

**A66 Northern Trans-Pennine Project
TR010062**

2.9 Mitigation Schedule (Rev 4) (Clean)

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2.9 MITIGATION SCHEDULE

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APPENDICES

None

FIGURES

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1 Environmental mitigation schedule

1.1 Introduction

- 1.1.1 This Environmental Mitigation Schedule (EMS) has been prepared to demonstrate that all necessary controls and mitigation for the A66 Northern Trans-Pennine Project (hereafter referred to as ‘the Project’) has been identified and secured.
- 1.1.2 This document provides an audit trail of the controls and mitigation measures on which the Environmental Statement (ES) and ES Addendum, including related assessment documents, rely upon to avoid, reduce and/or offset potential significant environmental effects resulting from the Project, and sets out the way in which the mitigation measures will be secured.
- 1.1.3 This EMS should be read in conjunction with the following documents:
- The Environmental Statement (Development Consent Order (DCO) Application Numbers 3.2, 3.3. and 3.4)
 - Environmental Statement Addendum Volume I (CR1-016) and Volume II (CR1-017)
 - Works Plans (DCO Application Number 5.16)
 - The Environmental Management Plan (EMP) (DCO Application Number 2.7 Rev 4), including Table 3-2 Register of Environmental Actions and Commitments (REAC) and EMP Annexes B and C.
 - The Project Design Principles (PDP) (Application Number 5.11 Rev 4)

1.2 Guide to mitigation schedules

- 1.2.1 The mitigation schedules do not define general legislative requirements. It is assumed that in addition to compliance with the measures in these tables, all activities will comply with applicable legislation.
- 1.2.2 Table 1: Mitigation schedule scope provides a guide to the scope of each column of the mitigation schedules.
- 1.2.3 Table 2: Construction mitigation schedule and Table 3: Environmental Statement Addendum construction mitigation schedule provide all the mitigation required during construction and Table 4: Operation mitigation schedule provides all the mitigation required during operation of the Project

Table 1: Mitigation schedule scope

Column	Description
Source Reference	Identifies the source of each action or obligation e.g. ES chapter XX, Section X.XX
Mitigation/commitment Summary	Defines the mitigation required
Securing Mechanism	Identifies how the action is secured within the DCO with a unique reference

Table 2: Construction mitigation schedule

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Air Quality		
Chapter 5: Air Quality (Application Document 3.2) Section 5.8.4	Application of industry best practice measures to minimise the risk of adverse impacts to air quality during construction. Development and implementation of an Air Quality and Dust Management Plan (AQDMP).	EMP REAC Ref D-AQ-01, MW-AQ-01 EMP Annex B4 AQDMP
Chapter 5: Air Quality (Application Document 3.2) Section 5.8.7	Best practice construction dust control measures and site monitoring to prevent impacts arising from dust.	EMP REAC Ref D-AQ-01, MW-AQ-02, MW-AQ-03, MW-AQ-04 EMP Annex B4 AQDMP
Chapter 5: Air Quality (Application Document 3.2) Section 5.10.13	Haul roads to be located away from sensitive sites/habitats and surfaced or speeds limited to mitigate impacts of vehicle movements on stakeholders and the environment.	EMP REAC Ref D-AQ-01, D-BD-03 EMP Annex B4 AQDMP
Chapter 5: Air Quality (Application Document 3.2) Section 5.10.14	Preparation and implementation of a Construction Traffic Management Plan (CTMP) to include mitigation to prevent the deterioration of air quality associated with the movement of construction-related vehicles along transport routes	EMP REAC Ref D-GEN-10 EMP Annex BX CTMP
Chapter 5: Air Quality (Application Document 3.2) Section 5.11.1	Visual inspections to be carried out to check where dust soiling is occurring and where appropriate mitigation measures need to be implemented.	EMP REAC Ref D-AQ-01, MW-AQ-04 EMP Annex B4 AQDMP
Biodiversity		
Chapter 2: The Project (Application Document 3.2) Section 2.6.30	Sleastonhow Lane realignment has been designed to avoid the Sleastonhow Oak, a veteran tree in the vicinity. This has been secured in the PDP	PDP Ref LC03
Chapter 2: The Project (Application Document 3.2) Section 2.6.32	Trout Beck and its floodplain will be crossed by an open span viaduct with piers that are situated in such a way as to minimise impact on the natural functioning of the floodplain and the SAC/SSSI.	PDP Ref 0405.04 EMP REAC Ref D-BD-04

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 2: The Project (Application Document 3.2) Section 2.6.52	The A66 will cross Moor Beck and Cringle Beck on open span viaducts to minimise impacts to the watercourses that are functionally linked to the River Eden SAC.	PDP Ref 0405.04 EMP REAC Ref D-BD-04
Chapter 2: The Project (Application Document 3.2) Table 2-5	Two areas of fen habitat have the potential to be impacted within the Appleby to Brough scheme. Cuttings shall be lined and drainage designed to retain flows to the fen habitats. Detailed design, including further hydrogeological assessment, shall seek to avoid loss of fen habitat. Limits of Deviation have been defined to allow for this.	Works Plans 06-2A and 06-2B PDP Ref 06.15 EMP REAC Ref D-BD-06, D-RDWE-06
Chapter 2: The Project (Application Document 3.2) Table 2-6	Accommodation bridges and mainline A66 at specific identified locations on Bowes Bypass and Cross Lanes to Rokeby schemes will be designed to be wide enough to allow for the implementation of bat mitigation.	PDP Ref BE03
Chapter 2: The Project (Application Document 3.2) Section 2.6.99	No excavation (or works that could disturb the roots of adjacent trees) can occur within a 15m offset strip adjacent to Jack Wood Ancient Woodland.	PDP Ref 08.09
Chapter 6: Biodiversity (Application Document 3.2) Section 6.8.7 - 6.8.8	A permanent Ecological Clerk of Works role will be in place during the construction phase of the Project. The Ecological Clerk of Works role will include monitoring of all mitigation measures throughout construction to ensure all measures are being maintained or enacted to a suitable standard.	EMP REAC Ref D-BD-02, MW-BD-01 EMP Section 2 Roles and Responsibilities
Chapter 6: Biodiversity (Application Document 3.2) Section 6.8.9	To mitigate impacts on GCN, offsite mitigation shall be achieved through a district level licence provided by Natural England. This fully discharges the requirement for GCN specific mitigation.	District Level Licence Certificate
Chapter 6: Biodiversity (Application Document 3.2) Section 6.8.10 - 6.8.13	A Reptile Mitigation Strategy will be prepared prior to site preparation and construction works commencing. This will be informed by pre-construction surveys and will set out exclusion and translocation required and will ensure an increase in the area of better quality habitat than that lost to development.	EMP REAC Ref MW-BD-14

