

A1 Birtley to Coal House

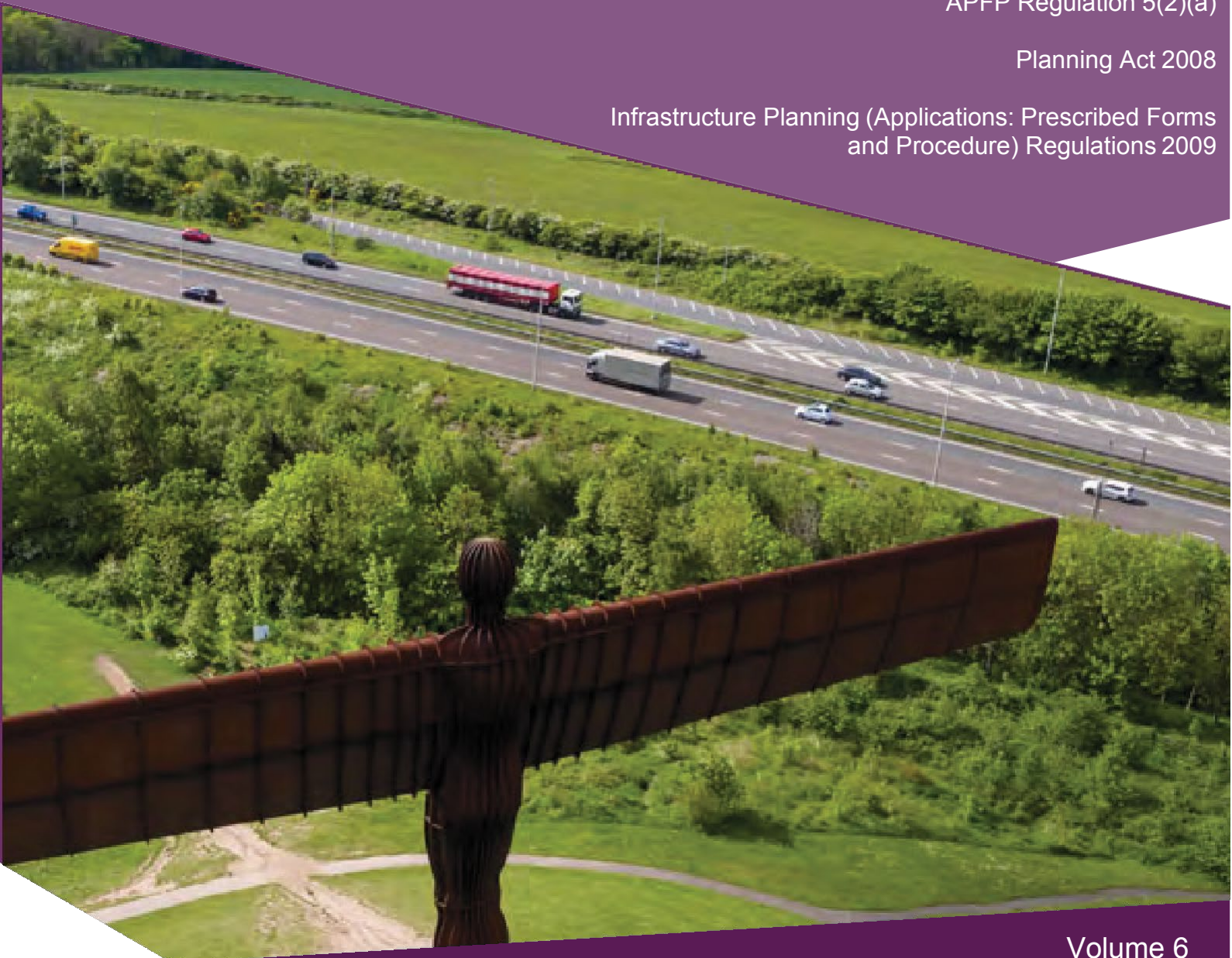
Scheme Number: TR010031

6.1 Environmental Statement Chapter 16 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
Procedures) Regulations 2009**

**A1 Birtley to Coal House
Development Consent Order 20[xx]**

Environmental Statement

Regulation Reference:	APFP Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010031
Application Document Reference	TR010031/APP/6.1
Author:	A1 Birtley to Coal House Project Team, Highways England

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16 SUMMARY

16.1 INTRODUCTION

16.1.1. This chapter provides a summary of the likely significant effects reported in this Environmental Statement (ES). Topic specific impact assessments are presented in detail in **Chapters 5 to Chapter 14**. The assessment summaries are set out in **Table 16-2**.

