to funnel bats down under the A1 so bats continue to use the underpass. With mitigation in place there would not be significant effects on bats.

An area of habitat suitable for great crested newts would be lost because of the Scheme. With the implementation of precautionary working methods there would not be any significant effects. These measures include timing works so that great crested newts are in their breeding ponds or using a suitably experienced ecologist to search areas of suitable habitat.

The assessment has also considered effects on other habitats and species including fish, invasive species and wintering birds. No significant effects have been identified for other habitats and species. Additional mitigation measures that would be put in place to protect wildlife and habitats include managing pollution, noise and dust, limiting the use of artificial lighting, fencing off areas of retained habitat and telling site workers what they should do if they encounter wildlife on site.

Operation

The Landscape Mitigation Design encompasses biodiversity mitigation requirements and would result in the restoration of any temporary loss of habitats through landscape planting which would establish during operation. This includes creation of woodland strips south of Allerdene Bridge to screen the habitat which is suitable for wintering birds.

The landscape planting has aimed to link habitats throughout the Scheme. Adherence to the landscape mitigation, monitoring and maintenance regime would protect retained and newly created habitats and the installation of measures to prevent pollution of surface water would have an overall beneficial effect on water quality. It is therefore considered that there would not be significant effects on biodiversity during operation.

GEOLOGY AND SOILS

Overview

The different types of land use and soil conditions within the Scheme have been surveyed to understand the quality of the existing soil. An example of the method which has been used is shown in **Figure 10**. The assessment has considered the sensitivity of the geology and soils (including underground water and contaminated land) located near the Scheme that has the potential to be affected by the construction and operation of the Scheme. It has also assessed whether any of the soil could be contaminated.

Figure 10 - Photo of ground investigation borehole



Construction

The construction phase of the Scheme would result in the temporary land take from good agricultural land due to it being required for construction working space and access, this could reduce the quality of the soil. This would not have a significant effect as temporary areas would be reinstated back to agriculture following construction. In addition, a Soil Handling Strategy would be developed prior to construction to detail measures on how to preserve soil and land quality. The Soil Handling Strategy would be part of the CEMP.

The assessment has considered the risk to construction workers from a variety of activities and sources, such as ground contamination being released when soil is disturbed, this contamination could lead to the release of hazardous gases. The assessment has also considered the risk from ground collapse associated with historic coal mining. It is considered that with the implementation of mitigation measures including earthworks being carried out in accordance with a Materials Management Plan (MMP) and the use of

appropriate personal protective equipment, appropriate use of risk assessments, training and permits which would minimise the risks to construction workers and there would no effects on human health receptors.

Mitigation measures would be put in place to prevent the pollution of water bodies caused by, for example, disturbance of contaminated ground, pollution incidents during construction and excavation dewatering. The CEMP would include measures to control environmental effects from these aspects and effects would not be significant.

Operation

Agricultural land would be reinstated on completion of the works so there would be no permanent effects as a result of the Scheme. There is the potential for migration of methane into drainage chambers along the route; these would have ventilation installed and monitoring would be carried out prior to entry by future maintenance workers. The effects are therefore deemed to be not significant. All other aspects of geology and soils are not considered to have an effect once the Scheme is operational.

MATERIAL RESOURCES

Overview

The material resources assessment considers the impacts and effects of the Scheme on the consumption of material resources (including products offering sustainability benefits, as well as recycled or renewable sources). It also considers the production and disposal of waste to landfill and compares this to existing landfill capacity.

Construction

Construction of the Scheme would require resources to be used, for example steel, timber, concrete and asphalt. It would also result in the generation of material and waste that would need to be recycled or disposed of, for example, materials produced during the demolition of the existing Allerdene Bridge or from vegetation clearance.

The consumption of construction materials for the Scheme is considered to not have a significant effect on the regional and national market resources i.e. there would be sufficient materials available to construct the Scheme.

During site preparation, construction and demolition it is expected that a proportion of site materials and waste generated would be suitable for recovery (processing / reuse / recycling) both on-site and off-site. Opportunities would be investigated to reuse materials generated on nearby Schemes for example A1 Scotswood to North Brunton scheme and the A1 in Northumberland: Morpeth to Felton scheme. As far as possible other materials would also be reused elsewhere including the redundant North Dene Footbridge. A Site Waste Management Plan (SWMP) and MMP would be produced with the aim to divert as much of the excess material from the Scheme away from landfill. However, some of the remaining construction waste would require disposal to landfill. Based on the anticipated

quantities of waste to be sent to landfill, it is considered that the effect on the capacity of the regional landfill sites to accept the waste would be not significant.