Source Reference	Mitigation/commitment Summary	Securing Mechanism
<p>Chapter 6: Biodiversity Section 6.8.14 - 6.8.21; Section 6.10.155 and Chapter 14: RDWE Section 14.9.4 - 14.9.5 (Application Document 3.2) HRA Stage 2 Section 6.5.153 (Application Document 3.6)</p>	<p>A Groundwater and Surface Water Management Plan (GSWMP) will be developed and implemented, in accordance with Annex B7 of the EMP. This will include measures to be implemented during construction (where the permanent drainage system is not yet in place) such as silt fencing, cut off ditches, settlement ponds and bunds, to protect watercourses, aquatic habitats and aquatic life.</p>	<p>EMP REAC Ref D-RDWE-01 EMP Annex B7 GSWMP</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.8.25</p>	<p>A Site Establishment Plan (SEP) will be developed in detail in accordance with the essay plan included in Annex B14 of the EMP. The Site Establishment Plan will detail proposed reinstated measures for temporary land take post-construction taking account of disturbance and compaction or will be utilised for environmental (ecological or landscape) mitigation planting.</p>	<p>EMP REAC Ref D-GEN-08 EMP Annex B14 SEP</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.9.3 - 6.9.16</p>	<p>Habitats lost to the Project will be replaced on a like-for-like or better basis e.g. replacement of tree roosting opportunities lost.</p>	<p>EMP REAC Ref D-BD-05</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.9.5</p>	<p>Works associated with bat roosts will require a European Protected Species licence, applied for by the contractor, subject to approval by Natural England.</p>	<p>EMP REAC Ref MW-BD-01, MW-BD-06</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.9.17 - 6.9.24</p>	<p>Measures to reduce habitat fragmentation are included e.g. developing green bridges to maintain habitat connectivity, compensational replanting.</p>	<p>EMP REAC Ref D-BD-04 PDP Ref BE03, HP01, HP02, HP03, HP04, GB01, GB03, 03.03, 0405.03</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.10.9</p>	<p>An Invasive Non-Native Species Management Plan (INNSMP) will be developed in detail and implemented during the works.</p>	<p>EMP REAC Ref D-BD-07 EMP Annex B15 INNSMP</p>

Source Reference	Mitigation/commitment Summary	Securing Mechanism
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.10.5 - 6.10.74</p>	<p>Embedded mitigation measures will be implemented at designated sites to address habitat loss, habitat or species fragmentation, habitat damage/ degradation, disturbance, potential spread of invasive species and potential changes in air quality.</p>	<p>Works Plans 0102-1C, 03-1B, 0405-1A, 0405-2A, 0405-13, 0405-14, 0405-16, 0405-19D, 07-1A, 08-8A, 08-9, 08-8C, 08-1C EMP REAC Ref D-BD-02, D-BD-05, MW-BD-20, D-AQ-01</p>
<p>Chapter 6: Biodiversity Section 6.10.124 Chapter 10: LVIA Section 10.11.3 (Application Document 3.2)</p>	<p>Appropriate replacement scrub habitat to be implemented via the environmental mitigation design. Long-term management and monitoring of established habitats is established and secured through the Landscape and Ecological Management Plan (LEMP).</p>	<p>EMP REAC Ref D-BD-01, D-BD-05 EMP Annex B1 LEMP</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.10.193</p>	<p>Construction works carried out in proximity to the River Eamont will be monitored by the ECoW for toad activity, especially during warm spring evenings. Mitigations such as cessation of works and deployment of temporary amphibian fencing and toad tunnels will be used to facilitate movement of toads across the site.</p>	<p>EMP REAC Ref M-BD-01</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.10.193</p>	<p>There will be a mechanism in place, devised by the contractor, for the reporting of any incidental wildlife sightings rapidly to the ECoW to co-ordinate the necessary mitigation.</p>	<p>EMP REAC Ref M-BD-01</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.11.3 - 6.11.5</p>	<p>A monitoring visit will be carried out prior to the commencement of construction works at each location to ensure appropriate protective fencing and other required mitigation measures are in place for habitats.</p>	<p>EMP REAC Ref MW-BD-16</p>
<p>Chapter 6: Biodiversity (Application Document 3.2) Section 6.11.13</p>	<p>During construction, and in accordance with the requirements of a Natural England mitigation licence, monitoring of abandonment of closed setts and of badger activity around artificial setts will be carried out.</p>	<p>EMP REAC Ref M-BD-01</p>

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 6: Biodiversity (Application Document 3.2) Section 6.11.17	Where monitoring highlights an issue with abandonment of a roost potentially due to disturbance, the mitigation in place shall be reviewed with the ECoW and strengthened where practicable to prevent further disturbance (e.g. through greater protection zones or controls on working hours).	EMP REAC Ref M-BD-01, MW-BD-19
Chapter 6: Biodiversity (Application Document 3.2) Section 6.11.19	Incidental sightings of amphibians, red squirrels, other terrestrial mammals (brown hare, hedgehog and polecat) and terrestrial invertebrates to be recorded.	EMP REAC Ref M-BD-04
Chapter 6: Biodiversity (Application Document 3.2) Section 6.11.23	Landscape mitigation implemented with the aim of reducing barn owl mortality through traffic collisions should be in place as early as possible in the construction process.	PDP Ref HP01 EMP REAC Ref D-BD-05
Chapter 6: Biodiversity (Application Document 3.2) Section 6.11.25	A monitoring programme will be developed to record evidence of regular use of the two newly created artificial holt and abandonment of the existing natal holt, located within the Appleby to Brough scheme.	EMP REAC Ref M-BD-01
Climate		
Chapter 7: Climate (Application Document 3.2) Section 7.9.7 - 7.9.9	Greenhouse gas (GHG) emissions to be minimised through design	EMP REAC Ref D-CL-01 PDP Ref CI01
Chapter 7: Climate (Application Document 3.2) Section 7.9.9	The PC will develop a carbon strategy which will systematically seek to identify and implement opportunities to reduce carbon from existing proposals or compared to business-as-usual approaches.	EMP REAC Ref MW-CL-01
Chapter 7: Climate (Application Document 3.2) Section 7.9.10	The carbon emission reduction hierarchy will continue to be followed throughout the construction phase.	EMP REAC Ref MW-CL-01
Chapter 7: Climate (Application Document 3.2) Section 7.9.11 - 7.9.17; 7.10.31 - 7.10.33; 7.10.38 - 7.10.43	Climate resilience and adaptation measures are specified for design, maintenance and monitoring.	EMP REAC Ref D-CL-03, D-CL-02, M-CL-01, M-CL-02, M-CL-03, M-CL-04, M-CL-05, M-CL-06

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 7: Climate (Application Document 3.2) Section 7.9.20	Mitigation measures for impacts identified in the ES that are susceptible to climate change should be monitored and adapted throughout operation to reflect changes as a result of climate change e.g. changes to timing of breeding season could affect timing of maintenance during operation.	EMP REAC Ref D-BD-01 PDP Ref HP03, GB01, GB03, AF01
Chapter 7: Climate (Application Document 3.2) Section 7.10.35	Proposed future mitigation to mitigate the impact of significant climate change related risks to the Project have been identified. This includes incorporating additional drainage mechanisms into the design to reduce risk of flooding.	EMP REAC Ref D-RDWE-02
Chapter 7: Climate (Application Document 3.2) Section 7.11.3	The EMP ensures CCR resilience and GHG minimisation mitigation is monitored to ensure its effective application throughout construction.	EMP REAC Ref MW-CL-02, M-CL-01, M-CL-02, M-CL-03, M-CL-05, M-CL-06
Cultural Heritage		
Chapter 2: The Project (Application Document 3.2) Section 2.6.21	Landscape design and planting have taken Countess Pillar scheduled monument into account as a prominent feature of the A66, ensuring it remains visible from the road. This is set out in the Project Designs Principles.	PDP Ref 03.02
Chapter 2: The Project (Application Document 3.2) Table 2-3	Limits of Deviation have been amended from the standard of 1m vertical to 0m in the downwards vertical in certain areas of the Temple Sowerby to Appleby scheme in the vicinity of Roman Camp East of Redlands Bank to avoid additional impact to any archaeology present.	Works Plans 0405-18 Limits of Deviation
Chapter 2: The Project (Application Document 3.2) Table 2-4	Limits of Deviation have been amended from the standard of 1m vertical to 0m in the downwards vertical in certain areas of the Appleby to Brough scheme in the vicinity of Warcop Roman Camp to avoid additional impact to any archaeology present.	Works Plans 06-1B Limits of Deviation