16.2 COMPETENT EXPERT EVIDENCE

16.2.1. The competence of those persons involved in the production of this ES chapter are set out in **Table 16-1**.

Table 16-1 – Professional competence

Name	Role	Qualifications and Professional Membership	Experience
Patricia Tumwine	Author	BSc in Biology MSc in Aquatic Resource Management Practitioner member of the Institute of Environmental Management and Assessment (PIEMA) Member of the Institute of Environmental Sciences (MIES) Chartered Environmentalist (CEnv)	12 years' experience in environmental management of nationally significant infrastructure projects, including Thames Tideway Tunnel. Other most recent experience includes management of a Preliminary Environmental Risk Assessment produced for the A595 in West Cumbria.
Nicola Ashworth	Reviewer	BSc Geography MSc Environmental Engineering Member of the Institute of Environmental Management and Assessment Chartered Environmentalist	18 years' experience in environmental management of engineering schemes. Nicola was the environmental assessment lead for the Scheme for Options Selection. Other recent relevant experience includes environmental coordinator for A1 Coal House to Metro Centre scheme (Construction Preparation stage) and A19 A1058 Coast Road Improvement scheme (Preliminary

Name	Role	Qualifications and Professional Membership	Experience
			Design stage to Construction, Commissioning & Handover).

16.3 SIGNIFICANCE OF EFFECTS

- 16.3.1. The approach to assessment has been based on the guidance in the Design Manual for Roads and Bridges (DMRB) Volume 11 Section 2 Part 5. In accordance with the DMRB the assessment covers the likely significant effects arising from the permanent and temporary, direct, indirect, secondary, cumulative, short, medium and long-term, beneficial and adverse effects of the Scheme.
- 16.3.2. As explained in **Section 4.6 of Chapter 4**, effects, whether adverse or beneficial, assessed as “moderate” or above significance are deemed to be significant. Effects determined to be slight or neutral are deemed to be not significant. **Table 16-2** presents a summary of significant effects only i.e. “moderate” or above.
- 16.3.3. The general approach to the environmental assessment for each topic is presented in **Chapters 5 -14** of this ES.

ALLERDENE BRIDGE OPTIONS

- 16.3.4. The differences between Allerdene embankment option and Allerdene viaduct option, as detailed in **paragraphs 2.7.11 to 2.7.18** of this ES, do affect some of the assessments. The two options have been assessed separately for the following topics:
- a. Chapter 5 Air Quality** (construction only)
 - b. Chapter 6 Cultural Heritage** (setting of heritage assets only)
 - c. Chapter 7 Landscape and Visual** (construction only)
 - d. Chapter 9 Geology and Soils** (construction only)
 - e. Chapter 10 Material Resources** (construction and operation)
 - f. Chapter 11 Noise and Vibration** (construction only)
 - g. Chapter 13 Road Drainage and the Water Environment** (construction and operation)
 - h. Chapter 14 Climate** (construction only)
- 16.3.5. For other topics, the differences between Allerdene embankment option and Allerdene viaduct option, do not affect the assessment:
- a. Chapter 8 Biodiversity** (although mitigation differs for the options)
 - b. Chapter 12 Population and Human Health**
 - c. Chapter 15 Cumulative and Combined Assessment**

- 16.3.6. The differences in the likely significant effects (moderate and above) between Allerdene embankment option and Allerdene viaduct option have been summarised in **Table 16-3** below.

16.4 MITIGATION

- 16.4.1. Measures to mitigate the effects of the Scheme have been identified and included within the topic chapters (**Chapters 5 to 14**). Mitigation measures have also been included in the Register of Environmental Actions and Commitments (REAC) which forms part of the Outline Construction Environmental Management Plan (CEMP) (**Application Document Reference: TR010031/APP/7.4**).

16.5 SUMMARY OF LIKELY SIGNIFICANT EFFECTS

- 16.5.1. **Table 16-2** summarises the likely significant environmental effects (moderate and above) and mitigation and enhancement measures, as well as the delivery mechanism for each mitigation measure.
- 16.5.2. **Table 16-3** summarises any differences in the likely significant effects between the Allerdene viaduct option and Allerdene embankment option.

