A57 Link Roads

TR010034

9.26 Environmental Statement

Chapters 1-4 Introductory Chapters (Tracked)

Rule 8(1)(k)

Planning Act 2008

Infrastructure Planning (Examination Procedure) Rules 2010

Volume 6

January 2022

Infrastructure Planning

Planning Act 2008

Infrastructure Planning (Examination Procedure) Rules 2010

A57 Link Roads Scheme Development Consent Order 202 [x]

9.26 ENVIRONMENTAL STATEMENT

CHAPTERS 1 – 4 INTRODUCTORY CHAPTERS (TRACKED)

Regulation Number:	Rule 8(1)(k)
Planning Inspectorate Scheme Reference	TR010034
Document Reference	TR010034/APP/9.26
Author:	A57 Link Roads Project Team, National Highways

Version	Date	Status of Version
Rev 3.0	January 2022	Deadline 2
Rev 2.0	November 2021	Section 51 Advice
Rev 1.0	June 2021	DCO Application

Table of contents

Chapter Pages

Tables

Inserts

1 Introduction

1.1 Purpose of the report

1.1.1 This Environmental Statement (ES) has been prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[1] (SI No. 572) (hereafter referred to as the 'EIA Regulations') to support the application by National Highways (the Applicant) for a Development Consent Order (DCO), under the Planning Act 2008 (the 2008 Act) to authorise the construction, operation and maintenance of the A57 Link Roads (previously known as Trans Pennine Upgrade) (herein referred to as 'the Scheme').

1.1.2 This ES is a key part of the DCO application documentation and reports the results of the Environmental Impact Assessment (EIA). EIA is an iterative process that aims to gain an in-depth appreciation of beneficial and adverse environmental consequences of a scheme. The EIA has also influenced the development of the Scheme design.

1.1.3 The principal purpose of the ES is to present the findings of the EIA for the Scheme in a way that ensures that the significant environmental effects are sufficiently described and understood for the purposes of an application for development consent. The intention is to enable the Planning Inspectorate to make a well-informed recommendation to the Secretary of State on whether or not to grant a DCO. The ES also provides the same information to other interested parties who wish to participate in the statutory decision-making process.

1.1.4 The ES provides the following information:

- A description of the proposed development comprising information on the site, design, size and other relevant features of the development
- A description of the likely significant effects of the proposed development on the environment
- A description of any features of the proposed development, or measures envisaged to avoid, prevent or reduce and, if possible, offset likely significant effects
- A description of the reasonable alternatives studied by the Applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment. on the environment
- A non-technical summary of the information
- Any additional information relevant to the specific characteristics of the development, or type of development and to the environmental features likely to be significantly affected.

Structure of this Environmental Statement

1.1.5 The content of the ES is divided into 4 main sections:

[1] [redacted]

- Non-Technical Summary – Providing a summary of the ES in non-technical language
- Chapters 1 to 4 – Introduction to the ES
- Chapters 5 to 14 – assessment of likely significant effects for each topic that is scoped into the assessment
- Chapters 15 to 17– Cumulative effects, Summary and Glossary and Abbreviations

Structure of each environmental topic chapter

1.1.6 Each environmental topic chapter is structured as follows:

- Introduction
- Legislative and policy framework
- Assessment methodology
- Assessment assumptions and limitations
- Study area
- Baseline conditions
- Potential impacts
- Design, mitigation and enhancement measures
- Assessment of likely significant effects
- National Policy Statement for National Networks (NPS NN) compliance
- Monitoring
- Summary

1.1.7 The documents in Table 1-1, although not forming part of the ES, are also relevant to environmental matters.

Table 1-1 Relevant environmental documents

Document Reference	Document Title
TR010034/APP/5.1	The Consultation Report
TR010034/APP/5.2	Statement in Respect of Statutory Nuisance
TR010034/APP/5.3	Habitats Regulations Assessment Screening report
TR010034/APP/5.4	Water Framework Directive Assessment
TR010034/APP/5.5	Flood Risk Assessment
TR010034/APP/7.2	Environmental Management Plan (First iteration)
TR010034/APP/7.3	Register of Environmental Actions and Commitments
TR010034/APP/7.4	Transport Assessment Report

Document Reference	Document Title
TR010034/APP/7.5	Traffic Management Plan
TR010034/APP/7.6	Ground Investigation Report
TR010034/APP/7.7	Drainage Design Strategy Report

EIA Scoping documentation

1.1.8 In accordance with Regulation 8(1) (b) of the EIA Regulations, the Applicant notified the Secretary of State in a letter to the Inspectorate dated 8 November 2017 that an ES would be provided in respect of the Trans-Pennine Upgrade scheme (which the Scheme was then known as).

1.1.9 An Environmental Scoping Report (APP-181) was prepared to establish the scope of the ES (this report) by setting out the proposed technical content and methodologies to be used during the EIA. This was submitted to the Planning Inspectorate on 08 November 2017. The Planning Inspectorate reviewed this and provided a response in December 2017, which is presented in the Scoping Opinion (APP-181). The comments provided by the Planning Inspectorate and statutory consultees are provided in Appendix 4.1: The Planning Inspectorate Scoping Opinion and Responses (APP-152), which also outlines how these comments have been incorporated into the EIA. Where the approach is not in accordance with the Scoping Opinion, this has been discussed and agreed with relevant consultees.

1.1.10 The scope of the EIA for each topic has been discussed and agreed with the relevant statutory consultees and this is stated within individual technical chapters as relevant.

Next steps

1.1.11 Subject to acceptance (and publication) of the application by the Planning Inspectorate, consultees and the local community will be able to review the documents and provide representations. As a result of the COVID-19 pandemic the Infrastructure Planning (Publication and Notification of Applications etc.) (Amendment) Regulations 2020[2] came into force. This removes the requirement to make documentation available for inspection at local deposit points therefore, alternative methods will be in place for those wanting to view and comment on the ES, as outlined below.

1.1.12 Paper copies will be made available at a reasonable cost to cover printing and postage. Electronic copies of this ES and hard copies of the Non-Technical Summary (APP-059) can be made available on request for free on a USB. An electronic copy will also be available on the Planning Inspectorate's website: https://infrastructure.planninginspectorate.gov.uk/projects/north-west/trans-pennine-upgrade-programme/?ipcsection=docs&stage=app
Copies will also be available directly from the Applicant as well as the Scheme website: https://highwaysengland.co.uk/our-work/north-west/a57-link-roads/.

[2] The Infrastructure Planning (Publication and Notification of Applications etc.) (Amendment) Regulations 2020

1.1.13 Further details about making a representation and how to get involved in the planning process are provided in the Planning Inspectorate's Advice Note 8.1[3].

1.2 Overview of the Scheme

1.2.1 The Scheme has evolved over more than 50 years as different ideas have been explored. It has formerly been known as the Trans-Pennine Upgrade (TPU) and is also referred to as the "Mottram Moor Link Road and A57 Link Road project" in the Government's Roads Investment Strategy (RIS) 2015-2020[4]. The Scheme to which this DCO application and ES relates is known as the A57 Link Roads Scheme.

1.2.2 The Trans-Pennine route (A57(T), A628 and A616) between Manchester and Sheffield currently suffer from heavy congestion, creating unreliable journeys, which limits journey time reliability. This restricts economic growth due to the delays experienced by commuters and business users alike. The congestion also results in rat running through smaller towns and villages, as vehicles attempt to reduce queuing times.

1.2.3 Much of this heavy traffic travels through local roads, which disrupts the lives of communities and makes it difficult and potentially unsafe for pedestrians to cross the roads. It is expected that these issues will only get worse with time if significant improvements aren't made. Further detail on these baseline and future scenarios for congestion is provided within the Transport Assessment Report (APP-185).

1.2.4 In 2017, after a wide consultation about a number of different options, a package of TPU work was announced, to improve the existing route connecting the M67 at Mottram-in-Longdendale to the M1, north of Sheffield.

1.2.5 The TPU has since been split into two projects which are being delivered separately:

- Upgrades to the A61Westwood roundabout near Sheffield; packaged with the A628 Safety and Technology improvements, including electronic signs and improved closure gates
- Creation of two new link roads at the western end of the A57/A628 route, to provide a dual carriageway bypass around Mottram-in-Longdendale (the Scheme discussed in this ES)

1.2.6 The A628 Safety and Technology improvements and A61 Westwood Roundabout were not considered to be NSIPs. Furthermore, following a review of the advice provided in 'Guidance on associated development applications for major infrastructure projects5' (DCLG, April 2013), neither were they considered to be associated development. Consequently, these developments are already being delivered by the Applicant. The Westwood Roundabout improvements were completed in March 2021, and the Safety and Technology improvements works are programmed to end in June 2021.

1.2.7 The Westwood Roundabout improvements will improve journey times locally; however, they are likely to have a minimal impact on traffic flows in the Mottram

[redacted]

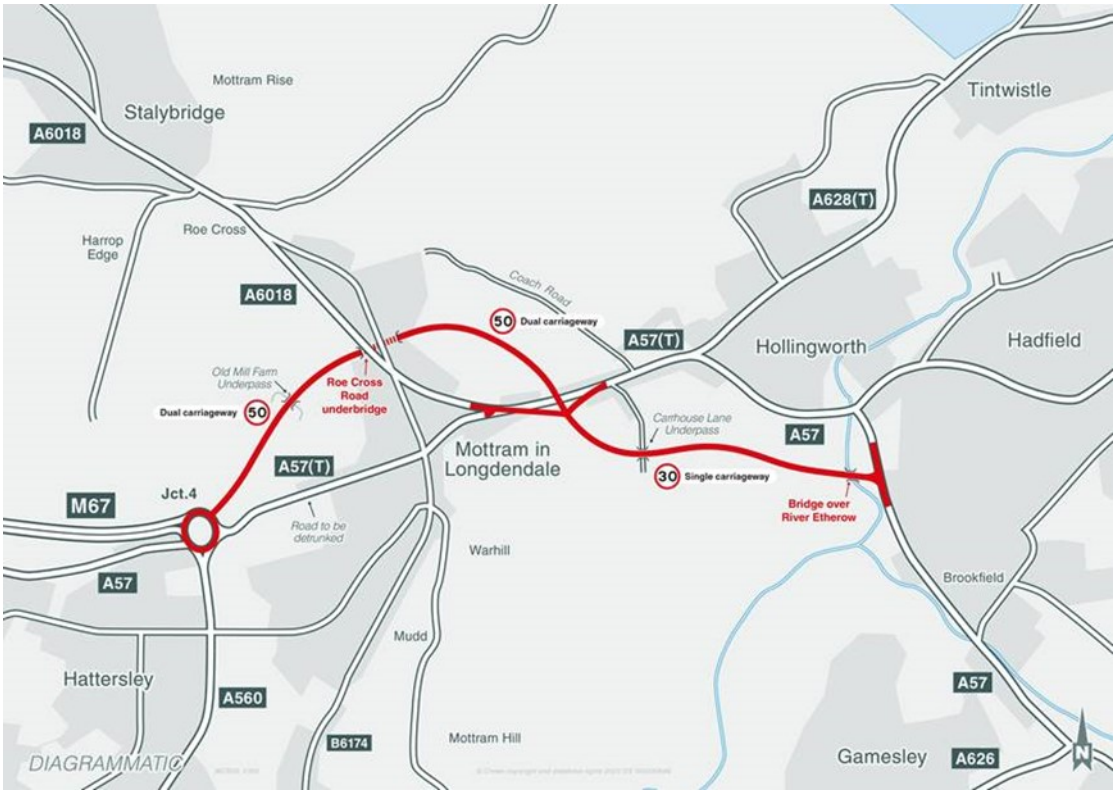
area. The Safety and Technology improvements are unlikely to change journey times on the A628 when complete. See section 2.4 in the Scheme chapter (Chapter 2) for details on how these improvements have been included within this EIA.

1.2.8 The two new link roads being delivered by this Scheme are as follows:

- Mottram Moor Link Road – a new dual carriageway from the M67 Junction 4 roundabout to a new junction on the A57(T) at Mottram Moor.
- A57 Link Road – a new single carriageway link from the A57(T) at Mottram Moor to a new junction on the A57 in Woolley Bridge.

1.2.9 Further detail about the Scheme's history and its development is provided in the Assessment of alternatives chapter (Chapter 3).

1.2.10 The Scheme (Insert 1) is located primarily within Mottram-in-Longdendale, on the eastern edge of the Manchester conurbation, adjacent to and within the settlements of Hattersley, Mottram-in-Longdendale, Hollingworth and Woolley Bridge. The road connects the M67 in the west, to the A57 Brookfield Road in the east and crosses through the surrounding, predominately pasture, agricultural land within the Harrop Edge and Mottram Moor valley sides and within the Etherow river valley.



Insert 1 Scheme overview

1.2.11 The Scheme lies mainly within the administrative boundaries of Tameside Metropolitan Borough Council (MBC), up until to the proposed River Etherow Bridge. To the east of this, the Scheme crosses over the boundary with High Peak Borough Council and Derbyshire County Council.

1.2.12 The Scheme includes the following components:

- A new offline bypass of 1.12 miles (1.8km) of dual carriageway road connecting the M67 Junction 4 to A57(T) Mottram Moor Junction
- A new offline bypass of 0.81 miles (1.3km) of single carriageway connecting the A57(T) Mottram Moor to the A57 Woolley Bridge
- Creation of two new junctions, Mottram Moor Junction and Woolley Bridge Junction and improvement works to the existing M67 Junction 4
- Creation of five new structures (Old Mill Farm Underpass, Roe Cross Road Overbridge, Mottram Underpass, Carrhouse Lane Underpass and River Etherow Bridge)
- One main temporary construction compound area, located on agricultural land to the east of the M67 Junction 4
- Detrunking, including safety measures from the M67 Junction 4 to Mottram Back Moor Junction, to be agreed with Tameside MBC.
- Safety measures and improvements to the A57 from Mottram Moor Junction to Gun Inn Junction and from Gun Inn Junction to Woolley Bridge Junction, to be agreed with Tameside MBC.

1.3 Legislative and policy framework

1.3.1 The following section provides a summary of the main legislative and policy framework relevant to the Scheme.

Planning Act 2008

1.3.2 The Scheme is a National Significant Infrastructure Project (NSIP) as set out by the requirements within Sections 14(1)(h) and 22(1) of the Planning Act 2008 (the Act). This is because:

- The Scheme relates to a highway (Section 14(1)(h) of the 2008 Act), specifically the construction of a highway lying wholly within England (Section 22(1)(a) and 22(2)(a) for which the Secretary of State is the highway authority (section 22(2)(b) of the 2008 Act)
- Development involving such an alteration is only an NSIP if it exceeds the scale thresholds set by Section 22(4) of the 2008 Act. The includes a highway with a speed limit of 50 miles per hour.
- The relevant threshold set out in Section 22(4)(b) of the 2008 Act, namely that the area of development (the area of land on which the highway to be altered is situated, together with adjoining land expected be used in connection with the alteration) must be over 12.5 hectares. The area of development in this case (as shown on the land plans (APP-007) is 62.3 hectares (ha), comfortably in excess of the threshold

1.3.3 Based on the factors identified above, the Scheme is defined as a construction NSIP. For further information regarding how the Scheme qualifies as an NSIP, refer to the Explanatory Memorandum (APP-022).

1.3.4 The relevant NPS for the Scheme is the National Policy Statement for National Networks (NPS NN). Chapters 5 to 15 of the ES includes the relevant assessment paragraphs of the NPS NN where applicable to the topic chapters.

The overall assessment of the Scheme's accordance with the NPS NN can be found alongside the Case for the Scheme (APP-182).

1.3.5 The Infrastructure Planning (Publication and Notification of Applications etc) (Amendment) Regulations 2020 (SI 2020/1534) came into force as a result of the restrictions on movements and the closure of public buildings during the COVID-19 pandemic. These Regulations amend the requirements placed on applicants to make documentation available for inspection at places including at least one address in the vicinity of the proposed development when submitting the DCO documentation. More information on the Applicant's approach to addressing uncertainty arising from the COVID-19 pandemic with respect to the Scheme is provided in the Case for the Scheme (APP-182).

The EIA Regulations

1.3.6 The principal legislation governing EIA was formed within the European Community Directive 85/337/EEC[6], which sets out the requirements for the preparation of an EIA for certain types of projects where they are likely to have significant effects on the environment. The original 1985 Directive has been subsequently amended twice and those amendments have been codified in Directive 2011/92/EU in December 2011.This has been further amended by Directive 2014/52/EU and was transposed into UK law for NSIPs under the EIA Regulations and the specific requirements of the relevant EIA Regulations.

1.3.7 Regulation 5(2)(a) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, requires applications for granting DCOs to be accompanied by an Environmental Statement in accordance with the EIA Regulations. The Scheme is considered to be 'EIA development' under the EIA Regulations which transposes the requirements of EU Directive 2011/92/EU, as amended by 2014/52/EU (Ref 1.3), into UK law

1.3.8 The Scheme has been subjected to EIA procedures on the basis that: it is listed within Schedule 2 Regulation 3(1) Part 10 (f) 'Construction of roads'[7] of the EIA Regulations; and has the potential to generate significant environmental effects by virtue of its nature, scale and location.

1.3.9 Schedule 4 of the EIA Regulations 2017 highlights the information to be included within an ES. Part 1 highlights information 'as is reasonably required' and Part 2 details information that must be provided as a minimum. This information is provided in Table 1-2, which also indicates where information is provided within this ES.

[redacted]

Table 1-2 Requirements of the EIA Regulations and Details of their location within the ES

Requirements (Schedule 4: Information for Inclusion in Environmental Statements)	Location within the ES
A description of the development, including in particular— (a) a description of the location of the development (b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases (c) a description of the main characteristics of the operational phase of the development (in particular any production process) (d) an estimate, by type and quality, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases	1(a) to 1(c) within Chapter 2: The Scheme 1(d) within environmental topic chapters (Chapters 5 to 15)
2. A description of the reasonable alternatives studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	Assessment of alternatives (Chapter 3)
3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge	Within environmental topic chapters (Chapters 5 to 15)
4. A description of the factors specified in regulation 5(2) likely to be significantly affected by the development: population, human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape.	Within environmental topic chapters (Chapters 5 to 15)
5. A description of the likely significant effects of the development on the environment resulting from, inter alia – a) the construction and existence of the development, including, where relevant, demolition works b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters) e) the cumulative effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular	Within environmental topic chapters (Chapters 5 to 15) Transboundary effects: Scoped out, see section 4.1.20 Heat and radiation: Scoped out, see section 4.1.23

Requirements (Schedule 4: Information for Inclusion in Environmental Statements)	Location within the ES
environmental importance likely to be affected or the use of natural resources f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change g) the technologies and the substances used. The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.	
6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved	Environmental assessment methodology (Chapter 4)
7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements. The description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Within environmental topic chapters (Chapters 5 to 15)
8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned.	Provided in Appendix 4.2 Major Accidents and disasters
9. A non-technical summary of the information provided under paragraphs 1 to 8.	Provided in a separate document (APP-059)
10. A reference list detailing the sources used for the descriptions and assessments included in the Environmental Statement	Within environmental topic chapters (Chapters 5 to 15)

Legislative and policy overview

1.3.10 Table 1-3 provides a summary of the key international, national, regional and local policies that support the need for the Scheme.

Table 1-3 Legislative, regulation and policy overview

Scale	Policy/Legislative document	Key Consideration for the Scheme
International	The EIA Directive (2014/52/EU)	The EIA Directive aims to ensure that the likely significant environmental effects of a development proposal are properly understood before any development consent is granted. EIA therefore provides a means of assessing the likely significant environmental effects of a proposal, and the potential for avoiding, reducing, or offsetting any adverse impacts.
	The Habitats Directive (92/43/EEC)	The Habitats Directive was adopted for the conservation of natural habitats and of wild fauna and flora and aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements.
National	Planning Act 2008	The Scheme is a National Significant Infrastructure Project (NSIP) as set out by the requirements within Sections 14(1)(h) and 22(1) of the Planning Act 2008 (the Act). A DCO is therefore required to allow the construction and operation of the Scheme. Further detail concerning the Scheme's qualification as an NSIP can be found within the Explanatory Memorandum (TR10034/APP/3.2).
	National Policy Statement on National Networks (NPS NN) (December 2014)	Identifies that there is a critical need to address road congestion and provide safe, expeditious and resilient networks that should be designed to minimise social and environmental impacts and improve quality of life.
	National Planning Policy Framework (NPPF) (2019)	Advises that local authorities should take account of the need for strategic infrastructure, including nationally significant infrastructure within their areas. The NPPF sets out the Government's planning policies for England and requirements for the planning system. It provides a framework within which locally prepared plans for housing and other development can be produced. The NPPF advises that local authorities should take account of the need for strategic infrastructure, including nationally significant infrastructure within their areas.
	The EIA Regulations 2017	The EIA directive is transposed into UK legislation through the EIA Regulations 2017. Under the (EIA) Regulations 2017, the Scheme is considered to be an EIA development which requires an ES to be prepared because of the likelihood that the Scheme will give rise to

Scale	Policy/Legislative document	Key Consideration for the Scheme
		significant environmental effects. National Highways submitted a Regulation 8(1) (b) notice on 08 November 2017, notifying the Secretary of State that it proposed to provide an ES in respect of the Scheme. The aim of EIA is to protect the environment by ensuring that the Examining Authority, when deciding whether to recommend consent for a project which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes environmental information into account in the decision-making process.
	Conservation of Habitats and Species Regulations 2017	The Habitats Directive is transposed into UK legislation through the Conservation of Habitats and Species Regulations 2017. A HRA is required by Regulation 63 of the Habitats Regulations for all projects and plans which may have 'likely significant effects (LSE)' on a European Site and are not directly connected with or necessary to the management of the European Site. Regulation 84 of the Habitats Regulations explicitly applies Regulation 63 to applications for development consent under the Planning Act 2008. The HRA (APP-054) is a separate document to this ES.
	Highways England Licence 2015	This sets out both statutory directions and statutory guidance issued by the Secretary of State for the Applicant to follow when undertaking their duties when managing the strategic road network
	Road Investment Strategy 1 2015 to 2020	Promote safe movement, satisfy users of the network, support efficient movement, improved environmental outcomes, support local access and well-being and be demonstrably cost effective.
	Road Investment Strategy 2 2020 to 2025	Promotes a safer network, more reliable, and more sensitive to the places through which it runs. Strong focus on the differing needs of road users and adoption of new working practices and technologies including network users experiencing smoother, more consistent journeys and use of green infrastructure and good design, so users and residents alongside the network experience less noise, light and air pollution to help local places grow sustainably and help people make more active and sustainable travel choices on the Strategic Road Network (SRN) .
	Highways England Delivery Plan 2020-2025	The plan outlines how the Applicant will create jobs and generate economic benefits for the whole country, at the same time as maintaining roads for today's drivers. As well as reduce their

Scale	Policy/Legislative document	Key Consideration for the Scheme
		carbon emissions, and support government's ambition to achieve net zero carbon emissions by 2050.
	Highways England Biodiversity Plan 2015	Details the aims and obligations it has to deliver as part of the Government's RIS in terms of biodiversity. The Applicant is expected to ensure the design of their road schemes reduce impacts on the environment by delivering a reduction in habitat fragmentation and enhancing biodiversity value.
	Highways England Designated funds plan 2020-2025	Through designated funds the Applicant aims to transform the strategic roads network and create a modern road network that supports a modern country, that will be smoother, smarter and more sustainable by 2040.
	Highways England Environment Strategy	This strategy outlines the Applicant's approach to improving the environment and sets the environment vision that guides the Applicant's actions in relation to the environment. Through its Environmental Strategy, the Applicant has identified a series of strategic levers and plans which place environment at the heart of design. These have been considered as part of the design-development and environmental assessment of the Scheme
	Highways England Sustainable Development Strategy	This strategy sets out the Applicant's approach and priorities for sustainable development, which is to reduce the impact of the Applicant's activities and ensure long-term and sustainable benefits are delivered to the environment and communities.
Regional	Northern Transport Strategy: 'The Northern Powerhouse: One Agenda, One Economy, One North'	The Transport Strategy seeks to transform Northern growth, rebalance the UK economy and establish the North as a global powerhouse. The Strategy sets out how transport is a fundamental part of achieving these goals and how to develop long-term investment in the region. Central to achieving the vision is increased capacity and improved Trans-Pennine road links." The Northern Transport Strategy states that the "Northern road network will become increasingly congested without action." Specifically, it sets out that the "proposed Trans-Pennine route enhancements include a new Mottram Moor link road, a link road between the A57 and A57 trunk road, consideration of climbing lanes on the A628 and dualling of the A61."'
	Greater Manchester Joint Minerals Development Plan Document 2013	The Minerals Plan identifies how Greater Manchester will deliver the spatial vision for minerals development to 2028. The Minerals Plan sets out policies to guide future minerals

Scale	Policy/Legislative document	Key Consideration for the Scheme
		development and identifies Areas of Search and Mineral Safeguarding Areas in order to meet aggregate requirements and to protect minerals resources across Greater Manchester to 2028.
	Greater Manchester Biodiversity Action Plan (Greater Manchester Ecology Unit) 2009	The Greater Manchester Biodiversity Action plan (GM BAP) aims to provide an over-arching document across all ten districts in Greater Manchester; these are Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Trafford, Tameside and Wigan. The overall aim of the GM BAP is: "To promote the conservation, protection and enhancement of biological diversity in Greater Manchester for current and future generations" These BAPs include a description of the ecology, priority habitat, current status and distribution, factors affecting the habitat, current actions, objectives and targets, proposed actions and best practice guidelines
Local	Tameside Unitary Development Plan 2004 (saved from 27 September 2007)	The Tameside Unitary Development Plan is the principal document in guiding development within the Tameside authority area. The current Unitary Development Plan is saved as a Development Plan Document beyond its expiry date of 27 September 2007. Policy T1 Highway Improvement and Traffic Management considers the “safe management of congestion problems. Policy T2 Trunk Road Developments protects “the line of the Mottram to Tintwistle Bypass, proposed by the Highways Agency as a trunked road scheme”. Policy T3 Major Highway Schemes also supports several local interventions required as part of the wider A57 Scheme.
	High Peak Borough Council Adopted Local Plan (2016)	The Local Plan was adopted on 14 April 2016 and sets out the council's vision and strategy for the borough until 2031. The Local Plan sets out the development strategy, strategic and development management policies and land designations for the parts of High Peak that lie outside of the Peak District National Park. Policy CF6 Accessibility and Transport aims to support “highways and junction improvements required to address the cumulative impact of development across High Peak” Policy S5 Glossopdale sub-area strategy states that High Peak will work with partner organisations to address congestion along the A57.
	Peak District National Park Local Plan	The Local Development Framework Core Strategy 2011 sets out the vision, objectives and spatial strategy for the national park, and core

Scale	Policy/Legislative document	Key Consideration for the Scheme
		policies to guide development and change in the National Park to 2026. Policy T2: Reducing and directing traffic supports transport developments only in exceptional circumstances where there is a demonstrable long-term net environmental benefit within the park or where they provide access to new business or housing development. The National Park aims to direct traffic to the SRN and away from local roads.
	Peak District Biodiversity Action Plan (The Peak District National Park Authority) 2011-2020	The Peak District BAP is based largely on the three National Character Areas (NCA) of the Dark Peak, White Peak and South West Peak. The Peak District BAP aims to enhance the landscape with good quality, diverse habitats, buffer important sites, creating larger areas of semi-natural habitats and linking habitats together, enable species to move and adapt in the face of climate change and restore habitats such as peat bogs, moorlands and woodland.

1.3.1 The emerging joint development plan for Greater Manchester, *Places for Everyone*, is also relevant to the Scheme, albeit it currently carries little material weight in decision making. This is because it is currently at an early stage of development; in December 2020, following the withdrawal of Stockport City Council from then Greater Manchester Spatial Framework (GMSF) process, the Association of Greater Manchester Authorities (AGMA) resolved to proceed with the preparation of a joint Development Plan Document (DPD) covering the nine remaining local authorities, known as *Places for Everyone,* and the evidence base collected as part of the production of the GMSF is currently being reviewed. The timescale for the adoption of *Places For Everyone* is currently uncertain.

1.3.2 It is currently unclear what allocations from the former GMSF will be taken forward in the new plan currently being prepared by the nine remaining Greater Manchester local authorities.

1.4 Competent Expert Evidence

1.4.1 In accordance with the EIA Regulations, the coordination of the environmental assessment process and specialist assessments has been undertaken by a team of competent and qualified consultants who are registered with the relevant institutions and/or chartered.

1.4.2 The ES has been undertaken by a consultancy that is EIA Quality Mark registered through the Institute of Environmental Management and Assessment (IEMA). Accreditation is based around compliance with a series of EIA commitments, which IEMA regularly independently monitors through an annual review process. The EIA Quality Mark therefore provides registrants with a benchmark for their EIA activities and demonstrates a commitment to effective practice. Continued registration requires all of EIA coordinators and practitioners to be aware of the commitments and deliver EIA work to a high standard.

1.4.3 The overall EIA lead with responsibility for the ES is a competent expert with relevant and appropriate experience and is a full member of IEMA and a Chartered Environmentalist (CEnv), and who has 16 years' interdisciplinary project coordination experience, specialising in Environmental Impact Assessment and Management, including 6 years as Environment Lead for National Highways schemes.

1.4.4 The environmental specialists have worked in close collaboration with designers and engineers through the various stages of the Scheme's development. This process has maximised the opportunity to avoid or reduce adverse environmental effects early in the design process and identified mitigation measures to address those effects that cannot be avoided or reduced at source.

1.4.5 Evidence of competency of the EIA technical leads, with responsibility for various chapters, including qualifications and experience, is provided in Appendix 1.1: Competent Expert Evidence (APP-150).

1.5 Consultation overview

1.5.1 A summary of the consultation undertaken on the Scheme to date is presented in this section.

1.5.2 Consultation has taken place with a wide range of organisations and individuals. The consultation process was intended to address any or all of the following purposes:

- To obtain factual information about the environment
- To obtain advice or comment on the scope of the EIA work
- To obtain comment and advice about the environmental merits of the Scheme or strategic environmental issues it may affect
- To obtain comment and advice on the factors influencing the assessment of how significant each environmental impact may be
- To obtain advice about potential design changes or other measures that could be taken to remove or reduce impacts or make them less significant
- To obtain advice or comment about the methods proposed in this ES.

1.5.3 As detailed within the Assessment of alternatives chapter (Chapter 3), the Scheme within this ES was originally being delivered as part of the wider TPU package. Consequently, a significant amount of consultation has been undertaken for the Scheme, as part of this wider TPU package and for the present A57 Link Roads Scheme, which has been key to its development from the outset.

1.5.4 Table 1-4 briefly outlines the consultation timeline to date. The full details are provided in the Consultation Report (APP-026).

