A1 in Northumberland: Morpeth to Ellingham

Scheme Number: TR010059

7.3 Updated Outline Construction Environmental Management Plan (tracked)

Rule 8(1)(c)

Planning Act 2008

Infrastructure Planning (Examination Procedure) Rules 2010

March 2021

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

The A1 in Northumberland: Morpeth to Ellingham

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Updated Outline Construction Environmental Management Plan (tracked)

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APPENDICES

APPENDIX A

CONSTRUCTION WORKING AREAS AROUND NORTH CHARLTON SCHEDULED MONUMENTS

1 INTRODUCTION AND BACKGROUND TO THE SCHEME

1.1 BACKGROUND

1.1.1. This Outline Construction Environmental Management Plan (Outline CEMP) relates to an application made by Highways England (the Applicant) to the Secretary of State for Transport via the Planning Inspectorate (the Inspectorate) in relation to the A1 in Northumberland: Morpeth to Ellingham (the Scheme) for a Development Consent Order (DCO). A detailed description of the Scheme is set out in **Chapter 2: The Scheme**, **Volume 1** of the Environmental Statement (ES) (**Application Document Reference:TR010041/APP/6.1**).

1.1.2. An Environmental Impact Assessment (EIA) has been undertaken for the Scheme and the ES has been prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (**Ref. 1**) (the EIA Regulations). In accordance with the requirements of the EIA Regulations, the ES contains the assessment of the potential significant effects on the environment that may be caused during construction, operation and maintenance of the Scheme and describes the proposed mitigation measures.

1.1.3. This Outline CEMP has been produced in accordance with the Design Manual for Roads and Bridges (DMRB) Volume 11 Section 2 Part 5 (**Ref. 2**), Interim Advice Note (IAN) 183/14, Environmental Management Plans (**Ref. 3**), other relevant publications, including Winter Construction Industry Research and CIRIA Environmental Good Practice on Site (2015) (**Ref. 4**) and has been informed by professional experience. It is a combined Outline CEMP to ensure that all construction and operation design, mitigation and monitoring measures are taken forward to detailed design. The purpose of this Outline CEMP is:

a. To satisfy the Applicant's requirement to define mitigation measures which are proposed to be included during Scheme construction, operation and maintenance including all of those considered in the ES.
b. To provide the equivalent of a Code of Construction Practice (CoCP), a suggested item for inclusion within the DCO application (refer to the Inspectorate's Advice Note 6 'Preparation and submission of application documents' (November 2019) (**Ref. 5**). The scope of this Outline CEMP is such that includes all those measures that will be expected within a CoCP.
c. To provide the draft for the more detailed CEMP to be prepared by the main contractor.
d. To enable the Examining Authority and the Secretary of State to identify those mitigation measures proposed by the Scheme which are to be secured within this Outline CEMP.

1.1.4. This Outline CEMP has been prepared by an iterative process and in parallel with the development of the Scheme design, proposed construction methodologies and the EIA. Measures within this Outline CEMP include proposed construction and operational mitigation measures, which have been designed in part by the requirements which arise from the technical assessments for Part A: Morpeth to Felton (Part A) presented within **Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**) and for Part B: Alnwick to Ellingham (Part B) presented within **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**).

1.1.5. The technical assessments within the ES have taken account of the measures within the Outline CEMP as 'embedded mitigation' prior to the definition of the potential Scheme environmental effects. Proposed mitigation measures embedded in the Scheme design are shown on the **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) and **Figure 7.10: Landscape Mitigation Plan, Volume 6** of the ES **(Application Document Reference: TR010041/APP/6.6**)).

1.1.6. The ES and the assessments within it are based on the works proposed in the **Works Plans** (**Application Document Reference: TR010041/APP/2.3**), the **General Arrangement Plans** (**Application Document Reference: TR010041/APP/2.4**), the maximum area of land anticipated is likely to be required (as shown on the **Land Plans** (**Application Document Reference: TR010041/APP/2.2**)), taking into account the proposed assessment parameters for the Scheme and the flexibility of the detailed design provided in the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**).

1.1.7. The construction of the Scheme will be subject to measures and procedures defined within a CEMP to be developed by the main contractor. The CEMP will be based on and incorporate the requirements of this Outline CEMP relevant to the construction phase and will include implementation of appropriate industry standard practices and control measures for environmental impacts arising during the Scheme works. The CEMP will be a live document that will be maintained by the main contractor throughout the Scheme construction phase. As a minimum the CEMP will be reviewed every six months to ensure that it is kept up to date.