Operation

The operation and maintenance of the Scheme assets would require only a small number of specialist components, for example, light bulbs and steelwork for replacement barriers; similarly, there would only be small volumes of waste generated from, for example, routine bridge maintenance. As such any effects would not be significant.

NOISE

Overview

Modelling has been undertaken to calculate the existing noise and vibration levels at nearby properties such as residential and community facilities, as well as key PRow (e.g. bridleways and footpaths) and other cultural assets such as the Angel of the North. These calculations, alongside predicted noise levels from construction and operation have been used to assess the noise and vibration effects.

Noise Important Areas (NIAs) are areas along roads which have been identified through high-level noise mapping as having high noise levels. The Environmental Noise Directive requires that Noise Action Plans are produced for identified NIAs. The nearest NIAs to the Scheme are shown on **Figure 4** above.

Construction

Construction activities which could generate and affect noise and vibration include:

- The demolition of existing structures and carriageway
- Excavation, compaction and foundations works (including piling works required for the extension of Longbank Bridleway Underpass)
- Construction of Allerdene Bridge, retaining structures, services and drainage
- Installation of noise barriers, signage and road markings
- Vehicles accessing the site and compounds
- Traffic from road diversions as a result of road closures

Construction noise calculations have identified that existing noise levels would not increase significantly during day-time construction works. In addition, construction traffic has been modelled to have a negligible impact on existing traffic in the area. Whilst the vast majority of work would be carried out during the daytime, some evening and night-time works would be required during construction, for example to minimise the duration of any full closures of the A1, to install bridge beams, to remove and install North Dene Footbridge and to minimise disruption to trains running on the ECML.

Mitigation measures to reduce noise levels during construction would be detailed in the CEMP and would include using plant, vehicles and machinery with the lowest noise levels, using electrically powered plant, switching off plant, equipment and machinery when not in

use, using low noise construction methods and using temporary noise barriers and ensuring residents are informed of the works.

Overall, following the implementation of mitigation measures, there would be significant night-time noise effects at Willowbeds Farm, Lamesley Vicarage and Cottages and dwellings on Salcombe Gardens during construction. There would be no significant day-time noise or vibration effects.

Operation

The Scheme has included design measures to reduce noise and vibration levels induced by road traffic. These include installation of a Thin Surface Course System (a road surface which will minimise noise levels from traffic using the A1) for the length of the Scheme, installation of a three-metre-high, 670 metre long acoustic barrier at Birtley (within an NIA) and minor adjustment to the existing noise barrier at Lady Park (see **Figure 11**). These measures would result in an overall decrease (significant beneficial effect) in noise and road traffic induced airborne vibration levels across the Scheme with the main cluster of properties that benefit being those at North Dene and Crathie.

Figure 11 - Existing Noise Barrier at along Lady Park adjacent to the A1



POPULATION AND HUMAN HEALTH

Overview

The Population and Human Health assessment considers a vast array of effects from the Scheme on pedestrians, cyclists, equestrians, vehicle and rail travellers, the local economy, tourism and recreation and human health.

There are a number of PRoW and facilities within the vicinity of the Scheme which are used for Walking, Cycling and Horse-riding (WCH). This includes North Dene Footbridge and Longbank Bridleway which is shown on **Figure 12** below.

Construction

It is anticipated that during construction there would be an increase in driver stress due to delays occurring as a result of speed restrictions from the traffic management required. This would be exacerbated by potential additional traffic associated with construction vehicles and the slower journey times created by temporary traffic control works. A CTMP would be produced which would include measures to manage these aspects including ensuring that signage and layout is clear to understand and avoids creating route uncertainty, and that any diversions or closures are clearly advertised and signposted. There would be a temporary significant effect on driver stress during construction.

During the construction phase temporary closures of the Longbank Bridleway Underpass and North Dene Footbridge would cause disruption to journeys made between community facilities, residential properties and industrial zones. Diversions would be provided but would increase user journey length and as a result there would be a temporary significant effect on users of these PRoW. The works would however be programmed so that North Dene Footbridge and Longbank Bridleway Underpass are not closed at the same time. This would ensure that there is a route across the A1 at all times.

During construction, effects could combine and result in impacts on human health; these include increased driver stress, reduced access to facilities used by the community, reductions in accessibility, increased noise and impacts to air quality. Whilst mitigation measures would be implemented including managing air quality and noise, providing footpath diversions and implementing clear traffic management, it is anticipated that there would be a temporary significant effect on human health, although effects would be short term and mainly associated with effects from drivers having to use road diversions and reduced access to amenities.