Table 1-4 Overview of consultation timeline

Consultation	Description of Consultation
Pre-Non-Statutory Consultation on the Scheme as part of the wider TPU October 2015 – March 2017	Including two option development workshops with key stakeholders; a statutory Environmental Bodies meeting; two public awareness events in Hollingworth and Tankersley; and a letter to potentially affected land interests with follow-up meetings
Non-Statutory Consultation on wider TPU March 2017 to April 2017	Including the creation of a 16-page brochure; 8-page feedback questionnaire and a fly-through video; a leaflet drop to 27,500 local residential, commercial and industrial properties; and a series of 5 public exhibition events, in Mottram, Tankersley, Bradbury, Hattersley and Hollingworth.
Pre-Statutory Consultation on the Scheme as part of the wider TPU April 2017 – February 2018	Including Statutory Environmental Bodies and Local Authority Steering Group meetings; a preferred route announcement, through press releases, leaflet drops and website posts; a resident's surgery event; and ongoing technical engagement with environmental stakeholders
Statutory Consultation on the Scheme as part of the wider TPU February 2018 to March 2018	Including the creation of a dedicated scheme webpage, an A4 brochure, a consultation response form, DCO leaflet and fly through video; copies of the brochure sent to all postal addresses within the consultation zone; a series of six public exhibition events, in Mottram, Glossop, Hattersley, Hollingworth and Tankersley; and consultation documents and an offer of a one to one meeting sent to all land interests.
Post-Statutory Consultation on the Scheme as part of the wider TPU July 2018 to November 2019	Including ongoing technical engagement with environmental stakeholders; Local Authority Steering Group meetings; and meetings with landowners.
Statutory Consultation on the Scheme (specifically as the A57 Link Roads Scheme) November 2020 – December 2020	Including updating the dedicated scheme webpage, an A4 brochure, a consultation response form, DCO leaflet and fly through video; a Preliminary Environmental Information Report, webinars, telephone consultation days and consultation documents and an offer of a one to one meeting sent to all land interests.
On-going post-Statutory Consultation on the Scheme December 2020 onwards	Including ongoing technical engagement with environmental stakeholders; Local Authority and meetings with landowners.

Non-statutory consultation October 2015 to April 2017

1.5.5 This section briefly outlines the non-statutory consultation undertaken during the period October 2015 to April 2017.

1.5.6 A pre-non statutory consultation with primary consultees was held October 2015 to March 2017. The purpose of this was to gain detailed knowledge of the

existing infrastructure and environment, potential issues, on the ground' first-hand knowledge, community aspirations and economic growth strategies to inform design, the Environmental Scoping Report and EIA. 3.Two public awareness events were held for the TPUP in October 2016 in Hollingworth and Tankersley to gather information to inform options development. The events also provided insight into the perceptions and concerns of the public.

1.5.7 A public non-statutory consultation took place between 13 March 2017 and 10 April 2017. Five options were consulted on, including Mottram Moor Link Road and the A57 (T) to A57 Link Road. The non-statutory consultation was recorded in the 'Trans Pennine Upgrade Programme, Non-Statutory Consultation Report, v0.6, 5 October 2017.[8]

1.5.8 Five public exhibition events were held on 18, 22, 24 and 25 March and on 1 April 2017, which were attended by over 800 members of the public.

1.5.9 The proposals included

1.5.10 The public were asked to state their preference between two Scheme options, Option A and Option B, see Assessment of Alternatives chapter (Chapter 3) for more information on these options.

1.5.11 The majority of respondents preferred Option A to Option B because they believed it to be the more sensible and logical route, had a minimal impact on the environment, fewer properties would be affected, provided a safe route and was more similar to previously proposed routes. Those who preferred Option B did so because it bypasses more of Mottram Moor and congestion problems would be better addressed. The information gathered as part of the non-statutory options consultation helped to inform the decision on the Preferred Route.

Preferred Route Announcement November 2017

1.5.12 The information gathered as part of the non-statutory options consultation helped to inform the decision on the Preferred Route and the development of the Scheme which was taken to statutory consultation. The PRA was made by the Applicant on 2 November 2017. Option A was selected as the Preferred Route to be progressed to the next stage of development.

Scoping report November 2017

1.5.13 Highways England (now National Highways) submitted an Environmental Scoping Report to the Planning Inspectorate on 08 November 2017, with a formal request for a Scoping Opinion.

1.5.14 Before determining the Scoping Opinion, the Planning Inspectorate approached 80 consultation bodies. Twenty-five of these consultation bodies replied within the statutory deadline, however only 11 consultation bodies responded and 'expressed interest in the scheme'. Consultation bodies that replied and expressed an interest in the Scheme, provided information or made comment on the scope of the EIA are listed below:

- Barnsley Metropolitan Borough Council
- The Coal Authority
- Derbyshire County Council
- Environment Agency
- High Peak Borough Council
- Historic England
- Natural England
- Peak District National Park
- Public Health England
- Royal Mail
- Tameside Metropolitan Borough Council

1.5.15 The Planning Inspectorate's Scoping Opinion (APP-181) was issued in December 2017. The Scoping Opinion includes copies of all responses from consultation bodies. Appendix 4.1 (APP-152) sets out a summary and analysis of the Scoping Opinion and how these comments have been addressed within the ES.

1.5.16 Following receipt of the Scoping Opinion, ongoing consultation focused on those consultation bodies who had responded expressing an interest in the Scheme. Selected additional organisations were also consulted, including some of the prescribed consultees who had not responded to the scoping consultation within the statutory deadline.

Preliminary Environmental Information Report

1.5.17 Under Provision 12 'Consultation Statement Requirements' of the EIA Regulations, the Applicant is required to set out in its Statement of Community Consultation (SoCC) how it intends to publicise and consult on preliminary environmental information relating to the proposed development.

1.5.18 Preliminary environmental information is defined as:

- Information referred to in Regulation 14(2) which has been compiled by the Applicant; and
- Is reasonably required to assess the environmental effects of the development (and of any associated development).

1.5.19 A preliminary report on the initial findings of the EIA and likely significant effects, Preliminary Environmental Information Report (PEIR)[9] was therefore published to inform each of the statutory consultation events (February 2018) and updated for (November 2020) (discussed below).

1.5.20 The purpose of the PEIR was to enable specialist and non-specialist consultees from the community and other stakeholders, to understand the potential pre-mitigation environmental effects of the proposed development. Effects were

[9] PW Integrated Template [redacted]

predicted for each environmental assessment topic to inform consultee responses at the DCO preapplication consultation stage.

1.5.21 Consultees were encouraged to respond to the information contained in the PEIR and other consultation reports as part of the consultation process. The responses received were then taken into account in preparing the finalised design of the Scheme.

Statutory consultation 12 February 2018 to 25 March 2018

1.5.22 This section briefly outlines the statutory consultation undertaken 12 February 2018 to 25 March 2018. The full details of this consultation are provided in the Consultation Report (APP-026).

Section 42 Consultation with Prescribed Consultees 12 February to 25 March 2018

1.5.23 In accordance with s42 of the Act, National Highways has consulted with the following:

- Prescribed Consultees
- Each local authority within s43
- Each person who is within one or more of the categories set out in s44 (Category 1, 2 or 3 landowner).

1.5.24 A list of prescribed consultees has been identified which are provided in Appendix G of the Consultation Report (APP-033). The inclusion of each consultee is justified through the 'circumstances' test as identified in Schedule 1 of the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 (APFP Regs).

1.5.25 Relevant local authorities were identified and sent a S42 consultation letter. A list of the relevant local authorities can be seen in Table 4-5 of the Consultation Report (APP-026).

1.5.26 A statutory consultation letter was prepared and sent out on 26 January 2018 to all consultees under S42 of the Act to notify them of statutory consultation period. The consultation documents included:

- the consultation brochure
- the customer response form
- a copy of the PEIR accompanied by an NTS
- associated plans/drawings/reports

Section 47 Consultation with the Community February 2018 to March 2018

1.5.27 The Applicant undertook a consultation exercise under Section 47 of the Act. Six public consultation events ran from 17 February 2018 to 10 March 2018. The main purpose of community consultation was to engage with local residents, communities and stakeholders, to provide information on the Scheme and an opportunity to raise concerns. In addition, the proposals were publicised to the public at large via notices under Section 48 of the Planning Act 2008.

Additional statutory consultation June 2018 to July 2018

1.5.28 Additional interested parties were identified through the course of the consultation. To ensure their views could be included the Applicant ran a targeted statutory consultation which ran from the 4 June to 1 July 2018 (28 days). The materials used for this consultation were the same as those used in the first round of statutory consultation.

Statutory consultation November 2020 – December 2020 (A57 Link Roads)

1.5.29 The statutory consultation undertaken for the present Scheme (i.e. A57 Link Roads), November 2020 – December 2020 and on-going consultation from December 2020 was done virtually. This was to account for the challenges presented by COVID-19, such as social distancing and restrictions on non-essential public gatherings. Consultations took the form of webinars, virtual meetings and phone consultation slots for those individuals asking more specific questions. The Applicant received over 1,500 responses during this statutory consultation period, which have been recorded and carefully considered as part of the Scheme's development. Specifically, how comments received have shaped and influenced the Scheme's design has been reported in the Consultation report and summarised in Table 3-7 within the Assessment of alternatives chapter (Chapter 3).

1.5.30 In addition to producing a consultation brochure, online response form, flythrough video and a PEIR, a programme of virtual events (webinars and telephone consultations) was provided (see Table 1-5). Further detail on the consultation undertaken is provided in the Consultation Report (APP-026)

Table 1-5 Summary of virtual consultation activities on the A57 Link Roads November 2020 – December 2020

Virtual consultation activity undertaken:	Dates:
Telephone consultation days – (Project call centre setup during which people could ring members of the project team for a discussion and ask questions about the Scheme)	10/17/24 November 2020 (all Tuesdays)
Phone back days (Follow-up calls with specific subject matter experts arranged following the telephone consultation day. This allowed members of the public and stakeholders to discuss specific topics with the relevant topic expert.)	12/19/26 November 2020 (all Thursdays)
Public Webinars (Presentation on the updated Scheme proposals, followed by a live Q&A, where members of the public were able to submit questions to a project team panel using a chat function.)	18 (afternoon and evening)/21 November 2020 (Wednesdays and Saturday)
Landowner dial in A landowner consultation call was setup specifically for landowners affected by the Scheme	Monday 23 November
Stakeholder Webinars (Presentation on the updated Scheme proposals, followed by a live Q&A, for invited Stakeholders, who were able to submit questions to a project team panel using a chat function.)	Wednesday 25 November and Tuesday 8 December 2020

1.5.31 Details of consultation correspondence and meetings key stakeholders, local authorities and prescribed consultees that are relevant to environmental

assessments are not included in full in this ES, as they can be found in the Consultation Report (APP-026). However, reference is made to key consultations within topic chapters, as required, e.g. to demonstrate where the approach to assessment methodology was agreed in consultation or where consultation was undertaken outside of the 6 week statutory consultation period (05 November to 17 December 2020).

Section 42 Consultation with Prescribed Consultees November 2020 to December 2020

1.5.32 In November 2020 the Applicant ran an additional statutory consultation. The purpose of this was to communicate the changes made to the Scheme since the consultation in 2018 and ensure prescribed consultees had the opportunity to fully understand and comment on the revised proposals.

1.5.33 In accordance with s42 of the Act, National Highways consulted with:

- Each host and adjacent local authority as defined within s43
- Prescribed Consultees
- Each person who is within one or more of the categories set out in s44 (Category 1, 2 or 3 landowner).

1.5.34 The letters which were sent to all consultees under S42 of the Act provided an overview of the Scheme, an explanation around the classification of the Scheme as a NSIP and the requirement to apply for a DCO. The consultees were advised of the public consultation process, events (including a specific landowner event), the location of consultation information and the opportunity to provide feedback opinions on the Scheme. The letter included a web link to the consultation documents online.

1.5.35 These were sent out on 4 November 2020 to consultees to notify them of statutory consultation period, along with the relevant consultation materials. A full list of the consultees and copies of the letters provided to each strand of S42 consultees are provided within Appendix I of the Consultation Report (APP-035).

Section 47 Consultation with the Community November 2020 to December 2020

1.5.36 The Applicant undertook an additional consultation exercise under Section 47 of the Planning Act 2008. Due to the situation with the COVID-19 pandemic, the nine consultation events were held virtually (webinars, telephone consultation days and call-backs) and ran from 5 November 2020 to 17 December 2020. The main purpose of community consultation was to engage with local residents, communities and stakeholders, to provide information on the changes made to the Scheme and an opportunity to raise concerns. In addition, the proposals were publicised to the public at large via notices under Section 48 of the Planning Act 2008.

Ongoing consultation

1.5.37 This section briefly outlines the on-going consultation undertaken to date that has occurred outside of the statutory consultation periods.

Environmental data requests and consultation

1.5.38 Information and data required for the environmental impact assessments have been requested from relevant environmental organisations. This also includes correspondence in which the approach to assessments have been agreed with the relevant stakeholders. A summary of consultation is provided in Table 1-6.

1.5.39 Responses to the Environmental Scoping Report are not presented here but are instead provided in Appendix 4.1 PINS Scoping Opinion and Responses (APP-152).

Table 1-6 Summary of consultation

Consultee	Date of Consultation	Summary of Consultation
Air Quality		
Tameside MBC	By email - 9 May 2018	An email was sent to Tameside MBC requesting up to date monitoring / Local Air Quality Monitoring (LAQM) report. A response was received from Tameside MBC the same day with the information requested.
Stockport Council	By email – 21 May 2018	An email was sent to Stockport Council requesting 2015 monitoring data and that the 2016 Greater Manchester Annual Status Report was the most up to date monitoring results for 2016.
High Peak Borough Council	By email – 20 June 2019	An email was sent to High Peak Borough Council requesting Air Quality data
High Peak Borough Council	By email – 21 August 2020	An email was sent to High Peak Borough Council requesting Air Quality data
Tameside MBC	Phone call/ Email Correspondence – 19 September 2019	A request was made to place diffusion tubes on Tameside continuous monitoring stations (CMS). Difficult access to the CMS meant tubes were never placed at the site.
Cultural Heritage		
Greater Manchester Archaeological Officer (GMAAS)	Dec 2017 - June 2018	The Archaeological Officer expressed concern about the following: • Prehistoric potential and sites in the west of the Site. • Potential roman and other activity within the application site close to the River Etherow. • The need for pre-application surveys to be included as part of the ES.
Derbyshire Archaeological Officer	25 January 2018	Consideration should be given to the setting and significance of Melandra Castle and a true reflection of the impacts of the Scheme given. Roman roads and crossing points of the River Etherow would be of interest to the region. Recommend engaging with Peak District National Park Authority

Consultee	Date of Consultation	Summary of Consultation
Portable Antiquities Scheme for North West England	17 January 2018	Only two finds have been reported within the study area. Both are of post-medieval date and would add little to the assessment. These asset receptors have therefore not been included in the baseline assessment.
Tameside MBC	Telephone – 18 April 2018	A phone call was made to Tameside MBC to request further discussions on heritage matters relating to the Scheme.
Greater Manchester Archaeological Officer	Meeting – 31 October 2019	A meeting was held to update GMAAS on the Scheme and to agree the scope of the archaeological investigations
Greater Manchester Archaeological Officer	By email – 26 November 2019	Data request for reports by Tameside Archaeology Society on test pitting near Grange Farm and a synopsis of investigations at Grange Farm Data received: 2 January 2020
Greater Manchester Archaeological Officer	By email – 5 June 2020	A design brief was issued to GMAAS detailing the proposed scope of works for the archaeological investigations, which GMAAS provided comment on.
Greater Manchester Archaeological Officer	By Teams meeting – 10 June 2020	A meeting was held to go over the proposed archaeological investigations proposed for the Scheme.
Greater Manchester Archaeological Officer	By email – 3 November 2020	The Written Scheme of Investigation (WSI) for archaeological photogrammetric and geophysical survey issued to GMAAS Reply received: 5 November 2020 confirming GMAAS are satisfied with the WSI and timetable for the archaeological investigations
Derbyshire Archaeological Officer	By email – 8 December 2020	Consultee updated on the current consultation and A57 Link Roads Scheme Reply received: 8 December 2020 to confirm they had sent their comments to the authority lead
Peak District National Park	By email – 21 December 2021	Email correspondence regarding the PDNPA key areas of concern of designated sites relating to increased traffic flows
Derbyshire Archaeological Officer	By email 11 January 2021 -	Consultee invited to join a meeting to discuss the Archaeology strategy document; the approach to archaeology fieldwork and for Derbyshire tor review Written Scheme of Investigation requirements. Reply received 11 January 2021 to confirm they would like to discuss requirements over email
Greater Manchester Archaeological Officer	By teams meeting – 25 January 2021	A meeting to update GMAAS on the archaeological investigations and agree the works to be undertaken pre-DCO

Consultee	Date of Consultation	Summary of Consultation
Derbyshire Archaeological Officer	By email 27 January 2021	Consultee emailed outlining our approach to the archaeological investigations and agree the works to be undertaken pre-DCO Reply received: 27 January 2021 to agree GMAAS to lead on the bulk of the area and to proceed with a joint authority WSI
(Landscape specialist) Peak District National Park	Meeting 28 January 2021	Meeting organised to discuss the approach to the setting assessment of the landscape and cultural heritage features. Meeting rescheduled due to lack of attendance from PDNPA and agreed that the applicant would send a briefing note as a basis for discussion, outlining approach instead (see landscape section for more details)
Greater Manchester Archaeological Officer	On-going correspondence February – March 2021	WSI issued to GMAAS outlining the proposed approach to the archaeological evaluation prior to construction of the Scheme Reply received 18 February 2021 GMAAS responded to confirm they were satisfied with the approach outlined in the WSI GMAAS attended a site meeting during the archaeology surveys and confirm the future approach for surveys
Historic England	By email 22 March 2021	The Applicant contacted Historic England to arrange a meeting to discuss the scheme and mitigation proposals
Historic England	Meeting 30 April 2021	A meeting to update Historic England on the potential impacts of the Scheme and mitigation/screening proposals where relevant regarding designated assets, the Archaeological potential in proximity to the Scheme and the programme for the Archaeological fieldwork.
Landscape and Visual		
Peak District National Park Authority, Derbyshire County Council, High Peak Borough Council, Tameside MBC	Emails – between 20 December 2017 and 2 February 2018 Meeting 30 March	Consultation undertaken with the relevant local authorities on the Landscape and Visual Impact Assessment viewpoint selection. Meeting with Tameside MBC to discuss landscape proposals from an operation maintenance perspective (for areas within Tameside MBC land ownership)
Peak District National Park Authority, Derbyshire County Council, High Peak Borough Council, Tameside MBC	Emails between 28 February 2018 – 10 May 2018	Consultation undertaken with the relevant local authorities on the Landscape and Visual Impact Assessment night-time visual assessment viewpoint locations and photomontage locations.
Natural England	Email -18 May 2018 -	Sharing the draft indirect Effects Methodology with Natural England so to agree an appropriate methodology to base the assessment on.

Consultee	Date of Consultation	Summary of Consultation
Peak District National Park Authority & Natural England	Meeting – 3 October 2018	Ecological/Landscape Mitigation/Enhancement Challenge and Review Workshop
Natural England	Telephone – 21 May 2018	Landscape and Ecology discussion relating to the Scheme
(Landscape specialist) Peak District National Park	By email - 21 August 2020	As recommended by Natural England, the Peak District National Park were contacted to review the proposed viewpoints for the LIVA surveys
(Landscape specialist) Peak District National Park	Meeting 14 December 2020	Meeting arranged to discuss the approach to the setting assessment of the landscape and cultural heritage features.
(Landscape specialist) Peak District National Park	Meeting 26 January 2021	Meeting organised to discuss the approach to the indirect effects landscape methodology
(Landscape specialist) Peak District National Park	Meeting 28 January 2021	Meeting organised to discuss the approach to the setting assessment of the landscape and cultural heritage features. Meeting rescheduled due to lack of attendance from PDNPA and agreed that the applicant would send a briefing note as a basis for discussion, outlining approach instead
(Landscape specialist) Peak District National Park	By email 19 February 2021	Draft Indirect Effects Methodology issued to the PDNP for comment Comments received from PDNP 05 March 2021 which were clarified and responded to 16 March 2021
Biodiversity		
Derbyshire Bat Group	By email – 20 January 2017	Records of bats within a 1km search radius of the Scheme where this search area fell within Derbyshire. Data received 23 January 2017.
Derbyshire Wildlife Trust	By email – 20 January 2017	Protected and notable species records within a 1km search radius of the Scheme where this search area fell within Derbyshire. Data received 23 January 2017.
Greater Manchester Local Record Centre	By email – 23 January 2017	Protected and notable species records within a 1km search radius of the Scheme where this search area fell within Greater Manchester. These records also include bat records for Greater Manchester. Data received 26 January 2017.
Derbyshire and Nottinghamshire Entomological Society	By email – 20 January 2017	Invertebrate species records within a 1km search radius of the Scheme. Data received on 17 February 2017.

Consultee	Date of Consultation	Summary of Consultation
Natural England	Telephone – February 2017	Initial conference call to discuss the Scheme and work required.
Natural England	Telephone – 8 June 2017	Progress update conference call.
Natural England	Telephone – 10 July 2017	Progress update conference call.
Natural England	Telephone – 5 September 2017	Progress update conference call.
Pennine Edge Barn Owl Group	By email – 21 February 2018	Records of barn owl within the area of Mottram-in-Longdendale and Hollingworth. Data received on 2 March 2018.
Environment Agency	Meeting – 21 March 2018	Meeting to discuss potential ecological mitigation options on the River Etherow.
Peak District National Park Authority & Natural England	Meeting – 3 October 2018	Ecological/Landscape Mitigation/Enhancement Challenge and Review Workshop
Derbyshire Biological Records Centre (DBRC)	By email – 4 October 2019	Protected and notable species records within a 2 km (extended to 5 km for notable bird species) search radius of the Scheme where this search area fell within Derbyshire. Data received on 8 October 2019
Derbyshire Biological Records Centre (DBRC)	By email – 1 October 2019	Non-statutory site citations within 50 m of the Affected Road Network (ARN) Data received 15 October 2020.
Greater Manchester Local Record Centre (GMLRC)	By email – 4 October 2019	Protected and notable species records within a 2 km (extended to 5 km for bats and notable bird species) search radius of the Scheme where this search area fell within Greater Manchester. Data received: 11 October 2019
(Natural England Advisory) Natural England	By email letter – 15 May 2019	In relation consultation which was received by Natural England on 18 April 2019 in relation to an early draft of the HRA Screening Report. Natural England stated they were satisfied with the conclusions of the draft report
(Natural England Advisory) Natural England	By email – 29 June 2020	General advice and principles regarding the Ecological Aspects of an Environmental Statement, Internationally and Nationally Designated Sites, Sites of Special Scientific Interest and sites of European or international importance (Special Areas of Conservation, Special Protection Areas and Ramsar sites), prior to setting up Discretionary Advice Service contract
(Natural England Advisory) Natural England	By Skype meeting – 4 August 2020	Meeting to update Natural England on the Scheme since precious consultations, discuss designated sites, agree methodology, species scoped in and out and survey limitations given the COVID-19 pandemic

Consultee	Date of Consultation	Summary of Consultation
Natural England	By email – 2 – 23 September 2020	Correspondence regarding the impact on bats within proximity of the Scheme
Greater Manchester Local Record Centre (GMLRC)	By email – 28 September 2020	Bat and notable bird records within 5 km & non-statutory site citations within 50 m of the ARN.
Wildlife Lead Advisor (Natural England)	By email – 29 September 2020	Natural England's Discretionary Advice Service (DAS) response received
Forestry Commission	February 2021	Discussions between the Applicant and the Forestry Commission regarding the potential of designated funds projects, outside the scope of the Scheme, to maximise biodiversity delivery across the Applicant's activities
Cheshire Wildlife Trust (CWT)	March 2021	Discussions between the Applicant and CWT regarding the potential of a designated funds project, outside the scope of the Scheme, to maximise biodiversity delivery across the Applicant's activities
(Natural England Advisory) Natural England	Meeting – 28 May 2021	Regarding updates to the Scheme and the HRA Screening Report including the air quality assessment methodology and results. Headline results and methodology as outlined within this HRA Screening Report were sent to Natural England prior to the meeting. Natural England concurred with headline methodology and results and agreed there was no requirement to go through to Stage 2 of the HRA process
Geology and Soils		
Environment Agency	By email 26 - April 2018	Obtain local environmental information across the Scheme
Tameside Metropolitan Borough Council	By email - June 2018	Obtain local environmental information across the Scheme
High Peak Borough Council	By email - June 2018	Obtain local environmental information across the Scheme (No response to date)
Tameside Metropolitan Borough Council	By email – 13 October 2020	Obtain local environmental information across the Scheme Data received – 24 November 2020
Environment Agency	By email – 18 December 2020	Email to obtain agreement on the methodology being proposed for the supplementary ground investigation works Email received –21 January 2021 agreeing acceptance of approach but querying the number of bore holes for the Carr House Lane landfill area

Consultee	Date of Consultation	Summary of Consultation
		Project team replied 03/02 confirming approach to which the EA advised they were satisfied as long as it was not considered there would be additional environmental risk.
High Peak Borough Council	By email – 18 December 2020	Email to obtain agreement on the methodology being proposed for the supplementary ground investigation works Response received 26 April 2021 to confirm High Peak Borough Council were satisfied with the approach
Tameside Metropolitan Borough Council	By email – 18 December 2020	Email to obtain agreement on the methodology being proposed for the supplementary ground investigation works Response received 4 January 2021 to confirm Tameside MBC are satisfied with the approach
Environment Agency	By email – 21 January 2021	Email to obtain agreement on the methodology being proposed for the supplementary ground investigation works On-goings discussion 21 January- 4 February 2021 to confirm with the EA that they were satisfied that the former landfill contains non-mobile materials and would not pose a risk to the surrounding environment The Applicant contacted the EA 30 March 2021 to update on the GI surveys.
Materials assets and waste		
Derbyshire County Council	Email correspondence – between 14 March 2018 – 10 May 2018	An email was first sent to Derbyshire County Council on 14 March 2018 requesting a direct contact for their Material expert. Derbyshire County Council provided a contact email address to forward request to. Requested information include: • Local Area Objectives • Area Assessment • Details of any future development in the area • Details regarding Permitted landfills in the Area • Details regarding Waste Treatment and Transfer Facilities in the Area • Details regarding Soil treatment facilities in the Area • Quarries in Local Area • Secondary Aggregate Production in Local Area • Part A and B Permits for Aggregate Batching Plants in Local Area A telephone call followed, and subsequently further information was received from the team leader of Policy and Monitoring of Economy, Transport and Environment. It was confirmed that all the information required for mineral is contained with

Consultee	Date of Consultation	Summary of Consultation
		the County Council's Local Aggregate Assessment with the latest version being 2017 and the latest waste information can be obtained from the Environment Agency (free access).
Greater Manchester Waste and Minerals Planning Team	Email Correspondence - March 2018	An email was sent to Greater Manchester Waste and Minerals Planning Team on 14 March 2018 requesting relevant information for the environmental assessment. No response was received. Requested information include: • Local Area Objectives • Area Assessment • Details of any future development in the area • Details regarding Permitted landfills in the Area • Details regarding Waste Treatment and Transfer Facilities in the Area • Details regarding Soil treatment facilities in the Area • Quarries in Local Area • Secondary Aggregate Production in Local Area • Part A and B Permits for Aggregate Batching Plants in Local Area
Noise and Vibration		
Tameside MBC	Email correspondence – between 29 March – 30 May 2018	An email was first sent to Tameside MBC's Regulatory Services on 29 March 2018 requesting a review of the proposed monitoring locations. A corrected file was resent to Tameside MBC's Regulatory Services on 13 April 2018. A response was received from Tameside MBC's Regulatory Services Manager providing comments on the proposed noise monitoring locations on the 9 May 2018. It was queried why residential properties closer to the Scheme on Mottram Moor, Old Hall Lane and Four Lanes have not been included. An email was sent to Tameside MBC's Regulatory Services Manager explaining the reasoning behind the choice of proposed noise monitoring locations along the Scheme on 30 May 2018.
High Peak Borough Council	Email correspondence – between 19 March 2018 – 30 May 2018	An email was first sent to High Peak Borough Council on 19 March 2018 requesting a direct contact for their Environmental Health Department. High Peak Borough Council provided a contact on the same day. The contact was sent an email on 21 March 2018 requesting a review of the proposed monitoring locations.

Consultee	Date of Consultation	Summary of Consultation
		A response was received from High Peak Borough Council on 4 May 2018, advising all monitoring points were outside of their boundary but provided feedback. It was advised that monitoring be undertaken where the bypass intersects the A57 in Glossop and on existing routes. An email was sent to High Peak Borough Council to further explain that the monitoring is only to inform the construction noise assessment rather than operation and the locations proposed are designed to obtain a representative of the baseline noise in areas where construction noise has the potential to be significant.
Population and human health		
Public Health England	By email – 26 March 2021 Meeting 9 April 2021	As agreed during the statutory consultation, the Applicant invited PHE to a follow up meeting to discuss the Population and human health assessment methodology in more detail A meeting to update PHE on the Population and Human Health assessment for the Scheme
Road Drainage and the Water Environment		
Environment Agency	Email correspondence – November 2017 – ongoing	Regular communication with the Environment Agency flood risk team to agree the Flood Risk Assessment (FRA) scope, gain approvals in principle of the River Etherow model and hydrology, and to proposed flood mitigation works.
Environment Agency	Meeting – 13 April 2018	Presentation of River Etherow baseline flood modelling results and discussion around flood risk mitigation requirements and strategies. Agreement on key design parameters for the Scheme crossing of the Etherow, including freeboard and set back distances.
Environment Agency	Email correspondence – 26 June 2018	Confirmed that there are no licensed groundwater abstractions within the study area.
Environment Agency	Email correspondence – 26 June 2018	Confirmation of approval in principle of the baseline hydraulic and hydrological modelling of the River Etherow.
Environment Agency	Email correspondence – 06 July 2018	Comments received on a Water Framework Directive (WFD) Scoping Note. Confirmed that the proposed study area for the assessment is reasonable and requested that justification is provided for scoping out waterbodies beyond the Zone of Influence (ZoI).
Environment Agency	Meeting – 9 October 2018	Discussion on the Section 42 response received from the Environment Agency and attempted to address their concerns raised.