1.1.8. Towards the end of the construction period, anticipated to be 2024, the main contractor will develop the CEMP into a Handover Environmental Management Plan (HEMP) for the operational phase of the Scheme. The indicative contents of a HEMP are detailed in Annex C of IAN 183/14 (**Ref. 3**).

UPDATED DMRB GUIDANCE

1.1.9. Some DMRB guidance documents were updated in 2019 and 2020 (and associated IANs replaced), by which time the EIA and Outline CEMP for the Scheme was largely complete. However, a sensitivity test has been undertaken in April / May 2020 by the Applicant either to demonstrate that the assessments reported in this Environmental Statement (ES) are already compliant with the updated guidance, or to identify any changes to the conclusions of the assessments as a result of the updated guidance. The findings of the sensitivity test are reported in **paragraphs 4.3.3** and **4.3.4** of **Chapter 4: Environmental Assessment Methodology, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**).

1.2 THE SCHEME

1.2.1. The Scheme is located within the County of Northumberland and forms part of the Applicant's strategic road network (SRN). The local authority for the area of the Scheme is Northumberland County Council (NCC). The Scheme comprises the following:

a. **Part A** is located on the A1 between Warrener's House Interchange at Morpeth and the existing dual carriageway at Felton. It is approximately 12.6 km in length.
b. **Part B** starts approximately 15 km north of the northern extent of Part A, is located along the A1 between Alnwick and Ellingham and is approximately 8 km in length.

1.2.2. The Order Limits, which comprise all the land required to build and operate the Scheme, whether required temporarily for construction purposes or on a permanent basis, is shown on the on the **Works Plans** (**Application Document Reference: TR010041/APP/2.3**).

1.2.3. A more detailed description of the Scheme, including a description of the proposed design and features, total size, environmental context and construction can be found in the **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**).

CONSTRUCTION PROGRAMME

1.2.4. The indicative timeframes for the construction of the Scheme are provided in **Table 1-1** below.

Table 1-1 - Indicative Construction Programme

Activity	Anticipated Start Date	Anticipated End Date
Mobilisation	December 2021	March 2022
Main temporary construction compound set up	March 2022	April 2022
Site clearance for new offline section	March 2022	May 2022
Boundary fencing for new offline section	May 2022	June 2022
Statutory undertaker diversions (additional to the HPGM, NGN and NPG works)	March 2022	January 2024
Northbound online dualling works	March 2022	March 2024

Activity	Anticipated Start Date	Anticipated End Date
Southbound online dualling works	March 2022	August 2024
Offline new carriageway works (including traffic management installation and removal)	March 2022	December 2023
Highlaws Junction	March 2022	May 2023
Fenrother Junction	August 2022	December 2023
Causey Park Overbridge	August 2022	October 2023
Burgham Park Underbridge	March 2022	October 2023
West Moor Junction	March 2022	May 2023
River Coquet bridge construction	March 2022	December 2023
River Coquet bridge open	December 2023	
Parkwood Subway	December 2022	May 2023
New Access Track off West View	March 2022	August 2022
Bywell Road extension	October 2022	March 2023
Link Road between Felmoor Park and the proposed West Moor Junction / Felton Road	December 2022	May 2023
Works to de-trunked A1	August 2023	December 2023
Scheme open to traffic	May 2024	
Scheme Design Year (15 years after opening)	2039	

1.2.5. Standard working hours will be from 7:00 am until 7:00 pm, Monday to Friday. However, as detailed in Requirement 4(2)(c) of the dDCO [REP2-004 and 005] there are exemptions to these working hours including:

a. Night-time closures for bridge demolition and installation;
b. Any oversize deliveries or deliveries where daytime working would be excessively disruptive to normal traffic operation;
c. Junction tie-in works;
d. Removal of overhead power lines;
e. Overnight traffic management measures; and
f. Cases of emergency.

1.2.6. All other extended hours beyond the standard working hours would need to be agreed in consultation with NCC.

1.2.7. Construction operations outside the standard working hours will include traffic management installation, traffic management switches, carriageway resurfacing, bridge beam installation, statutory diversions, drainage works, and construction of the new River Coquet Bridge, Charlton Mires Junction and Heckley Fence Accommodation Overbridge.