Table 16-2 - Summary of significant effects

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
Chapter 5 Air Quality					
No significant adverse or beneficial effects have been identified for the construction or operational phases of the Scheme for Air Quality.					
Chapter 6 Cultural Heritage					
Adverse physical effects on the Bowes Railway Scheduled Monument (SM) (1003723) caused by the widening of the A1 and Long Bank Bridleway Underpass, excavation of foundation trenches and the drilling of	Construction	Prior to construction, an archaeological WSI would be produced in consultation with Historic England in relation to archaeological works during construction required within the railway cutting associated with the Bowes Railway	Schedule 10 and Article 39 of the draft DCO (Application Document Reference: TR010031/APP/3.1) CEMP	Moderate adverse	A programme of archaeological monitoring (watching brief) would be undertaken during the excavation of the railway cutting associated with Bowes Railway SM.

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>piles. Such construction works will necessitate the removal of a section of masonry retaining wall associated with the SM.</p>		<p>Scheduled Monument (1003723).</p> <p>The section of masonry retaining wall associated with Bowes Railway SM (1003723) to be demolished would be dismantled by a suitably qualified archaeologist to record any archaeological features. A method statement would be produced for these works and will form part of the WSI. A written, drawn and photographic record of the dismantling would be compiled.</p> <p>To mitigate the harm to the retaining wall of</p>			

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		<p>Bowes Railway SM (1003723) and to enhance the appearance of the SM, Historic England has also requested that a section of surviving wall associated with Bowes Railway SM of equal length to that being demolished would be repaired. Prior to any repair works commencing, the section of wall to be repaired, and the repointing and conservation methodology, would be agreed with Historic England. The repair works would be carried out by a qualified stone mason</p>			

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		experiences in using lime mortar.			
<p>Permanent adverse impacts to the importance Setting of Bowes Railway SM (1003723) would occur as a result of the loss of a section of the retaining wall. There would also be temporary adverse impacts from the blocking of key views and the temporary loss of public access to the asset.</p>	Construction	<p>An interpretation panel will be placed on the section of Bowes Railway closest to the proposed works. The panel will be designed to present and interpret the history and importance of the SM. In this way the experience of the SM will be enhanced for the local community. The nature and type of board will be agreed with the local authority. If the location of the board is within the Bowes Railway SM area, this will also be agreed in</p>	CEMP	Major adverse	N/A

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		consultation with Historic England.			
<p>Adverse physical effects on the non-designated heritage assets of Lamesley Quarry (3875); Gateshead to Chester-le-Street Roman road (276); Ridge and Furrow Earthworks (no HER ref) and Lamesley Wagonway (4124) due to temporary land-take associated with the Scheme, including proposed compound areas.</p>	<p>Construction</p>	<p>Prior to construction, an archaeological WSI would be produced in consultation with the local authority in relation to archaeological works during construction required within the Scheme Footprint.</p> <p>Prior to construction taking place within the field containing the ridge and furrow earthworks, an archaeological topographic survey of the entire field would be undertaken in accordance with</p>	<p>CEMP</p>	<p>Moderate adverse</p>	<p>An archaeological topographic survey of the entire field containing the ridge and furrow earthworks would be undertaken. A method statement would be produced for these works and would form part of the WSI.</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		Historic England metric survey standards. A method statement would be produced for these works and would form part of the WSI.			

No significant adverse or beneficial effects during the operation phase of the Scheme for Cultural Heritage.

Chapter 7 Landscape and Visual

Adverse effects identified on the perception of landscape character associated with Landscape Character Area 1 – Team Valley as a result of vegetation removal and	Construction	Manage construction activities: avoid unnecessary loss of vegetation outside working area and protect retained vegetation.	CEMP	Moderate adverse	Contractor to identify and monitor protection measures for retained vegetation for the duration of the construction period.
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Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
construction activity for Allerdene Bridge					
<p>Residential receptors subject to adverse visual effects at:</p> <p>North Farm, 1-4 The Courtyard (R7, VP4)</p> <p>4-6 The Cottages, The Vicarage, Temple Meads (R8, VP6)</p> <p>41 Long Bank (R17)</p> <p>1-4, 6 Northside, Hampton House, Willow Croft (R24)</p> <p>59-68, 96-111 Woodford (R38, VP27)</p>	Construction	Manage construction activities: avoid unnecessary loss of vegetation outside working area and protect retained vegetation.	CEMP	Large adverse	Contractor to identify and monitor protection measures for retained vegetation for the duration of the construction period.