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 2: The Project (Application Document 3.2) Table 2-8	Limits of Deviation have been amended from the standard vertical to 4m in the downwards vertical in certain areas of the Stephen Bank to Carkin Moor scheme to allow the design to retain the appropriate height of the scheduled monument relative to the road.	Works Plans 09-1D and 09-2D Limits of Deviation
Chapter 8: Cultural Heritage (Application Document 3.2) Section 8.8.1 - 8.8.23	Essential mitigation of construction impacts would take the form of measures to reduce direct impacts (physical damage), and indirect impacts (changes to setting that affect the significance of the resources). Route wide and scheme-specific essential mitigation measures are detailed.	EMP REAC Ref D-CH-01, D-CH-02, MW-CH-02, MW-CH-03, MW-CH-04
Chapter 8: Cultural Heritage (Application Document 3.2) Section 8.8.23 and 8.8.24	Mitigation of direct impacts on archaeological remains is set out in the Historic Environment Mitigation Strategy.	EMP REAC Ref D-CH-01 EMP Annex B3 Detailed Heritage Mitigation Strategy
Chapter 8: Cultural Heritage (Application Document 3.2) Table 8-10	Temporary construction impacts will be mitigated by dust, noise and vibration control measures laid out in the EMP, the AQDMP and NVMP.	EMP Annex B4 AQDMP EMP Annex B5 NVMP
Chapter 8: Cultural Heritage (Application Document 3.2) Section 8.10.1-8.10.2	The effectiveness of protection measures during construction at the following Cultural Heritage resources which lie within the Order Limits will be monitored: <ul style="list-style-type: none"> • The Countess Pillar (03-0006) and associated Alms Table (03-0007) • Grade II listed Milestone East of Whinfell Park (03-0013) • Carkin Moor Roman fort (09-0001). 	EMP REAC Ref MW-CH-02, MW-CH-03 Order Limits
Geology and Soils		
Chapter 9: Geology and Soils (Application Document 3.2) Section 9.5.8, 9.9.16, 9.10.11 - 9.10.14	Contractors shall work in accordance with Construction Industry Research and Information Association (CIRIA) C741 4th Edition <i>Environmental Good Practice on Site</i> (Construction Industry Research and Information Association, 2015). The EMP and CIRIA guidance documents provide details for the personal protective equipment that shall be worn during construction works.	EMP REAC Ref MW-GS-02

Source Reference	Mitigation/commitment Summary	Securing Mechanism
<p>Chapter 9: Geology and Soils (Application Document 3.2) Section 9.9.4</p>	<p>Further ground investigation (Phase 2 GI) shall be undertaken prior to construction in order to inform the detailed design and is secured through the EMP (Application Document 2.7 Rev 4).</p>	<p>EMP REAC Ref D-GS-04</p>
<p>Chapter 9: Geology and Soils (Application Document 3.2) Section 9.9.5</p>	<p>Measures contained within the EMP are designed to limit the possibility for dispersal and accidental releases of potential contaminants, including fuel and spillages, soil derived dust and uncontrolled run-off to occur during construction. For example, the EMP sets out how the material is to be excavated, segregated and stockpiled to minimise the possibility of run-off, soil quality degradation and wind dispersal of dust.</p>	<p>EMP REAC Ref D-GS-04, MW-GS-01 EMP Annex B8 Materials Management Plan EMP Annex B9 Soil Management Strategy</p>
<p>Chapter 9: Geology and Soils (Application Document 3.2) Section 9.9.6</p>	<p>Measures contained with the EMP include any remediation works applied to the existing ground or groundwater, and/or the removal of contaminated sources associated with the construction of the Project.</p>	<p>EMP REAC Ref D-GS-04, MW-GS-01, D-RDWE-01 EMP Annex B7 Ground and Surface Water Management</p>
<p>Chapter 9: Geology and Soils (Application Document 3.2) Section 9.9.7</p>	<p>The EMP establishes procedures such as a contamination watching brief for dealing with unexpected soil or groundwater contamination that may be encountered.</p>	<p>EMP REAC Ref MW-GS-01</p>
<p>Chapter 9: Geology and Soils Section 9.9.9 –9.9.15, 9.9.19 Chapter 10: Materials and Waste 11.8.7, 11.8.45 and 11.8.60 - 11.8.64 (Application Document 3.2)</p>	<p>The re-use of excavated material will be governed by a MMP developed in accordance with the CL:AIRE Code of Practice (2014) . The MMP shall demonstrate that unsuitable material or waste has not been used in the development. The MMP will detail the procedures and measures that will be taken to classify, track, store, reuse and dispose of all excavated materials encountered during the construction works.</p> <p>The Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (DEFRA, 2009) should also be adopted for the construction of the Project and a Soils Management Plan (SMP) will be implemented.</p>	<p>EMP REAC Ref MW-AQ-03, MW-AQ-04, D-GS-02 EMP Annex B8 Materials Management Plan EMP Annex B9 Soil Management Plan</p>

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 9: Geology and Soils (Application Document 3.2) Section 9.9.24	Where the construction of the Project cuts through the UNESCO Global Geopark there is little opportunity to provide the geological community safe access to view the geological exposures. NH will engage with UNESCO to agree potential enhancement opportunities at the Geopark. If required an appropriate level of support shall be agreed, through engagement.	EMP REAC Ref D-GS-03
Chapter 9: Geology and Soils (Application Document 3.2) Section Table 9-36	Temporary land take areas should avoid Best and Most Versatile land where practicable, based on the outputs of the soil survey.	EMP REAC Ref D-GEN-08
Landscape and Visual		
Chapter 10: Landscape and Visual (Application Document 3.2) Section 10.9.2	The project aims to limit the landscape and visual impact through considered alignment and associated earthworks to achieve the best fit with topography and sensitive landscape features.	PDP Ref LI03, LI10, LI16, 0405.09, 0405.12, 07.09
Chapter 10: Landscape and Visual (Application Document 3.2) Section 10.9.6	The removal of vegetation and stone walls has been minimised within the Project where practicable by the alignment of the Order Limits.	Order Limits PDP Ref LC03
Chapter 10: Landscape and Visual (Application Document 3.2) Section 10.9.7	The landform and planting for the Project has been carefully considered to retain important views.	PDP Ref IP01, VL02, VR01, VR02
Chapter 10: Landscape and Visual (Application Document 3.2) Section 10.9.54	Encroachment within the North Pennines Area of Outstanding Natural Beauty to be minimised wherever possible. This has been avoided through Order Limits where possible, and detailed design should seek to further reduce encroachment where possible.	PDP Ref VL02 Order Limits
Chapter 10: Landscape and Visual (Application Document 3.2) Section 10.9.70	Encroachment into ancient woodland at Cross Lanes to Rokeby to be avoided. Where drainage requires work within the ancient woodland it is to an existing outfall and removal of trees/excavation to be avoided if possible.	PDP Ref 08.09 Order Limits

