M60/M62/M66 Simister Island Interchange

TR010064

7.6 SCHEME DESIGN REPORT

APFP Regulation 5(2)(q)

Planning Act 2008

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

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

M60/M62/M66 Simister Island Interchange

Development Consent Order 202[ ]

SCHEME DESIGN REPORT

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1. Introduction

1.1 Purpose of the Report

1.1.1 This Scheme Design Report (this "Report") relates to an application made by National Highways (the "Applicant") to the Secretary of State for Transport via the Planning Inspectorate (the "Inspectorate") under the Planning Act 2008 (the "2008 Act") for a Development Consent Order (DCO). If made, the DCO would grant consent for the M60/M62/M66 Simister Island Interchange (the "Scheme"). A detailed description of the Scheme can be found in Chapter 2, The Scheme of the Environmental Statement (ES) (TR010064/APP/6.1).

1.1.2 This Report demonstrates how the implementation of good design has driven the development of the Scheme and illustrates how the concept of sustainable development has been fundamental to the Scheme progression. It is intended to identify and summarise the factors that have shaped the preliminary scheme design and ultimately secure principles for detailed design and construction.

1.2 Introduction to the Scheme

1.2.1 The main objectives of the Scheme are as follows and how the Scheme meets these objectives is assessed in the Case for the Scheme (TR010064/APP/7.1):

- Improve the journey experience for users of this section of our network by:
  - Reducing congestion at peak times.
  - Reducing journey times.
  - Delivering more reliable journey times.
- Provide a scheme that is safe for all road users.
- Minimise the impact of the Scheme on the surrounding environment including within Noise Important Areas and Air Quality Management Areas.
- Support future economic growth across the Greater Manchester area by delivering against local aspirations set out in regional and local authorities' transport strategies and local plans.

1.3 Summary of the Scheme Design

1.3.1 This section briefly describes the design of the Scheme as shown on the General Arrangement Plans (TR010064/APP/2.2), the Works Plans (TR010064/APP/2.4) and the Engineering Section Drawings (TR010064/APP/2.8). A more detailed description of the design is provided in Chapter 2, The Scheme, of the ES (TR010064/APP/6.1). More details on the

specific design considerations are also set out in sections 3 and 4 of this Report.

1.3.2 The existing M60/M62/M66 Simister Island Interchange is a three-level roundabout interchange. The M60/M62 junction is at the highest level and the M60/M66 is at the lowest level. The middle level provides an interchange between the lower and upper level through a signalised roundabout.

1.3.3 The Scheme design is a mixture of alterations to the existing alignment and the introduction of new free flow links. The Scheme will provide a new free-flow link road between the M60 Eastbound (EB) to the M60 Southbound (SB), allowing drivers to continue along the M60 without having to leave the motorway, navigate the roundabout and re-join the same motorway.

1.3.4 Additionally, the existing single-lane M60 northbound (NB) to the M60 Westbound (WB) free flow link road will be upgraded to two lanes, the M66 SB will be widened to four lanes through Junction 18 and the hard shoulder will be converted into a permanent traffic lane between M60 Junction 17 and Junction 18, providing 5 lanes in both directions. A new hard shoulder will be provided on the M60 between M60 Junction 17 and Junction 18. An overall illustration of the Scheme is shown by Figure 1-1 of this Report and described in more detail below.

1.3.5 The Scheme will require two new major structures:

- Pike Fold Viaduct: A three-span bridge (west, east and main span) to carry the new M60 EB to M60 SB link (the Northern Loop) over the M66 and slip roads (approximately 13m above the level of the M66 carriageway), approximately 70m north of M60 Junction 18. The spans are approximately 43m for the west span, 56m for the main span, and 43m for the east span. The viaduct will comprise a compositive weathering steel girder and reinforced concrete (RC) superstructure, supported on RC piers and full-height RC abutments with mechanically stabilised earth (MSE) wingwalls. An access route will be provided to the internal area of the Northern Loop to allow for maintenance of vegetation during operation.

- Pike Fold Bridge: A standard height (approximately 5.7m above the adjacent M66 carriageway), single-span fully integral bridge carrying the M66 southbound off-slip road over the Northern Loop, some 350m north of M60 Junction 18. The span will be approximately 43m. The bridge will comprise a weathering steel girder and RC superstructure, supported on MSE abutments and wingwalls.

1.3.6 Nine new gantries will be required. These will be steel lattice type structures.

1.3.7 The Scheme will require a number of embankments and cuttings to accommodate the horizontal and vertical alignment of the new road. As a general principle, these slopes will be 1:3 (1 in 3) gradient, with the exception of one retaining wall on the M60 EB between Sandgate Road and Haweswater Aqueduct underpass at 1:2.5 (1 in 2.5) gradient.

1.3.8 Haweswater Aqueduct, which passes underground between M60 Junction 17 and Junction 18, will not require any structural modification. The Scheme will not require new crossings of watercourses or alterations to existing watercourse culverts.

1.3.9 The drainage design includes an allowance for the effects of climate change over a 100-year period. A climate change allowance of 30% has been applied, together with a sensitivity test which considers a 40% climate change uplift in peak rainfall intensity.

1.3.10 Where feasible, surface water runoff will be discharged in line with the following hierarchy order:

- Into the ground (infiltration).
- To a surface water body.
- To a surface water sewer, highway drain, or another drainage system.
- To a combined sewer.

1.3.11 As the Scheme is, for the most part, modification of an existing highway alignment, the general strategy is that the drainage of highway run-off will follow the existing arrangement. It will only be adjusted to suit new pavement locations, before continuing to attenuate and ultimately discharge at the watercourse or existing highways network. The drainage system will discharge into the existing system where feasible.

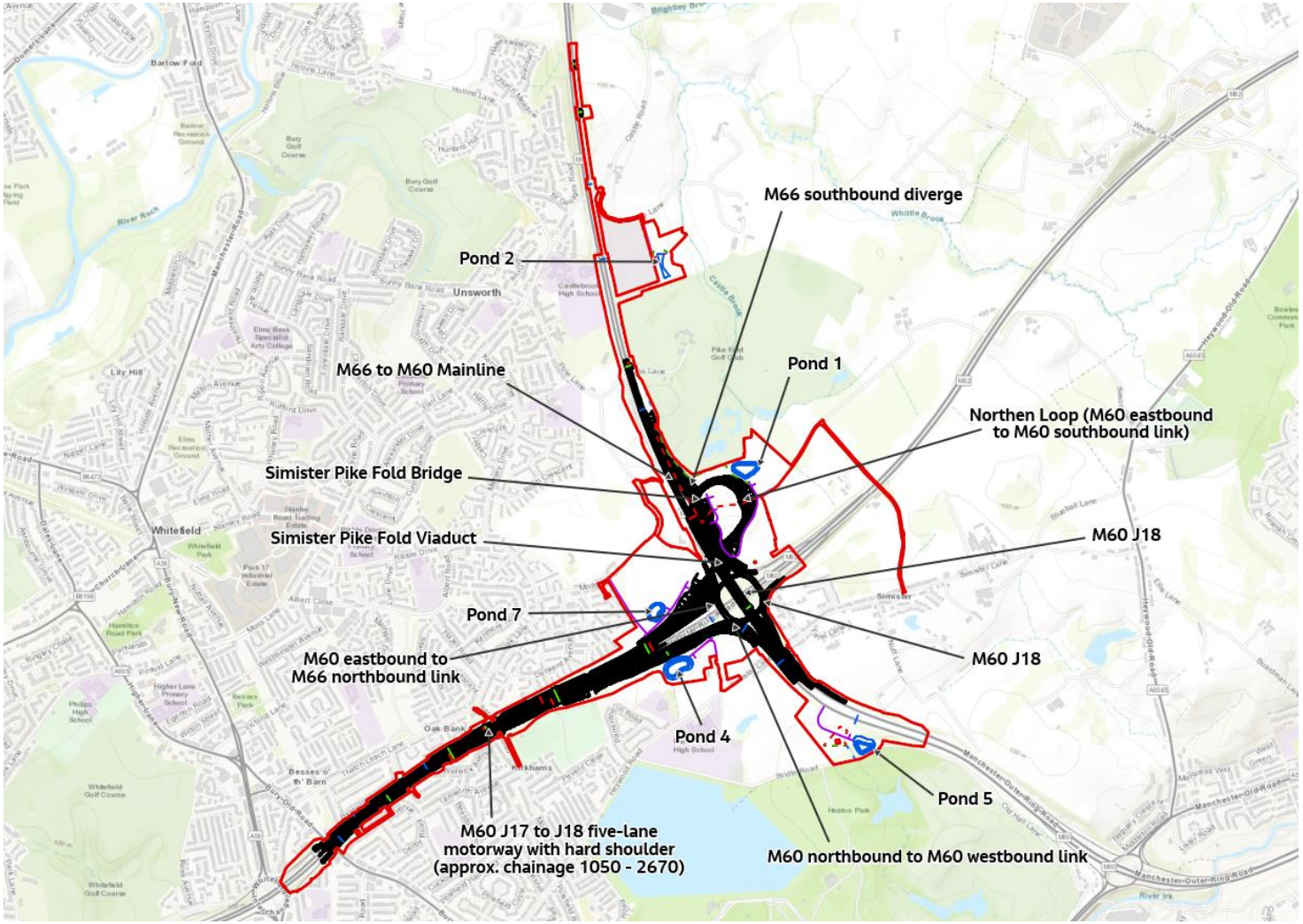
1.3.12 Table 2.4 of Chapter 2, The Scheme of the ES (TR010060/APP/6.1) sets out the details of five ponds that will be provided. Four of these are attenuation ponds and one is a treatment pond. The attenuation ponds are designed to be permanently wet in order to function as retention basins and achieve the desired treatment efficiencies.