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>Residential receptors subject to adverse visual effects at:</p> <p>South Farm House, The Granary, The Stables, The Dairy (R20)</p> <p>11-15 Newcastle Bank (R15, VP11)</p> <p>31-39 Long Bank (R16, VP12)</p> <p>62-72, 85-111 North Dene (R18, VP13)</p> <p>34-60, 35-47, 57-67, 74-84, 94-106 North Dene (R19)</p>	<p>Construction</p>	<p>Manage construction activities: avoid unnecessary loss of vegetation outside working area and protect retained vegetation.</p>	<p>CEMP</p>	<p>Moderate adverse</p>	<p>Contractor to identify and monitor protection measures for retained vegetation for the duration of the construction period.</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>45 Duart, 16-20, 42-49, 52 Crathie (R20, VP15)</p> <p>1-3, 6-15, 21-24, 26-41, 50-51 Crathie, 16-18 Malone Gardens (R21)</p> <p>Southview (R27)</p> <p>Northside Farm (R28, VP19)</p> <p>Kirschberg (R29, VP19)</p> <p>Dunkirk Farm (R31, VP20, 21)</p> <p>Eighton Lodge, Dene House, Longacre Cottage,</p>					

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>The Hawthorns (R34, VP25)</p> <p>79-93 Salcombe Gardens (R39, VP28)</p> <p>61-77 Salcombe Gardens (R40, VP28)</p>					
<p>Recreational receptors subject to adverse visual effects at:</p> <p>Great North Forest Heritage Trail (P1d, VP20)</p> <p>Lamesley 1 (P3, VP4)</p> <p>Birtley 16 (P15, VP14, 19)</p>	<p>Construction</p>	<p>Manage construction activities: avoid unnecessary loss of vegetation outside working area and protect retained vegetation.</p>	<p>CEMP</p>	<p>Large adverse</p>	<p>Contractor to identify and monitor protection measures for retained vegetation for the duration of the construction period.</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>Lamesley 40#1 (P20)</p> <p>Gateshead 7 (P23)</p>					
<p>Recreational receptors subject to adverse visual effects at:</p> <p>Great North Forest Heritage Trail (P1d, VP10)</p> <p>Birtley 18 (P10)</p> <p>Birtley 5 (P11)</p> <p>Birtley 23 (P16, VP20)</p> <p>Lamesley 43 (P17)</p> <p>Lamesley 63 (P18, VP21)</p>	<p>Construction</p>	<p>Manage construction activities: avoid unnecessary loss of vegetation outside working area and protect retained vegetation.</p>	<p>CEMP</p>	<p>Moderate adverse</p>	<p>Contractor to identify and monitor protection measures for retained vegetation for the duration of the construction period.</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>Lamesley 46 (P19, VP20, 21)</p> <p>Lamesley 40#2 (P21, VP25)</p> <p>Lamesley 69#1 (P22, VP23)</p>					
<p>Residential receptors subject to adverse visual effects at:</p> <p>Horseworld (O4, VP4)</p> <p>St Andrew's Church (O5)</p> <p>Hot Tub Hideaway (O7)</p>	<p>Construction</p>	<p>Manage construction activities: avoid unnecessary loss of vegetation outside working area and protect retained vegetation.</p>	<p>CEMP</p>	<p>Moderate adverse</p>	<p>Contractor to identify and monitor protection measures for retained vegetation following vegetation clearance for the duration of the construction period.</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>Angel of the North Fishing Lakes (O8, VP18)</p> <p>Bowes Incline Hotel (O9)</p> <p>Bowes Manor Equestrian Centre (O10)</p> <p>Angel of the North (O14, VP26)</p> <p>Longacre Wood (O15, VP8)</p>					
<p>Transport receptors subject to adverse visual effects at:</p> <p>Lamesley Road (H1, VP4, 6)</p>	Construction	Manage construction activities: avoid unnecessary loss of vegetation outside working area and protect retained vegetation.	CEMP	Moderate adverse	Contractor to identify and monitor protection measures for retained vegetation for the duration of