Source Reference	Mitigation/commitment Summary	Securing Mechanism
<p>Chapter 10: Landscape and Visual (Application Document 3.2) Section 10.10.322</p>	<p>The project aims to use design mixes for mitigation planting to give a robust, natural effect where moderate changes in climate would not change the effectiveness of the planting.</p>	<p>EMP Annex B1 LEMP</p>
<p>Materials and Waste</p>		
<p>Chapter 2: The Project (Application Document 3.2) Table 2-4</p>	<p>Limits of Deviation have been amended from the standard of 1m vertical to 3m in the upwards and downwards vertical in certain areas of the Temple Sowerby to Appleby scheme to allow for amendments to the design to maximise the amount of material reuse on site.</p>	<p>DCO EMP REAC Ref D-MAW-01, D-MAW-02</p>
<p>Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.65, 11.7.10, 11.8.4, 11.8.5-11.8.23, 11.8.46, 11.8.47, 11.8.50, 11.8.53-11.8.56</p>	<p>A Site Waste Management Plan (SWMP) will be prepared to plan, implement, monitor and review waste minimisation and management on construction sites, including a range of measures intended to reduce waste and implement the waste hierarchy and details of how the Project will comply with all waste legislation. The SWMP is also used to record how waste is prevented, minimised, re-used, recycled and disposed of on a construction site.</p>	<p>EMP REAC Ref D-GS-02 and D-MAW-01 EMP Annex B2 Outline Site Waste Management Plan</p>
<p>Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.3.16</p>	<p>The Project aims to achieve at least 90% (by weight) material recovery of non-hazardous CDW and is considered feasible based on existing industry practice and project targets</p>	<p>EMP REAC Ref MW-MAW-02</p>
<p>Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.5, 11.8.48</p>	<p>Prior to demolition of each structure or building, a pre-demolition audit will be carried out to quantify materials and investigate opportunities for re-use and recycling. There will be crushing / screening of non-hazardous demolition arisings for use as recycled aggregate and fill materials.</p>	<p>EMP REAC Ref D-MAW-01</p>
<p>Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.15, 11.8.17 - 11.8.21, 11.8.32, 11.8.50</p>	<p>Non-hazardous aggregate material will be re-used on site, subject to suitability. Additional aggregate-based materials required will be from re-use or recycled source or from local quarries, with whole life sustainability assessment undertaken to ensure sustainable approach. Materials will be sourced from recycled sources where practicable.</p>	<p>EMP REAC Ref MW-CL-01, D-MAW-03</p>

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.38	The Project will also advertise the scheme as a Donor site through CL:AIRE DOW COP scheme in the event that it appears that excess materials are unexpectedly likely to be present	EMP REAC Ref D-GS-01, D-MAW-02
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.24 - 11.8.26	The PC will investigate opportunities to introduce standardisation across the Project to ensure waste inherent in the design is reduced	EMP REAC Ref D-MAW-03
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.27	The PC will investigate the potential for offsite construction for the following elements of the Project where practicable. Manufacture of offsite bridge beams, culverts and short span bridges, parapets and prefabricated concrete units	EMP REAC Ref MW-MAW-01
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.36	Refinement of Cross Lanes to Rokeby scheme so as to reduce the overall footprint of the Cross Lanes and Rokeby junctions, thus minimising encroachment into the Carboniferous Limestone Mineral Safeguarding Area (MSA)	Works Plans 08-4A, 08-4B, 08-5, 08-6, 08-8A PDP Ref 08.04
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.37	Structures, drainage and signage products will be procured with consideration of the environmental impacts associated with their manufacture, as well as other considerations such as structural design, carbon footprint (PAS 2050), energy consumption, long-life performance, visual impacts, durability and cost.	EMP REAC Ref MW-MAW-01
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.40	The locations and management of the material storage areas will comply with all measures set out in the EMP, including avoiding known constraints highlighted for protection within the ES, the EMP and the PDP.	EMP REAC Ref D-GEN-08, D-BD-02
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.41-11.8.44	A Materials Management Plan will be developed and implemented, to ensure good practice is followed for material storage and movements. This shall include maximum stockpile heights.	EMP REAC Ref D-GS-02 EMP Annex B8 Materials Management Plan
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.50	The Project is committed to specifying the use of materials with a high percentage of reused/recycled materials content of at least 31% for the importation of aggregates	EMP REAC Ref MW-MAW-03 EMP Annex B2 Outline Site Waste Management Plan

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.57	Should onsite investigation identify contaminated land, the results of sampling will be used to determine appropriate remediation options and agree the preferred approach with the regulatory authorities	EMP REAC Ref D-GS-01, MW-GS-01
Noise and Vibration		
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.9.4, 12.10.10, 12.10.12, 12.12.4	A NVMP will be prepared and implemented, including Best Practicable Means (BPM) mitigation to be implemented, specification for noise and vibration monitoring during construction and specific mitigation required.	EMP REAC Ref D-GEN-02 EMP Annex B5 NVMP
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.8.7	Working hours and days are outlined within the EMP and NVMP. Any works to be completed outside of these hours would be subject to a separate Section 61 application, determined by the Contractors and agreed by the relevant Local Authorities through final EMP (s) and NVMP.	EMP REAC Ref D-NV-01 and D-GEN-11 EMP Annex B5 Noise and Vibration Management Plan
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.8.8	During the construction, appropriate mechanisms to communicate with local residents will be established to highlight potential periods of disruption for both noise and vibration (for example web-based, newsletters, newspapers, radio announcements etc.). This will include the appointment of the CRM responsible for leading engagement with potentially affected communities.	EMP Annex B5 Noise and Vibration Management Plan
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.8.9 and 12.8.11	The contractors will undertake and report noise and vibration surveys as is necessary to ensure and demonstrate compliance with all noise and vibration commitments. All survey locations will be detailed within the final NVMP.	EMP REAC Ref D-NV-01
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.8.12	Regular onsite observation surveys and checks/audits will be undertaken to ensure that BPM are being employed at all times.	EMP REAC Ref MW-NV-01 EMP Annex B5 NVMP

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.8.17	Compound and material storage locations to minimise noise impacts on surrounding sensitive receptors. The first stage of construction for the compound sites will be to construct a boundary fence which surrounds the compound site.	EMP REAC Ref D-GEN-08
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.9.3	Trials will be conducted at the start of the works to establish actual vibration levels at the nearest sensitive receptors to determine most appropriate plant and methods to be utilised.	EMP REAC Ref D-NV-01
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.9.5	Noise insulation may be offered to affected properties or temporary housing if, despite the implementation of BPM, the noise exposure exceeds the criteria defined within the EMP.	EMP REAC Ref MW-NV-02
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.10.10	Section 61 applications under the Control of Pollution Act 1974 may be submitted to the relevant local Authority where required.	EMP REAC Ref MW-NV-01
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.10.23	Diversion routes to be discussed with the relevant Local Authority in advance of any required closures. Specific mitigation measures for diversion routes will be developed when detail becomes available in line with EMP and respective NVMP. This may include the use of more than one diversion route for different closures, to reduce the exposure of individual noise sensitive receptors.	EMP REAC Ref D-GEN-10
Chapter 12: Noise and Vibration (Application Document 3.2) Section 12.9.8 and Table 12-20 Environmental Addendum Volume II DC-04 (Application Document 8.4)	Implementation of noise barriers where identified as being required, agreed by identified consultees and passing appropriate sustainability tests (one number required, one to be implemented if deemed appropriate following stakeholder consultation).	EMP REAC Ref D-NV-03 PDP Ref 0102.02, 0405.05, 06.07, 08.01
Population and Human Health (P&HH)		
Chapter 13: P&HH (Application Document 3.2) Section 13.9.1	A Public Rights of Way Management Plan will be prepared and implemented to ensure diversions and closures are appropriately managed and communicated, and disruption is minimised.	EMP REAC Ref D-PH-01