1.2.8. The construction of Charlton Mires Junction and Heckley Fence Accommodation Overbridge will also require 24-hour closures of the B6347 to the west and east of the A1. Any overnight full closures of the A1 will be carried out overnight between 8:00 pm and 6:00 am. NCC will be notified in advance of these works.

1.2.9. The proposed high-level traffic management strategy comprises the following:

a. **Mainline**: Construction of the new carriageway offline alongside the existing carriageway, and transfer of traffic onto new section when complete. This approach will be taken for both parts of the Scheme. Works to the de-trunked A1 (Part A only).
b. **Offline:** Temporary road closures and diversions of side roads will be required during the construction of the offline section of Part A.
c. The closure of the A1 will be limited to weekends or overnight between 8:00 pm and 6:00 am. For Part A, northbound traffic will be diverted via the A1 north, Morpeth Bypass, A197, A189, A1068 Coast Road, Alnwick A1 north, and the B6341 for all traffic types. The southbound diversion for cars and local traffic will be via the A1 south Alnwick, B6346, B6341 and A697 while the southbound diversion will be via the A698 and A697 for HGV and long-distance traffic. It is anticipated that there will be 23 nights of southbound diversions and 23 nights of northbound diversions required during the construction of Part A. The diversion routes will be between approximately 35 km – 45 km.
d. For Part B, the A1 southbound traffic diversion route will be between Morpeth and south of Belford and will follow the A697 and B6348. The diversion will be approximately 63 km in length and be located to the west of the existing A1. The A1 northbound traffic diversion route will be between Denwick and north of Brownieside and will follow the B1340 and an unnamed road to the east of the A1. The diversion will be approximately 25 km in length and extend east towards the coast. It is anticipated that there will be 17 nights of southbound diversions and 17 nights of northbound diversions required during the construction of Part B. The diversion routes will be between approximately 25 km – 63 km.
e. **Part A side road closures:** Diversions will be local on parallel roads via the A697 (and to the east of the existing A1 in some cases) due to limited traffic. The Applicant will not close all the side roads simultaneously to ensure that some access can be maintained during construction of Part A. Access to residential properties will be maintained for the entirety of the construction period.
f. **Part B side road closures:** Diversions will be local on parallel roads via the B6341 and B6347. The Applicant will not close all the side roads simultaneously to ensure that some access can be maintained during construction of Part B. Access to residential properties will be maintained for the entirety of the construction period.
g. There are no current plans to divert traffic from the A1 through Felton.
h. Full details of the proposed diversion routes for the A1 are those shown in the **Construction Traffic Management Plan** (**CTMP**) (**Application Document Reference: TR010041/APP/7.4**). These diversion routes are currently used by the Applicant when maintenance and improvement works are undertaken on the network.

PART A

Proposed Works

1.2.10. A summary of the key aspects of the construction works, from the south to the north of Part A, is provided below:

a. **Warrener's House to Priest's Bridge** – online widening and a new grade separated junction (Highlaws Junction).
b. **Priest's Bridge to Burgham Park** – offline construction via new dual carriageway to the west of the existing A1. The by-passed section of existing A1 will be de-trunked and the southern extent stopped-up preventing through access to the new A1. An underbridge will be constructed at Burgham Park and an overbridge at Causey Park. A grade separated junction is proposed near Fenrother.
c. **Burgham Park to Parkwood** – online widening including a new bridge over the River Coquet, a new grade separated junction (West Moor Junction) and realignment of some side roads.

1.2.11. Part A will also involve alterations and/or improvements to private means of access, drainage, structures (including Parkwood subway and multiple culverts) and utilities, and temporary and permanent Public Right of Way (PRoW) diversions.

1.2.12. Further details of the works proposed within each aspect outlined above can be found in **Section 2.5** of **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**).

Advanced Works

1.2.13. In order to construct Part A, a National Grid gas transmission pipeline to the south of the proposed Causey Park Overbridge will need to be diverted, together with a Northern Gas Networks pipeline and a Northern Powergrid (NPG) overhead electricity line at this location.

1.2.14. The Proposed Works comprise the diversion of approximately 650 m of existing 1050 mm diameter National Grid High-Pressure Gas Main (HPGM) underground pipeline (maximum 84 bar operating pressure), and are anticipated to be undertaken by National Grid to precede the A1 dualling works. To facilitate this, the diversion of a section of Northern Powergrid (NPG) overhead electricity line (a 20kV low-voltage overhead line) and a section of a Northern Gas Networks (NGN) medium pressure below ground gas pipeline is required. To ensure delivery of these works, powers are also proposed in the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**).