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
Smithy Lane (H2, VP7)					the construction period.
Adverse effects identified on the perception of landscape character associated with Landscape Character Area 1 – Team Valley as a result of the presence of the modified Allerdene viaduct option – as a new and readily perceptible feature.	Operation	Replacement planting on embankments and adjacent to the viaduct in order to screen and integrate the new structure and restore landscape features.	DCO	Moderate adverse	Monitoring of the growth and establishment of the planting strategy by Highways England implemented as part of the Scheme through the Benefits Realisation and Evaluation Plan (BREP).
Residential receptors subject to adverse visual effects at:	Operation	Planting on embankments and adjacent to bridge to provide screening and	Landscape Mitigation Design/Landscape Management Plan/HEMP	Moderate adverse	Monitoring of the growth and establishment of the planting strategy by Highways England

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>North Farm, 1-4 The Courtyard (R7, VP4)</p> <p>4-6 The Cottages, The Vicarage, Temple Meads (R8, VP6)</p>		<p>integration of the road and associated traffic</p>			<p>implemented as part of the Scheme through the BREP.</p>
<p>Residential receptors subject to adverse visual effects at:</p> <p>41 Long Bank (R17)</p>	<p>Operation</p>	<p>Secondary visual mitigation benefit of proposed noise barrier to provide screening of the road and associated traffic.</p>	<p>Landscape Mitigation Design/Landscape Management Plan/HEMP</p>	<p>Moderate adverse</p>	<p>Monitoring of the growth and establishment of the planting strategy by Highways England implemented as part of the Scheme through the BREP.</p>
<p>Residential receptors subject to adverse visual effects at:</p>	<p>Operation</p>	<p>Planting adjacent to carriageway to provide screening and integration of the road and associated traffic</p>	<p>Landscape Mitigation Design/Landscape Management Plan/HEMP</p>	<p>Moderate adverse</p>	<p>Monitoring of the growth and establishment of the planting strategy by Highways England</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
Longacre Wood (O15, VP8)					implemented as part of the Scheme through the BREP.
Chapter 8 Biodiversity					
Temporary loss of approximately 57m ² of woodland at Longacre Wood Local Wildlife Site (LWS) and Green Wildlife Corridor.	Construction	Re-establishment of the woodland would be undertaken post-construction and the LWS would be linked to habitats within the wider area, via the woodland corridors created post-construction.	Landscape Mitigation Design/Landscape Management Plan/HEMP	Moderate adverse	Monitoring of the growth and establishment of the planting strategy by Highways England implemented as part of the Scheme through the BREP.

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
Loss of habitat, in particular semi-natural woodland and other woodlands which would take time to establish. Habitat would be created to compensate for this loss but would be smaller than that lost.	Construction	The habitat created to compensate for this loss would be of 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.	Landscape Mitigation Design/Landscape Management Plan/HEMP	Moderate adverse	Monitoring of the growth and establishment of the planting strategy by Highways England implemented as part of the Scheme through the BREP.
No significant adverse or beneficial effects have been identified for the operational phase of the Scheme.					
Chapter 9 Geology and Soils					
No significant adverse or beneficial effects have been identified for the construction or operational phase of the Scheme.					
Chapter 10 Material Resources					

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
No significant adverse or beneficial effects have been identified for the construction or operational phase of the Scheme.					
Chapter 11 Noise and Vibration					
<p>Construction noise from night-time works for Allerdene Bridge.</p> <p>Locations 1, 2 and 3 (Willowbeds Farm, Lamesley Vicarage and Cottages and dwellings on Salcombe Gardens)</p>	Construction	<p>Adoption of best practicable means (BPM) which would be specified within the CEMP.</p> <p>There would be a considerate and neighbourly approach to relations with local residents, with particular care given to the timing and regularity of works that are undertaken within any one area. For example, appropriate periods of respite will be allowed where the generation</p>	CEMP	Significant adverse	<p>A construction noise monitoring programme would be undertaken for out-of-hours works associated with the removal of the existing Allerdene Bridge and the construction of the new Allerdene Bridge.</p> <p>Construction vibration monitoring would also be undertaken where driven piling works are required, or where vibratory</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		<p>of high noise levels is unavoidable at sometimes, e.g. due to the proximity of works.</p> <p>For out-of-hours/night-time works local residents would be provided with advanced notice via means of a local letter drop, public notice or other such communication.</p> <p>A construction noise monitoring programme would be undertaken for all out-of-hours work to install the new Allerdene Bridge and to remove the existing Allerdene Bridge. This programme will</p>			<p>rollers are to be used in the immediate vicinity of sensitive receptors.</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		<p>include an active feedback loop to the construction contractor by means of a visual or alert based system allowing live monitoring of compliance with appropriate construction noise criteria.</p> <p>If a temporary significant noise (or vibration) effect cannot reasonably be prevented, and the works being undertaken are crucial to progressing the Scheme, liaison with the local authority would be undertaken to agree that best mitigation</p>			