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 13: P&HH (Application Document 3.2) Section 13.9	A Community Engagement Plan will be prepared and implemented to ensure communications with local communities are focussed, timely and appropriate.	EMP REAC Ref D-PH-02
Chapter 13: P&HH (Application Document 3.2) Section 13.9, 13.9.17 - 13.9.18	A Skills and Employment Strategy will be prepared and implemented to set out recruitment requirements, identify and implement measures to maximise accessibility to opportunities for local workers and SMEs and maximise local skills and employment outcomes.	EMP REAC Ref D-PH-03
Chapter 13: P&HH (Application Document 3.2) Section 13.9	A Construction Worker Travel and Accommodation Plan will be prepared and implemented to ensure that additional demand created by non-home-based workers does not place excessive pressure on the local housing market and visitor accommodation supply	EMP REAC Ref D-GEN-09
Chapter 13: P&HH (Application Document 3.2) Section 13.9.3	A Construction Traffic Management Plan (CTMP) will be prepared and implemented to minimise disruption across the highway network and minimise disturbance of local residents and businesses.	EMP REAC Ref D-GEN-10
Chapter 13: P&HH (Application Document 3.2) Section 13.9.5 - 13.9.6	Appleby Horse Fair and the Appleby Horse Fair Multi-Agency Strategic Coordinating Group (MASCAG) will be liaised with around the timing of works, adequate diversions, and routing of fair traffic away from the A66 to minimise impacts on journeys to and from the fair	EMP REAC Ref MW-PH-03
Chapter 13: P&HH (Application Document 3.2) Section 13.9.4, 13.9.7	Where access is affected to private properties, businesses and tourism sites, temporary alternative access will be provided, and agreement will be sought with the landowner and/or tenant(s)	EMP REAC Ref D-GEN-10
Chapter 13: P&HH (Application Document 3.2) Section 13.9.8	Temporary re-location of public transport provisions will be required during construction, the location of which will be agreed upon with the relevant Local Authorities and public transport operators prior to commencement of construction phase.	EMP REAC Ref MW-PH-04
Chapter 13: P&HH (Application Document 3.2) Section 13.9.9	Land used temporarily for construction shall be returned is of the same condition as its current use to prevent any potential sterilisation of land parcels	EMP REAC Ref D-GS-02

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 13: P&HH (Application Document 3.2) Section 13.9.10	Severance during construction will be reduced through careful siting of construction compounds and lay down areas and careful planning of construction activities through consultation with the landowners and mitigated in places by new temporary and permanent accesses	EMP REAC Ref D-GEN-08
Chapter 13: P&HH (Application Document 3.2) Section 13.9.12	Considerate construction management including the use of screening (temporary or permanent) will mitigate indirect amenity effects relating to air quality (dust), noise, ground conditions and visual impacts associated with the movement of construction vehicles and construction works.	EMP REAC Ref D-GEN-08
Chapter 13: P&HH (Application Document 3.2) Section 13.9.19	The PC will include measures as to how crop loss will be reduced by giving advanced warnings to enable farmers to forward plan, and will give specific consideration to potential field drainage impacts and how they will be avoided	EMP REAC Ref MW-PH-02
Chapter 13: P&HH (Application Document 3.2) Section 13.9.24	Contractors will be required to provide occupational health care to workers, including health monitoring, preventative treatment where necessary, and first aid	EMP REAC Ref MW-GS-02
Chapter 13: P&HH (Application Document 3.2) Section 13.9.25	Brough Hill Fair site shall be relocated to a site currently used by the MoD.	Works Plan 06-4
Chapter 13: P&HH (Application Document 3.2) Section 13.9.26	Relocation of the Ministry of Defence playing field and helipad to the south of the scheme, located off Castlehill Road and will be operational prior to land take of the existing site.	PDP Ref 06.06
Chapter 13: P&HH (Application Document 3.2) Section 13.9.31	The design of the M6 J40 to Kemplay Bank scheme has where possible avoided direct impacts on development land and businesses and appropriate embedded mitigation has been developed in order to mitigate potential effects to the Happy Hooves Riding Centre where possible (e.g. early re-provision of access to ensure accessibility during construction).	EMP REAC Ref MW-PH-01
Road Drainage and Water Environment (RDWE)		

Source Reference	Mitigation/commitment Summary	Securing Mechanism
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.7, 14.8.7, 14.8.8, 14.8.10, 14.8.14, 14.8.16, 14.8.17, 14.8.19, 14.8.24, 14.9.2, 14.9.6, 14.9.7 - 14.9.13, 14.11</p> <p>HRA Stage 2 (Application Document 3.6)</p>	<p>A Ground and Surface Water Management Plan (GSWMP) will be prepared and implemented to ensure potential hydrological, hydrogeological and water quality impacts of the project are controlled and prevented.</p>	<p>EMP REAC Ref D-RDWE-01</p>
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.4</p>	<p>Structures within watercourses designed in accordance with CD 529 (Design of outfall and culvert details) and CIRIA C786 Culvert, Screen and Operation Manual guidance</p>	<p>PDP Ref LI18</p>
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.6</p>	<p>Embedded design mitigation in relation to impacts on watercourses, such as culverts, outfalls, watercourse realignment and flood compensation.</p>	<p>PDP Ref LI04, L119, 0405.04, 0405.12, 06.08</p> <p>EMP REAC Ref D-RDWE-02, D-RDWE-11</p>
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.5, 14.8.10</p>	<p>Drainage design in accordance with LA 113 and other relevant guidance. Design shall include climate change allowances informed by flood modelling.</p>	<p>EMP REAC Ref D-RDWE-02</p>
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.11</p>	<p>Exposed sediment deemed at risk of erosion will be protected by the storage and management of soils measures in the Soil Management Plan (SMP).</p>	<p>EMP REAC Ref D-GS-02</p> <p>EMP Annex B9 SMP</p>
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.13</p>	<p>Impacts of surface water temporary abstractions will be assessed within the regulatory framework for abstractions (Environment Agency abstraction licenses) and discharges (Environment Agency environmental permits)</p>	<p>EMP REAC Ref D-RDWE-01</p>
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.13</p>	<p>Abstractions from the River Eden SAC and functionally linked habitats will not be taken direct from surface waters</p>	<p>EMP REAC Ref MW-RDWE-12</p>

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 14: RDWE (Application Document 3.2) Section 14.8.17	Construction of temporary crossings and other temporary infrastructure will be designed with due consideration to the sensitivity of the location, such as proximity to the River Eden SAC and functionally linked habitats.	EMP REAC Ref MW-RDWE-12
Chapter 14: RDWE (Application Document 3.2) Section 14.8.18	Abstracted water from local groundwater catchment and flow regimes will be discharged to the same groundwater catchment and down gradient of the dewatered element where practicable	EMP REAC Ref D-RDWE-01
Chapter 14: RDWE (Application Document 3.2) Section 14.8.21	Appropriate grouting methodologies will be adopted to reduce any risks to the water environment, where appropriate and will be informed by results of intrusive and geophysical investigations	EMP REAC Ref MW-RDWE-02
Chapter 14: RDWE (Application Document 3.2) Section 14.8.22	A site-specific foundation works risk assessment (FWRA) for the construction of underground structures and ground improvement works will be conducted and shared with the Environment Agency for agreement	EMP REAC Ref MW-RDWE-04
Chapter 14: RDWE (Application Document 3.2) Section 14.8.23	Design of underground structures will require drainage provisions to relieve hydrostatic pressure	EMP REAC Ref D-RDWE-02
Chapter 14: RDWE (Application Document 3.2) Section 14.9.2	Changes to crossing points, including pier design or location, at detailed design will be designed and installed following consultation with appropriate hydromorphology and geomorphology experts, and with the Environment Agency and Natural England as appropriate	PDP Ref LI19, 0405.04
Chapter 14: RDWE (Application Document 3.2) Section 14.9.2	Further surveys will be undertaken at detailed design to collect further data on springs and abstractions that are within areas of potential impact. A plan to maintain, reinstate or compensate water supplies will be prepared, and implemented	EMP REAC Ref D-RDWE-09