The assessment has also considered other aspects which may affect people and communities and concluded that there would be no significant effects on views from the road, rail travellers, community land and tourism and recreation. Some minor beneficial economic effects have been identified from the creation of construction related jobs and support to local businesses through expenditure from direct spend on materials for the Scheme, although these effects would not be significant.

Figure 12 - Photos taken from Longbank Bridleway (looking westwards to the A167 Newcastle Bank access and westwards under the A1 main line)



Operation

During operation, the Scheme would aim to accommodate WCHs, and either retain or improve the existing access arrangements. For example, the existing footpaths would be retained and, where crossed by the Scheme, provided with proper means of access to prevent severance (for example the North Dene Footbridge). Use of good practice design with regards to the safety of WCHs, including lighting, would improve the amenity of users of the footpaths in the surrounding areas. The reduction in traffic congestion along the carriageway would improve safety for WCHs using the adjacent footways and cycleways. Overall these improvements would result in a significant beneficial effect on WCHs during the operation period.

Once the Scheme is operational there would be no adverse significant effects on population and human health. The Scheme would have a slight beneficial effect (although not significant) on driver stress primarily due to the decrease in frustration resulting from reductions in the peak hourly flow, drivers would also benefit from a reduction in the fear of potential accidents and route uncertainty. Overall there would be no significant effects on population and human health.

ROAD DRAINAGE AND THE WATER ENVIRONMENT

Overview

The River Team, which is shown on **Figure 1** and **Figure 2**, runs underneath junction 67 (Coal House) and continues to flow in a northerly direction through Team Valley Trading Estate; the Scheme also crosses the River Team floodplain. The water environment also includes Allerdene Burn, Leyburnhold Gill and the watercourses adjacent to Bowes View and Smithy Lane. Fourteen surface water outfalls from the Scheme were identified by a CCTV survey of the existing highway drainage. The groundwater under the study area is known as a 'Secondary A aquifer' which the Environment Agency defines as permeable layers capable of supporting water supplies at a local scale.

Construction

During construction effects on the water environment could include impacts to the water quality of receiving water bodies as a result of spillages of fuel, oil, chemicals, concrete or grout, sediment laden runoff reaching watercourses, increased runoff to surface water drainage systems with potential impacts on flood risk and potential impacts on groundwater as a result of dewatering, piling, stabilisation of mineshafts or spillages.

A CEMP would be produced which would detail mitigation measures to protect the water environment which would include storing potentially polluting substances at least 10m away from watercourses, refuelling vehicles away from water, checking construction plant regularly for oil and fuel leaks, particularly when construction works are undertaken in or near waterbodies, signing up to the Environment Agency's flood warning service, production of method statements for piling and grouting and preparing a temporary Surface Water Drainage Strategy. With the implementation of the mitigation measures outlined in the CEMP, it is not anticipated that there would be any significant effects on the water environment.

Operation

The design has incorporated several mitigation measures, including flood plain compensation within the Coal House roundabout to offset the loss associated with the additional piers, attenuation storage, oil interceptors installed at outfalls to improve water quality of road discharge, drains at the base of embankments to prevent contaminated runoff from entering third party land, scour protection at Kingsway Viaduct around the bridge pier abutments, providing water storage measures at outfalls to reduce the rate of surface water runoff and preparing a Surface Water Drainage Strategy. With these design and mitigation measures in place there would be slight beneficial effects as a result of pollution control devices being installed at all outfalls; there would be no significant adverse effects on the water environment.

CLIMATE

Overview

The climate assessment considers how the Scheme could affect climate, for example by releasing more greenhouse gases from activities associated with construction and operation, and compares these figures to the UK carbon budgets set by the government (Department of Energy and Climate Change) as required under the Climate Change Act 2008.

The assessment also considers the vulnerability of the Scheme to climate change, in particular impacts on the Scheme from extreme weather and long-term climate change during construction and operation phases over the Scheme lifetime (60 years for roads and 120 years of bridges).

Construction

The effects on climate from the construction of the Scheme are inherently linked to the consumption of materials, the generation and disposal of waste, and the transport of these to and from site. Mitigation measures would be implemented to reduce emissions during the construction of the Scheme including, for example, using mains electricity where possible on site, minimising waste and maximising re-use of materials on site, producing a SWMP and MMP for the Scheme in order to manage waste and maximise the reuse of excess materials on site respectively and identifying materials with recycled content.