1.3.13 In addition to attenuation ponds, runoff will be collected via surface water channels, kerbs and gullies, filter drains, slot drains, linear drains, combined kerb drainage and combined carrier and filter drains. Oversized pipes (1.2m diameter) will be installed in the central reserve of the M60 mainline from Haweswater Aqueduct underpass and will tie into the existing drainage network prior to the Bury Old Road overbridge.

1.3.14 All of the Scheme will be lit, but the lighting has been designed to minimise the impact on the surrounding environment. The lighting strategy is set out in detail in Chapter 2, The Scheme of the ES (TR010064/APP/6.1).

1.3.15 The Scheme also includes various environmental enhancements. The Applicant has sought to maximise biodiversity delivery, with a forecast of an overall net gain of 3.68% for habitats and 58.50% for hedgerows on-site post-construction. This includes habitat retention, creation and enhancement. Enhancement measures include enhancements to woodland and grassland habitats. Further details can be found in Appendix 8.12 Biodiversity Net Gain Report of the ES Appendices (TR010064/APP/6.3).

Figure 1-1 – Simister Island Interchange Improvement Scheme



2. Description of the Order Limits and the Surrounding Area

2.1.1 This section briefly describes the land uses and key features of the land and surrounding area which is required to construct the Scheme (the "Order Limits") to provide the context for the design considerations. A more detailed description is provided in the Case for the Scheme (TR010064/APP/7.1) and Chapter 2, The Scheme of the ES (TR010064/APP/6.1).

2.1.2 The Scheme is wholly located within the administrative boundary of Bury Metropolitan Borough Council (BMBC) and is surrounded by Rochdale Borough Council, Salford City Council, Manchester City Council and Oldham Metropolitan Borough Council. Local Planning Authority boundaries are shown on Figure 1.1, Location Plan of the ES Figures (TR010064/APP/6.2). The location of the Scheme in its wider geographical context can be found on the Location Plan (TR010064/APP/2.1)

Residential

2.1.3 The settlements of Unsworth, Simister, Whitefield, Prestwich and Kirkhams are located close to the Scheme, with residential dwellings located directly or adjacent to or in close proximity to the Order Limits.

Green Belt

2.1.4 Land designated as Green Belt is located within the Order Limits around M60 Junction 18 (extending north, south and east of the junction).

Open Space

2.1.5 Heaton Park Registered Park and Garden is located adjacent to the Order Limits between M60 Junction 18 and Junction 19.

Leisure, Recreation and Sports Facilities

2.1.6 The main recreational features within the vicinity of the Scheme are:

- Prestwich Heys Football Club (FC) is located south of the M60 (immediately adjacent to the Order Limits).
- Unsworth Academy Playing Fields are accessed from the school via an underpass under the M66. Parts of the playing fields are within the Order Limits.
- Eden Gardens Allotment abuts the Order Limits on the north side of the M60 in Whitefield.
- Pike Fold Golf Club is located east of the M66, within the Order Limits.
- Simister Green Playground is located in Simister approximately 45m south of the Order Limits, south of the M62.

- Simister Allotments is located in Simister approximately 35m west of the Order Limits which follow private lane and public footpath 50PRE south of Lower Droughts Farm and the M62.
- Unsworth Cricket and Tennis Club located between Pole Lane, Unsworth and the M66. The cricket grounds abut the Order Limits.
- Heaton Park Registered Park and Garden located adjacent to the Order Limits between M60 Junction 18 and Junction 19, and two Grade II listed buildings located within 250m of the Order Limits.

Educational Establishments

2.1.7 The main educational establishments within the vicinity of the Scheme are:

- Unsworth Academy Main school campus is immediately adjacent to M66 within 40m of Order Limits (but with playing fields within the Order Limits).
- Our Lady of Grace Roman Catholic Primary School grounds are within 25m of Order Limits, south-east of the M60 Junction 17.
- St Margaret's Church of England Primary School grounds are within 10m of the Order Limits to the south-west of the M60 Junction 18.
- Parrenthorn High School grounds abut the Order Limits to the south-west of the M60 Junction 18.

Land Use

2.1.8 The main land use features are:

- The proposed Heywood/Pilsworth strategic land allocation which is part of the Northern Gateway is located to the North East of Junction 18.
- Haweswater Aqueduct underpass is located within the Order Limits 500m west of M60 Junction 18. This aqueduct supplies most of Greater Manchester's population with their daily water supply.
- There are also a number of agricultural holdings within and adjoining the Order Limits.

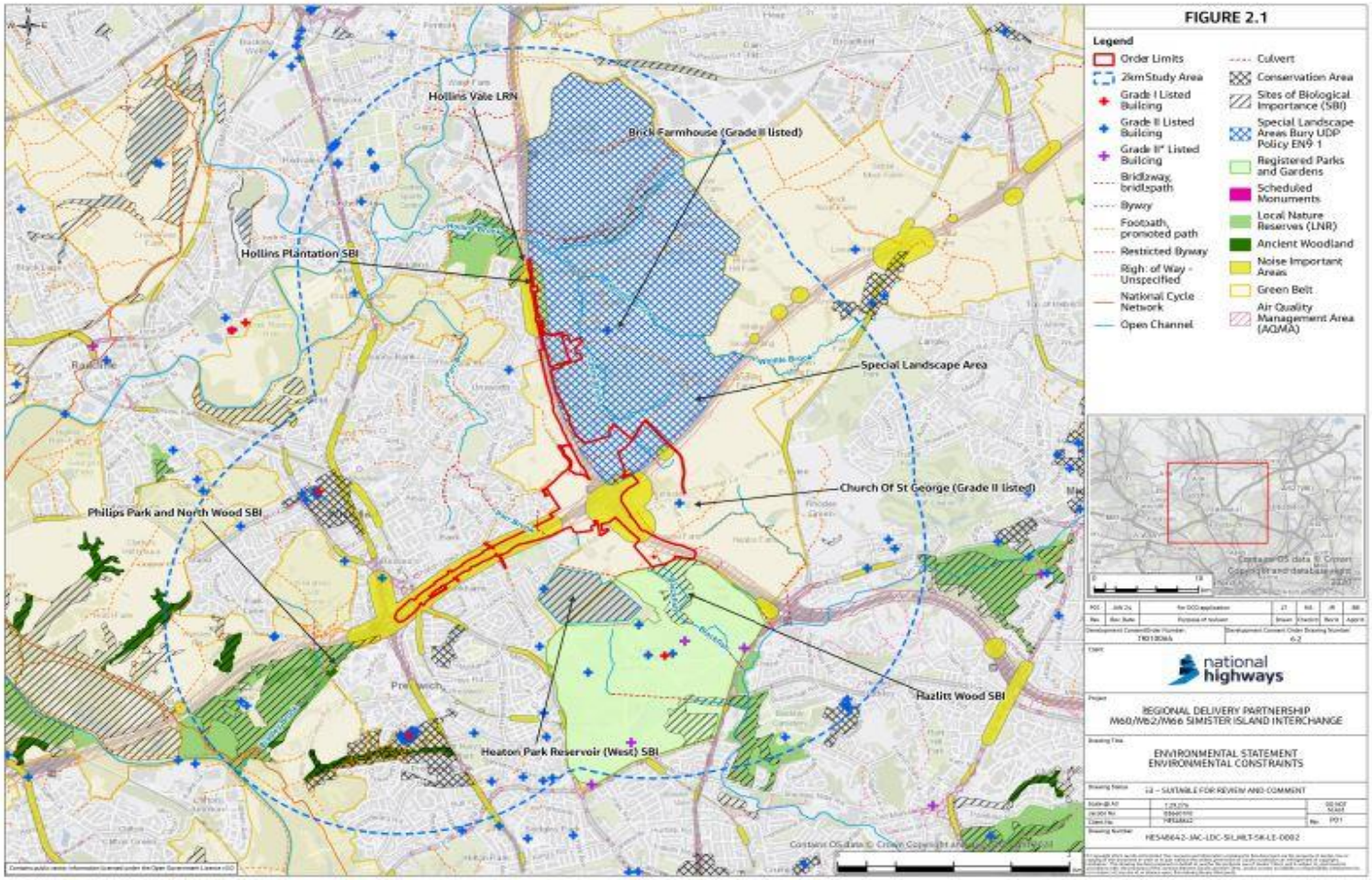
Environmental Features and Designations

2.1.9 Key environmental features are shown on Figure 2.1, Environmental Constraints Plan of the ES Figures (TR010064/APP/6.2) reproduced below as Figure 2-1, and include:

- The Greater Manchester Air Quality Management Area located within the Order Limits.
- Five Noise Important Areas, three adjoining the motorway network and two on the local road network.

- Brick Farmhouseis a Grade II Listed Building outside the Order Limits. It is a presumed 17th century brick 2-storey building, with front rendering and 20th century renovation. The Church of St George is also a Grade II Listed Building outside the Order Limits.
- Several designated ecological sites adjacent to or near to the Order Limits.
- Mineral Safeguarding Areas for sand and gravel and brick clay/surface coal, and Areas of Search for sand and gravel, located partially within the Order Limits.
- Several Public Rights of Way (PRoW) and one Permissive Path located within the Order Limits.
- Two watercourses, the headwaters of Parr Brook, which passes in culvert under the M60 west of M60 Junction 18. Castle Brook runs north of M60 Junction 18.
- Part of the Order Limits is within a Special Landscape area designated by the Bury Unitary Development Plan.