1.2.15. The assumed duration for the proposed NGN and NPG diversions is currently four months, followed by the main National Grid HPGM diversion expected to take six months. These works will be carried out under the permitted development rights of the respective statutory undertakers.

1.2.16. A detailed description of each of the Advanced Works diversions is provided in **Section 2.5** of **Chapter 2: The Scheme**, **Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**).

1.2.17. Similar to the construction arrangements and programme for civil engineering works, final information is not yet available. The Environmental Manager will update the Outline CEMP as and when information becomes available, and as a minimum, it will be reviewed every six months.

Construction Compounds

1.2.18. Two main temporary construction compounds (refer to **Figure 2.5: Temporary Construction Works: Part A** and **Figure 2.6: Temporary Construction Works: Part B**, Volume 1 of the ES (**Application Document Reference: TR010041/APP/6.1**), will be set up to enable Part A to be built. The compounds will include staff parking, site accommodation, materials storage, road sweepings management, facilities to wash vehicles and plant, and material maintenance areas. The compounds will be secure (gated and fenced) and 24 hour security provided. They will be hard surfaced and will implement a one way system.

a. The Main Compound will be located at the northern end of Part A, adjacent to the proposed West Moor Junction, occupying an area of approximately 50,000 m^2. The access to the compound will be off Felton Road. This temporary construction compound will be shared with Part B.
b. A smaller satellite compound will be located in the southern area of Part A adjacent to the proposed Fenrother Junction, occupying an area of approximately 20,000 m^2. The access to the compound will be off Fenrother Lane.

1.2.19. The compounds will be lit during hours of darkness for security and welfare use by directional lighting to avoid light spill and disturbance.

Construction Traffic Management

1.2.20. A **Construction Traffic Management Plan (CTMP)** (**Application Document Reference: TR010041/APP/7.4**) has been produced to support the EIA and this Outline CEMP. This will be further developed by the main contractor prior to the start of construction of the Scheme.

PART B

Proposed Works

1.2.21. A summary of the key aspects of the construction works is provided below:

a. **Alnwick to Ellingham** – online widening to the east of the existing A1. The existing A1 will be used as the northbound carriageway and the new carriageway to the east of the existing A1 as the southbound carriageway.
b. **Charlton Mires Junction** – a new grade separated junction which will replace the existing at-grade junction at Charlton Mires and Rock Lodge. The new junction will include an overbridge over the A1 which will connect to the side roads and proposed access tracks.
c. **Heckley Fence Accommodation Overbridge** – an accommodation overbridge will be provided across the A1 to the east of Heckley Fence.

1.2.22. Part B will also involve alterations and/or improvements to private means of access, drainage, structures (including multiple culverts) and utilities, and temporary and permanent Public Right of Way (PRoW) diversions.

1.2.23. Further details of the works proposed within each aspect outlined above can be found in **Section 2.5** of **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**).

Construction Compounds

1.2.24. Three compounds will be temporarily required to facilitate the construction of Part B. The compounds will include staff parking, site accommodation, materials storage, road sweepings management, facilities to wash vehicles and plant, and material maintenance areas. The compounds will be secure (gated and fenced) and 24 hour security provided. They will be hard surfaced and will implement a one way system.

a. The Lionheart Enterprise Park Compound will be located adjacent to the existing Highways England maintenance depot at Lionheart Enterprise Park, to the south of Alnwick. This construction compound will occupy an area of approximately 40,000 m^2. The access to Lionheart Enterprise Park Compound will be off the unnamed road to the north of this site compound. The existing depot was designed to service the A1 in Northumberland.

b. A smaller site compound will be located within the Part B Main Scheme Area to the east of the existing A1, in an existing field to the south of Charlton Mires. This site compound is called Charlton Mires Site Compound and will occupy an area of approximately 8,000 m^2.

c. The Main Compound will be located to the west of Thirston New Houses and approximately 16 km south of the Main Scheme Area. As detailed in **paragraph 1.2.5(a)** above, this temporary construction compound will be shared with Part A. The Main Compound will occupy an area of approximately 50,000 m^2 and access to the compound will be off Felton Road.