The construction of the Scheme would contribute to overall UK Carbon Dioxide emissions primarily through the use of materials such as aggregates and concrete. The predicted emission volumes have been compared against the relevant UK carbon budgets. The total greenhouse gas emissions which would result from the Scheme (both construction and operation) would be less than 0.01% of the overall UK carbon budget (a carbon budget places a restriction on the total amount of greenhouse gases the UK can emit over a 5-year period, this is set by the UK Government), this is considered to not be significant.

The climate vulnerability assessment has identified that during construction the main risks would include uncomfortable or difficult working conditions for construction workers from extreme weathers (e.g. extreme heat, extreme wind events or increased rainfall) and dust from drier conditions arising from extreme heat. There are also potential impacts of damage to structures from flooding. A number of mitigation measures or 'adaptation measures' would be implemented during construction to manage the risks, for example, structure drainage systems would have maintenance access built in to ensure blockages are reduced as much as practically possible to eliminate build-up of water and flood risk is managed. To manage risks to construction works, as far as possible, construction activities would take place during low-risk periods. With mitigation in place, there would not be a significant effect from the vulnerability of the Scheme to climate change.

Operation

As per construction, the effects on climate from the operation of the Scheme are inherently linked to the consumption of materials, the generation and disposal of waste; the operational assessment includes emissions from traffic.

As mentioned above, the total estimated greenhouse gas emissions arising from the Scheme (both construction and operation Scheme would be less than 0.01% of the overall UK carbon budget, this is considered to not be significant.

Potential impacts of climate change and weather events on the Scheme during operation include damage to signage and gantries due to high winds and storms, reduced opportunities for maintenance owing to extreme rainfall events and temperatures, increased skid and accident risk due to extreme rainfall events and risks to road users due to storms and associated damage (e.g. falling trees and damage to supporting infrastructure).

The Scheme has been designed to be resilient to impacts arising from predicted future severe weather events and climatic conditions and designed in accordance with current planning, design and engineering practice and codes. Measures which have been included in the design include an allowance for climate change related weather conditions in the drainage design and structures designed to withstand extreme weather. In addition, inspections of structures such as the carriageways, slip roads and bridges, for example, Allerdene Bridge and North Dene Overbridge would be carried out at a minimum of two-year intervals. As a result, no significant effects have been identified with regard to the vulnerability of the Scheme to climate change.

CUMULATIVE EFFECTS

Overview

An assessment has been undertaken of potential cumulative effects for all the above environmental topics. The assessment considers the combined effects from the Scheme on a single receptor from a number of individual environmental impacts, for example noise, dust and traffic effects on a single receptor. The assessment also considers the effects of the Scheme combined with proposed developments close to the Scheme that are under construction, have been given permission to construct or are identified on local authority development plans.

Combined Effects

Construction

A review has been undertaken of the technical assessments to identify new or different environmental effects, or those that could combine to result in an effect of greater significance. This includes a combination of effects on receptors such residents, drivers and users of footpaths for cycling, walking and horse riding from the combination of effects such as visual, noise and dust. With the implementation of mitigation measures in the CEMP for the Scheme, the combined effects would not be significant during construction.

Operation

There would be some minor beneficial effects to residents during operation as a result of combined improvements in noise, air quality and visually from changes in vegetation. Overall these combined effects would not be significant.

Cumulative Effects with other Developments

A review of the planning applications and allocations within the area around the Scheme was undertaken to identify any other developments which may result in a cumulative effect together with the Scheme, which is a greater, new or different significant effect than would result from the Scheme on its own. The search area for these other developments is based on the likely distances from which they could influence each environmental topic.

A total of 13 developments were identified for the cumulative assessments. This included other schemes which will be undertaken on the A1:

- The A1 in Northumberland: Morpeth to Felton scheme will upgrade the A1 to a dual carriageway between Morpeth to Felton. Other improvements proposed as part of the scheme include three new junctions with bridges over the A1 and the provision of access tracks.
- The A1 Scotswood to North Brunton Improvement scheme will upgrade the A1 between junction 74 (Scotswood) and junction 79 (North Brunton), through the provision of three lanes in each direction within the existing highway boundary. This scheme forms part of the NGWB. The scheme was included within the traffic modelling for this Scheme. The traffic data was used for the noise, air quality, water and population and human health assessments. As such, these assessments are inherently cumulative.

Construction

The potential exists for an adverse cumulative effect on water quality and geology during the construction phase. Cumulative effects relate to impacts to surface water receptors from site derived physical and chemical pollutants where works on concurrent schemes are within 250 m of each other. With the application of good construction pollution prevention practices which will be detailed in the CEMP there would not be significant cumulative effects on water quality and geology.