Figure 2-1 – Environmental Constraints (from the Environmental Statement, Figure 2.1 (TR010064/APP/6.2))



3. The Road to Good Design

3.1 National Highways, The Road to Good Design

3.1.1 Ten principles of good design were published by Highways England (now National Highways) in January 2018[1]. The road to good design connects people, places and processes to achieve better outcomes. It is based on three key themes as set out in page 11 of the document:

- *'Connecting People: People is at the heart of our design work, making good roads safe and useful, inclusive and understandable. Good road design reflects users' needs, engages with communities and works intuitively for all.*
- *Connecting places: Good road design demands a deep understanding and response to place, to create a quality aesthetic experience for the user and wider community. This is restrained and environmentally sustainable design, in fitting with the context.*
- *Connecting processes: A successful outcome focused on people and places requires good design processes. These are collaborative, thorough and innovative, generating long-lasting outcomes that are of benefit to users and the wider community'.*

3.1.2 These themes are developed through ten design principles. The ten principles are based on universal ideas of good design. They are not instructions for how to design a road but are prompts to improve design quality and outcomes. Design generally combines utilitarian, technical and economic considerations with aspects of place and culture. Universal good design is thus a balance and coordination of aesthetic, functional and technological considerations.

3.1.3 Road design is more bound to place and function than other design fields, with specific demands of technical design and safety that must be met. Since aesthetic considerations must accept these demands, the potential for variation is more challenging, but still possible for many elements such as signs and lighting for example. The aesthetics of road design is further distinguished as many of its qualities are dictated by place itself. The view of the landscape, particularly rural, is generally conservative and this has helped preserve its beauty. However, this presents a specific additional challenge for road design to be place responsive.

3.1.4 The ten design principles are:

- Makes roads safe and useful.
- Is inclusive.

[1] https://nationalhighways.co.uk/media/l4ihgawx/strategic-design-panel-the-road-to-good-design.pdf

- Makes roads understandable.
- Fits in context.
- Is restrained.
- Is environmentally sustainable.
- Is thorough.
- Is innovative.
- Is collaborative.
- Is long-lasting.

3.1.5 The ten design principles are supported by a further document: People, Places and Processes: A Guide to Good Design at National Highways[2]. This sets out further guidance, best practice and key design themes under each principle.

3.1.6 These themes have been taken into account in the design as set out in section 4 of this Report.

3.2 National Planning Policy Statement for National Networks

3.2.1 Section 104(2)(a) of the 2008 Act requires the Secretary of State to determine an application for a DCO in accordance with any relevant National Planning Policy Statement.

3.2.2 The relevant designated NPS for the Scheme is the National Policy Statement for National Networks (NPS NN) (Department for Transport (DfT), 2014). The Government published a draft National Policy Statement for National Networks (draft NPS NN) for consultation in March 2023. This consultation closed in June 2023. Although the draft NPS NN is not yet designated it remains an important and relevant consideration for the Secretary of State in determining the DCO decision.

3.2.3 Therefore, as all Nationally Significant Infrastructure Projects will be examined against the relevant National Policy Statement. An assessment of the Scheme against the National Policy Statement for National Networks has been undertaken in two accordance tables. These assess the compliance of the Scheme against the National Policy Statement for National Networks (TR010064/APP/7.2), which was designated in 2014 and the draft National Policy Statement for National Networks (TR010064/APP/7.3), which was consulted on in March 2023.

[2] https://nationalhighways.co.uk/media/ug2fx4fh/people-places-and-processes_a-guide-to-good-design-at-national-highways.pdf

3.2.4 Table 3-1 summarises the policies that specifically relate to design in the NPS NN and maps them to the ten design principles in the Road to Good Design. This demonstrates that by following the ten design principles, this is consistent with the criteria for good design as required by the NPS NN and draft NPS NN.

Table 3-1 – National Policy Statement for National Networks Criteria for Good Design (Mapped to the Ten Design Principles in the Road to Good Design)

NPS NN (2014)	Draft NPS NN (2023)	The Road to Good Design (Highways England, 2018)	
Policy	**Policy**	**Guidance**	**Key Design Requirements**
4.28 Applicants should include design as an integral consideration from the outset of a proposal. 4.29 Visual appearance should be a key factor in considering the design of new infrastructure, as well as functionality, fitness for purpose, sustainability and cost. Applying "good design" to national network projects should therefore produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, matched by an appearance that demonstrates good aesthetics as far as possible. 4.30 It is acknowledged however, that given the nature of much national network infrastructure	4.24 Applicants should include design as an integral consideration from the outset of the proposal. Applying good design to national networks projects should not be limited to general aesthetics. High quality and inclusive design goes far beyond aesthetic considerations. It demonstrates an understanding of context, local needs, history and culture, enhances local landscape character, and is adaptable to future needs and technologies. The National Infrastructure Design Principles described good design as: • a key aspect of sustainable development. It includes	Makes roads safe and useful	Safety is fundamental to good road design; it is integral to both the usefulness of its function and the confidence of road users and their well-being. Good design creates safe roads which support and link to other wider imperatives, both nationally and locally, and that are fundamentally useful, meeting users' need for mobility effectively.
		Is inclusive	Inclusive environments facilitate dignified and equal use by all. An inter-disciplinary design process involves and places people's needs and views at its heart, nurturing well-being and creating a shared sense of ownership of the road. All users and communities are considered carefully in order to reduce barriers to access and participation, particularly mindful of the most vulnerable.
		Makes roads understandable	Easy to read, a good road is intuitive to use so as to be safe and efficient for all. 'Self-explaining roads' focus on the essentials and eliminate unnecessary and confusing clutter to make them legible, while responding to place and enhancing both environmental and economic outcomes.

NPS NN (2014)	Draft NPS NN (2023)	The Road to Good Design (Highways England, 2018)	
Policy	**Policy**	**Guidance**	**Key Design Requirements**
development, particularly SRFIs, there may be a limit on the extent to which it can contribute to the enhancement of the quality of the area. 4.31 A good design should meet the principal objectives of the scheme by eliminating or substantially mitigating the identified problems by improving operational conditions and simultaneously minimising adverse impacts. It should also mitigate any existing adverse impacts wherever possible, for example, in relation to safety or the environment. A good design will also be one that sustains the improvements to operational efficiency for as many years as is practicable, taking into account capital cost, economics and environmental impacts. 4.32 Scheme design will be a material consideration in decision making. The Secretary of State needs to be satisfied that national networks infrastructure projects are sustainable and as aesthetically sensitive, durable, adaptable and resilient as they can reasonably be (having regard to regulatory and other constraints and including	opportunities to enable decarbonisation, incorporates flexibility, and builds resilience against climate change. The functionality of projects, including fitness for purpose, resilience, and sustainability, is equally important. • helping to improve the quality of life for local communities. It promotes inclusion, cohesion and increases accessibility. It creates safe spaces with clean air that improve health and wellbeing. • giving places a strong sense of identity, creating a sense of place, connecting communities, addressing community severance, and integrating into its surroundings. It makes a positive contribution to the local landscape within and beyond the Scheme boundary. Good design enhances local culture and character and supports local ecology, delivering through biodiversity net gain, while	Fits in context	The aesthetic quality of a road and its design in relation to the places through which it passes, is integral to its function and the experience of those that use it. Good road design demonstrates sensitivity to the landscape, heritage and local community, seeking to enhance the place while being true to structural necessities. It builds a legacy for the future.
		Is restrained	Functional, but responding positively and elegantly to the context, good road design allows for the expression of the character and identity of the places and communities through which a road passes. Good road design can enhance a sense of place and add to what we have inherited, particularly through the use of appropriate materials and traditions, but does not make unnecessary superficial or superfluous visual statements.
		Is environmentally sustainable	Making an important contribution to the conservation and enhancement of the natural, built and historic environment, good road design seeks to achieve net environmental gain. It is multi-functional, resilient and sustainable, allowing for future adaptation and technical requirements, while minimising waste and the need for new materials.
		Is thorough	The result of robust processes that create a continual cycle of improvement, good road design starts with an in-depth understanding of people, place and context; learning from good practice worldwide. The design of all

NPS NN (2014)	Draft NPS NN (2023)	The Road to Good Design (Highways England, 2018)	
Policy	**Policy**	**Guidance**	**Key Design Requirements**
accounting for natural hazards such as flooding). 4.33 The applicant should therefore take into account, as far as possible, both functionality (including fitness for purpose and sustainability) and aesthetics (including the scheme's contribution to the quality of the area in which it would be located). Applicants will want to consider the role of technology in delivering new national networks projects. The use of professional, independent advice on the design aspects of a proposal should be considered, to ensure good design principles are embedded into infrastructure proposals. 4.34 Whilst the applicant may only have limited choice in the physical appearance of some national networks infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting and design measures relative to existing landscape and historical character and function, landscape permeability, landform and vegetation. 4.35 Applicants should be able to demonstrate in their application how the design process was	protecting wildlife corridors and irreplaceable nature assets and habitats. • adding value by defining issues clearly from the outset. Good design also finds opportunities to add value beyond the main purpose of the infrastructure to consider the wider benefits savings on cost, the environment, materials, and space. It is efficient in the use of material resources, sustainable materials and energy used in construction. 4.25 A good design should meet the principal objectives of the scheme by applying the mitigation hierarchy to avoid, eliminate or substantially mitigate the identified problems and existing adverse impacts, by improving operational conditions, simultaneously minimising adverse impacts and contributing to the conservation and enhancement of the natural, built and historic environment. A good design will also be one that sustains the improvements to operational efficiency for as many years as is practicable,		elements of the road environment are considered together and integrated into a responsive design.
		Is innovative	Responding positively to change, good road design captures opportunities for betterment and develops in tandem with emerging new technologies. Designing to a standard is not the same as achieving good design; an innovative and resourceful approach that is mindful of context is necessary to achieve better outcomes.
		Is collaborative	Collaboration ensures roads are useful to and accepted by the communities they serve. Collaborative working requires a rigorous process that identifies dependencies and wider opportunities, and facilitates effective communication and engagement from the start. Community engagement will be led by a local sense of culture, place and value.
		Is long-lasting	With quality materials and careful detailing, good road design brings lasting value. The design process requires sufficient time for challenges to be resolved before delivery and is adaptable to future needs and technologies as part of the commitment to whole-life operation, management and maintenance.