1.2.25. It is anticipated that welfare facilities, site office and construction plant, materials and waste will be stored at the Lionheart Enterprise Park Compound and the majority of site supervision staff located within the Main Compound. Welfare facilities and site materials will also be stored at the Charlton Mires Site Compound.

1.2.26. All the compounds will be lit during hours of darkness for security and welfare use by directional lighting to avoid light spill and disturbance.

Construction Traffic Management

1.2.27. A **Construction Traffic Management Plan** (**Application Document Reference: TR010041/APP/7.4**) has been produced to support the DCO application and this Outline CEMP. This will be further developed by the main contractor prior to works commencing.

1.3 SCHEME OBJECTIVES

1.3.1. The principal objective of the Scheme is to provide resilience to the network and to improve the safety and speed of journeys across the route.

1.3.2. The specific objectives of the Scheme are to:

a. Improve journey times on the route of strategic national importance.
b. Improve network resilience and journey time reliability.
c. Improve safety.
d. Maintain access for local traffic whilst improving conditions for strategic traffic.
e. Facilitate future economic growth.

1.3.3. In addition, the design of the Scheme will be carried out in accordance with the Performance Specification set out for the Applicant in the Department for Transport's (DfT) Road Investment Strategy (RIS) (**Ref. 6**) which identified targets and requirements relating to the environment, cyclists, walkers and other vulnerable users of the network (such as horse riders). Furthermore, the Scheme will seek to support no net loss of biodiversity.

2 SCHEME TEAM ROLES AND RESPONSIBILITIES

2.1.1. The main roles and responsibilities to be adhered to throughout construction of the Scheme are set out in **Table 2-1**.

Table 2-1 - Responsibility Matrix

Role	Key Environmental Responsibilities
The Applicant	a. Set the framework and policy for environmental requirements and objectives for the Scheme. b. Agree the content of the CEMP in consultation with the Local Authority and seek approval by the Secretary of State. c. Primary responsibility for all matters under the DCO, its requirements and the CEMP.
Environmental Consultant (designer)	a. Carry out EIA to identify potential environmental impacts, mitigation measures and significant effects. b. Produce the CEMP. c. Provide information to the design team to ensure Scheme design meets environmental requirements. d. Development of topic specific management plans where necessary.
Scheme Archaeologist (designer)	a. Produce the Cultural Heritage Management Plan within the CEMP before construction. b. Produce a suitable mitigation strategy for unknown archaeological remains and agree it with the County Archaeologist. c. Oversee archaeological investigation works for the Scheme. d. Work with the Environmental Manager to review, update and maintain the Archaeology and Cultural Heritage Management Plan throughout the works. e. Produce Written Scheme of Investigations (WSIs) for programmes of trial trenching and archaeological mitigation, and agree it with NCC.
Scheme Landscape Architect (designer)	a. Oversee and monitor the implementation of the **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** (**Application Document Reference: TR010041/APP/6.5)** and **Landscape Mitigation Plan: Figure 7.10, Volume 6** of the ES **(Application Document Reference: TR010041/APP/6.6**)) on site. b. Oversee and monitor the establishment/maintenance of the landscape works throughout the period from completion to the issue of the Defects Certificate relating to planting. c. Verifies the issue of Design Certificates related to landscape works. d. Monitors and assesses the development of the Scheme in its landscape context throughout the contract maintenance period and provides inputs to the CEMP and HEMP.