Consultee	Date of Consultation	Summary of Consultation
High Peak Borough Council	Email correspondence – 18 June 2018	Confirmed that the council have no records of any unlicensed (private) water supply abstractions from surface or groundwater sources within the study area.
Tameside Metropolitan Borough Council - as Lead Local Flood Authority	Meeting – 17 April 2018	Discussion on the Scheme drainage design and the culverting and diversion of land drainage ditches (ordinary watercourses). The Lead Local Flood Authority confirmed that in principle they have no issues with the proposed drainage works.
Tameside Metropolitan Borough Council	Email correspondence – 11 June 2018	Provided records of unlicensed (private) water supply abstractions from surface and groundwater sources within the study area.
United Utilities	Email correspondence – 23 April 2018	Provided details of the operational management and maintenance of the Longdendale reservoir chain.
Environment Agency	By email - 12 March 2020	Agreement in Principle received on the proposed changes to the River Etherow structure
Environment Agency	By email – 6 November 2020	Email sent to the EA to inform them of the additional statutory consultation and the PEIR with the intention to set up a meeting to discuss the updated Scheme and any outstanding issues.
Lead Local Flooding Authority (LLFA) (Tameside (MBC)	Meeting – 10 November 2020	Meeting to discuss the preliminary drainage proposals. The LLFA confirmed their acceptance of the preliminary proposals, including the storm return periods and climate change factors used to assess the attenuation
Environment Agency	Meeting – 3 December 2020	In agreement with the EA, the Applicant will proceed with the climate change guidance as set out in NPPF. Flood Risk and Coastal Change. Table 1 July 202010 to inform the design. The Applicant is undertaking a further sensitivity run of 95% increase in flows to examine the vulnerability of this type of development (Essential infrastructure) to future flood risk and develop the FRA and modelling assessment and progress the design in accordance with this. The Applicant discussed the constraints around the existing flood envelope and that the purpose is for additional flood storage not just re-landscaping so positioning is dictated by existing flood envelope. The consultee identified flood risk permit requirements and land ownership. The Applicant noted that through modelling the flood management strategy does manage flood risk effectively within the area and that the EA will continue to be consulted on this. The Applicant agreed to add on peak river flow when running the hydraulic model to ensure the soffit level is set correctly and the compensatory

Consultee	Date of Consultation	Summary of Consultation
		flood storage volume is adequate over the lifetime of the new highway structure.
Environment Agency	By email 14 January 2021	The Applicant advised the EA their approach to climate change allowances and the design for the River Etherow crossing and the associated flood risk management provision in this area (i.e. Compensatory Flood Storage Provision and localised left-hand bank embankment). Response received 19 January 2021 from the EA confirming they had no objection in principle
Environment Agency	By email 22 March 2021	The Applicant confirmed to the EA that they would be issuing the draft FRA and draft WFD in advance of the DCO submission for comment
Environment Agency	By email 21 April 2021 and 13 May 2021	The Applicant provided further clarification on the assessment approach taken within the Flood Risk Assessment (APP-056), Water Framework Directive (APP-055) and the Road drainage and water environment chapter (Chapter 13) to assessing the risk to the scheme posed by groundwater. The EA responded (29 April 2021) to confirm that the approach detailed in the email was as discussed during statutory consultation. It was agreed that the Flood Risk Assessment (APP-056), Water Framework Directive (APP-055) would be issued to the EA in advance of DCO submission. These were subsequently issued via email on 13th May 2021
LLFA – Tameside MBC	By email 21 April 2021 Meeting 4 May 2021	The Applicant provided further clarification on the assessment approach taken within the Flood Risk Assessment (APP-056), Water Framework Directive (APP-055) and the Road drainage and water environment chapter (Chapter 13) to assessing the risk to the scheme posed by groundwater. A meeting was set up to discuss the approach taken to assessing Groundwater in the ES and Flood Risk Assessment (APP-056), Water Framework Directive (APP-055)
Climate		
Derbyshire County Council	Email correspondence – between 14 March 2018 – 10 May 2018	An email was first sent to Derbyshire County Council on 14 March 2018 requesting a direct contact for their Climate expert. Derbyshire County Council provided a contact email address to forward request to. Requested information include: • Local Area Objectives (Climate Change targets, aims and commitments required, particularly for major infrastructure projects, document where targets stated. Details of any future and policy that could potentially affect climate change requirements and/or baseline data)

Consultee	Date of Consultation	Summary of Consultation
		• Area Assessment (Greenhouse gas emissions baseline data for the Derbyshire and the wider region) Following further a telephone, information was received from the Policy and Monitoring of Economy, Transport and Environment team, and further consideration of the council's Climate Change Charter 2014-2019 and the Council's Environment Policy was advised.
Greater Manchester Planning Team	Email Correspondence – March 2018	An email was first sent to Greater Manchester Planning Team on 14 March 2018 requesting a direct contact for their Climate expert. No response was received. Requested information include: • Local Area Objectives (Climate Change targets, aims and commitments required, particularly for major infrastructure projects, document where targets stated. Details of any future and policy that could potentially affect climate change requirements and/or baseline data) • Area Assessment (Greenhouse gas emissions baseline data for the Greater Manchester and the wider region)

2 The Scheme

2.1 Need for the Scheme

2.1.1 The main Trans-Pennine road route between the Manchester and Sheffield City Regions is the trunk road route consisting of the A57, A628, A616 and A61. This route connects the M67 at Mottram-in-Longdendale towards the east of the Manchester City Region with the M1 in the north west of the Sheffield City Region.

2.1.2 The Trans-Pennine Upgrade (TPU) was made up of a series of measures announced in March 2015's Road Investment Strategy (RIS) for the 2015-2020[11] road period, published by the Department for Transport (DfT). A second RIS (RIS2) has since been published, which covers the 2020-2025 period. The TPU aimed to address longstanding issues of connectivity, congestion, reliability and safety with regard to the strategic Trans-Pennine routes between the M67 at Mottram and the M1 J36 and J35A north of Sheffield. The current Scheme (the A57 Link Roads) was part of this wider package of work.

2.1.3 The Scheme has been developed to improve journeys between Manchester and Sheffield. The current A57 around Mottram-in-Longdendale suffers from congestion which limits journey time reliability. This restricts economic growth due to the delays experienced by commuters and business users alike. This has a negative effect on local businesses and employment opportunities. The congestion also results in rat running through smaller towns and villages, as vehicles attempt to reduce queuing times. Much of this heavy traffic travels along local roads, which disrupts the lives of communities, and makes it difficult and potentially unsafe for pedestrians to cross the roads. It is likely that these issues would get worse with time, if significant improvements aren't made.

2.2 Scheme Objectives

2.2.1 The overall objectives for the Scheme are listed below:

- **Connectivity** – by reducing congestion and improving the reliability of people's journeys through Mottram-in-Longdendale, Hollingworth and Tintwistle and also between the Manchester and Sheffield city regions
- **Environmental** – by improving air quality and reducing noise levels in certain areas, through reduced congestion and removal of traffic from residential areas. The Scheme is also being designed to avoid unacceptable impacts on the natural environment and landscape in the Peak District National Park
- **Societal** – by re-connecting local communities along the Trans-Pennine route
- **Capacity** – by reducing delays and queues that occur during busy periods and improving the performance of junctions on the route.

2.2.2 The Case for the Scheme, Table 3-2 (APP-182) sets out how the Scheme complies with the objectives, as outlined above.

2.2.3 Furthermore, Highways England's Biodiversity Plan, published[12] in June 2015, details the aims and obligations it has to deliver as part of the Government's RIS, in terms of biodiversity. The Applicant is expected to ensure the design of its road schemes reduces impacts on the environment by delivering a reduction in habitat fragmentation and enhancing biodiversity value. Habitats should be actively managed to ensure broad species diversity and reduced fragmentation.

2.2.4 This is further supported by Highways England's Licence (April 2015)[13] which sets out both statutory directions and statutory guidance issued by the Secretary of State for the Applicant to follow when undertaking their duties when managing the strategic road network. The Applicant is required to act in a manner which has due regard to the environment (paragraphs 4.2g, 4.2h and 5.23) and sustainable development and design (paragraph 5.25). This Licence includes requirements for the Applicant to promote sustainable development through the design and seek to minimise carbon emissions and other greenhouse gases during operation.

2.2.5 In accordance with Highways England's Biodiversity Plan 2015, all schemes included within the RIS must demonstrate through core design how biodiversity delivery has been maximised across the Applicant's activities and continue to progress towards the Applicant's target of delivering a net gain in biodiversity, by 2040.

2.2.6 In addition, the Highways England Delivery Plan 2015-2020 sets out its own approach to meeting the key performance indicators identified within RIS of reducing net loss of biodiversity and more recently in the Highways England Delivery Plan 2020-2025[14] (RIS2) having a longer- term ambition of ensuring no net loss across the Applicant's activities.

2.2.7 The following performance targets are also identified:

- To mitigate noise in at least 7,500 households in mitigated Noise Important Areas (NIAs), defined by Defra, using funding from the Environment and Wellbeing Fund during the second road period
- Bring links agreed with the Department for Transport and based on their Pollution Climate Mapping model, into compliance with legal NO_2 limits in the shortest timescales possible
- Reduce National Highways' carbon emissions as a result of electricity consumption, fuel use and other day to day operational activities during the second road period, to levels defined by baselining and target setting activities in 2020-21.
- Address flooding and pollution from highway runoff through measures to attenuate and improve flood resilience on the strategic road network and to improve water quality

2.2.8 Finally, Highways England published 'The Road to Good Design'[15] in January 2018, which sets out design principles for delivering projects with the aspiration to *'deliver safer, better, beautiful roads which connect people and connect our*

[redacted]

country', which have been considered within the development of the Scheme design.

2.2.9 The following targets have also been set for the Scheme by the appointed Principal Designer and Contractor

- All arisings from site clearance activities during construction (e.g. vegetation clearance) are to be recycled and used on site elsewhere
- For procurement the of sub-contractors during the construction phase, the following targets will be set
  - Use of Small Medium Enterprises, where possible with a focus on social and minority enterprises
  - Use of Local supply chains within the region local to the Scheme, where possible
- Target a cut/ fill balance to avoid the import and export of materials and prevent the number of vehicles travelling to and from site.
- Ensure all timber, concrete and steel products sourced for the Scheme is certified as legally and responsibly sourced.
- Reduce primary material use through a commitment to achieve the 30% recycled content target for the region, which supports responsible material procurement.
- To support the recycling and recovery aspect of the waste hierarchy, the Principal Contractor has committed to recycle or recover 95% of wastes that leave site, therefore diverting them from landfill. This commitment will be supported through a clearly laid out waste storage area in the site compound with containers for segregated waste types. When wastes are removed they will be managed as closed as possible to site to support the proximity principle.
- Support reductions in carbon emission by adhering to the principles of the PAS 2080:2016[16] certification. This will help the Scheme reduce its carbon emissions across the whole value chain through effective and innovative design, construction and use. It would also ensure that carbon is consistently and transparently quantified at the key stages of the design process.

2.3 Scheme Location

2.3.1 The Land Plans (APP-007) incorporates land subject to the powers, which comprises approximately 62.3 ha. Of this approximately 41.9 ha would be required temporarily, and 12.9 ha would be subject to temporary possession with use of land and 7.4 ha will be permanent acquisition of rights over land. This includes the boundary of the main works and a number of isolated pockets of land required to update existing highway signs only.

2.3.2 Most of the Scheme is located within Mottram-in-Longdendale, on the eastern edge of the Manchester conurbation adjacent to and within the settlements of Hattersley, Mottram-in-Longdendale, Hollingworth and Woolley Bridge. The Scheme connects the M67 at the west to the A57 Brookfield Road in the east

and crosses through surrounding, predominately pasture, agricultural land within the Harrop Edge and Mottram Moor valley sides and within the River Etherow valley.

2.3.3 The Scheme's location and surrounding context is illustrated in Insert 1 in the introduction chapter (Chapter 1).

2.4 Baseline Scenario

2.4.1 The EIA Regulations 2017, Schedule 4, para 3. state that the ES must provide a 'description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development'[17]. This section outlines the current baseline scenario.

2.4.2 The existing baseline scenario refers to the conditions that currently exist in the area within which the Scheme would be implemented. The Annual Average Daily Traffic (AADT)[18] flows for the route on Hyde Road (A57) between M67 Junction 4 and Stalybridge Road and Mottram Moor between Back Moor and Woolley Lane result in congestion and unreliable journey times for vehicles using this route. Much of this heavy traffic travels through local roads, which disrupts the lives of communities and makes it difficult and potentially unsafe for pedestrians to cross the roads. Further detail on the baseline scenario for AADT is provided within Appendix 2.1: Traffic data (APP-151) and the Transport Assessment Report (APP-185), and the Case for the Scheme (Chapter 4 Transport Case for the Scheme (APP-182)).

2.4.3 The existing conditions within the DCO boundary and surrounding area applicable to each of the technical chapters, are reported in Chapters 5 to 14, under 'Baseline Conditions'. Key environmental constraints include but are not limited to:

- There are no Air Quality Management Areas (AQMAs) within or adjacent to the DCO boundary where air pollutant concentrations exceed national air quality objectives. However, the Scheme's air quality study area is located within the Greater Manchester AQMA and the Sheffield Citywide AQMA
- In addition, High Peak Borough Council designated an AQMA in the Tintwistle area and in the Dinting Vale/Glossop area The Tintwistle AQMA is not within the Affected Road Network (ARN) and both HPBC AQMAs are not yet included in Defra AQMA GIS datasets (see the Air quality chapter (Chapter 5) for more details on this).
- There is one Scheduled Monument, two Conservation Areas, two Grade II* Listed Buildings and 45 Grade II Listed Buildings and other non-designated assets, within 500 m of the Scheme
- The Scheme falls within the transitional zone between the open moorlands of the Dark Peak and Southern Pennines, and the densely populated urban conurbation of Manchester. The Scheme also lies within the setting of the Peak District National Park

[redacted]

- Two statutory designated sites for nature designation lie within 2 km of the Scheme, namely:
  - Hurst Clough Local Nature Reserve (LNR), situated 345 m south of the Scheme
  - Great Wood LNR, situated 1.3 km south of the Scheme
- The habitats within the Scheme study area have the potential to support notable and protected species, in particular bats, barn owls, badger, birds, otter, mammals and aquatic invertebrates
- The dominant source of noise in the proximity of the Scheme is road traffic noise. There are four Noise Important Areas (NIAs) located within the study area. These designations are all related to road traffic noise:
  - NIA1574: Melyncourt Road, Hyde
  - NIA10992: Mottram-in-Longdendale (A57 Hyde Road, A57 Mottram Moor, A6018 Back Moor). Woolley Bridge (Woolley Lane)
  - NIA10993: Woolley Bridge (Woolley Lane, Brookfield)
  - NIA1575: Mottram-in-Longdendale (Roe Cross Road, Edge Lane)
- There is a relatively dense network of public rights of way and recreational routes within the DCO boundary and present within the wider study area, including the Pennine Bridleway National Trail (which incorporates the Trans-Pennine National Cycle Route 62 along part of its route).
- The following surface water and ground waterbodies are classified as Water Framework Bodies (WFD)
  - Glossop Brook (Long Clough to Etherow) GB112069060720
  - Etherow (Glossop Brook to Goyt) GB112069061050
  - Etherow (Woodhead Res. To Glossop Bk.) GB112069060780
  - Tame (Chew Brook to Swineshaw Brook) GB112069061111
  - Wilson Brook GB112069061280
  - Manchester and East Cheshire Carboniferous Aquifers GB41202G102900
- The majority of the Scheme is located in the low risk fluvial Flood Zone 1, however areas of Flood Zone 2 and 3 associated with flood risk from the River Etherow are crossed by the Scheme near the River Etherow Bridge
- There is a high degree of faulting throughout the area, often offsetting sandstone and mudstone units against one another and creating a block-like sub-crop pattern. In the Mottram area, intersecting the proposed Mottram underpass there is a NW-SE trending geological fault, which has a significant effect on the groundwater regime.

2.4.4 The Mottram Showground is currently located within the DCO boundary, at an area of agricultural grazing land to the east of Old Hall Lane. The Showground would be required to relocate due to the Scheme, as such a new Showground area would be located on an area of land off the A560 and adjacent to Apple Street, in Hyde. This new location is approximately 1.8 km south west of M67 Junction 4. The retained section of the existing Showground, which is currently

owned by Tameside MBC, would be returned to grazing land once the Scheme is open.

2.4.5 A plan showing the key environmental constraints is provided in Figure 2.3 (APP-074) These are also detailed further on figures associated with each topic chapter (Chapters 5 to 14).

A628 Safety and Technology improvements and A61 Westwood Roundabout

2.4.6 As discussed in Chapter 1, the A628 Safety and Technology improvements and A61 Westwood Roundabout were not considered to be NSIPs. As the Westwood Roundabout improvements were completed in March 2021, and the Safety and Technology improvements works are programmed to end in June 2021, these improvements have therefore been included within the baseline 'do minimum' scenario for the assessment within this EIA.

2.4.7 For both improvement schemes, environmental assessment was carried out by a team of environmental specialists working in close iterative collaboration with the engineers responsible for the design of the schemes. This approach provided an opportunity to avoid or reduce environmental effects at source, and to enable the most effective mitigation of unavoidable impacts to ensure that there were no overall significant effects.

2.4.8 The Westwood Roundabout improvements will improve journey times locally; however, they are likely to have a minimal impact on traffic flows in the Mottram area. In addition, the roundabout is located outside of the EIA study area for all topics, therefore it is considered that there would not be any environmental effects in this location due to the Scheme.

2.4.9 The Safety and Technology improvements are unlikely to change journey times on the A628 when complete. Although the works will be spread across a large geographic area they will be confined to discrete areas. Some of these areas are within the EIA study areas for some environmental topics, particularly the Variable Message Signs (VMS) located near the A57 Gun Inn junction and in Tintwistle, and VMS and route closure provision on the Woodhead Pass (the A628). The presence of this infrastructure in these areas has been considered within the EIA and included within technical chapters of this ES.

Future baseline scenarios

2.4.10 The identification of the baseline requires the description of the existing situation and then a prediction of how it is likely to evolve in the absence of the Scheme, i.e. 'future baseline scenario', based on available environmental information and scientific knowledge.

2.4.11 This includes taking into account current conditions and using experience and professional judgment to predict what the baseline conditions might look like when accounting for natural change, prior to the start of construction (2023) and operation (when the Scheme is first expected to open to traffic – 2025).

2.4.12 The AADT figures for traffic flow on Hyde Road (A57) between M67 Junction 4 and Stalybridge Road and Mottram Moor between Back Moor and Woolley Lane, are likely to continue to grow, based on planned future developments in the local study area, in addition to the anticipated growth in the wider study area

(e.g. Greater Manchester and Sheffield) (refer to the Transport Assessment Report, (APP-185) and Appendix 2.1: Traffic data (APP-074). It is expected that by 2040, there would be modest growth of traffic flows on the A57 Hyde Road between M67 Junction 4 and Staybridge Road. It is expected this growth would be significantly lower than the local trip generation growth but illustrates the capacity constraints that apply to the A57 corridor in this vicinity. As a result, the current congestion and journey reliability problems experienced on these local roads are expected to persist and worsen over time, if significant improvements are not made.

2.4.13 Wider environmental changes due to climate change mean the study area is likely to experience hotter and drier summers and warmer and wetter winters. Alongside these changes in average conditions, it is possible, but less certain, that climate change will also increase the frequency and severity of extreme weather events, such as heavy rainfall, storms and heatwaves. The Environmental Statement (ES) includes a detailed consideration of the projected future climate baseline, which uses climate projections from UKCP18 (United Kingdom Climate Projections 2018)[19] and is presented in the Climate chapter (Chapter 14).

2.4.14 Road user carbon emissions are predicted to alter in future and therefore the future baseline takes account of the DfT fleet projections, including conventional vehicles (petrol and diesel), as well as hybrid and electric vehicles. This is further detailed in the Air quality chapter (Chapter 5).

2.4.15 Further topic specific future baseline scenarios are reported in the technical chapters (Chapters 5 to 14).

2.5 Scheme Description

Scheme overview

2.5.1 This section should be read in conjunction with the following ES figures (TR010034/APP/6.4) and standalone plans and reports included with the DCO application:

- DCO boundary for the Scheme (Figure 2.1, APP-074)
- Scheme General Arrangement (Figure 2.2, APP-074)
- Environmental Constraints (Figure 2.3, APP-074)
- Environmental Masterplan (Figure 2.4, APP-074)
- Location Plan (APP-006)
- Land Plans (APP-007)
- Works Plans and DCO Schedule 1: Work Plan Schedule (APP-00 and APP-020)
- Streets, Rights of Way and Access Plans (APP-009)
- Scheme Layout Plans (APP-011)
- Engineering Drawings and Sections (APP-012)

[redacted]

- Temporary Works Plans (APP-013)
- Culverts and Drainage Plans (APP-017)
- Drainage Design Strategy (APP-188).

2.5.2 Reference to Chainages throughout this chapter have been made to indicate the location of some design features along the proposed route. These are measures, in metres, from the commencement of the Scheme at the M67 Junction 4 (chainage 0.000) to Woolley Bridge Junction (chainage 3167.604). Chainage values are shown on the Scheme General Arrangement (Figure 2.2, APP-074).

2.5.3 The Scheme mainly compromises the creation of two new link roads at the western end of the Trans-Pennine route (A57(T) / A628 / A616) as follows:

- Mottram Moor Link Road – a new dual carriageway from the M67 Junction 4 roundabout to a new junction on the A57(T)[20] at Mottram Moor
- A57 Link Road – a new single carriageway link from the A57(T) at Mottram Moor to a new junction on the A57 in Woolley Bridge.

2.5.4 The Scheme also includes other highway works, complementary improvements and associated works, which are described in more detail in this section.

Highways works

Mottram Moor Link Road

2.5.5 Highway works will focus on a new offline dual carriageway link road (Mottram Moor Link Road) connecting the M67 Junction 4 to A57(T) Mottram Moor Junction

- The Mottram Moor Link road would be approximately 1.12 miles (1.8km) in length, commencing from a new connection at the existing M67 Junction at the junction between the M67 Junction 4 to A57(T) Mottram Moor Junction
- The proposed road would then run north east across existing farmland, before entering a cutting and passing under a new overbridge of the A6018 Roe Cross Road. Mottram Moor Link Road would then enter Mottram Underpass, carrying the new road beneath the existing Old Road and Old Hall Lane.
- After exiting Mottram Underpass, the Mottram Moor Link Road would turn southwards as it continues in cutting towards a new traffic signal-controlled junction, Mottram Moor Junction, at the intersection with the existing Mottram Moor.

2.5.6 This Mottram Moor Link Road would require the following elements:

[20] The symbol (T) means that this section of the A57 is defined as a trunk road. Most motorways and many of the long distance rural 'A' roads are trunk roads. The respons bility for their maintenance lies with the Secretary of State and they are managed by National Highways in England

- Additional works across the network to ensure that the Scheme operates efficiently under the forecast traffic flows. This includes works to increase capacity at the M67 Junction 4, including provision traffic signal control and a new link through the roundabout to provide a connection from Mottram Moor Link Road onto the westbound carriageway of the M67. Works will also be undertaken to improve facilities for pedestrians and cyclists at the junction, including new pedestrian and cyclist links and traffic signal-controlled crossing facilities which connect into the existing Public Rights of Way (PRoW).
- The creation of Mottram Moor Junction (chainage 1800), which is a new signalised junction with a separate pedestrian crossing for Walkers Cyclists and Horse riders (WCH).
- The construction of the following structures:
  - Old Mill Farm Underpass (chainage 515): A new underpass to maintain farm access and provide a safe route for walkers, cyclists and horse riders
  - Roe Cross Road overbridge (chainage 889): A new bridge to carry Roe Cross Road over Mottram Moor Link Road.
  - Mottram Underpass (chainage 932-1062): A new underpass carrying the link road beneath, Old Road, Old Hall Lane and the community of Mottram-in-Longdendale.

A57 Link Road

2.5.7 The route then continues to the south of Mottram Moor Junction with a new offline single carriageway link road, named the A57 Link Road, connecting the A57(T) Mottram Moor to the A57 Woolley Bridge.

- The A57 Link Road would be approximately 0.81 miles (1.3km) in length, which would continue in a false cutting from Mottram Moor Junction across existing farmland, heading toward the River Etherow
- A new bridge, River Etherow Bridge, would then carry the A57 Link Road over the River Etherow and the route would then terminate at a new traffic signal controlled 'T' junction on the A57 at Woolley Bridge, known as Woolley Bridge Junction.

2.5.8 The A57 Link Road section would require the following highway works:

- The creation of the following structures:
  - Carrhouse Farm Underpass (chainage 2240): A new underpass to maintain farm access and provide a safe route for walkers and cyclists
  - River Etherow Bridge (chainage 2983-3029): A new single span bridge, to carry the A57 Link Road across the River Etherow
- The creation of Woolley Bridge Junction (chainage 3167.604), which would tie the Scheme into the A57. It has designed to accommodate a future housing development and provide crossing facilities for WCHs, which would tie into the Trans-Pennine Trail.

Improvement works

2.5.9 The following improvement works would be required for the operation of the Scheme

- Improvement works on the existing A57 Mottram Moor, between the Mottram Moor Junction and the Gun Inn public house at Woolley Bridge Junction, these works will include new cycling facilities and improved pedestrian crossings at the Gun Inn Junction.
- The existing A57 Hyde Road would be de-trunked with sections of this road connected at Mottram Moor Junction, through the use of a junction, to retain access to the existing properties in this area. The detrunking works would be developed to discourage its use, such as traffic calming measures and a reduction in the speed limit. The detrunked section would be handed to Tameside MBC as the local Highway Authority and discussions are ongoing with regard to the highway design of the detrunked route. For the purpose of this ES, a number of assumptions have been be made. For further details see paragraph 2.5.45~~79~~.
- Improvement works to Woolley Lane to introduce a 20mph speed limit and traffic calming measures between the Gun Inn Junction and Woolley Bridge.
- Modifications to the existing traffic signal-controlled at the Gun Inn Junction including improved facilities for pedestrians.

Earthworks

2.5.10 The earthworks would be designed to deliver a cut/fill balance on the Scheme, as outlined in the Material assets and waste chapter (Chapter 10). Cut material from the Mottram Underpass and the cutting east of the underpass, would be used to fill the embankments and landscape areas east of the River Etherow and west of the Mottram Underpass. Any material which is deemed to be unsuitable for use in structural fill would be treated on site and used in the landscape false cuttings, as part of the Landscape and ecology design strategy, as shown on the Environmental Masterplan (Figure 2.4, APP-074).

2.5.11 To achieve the required profile, there are various locations where the route goes into cutting or is on embankment. Tables 2-1 and 2-2 below highlight the locations of the cutting and embankment slopes.

Table 2-1 Eastbound cutting and embankment slopes

Eastbound cutting/embankment	Chainage (as shown on Figure 2.2 General arrangement drawings)	Maximum slope height (from Existing Ground Level (EGL))
SECTION 1 (Chainage 0-715)		
False Cutting[1] (1:2 inner face, 1:3 outer face)	0-120	2.0 m
At Grade	120-200	N/A
Cutting	200-290	-0.7 m
Embankment	290-550	1.95 m
False Cutting (1:2 inner face, 1:3 outer face)	550-720	4.5 m inner face height, 7.3 outer face height
SECTION 2 (Chainage 715-1690)		
Embankment	720-760	3.7 m
Cutting	760-870	-5.9 m
Cutting	1100-1480	-15.5 m
Embankment	1480-1720	13.17 m
SECTION 3 (Chainage 1690-3070)		
Embankment	1810-1880	3.8 m
False Cutting (1:2 inner face, 1:3 outer face)	1880-2230	2.00 m inner face height, 7.2 m outer face height
Cutting	2230-2420	1.4 m
Embankment	2420-2980	3.6 m
Embankment	3030-3110	2.6 m

[1] False cuttings use earthwork embankments a means of screening the road from receptors (human and animal) in the surrounding landscape

Table 2-2 Westbound cutting and embankment slopes

Westbound cutting/embankment	Chainage (location of chainage shown on Figure 2.2 General arrangement drawings)	Maximum Slope Height from Existing Ground Level (EGL))
SECTION 1 (Chainage 0-715)		
Embankment	0-60	4.7 m
Embankment	60-550	4.3 m
False Cutting (1:2 inner face, 1:3 outer face)	550-660	3.50 m inner face height, 9.53 m outer face height
SECTION 2 (Chainage 715-1690)		
False Cutting (1:2 inner face, 1:3 outer face)	660-720	3.50 m inner face height, 9.5 m outer face height
Cutting	720-800	-2.4 m
Retaining wall	800-872	-6.0 m
Cutting	1100-1450	-9.6 m
Cutting	1450-1550	-4.00 m
Embankment	1550-1690	7.5 m
SECTION 3 (Chainage 1690-3070)		
False Cutting (1:2 inner face, 1:3 outer face)	1800-2060	4.00 m inner face height, 6.2 m outer face height
Embankment	2060-2400	4.0 m
False Cutting (1:2 inner face, 1:3 outer face)	2400 - 2430	2.50 m inner face height, 6.8 m outer face height
False Cutting (1:2 inner face, 1:3 outer face)	2430-2700	1.00 m inner face height, 8.90 m max. outer face height
Embankment	2700-2920	4.25 m
Embankment	2985-3110	4.82 m

Drainage works

2.5.12 This section should be read in conjunction with The Culverts and Drainage plans (APP-017) and the Drainage Design Strategy Report (APP-188).

2.5.13 The current drainage design has been developed to support the DCO application and does not detail the specific design details proposed for culverts and other structures, and any dimensions associated with structures and realignments are considered to be approximate. A conservative assumption has therefore been made to assess all culverts as pipe culverts at this stage of assessment.

2.5.14 The preliminary drainage design has been developed in accordance with the CG 501 Design of Highway Drainage Systems standard[21]. The requirements of the National Policy Statement for National Networks (NPS NN)[22] and the National Planning Policy Framework (NPPF)[23] have also been considered in the design process, alongside advice from the technical specialists responsible for the water related environmental assessments, reported within the Road drainage and water environment chapter (Chapter 13). This includes the use of Sustainable Drainage Systems (SuDS) measures throughout the design along with natural storage and treatment prior to outfall. Further details on these embedded mitigation measures are provided within Table 2-5.

2.5.15 The drainage works supporting the new highway proposals involves the creation of three new attenuation ponds (chainages 200, 1900 and 2900) which would be designed as retention ponds containing aquatic planting and associated drainage facilities. The ponds would be accessed for any maintenance activities from specific access tracks included in the Scheme proposals. The outfall rates from these ponds would be restricted to existing greenfield rates, which has been developed in discussion with the Lead Local Flooding Authority (LLFA), who have confirmed acceptance of the preliminary proposals, including the storm return periods and climate change factors used to assess the attenuation (see the Drainage Design Strategy Report (APP-188) for details on these proposals). The locations of the three attenuation ponds are also illustrated on the Environmental Masterplan Figure 2.4 (APP-074) and Work Plans (APP-008).

2.5.16 As well as the attenuation and water treatment provided by these ponds, the highway drainage design also includes the following provisions, which are detailed further in the Drainage Design Strategy Report (APP-188):

- Attenuation using oversized pipes
- Treatment via grassed swales
- Narrow filter drains
- Trapped gully pots
- Surface water channels
- Combined kerb drainage units
- Catchpits
- Flow control units prior to outfall.

2.5.17 The preliminary design includes fourteen culverts and pipes carrying watercourses and ditches under proposed highways, access tracks and other features, as detailed in Table 2-3.

[redacted]

Table 2-3 Preliminary drainage design proposed culverts and pipes

Culvert / Pipe reference (as shown on the Works Plans and DCO Schedule 1: Work Plan Schedule (APP-008 AND APP-020)	Chainage
Culvert 1	0043
Culvert 2	0106
Culvert 3	1821
Culvert 4	0741
Culvert 5	1651
Culvert 6	1980
Pipe 8	0132
Pipe 5	0160
Pipe 1	0490
Pipe 9	0683
Pipe 2	0725
Pipe 7	2238
Pipe 4	2981
Pipe 6	2722

Watercourse realignments

2.5.18 There are three WFD surface water bodies identified within the DCO boundary. Two ordinary watercourses which lie within these water bodies would need to be realigned for the Scheme. The locations of these watercourses are shown on Figure 13.1 (APP-148).