NPS NN (2014)	Draft NPS NN (2023)	The Road to Good Design (Highways England, 2018)	
Policy	**Policy**	**Guidance**	**Key Design Requirements**
conducted and how the proposed design evolved. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected. The Examining Authority and Secretary of State should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy.	taking into economic, social, and environmental impacts. 4.26 In light of the above, scheme design will be a material consideration in decision making. The Secretary of State needs to be satisfied that national networks infrastructure projects are sustainable, having regard to appropriate industry good design guidance, and the applicant has considered, as far as possible, both functionality (including fitness for purpose and sustainability) and aesthetics (including the scheme's contribution to the quality of the area in which it would be located). 4.27 Applicants should have regard to the National Design Guidance, National Model Design Code, Local Nature Recovery Strategies, Local Air Quality Plans, the purposes of National Parks, Areas of Outstanding Natural Beauty, the Broads and any local design codes. 4.28 In their application, applicants should be able to demonstrate how the design process was conducted,		

NPS NN (2014)	Draft NPS NN (2023)	The Road to Good Design (Highways England, 2018)	
Policy	**Policy**	**Guidance**	**Key Design Requirements**
	effective engagement with communities and stakeholders and how the proposed design evolved to maximise design outcomes. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected with a clear articulation of the benefits. The Examining Authority and the Secretary of State should consider the ultimate purpose of the infrastructure and the operational, safety and security requirements which the design must satisfy.		

3.3 Design Panel Review

3.3.1 Design reviews are an integral part of the process for delivering the 10 design principles in the Road to Good Design. National Highways has created an independent design review panel of built environment experts. The review panel impartially evaluates Scheme design with a remit to constructively challenge design approach. The panel helps to deliver schemes which benefit local communities and the environment. They provide scheme specific observations and general recommendations that help National Highways put good design at the heart of network improvements.

3.3.2 At the Preliminary Design stage, a Design Panel was set up by the Applicant. A Scheme briefing and site visit was carried out on 6 March 2023, with key attendees from the Design Panel and the Applicant in attendance. The Scheme briefing included a site walkover, panel discussion and presentation.

3.3.3 The Design Panel prepared a confidential letter of advice for the Applicant on 22 March 2023 which the Applicant responded to on 30 October 2023. A summary of the advice received and how the Applicant responded to this advice is provided in section 4 of this Report.

4. Evaluation of the Scheme Design

4.1 Introduction

4.1.1 This part of the report sets out how the Scheme design meets the ten design principles and also how it has responded to the review by the Design Panel.

4.2 Ten Design Principles

4.2.1 Table 4-1 below sets out how the Scheme design reflects the ten design principles contained in the Road to Good Design. This has also been covered in the Case for the Scheme (TR010064/APP 7.1), the NPS NN Accordance tables (TR010064/APP/7.2) and the draft NPS NN Accordance tables (TR010064/APP/7.3), which provides an assessment of the Scheme against the designated and draft NPS NN.

Table 4-1 – How the Design Meets the Ten Design Principles in the Road to Good Design

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
1	Makes roads safe and useful	STATS 19 (road safety data issued by The Department of Transport) Personal Injury Accident (PIA) data for the latest available complete pre-Covid five-year period 2015-2019 was used to identify the level of existing accidents in the study area. Between 2015 and 2019 there were a total of 829 casualties, of which 83% were slight, 15% serious and 1% were fatal casualties. The number of casualties per year are relatively consistent, on average 165 casualties occurred per year. An assessment of accident impacts has been completed using Cost and Benefits to Accidents Light Touch (COBALT), the assessment forecasted a reduction in accidents as a result of the Scheme are calculated as the difference between the number of accidents in the without and with Scheme scenarios. As the Scheme would be operational for several decades, the standard approach is to evaluate the safety of the Scheme over a 60-year period (from the year of opening, 2029). Over the 60-year appraisal period, the Scheme is forecast to lead to a reduction in 9 accidents. Further details are available in the Transport Assessment (TR010064/APP/7.4). Table 6-4 of the Transport Assessment (TR010064/APP/7.4) indicates that the strategic road network is forecast to experience an increase in accidents as more people are attracted to using the strategic road network as a result of better journey reliability once the Scheme is operational, as much of the additional strategic road network traffic reroutes from the local road network. As a result of the Scheme, 61 fewer PIAs are forecast on the local roads that are included in the COBALT assessment. Table 6-3 of the Transport Assessment (TR010064/APP/7.4) indicates that while there is a slight

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
		decrease in the overall volume of accidents, the number of fatal, serious and slight casualties increases slightly equivalent to 1.0, 1.2 and 12.7 additional fatal, serious and slight casualties over the 60-year appraisal period. However, M60 junction 18 is forecast to experience 35 fewer PIAs over 60 years due to the Scheme removing traffic from Junction 18 onto the Northern Loop. Conversely the increased traffic flows using M60 junction 17 taking advantage of the Scheme results in 14 additional PIAs forecast on this junction. As more people will use the Scheme this means overall there will be more users and more miles will be driven. The casualties per billion vehicle kilometres have been calculated across the assessment area, this shows that the risk of accident and the risk of a personal injury accident is reduced for each driver due to the Scheme. Further details can be found in paragraph 6.4.8 of the Transport Assessment (TR010064/APP/7.4).
2	Is inclusive	The Scheme does not disproportionately affect any populations, demographics, communities, or road users. The design of the Scheme has been developed in accordance with the Equalities Act 2010 and the needs of disabled people. The Equality Impact Assessment (TR010064/APP/7.7) discusses how the requirements of the Equalities Act 2010 have been embedded in the development of the Scheme, including design, communication and engagement strategy and mitigation strategies. The Scheme includes a modest enhancement for recreational walkers through the inclusion of a new route through an area of ecological mitigation. It would not cause any severance of existing routes for walkers, cyclists and horse riders (WCH). There would be some temporary effects on PROW experienced during construction, although appropriate diversion routes would be provided. The Scheme objectives includes to reduce peak congestion, delivering journey time reliability and improving safety on this motorway section of the Strategic Road Network (SRN). There are already several formal crossing points of the M60 and M66 within the Order Limits (Sandgate Road, Castle Road, Hills Lane, and Simister Lane) as well as Old Hall Lane Footbridge just south of the Order Limits. Therefore, further WCH crossing infrastructure is not required.
3	Makes roads understandable	In terms of reducing clutter, the Scheme design, including signage and overhead gantries, meets the requirements to keep clutter to a minimum and comply with the relevant standards. Nine existing gantries would be retained. Seven gantries would need to be demolished due to clashes with the highways design and four gantries would receive new direction signs and electronic message signs. The leg of two existing portal gantries located in the central reserve would receive additional protection in case of a major vehicular impact.

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
		Nine new overhead gantries would be provided in total. The locations of new major structures and gantries are shown on Figure 2.2: Scheme Design of the ES Figures (TR010064/APP/6.2). Three gantries would be provided on the M60 eastbound, two on the M60 westbound and four on the M66. Two gantries (one for each direction on the M60) would span the entire motorway whereas the others would be specific to each side of the carriageway. The gantries will provide fixed signage to direct motorists as well as presenting dynamic information control such as instructing motorists of a reduced speed limit, the closure of a lane or other service updates such as warning of closures elsewhere on the SRN network. The presentation of this information is designed to ensure that customers navigate this busy section of the SRN network as safely and as quickly as possible, as well as helping manage driver stress by presenting up to date information on any impediments to people's journeys. As set out in Chapter 2, The Scheme of the ES (TR010064/APP/6.2), the Scheme will also upgrade existing intelligent transportation systems or install new systems where required. This includes variable mandatory speed limit (VMSL) mounted on cantilever and long span cantilever gantries, Advanced Motorway Indicator (AMI) above lane signals, Highways Agency Digital Enforcement and Compliance System (HADECS) and External Aspect Verification (EAV), Closed Circuit Television (CCTV), and Motorway Incident Detection and Automatic Signalling (MIDAS). The gantries will therefore provide both fixed signage to direct motorists as well as incorporating advanced technology to present dynamic information. This enables the SRN to be controlled and for rapid and dynamic response and assists the emergency services respond to any incidents quickly.
4	Fits in context	The Scheme landscaping has taken the Bury Unitary Development Plan land use designations into account including the Special Landscape Area and the Green Belt. For example, carefully designed groups of trees and shrubs to help integrate into the surrounding vegetation pattern. The embankments gradients for the Northern Loop have been reduced to help the road integrate into the landscape setting. The Pike Fold Viaduct and Pike Fold Bridge are prominent new structures and have been subject to a design process aimed at providing structures that acknowledge the impacts on the wider landscape. A combination of concrete and weathering steel is provided for the bridge spans. Over time, as a natural orange patina forms on the weathering steel, the bridges will become recognisable gateway features along the M66 northbound and southbound. The combination of weathering steel and planting along the structure embankments will also be visually attractive and will help to physically integrate the structures into the landscape and will provide a strong design statement.