Role	Key Environmental Responsibilities
Suitably Experienced Ecologist (SEE) (designer)	a. The SEE will have recent experience in ecological assessment for highways schemes, with recent experience on United Kingdom (UK) schemes. The Ecologist will be a Member of the Institute of Ecology and Environmental Management (IEEM) or other relevant professional organisations, with at least two years membership. b. The SEE will work with the Environmental Consultant to produce the Ecological Management Plan (EMP) within the CEMP before construction.
Project Manager/Contract Manager (main contractor)	a. Overall responsibility for ensuring all elements in the DCO, CEMP and all environmental legal and other requirements are implemented on site. b. Main contractor internal review of the CEMP. c. Ensure resources are made available to carry out environmental responsibilities on site. d. Notifying the Applicant of any environmental incidents. e. Ensure Risk Assessments and Method Statements (RAMS) incorporate environmental aspects and risks. f. Ensure instructions from the Applicant are implemented. g. Ensure a single point of contact for external parties is identified and communicated. h. Ensure subcontractor's method statements incorporate the appropriate environmental mitigation and risk assessment in consultation with the relevant statutory bodies prior to the commencement of works.
Environmental Manager (main contractor)	a. Responsible for the overall management of environmental aspects on site. b. Developing and reviewing the CEMP on a regular basis. c. Ensure all environmental mitigation and monitoring measures identified in the CEMP and associated RAMS are implemented. d. Carry out regular environmental site inspections and audits and report non-compliance to the Project/Contract Manager. e. Establish and oversee environmental monitoring onsite. f. Liaise with relevant environmental bodies and other third parties as appropriate. g. Prepare, or ensure the preparation of, environmental permits, licences and consents and ensuring all associated conditions required are implemented. h. Ensure site personnel are provided with a site environmental induction and appropriate training, briefings and toolbox talks are undertaken and records kept. i. Provide environmental advice and guidance to the team. j. Carry out environmental incident investigations and review near miss and best practice reports. k. Engage other environmental specialists, including, (but not limited to, those detailed below as required).

Role	Key Environmental Responsibilities
Named Ecologist (main contractor)	a. Suitably experienced ecologist to be the named ecologist on the Natural England European Protected Species (EPS) licence(s). b. Responsible for ensuring all requirements of the licence(s) are adhered to and providing advice regarding this.
Ecological Clerk of Works (ECoW) (main contractor)	a. Responsible for ensuring that all ecological mitigation measures are implemented on site. b. Ensure that the requirements of ecological licences e.g. Protected species licences are implemented on site. c. Undertake a watching brief during vegetation clearance. d. Input into the CEMP as required. e. Prepare and carry out ecological briefings and toolbox talks on site. f. Prepare specific ecological method statements and ecological permits as required. g. Provide ecological advice and support to the site team. h. Attend site when unexpected ecological habitats or species are identified. i. Responsible for movement of EPS if found. The ECoW will need to be licensed to undertake these works. j. For works identified in the Register of Environmental Actions and Commitments (REAC) in the environment, the ECoW will need to be suitably experienced.
Archaeologist (main contractor)	a. Ensure all mitigation agreed with NCC are discharged on site and documented. b. Carry out a programme of intrusive Archaeological investigation prior to construction works taking place. This will be followed by a programme of archaeological mitigation (e.g. excavation, strip, map and record or watching brief dependant on the extent and significance of archaeological remains), including recording of unidentified features in accordance with a WSI agreed with the County Archaeologist.
All site-based Personnel including subcontractors	a. Ensure all environmental requirements of the CEMP are adhered to on site. b. Attend site induction, regular environmental training and toolbox talks and ensure learning points are implemented on site. c. Carry out the works in accordance with environmental risk assessments and method statements. d. Report anything that deviates from agreed processes. e. Report environmental near misses, incidents and best practices. f. Only nominated trained personnel will carry out tasks such as refuelling plant, management of hazardous materials, environmental monitoring and waste management.
Other	a. The following roles will also be fulfilled as required:

Role	Key Environmental Responsibilities
	i. Arboriculturalist

3 REGISTER OF ENVIRONMENTAL ACTIONS AND COMMITMENTS

3.1.1. The Register of Environmental Actions and Commitments (REAC) contained in **Table 3-1**, **Table 3-2** and **Table 3-3** identify the commitments included within the **Technical Chapters** for Part A, **Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**) and the **Technical Chapters** for Part B**, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**) to address the potential environmental effects of the Scheme.

3.1.2. The REAC is split into three tables, each separated by a blank page. **Table 3-1** sets out measures which apply to the Scheme as a whole, while **Table 3-2** covers measures applicable only to Part A. **Table 3-3** covers measures applicable only to Part B. ~~In this document each table is separated by a blank page.~~

~~3.1.1.~~3.1.3. Where a measure appears in **Table 3-1**, it is not repeated in **Table 3-2** or **Table 3-3**. Within each REAC table, the commitments are split into design measures, pre-construction / construction measures and operation and monitoring measures. The commitments within the REAC tables are individually referenced for ease of navigation as shown in **Table 3-a** below:

Table 3-~~1~~ a - REAC Referencing System

REAC Reference	Stage of the Scheme	Environmental Topic	Page
Table 3-1 The Scheme			
S-L1 to S-L4	Design	Landscape and Visual	18-21
ExA: S-L100 (added to respond to comments raised during Examination)			21
S-CH1		Cultural Heritage	21-22
S-B1 to S-B3 and SB-20		Biodiversity	22-24
S-W1 to S-W7		Road Drainage and the Water Environment	24-28
S-GS1 to S-GS4		Geology and Soils	28-29
S-PH1 to S-PH4		Population and Human Health	30-31
S-M1 to S-M5		Materials Resources	31-33
S-CC1 to S-CC6		Climate Change	33-37
S-G1 to S-G10	Pre-construction / Construction	General	37-40
S-A1 to S-A4		Air Quality	41-42
S-N1 to S-N5		Noise and Vibration	43-47

REAC Reference	Stage of the Scheme	Environmental Topic	Page
S-L5 to S-L10		Landscape and Visual	47-52
S-CH2 to S-CH6		Cultural Heritage	52-55
S-B4 to S-B17		Biodiversity	55-62
S-W8 to S-W15		Road Drainage and the Water Environment	62-69
S-GS5 to S-GS14		Geology and Soils	69-75
S-PH5 to S-PH11		Population and Human Health	75-78
S-M6 to S-M10		Material Resources	78-80
S-CC7 to S-CC13		Climate Change	80-83
S-N6	Operation and Monitoring	Noise and Vibration	83-84
S-L11 to S-L13		Landscape and Visual	84-86
S-CH7		Cultural Heritage	86
S-B18 to S-B19		Biodiversity	87-88
S-GS15 to S-GS17		Geology and Soils	88-89
S-PH12 to S-PH13		Population and Human Health	89-90
S-CC14		Climate Change	90
Table 3-2 Part A			
A-N1 to A-N6	Design	Noise and Vibration	92-93
A-L1 to A-L6		Landscape and Visual	93-97
A-CH1		Cultural Heritage	97
A-B1 to A-B16		Biodiversity	97-104
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A-GS1		Geology and Soils	109
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A-CC1 to A-CC4		Climate Change	111-112
A-L7 to A-L8	Pre-construction / Construction	Landscape and Visual	112
A-CH2		Cultural Heritage	112-113
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REAC Reference	Stage of the Scheme	Environmental Topic	Page
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A-PH2 to A-PH3		Population and Human Health	130-131
A-M2		Material Resources	131
A-CC5 to A-CC6		Climate Change	132
A-L9	Operation and Monitoring	Landscape and Visual	132
A-B45 to A-B50		Biodiversity	132-134
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B-N1	Design	Noise and Vibration	136
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B-GS1		Geology and Soils	142
B-PH1 to B-PH3		Population and Human Health	142-143
B-M1		Material Resources	143-144
B-CC1		Climate Change	144
B-CH3 to B-CH4	Pre-construction / Construction	Cultural Heritage	144-145
B-B7 to B-B28		Biodiversity	145-154
B-W2		Road Drainage and the Water Environment	154-155
B-GS2 to B-GS4		Geology and Soils	155
B-PH4 to B-PH5		Population and Human Health	155-157
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REAC Reference	Stage of the Scheme	Environmental Topic	Page
B-B29	Operation and Monitoring	Biodiversity	157-158

~~3.1.2.~~3.1.4. Each commitment contains a cross-reference to the relevant ES Chapter (and paragraph number) from which it derives. Within **Chapter 9: Biodiversity Part A [APP-048]** and **Part B [APP-049]**, proposed mitigation measures have been assigned separate references, given the number of commitments. These can also be searched for within the REAC tables for ease of navigation (for example EM001 which relates to S-B9 relating to the protection of nesting birds).

~~3.1.3.~~3.1.5. The REAC will be maintained to track progress of the commitments and record outcomes and evidence of the actions taken, as well as recording and addressing any additional environmental issues that arise during construction. It will be finalised at the end of construction, on completion of the Scheme. This will be the main vehicle for communicating essential environmental information to the Applicant and the body who will be responsible for the future maintenance and operation of the asset.

~~3.1.4.~~3.1.6. The REAC will be maintained as the Scheme progresses and as a minimum will be reviewed every six months until completion of construction.

~~3.1.5.~~3.1.7. The REAC will be the main vehicle for communicating essential environmental information to the Applicant and the body who will be responsible for the future maintenance and operation of the asset.