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 14: RDWE (Application Document 3.2) Section 14.9.2	Where land drainage from agriculture is encountered during construction, actions will be taken to divert the flow to an appropriate location, such as the construction drainage network. Prior to completion of the Project, these field drains will be reinstated to the original locations, where practically possible, or diverted to an appropriate discharge location	EMP REAC Ref D-RDWE-10
Chapter 14: RDWE (Application Document 3.2) Section 14.9.7 - 14.9.13	Monitoring of Trout Beck viaduct crossing to assess the rate of scour to the piers. Should scour protection be required, National Highways will develop this in consultation with the Environment Agency.	EMP REAC Ref M-RDWE-04
Chapter 14: RDWE (Application Document 3.2) Section 14.9.7 - 14.9.13	Realignment of Appleby to Brough channel to increase sinuosity, slow channel flow and reduce flow velocities to ensure existing dynamics of Moor Beck are maintained	EMP REAC Ref D-RDWE-05
Chapter 14: RDWE (Application Document 3.2) Section 14.9.7 - 14.9.13	Mitigation measures to reduce flow velocities and redirect flow energy away from the embankment associated with the Warcop Junction	EMP REAC Ref D-RDWE-14
Chapter 14: RDWE (Application Document 3.2) Section 14.9.14	Mitigation measures to protect Groundwater Dependant Terrestrial Ecosystems (GWDTE).	EMP REAC Ref D-RDWE-06
Chapter 14: RDWE (Application Document 3.2) Section 14.9.15	The Order Limits and the Limits of Deviation for the design at Dyke Nook Fen allow for the junction design to be adjusted to avoid the area completely. Land has been included in the Order Limits to ensure the adjacent drainage pond avoids any interactions with the hydrology of the fen	EMP REAC Ref D-RDWE-06 Works Plan 06-1B, 06-2B Order Limits
Chapter 14: RDWE (Application Document 3.2) Section 14.9.18	A monitoring strategy will be developed in consultation with the Environment Agency to assess the effects of the Project and the effectiveness of mitigation to ensure compliance with WFD objectives.	EMP REAC Ref M-RDWE-01, M-RDWE-02, M-RDWE-03

Table 3: Operation mitigation schedule

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Air Quality		
N/A	No mitigation identified during the operation stage for Air Quality	N/A
Biodiversity		
Chapter 6: Biodiversity (Application Document 3.2) 6.9.29 - 6.9.32 and 6.10.423-6.10.645	Landscaping and habitat replacement measures will be implemented to reduce species mortality e.g. installing badger fencing to guide badgers to a suitable crossing and prevent habitat degradation.	EMP REAC Ref D-BD-04 PDP Ref BNG01-BNG03, HP01-HP04
Chapter 6: Biodiversity (Application Document 3.2) 6.9.33 - 6.9.36	Opportunities to maximise habitat connectivity during operation have been identified including the provision of multiple engineering balancing ponds to provide focussed prey sources for bats that favour collecting prey over water or from around the marginal vegetation that will develop.	PDP Ref LI18
Chapter 6: Biodiversity (Application Document 3.2) 6.11.6-6.11.10	For the impacts of the Project to be successfully mitigated a 30-year monitoring programme for habitats within the Order Limits will be implemented post-construction as set out in the Landscape and Ecological Management Plan.	EMP REAC Ref D-BD-01, M-BD-02 PDP Ref MM01 – MM06
Chapter 6: Biodiversity (Application Document 3.2) 6.11.12	A monitoring programme will be developed and included within the Reptile Method Statement to be produced prior to site clearance and construction works commencing.	EMP REAC Ref MW-BD-16, M-BD-03 PDP Ref MM04, MM05
Chapter 6: Biodiversity (Application Document 3.2) 6.11.15, 6.11.18, 6.11.22, 6.11.24, 6.11.26	A monitoring programme will be developed to record evidence of the effectiveness of mitigation measures for bats, breeding and wintering birds, barn owls, otter and badger.	EMP REAC Ref M-BD-01, M-BD-03, PDP Ref MM04, MM05
Chapter 6: Biodiversity (Application Document 3.2) 6.11.20	Incidental sightings of amphibians, red squirrels, other terrestrial mammals (brown hare, hedgehog and polecat) or terrestrial invertebrates during monitoring of created and enhanced habitats to be recorded.	EMP REAC Ref M-BD-04

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Climate		
Chapter 7: Climate (Application Document 3.2) 7.9.11 - 7.9.17, 7.10.31-7.10.33 and 7.10.38-7.10.43	Climate resilience and adaptation measures embedded in the design include establishing maintenance regimes to monitor sediment build up in drainage systems and remove debris causing blockages to address the impacts of heavy rain and flooding.	EMP REAC Ref D-CL-01, D-CL-02, M-CL-01, PDP Ref LI14
Chapter 7: Climate (Application Document 3.2) 7.10.35	Proposed future mitigation to mitigate the impact of significant climate change related risks to the Project have been identified. This includes engaging landowners/land managers to discuss adaptive management techniques to reduce wildfire risk.	EMP REAC Ref M-CL-06
Chapter 7: Climate (Application Document 3.2) 7.11.5	Operational asset data will be managed, maintained and monitored to ensure the Project is operating as intended with regards to climate resilience. Monitoring and maintenance regimes should be frequently reviewed to respond to actual or predicted climatic changes.	EMP REAC Ref M-CL-01, M-CL-02, M-CL-03, M-CL-04, M-CL-05, M-CL-06
Cultural Heritage		
Chapter 8: Geology and Soils (Application Document 3.2) 8.8.26	Landscape design to maintain and enhance historic views and setting of historic features	PDP Ref HEC02, HEC03, HEC04, HEC05
Geology and Soils		
Chapter 9: Geology and Soils (Application Document 3.2) Section 9.8.21	Minimise impacts on North Pennines AONB and the UNESCO Global Geopark.	EMP REAC Ref D-GS-03
Chapter 9: Geology and Soils (Application Document 3.2) Section 9.11.2 - 9.11.3	A Soil Management Plan shall be developed and implemented, to include monitoring of soils following reinstatement to ensure they are appropriate for their intended use.	EMP REAC Ref D-GS-02
Landscape and Visual (LVIA)		

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 10: LVIA (Application Document 3.2) Section 10.8.11, 10.8.12, 10.8.13, 10.8.14	Across all schemes, the introduction of replacement woodland edge, individual trees, hedgerows, landscape bunds and boundary treatments to provide visual screening and/or noise attenuation shall be implemented in a way that fits with the context of the surrounding landscape character and promotes restoration and enhancement.	PDP Ref LC04, LC07, LI01, LI09
Chapter 10: LVIA (Application Document 3.2) Section 10.9.2	The principal means of landscape mitigation is embedded in the design of each scheme through considered alignment and associated earthworks to achieve the best fit with topography and sensitive landscape features.	Order Limits All Works Plans PDP Ref LI09, LI10
Chapter 10: LVIA (Application Document 3.2) Section 10.9.4	The design of structures will include detailed consideration of aesthetic properties and will align with the relevant design principles.	PDP Ref LI04, LI05, LI06, LI07, LI08
Chapter 10: LVIA (Application Document 3.2) Section 10.9.10	The landscape planting design will include a range of measures designed to complement the local landscape character using species of local provenance with appropriate consideration of climate change resilient species. Mitigation planting may also function as visual screening when it has become established and reaches a reasonable height.	PDP Ref LC05, AF02
Chapter 10: LVIA (Application Document 3.2) Section 10.9.26, 10.9.49,	The detention ponds with softly engineered slopes to the north and woodland planting would provide an ecological connection with existing woodlands and potential to develop greater biodiversity.	PDP Ref LI17 L118
Chapter 10: LVIA (Application Document 3.2) Section 10.9.29	Proposed lighting across the project has been limited to schemes 01/02 and 07 so as to avoid impacts to the character of the night sky. Where lighting is proposed, the effects of current lighting will be reduced through provision of more efficient lighting to reduce the amount of light spillage and glare.	PDP HP02
Chapter 10: LVIA (Application Document 3.2) Section 10.9.42, 10.9.67, 10.9.80, 10.9.89	Realignment or replacement of PRoW as overpasses or underpasses to ensure continuity of safe crossings. Planting to provide visual amenity.	PDP Ref AC03 and AT01
Chapter 10: LVIA (Application Document 3.2) Section 10.9.16	Replacement planting within M6 Junction 40, where disturbed, to ensure visual continuity and ecological connectivity.	PDP Ref 0102.01