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
		The existing raised earth mound in the north-east quadrant has been used in the configuration of the Pike Fold Viaduct and Pike Fold Bridge embankments and Northern Loop to limit landscape change the Special Landscape Area. Figure 7.7, Photomontages of the ES Figures (TR010064/APP/6.2) have been produced to visualise the Scheme. Viewpoints have been agreed through consultation with BMBC to reflect a broad range of views from four locations around the study area. The figures show the existing views and how these will change with the Scheme in place to allow direct comparison. The landscape planting shown in the photomontages is included on Figure 2.3, The Environmental Masterplan of the ES Figures (TR010064/APP/6.2). The photomontages reflect two scenarios in different seasons: • The worst case scenario (sheet 1) shown in winter in the first year of opening of the Scheme 2029 (Year 1) where the mitigation has only just been completed. More of the earthworks, structures, signage, as well as traffic will be visible in these views, therefore, reflecting views when the Scheme will be most visible. • The design year (sheet 2) is shown in summer, 15 years after completion, 2044 (Year 15). This reflects the mitigation establishment. Native woodland, trees and shrubs, new hedgerows with hedgerow tree planting will be sufficiently established to help integrate the Scheme into the surrounding landscape and also provide screening for much of the Scheme. Particular attention has been given to avoid, reduce or remediate (offset) potential effects on the Special Landscape Area. Mitigation and enhancement measures for this have been developed as presented on Figure 2.3, Environmental Masterplan of the ES Figures (TR010064/APP/6.2). The Northern Loop is designed with 1 in 4 earthwork slopes to blend more efficiently with existing landscape, reducing visual impact. The Scheme removes circa 30,000 vehicles a day away from Simister village via the Northern Loop, reducing noise and air quality impact on this large local receptor.
5	Is restrained	Part of the Order Limits is within the Green Belt. National planning policy protects the Green Belt against inappropriate development which would harm the openness and functions of the Green Belt. As set out in the Case for the Scheme (TR010060/APP/7.1), the permanence and prominence of the Scheme structures would cause harm to the purposes of the Green Belt. As such, Very Special Circumstances that outweigh any harm are demonstrated. The provision of additional hard shoulder on the M60 between junction 17 and junction 18 can be delivered and constructed

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
		through the use of retaining walls. This minimises the footprint of the Scheme and reduces the land take required, especially during this constrained section where the Scheme abuts gardens of private dwellings. This increases Scheme cost, given that the alternative would be conventional 1 in 3 earthworks, but reduces the land take required.
6	Is environmentally sustainable	Chapter 10, Material Assets and Waste of the ES (TR010060/APP/6.1) sets out how waste will be managed during construction and operation including how the Scheme will deliver sustainable waste management that adheres to the waste hierarchy and supports the transition to a circular economy. Section 10.9 of this chapter sets out how the Scheme will adhere to the waste hierarchy; reduce the volume of waste produced and increase the reuse and recycling of waste that cannot be avoided. A Sustainable Sourcing Plan (SSP) would be prepared for the Scheme (as set out in the Register for Environmental Actions and Commitments within the First Iteration Environmental Management Plan (EMP) (TR010064/APP/6.5)). This sets out a clear framework to increase the procurement and use of sustainably and responsibly sourced construction materials and products. This includes secondary materials. Consideration of low carbon materials is also covered in Chapter 14, Climate of the ES (TR010064/APP/6.1). A mitigation measure has been included that requires consideration of how materials can be designed to be more easily adapted over the asset's lifetime and how de-constructability of elements can be increased at end of first life. An Outline Site Waste Management Plan has been prepared and can be found at Appendix C of the First Iteration EMP (TR010064/APP/6.5). The Outline Site Waste Management Plan will be developed into the Site Waste Management Plan as part of the Second Iteration EMP and secured by Requirement 4 of the draft DCO (TR010064/APP/3.1). The Outline Site Waste Management Plan sets out how the Applicant will prepare, plan, implement, monitor and review waste reduction and management during design and construction of the Scheme. The Applicant has sought to maximise biodiversity delivery, with a forecast of an overall net gain of 3.68% for habitats and 58.50% for hedgerows on-site postconstruction. This includes habitat retention, creation and enhancement. Enhancement measures include enhancements to woodland and grassland habitats. Further details can be found in Appendix 8.12 Biodiversity Net Gain Report of the ES Appendices (TR010064/APP/6.3). Environmental design measures include: • Tree and shrub species would provide similar or improved habitat type to that removed. Species shall be native, or non-native in certain focus locations, and of a

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
		similar or improved species mix, overseen by competent expert ecologists and arboriculturists. • The landscape design as shown on Figure 2.3 Environmental Masterplan of the ES Figures (TR010064/APP/6.2) has sought to go beyond just habitat creation required to compensate habitat loss and fragmentation by providing wider enhancement measures in the landscape. This has been achieved through planting of native trees and shrubs that link with existing woodland and wildlife corridors, to help provide greater connectivity in the landscape. For example, a linear belt of trees and shrubs, groups of trees and shrubs and hedgerows will be provided on the north side of the M60/M62 in Whitefield and in the vicinity of Pike Fold Golf Course to connect with existing woodland, ponds and grasslands. • Wherever possible, native hedgerows and tree lines have been incorporated along the highways boundary to create linear features that link areas of vegetation, improve biodiversity, strengthen the landscape pattern and help integrate the motorway infrastructure. Attenuation ponds have been planted with native marginal species, woodland and shrubs complimented by proposed new shallow scrapes for wetland habitat creation. • Reinstatement planting and seeding would use native species as appropriate to the location and would be overseen by Ecologists and Arboriculturists. New road verges would support low-nutrient grassland habitats which are of high ecological value. No topsoil would be applied to these areas which would be sown with a commercial and locally native seed mix appropriate to the geology. The Scheme design includes habitat retention, creation and enhancement to woodland and grassland habitats. Specific areas of enhancement include: • Particular attention has been given to the retention of existing vegetation. • Hedgerows and woodland in the vicinity of the Northern Loop. • Linear tree belts adjacent to Prestwich Heys FC sports ground. • Hedgerows and vegetation along Mode Hill Lane, Egypt Lane and Corday Lane. • Linear tree belts along the verge of the M60 northbound to westbound diverge. • An important hedgerow and highways woodland belt west of Pond 5, near Heaton Park. • A narrow belt of trees and shrubs along the M60 verge adjoining Kenilworth Road.

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
7	Is thorough.	The Scheme is currently at Preliminary Design stage which has followed three assessment stages. This optioneering dates back to 2015. It resulted in four options been considered and then two alternative options taken forward for further assessment. The two alternative options were called the Northern Loop and the Inner Links. An options consultation was held for the Northern Loop and Inner Links from 22 June 2020 to 17 August 2020. The consultation included posting of a consultation brochure and response form to almost 10,000 addresses, provision of on-line information and providing telephone events to replace face-to-face engagement. Following this options consultation, the Northern Loop option was chosen as the preferred option. When selecting the preferred route, the Applicant considered several criteria, including the Scheme objectives, safety, benefits, costs, environmental effects, construction and feedback from the public consultation. While both options would meet the Scheme objectives, the Northern Loop will provide greater capacity improvements and journey time savings for road users when compared to the Inner Links. These benefits, therefore, will be felt for longer into the future, as predicted traffic levels continue to grow. The option selected was also widely supported during the public consultation, with over 67% of respondents preferring the Northern Loop. A Preferred Route Announcement was made for the Northern Loop option on 27 January 2021. Further details can be found in Chapter 3, Assessment of Alternatives of the ES (TR010064/APP/6.1) and Chapter 2, Options Consultation of the Consultation Report (TR010064/APP/5.1). The benefits of the Scheme are outlined in the Case for the Scheme (TR010064/APP/7.1). As set out in the Consultation Report (TR010064/APP/5.1) statutory consultation was undertaken between [add date] to [add date] to seek views on the design of the preferred option. How the Applicant has had regard to those responses can be found in Annex Q of the Consultation Report Annexes (TR010064/APP/5.2) In addition, a targeted non-statutory supplementary consultation was undertaken between [add date] and [date] to advise on design refinements following the statutory consultation.
8	Is innovative	The Scheme design has had to provide solutions to overcome difficult design challenges, particularly as this part of the SRN is within a very dense urban setting which means there is limited land available to deliver the desired improvements. Therefore, innovative design approaches to overcome these challenges have been required to ensure the improvements meet all the Scheme objectives. This includes: • The Scheme has been designed to accommodate a five lane cross section and full hard shoulder (i.e. 70% or more of a link length) which has required optimal design and use of innovative retaining structures and earthwork