- Hurstclough Brook (WC_300) would be realigned as the current alignment is cut off by the Mottram Moor Link Road. There is a culvert below the link road and then an open channel diversion which would be approximately 220 m long to the south of the Scheme to tie into the existing watercourse.
- Tara Brook (WC_200) would be diverted to the south of the new junction at Mottram Moor through both open channel and culverts. The existing watercourse is severed by the new junction and link road proposals. The open channel diversion would be approximately 325 m in length.

2.5.19 New channels and watercourse realignments would be designed to be ecologically sensitive and to promote the natural hydromorphological regime. Any structures associated with watercourse realignments would also be

designed to maximise connectivity with the open channel. For further information on the best practice guidance incorporated into the Scheme design to mitigate the potential impact upon a watercourse and/ or its riparian zone, or a ground water body refer to the Water Framework Directive compliance assessment report (APP-055).

Lighting

2.5.20 The requirement for lighting on the Scheme has been developed following the TD 501 Road Lighting Design standard,[24] in consultation with the relevant local authorities. The lighting design would seek to minimise intrusive light pollution which can lead to sky glow, glare to road users, local residents and other observers as well as light trespass. The design of the lighting would also consider potential landscape and ecological effects. The recommendations from the Bat Conservation Trust and the Institution of Lighting Professionals, titled Guidance Note 8 Bats and Artificial Lighting'[25] have been followed when designing the lighting proposals. The strategy also promotes the Highways England Sustainable Development Plan[26] by reducing carbon emissions by using more energy efficient lighting, in the form of Light Emitting Diodes (LED).

M67 Junction 4

2.5.21 The proposed lighting at M67 Junction 4 would use LED luminaires on 12 m mounting height lighting columns which would be installed on the circulatory of the junction. Due to alignment changes and the introduction of the section of carriageway through the centre of the roundabout, proposed lighting would be included for the full circulatory carriageway. The M67 eastbound approach to the junction would be lit for 156 m in advance of the roundabout conflict point, in accordance with PLG02 'The Application of Conflict Areas[27] on the Highway'(2013). The M67 westbound exit slip road would be lit to standard for a distance of approximately 60 m until the carriageway straightens. This is permitted within PLG02 because the M67 is currently unlit and this would help minimise the impact of light spill resulting in dark corridors benefiting bats and barn owls, which are present in this area and on the properties, and dense foliage to the south. Lighting columns would also be introduced in the centre of the roundabout at the through carriageway section and along the cycleway footways. The upgrade of the lighting at the junction to Light Emitting Diodes (LED) would bring benefits of reduced energy costs, reduction of planned maintenance due to lamp changes and reduce light spill into adjacent area.

Mottram Moor Link Road - M67 Junction 4 to Mottram Underpass

2.5.22 Along this link the approach to the western end of Mottram Underpass is lit and the approach to the M67 Junction 4 roundabout is lit however, the length of this link has good visibility and passes through rural land with ecological interests, so consequently the full length of this link would not be lit. Furthermore, the unlit gap of the link road is greater than 4 times Stopping Sight Distance (SSD)[28], meaning it is not required for lighting to be over the full length of the link,

[redacted]

[27] Conflict areas are typically junctions, intersections, roundabouts and pedestrian crossings, where significant streams of motorised traffic intersect with each other, or, with other road users such as pedestrians and cyclists
[28] Stopping sight distance (SSD) is the distance drivers need to be able to see ahead they can stop within from a given speed

resulting in dark corridors benefiting bats and barn owls which are present in this area.

Mottram Underpass

2.5.23 The length of Mottram Underpass means that full daytime and night-time lighting must be provided, in accordance with the requirements of BS 5489-2: 2016[29]. The carriageway on the west and east approaches would also be lit, to a minimum distance of 120 m from both entrance points of Mottram Underpass. No lighting is proposed on the vegetated area on the top of Mottram Underpass which, in combination with the scrub planting, would provide a dark corridor encouraging bats to cross this area east and west.

Mottram Moor Link Road - Mottram Underpass to Mottram Moor Junction

2.5.24 Lighting using LED luminaires on 10 to 12 m columns is required over the full length of this link road between Mottram Underpass and Mottram Moor Junction. This is due to the lighting provision to the east of the Mottram Underpass approach, along with the lit approach to Mottram Moor Junction, being less than 4 times SSD.

2.5.25 The lighting design has considered the Scheme specific bat mitigation (see section 2.5.74~~66)~~ located within the Showground area, to the north of the new road alignment. As the highway is located within a cutting, any light spill from the proposed lighting columns within this area would be reduced. Screen planting in the form of trees and hedgerows would further provide a natural screen to provide dark corridors for bats.

Mottram Moor Junction

2.5.26 New lighting would be installed at the Mottram Moor Junction and approaches to the east and west roads for a distance of 67 m, using LED luminaires on 10-12 m columns. The new lighting would tie-in with existing lighting on Mottram Moor. Approaches to the north and south of Mottram Moor Junction have proposed lighting to the Woolley Bridge Junction and Mottram Underpass, respectively.

New A57(T) to A57 Link

2.5.27 The distance between the Mottram Moor Junction and Woolley Bridge Junction is more than 1 km and therefore the lighting on this section is not predefined by the requirement to provide lighting between two lit sections of carriageway, separated by more than 4 times SSD. However, during consultation, Tameside MBC have expressed their desire to light this section, as it links two lit junctions and has WCH facilities.

Woolley Bridge Junction

2.5.28 New lighting would be installed on Woolley Bridge Junction, using LED luminaires on 12 m columns and tie into the existing roads joining the junction. Lighting would extend on the western approach of the new link road from the A57(T) to the existing road.

[29]BS5489-2:2016 Code of practice for the design of road lighting. Lighting of tunnels

2.5.29 River Etherow Bridge would be unlit to reduce light spill upon the river which is used as a commuting and foraging corridor by bats and otters. In addition, a warm white spectrum (2700 Kelvins) would be used to reduce blue light component to reduce impacts upon bats either side of River Etherow Bridge.

Utilities

2.5.30 Construction of the Scheme would require the diversion, relocation or protection of a number of existing utility assets, including drinking water, wastewater, gas, electricity and telecommunications. Consultation with the following utility companies has been undertaken, to establish which apparatus would require diverting:

- Cadent Gas
- United Utilities (clean water and wastewater)
- British Telecom (BT) Openreach
- Electricity North Western Limited

2.5.31 Consultation undertaken to date have established the services that would need to be diverted and diversions are in the process of being designed, in consultation with the appropriate utility companies and protective provisions are in the process of being agreed. The detailed method statements and approaches to the diversions would be agreed during the Detailed Design and Construction Preparation stages of the Scheme.

2.5.32 The DCO boundary (see paragraph 2.5.38) has accounted for each diversion which has been determined based on discussions with individual statutory undertakers and allow for temporary works to construct the proposed diversion whilst maintaining the existing services.

2.5.33 In addition to these diversions, the following utility companies have been identified as having apparatus that does not require diverting, but does require further investigation to ensure the Scheme would not disrupt these utilities:

- National Grid Electricity Transmission (NGET)
- Cornerstone/ Vodafone
- United Utilities Plc (Aqueduct)

2.5.34 The United Utilities Mottram Longdendale Aqueduct is a major service which the route crosses which cannot be diverted due to its depth and gravity alignment. Consultation is being undertaken with United Utilities to establish how their assets can be protected, and this will continue to be developed further at the Detailed Design stage.

Accommodation works

2.5.35 A temporary compound (comprising welfare facilities), located on agricultural land to the east of the M67 Junction 4, north of A57 Hyde Road (chainages 200-800) and associated haul roads, would also be required to facilitate the construction of the Scheme.

2.5.36 Access into the compound will be through the existing layby just to the east of the M67 Junction 4 and exit from the compound will be onto the M67 Junction 4.

This will allow the majority of deliveries to and from the office and stores to be made without increasing traffic through Mottram-in-Longdendale. As outlined in paragraphs 2.6.52 to 2.6.53, the compound would be returned to the previous land use after decommissioning, and restored to a condition equivalent to its original, in agreement with landowners.

2.5.37 For further details on how the Scheme would be constructed, including locations of haul roads are provided on the Temporary Works Plans (APP-013) and the Traffic Management Plan (APP-186). Section 2.8 also provides a more detailed outline of the construction of the Scheme.

DCO boundary and limits of deviation

2.5.38 Since the preferred route announcement (PRA) was made in November 2017, the Scheme has been amended, based on consultation with stakeholders and members of the public, and more detailed assessments of traffic, engineering, buildability and environmental factors. The Scheme has been developed to a level of detail sufficient to determine the size and location of the key works elements, and the land interests required to construct, maintain and operate it.

2.5.39 The boundary of the works has been drawn with reference to the DCO boundary, which include all works proposed by the Order and any of the associated development, including environmental and other mitigation works (as shown in the Works Plans (APP-008). This has applied the 'Rochdale Envelope' to allow for any further design refinement and development during the detailed design of the Scheme.

2.5.40 An important element of the flexibility sought within the DCO is the lateral and vertical limits of the Scheme. Details of the limits of deviation applied to the scheme are contained in the Draft Development Consent Order (APP-020).

2.5.41 These limits of deviation have been incorporated within the draft DCO to allow minor modifications to be made to the design of the Scheme during the detailed design and construction stages. Such flexibility is required, for example, to enable the construction contractor to alter their working procedures or make minor adjustments to the position of certain infrastructure in response (for example) to unforeseen ground conditions.

2.5.42 The environmental assessment conclusions regarding likely significant effects as presented within this ES related to the Scheme have taken into account and assessed the limits of deviation as set out in the Works Plans (APP-008).

Rochdale envelope: dealing with uncertainty

2.5.43 The Planning Inspectorate Advice Note 9: Using the 'Rochdale Envelope'[30] provides guidance regarding the degree of flexibility that may be considered appropriate within an application for development consent under the Planning Act 2008. The Advice Note acknowledges that there may be parameters of a Scheme's design that are not yet fixed and, therefore, it may be necessary for the ES to assess likely worst-case variations, to ensure that the likely significant environmental effects of the Scheme have been assessed.

2.5.44 For the EIA, the requirements of the Planning Inspectorate's Advice Note 9 have been reflected and where flexibility is sought in the scheme design, the

[30] PINS Using the Rochdale Envelope Version 3 2018

maximum potential adverse impacts of the Scheme have been assessed. As part of this process, the ES has assessed the maximum dimensions of the Scheme and confirmed that any changes to the development within such parameters, would not result in significant impacts to what has been assessed and/or reported.

2.5.45 The detrunking plans for the existing A57 trunk road have yet to be finalised (as detailed in section 2.5.10). It has been however agreed with Tameside MBC, that traffic calming measures will be implemented on this area, alongside a reduction in speed limit to 20mph, to deter drivers from using this route. For the purpose of the ES, a number of assumptions have therefore been be made, which include:

- Traffic calming measures employed along the de-trunked route, including speed cushions and priority give way systems, slowing local traffic and discouraging through traffic from using the route
- Upgraded street lighting

Demolition of existing properties

2.5.46 A number of buildings area expected to be demolished to support the construction of the Scheme. These are:

- Four residential properties and sheds on Four Lanes
- Four units on Roe Cross Industrial Estate
- Seven residential properties on Old Road
- Six residential properties and nine garages on Tollemache Close
- Eight residential properties on Old Hall Lane
- A stable on Mottram Moor

2.5.47 Where relevant, the right to compensation, plus methods and procedures for assessing appropriate levels of such, would be identified in relation to the National Compensation Code.

2.5.48 Maintenance of diverted power lines and other statutory utilities would remain the responsibility of relevant statutory undertakers.

Land take

2.5.49 The Scheme's temporary and permanent land take requirements have been identified through the preliminary design, consultation and through engagement with landowners that would be affected by its progression. These are defined by the Order Limits within the DCO application and are illustrated on the Land Plans (APP-007). For the Scheme, approximately 41.9 ha would be required permanently, approximately 12.9 ha would be subject to temporary possession with use of land and approximately 7.4 ha would require permanent acquisition of rights over land.

2.5.50 Although the Applicant is endeavouring to acquire land by agreement, the necessary rights to gain the land required to deliver the Scheme are being sought by the Applicant through the DCO application and accompanying

compulsory purchase process, to ensure that the Scheme can be delivered effectively.

Walkers, cyclists and horse riders (WCH)

2.5.51 In undertaking the design of the Walkers, Cyclists and Horse riders (WCH) provision, the requirements of the Equality Act 2010 have been considered where required, in order to take appropriate account of the needs of disabled users.

2.5.52 PRoW affected by the Scheme have been realigned as close to their original alignment as practical, to avoid extending existing routes wherever possible. Where the Scheme would affect existing PRoW, replacement network provision would be made to ensure routes remain, by providing suitable crossing points or diversions. The Scheme will also lighten the traffic density travelling through the centre of Mottram and will reconnect local communities and make it safer for pedestrians when crossing the road. Impacts to existing PRoW are identified and assessed in the Population and human health (Chapter 12) and Case for the Scheme (APP-182).

2.5.53 Streets or roads or any diversions, extinguishments or creation of rights of way or public rights of navigation and new or altered means of access, are presented on the Streets, Rights of Way and Access Plans (APP-009).

2.5.54 All junctions would be designed to take account of WCH where they interface with the Scheme. Current provisions include:

- Replacement connections for the existing footpaths and bridleways severed by the Scheme
- Improved pedestrian and cyclist crossing facilities at the M67 Junction 4, and all new junctions created by the Scheme to improve accessibility and safety of users
- PRoW LON 52-20, which is to be temporarily severed, would be re-instated and upgraded from a footpath to a bridleway, thereby increasing the availability of suitable equestrian facilitates away from road traffic
- A combined footway and cycleway along the new A57 Link Road between Mottram Moor and Woolley Bridge, creating a route to link Mottram to the Trans-Pennine Trail (National Cycle Network route 62)
- A new bridleway from Mottram Moor Junction to Old Hall Lane extending the connection to the Trans-Pennine Trail to the north of Mottram. These bridleways would help to link the Trans Pennine and Pennine Bridleway National Routes, without road riding.
- Pedestrian and cyclist crossing facilities at the proposed Woolley Bridge Junction.
- Old Mill Farm Underpass and Carrhouse Lane Underpass would retain farm access for Old Mill Farm and Carr House Farm respectively and safe PRoW routes.
- The area above Mottram Underpass would be treated as green, public open space with planting and footpath links east-west between Old Hall Lane and Roe Cross Road

2.5.55 All WCH provision on the existing A57(T) and A57 would be maintained, with possible improvements that would be agreed with the relevant local highway authorities. Any cycle lanes delivered by the Scheme would be designed for future cycle lane connectivity, along the detrunked corridor.

2.5.56 WCH would be encouraged to use the new dedicated facilities provided by the Scheme together with those provided along the existing A57 corridor through the provision of safe crossing points and appropriate signage designed to ensure the safety of WCH.

2.5.57 For safety reasons, WCH would be prohibited from using the section of the Mottram Moor Link Road between the Old Mill Underpass and Mottram Moor Junction, due to the Mottram Underpass.

Environmental proposals

Design concept and approach

2.5.58 Environmental design has been an integral part of the Scheme development and will continue to be so as the Scheme progresses to detail design, informed by Highways England's 'The Road to Good Design' design principles, scheme objectives and environmental design vision.

2.5.59 During consultation there have also been a number of changes and updates made to the design through discussions with key stakeholders, these changes are outlined in detail in the Consultation Report (APP-026) and summarised in Table 3-7 within the Assessment of alternatives chapter (Chapter 3).

2.5.60 In accordance with DMRB LA 104 Environmental assessment and monitoring[31], throughout the preliminary design, a hierarchy of mitigation actions, as shown in has influenced approach to the engineering and environmental design as shown in Table 2-4.

Table 2-4 Mitigation Hierarchy

Mitigation	Action Description
Avoidance and prevention	Design and mitigation measures to prevent the effect (e.g. alternative design options or avoidance of environmentally sensitive sites) Measure(s) taken to ensure an identified effect does not occur. This is the most preferable solution.
Reduction	Where avoidance is not possible, then mitigation is used to lessen the magnitude or significance of effects Measure(s) taken to decrease the significance of an identified effect. Effects can either become not significant or remain significant, although to a lesser extent. Where effects cannot be avoided this is the most preferable solution
Remediation	Where it is not possible to avoid or reduce a significant adverse effect, these are measures to offset the effect Measure(s) proposed to rehabilitate affected areas, or provide alternative equivalent resource elsewhere (and preferably nearby)

Table source: DMRB LA 104 Section 3.23

2.5.61 A key part of this process is consideration of the baseline conditions and the environmental design context to inform this process including community, recreational and environmental receptors that potentially influence the design outcomes.

2.5.62 Wherever practicable, measures are taken to avoid impact on receptors. Where this is not possible, solutions are sought to minimise or reduce the impact. Only then are mitigation or compensation measures proposed to remediate the residual effect.

2.5.63 The application of the mitigation hierarchy to the environmental design process, described in this ES, has been informed by the environmental assessment (undertaken by competent experts) and likely significant effects, presented in the technical chapters. The environmental design does not negate the need to provide further information to meet statutory and/or policy obligations e.g. draft licences.

2.5.64 Environmental and sustainability considerations have been at the core of this iterative design process, informed by environmental impact assessment, and stakeholder engagement and consultation.

2.5.65 This multidiscipline collaborative approach ensures that the Scheme layout and highway infrastructure, as well as temporary works, avoid or reduce impacts on receptors as far as practicable.

2.5.66 Where predicted adverse impacts are unavoidable, environmental features have been integrated into the Scheme design.

2.5.67 For the purposes of this ES, and in accordance with DMRB LA 104, the following categories of mitigation are used:

- embedded mitigation: project design principles adopted to avoid or prevent adverse environmental effects, as outlined in Table 2-5.
- essential mitigation: measures required to reduce and if possible, remediate or offset likely significant adverse environmental effects, in support of the reported significance of effects in the environmental assessment. These measures are reported in within each relevant environmental topic specific chapters (Chapter 5 to 14).

Environmental Masterplan

2.5.68 The Environmental Masterplan (Figure 2.4, APP-074) shows mitigation which has been embedded within the Scheme design, including areas of new landscape planting and watercourse enhancements. The Environmental Masterplan also shows essential mitigation measures, such as noise barriers and ecological habitats that have been created or restored. These mitigation measures have been developed through an iterative design process with a multidisciplinary team responding to a complex range of environmental and engineering constraints found within and adjacent to the Scheme and following feedback through consultation.

2.5.69 The full details of the mitigation measures proposed for the Scheme are also outlined in the relevant ES chapters (Chapters 5 to 14), the First iteration Environmental Management Plan (EMP) (APP-183) and the Register of Environmental Actions and Commitments (REAC) (APP-184).

2.5.70 The Scheme has been designed as far as possible to avoid key environmental features. This process will continue during the Scheme's detailed design development to ensure that any additional design opportunities are identified, so as to avoid residual environmental impacts on key environmental features that are currently the result of the preliminary design.

2.5.71 The key environmental mitigation measures included within the Environmental Masterplan would:

- Assist with integrating the Scheme into the surrounding landscape, creating a sympathetic planting strategy
- Reduce visual impact by screening and filtering views of the Scheme
- Reduce noise impacts associated with the Scheme (e.g. noise barriers)
- Mitigate for the loss of existing vegetation
- Create new areas of ecological habitat and maximise opportunities to improve biodiversity within the permanent land take as part of the Highways England policy objective of achieving no net loss and to progress towards the target of delivering a net gain in biodiversity by 2040
- Ensure the connectivity of PRoW and other routes used by pedestrians and cyclists are maintained
- Provide for the storage, treatment and discharge of road runoff, and provide features for the mitigation of flooding risks.

Landscape and ecology design strategy

2.5.72 The Environmental Masterplan (Figure 2.4, APP-074) shows the landscape design strategy, which is integral to the Scheme design. The landscape proposals are designed to integrate the Scheme into the surrounding landscape, mitigate the loss of existing vegetation, and reduce the visual impacts through screening views of the Scheme. The strategy has also been developed to enhance biodiversity and habitat where possible and to help maintain local vegetation patterns and create sympathetic landform. This design would adhere to DMRB LD 117 Landscape design and the Specification for Highways Works set out in Series 3000 (Landscape and Ecology) of the Manual of Contract Documents for Highway Works[32].

2.5.73 The Environmental Masterplan includes new landscape design where land is required permanently to build and operate the Scheme. The temporary land taken for construction purposes would be reinstated and restored to its original condition (as outlined in paragraphs 2.6.52 to 2.6.53).

2.5.74 The Scheme would provide specific embedded mitigation as follows:

[32] Manual of Contract Documents for Highway Works (MCHW), 2019, [redacted]

- A dedicated ecological mitigation structure for bats (chainage 1150): To mitigate for the potential loss of common pipistrelle roosts (see the Biodiversity chapter (Chapter 8) for more detail). The structure would incorporate features suitable for a range of species and roost types (including soprano pipistrelle, brown long-eared, and myotis species). It is anticipated that this structure would be able to accommodate at least 200 bats. The structure is located in the show ground area and would be in close proximity to the majority of the roosts recorded within the Scheme, nearby to suitable habitat (broadleaved woodland and hedgerows). Additional native planting would be provided on the northern and western areas surrounding the bat structure, to provide additional habitat and to provide screening to aid with visual and landscaping elements.
- Artificial badger setts: To compensate for the disturbance to and permanent loss of badger setts, one artificial sett (and one additional artificial sett dependent on further survey) are being created in close proximity to the relevant clan's territory whose setts are being lost and/or disturbed. Both setts would be planted with a meadow mix and scrub to provide suitable habitat and cover for badgers. More details are provided in the confidential Badger survey (Appendix 8.2) (APP-170).
- New habitat creation, including 6.5 ha of mixed deciduous largely native woodland planting adapted to a wide range of climatic conditions, maximising their resilience would be incorporated around the Scheme to mitigate for the loss of broadleaved woodland and provide a significant increase in deciduous woodland cover.
- Hedgerow planting, measuring approximately 7 km, would be incorporated throughout the Scheme. New hedgerow planting would be species-rich, comprising a range of native species (including hawthorn, blackthorn, holly, and dog rose) of local provenance, adapted to a wide range of climatic conditions, maximising their resilience.
- One new flood compensation area, approximately 6,730 m^2, located in close proximity to River Etherow Bridge (chainage 2900-3050). There is evidence of existing flooding to the east of the Scheme in the River Etherow area and the proposed works would impact the existing regime. A baseline flood model has been created and signed off by the Environment Agency. These proposed flood mitigation works have also been tested and refined using the flood model (see the Flood Risk Assessment APP-056). This flood compensation area would provide flood storage and mitigate the increase in flooding caused by works being undertaken in the flood zone. This would also create wet grassland habitat integrated with the riverine habitat.

Embedded mitigation

2.5.75 One of the key functions of undertaking an EIA for a scheme is to inform the design. This Scheme design is an iterative process which takes into consideration the key significant effects on environmental receptors and the mitigation proposed.

2.5.76 Embedded mitigation is often underpinned by best practice methods, which are widely practiced in construction and accepted as integral to the EIA, with their implementation being guaranteed, for example, to adhere to legislative

compliance or ensure pollution prevention. The environmental design measures that have been incorporated into the Scheme to ensure best practice and legislative compliance are therefore considered to be part of the Scheme. They are presented within Table 2-5 below with reference to Chainages to indicate the location of some design features along the proposed route. They are presented here to allow the topic assessment chapters to focus on assessing the environmental impacts of the Scheme as a whole, with embedded measures included.

Essential mitigation

2.5.77 Essential mitigation measures, which are those required to reduce and if possible, offset (remediate) likely significant adverse environmental effects of the Scheme, are discussed within each relevant environmental topic specific chapters (Chapter 5 to 14).

Enhancement measures

2.5.78 Opportunities for enhancement measures have been included in the environmental topic specific chapters (Chapter 5 to 14), in line with the aims and objectives of the Highways England Licence. Although enhancement measures are not factored into the environmental assessment, the early identification and reporting of these measures allows for associated benefits to be considered in the decision-making process. These measures are not shown on the Environmental Masterplan.

Table 2-5 Embedded environmental design measures

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
Best Practicable Means	Construction	Chapter 5: Air quality Chapter 6: Cultural heritage Chapter 7: Landscape and visual effects Chapter 8: Biodiversity Chapter 9: Geology and soils Chapter 10: Material assets and waste Chapter 11: Noise and vibration Chapter 13: Road drainage and water environment	**Construction** An Environmental Management Plan will include measures relating to all environmental disciplines for the construction phase. For example, guidance provided in the Pollution Prevention Guidance (PPG) notes, specifically PPG 5 for Works and Maintenance in or Near Water (Environment Agency, 2014a) and PPG 6 for Construction and Demolition Sites (Environment Agency, 2014b). All PPGs that were previously maintained by the Environment Agency were withdrawn in 2015 as being out-of-date and a new set of guidance notes are presently being issued as Guidance for Pollution Prevention (GPP) documents for Northern Ireland, Scotland and Wales (but not England). The series includes GPP5 for Works and Maintenance in or Near Water which may be used as a source of information for good practice. The EMP will also include a number of Environmental Control Plans which ensure that the construction-related mitigation measures and actions set out in the REAC (APP-184) are successfully implemented on site. Key plans would include: • Nuisance Management Plan • Landscape Ecological Management Plan (LEMP) • Noise and Vibration Management Plan (NVMP) • Pollution Prevention Plan (PPP) • Emergency Spillage Response Plan • Emergency Flood Response Plan • Materials Management Plan (MMP) • Site Waste Management Plan (SWMP) • Arboricultural Method Statement • Ecological Management Plans • Soil Resource Plan • Dewatering Management Plan

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
			• Construction Water Management Plan • Asbestos Management Plan • Community Engagement Plan • Ecological Management Plans • Biosecurity Management Plan • Invasive Non-Native Species Management Plan
Traffic Management Plan	Construction	Chapter 5: Air quality Chapter 6: Cultural heritage Chapter 7: Landscape and visual effects Chapter 10: Material assets and waste Chapter 11: Noise and vibration Chapter 12: Population and human health	**Construction** A Traffic Management Plan (TMP) (APP-186) would be implemented by the appointed Principal Contractor to reduce the impacts from construction traffic, including measures to reduce worker vehicle movements and HGV movements, particularly at peak periods. The typical core working hours for the Scheme are expected to be between 07:30 and 18:00 on weekdays (excluding bank holidays) and from 07:30 to 16:00 on Saturdays. In addition, there would be a start-up and close down period of one hour either side of these times to maximise efficiency of the core hours. This would include activities such as deliveries, staff travel to work, maintenance and general preparation works, but would not include running plant and machinery that are likely to cause a disturbance to local residents or businesses. Temporary traffic measures will be implemented for each construction phase (as outlined in Section 2.6) to deliver the Scheme while minimising the impact on the road users and other stakeholders affected by the project, including the operations of National Highways, Tameside MBC and High Peak Borough Council and any activities carried out by their asset management and maintenance providers.
Earthworks	Construction and operation	Chapter 6: Cultural heritage Chapter 7: Landscape and visual effects Chapter 8: Biodiversity Chapter 9: Geology and soils	**Construction** Materials used to create the embankments (site won or imported) would be chemically analysed to ensure that they are of suitable chemical quality, as detailed in the earthworks specification and a Materials Management Plan (MMP). Topsoil would be used from the compound area to form a 3 m high bund around the compound area which would separate the compound from the back gardens of the

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
		Chapter 10: Material assets and waste Chapter 11: Noise and vibration Chapter 13: Road drainage and water environment	residential properties on Hyde Road, Littlefields, Meadowcroft, Ash Close and Four Lanes (see Insert 2). The 3 m bund would be made up of 1m fill material with 2m of topsoil on top to ensure the compounds office is sufficiently screened. Construction design of the embankments would consider band drains or other geotechnical techniques to aid with the consolidation of these features. The geotechnical design will be in accordance with BS EN 1997-1:2004 Eurocode 7 Geotechnical Design Part 1 General rules. So, for example, cuttings and embankment works will be designed based on slope-stability analysis using site specific soil parameters. The geotechnical construction will be in line with DMRB CD 622 Managing Geotechnical Risk. During construction of Mottram Underpass, appropriate mitigation measures such as secant piling during construction of cuttings to prevent dewatering effects reducing baseflow to surface water features or affecting private water supplies would be implemented. **Operation** False cuttings and cuttings (earthworks) along much of the Scheme would help provide visual and auditory screening for the Scheme. The designed cuttings would also reduce the potential for traffic collision with (e.g. birds and bats), during operation and also alleviate disturbance from traffic noise and movements (e.g. for species such as brown hare which are sensitive to such disturbance). Profile shapes for earthworks embankments and habitat created were made more naturalistic to reflect the existing surroundings, and the reduced footprint of the scheme avoids tree removal and ensures future obligations for maintenance during the operation phase are minimised. Design of the Scheme to minimise road traffic noise level, including alignment of Mottram Moor Junction and arrangement of cuttings and embankments for the Mottram Moor Link Road and A57 Link Road.
Materials	Construction and operation	Chapter 9: Geology and soils Chapter 14: Climate	**Construction:** In regard to materials, the EMP would be required to:

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
		Chapter 10: Materials assets and waste	• Sort and segregate waste into different waste streams (where technically and economically feasible). • Manage material use to maximise its re-use within the Scheme, providing an environmental benefit over off-site management. • Materials storage areas and stockpiles would be appropriately sited to minimise their landscape and visual impact and prevent pollution in accordance with the Pollution Prevention Guidance (PPG) such as PPG 6 for Construction and Demolition Sites[33] • Mandate several subsidiary management plans, which would form part of the suite of mitigation measures of particular relevance to materials and waste, e.g. an MMP and a Site Waste Management Plan (SWMP). The MMP would be produced under the CL:AIRE Definition of Waste: Code of Practice (DoWCoP) for the reuse of soils within the DCO boundary. The MMP will be produced in conjunction with the appointed Principal Contractor and a declaration submitted by a Qualified Person registered with CL:AIRE. A tracking system will be established and used to track the movement, storage and placement of excavated materials within the Scheme. The MMP will allow over 99% of the excavated soil to be reused onsite, which will reduce the need for materials and generation of waste to be managed or disposed of offsite. This will ensure the Scheme achieves a cut/fill balance. The appointed Principal Contractor will reduce primary material use through a commitment to achieve, at minimum, the 30% recycled content target for the region. A stretch target of 40-50% will be set by the Principal Contractor, through working with the supply chain and designing the road surface to best suit recycled content. These actions will support responsible material procurement. Waste that cannot be recycled or recovered, such as hazardous wastes, including any contaminated soil will be identified, removed, and kept separate from other construction wastes, in order to avoid contaminating 'clean' materials.

[33] All PPGs that were previously maintained by the Environment Agency were withdrawn in 2015 as being out-of-date and a new set of guidance notes are presently being issued as Guidance for Pollution Prevention (GPP) documents for Northern Ireland, Scotland and Wales (but not England). The series includes GPP1 A general guide to preventing pollution and GPP5 for Works and Maintenance In or Near Water which may be used as a source of information for good practice.