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		<p>techniques are being applied and therefore that associated effects are minimised. This would include agreement with the local authority regarding the nature, timing and duration of works. Community consultation would also be carried out as appropriate.</p>			
<p>Road traffic noise near the following locations:</p> <p>North Dene and Crathie area (area screened by proposed Birtley barrier) (NIA 2451)</p>	<p>Operation</p>	<p>Beneficial effects are the result of the following proposed mitigation:</p> <p>Proposed 3m acoustic barrier for NIA 2451 incorporated as part of Scheme design.</p>	<p>DCO</p>	<p>Significant beneficial</p>	<p>N/A</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		Thin Surface Course System (low noise surface) incorporated for full length of A1 mainline including on and off slips.			
Road traffic noise on NIAs within the wider area 50m buffers	Operation	Beneficial effects are the result of the following proposed mitigation: Proposed 3m acoustic barrier incorporated as part of Scheme design. Thin Surface Course System (low noise surface) incorporated for full length of A1 mainline including on and off slips.	DCO	Significant beneficial	N/A

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
Road traffic induced airborne vibration at North Dene and Crathie area (area screened by proposed Birtley barrier) (NIA 2451)	Operation	Beneficial effects are the result of the following proposed mitigation: Proposed 3m acoustic barrier for NIA 2451 incorporated as part of Scheme design. Thin Surface Course System (low noise surface) incorporated for full length of A1 mainline including on and off slips.	DCO	Significant beneficial	N/A
Chapter 12 Population and Human Health					
Increase of driver stress (motorised travellers) from	Construction	A construction traffic management plan would be produced for the works which	Construction Traffic Management Plan CEMP	Major adverse	N/A

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
construction activities.		would include traffic management measures including measures to minimise the interface between the public and site traffic, speed restrictions, and clearly sign posted and advertised diversions and closures.			
Increase in journey length and change in amenity for Pedestrians, Cyclists and Equestrians.	Construction	Signage and route layout would be clear to understand and avoid creating route uncertainty. Any diversions or closures of PRow would be clearly advertised, and diversions clearly signposted.	Construction Traffic Management Plan CEMP	Moderate adverse	N/A

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		<p>The works would 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.</p>			
<p>Disruption to communities' ability to access or cross the A1.</p>	<p>Construction</p>	<p>Existing footpaths and PRoW would be retained and where crossed by the Scheme, proper means of access would be provided.</p> <p>Signage and route layout would be clear to understand, and any diversions or</p>	<p>Construction Traffic Management Plan</p> <p>CEMP</p>	<p>Moderate adverse</p>	<p>N/A</p>

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
		closures would be clearly advertised and signposted.			
Increases in driver stress, community severance and noise and vibration, and reductions in accessibility, amenity value, and air quality are likely to result in effects on human health.	Construction	Measures to minimise route uncertainty, maintain access for pedestrians, cyclists and equestrians, and encourage use of the local supply chain, as well as measures to reduce air quality impacts and noise and vibration during construction as detailed in Chapter 5 Air Quality and Chapter 11 Noise and Vibration in this ES.	Construction Traffic Management Plan CEMP	Moderate adverse	N/A
Improved WCH routes would	Operation	The new North Dene Footbridge would provide improved	DCO	Moderate beneficial	N/A

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
<p>improve user safety, enhance access and improve community connectivity to the wider footpath network</p>		<p>access for WCH users. A new fence would restrict access to the northbound carriageway for pedestrians and animals between the Northside Overbridge and the A1. Improvements would be made at the headwall of Long Bank Bridleway Underpass including widening and providing a wooden close-board fence to minimise impacts to horses from oncoming traffic.</p>			

Chapter 13 Road Drainage and the Water Environment

Description of Effect	Construction/Operation	Proposed Mitigation and Enhancement	Mitigation Delivery Mechanism	Significance of Environmental Effect	Monitoring Requirements
No significant adverse or beneficial effects have been identified for the construction or operational phase of the Scheme for Road Drainage and the Water Environment.					
Chapter 14 Climate					
No significant adverse or beneficial effects have been identified for the construction or operational phase of the Scheme for Climate.					