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
		arrangements, all without requiring additional permanent land from adjacent landowners. • The Scheme has optimised the drainage provision through use of over-sized pipes in order to reduce land take. • Designing gantries to minimise the land required for their supports. Other elements of the design where more innovation in design has been incorporated include the replacement lighting strategy. This would cover the same extents as the existing lighting and be similar in height but will be of a modern design. It will use light-emitting diode (LED) lighting with G4 luminous intensity class to reduce glare and light spill. To further reduce impact of the lighting strategy, especially during the night-time, central management system (CMS) has been used. This allows, not only to reduce the light spill, but also greatly decreases the carbon footprint and energy usage for the lighting, while reducing maintenance costs and reaction time for any potential failures.
9	Is collaborative	An extensive programme of options, statutory and non-statutory public consultations has been carried out, as set out in the Consultation Report (TR010064/APP/5.1) and Consultation Report Annexes (TR010064/APP/5.2). As the preliminary design developed, pre-application consultation has been undertaken. The Applicant has consulted with stakeholders such as landowners, statutory consultees (such as statutory environmental bodies including Natural England and the Environment Agency), local planning authorities and specialist bodies (such as the Greater Manchester Archaeological Advisory Service) to take into account their considerations and requirements. Statutory consultation on the Scheme, as required by the Planning Act, was undertaken between 15 February and 28 March 2023 (6 weeks). This allowed prescribed consultees, stakeholders and the wider local community to comment on the proposals and a supplementary consultation was undertaken in July to September 2023 to inform affected stakeholders of the updates and changes to the Scheme made since the statutory consultation and allow them to provide feedback. All feedback from the statutory and supplementary consultations has been analysed and incorporated into a Consultation Report, (TR010064/APP/5.1) and Consultation Report Annexes (TR010064/APP/5.2). Several responses to the Statutory Consultation were received suggesting changes to the design including to lighting, the Northern Loop, drainage and other aspects of the highway layout. Table 5-14 of the Consultation Report (TR010064/APP/5.1) lists the key design changes that have been made to the Scheme as a result of statutory consultation and targeted non-statutory supplementary consultation, such as:

Reference	Road to Good Design, Ten Design Principles	How the Scheme Design Meets the Design Principle
		• Reducing the number of ponds as part of the drainage design. • Changes to the Order Limits in response to requests from Landowners. • Amendment to the landscape design at Pole Lane to maintain access for landowners.
10	Is long lasting	The design ensures the long-term structural stability of the operational highway. The structures will have a design life of 60 years and, as such, it is highly unlikely that the Scheme will be demolished before the end of its life as the road is likely to have become an integral part of the infrastructure in the area. Bridge beams to be weathering steel / RC composite bridge deck and bridge structures designed for long life and whole life cost. The highway will be drained by Sustainable Urban Drainage (SUDs) with a service life of 60 years and sufficient capacity to accommodate additional runoff associated with an increase in rainfall intensity due to climate change of 30%. However, there will be no increase in discharge rate from the SuDS as the additional runoff will be managed through the implementation of attenuation solutions, coupled with flow controls within all drainage networks. Overall, the Scheme has been designed to be resilient to climate change and incorporated several mitigation measures. These are set out in Chapter 14, Climate of the ES (TR010064/APP/6.1). The Scheme will also upgrade existing intelligent transportation systems or install new systems where required. This includes VMSL mounted on cantilever and long span cantilever gantries, AMI above lane signals, HADECS and EAV, CCTV and MIDAS. The street lighting will use Light Emitting Diode (LED) technology as a result of the modification of the road layout and to upgrade the current high-pressure sodium lighting in keeping with the improvements to adjacent road networks.

4.3 Design Panel Review

4.3.1 Table 4-2 below outlines the comments received by the design panel and responds to each point. This reflects the Applicant's formal response which was provided to the Design Panel.

Table 4-2 – Response to the Design Panel Review

	Design Panel Observation	Response
1	We are not yet convinced that the Scheme needs a fifth lane and would like the design team to provide further justification	The Applicant's analysis of various traffic data indicates there are significant delays throughout the Scheme on the M60, M62 and M66, with speeds as low as 20mph in both AM and PM periods. This is due to a combination of the high volumes of traffic using this section of the network, the weaving manoeuvres associated with merging and diverging between junctions (including junction 18 and junction 17) and downstream slow-moving traffic extending back from junction 15. Furthermore, the slip roads to the junction 18 roundabout experience low speeds as traffic queues at the signals. Significant delays occur on the merges and diverges at junction 17 and junction 18, particularly for westbound merging traffic at junction 18 in both peak time periods. These issues indicate that network improvements are required to reduce congestion and delays. The Transport Assessment (TR010064/APP/7.4) sets out how we developed our traffic models to reflect the baseline traffic conditions as they were in 2018 and then how the 2018 model was used to forecast future conditions. Using the 2018 baseline data, future forecast scenarios were developed as discussed in the Transport Assessment (TR010064/APP/7.4). The report includes details of model scenarios, modelled future years, local developments and how we predicted the future growth. The future year traffic growth was taken from Department for Transport's National Trip End Model Forecasts and the government's projection of future traffic, the National Road Traffic Projections (2022). As per Department for Transport, Transport Analysis Guidance, modelling work has been undertaken to understand how the Scheme is likely to perform using Department for Transport's traffic forecasts. Three future year traffic models were developed which were also used to undertake the economic and environmental assessments. The traffic models were developed for 2029 (Scheme opening year), 2044 (Scheme design year, 15 years after Scheme opening) and 2061 (the final year for which Department for Transport has published traffic growth forecast). The National Trip End Model forecasts an

	Design Panel Observation	Response
		increase in traffic rather than a reduction (within Greater Manchester around 9% from 2018-2029, 15% from 2018-2044 and 20% from 2018-2061) and this is likely to contribute to increases in delay/congestion in the vicinity of M60 junction 18. If nothing is done, congestion will increase on routes around M60 junction 18 and the major road network, thus the Scheme is required to resolve the identified traffic related problems. The Scheme seeks to provide additional capacity to cater for existing and future traffic growth by increasing the junction 17 to junction 18 to five lanes. The network changes to be delivered through the Scheme will increase network capacity, reduce congestion/delays and improve the flow of traffic within the vicinity of M60 junction 18. Commuters through M60 junction 18 will experience improved travel times as a result of the Scheme. The benefits of the Scheme are set out in the Case for the Scheme (TR010064/APP/7.1) and the Transport Assessment (TR010064/APP/7.4).
2	Exploring opportunities to include express bus lanes	A dedicated bus lane would not be appropriate for the Scheme as only a limited number of buses use this route. Additionally, the SRN cannot accommodate dedicated bus lanes as all vehicles need to be able to access the full width of the highway in order to be able to join and leave the motorway safely. The additional lane would be more beneficial for all road users to increase the overall capacity of the M60 which will reduce journey times and congestion. Dedicating a lane to a buses only would mean the Scheme objectives, as set out in the Case for Scheme (TR010064/APP/7.1), are not met as increased capacity would be minimised having a knock-on effect on journey time reliability and congestion. Additionally, a dedicated bus lane will require enforcement, which would lead to further infrastructure and land requirements. The Red Express X41 Manchester City Centre to Accrington bus service is the only service which uses the M60 between junction 17 to junction 18 and the M66 between junction 4 and junction 1. The service runs approximately every 40 minutes at peak times and every hour off peak. A total of 17 services from Manchester City Centre to Accrington and in the opposite direction, Accrington to Manchester City Centre there are a total of 15 services are undertaken throughout the day.

	Design Panel Observation	Response
3	Further variable speed and messaging technology in the Scheme	As set out in Chapter 2, The Scheme of the ES (TR010064/APP/6.1), the Scheme will also upgrade existing intelligent transportation systems or install new systems where required. This includes VMSL mounted on cantilever and long span cantilever gantries, AMI above lane signals, HADECS and EAV, CCTV and MIDAS. These reflect latest National Highways standards in the Design Manual for Roads and Bridges (DMRB) and will present dynamic information. This enables the SRN to be controlled and for rapid and dynamic response such as reducing the speed limit, the closure of a lane or other service updates such as warning of closures elsewhere on the SRN network. The presentation of this information is designed to ensure that customers navigate this busy section of the SRN network as safely and as quickly as possible as well as to help manage driver stress by presenting up to date information on any impediments to journeys. It also assists the emergency services respond to any incidents quickly.
4	Concerns about the safety of the proposed westbound merge for vehicles. We understand that the safety of the merge has been modelled by the design team but would like to better understand the implications of this and how it can be managed safely. We therefore encourage the design team to provide further evidence to support the safety assessment of the merge	The Scheme shown on the General Arrangement Plans (TR010064/APP/2.2), the Works Plans (the TR010064/APP/2.4) and the Engineering Section Drawings (TR010064/APP/2.8) includes a taper merge, double lane gain and an intermediate merge arrangement merging the nearside lane flow from the M60 NB free flow link with the offside lane and nearside lane from the circulatory. The modified Layout H merges lanes 2, 3 and 4 into mainline, in addition lane 1 and 2 are merged through a Layout A taper merge. This arrangement successfully merges seven lanes to five lanes, with three from the upstream M62. This meets the requirements for the 2044 forecasted traffic flows with an overprovision on number of lanes coming from the circulatory. The net benefit is formed from the increased safety of the option. As stated in the safety assessment, the compliant option (rejected option 1) would have a negative impact on safety when compared with the proposed option. This is due to the short 50m stretch where all three lanes are side by side allowing for lane changes. The 50m stretch would not allow adequate time for a lane change, the speed differential between the two flows of traffic could also be substantially different as traffic from the link will maintain a constant speed while traffic stopped at the circulatory traffic signals could still be accelerating. The Scheme allows traffic from the roundabout to safely join the