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 10: LVIA (Application Document 3.2) Section 10.9.15, 10.9.17, 10.9.18 and 10.9.20	Restore and enhance existing linear features such as existing woodland screening between M6 Junction 40 crossing link to the A66 with adjacent light industrial, between the south bound M6 off slip to the A592 filter lane and the Gillian Way Business Park and on the A66 link to Kemplay Bank Roundabout and adjacent to Carleton Avenue (A686), Penrith Rugby Union Club, Carleton Hall Farm and Carleton Hill housing estate.	PDP Ref 0102.08, 0102.09
Chapter 10: LVIA (Application Document 3.2) Section 10.9.19	Planting in the area adjacent to The Carleton Park and Hall (Blue Light zone), south of the A66, to reflect the existing parkland environment (with single specimen trees and coppice form of planting, soft engineered slopes and appropriate native ecological planting at the detention pond).	PDP Ref 0102.05
Chapter 10: LVIA (Application Document 3.2) Section 10.9.24	Detailed design to respect the open views to Brougham Castle and ensure the setting is conserved.	PDP Ref HEC05, HEC06, 0102.06 and 03.07
Chapter 10: LVIA (Application Document 3.2) Section 10.9.25	The Countess Pillar scheduled monument on the boundary of an embankment would be kept clear of vegetation to ensure open sight lines of it from the road.	PDP Ref 03.02
Chapter 10: LVIA (Application Document 3.2) Section 10.9.27	At Whinfell Park, south of the A66, there is PRow access to Barrackbank Wood and the River Eamont and public car parking. The restoration planting would make an ecological connection with the wood and provide additional screening for the car parking.	PDP Ref 03.03
Chapter 10: LVIA (Application Document 3.2) Section 10.9.28	The overbridge at Center Parcs is an opportunity for route identification or destination identification by considered planting that replaces an existing large and distinctive Scots pine that provides a local landmark but is lost as part of the works.	PDP Ref 03.04
Chapter 10: LVIA (Application Document 3.2) Section 10.9.33, 10.9.34, 10.9.36, 10.9.39	Linear tree belt and shrub planting along with woodland edge and woodland integration planting to provide screening of views. Hedgerow planting and dry-stone walls to restore aspects of historical landscape pattern around Kirkby Thore.	PDP Ref 0405.01, 0405.02, 0405.06, 0405.08, 0405.15

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 10: LVIA (Application Document 3.2) Section 10.9.34	As the mainline sweeps north-east at Lowmoor Row, embankments would be softened to 1:20 slopes as opposed to 1:3 standard batter in order to restore to agriculture where possible.	PDP Ref LI10
Chapter 10: LVIA (Application Document 3.2) Section 10.9.35, 10.9.37 , 10.9.39	New landform created by false cutting and landscape earthworks in addition to reinstatement of historic field patterns with locally characteristic materials would provide restoration to currently degraded landscape character. Mainline to be retained in cutting to the north west of Kirkby Thore to ensure distant views towards the AONB are maintained.	PDP Ref 0405.02, 0405.05, 0405.09
Chapter 10: LVIA (Application Document 3.2) Section 10.9.38	Land would be returned to agriculture where possible across the north of Kirkby Thore, with hedgerows providing locally historic field boundary treatments.	PDP Ref HEC09, 0405.02
Chapter 10: LVIA (Application Document 3.2) Section 10.9.40	The Trout Beck viaduct crossing would provide an open span structure to reduce visual impact as far as possible, whilst supporting the necessary functions of the river. Tree loss is predicted as part of the construction process, however reinstatement would be undertaken where possible to ensure the riparian character is not entirely lost. Embankments either side of the viaduct would be softened with the use of woodland edge planting.	PDP Ref 0405.03, 0405.04
Chapter 10: LVIA (Application Document 3.2) Section 10.9.41	Loss of woodland along the Roman Road to be minimised and retention of woodland along this important stretch would be sought as far as possible. Where trees are lost there would be reinstatement measures where possible in order to retain its linear characteristics.	PDP Ref IP01, VL03, HEC06, 0405.16
Chapter 10: LVIA (Application Document 3.2) Section 10.9.48	The Appleby to Brough alignment, junction configurations, link roads and alterations to the existing minor roads and lanes and new detention ponds are designed to minimise potential negative impacts on the NP AONB and its setting.	PDP Ref VL02, 06.09, 06.10, 06.11

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 10: LVIA (Application Document 3.2) Section 10.9.50, 10.9.51	New mixed species woodland blocks and hedgerow planting would be introduced as appropriate to create new field boundaries to visually screen the scheme. New planting areas would link with existing woodland and hedgerows to unify and link habitats in the area. South facing slopes planted with species rich grasslands suitable for invertebrates.	PDP Ref 06.02, 06.11
Chapter 10: LVIA (Application Document 3.2) Section 10.9.58, 10.9.61	The alignment has sought to retain the proposed scheme within a part of the landscape which is already defined by highways infrastructure. This includes avoiding physical change within the NP AONB aside from a small area of embankment and road widening to the western outskirts of Bowes.	Works Plans 06-1C,06-1D, 06-4, 06-5, 06-8
Chapter 10: LVIA (Application Document 3.2) Section 10.9.59	The replacement overbridge has been positioned in a low-lying part of the landscape, so as to reduce its perception from Bowes and the NP AONB.	Works Plan 07-4 PDP Ref LI05, 07.10
Chapter 10: LVIA (Application Document 3.2) Section 10.9.60, 10.9.62, 10.9.63, 10.9.64, 10.9.65, 10.9.66	The proposed tree planting across the widened cutting to the north of Bowes and around the junction with the A67 would reflect the existing vegetation patterns and local landscape character. Dry stone walls to be reinstated and planting to increase extent of small woodlands via locally native species.	PDP Ref 07.01, 07.02, 07.03, 07.04, 07.07
Chapter 10: LVIA (Application Document 3.2) Section 10.9.73 08	The alignment of the Cross Lanes junction has been located in close proximity to the existing junction so as to reflect the existing pattern of the road network and perception of the road junction.	Works Plan 08-5
Chapter 10: LVIA (Application Document 3.2) Section 10.9.74	The embankments of the overbridge and surrounding land would be planted with new trees to reduce the perceived scale of the overbridge.	PDP Ref 08.03
Chapter 10: LVIA (Application Document 3.2) Section 10.9.75	The route alignment re-positions the A66 further away from St Marys church, to reduce the effects of noise and disturbance on the setting of the church.	Works Plan 08-9