Additional, potential cumulative effects during the construction phase relate to the demand for materials (e.g. the demand for different types of key construction materials) and waste disposal (i.e. exceeding local land fill capacity). The assessment concluded that the cumulative effects would be minor and not significant because there is sufficient availability of material and local land fill capacity.

Due to the positive socio-economic effects associated with employment opportunities arising during construction of other schemes, potential cumulative effects of minor beneficial significance are anticipated. These include both direct (i.e. employment within the construction industry), and indirect (i.e. employment across the wider supply chain and local

spend of construction workers), effects. Overall the cumulative socio-economic effects would not be significant.

The effect of small losses of habitat suitable for invertebrates may be made more significant within the wider area by losses of suitable habitat by other developments which could potentially be of minor adverse significance. Measures to enhance habitat provision within this Scheme and other schemes would be likely to offset risks and this would result in cumulative effects that are not significant.

If the construction phase of a housing development planned in Kibblesworth coincides with the construction phase of the Scheme, there would be noticeable construction activity at two prominent locations within the Team Valley Character Area. If this were to occur, minor cumulative effects would be anticipated, however they would not be significant.

Overall the assessment has concluded there would be no significant cumulative effects, either adverse or beneficial, during construction.

Operation

Once operational, a potential cumulative effect may occur in relation to the perception of landscape character. Views over Kibblesworth would include the housing development in the foreground, with no change to the view of the A1. The resulting effect on the landscape character would be not significant.

It is anticipated that network capacity and connectivity improvements will support and facilitate economic growth and employment opportunities throughout the local area. This is anticipated to result in cumulative effects of minor beneficial significance.

Overall the assessment has concluded there would be no significant cumulative effects, either adverse or beneficial, during operation.

THE APPLICATION DOCUMENTS

The ES and other application documents are available to download, free of charge, from the Planning Inspectorate's website

<https://infrastructure.planninginspectorate.gov.uk/projects/north-east/a1-birtley-to-coal-house-improvement-scheme/>

You can also find information about the Scheme on the Highways England website

<https://highwaysengland.co.uk/projects/a1-birtley-to-coal-house/>.

You will also be able to view the ES and this NTS online during the pre-examination and examination period at the following locations:

Gateshead Civic Centre

Birtley Community Hub

Copies of the NTS are also available to take away free of charge from these locations. Alternatively, copies of the NTS can be obtained by contacting the project team using the details below:

A1BirtleytoCoalhouse@highwaysengland.co.uk
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Alternatively, you can write to the project team at the following address:

Highways England, Lateral, 8 City Walk, Leeds, LS11 9AT

Copies of the complete ES in electronic format on CD can be obtained from the same address free of charge. Paper copies of the ES are available at a cost as follows:

- Complete ES (Volumes 1 – 3) - £1,850
- Volume 1 (Main Text) - £280
- Volume 2 (Figures) - £200
- Volume 3 (Appendices) - £1,420

Prices include VAT at 20% and UK postage. Please contact the project team for further details regarding payment methods.

WHAT HAPPENS NEXT?

An application for a DCO has been submitted to the Inspectorate, who will determine the application on behalf of the Secretary of State. If granted the DCO will give Highways England the legal power to construct the Scheme.

During the first 28 days (acceptance period) the Inspectorate will make the application documents available to download from their website and will contact local authorities to confirm the pre-application consultation has been adequately carried out and all of the necessary documents have been provided. By the end of the acceptance period the Inspectorate will confirm if the application has been accepted for examination.

Once the Inspectorate confirms that the application has been accepted for examination, the pre-examination phase will begin. During this phase interested parties can register their interest and make a relevant representation to the Planning Inspectorate. The pre-examination phase ends following the Preliminary Meeting, which interested parties will be invited to attend. The Inspectorate will appoint an Inspector/s (the Examining Authority) on behalf of the Secretary of State. At the Preliminary Meeting the Examining Authority will decide the key issues that will be taken into account during the examination of the application.

The examination period is held over a period of up to six months, during which time a series of hearings are held to help address the key issues. Interested parties may attend the hearings, make statements and ask questions. Following the conclusion of the examination the Examining Authority has three months to provide a recommendation to the Secretary of State on whether the DCO should be granted. The Secretary of State then has a further three months to come to a decision. Once the decision is published, there is a six-week High Court Challenge period. If there are no challenges to the decision, it becomes final.

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