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
			Actions also taken by the Principal Contractor include off-site manufacture of components and use of modular construction and other modern methods of construction. These methods of construction aid material optimisation and waste reduction on site during construction as well as assisting de-constructability and de-mountability of elements (in the case of modular construction) at the end of first life. At present the two culverts for the Scheme would be off site manufactured, the River Etherow bridge would have a modular deck and opportunities are being explored for modular abutments, such opportunities will be developed further at the detailed design stage. **Operation:** • Throughout the Scheme's design, material resources have been evaluated and their carbon emissions calculated. This has ensured that material resources with lower carbon outputs would be considered. • The Scheme's design aims to balance the cut and fill, reducing the need to import additional fill material. This would reduce the fuel consumption of plant, resulting in lower CO2 emissions. • The Scheme's design has been developed to reduce the overall carbon footprint of the Scheme by reusing the Scheme's excavated materials where practicable. All junctions would be as close to grade as possible to avoid significant construction costs, access issues, waste quantities and requirement of additional aggregates. Excavated material would be targeted for embankments and screen mounding where this is feasible, and the material is suitable. • Appropriate material quality standards would be followed to ensure the design lives specified can be met, for example, roads and pavements would use sufficiently hard binders in the asphalt. Polymer modified bitumen would be used in the pavement surface course and a resistance to permanent deformation will be specified as a requirement.
Structures	Construction and operation	Chapter 8 Biodiversity Chapter 9: Geology and Soils	**Construction** Piling associated with the new proposed structures would be required. Such techniques can introduce pathways for contaminants in pore water to migrate into underlying groundwater. Appropriate techniques would be reviewed, and appropriate

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
		Chapter 11: Noise and vibration Chapter 13: Road drainage and water environment Chapter 14: Climate	design would be included to safeguard the underlying groundwater regime to ensure that groundwater quality is not compromised. Deep foundations extending beneath the groundwater table would be designed in accordance with industry standards A piling risk assessment would ensure the selected piling method does not introduce contamination pathways into the aquifer and to ensure groundwater flood risk upgradient is not increased. Mitigation principles to managing this risk during both construction and operation has included designing the Drainage Design Strategy Report (APP-188) to allow for management of groundwater contributions to surface water flow and design of longitudinal piling taking into account local groundwater conditions. A Hydrogeological risk assessment would be undertaken to inform the Detailed Design stage for works associated with Mottram Underpass. The design process has sought to minimise the requirement for in-channel working during the construction process. Where in-channel working cannot be eliminated entirely, best practice guidance would be adhered to. Timing of any temporary in-channel works would consider seasonality for watercourse biota. **Operation** • The footprint of structures and junctions have been designed to be as compact as practicable, ensuring minimal land use change and materials use. • Mottram Underpass has been moved to the east retaining Old Hall Lane on its current alignment and therefore reducing severance on the residential properties along Old Hall Lane. Roe Cross Road will now run over the western end of the underpass on a bridge. • The alignment of Mottram Moor Junction repositions the existing A57 Mottram Moor further away from noise sensitive receptors located within a Noise Important Area. The change in horizontal alignment of the existing A57 Mottram Moor in addition to the bypassing of Mottram-in-Longdendale reduces road traffic noise contributions from this road within the Noise Important Area. • The structures designed into the Scheme has been designed to be resilient to impacts arising from current weather events and climatic conditions and designed in accordance with current planning, design and engineering practice

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
			and codes (e.g. the Environment Agency's guidance on allowances for rainfall and flood probability due to climate change, within the context of flood risk assessments). The Scheme has also been designed to include the wind loading standards which incorporate site specific criteria, based on a number of factors including wind direction, altitude and topography. • The design of the proposed Mottram Underpass would incorporate appropriate design measures/requirements, to ensure that the structural integrity and long-term performance of the underpass is not compromised. • The design will ensure structures can adapt to expected future variations in temperature. The Eurocodes[34] used for the two bridges in the Scheme stipulate design to a temperature range of -18°C to 34°C which is adjusted to take account of altitude, material type and depth of surfacing thickness, etc. • A clear-span design would be utilised as part of the River Etherow Bridge, to avoid impacts to the banks and retain aquatic connectivity within this area. Single span structures will be designed in such a way as to minimise (as far as reasonably practicable) disruption to the river and riparian zone, as detailed in DMRB CD 356: Design of Highways Structures for Hydraulic Action[35]. This includes setting abutments well back from the bank edge to allow the river to function naturally and to maintain a wildlife corridor along the banks and designing the bridge deck to lie perpendicular to the watercourse (where practicable) to reduce shading. • Culverts would be designed so as to maximise the longitudinal connectivity with the open watercourse, following best practice guidance.
Drainage	Construction and Operation	Chapter 13: Road drainage and water environment Chapter 9: Geology and soils	**Construction** Adherence to the Drainage Design Strategy Report (APP-188) in order to manage any increase in runoff and to allow for management of groundwater contributions to surface water flow. Where possible, this would be in keeping with the current groundwater flow pathways.

[34] The Eurocodes are European standards specifying how structural design should be conducted within the European Union. These were developed by the European Committee for Standardisation upon the request of the European Commission.

[redacted]

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
		Chapter 12: Population and human health Chapter 14: Climate	Construction works would adhere to environmental best practice, such following the guidance provided in Pollution Prevention Guidance (PPG) notes, specifically PPG 5 for Works and Maintenance In or Near Water (Environment Agency, 2014a) and PPG 6 for Construction and Demolition Sites (Environment Agency, 2014b)[36] to ensure any contaminants from construction activities do not enter the watercourse. The design process has sought to minimise the requirement for in-channel working during the construction process. Where in-channel working cannot be eliminated entirely, best practice guidance would be adhered to. Timing of any temporary in-channel works would consider seasonality for watercourse biota. This best practice guidance would be detailed within the EMP (Second iteration) which would be developed at the detailed design stage. For water quality: • Visual inspections of watercourses impacted during construction activities • Water quality monitoring where in-channel works have been identified **Operation** The Scheme shall implement the drainage strategy, as outlined in the Drainage Design Strategy Report (APP-188) which has been informed by hydraulic models of both the fluvial and pluvial drainage systems. These models represent the baseline scenario (e.g. the current state) and a scenario where climate change uplifts have been applied, in accordance DMRB CG 501[37] and Environment Agency guidance. This has ensured that the design of drainage systems and watercourse crossing structures are resilient to climate change, by the inclusion of measures such as floodplain compensatory storage, localised alterations to River Etherow bank profiles and wetland storage areas to receive, attenuate and treat highway runoff. The Scheme design includes the following drainage design measures: • Permanent surface water/agricultural drains to reinstate any pre-existing field drainage systems to pre-construction condition (see Table 2-1 for locations) • Incorporation of SuDS to mitigate the operational pollution risk associated with road runoff. The SuDS would be designed to include permanent and temporary

[redacted]

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
			pond features to reflect the habitat features lost, the creation of variable depths and pond profiles and appropriate native wetland planting • Suitable well drained landforms would be created and field drains and borrow pits would be installed (table 2-1) • Culvert or watercourse diversion (see table 2-1) or where an existing watercourse would be severed by the proposed carriageway alignment will be designed on at least a like-for-like basis (including no net loss in total watercourse length within a water body) but will seek improvement where practicable. Crossings would be designed to minimise effects of culverting on flood risk, riverine habitats, mammal and fish passage and geomorphology. Crossing and diversion of ordinary watercourses would be subject to Ordinary Watercourse Consent from the LLFA. • Volume for volume compensation, along with appropriate hydraulic links, where there is loss of floodplain storage (chainage 2900-3050) would be provided by a Flood Compensation Storage Area. Where the Scheme interacts with the River Etherow (an Environment Agency Main River) the design minimises impacts by including a single span crossing that would be consented by the Environment Agency. • Attenuation and treatment of operational highway runoff as well as spillage containment, using vegetated wetlands and other components, inclusive of an allowance for climate change resilience in line with current guidelines (CIRIA, 2015). The surface water drainage system is designed to control runoff rates up to 1 in 100-year return period. Allowance that has been used for the surface water drainage design with adjustment factors in line with the latest information in the Planning Practice Guidance, EA and LLFA requirements. A 40% climate change allowance has been used for the preliminary surface water design, as outlined in the Drainage Design Strategy Report (APP-188)). • A climate change allowance has also been applied to fluvial flows for the design of the flood compensation areas (to determine their volume) and to determine the distance needed between the soffit of structures and the design flood water level of the rivers being crossed. In consultation with the EA, the “upper end” allowance of +70% to peak flows has been used when investigating the designs resilience to climate change and the “higher central” (35%) allowance used to

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
			determine design levels. Since the programme of design, climate change allowances set out in the NPPF have been updated to include the H++ (95%) allowance. As such, a further sensitivity run of 95% increase in flows has been applied to examine the vulnerability of this type of development (Essential infrastructure) to future flood risk. • The drainage design incorporates overwide channels (approximately 3 m wide) to allow space for in channel features (e.g. shelves) and variable channel bank profiles and planforms to be incorporated during detailed design. New channels would be designed to maximise morphological and ecological complexity through provision of diverse planforms and the appropriate sizing of channels to promote a self-sustaining channel form. • There would be three attenuation ponds, two of which will have sediment forebays with specific arrangements to remove sediment before the water reaches the watercourse outfall. Sizing and treatment configuration have been confirmed by a sediment transport assessment. • The drainage design would ensure the bound material is constructed on a sound foundation that should perform at it's optimum over the design life • The design would ensure continuity of drainage in the pavement and road layers. This would reduce the risk of water getting trapped in the foundation layers which could lead to an increase in moisture content and thus a decrease in performance i.e. lack of sufficient support to the overlaying bound material.
Road surfacing	Operation	Chapter 11: Noise and vibration	**Operation** The Scheme includes low noise road surfacing on the A57 Link Road and the Mottram Moor Link Road (excluding bridges, due to design constraints of low noise surfacing over structures), which reduces noise generated from the interaction between tyres on moving vehicles and the road.
Lighting	Operation and construction	Chapter 6 Cultural heritage Chapter 7: Landscape and Visual effects	**Construction** Lighting of the Scheme would be designed to minimise light spill and would be restricted to areas where the construction site or carriageway needs to be lit for health and safety reasons. Lighting levels and uniformity of light would be maintained

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
		Chapter 8: Biodiversity Chapter 11: Population and Human Health	to a minimum, to reduce light spillage and energy usage. Light spill from temporary lighting at construction compounds and at other locations would be minimised beyond the compounds and working areas by the use of directionally controlled lighting. Work during hours of darkness would be avoided as far as practicable, and where necessary, directed lighting would be used to minimise light pollution/glare. Lighting levels would be kept to the minimum necessary for security and safety. **Operation** The lighting design would seek to minimise obtrusive light pollution which can lead to sky glow, glare to road users and other observers and light trespass. The design of the lighting has also been designed in discussion to minimise landscape and ecological effects. Dark corridors with no or very limited artificial lighting would be implemented at strategic locations (such as at safe crossing points) to aid movement of species. This would either be through controlling lighting levels, or through planting of sufficient screen planting to create darker pockets. Following the recommendations from the Bat Conservation Trust and the Institution of Lighting Professionals, titled Guidance Note 8 Bats and Artificial Lighting', the following measures have been incorporated into the Scheme design: • Fluorescent sources. LED luminaires would be used due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. • A warm white spectrum (2700-3000 Kelvin) would be adopted to reduce blue light component. • Luminaires would feature peak wavelengths higher than 550 nm to avoid the component of light most disturbing to bats. Research indicates that while lower UV components attract fewer invertebrates, warmer colour temperatures with peak wavelengths greater than 550 nm (~3000°K) cause less impacts on bats. • Only luminaires with an upward light ratio of 0% and with good optical control would be used.
Public Rights of Way (PRoW)	Construction and operation	Chapter 7 Landscape and visual	**Construction** The EMP would include measures to avoid, minimise and reduce impacts on users of PRoW including, but not limited to:

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
		Chapter 12: Population and Human health	• Users of affected PRoW, footpaths and cycleways would be notified of planned diversions and closures, with signs along sections to be closed during construction, at least one month prior to the works • Construction works would be programmed so that affected PRoW, footpaths or cycleways remain open for part, or the duration, of the construction period, and also that other routes can act as a diversion route for those affected • Clear signage and provision of access information for all users during construction and before operation would be provided • Public transport routes and stops would be maintained/disruption managed. **Operation** PRoW have been realigned as close to their original alignment as practical, to avoid extending WCH routes where possible. Where the Scheme would affect existing PRoW and bridleways, replacement network provision would be made to ensure routes remain open by providing suitable crossing points or diversions. Where new footpaths are required, they would be designed to be as fully accessible as possible.
Retention of Hedges and Woodland	Operation	Chapter 6: Cultural heritage Chapter 7: Landscape and visual effects Chapter 8: Biodiversity	**Construction** All existing trees and shrubs not affected by the construction of the permanent works shall be fenced off with a suitable type of temporary fencing in accordance with BS5837. Fencing shall extend to the drip line of the tree canopies (unless otherwise agreed by an arboricultural advisor) and also to be erected prior to any construction activities in that area and shall remain for the entire period of construction in that area. **Operation** Limitation of removal and replacement of hedges and woodlands to assist in the retention of habitats, connectivity and the fabric of the landscape/historic landscape and minimise change to the visual settings/settings of historic assets and habitat fragmentation, disturbance and/ or loss.

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
Mammal Passes	Operation	Chapter 8: Biodiversity	Mammal passes would be installed along the road network to increase the permeability of the Scheme for badgers and other mammals (brown hare and hedgehogs) and reduce the barrier effect. The scheme includes the following mammal passes • Old Mill Farm Underpass (chainage 515) • Piped crossings (see table 2-1) • Carrhouse Farm Underpass (chainage 2174) • River Etherow Bridge (between chainages 2963 and 3005). The entrances would be 'softened' through the use of appropriate planting to encourage badgers and other mammals to use these crossing points.
Fencing	Operation	Chapter 8: Biodiversity	Linear fencing would be utilised to prevent road mortalities and guide badgers to the safe crossing points. Acoustic fencing is proposed around a significant portion of the Scheme, which would be modified (specifically through the addition of the 600 mm buried underground) to be used for both badger and acoustic fencing. In areas where acoustic fencing isn't proposed, badger fencing would be installed 500 m from each crossing point (on both sides of the road) and artificial sett(s). This Badger fencing would be minimum standard 1 m high (as set out in DMRB LA108) above ground level with a lower section buried 300 mm below ground and a further 300 mm turned away from the fence in the direction from which badgers would approach. Fencing would be designed to encourage badgers towards the crossing points through the use of indents or recesses towards each crossing entrance. Deer proof fencing would also be installed along chainages 1100 and 1300 of the Scheme to prevent deer road mortality. Otter-proof fencing will be installed, extending from each side of the River Etherow Bridge, to be installed on either side of the Scheme for a distance of at least 100 m in each direction, to prevent mortality through traffic collision. Fencing would be minimum standard 1 m high above ground level with a section protruding at least 0.5 m at a 45-degree angle in the direction from which otters would approach and would be installed on both sides of the road.

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
Minimising Land Take and Habitat Loss	Construction and Operation	Chapter 8: Biodiversity Chapter 12: Population and Human Health Chapter 9: Landscape and Visual	**Construction** The phasing of land take for construction works would also be planned to enable early release of land and thereby minimise the extent of disruption. Where sensitive receptors do fall within the DCO boundary, construction impacts, particularly for temporary land-take (e.g. for site compounds and material storage areas), have been designed out/minimised as far as possible. **Operation** The DCO boundary has been reviewed to minimise land take and avoid receptors where possible. Minimising land take/habitat loss during construction would be through clearly demarcated with dedicated access routes, located outside of ecologically sensitive habitats. Habitat losses to be quantified to ensure no net loss (and where possible increase to provide more robust and resilient ecosystem) in quantity and quality. Riparian vegetation would be reinstated on completion to allow replacement habitat to establish. Mature trees lost as a result of bank lowering activities would be replaced with appropriate planting along the River Etherow corridor
Bat design mitigation measures including a dedicated structure, bat boxes and bat hop-overs	Operation	Chapter 6 Cultural heritage Chapter 7 Landscape and visual effects Chapter 8 Biodiversity	Bat hop-overs would be created at strategic locations along the Scheme, which would consist of tall vegetation planted on either side of a road. The aim is to guide bats across roads at a safe height above traffic. A dedicated bat structure would be constructed to provide appropriate mitigation for the loss of the four potentially present maternity roosts within the DCO boundary based on a worst-case scenario. The structure would be located within the northern limits of the Scheme which ensures that it is in proximity (< 150 m) to the existing roosts to be lost, nearby to suitable habitat (broadleaved woodland and hedgerows), and is connected via several hedgerows to the wider landscape. Additional native planting would be provided on the northern and western areas surrounding the bat structure to provide additional habitat and to provide screening to aid with visual and landscaping elements. The bat structure in this location would be situated behind retained trees with proposals for additional planting screening for local residents and associated designated heritage assets adjacent to the structure. In order to ensure that continued roosting spaces and to provide enhancements for roosting bats, at least 37 artificial bat boxes would be installed around the Scheme on

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
			retained trees or on artificial poles (if suitable trees aren't available). The artificial bat boxes would be installed as far as possible from the highway, in order to reduce the risk of road casualties. Bat boxes would include a mixture of Schwegler 2F, 1FF, and 2FN bat boxes to provide a range of roosting spaces. Dark corridors would be maintained around any artificial bat boxes through ensuring the minimal lighting is used and ensuring that any artificial roosts are directly illuminated.
Barn owl 'fly-overs'	Operation	Chapter 8 Biodiversity	Barn owl 'fly-overs' and taller screen planting would be created at strategic locations around the Scheme. These fly-overs and screen planting would consist of tall vegetation planted on either side of the road, with the aim of encouraging barn owls to cross the road at a safe height above traffic
Artificial badger sett(s)	Operation	Chapter 8: Biodiversity	To compensate for the disturbance to and permanent loss of badger setts, one artificial sett (and one additional artificial sett dependent on further survey) are being created in close proximity to the relevant clan's territory whose setts are being lost and/or disturbed. The sett(s) would be planted with a meadow mix and scrub to provide suitable habitat and cover for badgers.
Landscape and ecology design strategy	Operation and construction	Chapter 6: Cultural heritage Chapter 7: Landscape and visual effects Chapter 8: Biodiversity Chapter 12: Population and human health Chapter 14: Climate	**Construction** The provision of screening during construction to reduce impact to setting for designated assets, visual receptors such as residential areas, users of PRoW and farmsteads. Prior to construction, a Landscape and Ecological Management Plan would be produced which would include a planting schedule, a specification. The LEMP will be based on the requirements outlined in the EMP. This would include information on long-term operational management of the landscape and ecological resource within the DCO boundary. The LEMP would ensure that landscape works are undertaken in accordance with good practice and in a consistent basis across the Scheme. To protect soil quality for the purposes of landscape planting for the Landscape and ecology design strategy, the following measures would be implemented, as outlined in the LEMP: • Uncontaminated topsoil for re-use shall be stored in un-compacted mounds no more than 2 m in height and stored separately from subsoil material.

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
			• Stripped topsoil shall be used in areas of the same proposed vegetation type to utilise the existing natural seed bank. • Subsoil in planting areas shall be replaced after construction and ripped to a minimum of 450 mm prior to top soiling and planting. • Proposed planting areas in existing arable and pasture, land not subject to construction activity, and would be ripped to 600 mm to alleviate compaction. **Operation** The landscape proposals are designed to integrate the Scheme into the surrounding landscape, mitigate the loss of existing vegetation and habitats. False cuttings as part of the landscape design strategy, would act as a visual barrier and help to integrate the Scheme into the existing landscape The landscape design would also futureproof the Scheme in terms of climate change as well as in terms of pests/diseases by adhering to best practice. This would include diversifying planting species as much as possible, including drought tolerant species, whilst still having regard to the local character, and generally planting only native species. The planting species mixes within the landscape design were selected following consideration of the following: • Dark Peak NCA (National Character Area) 51 Landscape Type Woodland and Hedgerow Species mix • National Vegetation Classification (NVC) Classes • Scheme Ecology Phase 1 Habitat Surveys • Scheme Arboricultural Assessment • Forest Research Publication: Tree species suitability in a future climate in North West England.
Construction Programme	Construction	Chapter 6: Cultural heritage Chapter 7: Landscape and visual effects Chapter 8: Biodiversity Chapter 12: Population and human health	**Construction** To mitigate flood risk on the River Etherow, during construction the proposed flood compensation area (chainage 2900-3050) would be constructed prior to any other construction activities within this area.

Embedded Environmental Design Measures	Construction or operation	Relevant Topic Chapters	Description
		Chapter 13: Road drainage and water environment Chapter 14: Climate	The construction programme would be informed by various ecological seasonal constraints (for example vegetation works (tree or hedge cutting) or site clearance should be done outside of the bird nesting season). The construction programme would also be kept to the minimum practicable time to reduce the duration of any landscape and visual impacts and areas would be cleared for construction as close as possible to works commencing and top soiling, reseeding and planting shall be undertaken as soon as practicable after sections of work are complete.
Stakeholder engagement	Construction	Chapter 5 Air quality Chapter 11: Noise and vibration Chapter 12: Population and Human health	**Construction** A Community Engagement Plan, outlining the methods in which the local and surrounding community will be engaged during construction of the Scheme including contact details for key site management. This would include a number of measures including but not limited to: • Appropriate mechanisms to communicate with local residents and businesses would be set up to highlight potential periods of disruption (e.g. web-based, newsletters, newspapers, radio announcements, etc.). This would include the appointment of a Community Relations Manager (CRM) responsible for leading engagement with affected communities • The Scheme specific would provide up-to-date construction and community liaison information. It is envisaged that the web-page would provide updates regarding construction progress. The communication approaches would help drivers and local residents to plan their journeys and take account of potential disruption due to Scheme construction, as well as provide local residents with details of construction phase activities. • An agricultural liaison officer will be available to deal with issues affecting the operation of agricultural holdings during construction.

Environmental Management Plan

2.5.79 Table 2-5 refers to the requirement for an Environmental Management Plan (EMP). The objective of an EMP is to provide the framework for managing and mitigating the environmental effects of projects, and to demonstrate compliance with environmental legislation throughout all lifecycle stages. The measures included in the EMP have been developed alongside the design of the Scheme and have been informed by the technical assessments presented in this ES. The residual effects, as reported within the technical chapters (Chapter 5 to 14), have taken account of the embedded mitigation measures outlined in the EMP.

2.5.80 The First iteration EMP for the Scheme has been produced in line with the DMRB LA 120 Environmental management plans[38], to outline how the mitigation and management of environmental effects would be delivered and maintained. The First iteration EMP has been submitted as part of this DCO application (APP-183). It details practices that the appointed Principal Contractor is to apply on-site that would demonstrate commitments to environmental management. It details both generic and specifically targeted practices, to enable construction to be undertaken with minimal impact on the environment and would also enable monitoring requirements to be set up.

2.5.81 A REAC (APP-184) has also been submitted with the DCO which identifies the environmental mitigation commitments (both embedded and essential), to address potential environmental effects of the Scheme which are identified in each topic chapter. The REAC acts in part as a connection between the ES and the EMP in all its forms, i.e. iterations 1 - 3 (see Table 2-6) through the lifecycle of a project. The EMP (Second iteration) prepared by the Principal Contractor during the implementation of the Scheme will reflect the mitigation contained within the REAC. Any remaining items from the REAC which relate to the post construction and operational stage of the Scheme will be part of the EMP (Third iteration).

2.5.82 The REAC is a live document and as such would be updated as the project progresses and would be finalised at the end of construction on completion of the Scheme, where it would inform the development of, and be included within, the EMP (Third iteration) to support the future management and operation of the Scheme.

2.5.83 Further details of the EMP and REAC can be found in Section 4.2 in the Environmental assessment methodology chapter (Chapter 4).

Table 2-6 Delivery schedule and updates of the EMP

Project stage	EMP iteration	Overview of iteration	Produced/ refined
Design	First iteration of EMP: produced during the design stage for the preferred option	Provides preliminary environmental guidance on how to manage the environmental effects of the Scheme. It demonstrates how mitigation measures to reduce environmental impacts during the construction phase will be delivered and how compliance with environmental legislation has been reached. This iteration has been submitted with the DCO application (APP-183).	Produced

Project stage	EMP iteration	Overview of iteration	Produced/ refined
Construction (refined for the consented project)	Second iteration of EMP: refined during the construction stage for the consented project, in advance of construction.	This would be fully comprehensive, taking account of detailed design and construction planning. It is maintained and revised during the construction period to take account of any changes in design or external factors such as regulations and standards, any unforeseen circumstances as they arise, such as new protected species or new archaeological finds.	Refined
End of construction	Third iteration of EMP: building on the construction EMP refined at the end of the construction stage to support future management and operation.	This would be adopted and integrated by the Appointed Principal Contractor at the end of the Construction, Commissioning and Handover Stage to support future management and operation.	Refined

Table Source: Adapted from Highways England's DMRB LA 120 Table 2.2

2.6 Construction operation and long-term management

Construction Overview

2.6.1 This section describes the provisional overall construction programme and the planned sequence of operations. The construction programme is based on a forecast start of works in autumn 2022, leading to the Scheme opening in spring 2025. The programme has been developed by a team of construction experts who have used past experience and industry benchmark data to both estimate durations and develop the logic for the programme. The construction activities and programme would be subject to modification during both the detailed design and the construction phases. The timings indicated are a best- estimate, based on the present situation and a worst-case scenario.

2.6.2 Utility diversions and protection works would be required for the construction of the Scheme. The details of this would be confirmed in consultation with the relevant statutory undertakers, during the Detailed Design and Construction Preparation stages.

2.6.3 This section should be read alongside the Temporary Works Plans (APP-013), which shows the location of the construction site compound, topsoil and material storage areas, structures worksites, construction traffic access routes, temporary road diversions, and temporarily footpath, footway and bridleway diversions.

2.6.4 The construction programme for the main works would have a duration of approximately 28 months. At substantial completion, the works would be completed to a sufficient standard for the Scheme to be opened to live traffic. Some minor works may still be required following substantial completion (e.g. demobilisation and landscaping works), which has been considered in the assessment of the opening year.

Construction sequence

2.6.5 The main construction works would be divided into 5 main phases. Pre-phases including early works, site mobilisation, utilities diversions and ecological mitigation and compensation works would also occur. A detailed construction programme will not be available until the Detailed Design stage to confirm the duration of the works. This has been reflected in the environmental assessments by assuming a worst-case scenario; the details of which are presented in the assumptions and limitations of the relevant topic chapters.

2.6.6 The dates in this section reflect the assumed construction sequence for the assessment of effects.

Phase 1 – Autumn 2022 to Spring 2023

2.6.7 The first works to be undertaken for the construction of the Scheme include the following activities:

- Early works, including site clearance, site enabling work and environmental mitigation works, mobilisation of compound areas and temporary welfare facilities, as required
- Archaeology trial trenching and test pits
- Properties above Mottram Underpass to be demolished and clearance of any obstructions ready for underpass piling during later stages of Phase 1
- Old Hall Lane would be closed, and Old Road would be diverted by approximately 50 m to Roe Cross Road just north of the Scheme
- Ground improvement to the land west of the River Etherow most likely using pre-cast concrete piles driven through the weak alluvium.

2.6.8 Based on this construction sequence, it is not expected that there would be any changes to traffic flow on the A57 as a result of the first phase of works.

Phase 2: Spring 2023 to Autumn 2023

- Works for the construction of Mottram Underpass would continue with piling and construction of the reinforced concrete slabs. Commencement of, excavation of the main cutting in the former Mottram Showground, east of Mottram Underpass
- The fill material from the cutting east of Mottram Underpass would be transported to the prepared ground, forming the embankment west of the River Etherow
- Carrhouse Lane Underpass would be constructed to enable the existing lane to be realigned to its new location and completion of the embankment on each side
- Old Mill Farm Underpass would be constructed in advance of the embankment fill material in Phase 4.

2.6.9 To permit these works, traffic would be restricted on Mottram Moor; eastbound traffic would be reduced to one lane but westbound would continue with two lanes. An at-grade plant crossing would be used to move fill from west to east of the Scheme.

Phase 3: Autumn 2023 to Spring 2024

- The construction of Mottram Underpass would be completed during this phase, which would require the temporary realignment of Roe Cross Road
- The junction modifications to M67 Junction 4 would commence. Two lanes of traffic would be maintained during peak hours on the roundabout whilst these works go ahead
- The offline sections of Mottram Moor Junction would be constructed
- The tie-in of the Scheme to Woolley Lane would be completed. There would be no restrictions to the existing road network during peak hours and a single lane maintained during off-peak, with the use of traffic light control to complete these works
- Landscape tree planting would be undertaken in selected areas.

Phase 4: Spring 2024 to Autumn 2024

- The Mottram Underpass main excavation would commence with the material moving west to complete the mainline from the M67 Junction 4 to Mottram Underpass
- Road surfacing and street furniture would be installed along the length of the Scheme
- Mottram Moor Junction completed with diversion of the traffic onto the new junction, with conversion of the existing carriageway into access to the local properties
- Landscaping would continue across the whole Scheme, with final topsoil placed, temporary storage areas removed and attenuation ponds completed, ready for opening.

2.6.10 It is not expected that there would be any restrictions to the existing road network during this phase.

Phase 5: Autumn 2024 to Spring 2025

- The detrunking works to the existing A57 would be completed
- Over winter planting of replacement trees would take place and planting of other bare root stock, as required.

Temporary works

2.6.11 The temporary works for the Scheme that would be required during construction and would be further developed during detailed design, would include:

- Temporary realignment of Roe Cross Road and diversion of Old Road onto Roe Cross Road, closure of Old Hall Lane
- Temporary minor watercourse diversions, both culvert and open cut and associated temporary works, including over pumping, to deal with flow of water
- Temporary diversion of private sewers including over pumping
- Plant crossing points over existing and new services

- Plant crossing point over Mottram Moor Road
- Piling and crane platforms for safe operation of the structures build
- Potential for temporary controlling water for the construction of the underpass and the River Etherow bridge abutments
- Temporary falsework and formwork for Mottram Underpass and River Etherow Bridge.

2.6.12 These works are presented on the Temporary Works Plans (APP-013)

Working hours

2.6.13 Working hour constraints are specified in the REAC (APP-184).

2.6.14 In summary, the typical core working hours for the Scheme are expected to be between 07:30 and 18:00 on weekdays (excluding bank holidays) and from 07:30 to 16:00 on Saturdays. In addition, there would be a start-up and close down period of one hour either side of these times to maximise efficiency of the core hours. This would include activities such as deliveries, staff travel to work, maintenance and general preparation works, but would not include running plant and machinery that are likely to cause a disturbance to local residents or businesses.

2.6.15 No night-time construction works are planned for the Scheme during the entire construction programme except for traffic management. Night-working hours for these tasks would be agreed in advance with the relevant local authority.

2.6.16 The EMP (APP-183) and REAC (APP-184) include detailed measures and procedures to avoid, minimise or reduce the risk of occurrence or potential negative environmental effects during construction. This would detail mitigation measures such as seasonal timing constraints relating to vegetation removal (nesting birds) and no night time lighting during seasons when bats are active (April – October).

Haulage Routes and Traffic Management

2.6.17 Construction traffic movements provided by the appointed Principal Contractor. are presented in Appendix 11.2 Construction Noise Plant Lists (APP-175). This appendix comprises route information, the number of single movements to be conducted (i.e. one-way trips to site), and the duration of the planned movements to and from site. Construction traffic movement types are confined to either:

- Movements to and from site of heavy vehicles on the existing road network
- Movements of vehicles 'off network' within the DCO boundary.