	Design Panel Observation	Response
		traffic from the M60 NB to WB link. The benefit to safety outweighs the potential negative cost and environment impacts from the additional lane, some of which is existing. The overprovision of lanes from Simister Island circulatory also facilitates for additional growth in the future without the cost of removing a lane to potentially reconstruct it in the future. The additional lane allows for traffic to still pass, under direction, if one lane became blocked due to a road traffic collision or maintenance. Separating the two flows into separate merges as outlined in rejected option 2, would not be fully compliant as it would create a significant weaving departure due to the proximity of junction 17. The design increases the weaving length when compared with the existing network, creating a safer network.
5	The latest competition winning gantry design in the National Highways / RIBA competition could also be considered.	The access arrangements, span range and sign, signal and technology requirements for new gantries on the Scheme are not the same requirements as the National Highways / RIBA competition-winning gantries which is conceptual only and do not yet form part of DMRB standards. The gantry design for the Scheme is set out in Chapter 2, The Scheme of the ES (TR010064/APP/6.1) and the location of new gantries are shown on Figure 2.2, Scheme Design of the ES Figures (TR010064/APP/6.2). The design options are limited by the constrained highway boundary between junction 17 and junction 18, Three gantries would be provided on the M60 eastbound, two on the M60 westbound and four on the M66. Two gantries (one for each direction on the M60) would span the entire motorway whereas the others would be specific to each side of the carriageway.
6	For the Pike Fold Bridge, we advise the design team to explore the use of slender concrete columns to support the spans, and to focus on functionality in their design response more generally. Detailing at the next stage should be carried into the finer details of the design, such as the parapet. The team might consider including a gap at the bottom of the bridge, for snow to pass through.	Three discrete concrete columns were considered for the piers and were rejected on the grounds that: • The three braced pairs of beams they would support, would require extensive temporary works to ensure stability during construction. • Flared pier tops would be required to provide future jacking points, giving a 'top heavy' appearance that would also be difficult to construct. The Applicant has accepted the proposal for piers comprising a pair of columns with a continuous

	Design Panel Observation	Response
		crosshead above, providing inherent stability during construction, reduced use of concrete and convenient jacking points for future bearing replacement. With regards to snow gaps their need will be considered during the detailed design stage.
7	Opportunity to introduce wetlands as part of the scheme, for instance in the proposed new loop (although we appreciate that existing topography might make this difficult). Wetlands form part of the local geology and reintroducing them to the area would support biodiversity across the scheme. As an additional benefit, it might provide visual amenity to local communities and road users.	The landscape design, as shown on Figure 2.3 Environmental Masterplan of the ES Figures (TR010064/APP/6.2), shows that within the Order Limits new areas of wet woodland, that are typical to the area, will be created. The wet woodland will be located in low points within the Scheme, typically below embankments. This will help retain surface water as well as improving the biodiversity of the area.
8	We strongly encourage the design team to introduce more trees across the Scheme. This will provide visual amenity, and support the biodiversity of the Scheme.	The Scheme design enhances the landscape and biodiversity though incorporating: • Existing linear tree belts necessitating removal for carriageway widening would be reinstated with a higher percentage of feathered trees and some standard trees to improve visual screening in the early years. • Tree and shrub species would provide similar or improved habitat type to that removed. Species shall be native, or non-native in certain focus locations, and of a similar or improved species mix, overseen by competent expert ecologists and arboriculturists. • The landscape design as shown on Figure 2.3 Environmental Masterplan of the ES Figures (TR010064/APP/6.2) has sought to go beyond just habitat creation required to compensate habitat loss and fragmentation by providing wider enhancement measures in the landscape. This has been achieved through planting of native trees and shrubs that link with existing woodland and wildlife corridors, to help provide greater connectivity in the landscape. For example, a linear belt of trees and shrubs, groups of trees and shrubs and hedgerows will be provided on the north side of the M60/M62 in Whitefield and in the vicinity of Pike Fold Golf Course to connect with existing woodland, ponds and grasslands. • Wherever possible, native hedgerows and tree lines have been incorporated along

	Design Panel Observation	Response
		the highways boundary to create linear features that link areas of vegetation, improve biodiversity, strengthen the landscape pattern and help integrate the motorway infrastructure. Attenuation ponds have been planted with native marginal species, woodland and shrubs complimented by proposed new shallow scrapes for wetland habitat creation. • Reinstatement planting and seeding would use native species as appropriate to the location and would be overseen by Ecologists and Arboriculturists. New road verges would support low-nutrient grassland habitats which are of high ecological value. No topsoil would be applied to these areas which would be sown with a commercial and locally native seed mix appropriate to the geology. Specific areas of enhancement include: • Particular attention has been given to the retention of existing vegetation. • Hedgerows and woodland in the vicinity of the Northern Loop. • Linear tree belts adjacent to Prestwich Heys FC sports ground. • Hedgerows and vegetation along Mode Hill Lane, Egypt Lane and Corday Lane. • Linear tree belts along the verge of the M60 northbound to westbound diverge. • An important hedgerow and highways woodland belt west of Pond 5, near Heaton Park. • A narrow belt of trees and shrubs along the M60 verge adjoining Kenilworth Road.
9	A broad variety of species should be planted to support biodiversity – including evergreen vegetation which, in combination with earthworks and barriers and walls, can help pull out particulate matter and support noise attenuation throughout the year.	The detailed landscape design and plant species selection will be developed following best practice to address the effects of climate change. This will include diversifying planting species as much as practicable, including using drought tolerant species, whilst still having regard to the local character, and generally planting only native species, and using species more resilient to pests and diseases. The plant species mix, developed with Arboriculturists and Ecologists, is provided in Appendix N, Outline Landscape and Ecology Management Plan (LEMP), of the First Iteration EMP (TR010064/APP/6.5). Plant species will be reviewed during detailed design and included in the Second Iteration of the EMP.
10	Creating bunds across the scheme can furthermore reduce soil waste;	While Chapter 10: Material Assets and Waste of the ES (TR010064/APP/6.1) has taken account of the emerging Government policy outlined in

	Design Panel Observation	Response
	one of the main sources of carbon emissions for major works	Section 10.3 (Legislative and policy framework), consideration of the Defra (2011) Soils Code of Practice and other measures to ensure the sustainable use of soils has been made in Chapter 9, Geology and Soils of the ES (TR010064/APP/6.1). In order to promote sustainable reuse of soil and other excavated arisings within the Scheme, an Outline Materials Management Plan has been prepared in line with the protocols within the CL:AIRE Definition of Waste (2011) guidance so that excavated materials are reused appropriately and sustainably. The Outline Materials Management Plan, which can be found in Appendix G of the First Iteration EMP (TR010064/APP/6.5), will be developed into the Materials Management Plan as part of the Second Iteration of the EMP secured by Requirement 4 of the draft Development Consent Order (TR010064/APP/3.1). An Outline Soil Management Plan has also been produced and can be found at Appendix F of the First Iteration EMP (TR010064/APP/6.5). Again, this will be developed into a Soils Management Plan as part of the Second Iteration of the EMP for implementation during construction and secured by Requirement 4 of the draft Development Consent Order (TR010064/APP/3.1). The existing raised earth mound in the north-east quadrant has been used in the configuration of the Simister Pike Fold Viaduct and Simister Pike Fold Bridge embankments and Northern Loop to limit landscape change the Special Landscape Area.
11	The Scheme includes six attenuation ponds – up from previously just one, to account for expected increases in rainfall (in line with national policy) – which currently are envisioned as kidney shaped. While we support the inclusion of the attenuation ponds, we advise the design team to consider exploring rectangular shapes for the ponds. Such shapes will support the development of the scheme's visual identify – flagging up, rather than playing down, its more urban nature	The Scheme design has considered a variety of options for the mitigation of potential surface water drainage and flood risk impacts, including nature based solutions. Where practicable, SuDS", flow conveyance and attenuation features (e.g. attenuation ponds, swales, filter drains, etc.) have been used to reduce the impact of surface water runoff being discharged on the natural environment, thereby reducing flood risk and improving water quality. These measures, in particular SuDS, typically include areas of planting and therefore also have the potential to improve biodiversity and absorb small amounts of carbon dioxide (CO_2) from the atmosphere. Further information is included in Chapter 13: Road Drainage and the Water Environment of the ES (TR010064/APP/6.1) and Appendix 13.7: Drainage Strategy Report of the ES Appendices (TR010064/APP/6.3).

	Design Panel Observation	Response
		The attenuation ponds have been shaped for optimum attenuation and flow, and fit within their urban fringe context, whilst providing greater opportunities for habitat creation including wetland habitat The six ponds were subsequently reduced to 5 attenuation and treatment with an online attenuation design being developed for catchment 6. Pond six was removed from the Scheme following consultation with the landowner who was concerned about the loss of agricultural land and disruption to access caused by the pond.
12	We advise the design team to move footpaths further away from the proposed M60 Northern Loop to support the creation of a better, more pleasant walking environment.	Replacement routes would be provided for the existing PROW affected by the Scheme, including any Public Footpaths where they are affected by new drainage ponds, wetlands or swales. A replacement PRoW is being included where the Northern Loop footprint would impact on an existing PRoW and is being realigned around the Northern Loop. There are also two PRoW south of junction 18 which are being extinguished and a replacement route through the biodiversity mitigation area provides a better quality route to the extinguished path. Existing routes and any changes as a result of the Scheme are referenced in the draft Development Consent Order (TR010064/APP/3.1) and shown on the Streets, Rights of Way and Access Plans (TR010064/APP/2.5). They are also indicated on Figure 2.2, the Scheme Design and Figure 2.3, the Environmental Masterplan of the ES Figures (TR010064/APP/6.2).
13	Engage with the community about their experience and aspirations. In doing so, the team should develop a compelling and clearly presented design narrative which clearly identifies the scheme's benefits to the community as well as the landscape and biosphere.	The design has evolved through the following processes: • The Applicant has identified environmental constraints and opportunities at all stages of the design development, and this has, for example, included collaborative working between the Applicant's appointed design team and environmental specialists to minimise the impact of attenuation ponds through consideration of pond size, layout and location. The development of a mitigation and enhancement strategy that avoids unnecessary clearance of screening vegetation during the construction of the Scheme and specification of interplanting to reinforce existing and retained screening. • The Scheme design has also taken into account the outcomes of the options consultation in June 2020 to August 2020.