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 10: LVIA (Application Document 3.2) Section 10.9.76	The alignment of the junction with Barnard Castle Road and the A66 has utilised the existing junction to the south-west of Rokeby Park and Gardens, so as to retain the pattern of road infrastructure within this part of the landscape and the setting of the park.	Works Plan 08-8C
Chapter 10: LVIA (Application Document 3.2) Section 10.9.77 and 10.9.78	Landscape planting to protect parkland character and retain historic environment.	PDP Ref 08.05, 08.06, 08.07, 08.08
Chapter 10: LVIA (Application Document 3.2) Section 10.9.87, 10.9.88, 10.9.89, 10.9.90	Proposed woodland, hedgerow and grassland planting to reflect the local characteristics.	PDP Ref 09.01, 09.06, 09.08, 09.09
Material Assets and Waste		
Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.4	Design to allow for use of materials that can be flexibly adapted over the asset lifetime where practicable, and to maximise reuse of materials at end of first life.	EMP REAC Ref MW-MAW-01
Noise and Vibration		
Chapter 2: Project Description Section 2.6.33 (Application Document 3.2)	The A66 around the north and east of Kirkby Thore will be in deep cutting with landscape bunding to provide visual and noise mitigation (with the height of the bund adjusted dependant on the vertical alignment). The slopes of the embankments will be graded to maximise the land that can be returned to agriculture.	Works Plans 0405-5, 0405-9 PDP Ref 0405.05
Chapter 12: Noise and Vibration Section 12.8.21	Embedded mitigation includes the proposed use of low noise surfacing.	EMP REAC Ref D-NV-06
Chapter 12: Noise and Vibration Section 12.12.5	Operational noise monitoring shall ensure embedded mitigation measures are verified to ensure they meet the design specifications. This would be completed as part of national Highways Project Evaluation procedures.	EMP REAC Ref D-NV-01

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 12: Noise and Vibration Section 12.9.9	Noise insulation will be offered if and where future noise levels exceed the trigger level of 68dB LA10,18hour (façade) (i.e. above a SOAEL), and the other requirements referred to in the Noise Insulation Regulations (NIR) 1975 guidelines.	EMP REAC Ref D-NV-02 and MV-NV-02
Population and Human Health (P&HH)		
Chapter 2: The Project (Application Document 3.2) Section 2.6.18	The slopes around the junction at Center Parcs and Whinfell junction within the Penrith to Temple Sowerby scheme are graded to maximise the land that can be returned to agriculture.	Works Plans 0303, 03-4A PDP Ref 03.01 and 03.05
Chapter 13: P&HH (Application Document 3.2) Section 13.9.1	A Public Rights of Way Management Plan (PRoWMP) will be prepared and will detail all changes to existing routes or new routes as part of the Project design.	EMP REAC Ref D-PH-01
Road Drainage and the Water Environment (RDWE)		
Chapter 14: RDWE (Application Document 3.2) Section 14.8.79, 14.8.80 and 14.9.4	Detailed assessment of risks posed by routine runoff to groundwater quality will be completed at detailed design when infiltration rates through the ground and ground conditions specific to the basin locations are obtained. Drainage design to incorporate treatment to protect groundwater. Where this is not possible, no infiltration will be permitted	EMP REAC Ref D-RWDE-04
Chapter 14: RDWE (Application Document 3.2) Section 14.9.4	Detailed drainage design will retain the recharge of flows of all watercourses potentially affected	EMP REAC Ref D-RDWE-02
Chapter 14: RDWE (Application Document 3.2) Section 14.8.75 and 14.9.4	Drainage will be appropriately sized to allow for potential groundwater ingress within cuttings, with drainage maintaining flow direction and retaining water within the existing catchment wherever possible	EMP REAC Ref D-RWDE-02
Chapter 14: RDWE (Application Document 3.2) Section 14.8.77 and 14.9.4	In locations where the geology is susceptible to dissolution (e.g., gypsum and limestone), the drainage system will be appropriately designed to prevent infiltration	EMP REAC Ref D-RWDE-04

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Chapter 14: RDWE (Application Document 3.2) Section 14.8.67	Realignments due to watercourse crossings are proposed for Unnamed Tributary of the Lowgill Beck 6.1, Punder Gill, Yosgill Sike and Woodend Sike.	PDP Ref LI19 Works Plans 06-1D, 06-8, 08-4B, 08-5
Chapter 14: RDWE (Application Document 3.2) Section 14.8.68	Proposed realignments will incorporate a 10m wide buffer strip on both sides of the new channel in order to allow for, where practicable, the implementation of marginal and riparian habitat improvements.	PDP Ref LI19
Chapter 14: RDWE (Application Document 3.2) Section 14.8.65 and 14.8.69	Watercourse crossings associated with the River Eden SAC and functionally linked habitats have been designed so that no realignments are required and to ensure that impacts on the SAC and to supporting hydromorphological and geomorphological processes are avoided	PDP Ref 0405.04
Chapter 14: RDWE Section 14.8.71, 14.8.72 and 14.8.78 Chapter 9: Geology and Soils Section 9.9.24 and 9.10.26 (Application Document 3.2)	The drainage design includes measures to capture, attenuate, and treat routine runoff from the highway to ensure that there is no increase in runoff rates and that the appropriate pollution controls are in place to control and contain spillages and prevent contamination of adjacent soils.	PDP Ref LI16, LI17, GB03 EMP REAC Ref D-RDWE-02
Chapter 14: RDWE (Application Document 3.2) Section 14.8.73, 14.8.74	Discharges from the proposed drainage system, including any treatment requirements, will be compliant with relevant standards (DMRB LA 113, CG 501 and CG 532) and have been assessed using HEWRAT	EMP REAC Ref D-RDWE-03
Chapter 14: RDWE (Application Document 3.2) Section 14.8.74	Further detailed design will aim to minimise the footprint of the drainage outfalls within the channel to be suitably sized compared to the size of the channel	PDP Ref LI17
Chapter 14: RDWE (Application Document 3.2) Section 14.8.82 and 14.9.4	Protection plans for potentially impacted licensed abstractions or unlicensed supplies, and where required, a new network connection, alternative water supply or replacement well.	EMP REAC Ref D-RDWE-09

Source Reference	Mitigation/commitment Summary	Securing Mechanism
<p>Chapter 14: RDWE Section 14.8.83, 14.8.84 and 14.8.85</p> <p>Chapter 9: Geology and Soils Section 9.10.50 and Table 9-35 (Application Document 3.2)</p> <p>ES Appendix 14.2: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4)</p>	<p>Flood compensation storage to be provided at locations where modelling has shown it to be required, and operational flood models for 100-year event plus climate change have confirmed that they fully offset any loss and do not result in increased flood risk downstream of the Project</p>	<p>EMP REAC Ref D-RDWE-13 PDP Ref GB03, 0405.12 Works Plans 0405-2A, 06-1A</p>

Table 4: Environmental Statement Addendum operational mitigation schedule

Source Reference	Mitigation/commitment Summary	Securing Mechanism
Population and Human Health (PHH)		
<p>Environmental Addendum Volume II DC-03 (Application Document 8.4)</p>	<p>The PC will undertake a construction phase ball strike risk assessment, prior to the finalisation of the detailed design in order to understand the potential risk of ball strikes on the carriageway and inform what measures are to be implemented if required to retain balls on the playing field and prevent them landing in the highway.</p>	<p>EMP REAC Ref D-PH-05</p>
<p>Environmental Addendum Volume II DC-03 (Application Document 8.4)</p>	<p>The detailed design of this scheme in the vicinity of Ullswater Community College must, where reasonably practicable, seek to avoid impacts on spectators standoff zones associated with, or drainage of, the sports pitch currently located at Ullswater Community College, so as to ensure that pitch remains useable as a sports pitch. This is set out in the project design principles.</p>	<p>PDP Ref 0102.12</p>
Road Drainage and the Water Environment (RDWE)		
<p>Environmental Addendum Volume II DC-04 (Application Document 8.4)</p>	<p>Where feasible during detailed design, culvert structures will be tied in to the existing bed and bank elevations/profiles upstream and downstream of the culvert and culvert embedment is to be designed to be in line with CIRIA guidance (C786).</p>	<p>EMP REAC Ref D-RDWE-05</p>