2.6.18 Dedicated haul routes would follow the new main line alignment where possible. These temporary haul routes would be created by stripping the topsoil and replacing with capping material to create a hard-standing surface suitable for heavy goods and off-road vehicles. Access for construction vehicles to the site would be from the trunk road network on designated routes which would be clearly signposted.

2.6.19 Haul routes within the Scheme area would be dictated by the balance of cut and fill within the site areas. This itself would be dictated by the design of the new

roads and the suitability of the materials arising and their suitability for beneficial re-use.

2.6.20 The main areas where the construction sites would interface with the travelling public would be at locations where connections to the existing network would be created. In these locations, traffic management would be required to segregate the construction sites from road vehicles.

2.6.21 Overall, a range of traffic management measures would be adopted to help ensure that road users are not disrupted, including major road users such as Royal Mail. The proposed measures include road diversions, carefully managed construction deliveries and access, phased developments and more. Each traffic management measure is laid out in detail within the Traffic Management Plan (APP-186). Dust control measures along haul routes would be implemented in accordance with best practice via the EMP (APP-183).

Temporary Road Closures and Diversions

2.6.22 Works requiring traffic management, including temporary works access arrangements at the M67Junction 4, Mottram Moor Junction, Roe Cross Road and Woolley Bridge Junctions, would be required during the various phases of the construction period, as detailed below. Each traffic management measure is laid out in detail within the Traffic Management Plan (APP-186).

2.6.23 More detailed provisions, in relation to the management of the Scheme construction phase environmental effects, would be provided in the Second iteration EMP, which would be developed and implemented by the appointed Principal Contractor. The Second iteration EMP would build on the First iteration EMP included in this Application in line with the process detailed in Table 2-6.

M67 Junction 4

2.6.24 During phase 3 construction of the new connection of Mottram Moor Link Road onto the existing M67 Junction 4 would require some lanes to be narrowed but still maintaining two lanes for peak traffic on the roundabout carriageway to allow the new connection to be built.

Mottram Moor Junction

2.6.25 During phase 4 construction of Mottram Moor Junction would require a short series of overnight lane closures to tie into the new works. Once parts of the new carriageway are complete, traffic would be temporarily diverted onto them to facilitate construction of the remaining sections of the junction. Access would be maintained to all existing properties, at all times.

Woolley Bridge Junction

2.6.26 During phase 3 construction of Woolley Bridge Junction would require a series of single lane closures on the existing Woolley Bridge Road during off peak hours. Consultation is ongoing with the local highway authority to determine the requirement for a single lane at this location.

Mottram Underpass

2.6.27 During phases 2 and 3 Mottram Underpass is proposed to be constructed using the cut and cover method. It is currently planned that the underpass would be

constructed in a number of sections. Three existing roads cross the underpass - Roe Cross Road, Old Road and Old Hall Lane. It is proposed that traffic flows would be maintained on Roe Cross Road with a temporary local diversion road used to maintain access throughout the construction phase. Old Road would be diverted onto Roe Cross Road during the construction of Mottram Underpass. Old Hall Lane would be temporarily severed for the duration of the works in that area and closed for approximately one year. Access would be provided from either side of the works, using Roe Cross Road.

Mottram Moor Link Road and the A57 Link Road

2.6.28 The construction of the Mottram Moor Link Road and the A57 Link Road would require significant excavations and deposition of fill material, to achieve the required vertical profile. Interfaces with existing PRoW would need to be managed.

2.6.29 Temporary road closures and diversions would be arranged following discussions with the relevant highway authority, police and the maintaining authority. A temporary traffic order giving the requisite notice would be prepared and a statutory notice placed in local newspapers.

2.6.30 PRoW would be maintained wherever possible. If they are required to be temporarily closed, alternative routes would be made available through the construction period.

2.6.31 The traffic management for the Scheme would follow the guidance in Chapter 8 of the Traffic Signs Manual[39] adopting the following standards as applicable:

2.6.32 Where heavy vehicles, including public service vehicles are expected, the lane width may be reduced to 3.25 m (desirable from Chapter 8 of the Traffic Signs Manual).

2.6.33 The proposed Mottram Underpass and Roe Cross Road overbridge would require one local road closures to enable the construction of the structures (refer to the Traffic Management Plan APP-186 for full details):

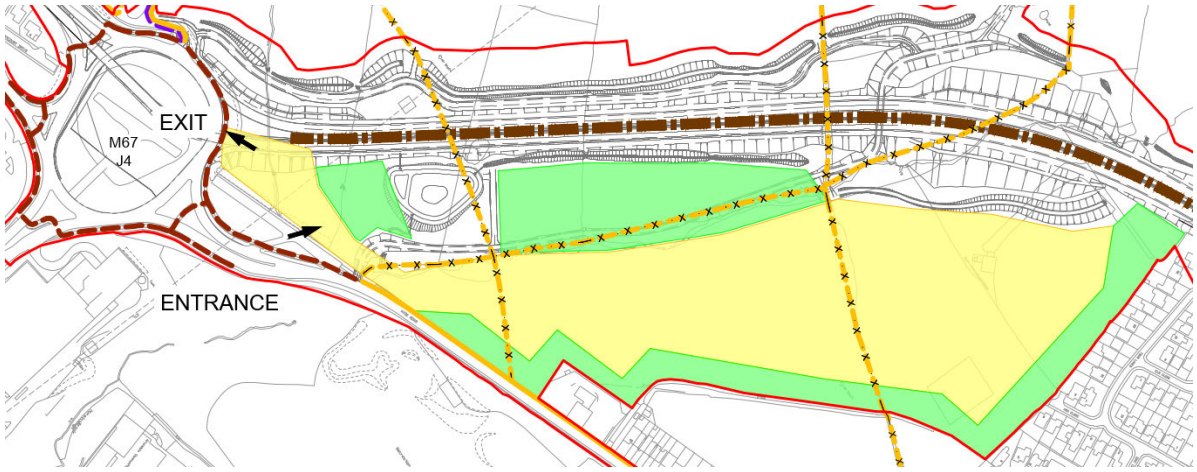
- Phase 1 – During the setting up of the site boundary Old Hall Lane would be closed and Old Road would be diverted onto Roe Cross Road making Mottram Underpass a secure location
- Phase 2 – When Mottram Underpass is part complete, Roe Cross Road would be temporarily realigned to the west of the existing road to enable the new bridge to be built on the current alignment of the existing road
- Phase 3 – Roe Cross Road reinstated and Old Road diversion removed. Old Hall Lane re-opened to traffic.

Construction compounds

2.6.34 One main compound (Insert 2) would be required for the construction of the Scheme. Access into the compound would be through the existing layby just to the east of the M67 Junction 4 interchange and exit from the compound would be onto the M67 Junction 4 interchange. This would allow the majority of deliveries to and from the office and stores to be made without increasing traffic through the village.

[redacted]

2.6.35 The construction compound is expected to accommodate office and welfare facilities, plant and machinery parking, storage facilities, maintenance areas and workshops. The site compound would be constructed, as demonstrated by the yellow shaded area. The topsoil bund is shaded green in Insert 2 and present to shield the compound from the village. Topsoil from the compound area would be used to make a 3 m high bund around the compound area to separate the compound from the back gardens of the residential properties on Hyde Road, Littlefields, Meadowcroft, Ash Close and Four Lanes. The 3 m bund would be made up of 1 m fill material with 2 m of topsoil on top to ensure the compound office building is sufficiently screened.



Insert 2 Site Compound (extract from APP-013 Temporary Works Plan)

2.6.36 Temporary welfare facilities would also be required adjacent to the two structures, Mottram Underpass and River Etherow Bridge, as shown on the Temporary Works Plans (APP-013).

2.6.37 Following pre-construction species surveys and site clearance, in accordance with the EMP, the establishment of the main construction compound would involve the following activities:

- Defining the boundary using fencing
- Soil stripping and storing this material in a 3 m high bund around the perimeter of the compound to screen the residential properties and placing and compacting stone for compound base
- Setting up drainage as required, including perimeter drainage
- Creating access tracks with bound material surfacing if required
- Setting up power requirements including generators
- Setting up offices, welfare facilities and wheel washing
- Installation of security/access gates.

2.6.38 The plant used for this operation would be typical of that for road construction (as outlined in Table 2-8).

2.6.39 The appointed Principal Contractor would be responsible for any construction defects that arise after opening. The compound area is classified as temporary land take and would therefore be returned to the previous land use after

decommissioning and restored to a condition equivalent to its original (i.e. for use for farming activities), in agreement with landowners.

Excavated materials

2.6.40 Construction of the Scheme would require excavation in places, to form cuttings (where the road would be below existing ground level) for the highway and where possible, this material would then be used to form embankments. ~~Table 2-7 provides d~~Details of predicted cut and fill volumes and estimates of material re-use and materials landfilling during the Scheme construction phase are~~. This is~~ detailed ~~further~~ in the Material assets and waste chapter (Chapter 10), particularly Table 10.8.

~~**Table 2-7 Predicted cut and fill volumes**~~

~~Scheme Aspect~~	~~Material (m^3)~~		
	~~Cut~~	~~Fill~~	~~Balance~~
~~Scheme Design~~	~~360,000~~	~~380,000~~	~~-20,000~~
~~Attenuation Ponds~~	~~40,000~~	~~0~~	~~+40,000~~
~~Suitable material processed for road materials~~	~~0~~	~~20,000~~	~~-20,000~~
~~Total~~	~~400,000~~	~~400,000~~	~~0~~

2.6.41 It is the intention that all of the cut material would be reused on site, if feasible. Re-use of excavated material would minimise the need to transport this material on the highway network for re-use or disposing it off-site. It would also reduce the quantity of imported material required. This would reduce the environmental impacts associated with the construction of the Scheme, particularly in relation to the air quality and noise impacts of construction traffic on people and communities living along excavated materials re-use and disposal routes. This strategy would also help reduce greenhouse gas emissions during the Scheme construction phase. More details on the environmental impacts are outlined in the technical chapters (Chapter 5 to 14) of this ES.

2.6.42 Should any such materials not be re-used on site then local locations would be investigated to re-use material, although some materials may require off-site disposal. The approach to materials and waste management is considered further in the Materials assets and waste chapter (Chapter 10).

Work force

2.6.43 The maximum workforce during the Scheme construction phase has been estimated to be approximately 270 staff members, 200 of which would in the operational workforce at peak.

2.6.44 The appointed Principal Contractor would seek to use local suppliers and employ a local workforce for the construction phase, wherever possible.

Plant and equipment

2.6.45 Construction of the Scheme would require a large quantity of plant and equipment. The high volume of earth to be moved would require large excavators, dump trucks, bulldozers, compactors and stabilising plant.

2.6.46 A high-level summary of the plant requirements for each construction activity is provided in Table 2-7~~8~~. These are detailed further in Appendix 11.2 (APP-175) of the Noise and vibration chapter. Indicative timescales for the majority of activities is also included in Appendix 11.2.

Table 2-7 Indicative plant and equipment requirements during construction

Construction activity	Plant requirements
Earthworks	Small excavators 3t to 8t
	Medium excavators 16t to 20t with breaker attachments
	Large excavators 40t
	Wagons ADT 20t
	Dumpers 5t
Surfacing	Paver
	Road wagon 20t (delivery of hot asphalt)
	JCB 3CX with breaker
	Rollers, various size
	Road planer
	Concrete extruder (for noise barrier and drainage channel)
General duties	Hi-ab for movement of materials
	Traffic management pick ups
	Traffic management wagon with crash cushion
	White lining vehicle
Structures	Piling rigs (2-3 No.)
	Service cranes (50-80t)
	Concrete mixer trucks
	Concrete boom pump
	800t Mobile crane (beam placement)

Site Lighting

2.6.47 Site lighting would generally be required as follows:

- Provision of lighting for construction compounds for security and safe movement of staff during winter mornings and evening
- Provision of road lighting along temporary access roads
- Provision of temporary road lighting to maintain at least an equivalent level of lighting where there is existing lighting in place prior to construction

- Provision of temporary road lighting where there is currently no lighting, as lighting is required as a safety measure under temporary traffic management
- Provision of task lighting required for night-time activities or winter afternoon activities, such as installation of bridge beams.

2.6.48 Maintenance of road lighting at locations where the layout is to be changed would be provided by early commissioning of permanent new lighting where feasible, powered by generators, if necessary. Where this is not feasible, lighting may be provided by temporary mobile lighting towers or by use of columns in temporary locations.

2.6.49 Light spill from temporary lighting at construction compounds and at other locations would be minimised beyond the compounds and working areas by the use of directionally controlled lighting to avoid, minimise or reduce the risk of occurrence or potential negative environmental effects during construction. These measures are outlined within the First iteration EMP and REAC.

Operation and long-term maintenance

2.6.50 Once the commissioning activities have taken place the Scheme would be open to traffic. There would be an initial 5-year maintenance period for any construction defects that arise after commissioning and opening, as well as management of environmental landscaping and planting.

2.6.51 After this period the Scheme would be handed over and maintained based on the type of land acquisition as follows:

- Outright acquisition in which the land would be handed over to the various asset owners who operate the road and public rights of way network (National Highways, Tameside MBC and Derbyshire County Council) for future maintenance operations.
- Temporary possession, where the land would be returned to its original owners and restored to a condition equivalent to its original in agreement with landowners. When the land is classed as temporary acquisition with permanent third-party rights, the land would be returned back to its original owner, as above, with access rights identified and arranged with individual landowners.

2.6.52 Maintenance is defined as actions needed to inspect, repair, adjust, alter, remove, replace or reconstruct all aspects that relate to the Scheme. Typical maintenance activities include: the inspection and repair of safety barriers; signage; drainage infrastructure; lighting; environmental barriers; structures; repairs to the carriageway surface; renewal of road markings; maintenance of highway verges and boundaries; management of the soft estate; and the inspection and clearance of road drains. The Scheme has been designed in a way that minimises the frequency of future interventions through the incorporation of low maintenance materials, equipment and features that reduce the number of repairs required.

2.6.53 In order to enable the proposed planting regime to establish and mature to fulfil its environmental, landscape and visual function it would be necessary to ensure that an appropriate management regime is undertaken. This would include activities such as grass strimming, watering and weed control.

Maintenance would be more intensive during the first three to five years after Scheme opening to ensure the successful establishment of any planting.

2.6.54 Management requirements to ensure the successful establishment of the proposed planting would be set out in a Landscape and Ecological Management and Monitoring Plan (LEMP). This is outlined in the EMP (APP-183) and REAC (APP-184) and would be secured by Requirement 4(c) of the draft DCO (APP-020). A programme of monitoring visits and reports would be carried out as part of the on-going maintenance requirement. Remedial operations identified by the monitoring required to ensure the success of the planting and management proposals would be carried out as part of the on-going maintenance requirement. Once the commissioning activities have taken place the Scheme would be open to traffic. For the initial 5-year maintenance period, the appointed Principal Contractor would be responsible for any construction defects that arise for the initial 52-week period after substantial completion commissioning and opening, as well as management of environmental landscaping and planting.

2.6.55 After this period the Scheme would be handed over and maintained based on the type of land acquisition as follows:

- Outright acquisition in which the land would be handed over to the various asset owners who operate the road and public rights of way network (National Highways, Tameside MBC and Derbyshire County Council) for future maintenance operations.
- Temporary possession, where the land would be returned to its original owners and restored to a condition equivalent to its original in agreement with landowners. When the land is classed as temporary acquisition with permanent third-party rights, the land would be returned back to its original owner, as above, with access rights identified and arranged with individual landowners.

2.6.56 Maintenance is defined as actions needed to inspect, repair, adjust, alter, remove, replace or reconstruct all aspects that relate to the Scheme. Typical maintenance activities include: the inspection and repair of safety barriers; signage; drainage infrastructure; lighting; environmental barriers; structures; repairs to the carriageway surface; renewal of road markings; maintenance of highway verges and boundaries; management of the soft estate; and the inspection and clearance of road drains. The Scheme has been designed in a way that minimises the frequency of future interventions through the incorporation of low maintenance materials, equipment and features that reduce the number of repairs required.

2.6.57 In order to enable the proposed planting regime to establish and mature to fulfil its environmental, landscape and visual function it would be necessary to ensure that an appropriate management regime is undertaken. This would include activities such as grass strimming, watering and weed control. Maintenance would be more intensive during the first three to five years after Scheme opening to ensure the successful establishment of any planting.

2.6.58 Management requirements to ensure the successful establishment of the proposed planting would be set out in the LEMP, to be secured by Requirement 4(c) of the draft DCO (APP-020). On completion of the construction phase of the

Scheme, the EMP (Third iteration) would detail the requirements for ongoing maintenance work.

2.7 Demolition

2.7.1 In view of the indefinite design life of the Scheme, it is not considered appropriate for demolition to form part of each environmental topic assessment. The focus is rather on seeking to minimise disruption and to re-use materials as the Scheme is upgraded, that would also form part of the materials assessment. Demolition of the Scheme has therefore not been included in this ES.

3 Assessment of Alternatives

3.1 Introduction

3.1.1 Schedule 4 (2) of the EIA Regulations require a description of the reasonable alternatives that have been studied, which are relevant to the Scheme and its special characteristics, providing an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects. This should provide *'A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*[40]*.'*

3.1.2 This chapter provides a chronology of the options considered to meet the key objectives outlined in section 2.2 of this ES and as set out in the Case for Scheme (APP-182).

3.1.3 As stated in Section 1.2, the current Scheme has evolved over more than 50 years as different ideas have been considered and discarded to address the longstanding connectivity and congestion issues identified. Table 3-1 provides the timeline of the 50-year history of the different schemes explored and clarifies where the alternatives to the specific Scheme assessed in this ES are considered.

3.1.4 Although the Scheme in this ES is considered a separate scheme from those presented in the first section of Table 3-1, note has been taken of these earlier, historic studies and design development has been informed by historic study information, where applicable and as outlined in the later sections of this chapter.

Table 3-1 Timeline of the Scheme's history, 1967 to present

Scope of Scheme	Year	Detail of events
Historic Schemes		
M67 Manchester to Sheffield Motorway	1967	During the public inquiry for the M67 motorway in 1967, there were discussions regarding an extension of the motorway across the Peak District National Park to provide a second motorway link across the Pennines to the south of the planned M62 and avoid the Snake and Woodhead passes. As there was no certainty that the whole M67 scheme would be completed by this time, it was decided by the Government at the time that the scheme would not be built with motorway characteristics, but as a single carriageway with crawler lanes.
Scheme to alleviate traffic congestion along the A57/A628 trunk road through Mottram, Hollingworth (in the Tameside district of	1989	The bypass Scheme was first introduced to the Roads Programme.
	1992/1993	Following the appraisals of seven alternative route options two routes (the brown and grey route) were presented at Public Consultation in 1992, with a Preferred Route Option (PRA) for the brown route announced in 1993 by

Scope of Scheme	Year	Detail of events
Greater Manchester) and Tintwistle (in the High Peak district of Derbyshire and partly within the Peak District National Park) -		the Secretary of State announced a Preferred Route for a bypass scheme
	1996	The bypass was suspended from the Roads Programme
Scheme to solve the traffic problems within the three villages of Mottram, Hollingworth and Tintwistle and within the wider area	1998	The A57/A628 Mottram -Tintwistle Bypass and A628/A616 Route Restraint Measures was listed as a scheme for which preparation would continue to enable it to be taken forward without delay, subject to full appraisal and the views of the Regional Planning Bodies. In 1999 was approved subject to further appraisal
	2000	The Highways Agency[41] conducted an assessment of the impacts of various strategies (including an HGV lorry ban, public transport improvements and a bypass option) The assessment concluded that there were no realistic alternatives to a bypass of the villages. The results of these assessments were presented to the Regional Planning Bodies in November 2002 and, following their approval, a scheme was included in the Government's Targeted Programme of Improvements (TPI) in April 2003.
	2003	The preferred route was promoted - a bypass of approximately 5.7km in length, which would bypass the existing A57/A628 route in the villages of Mottram, Hollingworth and Tintwistle, with a link road connecting to the A57 at Mottram Moor between Mottram and Hollingworth. An extension of this link road was being promoted jointly as the Glossop Spur by Tameside Metropolitan Borough Council and Derbyshire County Council
	2007	Both the A57/A628 Mottram - Tintwistle Bypass and A628 Route Restraint Measures, and the Glossop Spur projects were subject to public inquiry.
	2009	The projects were subsequently withdrawn from public inquiry and the A57/A628 Mottram - Tintwistle Bypass and A628 Route Restraint Measures project was removed from the Highways Agency programme
Longdendale Integrated Transport Strategy (LITS) – (promoted by Tameside Metropolitan Borough Council	2009	Following the decision of the Highways Agency to withdraw from promoting the Mottram to Tintwistle bypass, Tameside Metropolitan Borough Council started developing alternative proposals. Six options were presented for consultation including public transport options, highway options and a combination of both.
	2010	LITS became subject to government spending cuts and was consequently scrapped, although two of the options were used to inform the Trans-Pennine Feasibility Study
Schemes considered relevant to this EIA		

[41] Note the Highways Agency has since been superseded by National Highways

Scope of Scheme	Year	Detail of events
Strategy, Shaping and Prioritisation: Highways England Trans-Pennine Feasibility Studies	September 2015	The Department for Transport (DfT) commissioned a series of feasibility studies to investigate solutions to some of the most significant and longstanding congestion hotspots in the country. A study was undertaken to identify the opportunities and understand the case for future investment on Trans-Pennine routes that will improve connectivity between Manchester and Sheffield. 23 options were initially assessed and scored against a number of criteria and 4 packages were consequently identified for further development and assessment at option selection stage.
Option Identification Trans-Pennine Upgrade (TPU)	October 2015	A long list of 9 options was presented to Highways England and included: • Options 0, 3 & 4 – options for A57(T) to A57 Link Road crossing the A57(T) close to Mottram (Figure 3.1) • Options 1, 2 & 5 – options for A57(T) to A57 Link Road crossing the A57(T) closer to the Gun Inn junction at Hollingworth (Figure 3.2) • Brown Route, Blue Route and Red Route – options for a Mottram, Hollingworth, and Tintwistle Bypass (Figure 3.3). The Brown Route was the preferred route for the Mottram, Hollingworth and Tintwistle Bypass taken to Public Inquiry in 2007
	January 2016	Second sift. Option 0 and Option 5 where taken forward and renamed Option A and Option B.
Options selection Consultation and Preferred Route announcement Trans-Pennine Upgrade (TPU)	October 2016	Public Awareness events held.
	March and April 2017	Public exhibitions were held at five locations in Mottram, Hattersley, Glossop, Hollingworth and Tankersley, presenting two options for improving the A57, including Safety and technology improvements on the A57/A628/A616/A61 and two options for dualling the A61, and the Climbing Lane proposals on the A628.
	June 2017	A Value Management Workshop was held to ensure the options proposed for the Preferred Route Announcement met the high-level strategic drivers defined in the Client Scheme Requirements.
	November 2017	Option A was announced as the preferred route.
Preliminary Design stage: preliminary design freeze A57 Link Roads Scheme	2017 – 2021	Ongoing environmental surveys, consultation and geotechnical surveys were conducted to further inform design. The purpose of this stage is to complete and freeze the preliminary design of the preferred route based on such activities. During this stage a number of elements were removed from the scope of the Scheme and it was redefined as the A57 Link Road Scheme, as opposed to the wider TPU package: •Dualling the A61 between Tintwistle and Sheffield •Climbing lanes on the uphill stretch of the A628 between Woodhead Bridge and Salters Brook Bridge

Scope of Scheme	Year	Detail of events
		•Westwood roundabout and technology improvements on the A628 were not considered to be NSIP and brought forward in March 2020 as two separate schemes under Permitted Development rights.

3.2 Assessment Methodology

3.2.1 All major road schemes are progressed through the Applicant's major project lifecycle steps (Inset 2). The stages that have been undertaken for the Scheme are as follows:

- Strategy, Shaping and Prioritisation
- Option Identification
- Option Selection
- Preliminary Design (the current Stage)

3.2.2 The stages are split into three phases: options, development and construction, which are further broken down into stages, as outlined in Insert 3.

Insert 3 The Applicant's Major Projects Lifecycle

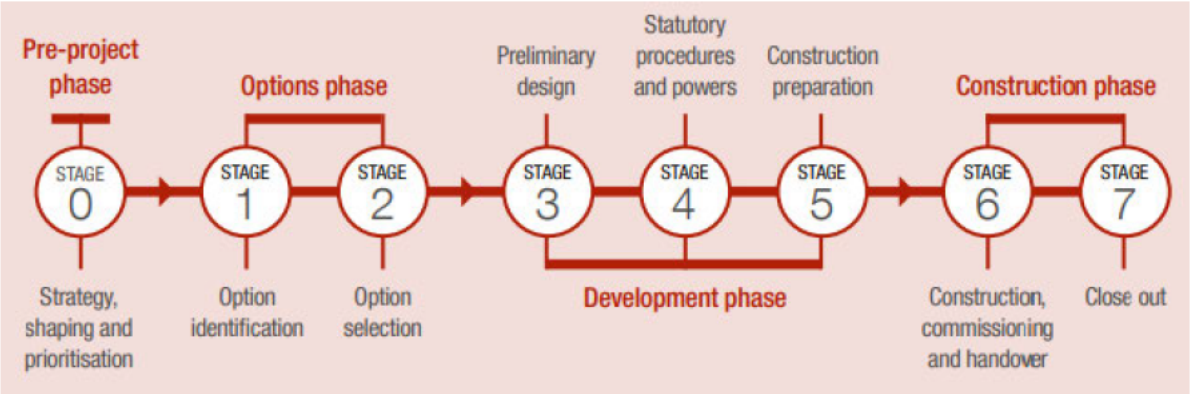


Figure source: Highways England Delivery plan 2020-2025

3.3 Reasonable alternatives studied

Strategy, Shaping and Prioritisation stage:

3.3.1 For the Strategy, Shaping and Prioritisation stage of the project lifecyle, a feasibility study is conducted to investigate and assess the viability of transport scheme solutions to the problem, including road network solutions.

3.3.2 In 2015, the Department for Transport (DfT) commissioned a series of feasibility studies[42] (The Trans-Pennine Feasibility Study 2015) to investigate solutions to some of the most significant and longstanding congestion hotspots in the country. A study was undertaken to identify the opportunities and understand the case for future investment on Trans-Pennine routes that would improve connectivity between Manchester and Sheffield, and that are deliverable, affordable and offer value for money. A sifting exercise was undertaken in order

to identify the most optimal options in terms of development design, technology, location, size and scale:

3.3.3 In terms of geographic scope, the study considered the following Trans-Pennine road and rail routes.

- The A57, A628, A616 and A61 in terms of the strategic road network
- The A57, A6, A623, A624, A625, A6187 and A6103 on the local authority road network
- The Hope Valley rail line

3.3.4 The subsequent option generation (Table 3-2) focussed on the development of road-based options. This was due to the fact potential rail investments were already being progressed at the time by the Rail Electrification Task Force and *"Rebalancing Britain: From HS2 towards a national transport strategy"*[43] which was considering improvement to east-west connectivity (including improvements to the Hope Valley line).

3.3.5 Historic schemes (as outlined in Table 3-1) which had previously been consulted on and taken forward, in some cases, or elements thereof taken forward, were reviewed as part of this process.

3.3.6 The feasibility studies followed the DfT's Transport analysis guidance (WebTAG)[44] as well as inputs provided by a Stakeholder Reference Group to ensure the views of stakeholders were captured and considered as part of the option selection. This Stakeholder Reference Group consisted of local Members of Parliament, local authorities, business organisations, environmental groups and transport organisations.

3.3.7 The WebTAG approach ensures the selection of the preferred intervention is driven by a set of defined problems and objectives. The key problems and objectives for the feasibility study are summarised below:

- Key Problems
  - accidents reduce journey time reliability, with high accident rates on some routes and a number of accident clusters
  - severe weather causes road closures which reduce journey time reliability
  - there is a lack of technology to assist in the operation and management of the routes and provide information for travellers
  - maintenance on single carriageway sections reduces journey-time reliability
  - asset condition, including the standard, age and damage to infrastructure
  - reduce journey-time reliability through significant maintenance operations and risk from closures
  - journey-times are increased by delays at junctions and the geometry and topography of routes

[43] DfT (2014) Rebalancing Britain: From HS2 towards a national transport strategy

  - long term traffic growth will bring some urban sections of routes to their capacity.

- Key Transport Objectives developed for the Trans-Pennines Routes:
  - connectivity – improving the connectivity between Manchester and Sheffield through reduction in journey times and improved journey-time reliability
  - environmental – avoiding unacceptable impacts on the natural environment and landscape in the Peak District National Park, and optimising environmental opportunities
  - societal –improving air quality and reducing noise impacts, and addressing the levels of severance on the Trans-Pennine routes in urban areas
  - capacity – reducing delays and queues that occur during peak hours and improving the performance of junctions on the routes
  - resilience – improving the resilience of the routes through reductions in the number of incidents and reduction of their impacts
  - safety – reductions in the number of accidents and reductions of their impacts

Initial Sift

3.3.8 An Initial sift was conducted to identify any 'showstoppers' which would likely prevent an option from progressing at subsequent stages in the process. Such 'showstoppers' were identified if they met the following criteria:

- They failed to meet the key objectives
- They did not fit with existing local, regional and national programmes and strategies or wider government priorities
- They were unlikely to pass key viability and acceptability criteria, in that they were unlikely to be
  - deliverable in a particular economic, environmental, geographical or social context
  - technically sound
  - financially affordable
  - acceptable to stakeholders and the public.

3.3.9 The initial sift considered the deliverability and technical feasibility of 23 options (Table 3-2), which were assessed and scored using an initial-sifting tool. This tool allowed a qualitative assessment of the scale of impact of each option against the route problems and objectives and also against a set deliverability and feasibility criteria. More detail on these criteria can be found in chapter 5 of the Stage 2 Feasibility Study report[45].

3.3.10 The first element of the scoring process related to assessing how well each option tackled each of the specific problems and objectives identified in the study area (see paragraph 3.3.8). A score was allocated between -2 and 2

[45] Stage 2 Report [redacted]

based on the anticipated impact each option being assessed had on each objective and problem, as set out in Table 3-2.

Table 3-2 Initial sift scoring process

Score	Anticipated impact
2	Large beneficial impact
1	Beneficial impact
0	Neutral/ marginal impact
-1	Adverse impact
-2	Large adverse impact

3.3.11 The initial sift tool also involved assessing if the option was deliverable and feasible.

3.3.12 In terms of deliverability, options were scored on the basis of the following levels of deliverability. This included looking at stakeholder and public acceptability, planning (legal issues e.g. Compulsory Purchase Orders (CPOs), implementation timescales/funding likelihood, third party issues.:

- Deliverable in theory
- Deliverable but with challenges
- Very difficult to deliver.