Table 16-3 - Summary of significant effects for Allerdene Bridge options

Aspect of Assessment	Construction/Operation	Description of Effect		Significance of Environmental Effect	
		Embankment Option	Viaduct Option	Embankment Option	Viaduct Option
Cultural Heritage					
Setting of Long Bank Bridleway Underpass at Bowes Railway – View to the north	Construction and Operation	This option would create an interruption in view to the north but proposed planting mitigation would blend into the existing landscape.	This option would create a break in views to the north and would create less of an interruption than the embankment as views	Major adverse	Major adverse

Aspect of Assessment	Construction/Operation	Description of Effect		Significance of Environmental Effect	
		Embankment Option	Viaduct Option	Embankment Option	Viaduct Option
			would continue below the viaduct.		
Landscape and Visual					
Landscape Character: LLCA 1 – Team Valley	Operation (Winter year of opening)	Impacts generally of short to medium duration along the northern fringes of the character area, with the exception of Allerdene Bridge over the East Coast Main Line (ECML) and the proposed Northern Gas Networks (NGN) Above Ground Installation (AGI) which would be perceived as permanent change. The resulting effect would arise as a result of the loss of existing vegetation and changes to the existing carriageways.	This option would represent a more extensive structure and have more vertical structures associated with it and in the immediate landscape, and in combination with the NGN AGI, would be more conspicuous resulting in a noticeable permanent impact. The resulting effect would arise as a result of the loss of existing vegetation, changes to the existing carriageways, and the influence of a larger scale and more extensive	Slight adverse (not significant)	Moderate adverse

Aspect of Assessment	Construction/Operation	Description of Effect		Significance of Environmental Effect	
		Embankment Option	Viaduct Option	Embankment Option	Viaduct Option
			crossing associated with the ECML.		
Landscape Character: LLCA 1 – Team Valley	Operation (Summer Design Year)	The Scheme including Allerdene embankment option, would result in a magnitude of impact that would reduce as a result of the maturation of the mitigation planting, achieving greater integration of the changes, as a result the effect on the fringes of the character area would reduce from the winter year of opening reducing the influence of the changes to the existing carriageways.	Allerdene viaduct option would remain a permanent and prominent change to the northern fringes of the character area, the effect being to modify slightly the perception of the landscape of having a wooded edge associated with the A1 over a larger area and distance to the south and west.	Slight adverse (not significant)	Moderate adverse
Views from R7 Lamesley Road: North Farm, 1-4 The Courtyard (Summer design	Operation (Winter year of opening + Summer design year)	Where views of Allerdene embankment option remain, it would represent a perceptible change in	Allerdene viaduct option would exert a greater influence on the visual receptors, with an	Slight adverse (not significant)	Moderate adverse

Aspect of Assessment	Construction/Operation	Description of Effect		Significance of Environmental Effect	
		Embankment Option	Viaduct Option	Embankment Option	Viaduct Option
year) / Views from R8 Lamesley Road: 4-6 The Cottages, The Vicarage, Temple Meads		the view from a limited number of receptors. The effect would be an increased perception of the bridge structure and associated embankment within the view that would reduce slightly as associated mitigation planting matures and achieves an effective level of integration.	awareness of the vertical structures and impacting a greater proportion of the views. Mitigation planting would achieve some level of integration as it matures but the structure would remain a noticeable change in the view.		
Views from P3 - 450 length	Operation (Summer design year)	As a result of the embankment option, receptor P3 would be subject to change, with the embankment option occupying a more direct line of sight, that would diminish in prominence as mitigation planting matures.	At its eastern end, receptor P3 would be subject to direct views of the viaduct, that would be more extensive in scale and prominence within the view, mitigation planting would provide some filtering effect but the upper section of the supports would remain prominent within views.	Slight adverse (not significant)	Moderate adverse

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