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		Further details can be found in the Consultation Report (TR010064/APP/5.1). • The Applicant has consulted, as part of the statutory consultation held between March and April 2023, with affected land interests, prescribed consultees (such as Natural England), Local Planning Authorities, for example, Bury Metropolitan Borough Council, and specialist bodies (such as the Greater Manchester Archaeological Advisory Service) having regard to their responses as set out at Annex Q of the Consultation Report Annexes (TR010064/APP/5.2). • The Consultation Report (TR010064/APP/5.1) and Consultation Report Annexes sets out the response from the local community and provides a specific response to each comment made.
14	We recognise that the scheme is legally exempt from requirements to attain 10% BNG. However, as a panel we consider this an inadequate approach and urge the design team to reconsider their position and clearly evidence the scheme's BNG.	The Environment Act 2021 was given Royal Assent on 9 November 2021. This Act contains provisions for the protection and improvement of the environment, including biodiversity. The biodiversity net gain (BNG) objective is that the biodiversity value attributable to a scheme must exceed the pre-development value by at least 10%. This post-scheme biodiversity value may comprise onsite habitat, any offsite biodiversity gain and any biodiversity credits. The overall effect has to be a net gain offset against any harm to biodiversity. Following a transition period, the Environment Act 2021 will mandate Nationally Significant Infrastructure Projects (NSIPs)s in England consented through the 2008 Act to deliver an anticipated 10% BNG. This will be measured using a version of Natural England's Biodiversity Metric adopted as the statutory Metric once mandatory BNG comes into force for schemes delivered under the Town and Country Planning Act 1990 on the 12 February 2024. The Environment Act 2021 is underpinned by secondary legislation which was issued on the 29 November 2023, The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) (England) Regulations 2024, The Biodiversity Gain Requirements (Exemptions) Regulations 2024, The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024 and The Biodiversity Gain Site Register Regulations (2024). However, BNG will not be mandatory for NSIPs until November 2025 by which time a 'biodiversity gain statement' or statements will have been brought forward and agreed in Parliament setting out the Biodiversity Gain Objective (the percentage BNG target,

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		required to be delivered by NSIPs). This is expected to be a minimum of 10%. Therefore, whilst there is no current legal requirement for the Scheme to provide BNG, the Scheme has been proactive in applying the Biodiversity Metric to assess measurable changes in biodiversity. The Scheme aims to provide a net gain in biodiversity. Therefore, although not yet required to do so by legislation, the Scheme will deliver BNG. Chapter 8, Biodiversity of the ES (TR010064/APP/6.1) provides measures which would provide enhancements both of habitats, and for protected and notable species. Implementation of Figure 2.3: Environmental Masterplan of the ES Figures (TR010064/APP/6.2) would provide a net gain in the biodiversity value of the site, with a 3.68% gain in habitats and a 58.50% gain in hedgerows as measured by Metric 3.1 (see Appendix 8.12 Biodiversity Net Gain Report of the ES Appendices (TR010064/APP/6.3)). See draft NPS NN paragraph 4.21 below for an explanation of why Metric 3.1 has been used to calculate BNG.
15	More could also be done to introduce innovative, sustainable materials across the scheme in the next stage such as Earth Friendly Concrete – for instance used in the HS2 Euston concrete pour – and steel with a lower carbon footprint.	The 'Net Zero Highways' (National Highways, 2021) sets out the Applicants programme for achieving net zero GHG emissions for the Strategic Road Network by 2050. Appendix O, the Outline Carbon Management Plan which is part of the First Iteration EMP (TR010064/APP/6.5) includes mitigation measures to reduce carbon in line with net zero targets for both construction and maintenance operations, such as: • Preparation and implementation of a Logistics Management Plan (or similar) to manage the transport to/from and onsite of employees and materials required for the construction of the Scheme. The Logistics Management Plan (or similar) would set out measures where practicable, to reduce distances travelled, optimise journeys and use low emission modes of transport (such as public transport) or vehicles (e.g. electric vehicles) to reduce GHG emissions associated with transport. • Seeking to source materials from local suppliers, where practical and cost-effective to do so, in order to reduce the travel distance of materials and associated GHG emissions. • Measures to reduce the magnitude of GHG emissions associated with the use of

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		materials and waste. Appendix G, Outline Materials Management Plan is provided in the First Iteration EMP (TR010064/APP/6.5). To support this, the Principal Contractor for the Scheme will adopt the following processes during construction: • Not using CEM1 cement or standardised concrete mixes (ST1-5) unless technical reasons justify their use (concrete products represent 17% of annual Scope 3 carbon emissions). • Using warm mix asphalt in place of hot mix asphalt unless technical reasons justify its use (asphalt products represent 30% of annual Scope 3 carbon emissions). • Ensuring all concrete, steel and aggregate suppliers provide carbon data for their products for comparison during procurement. The Principal Contractor mandates the use of Hydrotreated Vegetable Oil (HVO) in place of diesel for construction plant wherever feasible, reducing related carbon emissions by up to 90%.
16	Haweswater underpass - National Highways to introduce better lighting and surfacing as a matter of urgency. Employing an architect to do a feasibility study for the underpass can support applications for designated funds for any future works on the site. The future aesthetic treatment of this underpass could be a positive transformation for pedestrian safety and enjoyment for relatively little money.	Opportunities to improve the Haweswater Underpass are being investigated by the Applicant. However, as the Scheme does not directly impact the underpass any enhancements do not form part of the application for development consent or the Scheme scope.

Acronyms

Abbreviation	Term
DCO	Development Consent Order
NSIP	Nationally Significant Infrastructure Project
NPSNN	National Policy Statement for National Networks
NPS	National Policy Statement
NPPF	National Planning Policy Framework
2008 Act	Planning Act 2008
PfE	Places for Everyone
UPD	Unitary Development Plan

Glossary

Term	Definition
Application Document	A document submitted to the Planning Inspectorate as part of the application for development consent.
Bridleway	A route along which the general public has rights to travel on foot or horseback. Cyclists may use a bridleway but are obliged to give way to other users on foot or horseback.
Construction	Activity on and/or offsite required to implement the Proposed Scheme. The construction phase is considered to commence with the first activity on site (e.g. creation of site access), and ends with demobilisation.
Department for Transport	The government department responsible (alongside agencies and partners) for the English transport network and a limited number of transport matters in Scotland, Wales and Northern Ireland that have not been devolved.
Development	Any proposal that results in a change to the land use, landscape and/or visual environment.
Development Consent Order	Introduced by the Planning Act in 2008, a DCO is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects (NSIP).
Development Consent Order Application	The Scheme Application Documents, collectively known as the 'DCO application'.
Equality Act 2010	The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society. Protected characteristics under the Equality Act 2010 are age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage and civil partnership, and pregnancy and maternity.
Examination	Statutory process in where the Secretary of State will appoint an Inspector to carry out an independent examination
Examining Authority	The Examining Authority is appointed by the Secretary of State to examine an application for a Development Consent Order and make a recommendation.
Land use	The purpose that land is used for, based on broad categories of functional land cover, such as urban and industrial use and the different types of agriculture and forestry.
Land take	The temporary acquisition or permanent loss of land as a result of the construction and/or operation of the Proposed Scheme.
Local planning authority	The local authority or Council that is empowered by law to exercise planning functions for a particular area.

Term	Definition
National Planning Policy Framework	The National Planning Policy Framework was published in March 2012 by the UK's Department of Communities and Local Government, consolidating previously issued Planning Policy Statements (PPS) and Planning Policy Guidance Notes (PPG) for use in England. The NPPF was last updated in December 2023, by the Department for Levelling Up, Housing and Communities.
National Policy Statement for National Networks	The NPS NN sets out the need for, and Government's policies to deliver, development of Nationally Significant Infrastructure Proposed Schemes on the national road and rail networks in England. It provides planning guidance for promoters of Nationally Significant Infrastructure Proposed Schemes on the road and rail networks, and the basis for the examination by the Examining Authority and decisions by the Secretary of State.
Noise Important Areas	Areas identified with respect to noise from major roads and from roads within agglomerations where the 1% of the population that are affected by the highest noise levels from major roads are located according to the results of the strategic noise mapping.
Order Limits	. The Order limits" means the limits of land to be acquired or used permanently or temporarily shown on the land plans and works plans within which the authorised development may be carried out.
Planning Act 2008	The primary legislation that establishes the legal framework for applying for, examining and determining Development Consent Order applications for Nationally Significant Infrastructure Proposed Schemes.
Preferred Route Announcement	Preferred Route Announcement by government of the preferred route for a new road or crossing.
Preliminary Scheme Design	Continued development of preferred route design to enable the completion of the environmental assessment for the ES and preparation of the draft DCO.
Secretary of State	The Secretary of State has overall responsibility for the policies of the Department for Transport.
Severance	Severance is used to refer to a change in ease of access for walkers, cyclists and horse riders due to, for example, a change in travel distance or travel time or a change in traffic levels on a route that makes it harder for walkers, cyclists and horse riders to cross. A reference to severance does not necessarily imply a route is closed to access.

References

Department for Transport (2014). National Policy Statement for National Networks.

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