3.3.13 An options' feasibility was assessed using a similar method, with each option scored on the basis of the following levels of feasibility. This included looking at physical constraints, land ownership and design standards (i.e. is the option technically feasible form an engineering perspective):

- Feasible in theory
- Feasible but with challenges
- Note feasible/ significant challenges

3.3.14 For an option to progress to the next stage of sifting, it had to meet the following criteria

- Overall moderate impact against identified problems (score >4)
- Overall moderate fit with route objectives (score >3)
- Must be deliverable in theory
- Must be feasible in theory

3.3.15 Throughout the option development process, the views of stakeholders were sought and feedback taken into account with any suggested measures raised included in the assessment process

3.3.16 The options are presented in Table 3-3, which also outlines those options taken forward or rejected at this initial sift and a high-level summary of the justification for that decision. Full explanations of the options and this sifting process are provided within the Stage 2 Feasibility Study report.

3.3.17 The full results of the initial sifting tool are also presented in a detailed matrix in the Stage 2 Feasibility Study report – Annexes[46].

[redacted]

Table 3-3 The 23 options assessed at the initial sift

Option	Problems – scale of impact	Objectives – scale of impact	Deliverability	Feasibility	Assessment/Brief justification summary	Decision
A57 Mottram One Way Option	5	5	Deliverable but with challenges	Feasible but with challenges	Best performing individual option against the sifting criteria and for meeting the objectives for the Scheme	Taken forward
M67 to A57 Mottram Moor Link Road	6	5	Deliverable but with challenges	Feasible but with challenges	Best performing individual option against the sifting criteria and for meeting the objectives for the Scheme	Taken forward
Bypass of Mottram, Hollingworth and Tintwistle	7	6	Deliverable but with challenges	Feasible but with challenges	Best performing individual option against the sifting criteria and for meeting the objectives for the Scheme	Taken forward
A61 Dualling Option	5	4	Deliverable but with challenges	Feasible but with challenges	Best performing individual option against the sifting criteria and for meeting the objectives for the Scheme	Taken forward
HGV Control Scheme with Complementary Sustainable Transport Measures	6	4	Very difficult to deliver	Feasible but with challenges	Stakeholder acceptability/ Public acceptability/ cost (i.e. policing/ trading standards) also considered to be an issue	Option taken through to next stage as it was supported by a number of groups, including Friends of the Peak District, who had conducted some investigations regarding the operation of such a scheme
Peak Period Only HGV Control Scheme with Complementary Sustainable Transport Measures	6	4	Very difficult to deliver	Feasible but with challenges	Stakeholder acceptability/ Public acceptability/ cost (i.e. policing/ trading standards) also considered to be an issue	Option taken through to next stage as it was supported by a number of groups, including Friends of the Peak District, who had conducted some investigations regarding the operation of such a scheme
Technology Package Description	3	1	Deliverable in theory	Feasible in theory	On its own did not satisfy the criteria in terms of impacts on the key problems and objectives and the impact on the remaining key problems and objectives	Packaged with progressed options

Option	Problems – scale of impact	Objectives – scale of impact	Deliverability	Feasibility	Assessment/Brief justification summary	Decision
					was deemed to be marginal. Had the potential to offer further additional benefits across the Trans-Pennine routes when packaged with one of the four main options	
A57(T) to A57 Link Road Option	4	5	Deliverable but with challenges	Feasible but with challenges	On its own did not satisfy the criteria in terms of impacts on the key problems and objectives and the impact on the remaining key problems and objectives was deemed to be marginal. Had the potential to offer further additional benefits across the Trans-Pennine routes when packaged with one of the four main options	Packaged with progressed options
Climbing Lanes	4	3	Deliverable but with challenges	Feasible but with challenges	Potential to offer further additional benefits across the Trans-Pennine routes when packaged with one of the four main options	Packaged with progressed options
Maintenance Strategy	4	1	Deliverable in theory	Feasible in theory	Potential to offer further additional benefits across the Trans-Pennine routes when packaged with one of the four main options	Packaged with progressed options
Route Safety Improvements	4	2	Deliverable in theory	Feasible in theory	Potential to offer further additional benefits across the Trans-Pennine routes when packaged with one of the four main options.	Packaged with progressed options
A628 Salter's Brook Scheme Realignment	4	3	Deliverable but with challenges	Feasible but with challenges	Considered to be feasible and deliverable and as such, this option had the potential to warrant further consideration as part of a package when grouped with the climbing lanes	Packaged with progressed options

Option	Problems – scale of impact	Objectives – scale of impact	Deliverability	Feasibility	Assessment/Brief justification summary	Decision
Sustainable Transport Measures	1	2	Deliverable but with challenges	Feasible but with challenges	Current congestion and capacity issues experienced on the route results in a significant challenge in terms of delivering sustainable transport improvements, particularly for improvements relating to bus services. It was also decided introduction of larger scale interventions would enable the provision of complementary public transport measures	Rejected
M67 to A6018 Link Road	4	5	Deliverable but with challenges	Feasible but with challenges	Anticipated impact on the key problems was deemed to be marginal. Furthermore, three of the four main options that successfully progressed through the initial sift, the bypass of Mottram, Hollingworth and Tintwistle, Mottram Moor Link Road and A57 Mottram One Way options already included a link from the M67 to the A6018 as part of their design.	Rejected
A628 & A616 Dualling	9	1	Very difficult to deliver	Feasible but with challenges	Considered to be very difficult to deliver given the expected third party land issues and opposition associated with construction in the national park. In addition, the significant costs associated with dualling the A628/A616 were likely to be very prohibitive and are expected to be disproportionate to any benefits offered by the scheme.	Rejected
A628, A616 Selected Dualling	4	3	Very difficult to deliver	Feasible but with challenges	Considered to be very difficult to deliver given the expected third party land issues and opposition associated with construction in the national park. In addition, the significant costs associated	Rejected

Option	Problems – scale of impact	Objectives – scale of impact	Deliverability	Feasibility	Assessment/Brief justification summary	Decision
					with dualling the A628/A616 were likely to be very prohibitive and are expected to be disproportionate to any benefits offered by the scheme.	
M67 to M1 Dual Carriageway	10	3	Very difficult to deliver	Not feasible / significant challenges	Constructing a completely new dual carriageway through the National Park is anticipated to have a considerable negative impact on the environment, particularly the landscape and biodiversity. Furthermore, it was considered that the option would be both very difficult to deliver and present significant feasibility challenges, particularly regarding third party land requirements and opposition associated with construction in the national park, but also in terms of completing such an option in the timeframe being considered for the Trans-Pennine routes.	Rejected
M67 to M1 Trans-Pennine Tunnel	12	10	Very difficult to deliver	Feasible but with challenges	It was concluded that there would be significant challenges in delivering the option, within the timescales being considered by the study. Although the option had an ability to provide a step change in the levels of connectivity, it was established further work would be needed to test the technical deliverability of such an option as well as further work on determining its potential costs (outside the scope of the feasibility studies).	Rejected

Option	Problems – scale of impact	Objectives – scale of impact	Deliverability	Feasibility	Assessment/Brief justification summary	Decision
A628 Peak District Tunnel	9	8	Very difficult to deliver	Feasible but with challenged	There would be significant challenges in delivering the option, within the timescales being considered by the study. It was concluded further work would be needed, outside the scope of the feasibility studies, to test the technical deliverability of such an option as well as further work on determining its potential costs.	Rejected
Slow Vehicle Refuges Option	2	3	Deliverable but with challenges	Feasible but with challenges	Anticipated impact on the key problems was deemed to be marginal. It was also felt that the Climbing Lanes option offered a better solution to the problem of slow-moving HGVs	Rejected
A616 Widening at Midhopestones	4	3	Deliverable but with challenges	Feasible but with challenges	Whilst the options were anticipated to have a beneficial impact on connectivity, capacity, safety, journey times and journey time reliability the impact on the remaining key problems and objectives of the study were deemed to be marginal. Further a number of listed buildings would need to be demolished in order to allow the scheme to be constructed and therefore it was determined that the benefits of such a scheme would not justify the costs.	Rejected
A616 Widening at Langsett	4	3	Deliverable but with challenges	Feasible but with challenges	Whilst the options were anticipated to have a beneficial impact on connectivity, capacity, safety, journey times and journey time reliability the impact on the remaining key problems and objectives of the study were deemed to be marginal.	Rejected

Option	Problems – scale of impact	Objectives – scale of impact	Deliverability	Feasibility	Assessment/Brief justification summary	Decision
A616/A628 Flouch Junction Improvement Scheme	4	3	Deliverable but with challenges	Feasible but with challenges	Anticipated impact on the key problems was deemed to be marginal. In particular, whilst the option was anticipated to have a degree of beneficial impact on connectivity, capacity, safety, journey times and journey time reliability, the impact on the remaining key problems and objectives was deemed to be marginal	Rejected

Second sift: Packaging analysis

3.3.18 The scope for the assessment of the possible options within these feasibility studies focused on investment proposals that had the potential to be delivered in the short to medium term. However, the study recognised that some potential, more transformational investment options (such as the tunnel options) could provide a high performing road link. It was established that such options would merit further consideration, particularly as they had the potential to deliver a step change in the future levels of connectivity between Sheffield and Manchester. Since this, a series of Trans-Pennine tunnel strategic studies[47] have been undertaken which consider the case for the Trans-Pennine tunnel road scheme separately to the Scheme being assessed within this ES.

3.3.19 Taking these deliverability timescales into account, the four best performing individual options are presented in Table 3-4. These four options had the potential to address the issue of congestion on the strategic route and were therefore expected to improve journey times and journey time reliability. Schemes at the western end were also be expected to address, to different extents, issues of community severance identified in the area of Mottram, Hollingworth and Tintwistle.

Table 3-4 Options progressed in their own right to the second sift

	Objective (as stated in paragraph3.3.7)						
Option	**Connectivity**	**Environmental**	**Societal**	**Capacity**	**Resilience**	**Safety**	**Total**
A57 Mottram One Way;	1	0	1	1	1	1	5
M67 to A57 Mottram Moor Link Road	1	-1	1	2	1	1	5
Bypass of Mottram, Hollingworth and Tintwistle	2	-1	1	2	1	1	6
Dualling the a61 between junction 36 of the M1 and the Westwood roundabout on the A616.	1	0	0	1	1	1	4

Table adapted from Initial Sifting criteria (Stage 2 Feasibility Study report – Annexes)

3.3.20 In addition, it was decided that six of the options in Table 3-3 should be assessed further by packaging them in combination with the four options (Table 3-4) which had progressed to the second sift in their own right. These six options had not been progressed on their own as they did not tackle the identified problems and objectives in a significant way or were deemed not to be feasible or deliverable.

3.3.21 The decision was also taken to reconsider the HGV Control Schemes as part of a package. The reason it did not progress in its own right was as a result of it being considered to be potentially difficult to deliver (Table 3-3) however, the

[47] [redacted] The Trans-Pennine tunnel strategic study is one of 6 strategic studies that will inform the development of the second phase of the Road investment strategy (RIS 2).

option was supported by a number of groups so it was decided to take the option through to the packaging stage for reconsideration.

3.3.22 The second sifting exercise adopted exactly the same methodology and scoring system as used during the initial-sift, together with the same evaluation criteria, as outlined in paragraphs 3.3.10-3.3.17, but rather than considering options individually, focused on packages of options.

3.3.23 On completion of the second sifting exercise, a total of 56 packages of options successfully met the evaluation criteria and were consequently taken through to the final stage of sifting, utilising the DfT's Early Assessment Sifting Tool (EAST). The results of the second sift are presented in Annex 2 of the Stage 2 Feasibility Study report.

3.3.24 Despite the reconsideration of the HGV Control Scheme (including complementary measures) as part of a package of measures, this key issue regarding deliverability remained unchanged. As the evaluation criteria clearly stipulated that an option (or sub-option within a package) must be deliverable, any package of options which included the HGV Control Scheme (including complementary measures) was deemed undeliverable, and hence not progressed further.

Final assessment

3.3.25 The packages which performed the best against the evaluation criteria within the second sifting process were taken forward to the final stage of sifting using the EAST decision support tool. The tool had been designed to be consistent with the DfT's Transport Business Case principles, based around the, five case model approach, as outlined below:

- Strategic case
- Value for money, including
  - Impact on the economy
  - Impact on the environment
  - Impact on society
  - Public accounts
  - Distributional impacts
  - Indicative Benefit Cost Ratio
- Financial case
- Delivery case
- Commercial case

3.3.26 For this appraisal, the packages were appraised against each of these principles using WebTAG's 7-point scale of impact ranging from Large adverse to Large beneficial. The full results of this appraisal are presented in chapter 6 of the Stage 2 Feasibility Study report.

3.3.27 Following the final appraisal, an overall ranking was conducted, and 4 packages were identified for further development and assessment. These were:

- **Package 1**: Bypass of Mottram, Hollingworth and Tintwistle with A57(T) to A57 Link Road, Climbing Lanes (including a realignment of Salter's Brook), Route Safety Improvements and Maintenance Strategy / Technology Package
- **Package 2:** Dual carriageway link road M67 to A57 and spur connecting to A6018 (Mottram Moor Link) with A57(T) to A57 Link Road, Climbing Lanes (including a realignment of Salter's Brook), Route Safety Improvements and Maintenance Strategy / Technology Package
- **Package 3:** A57 Mottram One Way with A57(T) to A57 Link Road, Climbing Lanes (including a realignment of Salter's Brook), Route Safety Improvements and Maintenance Strategy / Technology Package
- **Package 4**: A61 Dualling with A57(T) to A57 Link Road, Climbing Lanes (including a realignment of Salter's Brook), Route Safety Improvements and Maintenance Strategy / Technology Package

3.3.28 Table 3-5 presents the results of the initial environmental appraisal undertaken, as part of the Value for money Business case principle for the four packages.

Table 3-5 Initial environmental appraisal results

Package	Initial environmental appraisal							
	Noise	Air quality	Green-house Gases	Landscape	Town-scape	Historic Resources	Bio-diversity	Water environ-ment
Package 1	Moderate Benefit	Large benefit	Neutral	Moderate Adverse	Moderate Benefit	Moderate Adverse	Large Adverse	Moderate Adverse
Package 2	Slight adverse	Moderate Benefit	Neutral	Slight adverse	Slight benefit	Slight adverse	Slight adverse	Slight adverse
Package 3	Slight adverse	Slight benefit	Neutral	Slight adverse	Neutral	Slight adverse	Slight adverse	Slight adverse
Package 4	Neutral	Neutral	Neutral	Slight adverse	Neutral	Slight adverse	Slight adverse	Slight adverse

3.3.29 The results of this assessment were taken forward and considered for the Option Identification stage of the project lifecycle.

Options Phase: Option Identification

3.3.30 The aim of the Option Identification stage is to identify options to take forwards for public consultation. This includes further assessment of the options in terms of environmental impact, traffic forecasts and economic benefits this ensures that decision-makers prioritise between schemes and options and ensure that value for public money is achieved.

Early Options Sifting Exercises

3.3.31 Following the feasibility studies, a long list of 9 options were presented to the Applicant in 2015. In accordance with the design brief, these included the long bypass options (of Mottram, Hollingworth and Tintwistle) and short bypass options (of Mottram only) and all included the central package of the climbing lanes (including a realignment of Salter's Brook), the Route Safety

Improvements and Maintenance Strategy / Technology Package and the option to include or exclude the A57(T) to A57 Link Road.

3.3.32 These nine options were:

Mottram Moor Link Road and A57 (T) to A57 Link Road (in conjunction with central package)

- Options 0, 3 & 4 – options for A57(T) to A57 Link Road crossing the A57(T) close to Mottram (Figure 3.1, APP-075)
- Options 1, 2 & 5 – options for A57(T) to A57 Link Road crossing the A57(T) closer to the Gun Inn Junction at Hollingworth (Figure 3.2, APP-075).

3.3.33 The main difference between the two link road options was the location and alignment of the new junction at Mottram Moor; for Option 1, 2 & 5 it was located closer to the A628/A57 Woolley Lane junction (and for Options 0, 3 &4 it was located close to the A57 Mottram Moor/ A6018 Back Moor junction, providing a tighter alignment east of Mottram-in-Longdendale, after the tunnelled section, meeting the A57 Mottram Moor further west. (Figure 3.1 and 3.2).

Bypass options to benefit Hollingworth and Tintwistle

- Brown Route, Blue Route and Red Route – options for a Mottram, Hollingworth, and Tintwistle Bypass (Figure 3.3). The Brown Route was the preferred route for the Mottram, Hollingworth and Tintwistle Bypass taken to Public Inquiry in 2007.

Strategic Sift

3.3.34 The Applicant decided that a sifting exercise should be completed in an attempt to inform a strategic decision as to whether to pursue a long or short bypass. For this reason, the First Sift exercise was completed using one long and one short bypass option (Option 0 and Brown Route), considering these both with and without the inclusion of the A57(T) to A57 Link Road.

3.3.35 The first sift included the following elements.

- Appraisal using an additional sift tool
- Appraisal using the EAST
- A high-level economic assessment using Transport User Benefit Appraisal (TUBA)

3.3.36 The following broad conclusions were drawn from the first sift.

- The Brown Route performs better economically than Option 0 route (both with and without the A57(T) to A57 Link Road)
- Options with the A57(T) to A57 Link Road perform better than the comparative option without the A57(T) to A57 Link Road

3.3.37 A decision was made to remove options without the A57(T) to A57 Link Road, as these performed less well. However, a strategic decision between long and short bypass options could not be made at the time of sifting, and so it was decided to proceed to a Long List Sift.

3.3.38 The full details of the sift and its outputs are provided within Hyder Consulting (2016) Technical Note 16 First Sift Board Paper.

Long List Sift Exercise

3.3.39 This sift was completed using the EAST, alongside an Additional Sift Tool which considered the performance of each option against the Trans-Pennine Upgrade objectives (see paragraph 3.3.5).

3.3.40 The nine options (Section 3.3.5) presented in 2015 were all considered as part of the Long List Sift, all with the inclusion of the A57(T) to A57 Link Road.

3.3.41 The options discarded at this stage were:

- Options 1 and 2: The proximity of these two options to the Gun Inn Junction affected the potential deliverability and feasibility in comparison to Option 5 which is of a similar alignment.
- Options 3 and 4: The highway alignment of these two options was less preferable in terms of Highways Standards in comparison to Option 0.
- Blue Route: This route would pass directly between Hollingworth and Tintwistle, potentially bringing additional severance issues between the two villages. The route would also include the upgrade of the existing road within Tintwistle Conservation Area
- Red Route: This route would require construction over the top of Arnfield Reservoir, which was considered to pose deliverability challenges.

3.3.42 The best performing options that were taken forward to the Second Sift Exercise were:

- Brown Route. It was the better performing of the Mottram, Hollingworth, & Tintwistle type options considered in the Long List Sift.
- Option 0. This option was appraised in the original first sift and was considered the better performing of the Mottram Moor Link Road options considered which cross the A57(/T) closer to Mottram.
- Option 5. This option was considered to be the better performing of the Mottram Moor Link Road options considered which cross the A57(T) closer to the Gun Inn at Hollingworth.

3.3.43 At this stage a historic options review exercise was also undertaken to reconsider the reasons for rejection at the time, which identified a potentially feasible option. This option was named 'DfT Low Cost Option 1' and is shown on Figure 3.4 (APP-075). This option was also considered a viable alternative to the Brown Route and was therefore taken through to the Second Sift Exercise, alongside Options 0, 5 and the Brown Route.

3.3.44 The full details, including the output, of the long list sift is provided within Hyder Consulting (2016) Technical Note 24 Long List Sift

Second Sift Exercise

3.3.45 The second sift exercise was undertaken using the WebTAG criteria Option Assessment Framework, provided within the TAG Unit[48]

3.3.46 The options presented for Second Sift were:

- Brown Route including A57(T) to A57 Link Road (long bypass)
- DfT Low Cost Option 1 including A57(T) to A57 Link Road (long bypass)
- Mottram Moor Link Road Option A, including A57(T) to A57 Link Road (short bypass); (formerly Option 0)
- Mottram Moor Link Road Option B (formerly Option 5) including A57(T) to A57 Link Road (short bypass).

3.3.47 The following observations were made regarding the environmental impacts of each option:

- DfT Low Cost option 1 plus A57 and Brown Route plus A57 both indicated greenhouse gas dis-benefit whereas Mottram Moor Link Road Options A and B both indicated some benefit in relation to greenhouse gas.
- All four options presented the opportunity to improve noise within existing Noise Important Areas
- For air quality impacts, all options were scored as 'negative' due to the uncertainty regarding the changes and the inability to quantify the significance of any impacts at that stage
- Larger landscape impacts were expected for both the Brown Route plus A57 and DfT Low Cost Option 1 plus A57, although all options were likely to have some impact on the Mottram Showground
- Mottram Moor Link Road Options A and B were found to improve the townscape for Mottram and Hollingworth but would cause an increase in traffic through the Tintwistle Conservation Area which may be detrimental to townscape at this location
- The Brown Route plus A57 and DfT Low Cost Option 1 plus A57 were found to improve townscape within Mottram, Hollingworth and Tintwistle through a reduction in traffic. However, a Moderate Adverse impact would arise in Tintwistle associated with the loss of open land on the northern and eastern extents of the Conservation Area
- The Brown Route plus A57 and DfT Low Cost Option 1 plus A57 were found to have the most significant impact on the Tintwistle Conservation Area, due to loss of open land within the northern and eastern periphery
- All four options would increase traffic on the A628 close to the Peak District Moors Special Protection Area, South Pennine Moors Special Area of Conservation and the Dark Peak Site of Special Scientific Interest. However, the extent of traffic changes associated with the Brown Route plus A57 and Low Cost Option 1 plus A57 would be much greater than for Mottram Moor Link Road Options A and B.

3.3.48 The full output of the second sift is provided within Hyder Consulting (2016) Technical Note 28 Second Sift Assessment.

3.3.49 During an internal Value Management workshop, the benefits and dis-benefits of the four options were considered. The two long bypass options were expected to attract significantly more traffic to the area, plus bring about environmental impacts in relation to the Peak District National Park, for example

air quality and noise. Additionally, the risk relating to funding for a long bypass being unavailable within the current RIS was highlighted. As a result, the decision was made to take the following the two Mottram Moor Link Road options (set out below) through to the next stage:

- Mottram Moor Link Road Option A (short bypass) (shown as Option 0 in Figure 3.5, APP-075); and
- Mottram Moor Link Road Option B (short bypass) (shown as Option 5 in Figure 3.6, APP-075)

Options phase: Option selection

3.3.50 The option selection stage mainly consists of public consultation, including exhibitions to gather input on the options being considered to support the selection of a preferred option. As part of this sub-phase a decision on which option to progress is made and a public announcement is made on this preferred route.

3.3.51 Option A and Option B were presented during the Non-Statutory Consultation March 2017 to April 2017. The majority of respondents preferred Option A to Option B because they believed it to be the most sensible and logical route, had a minimal impact on the environment, fewer properties would be affected, provided a safe route and was more similar to previously proposed routes. Those who preferred Option B did so because it bypasses more of Mottram Moor and congestion problems would be better addressed. The information gathered as part of the non-statutory options consultation helped to inform the decision on the Preferred Route.

3.3.52 On 22 June 2017, another Value Management Workshop was held to ensure the options proposed for the 'Preferred Route Announcement' met the high-level strategic drivers defined in the Client Scheme Requirements, which are:

- Encouraging economic growth
- Making the network safer
- Keeping the network in good condition
- Supporting the smooth flow of traffic
- Delivering better environmental outcomes
- Helping cyclists, walkers and other vulnerable users of the network
- Improving user satisfaction
- Achieving real efficiency.

3.3.53 Whilst considering the merits of Option A and Option B of the Mottram Moor Link Road/A57(T) to A57 Link Road, Option A and Option B both met the transport objectives as defined in the Client Scheme Requirements, the workshop identified Option A as the preferable option due to:

- Less impact on properties
- Lower cost than Option B
- Option A was preferred by the majority of respondents to the non-statutory consultation undertaken in March and April 2017.

3.3.54 It was therefore recommended that Option A should be progressed as the preferred route and was subsequently included in the 'Preferred Route Announcement' (PRA) made on 2 November 2017.

3.3.55 The process behind the justification for the chosen option is summarised in Table 3-6.

Table 3-6 Options not taken forward and the justification

Option/ Description	Stage not taken forward	Justification for not taking forward
Option A (Formerly Option 0) (short bypass **without** the A57(T) to A57 Link Road	First Sift (Strategic Sift)	The Applicant decided that a sifting exercise should be completed in an attempt to inform a strategic decision as to whether to pursue a long or short bypass. For this reason, the First Sift exercise was completed using one long and one short bypass option (Option A and Brown Route), considering these both with and without the inclusion of the A57(T) to A57 Link Road. The following broad conclusions were drawn from the first sift. • The Brown Route performs better economically than Option A route (both with and without the A57(T) to A57 Link Road) • Options with the A57(T) to A57 Link Road perform better than the comparative option without the A57(T) to A57 Link Road A decision was made to remove options without the A57(T) to A57 Link Road, as these performed less well. However, a strategic decision between long and short bypass options could not be made at the time of sifting, and so it was decided to proceed to a Long List Sift.
Brown Route (long bypass **without** the A57(T) to A57 Link Road)		
Option 1	Long List Sift Exercise	The proximity of these two options to the Gun Inn junction affected the potential deliverability and feasibility in comparison to Option B which is of a similar alignment.
Option 2		
Option 3		The highway alignment of these two options was less preferable in terms of Highways Standards in comparison to Option A.
Option 4		
Blue Route		This route would pass directly between Hollingworth and Tintwistle, potentially bringing additional severance issues between the two villages. The route would also include the upgrade of the existing road within Tintwistle Conservation Area.
Red Route		This route would require construction over the top of Arnfield Reservoir, which was considered to pose deliverability challenges.
As a result of the historic options review exercise a potentially feasible option was rediscovered that had not been previously rejected. This option is referred to as 'DfT Low Cost Option 1' and is shown on Figure 3.4 This option was also considered a viable alternative to the Brown Route and was therefore taken through to the Second Sift Exercise. The options presented for Second Sift were: • Brown Route including A57(T) to A57 Link Road (long bypass) • DfT Low Cost Option 1 including A57(T) to A57 Link Road (long bypass) • Mottram Moor Link Road Option A including A57(T) to A57 Link Road (short bypass)		

Option/ Description	Stage not taken forward	Justification for not taking forward
• Mottram Moor Link Road Option B including A57(T) to A57 Link Road (short bypass)		
Brown Route including A57(T) to A57 Link Road (long bypass)	Second Sift Exercise	During a Value Management workshop on 22 June 2017, the two long bypass options were expected to attract significantly more traffic to the area, plus bring about additional impacts in relation to the Peak District National Park, air quality and noise. The risk relating to funding for a long bypass being unavailable within the current Roads Investment Strategy was highlighted, and the decision was made to reject both options.
DfT Low Cost Option 1 including A57(T) to A57 Link Road (long bypass)		
Mottram Moor Link Road Option B including A57(T) to A57 Link Road (short bypass)	Preferred Route Announcement	Whilst considering the merits of Option A and Option B of the Mottram Moor Link Road/A57(T) to A57 Link Road, Option B was rejected due to: • Impact on more properties than Option A • Higher cost than Option A • Option A was preferred by the majority of respondents to the non-statutory consultation undertaken in March and April 2017

3.4 Justification for chosen option

3.4.1 Option A was identified as the preferred route. This option performed the best in terms of community impact and had the most support from those taking part in the consultation.

3.4.2 As highlighted in Section 3.3, both Option A and B met the high-level strategic drivers defined in the Client Scheme Requirements. However, the majority of respondents during pre-non statutory consultation with primary consultees, held from October 2015 to March 2017, preferred Option A to Option B because they thought:

- It to be the most sensible and logical route
- It had a minimal impact on the environment
- Fewer properties would be affected
- Provided a safe route
- It was more similar to previously proposed routes.

3.4.3 Those who preferred Option B did so because it bypasses more of Mottram Moor and congestion problems would be better addressed.

Preliminary design stage

3.4.4 This stage of the project lifecycle involves completing various activities, such as consultation, environmental surveys and geotechnical surveys to further inform design. The purpose of this stage is to refine and freeze the preliminary design of the preferred route based on such activities.

3.4.5 There have been a number of key changes to the preferred route since the 2017 announcement, these are justified as follows:

- Dualling the A61 between Tintwistle and Sheffield, was not progressed because the relatively straight stretches of road along the route already provide good visibility for overtaking
- Climbing lanes on the uphill stretch of the A628 between Woodhead Bridge and Salters Brook Bridge were not progressed because assessments demonstrated that the existing A61 could accommodate the traffic levels expected over the next 20 years, especially with the development of Westwood roundabout which was previously responsible for much of the congestion. The negative environmental impact of these Climbing lanes associated with construction in the national park was also highlighted.
- The A628 Safety and Technology improvements and A61 Westwood Roundabout were not considered to be NSIP, therefore these developments are already being delivered by The Applicant and have been included within the baseline ‘do minimum’ scenario for the assessment within this EIA.

Preliminary design narrative and refinement

3.4.6 The Scheme design has been an iterative process that has considered environmental mitigation measures and buildability along with the Highways England licence requirements to develop an economic solution and a good road design that is restrained and sensitive to the context of its surroundings and the communities that surround it.

3.4.7 A key focus throughout the design process has been on the interplay between the design and the neighbouring environment. This has resulted in a design which meets the Scheme objectives that can be achieved within the existing constraints and limitations of the site and surrounding and without having a detrimental effect on the environment. It is therefore in accordance with licence requirements.

3.4.8 In addition to the key changes highlighted above, as part of the Preliminary Design stage, the design has been refined and changed in response to the following:

- On-going assessment and consultation with the public and stakeholders
- Ongoing environmental assessment by environmental specialists working in close iterative collaboration with the engineers responsible for the design of the Scheme
- Continual assessment of the evolving Scheme against the good design principles as outlined in 'The Road to Good Design' and reiterated in DMRB GG103

3.4.9 A summary of these key refinements and changes to the design since the PRA are outlined in Table 3-7.

3.4.10 A summary of the consultation undertaken on the Scheme to date is presented in Chapter 1, section 1.5 above and full details of the consultation process that has been undertaken in respect of the Scheme is provided in the Consultation report (APP-026).

Table 3-7 Changes to the Scheme design since PRA (2017) and the 2018 consultation

Scheme element	Design change and environmental benefits
Mottram tunnel to an underpass	Mottram Underpass was originally shown as a tunnel however, a tunnel would require a significant commitment to a routine maintenance regime involving regular inspection, repairs, cleaning and prompt replacement of lighting and other safety components. As a result, the design changed to an Underpass which requires reduced maintenance commitments. *Environmental Benefits:* An underpass would blend in better with the landscape; and be cheaper, quicker and easier to construct with a decrease in maintenance commitments, a reduced carbon footprint and reduction in disruption to the local community
Alignment east of the Scheme	A planning application for a proposed housing development was identified at the eastern end of the Scheme. The Applicant met with the developer and the Scheme alignment was subsequently moved to accommodate this development. *Environmental Benefits:* On-going discussions with the developer has ensured Woolley Bridge Junction accounts for the entrance to the proposed housing development, ensuring the Scheme is integrated with future communities.
Crossing facilities on the A57 from the M67 Junction 4	As a result of consultation, facilities are to be improved and a combined cycleway and footpath alongside the new A57(T) to A57 link road between Mottram Moor and Woolley Bridge would be provided. *Environmental Benefits:* Road safety and connectivity has been considered by assessing both existing and new pedestrian, cycle and

Scheme element	Design change and environmental benefits
	equine movements. Providing safe controlled crossings as an integral part of the overall junction design, as it provides appropriate segregation for walkers and cyclists.
Reduction of proposed construction compound sites from three areas to one area	The design originally showed addition temporary compounds and storage areas at the Showground area and Woolley Lane. Following the investigation of opportunities to reduce land acquisition and therefore reduce the DCO boundary, it was determined that only one main compound would be required. *Environmental benefits*: Less disruption and noise to the community, reduced land take, reduced the impacts on wildlife and watercourses.
Install more off-road parking	Originally, parking bays for Mottram Moor were included in the design. Following statutory consultation and discussions with the local community they were removed from design. However, further engagement confirmed they were desired so have been added back to the design. following consultation with Tameside MBC, the initial proposal to provide parking bays was amended to 'on street' parking, as this is considered to require less ongoing maintenance, and provided additional space for soft landscaping. *Environmental Benefits:* The design fits into the context of its surroundings and provides additional function and facilities for local residents
Improvements to facilities for WCH	Opportunities for facilities for cyclists, pedestrians, equestrians and walkers were identified through work with local authorities and Transport for Greater Manchester (TfGM). For example, PRoW LON 52-20 needs to be temporarily severed. A temporary diversion would ensure walkers can still use this during construction. This PRoW would be re-instated and upgraded from a footpath to a bridleway, therefore increasing the availability of suitable equestrian facilitates away from road traffic. All junctions designed to include a horse crossing. *Environmental Benefits:* Provisions would encourage people to walk and cycle. The design is looking at increasing the attractiveness of the routes while making the walking routes safer. Also, following consultation with Tameside MBC it ensures that the Scheme would tie in with their proposed cycle scheme from Hyde to Hollingworth in the future
Roe Cross link road, junction and roundabout	Updated traffic modelling suggested that the Roe Cross link road, junction and Cricket Ground roundabout could be removed from the scheme, without compromising the improvements to traffic levels. This avoids the need for a new road, 7 m high embankment and signal-controlled junction *Environmental benefits:* reduced the impacts of the scheme on wildlife, watercourses and views from neighbouring properties and also makes construction cheaper, quicker and less disruptive with reduced carbon footprint and reduction in disruption to the local community.
Mottram Underpass	The previous proposal for the Mottram Underpass had its eastern portal to the west of the existing route of Old Hall Lane. But, as this is the site of a geological fault line in the ground, a large, complex structure, with 50m concrete wing walls was needed, in order to make sure the construction was safe. The revised proposal moves the underpass 20 m to the east, to span the fault line, which significantly reduces the risks involved. Other changes included replacing the proposed diaphragm wingwalls with less extensive secant pile walls.

Scheme element	Design change and environmental benefits
	Environmental benefits: This change simplifies the design, by using earthworks instead of concrete; reducing the length of the wing walls to approximately 10 m; reducing the depth of the cutting itself; and retaining Old Hall Lane on its current alignment. The new design would blend in better with the landscape; and would be cheaper, quicker and easier to construct with reduced carbon footprint and reduction in disruption to the local community. A new amenity green space would be created on top of the underpass.
Proposed roundabout at Mottram Moor	Replacement of the proposed roundabout with a signal-controlled junction. The traffic modelling suggested that a crossroads with traffic lights would achieve future reserve capacity[49], improving journey times, by reducing delays. *Environmental benefits:* This change reduces the amount of land needed; as well as the impacts of the scheme on wildlife and views from neighbouring properties.
River Etherow Crossing	The route needs to cross the River Etherow. The previous proposal was a 60m long bridge, with a supporting structure halfway across. This length is needed to create a flood channel, that could drain off water if needed. However, updated hydraulic modelling of the River Etherow confirmed that flood risks could be managed by subtly reshaping the channel and the surrounding floodplain itself. This has allowed removal of the flood channel from the design, as it is no longer required, shorten the bridge to 42 m and removal of the supporting structure. *Environmental benefits:* This more restrained structure would reduce the amount of land and materials required to construct the crossing and make it easier, cheaper and quicker to build, with a reduced carbon footprint.
Woolley Bridge Junction and link road	Because of the new signal-controlled design at Mottram Moor the route of the road connecting it with the proposed junction at Woolley Bridge has been updated. *Environmental benefits:* The design of the junction itself has also been slightly updated to avoid impacts on a nearby farmhouse and not affect any future access requirements to a proposed future housing development.
Construction of two underpasses at Old Mill Farm and Carrhouse Lane	Old Mill Farm Underpass and Carrhouse Lane Underpass are both proposed to maintain farm access and provide a safe route for walkers, cyclists and horse riders. The design has been updated to relocate the Carrhouse Lane Underpass, moving it 10 m closer to the existing road. *Environmental benefits*: Improved access for local residents through provision of an inclusive facilities that increase the attractiveness of the routes while making them fit within the context of their surroundings
Alignment of Old Mill Farm Underpass	Following consultation with the landowner the alignment of Old Mill Farm Underpass was updated so it links up better to the local footpaths *Environmental benefits*: minimises impacts on farmers access route severed by the Scheme
Mottram Moor Junction	A separate Pegasus crossing has been added to Mottram Moor Junction to allow safe crossing facilities for WCHs.

[49] in the future the junction will still have spare operating capacity.

Scheme element	Design change and environmental benefits
	Environmental benefits: Improved access for NMUs and makes the junction safer for users, in response to better understanding of local needs through consultation, ensures the Scheme is inclusive and access for all users has been considered
Bridleways	Various WCH consultees requested that a bridleway was provided along the proposed Glossop Spur. These bridleways would help to link the Trans Pennine and Pennine Bridleway National Routes, without road riding. Consultees requested that the WCH provision in this area was multiuser and that previously horses were allowed on Glossop Spur. A new bridleway linking in with the local PRoW has been introduced from Old Hall lane, on top of the cutting going down the Scheme and linking back in with Mottram Moor Junction *Environmental benefits*: Improved access and safety for WCHs, in response to better understanding of local needs through consultation, ensures the Scheme is inclusive and access for all users has been considered
Reduction of earthworks along A57 Link Road	In response to recommendations from the landscape team, earthworks embankments along the A57 Link Road between the Mottram Moor and Woolley Bridge junctions were reduced and modified to reflect the existing surroundings and ensure more of the existing woodland could be retained. *Environmental benefits*: Profile shapes and habitat created would make these features look more naturalistic. The right blend between screening and integration with the local surroundings ensures future obligations for maintenance during the operation phase are minimised.
Signal phasing modifications at junctions along the Scheme	Following Consultation, the signal timings and phasing of the traffic lights at Hattersley Roundabout, Gun Inn junction and Mottram Junction were updated to reflect changes in junction priority and pedestrian and cyclist facilities. *Environmental benefits:* These updates ensured the Scheme is aligned to the Local Highway Authorities' preferred facilities and methods of operating their junctions, in addition to reflecting the improvements made to pedestrian and cycling facilitates. The resulting update to the traffic modelling reduced the Affected Road Network (ARN) for Air quality and removed a number of significant impacts that were previously reported in the Noise and vibration chapter of the PEIR (see the Noise and vibration chapter (Chapter 11) for more details).

4 Environmental Assessment Methodology

4.1 Environmental scoping

4.1.1 The Applicant requested the Planning Inspectorate provide its opinion on the scope of the information to be included in the ES for the Scheme. A Environmental Scoping Report [50] was submitted by the Applicant, clearly outlining the intended scope of each environmental topic assessment accordance with the Regulation 10(3) of the EIA Regulations 2017, the Planning Inspectorate's Advice Note 7: Preliminary Environmental Information, Screening and Scoping (Version 5, March 2015) and the Planning Inspectorate's scoping opinion[51](APP-181).

4.1.2 This ES has been prepared in consideration of the advice set out in the Scoping Opinion (APP-181). Appendix 4.1 (APP-152) summarises the scoping responses received and indicates how they have been considered within this ES. This demonstrates that the ES has considered the requests and comments raised through the scoping and consultation, where applicable to the Scheme.

4.1.3 Details of elements scoped in and out of the ES are presented within Chapters 5 to 15 of this ES.

DMRB updates

4.1.4 The development of major highways is generally governed through the standards set out in the Design Manual for Roads and Bridges (DMRB)[52]. During the period between July 2019 and March 2020 the whole suite of DMRB standards for highways documents were updated. This included a change to the structure of DMRB itself, structuring the documents according to the technical discipline and the asset lifecycle stage. Therefore, the environmental assessment and design documents previously grouped in DMRB Volume 11 have now been regrouped under the 'sustainability and environment' discipline. Additionally, since March 2020, all DMRB-related content in "advice" documents or Interim Advice Notes have been withdrawn.

4.1.5 Given that the Environmental Scoping Report was based on the previous versions of DMRB, the Applicant has undertaken sensitivity analysis to determine whether the application of the latest DMRB standards, would lead to new or different conclusions to those reported in the Scheme's Environmental Scoping Report.

4.1.6 Appendix 4.3 (APP-154) sets out the differences between the former DMRB and updated DMRB. It also outlines the implications these have had on the EIA methodologies and assessment since the Scoping Opinion was published. This includes a high-level summary of whether new environmental effects would be triggered by applying the updated DMRB standards and would change the results of the Environmental Scoping Report which have been presented in the ES chapters.

[redacted]

4.1.7 Regulation 14(3)(a) of the EIA Regulations states that where a Scoping Opinion has been adopted, the Applicant's ES should "*be based on the most recent scoping opinion adopted (so far as the proposed development remains materially the same as the proposed development which was subject to that opinion)"*. It was acknowledged in a meeting by the Inspectorate (8 January 2018) that it is not in the spirit of EIA for the scope to stay completely fixed between the Scoping stage and submission of an application for development consent. As such, it is for the Applicant to demonstrate how an ES submitted as part of an application for development consent meets the requirements of Regulation 14(3)(a). 4.15.6.

4.1.8 The current Scheme is not considered to have undergone material changes that would be environmentally different, in terms of predicted effects, to the scheme which was subject to the scoping opinion. Some receptors would fall away and new receptors may have been created but overall, the relevant predicted environmental effects would be the same. It is therefore considered that it is appropriate to base the ES on the previous scoping opinion. The main changes have been a reduction in to the DCO boundary which has mainly resulted in environmental benefits e.g. reduction in land take and subsequent materials required, as outline in Table 3-7 in the Assessment of alternatives chapter (Chapter 3). The Applicant also agreed this approach with the Planning Inspectorate in December 2020. Appendix 4.3 (APP-154) also sets out changes in scope, methodology and mitigation measures proposed as a result of the key design changes to the Scheme since the submission of the EIA Scoping Report.

Alterations to the DCO boundary

4.1.9 The DCO boundary differs to that presented within the Environmental Scoping Report in November 2017. The main changes are outlined in the Assessment of Alternatives chapter (Chapter 3), Table 3.3.

4.1.10 Any additional consultation responses or changes to assessment methodology due to these design changes are also detailed in Appendix 4.3 (APP-154). This includes a high-level summary of whether new environmental effects would be triggered due to alterations made to the DCO boundary which would change the results of the Environmental Scoping Report.

EIA methodology

4.1.11 The DMRB standards have been used to inform the EIA process and the preparation of the ES. All other relevant best practice methodology guidance used in the technical assessments (Chapters 5 – 15) are detailed within individual chapters as appropriate.

4.1.12 The Planning Inspectorate has published a number of Advice Notes to help guide applicants through the application process. The Planning Inspectorate Advice Notes directly relevant to the EIA are:

- Advice Note 3: EIA Consultation and Notification (August 2017, version 7)[53]
- Advice Note 6: Preparation and submission of s (Republished December 2020, version 9)[54]

[redacted]

- Advice Note 7: EIA: Process, Preliminary Environmental Information, and Environmental Statements (June 2020, version 7)[55]
- Advice Note 9: Rochdale Envelope (July 2018, version 3)
- Advice Note 11: Working with public bodies in the infrastructure planning process (November 2017, version 4)[56]
- Advice Note 12: Transboundary Impacts and Process (December 2020, version 6)[57]
- Advice Note 15: Drafting Development Consent Orders (July 2018, version 2)[58]
- Advice Note 17: Cumulative Effects Assessment (Published August 2019, version 2)[59]

Factors scoped into the EIA

4.1.13 The Environmental Scoping Report identified that all the key factors within DMRB's 'sustainability and environment' discipline should be scoped into the EIA on the basis that construction, operation and maintenance of the Scheme could potentially lead to significant effects on the environment. These key factors are considered under the following topics:

- Air quality
- Cultural heritage
- Landscape and visual
- Biodiversity
- Geology and soils
- Material assets and waste
- Noise and vibration
- Population and human health
- Road drainage and the water environment
- Climate

4.1.14 To be aligned with the latest DMRB standards, the assessments that the Environmental Scoping Report stated would be provided in the ES chapters 'People and Communities' and 'Health' have been presented in Chapter 12 'Population and human health'.

Major accidents and disasters

4.1.15 In line with the requirements to assess the risks to human health, cultural heritage or the environment due to accidents and disasters, as outlined in Paragraph 5(d) of Schedule 4 to the EIA Regulations, the ES has considered:

[redacted]

- Vulnerability of the Scheme to risks of major accidents and/or disasters (hereafter referred to as major events)
- Any consequential changes in the predicted effects of that Scheme on environmental topics.

4.1.16 Paragraph 8 of Schedule 4 to the EIA Regulations requires the provision of "*a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to the risk of major accidents and disasters*", in accordance with the EIA Directive. In considering these elements of vulnerability, the ES has:

- Identified any 'Major' events that are relevant to and can affect the Scheme. Major events shall include both man-made and naturally occurring events. Not all events warrant assessment and evidence should be provided to support the view that they should be classified as major events
- Where Major events have been identified, the EIA has described the potential for any change in the assessed significance of the Scheme on relevant environmental topics in qualitative terms. Report the conclusions of this assessment within the individual environmental topics; and
- Clearly described any assumed mitigation measures, to provide an evidence base to support the conclusions and demonstrate that likely effects have been mitigated/managed to an acceptable level.

4.1.17 This assessment has been developed in discussion with the project team to determine whether they should be scoped in or out of the assessment. Further details on the assessment of major accidents and disasters is provided Appendix 4.2 (APP-153). The potential effects resulting from a major event and any consequences for receptors are also reported (where applicable) in the individual environmental topic chapters (Chapters 5 to 15).

Transboundary impact screening

4.1.18 EIA Regulation 32 requires PINS to notify other European Economic Area (EEA) States and publicise an application for development consent if it is of the view that the proposed development is likely to have significant effects on the environment of another EEA Member State, and where relevant to consult with the EEA State affected. A Transboundary Screening[60] has been undertaken for the Scheme by the Planning Inspectorate, which has determined that no significant effects are identified that could impact on another EEA Member State. Consequently, no transboundary effects are anticipated due to distance and the likely magnitude of impacts from the Scheme.

Habitat Regulations Screening

4.1.19 The Scheme falls within one of the Impact Risk Zones (IRZs) for the Peak District Moors (South Pennine Moors Phase 1) SPA (2.19 km and the South Pennine Moors SAC. However, the distance between the SPA/SAC and the Scheme is considered sufficiently far to mitigate against any likely significant effects. Nevertheless, potential effect pathways between these European Sites and the Scheme have been identified. These relate to increased traffic on the wider road network as a result of, and during the operation of the Scheme. A

[redacted]

Habitat Regulations Assessment Screening Report has been produced in accordance with DMRB guidance as part of the EIA and submitted with the DCO application (APP-054).

Health Impact Assessment

4.1.20 The assessment of potential impacts on health due to the Scheme has not equated to a full Health Impact Assessment (HIA), which follows a 5-stage process: Screening, Scoping, Assessment, Reporting and Monitoring. Human health has been principally assessed in the Population and human health chapter (Chapter 12), using the sub-topics Air quality, Landscape and visual, Road drainage and the water environment and Noise and vibration. Health aspects are also incorporated into the assessments for other topics including Air quality and Noise and vibration in accordance with assessment methodology for these topics. For example, Air quality cover the effects of the Scheme on human health issues relating to air quality.

Heat and radiation

4.1.21 The potential for impacts in relation to heat and radiation has been considered. Due to the characteristics of highways schemes, there is no potential for significant sources of heat or radiation emissions either during construction or operation of the road. It is concluded that there is no potential for significant effects in relation to this topic, and it has therefore been scoped out of this assessment. This is in accordance with DMRB LA 104 which states that heat and radiation is unlikely to be relevant to the scope of most motorway and all-purpose trunk road projects.

4.2 Surveys and Predictive Techniques and Methods

General approach

4.2.1 Environmental Impact Assessment (EIA) is a process for identifying the likely environmental effects (positive and negative) of proposed developments, and their significance, before development consent is granted.

4.2.2 The aim of the EIA is to ensure the following have been undertaken:

- A thorough assessment of likely effects of a proposed development on the environment
- Consideration of mitigation measures and alternatives in light of potential environmental effects
- Assessment of the cumulative effects of proposed development.

4.2.3 The purpose of this ES is to help the decision maker, statutory consultees, other stakeholders and the public to properly understand the predicted effects and the scope for reducing them, before a decision is made as to whether to permit the development activity.

4.2.4 This ES reports on the likely impacts on the environment resulting from the proposed development. The ES must, as a minimum, comply with Schedule 4, Part 2 of the EIA Regulations. Advice published by the Planning Inspectorate states that the ES should clearly explain the processes followed, the forecasting methods used, and the measures envisaged to prevent, reduce and where possible offset any significant adverse effects.

Consultation

4.2.5 This stage has included providing information related to the assessment and the project to the statutory and non-statutory stakeholders (referred to as consultees) and the public so that the parties can make informed contributions to the development of the proposals and the EIA process taking into account the concerns raised by the consultees;

4.2.6 A summary of the consultation relating to the environment is provided in section 1.5. of Chapter 1 of this ES. Full details of the consultation process that has been undertaken in respect of the Scheme is provided in the Consultation report (APP-026). In addition, reference is made to key consultations within topic chapters, as required, e.g. to demonstrate where the approach to assessment methodology was agreed in consultation.

Assessment methodology

4.2.7 This section forms the majority of the ES and involves the assessment undertaken to predict the likely significant impacts of the Scheme (including alternatives) on people, environment and communities, identify mitigation measures, if any, through design modifications and environmental management during the project life cycle consisting of construction and operation; and re-assess the residual effects of the mitigated development.

4.2.8 The assessment methodology describes the guidance used for the assessment of each environmental topic, together with the criteria to determine the magnitude of effects and the sensitivity of receptors.

4.2.9 As detailed in Section 4.1, the DMRB suite of standards contain requirements and advice relating to works on motorway and all-purpose trunk through design, construction and operational stages of the highways assets, and the documents grouped under the ‘sustainability and environment’ discipline are most relevant standards for the assessment methodologies for the environmental assessment of the Scheme.

4.2.10 Where appropriate, the DMRB topic specific approach has been supplemented with additional sources of guidance, such as those from institute guidelines, for use in the assessments. More details of the methods used for each individual topic are provided in Chapters 5 – 15 (APP-061 to APP-073).

4.2.11 Some qualitative assessments require an approach that is based on professional judgement. This is where decisions made rely on professional experience, perception and opinion of the competent expert undertaking the assessment and is based on knowledge and experience of other similar schemes.

Baseline conditions

4.2.12 In order to assess the impacts on environmental receptors that would be caused by the Scheme, and to identify any potential significant effects, an understanding of the baseline environment without the Scheme is necessary.

4.2.13 To gather a fully comprehensive, descriptive summary of the baseline, each individual topic has used appropriate data gathering methods and followed topic specific guidelines (where relevant). This has included conducting the following:

- Desk studies: review of previous reports and studies

- Specialist surveys: appropriate site-based surveys to verify desk studies and gather field data
- Consultation: engaging with stakeholders both to agree those methods of data collection and also to obtain any data they have (see Table 1-6).

4.2.14 When describing the baseline environmental conditions, the value / sensitivity of receptors that may be affected by the Scheme have also been identified.

4.2.15 For each of the environmental topics it is also necessary to project the baseline forwards in the absence of the Scheme this is termed the 'future baseline scenario'. This considers what changes there may be to the baseline conditions at/ prior to the start of construction and for operation.

Study area

4.2.16 The study areas for the Scheme are individually defined for each environmental topic based on the geographical scope of the potential impacts on receptors/resources and the relevant topic specific criteria. Establishing them draws on guidance in DMRB and associated documents where this specifies the extent of study areas and other guidance where appropriate. The study areas for each topic are further described in Chapters 5 to 15 of this ES.

4.2.17 The study areas have also relied upon the outcomes of the traffic modelling as some study areas are defined using changes in traffic flows.

Assessment scenarios

4.2.18 The assessment of effects involves comparing the situation with and without the Scheme. Dependent upon the topic, the effects need to be assessed for the Do-Minimum (without the Scheme but with committed development) and Do-Something (with the Scheme and with committed development) scenarios in the baseline year and a future assessment year

4.2.19 The identification of the baseline requires the description of the existing situation and then a prediction of how it is likely to evolve in the absence of the Scheme, i.e. 'future baseline scenario', based on available environmental information and scientific knowledge. An overview of the existing and future baseline for the Scheme is provided in section 2.4.

4.2.20 This includes taking into account current conditions and potential future development and using experience and professional judgment to predict what the baseline conditions might look like, prior to the start of construction (2023) and operation (when the Scheme is first expected to open to traffic – 2025). Inf

4.2.21 This presence and absence of the Scheme are referred to as the 'Do Something' and 'Do Minimum' scenarios respectively. The 'Do Minimum' scenario represents the future baseline without the Scheme in place, with other changes elsewhere within the Strategic Network, but no construction of new infrastructure associated with the A57. The 'Do Something' scenario is the scenario with the Scheme in place.

4.2.22 Depending on the topic, the effects are assessed for the 'Do Minimum' and 'Do Something' scenarios, during construction, in the opening year and in a future assessment year. For example, for certain topics assessments might be undertaken for a 'design year', usually 15 years after opening.

4.2.23 The current implementation strategy proposes the following key dates, subject to the DCO being approved by the Secretary of State in Autumn 2022:

- Start of construction works – 2023
- First full year of opening – 2025
- Design year – 2040

4.2.24 For assessment purposes it is assumed that the Scheme would be used to its maximum capacity from opening, but in reality it is likely that there would be a period of growth over a number of years before the maximum capacity is reached.

4.2.25 Topic specific chapters of this ES set out the environmental assessments of the construction and operational effects of the Scheme. The environmental assessment includes the consideration of effects arising from the construction and operation of the Scheme. An indefinite design life has been assumed, and the environmental assessment process would therefore not include consideration of decommissioning activities at the end of operational life of the Scheme.

Monitoring

4.2.26 Monitoring requirements and procedures for the construction and operation of the Scheme are recommended, based on the requirement to maintain the current standard of the surrounding environment and to ensure the Scheme does not contribute to the degradation of the surrounding environment. Monitoring recommendations for each topic are further described in Chapters 5 to 15 of this ES.

4.2.27 As set out in DMRB LA 104, the purpose of monitoring is to

1) *ensure measures envisaged to avoid, prevent or reduce and, if possible, offset significant adverse effects on the environment are delivered*
2) *build data on the effectiveness of design and mitigation measures thereby driving improvement in environmental performance for future projects*
3) *satisfy licence / permit requirements (where applicable); and*
4) *identify remedial action as a consequence of underperformance or failure of mitigation.*

4.2.28 Monitoring requirements and results would be reported in the second and third iteration of the EMP (as outlined in Table 2-6) during construction and handover phases, in line with DMRB LA 104.

Cumulative effects

4.2.29 Schedule 4 of EIA Regulations requires an ES to include the assessment of cumulative effects. Cumulative effects are the result of multiple actions on environmental receptors.

4.2.30 The cumulative assessment for the Scheme has also been undertaken in accordance with DMRB LA 104, which states that the following cumulative effects should be reported on:

- Those which arise from a **single project cumulative effects**, which are those which arise from the reaction between effects of a single project on different aspects of the environment, e.g. numerous different effects impacting a single receptor); and
- Those which arise from **different projects cumulative effects** which are those that result from additive effects caused by different projects together with the project being assessed.

4.2.31 Further details on the scope of the cumulative effects' assessment of the intra and inter scheme effects is provided in the Cumulative effects chapter (Chapter 15).

Predictive techniques

4.2.32 Future traffic forecasts were provided for the environmental assessments using the A57 Link Roads traffic model, an assignment traffic model which includes the impacts of variable demand modelling.

4.2.33 Future demand is based on future developments considered within a 'core scenario' which includes Near Certain or More than Likely (for housing, employment and infrastructure), in addition to general traffic growth. The model can be used to predict total traffic demand on the network and route choice based on travel times, congestion and mode choice.

4.2.34 The traffic forecast data that have been developed for all traffic related environmental assessments within this ES, both direct and indirect, is provided in Appendix 2.1. The appendix shows both Annual Average Daily Traffic (AADT)[61] and Annual Average Weekday Traffic (AAWT)[62], and includes predicted heavy goods vehicles (HGV), expressed as a percentage.

4.2.35 Two scenarios have been provided: a Do Minimum (DM) scenario and a Do Something (DS) scenario. These scenarios have been modelled for 2025 (which represents the opening year) and 2040 (which represents the opening year + 15 years (design year)).

4.2.36 The impact of the Scheme on traffic flows and further details of the traffic modelling undertaken to assess these impacts are set out in Traffic Assessment Report (TAR) (APP-186), and the Case for the Scheme (Chapter 4 Transport Case for the Scheme (APP-182)). Details of the future developments are included in the uncertainty log, which is appended to the TAR. These development assumptions are taken into account in the Cumulative effects chapter (Chapter 15) of this ES.

4.3 General assessment assumptions and limitations

4.3.1 This ES considers the potential impacts of the Scheme as described the Scheme chapter (Chapter 2) that could result in likely significant effects.

4.3.2 Potential impacts and their effects cannot be predicted with absolute certainty. Predictions are limited by the quality and certainty of information available and

[61] The total volume of vehicle traffic of a highway or road for a year divided by 365 days
[62] The total volume of vehicle traffic, weekdays only

the accuracy of predictive techniques employed. The assessments presented in the ES therefore indicate the likely magnitude of impacts and the significance of effects rather than providing previse predictions of effects.

4.3.3 Where uncertainty exists, a precautionary approach assuming a reasonable worst-case impact has been adopted for the assessment.

4.3.4 An acknowledgement and details of any limitations or assumptions adopted for each of the topic specific assessments is provided within each of the technical chapters of this ES (Chapters 5 to 15) The extent to which these limitations and assumptions are likely to affect the assessment outcome (where applicable) is also outlined in the individual environmental chapters.

4.4 Significance criteria

Residual effects

4.4.1 During the preparation of the ES there has been a requirement for a range of mitigation measures as the Scheme has developed. This mitigation, where relevant, has been discussed with statutory consultees and third parties. Only mitigation measures that are either a firm commitment or likely to be delivered have been considered in the assessment.

4.4.2 Embedded mitigation, or environmental design measures considered to be integral to the Scheme, are included in Chapter 2: Description of the Scheme. Essential mitigation, or additional measures required to reduce or offset significant effects, are outlined within each environmental topic chapter.

4.4.3 Impacts that remain after mitigation are referred to as residual impacts. The assessment of the significance of the residual effects after mitigation is therefore the key outcome of the EIA. Only residual effects are reported within the assessment of significant effects section of the environmental chapters (Chapters 5 to 15). The paragraphs below outline the assessment process.

4.4.4 Enhancement measures and their associated benefits are also detailed within each environmental topic chapter as appropriate but are not factored into the determination of residual effects.

Assessing and reporting significance of effect

4.4.5 The significance of an environmental effect is typically a function of the ‘value’ or ‘sensitivity’ of the receptor and the ‘magnitude’ or ‘scale’ of the impact. Combining the environmental value of the resource or receptor with the magnitude of change produces a significance of effect category. In arriving at the significance of each residual effect, the assessor also considers whether the effect is direct or indirect; short, medium or long-term; permanent or temporary; and, positive or negative.

4.4.6 The proposed general approach to assessing and reporting significance of effects will be adopted in accordance with DMRB and other relevant legislation, guidance and best practice.

4.4.7 With the receptors identified and their sensitivity classified, the potential impacts of the proposed works to these aspects, for construction and operation where appropriate, will be assessed and the magnitude of the impact determined.

4.4.8 In accordance with DMRB LA 104 for each topic the assessment has combined the magnitude of the impacts and the sensitivity of the resources/receptors that could be affected, in order to classify the significance of effect (see Table 4-1) from very large to neutral.

4.4.9 General descriptors for the significance of effect are provided in Table 4-2.

4.4.10 The proposed approach has been adopted in accordance with relevant guidance and best practice. Where this approach is not relevant, variation in the methodology of assessment significance are explained in the individual topic chapters.

Table 4-1 - Significance of effects

Environmental Value of receptor/ resource (Sensitivity)	Magnitude of impact (degree of change)				
	No change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate or large	Large or very large	Very large
High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or large
Low	Neutral	Neutral or Slight	Neutral or slight	Slight	Slight or moderate
Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Table Source: From DMRB LA 104 Table 3.8.1

Table 4-2 - Significance categories and typical descriptions

Significance category	Typical descriptors of effect
Very large	Effects at this level are material in the decision-making process.
Large	Effects at this level are likely to be material in the decision-making process.
Moderate	Effects at this level can be considered to be material decision-making factors.
Slight	Effects at this level are not material in the decision-making process.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Table Source: From DMRB LA 104 Table 3.7

4.4.11 Where Table 4.3 includes two significance categories, professional judgement will be used to determine the most appropriate level of significance.

4.4.12 The duration of the effect will be assessed to be either temporary (effects that occur for a limited period, e.g. demolition and construction phase) or permanent (e.g. lasting effects that remain once the proposed works are completed and

operational) Each of these effects can persist over a period of time and can be considered as:

- Short term (< 5 years)
- Medium term (5 – 10 years)
- Long term (> 10 years)

4.4.13 Whilst the criteria derived vary between disciplines, from a very formal set of criteria based on nationally recognised standards for air quality, to more qualitative criteria derived to assess landscape impact or heritage, each topic assessment has adopted the common terminology alongside any topic-specific guidance, and professional judgement to assess the significance of effects. Where an alternative basis of assessment applies, this is explained in the appropriate chapters.

4.5 Duplication of assessment

4.5.1 The ES has been prepared taking into account other relevant environmental assessments that have been produced as stand-alone documents to support the DCO application, as shown in Table 4-3. These documents have been cross referenced, and the results summarised within relevant chapters of this ES, to avoid duplication.

Table 4-3 – Other standalone documents with relevant environmental assessments

Document Reference	Document title
TR010034/APP/5.3	Habitats Regulations Assessment (HRA) No Significant Effects Report
TR010034/APP/5.4	Water Framework Directive Assessment
TR010034/APP/5.5	Flood Risk Assessment (FRA)
TR010034/APP/6.5	Arboricultural Impact Assessment
TR010034/APP/7.1	Case for the Scheme
TR010034/APP/7.4	Traffic Assessment Report (TAR)

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National Highways Limited registered in England and Wales number 09346363