~~3.1.6.~~3.1.8. In relation to **Table 3-1**, **Table 3-2** and **Table 3-3** if an environmental topic is not listed within the tables this is because there are no required measures at this phase of the Scheme (e.g. no air quality measures are required during detailed design).

~~3.1.7.~~3.1.9. For some commitments it is stated that matters will be discharged during detailed design. In these instances, the final version of the CEMP to be submitted the Secretary of State for approval pursuant to Requirement 4 of Schedule 2 to the dDCO [APP-014] will provide appropriate triggers for the discharge of those matters.

Table 3-1 - Register of Environmental Actions and Commitments: The Scheme

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
DESIGN							
Landscape and Visual							
S-L1	Ash (*Fraxinus excelsior*) will be omitted from all planting mixes due to the biosecurity risk (Ash Dieback *Hymenoscyphus fraxinea* formally *Chalara fraxinea*) which is associated with this species. Further information about Ash Dieback in the area is available in **Appendix 7.5: Arboricultural Report**, **Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**) for Part A and **Appendix 7.1: Arboricultural Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**) for Part B.	To reduce the biosecurity risk associated with this species.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.4 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.4 **Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4	Designer Main contractor	Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As built drawings Landscape Design Certificate	Design	
S-L2	In order to minimise the impacts of the Scheme on existing vegetation, the landscape design includes the following measures: **a.** Existing vegetation within the Order Limits will be retained, in order to reduce potential impacts relating to screening and landscape integration. Where replacement planting is carried out it will be in keeping with the existing landscape. **b.** This will be in accordance with the **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) and **Figure 7.10: Landscape Mitigation Plan, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**) as amended to **Figure 7.14 Landscape Mitigation Plan including Assessment Parameter 3 Part B (Application Document Reference: TR010041/APP/6.6)** should Parameter 3 be required). Should parameters as set out Table 7-25 - Consideration of Assessment Parameters in **Chapter 7:**	To minimise impacts on existing vegetation. To reduce operational impacts through landscape planting. To enhance value for wildlife. To reinstate habitat features. To connect existing habitat areas (especially woodland) and mitigate the effects of fragmentation	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.4 and 7.9.7 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.4 and 7.9.7 **Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4	Designer Main contractor	CEMP and Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As Built drawings Landscape Design Certificate	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	Landscape and Visual Part A [**APP-044**] be required, the landscape mitigation plan (**Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)will be amended accordingly to show any additional replacement hedgerow and tree planting. All ponds will also be retained. Where replacement of removed planting will be carried out, it will be in keeping with the existing landscape, avoiding the extensive use of mass planting of woodland trees (which will over time screen longer views). **c.** Throughout the extent of the Order Limits of the Scheme, where existing vegetation has been lost to facilitate the construction of the Scheme (including vegetation clearance works to accommodate the site compounds), replacement woodland blocks, hedgerows, agricultural land use, and individual trees will be required for the restoration of the land, with the aim of conserving landscape character and associated views. This will be in accordance with the **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES) and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES. **d.** The proposed hedgerows identified within the proposed **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES) **and Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES), located on either side of the Scheme alignment will be supported by linear belts of woodland block planting, and they will intend to act as a wind break, to enable successful plant establishment and reduce the loss of vegetation. **e.** Where hedgerows are shown as being retained on the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES) and the **Landscape Mitigation Plan** (**Figure 7.10**, **Volume 6** of the ES), but subsequently need to be removed to construct the Scheme, replacement hedgerow planting will be required, with species rich mix to match the existing hedgerow lost.	and displacement. To encourage use of structures by wildlife. To improve the biodiversity of the Scheme. To reduce the Scheme's vulnerability to drought.					

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
S-L3	In order to improve the biodiversity of the Scheme, the landscape design includes the following measures: **a.** Shrub planting in the Scheme will be restricted to those areas on either side of culverts and mammal underpasses, in order to encourage usage of the structures by the respective species. This will be extended to include sections of shrub planting on either side of the bridges which cross the mainline, and in and around the junctions to discourage flight paths of bats too close to vehicle updrafts. **b.** Replacement grassland habitat is identified throughout the Order Limits. In total there are seven suggested grass types proposed as part of the Scheme, taking into consideration the specific characteristics of each environment. These will be secured within the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**), and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**)). **c.** Within the areas of Species Rich (conservation) grassland (LE1.3) mitigation, four distinct grass types will be required. These are: i. Junctions/grass verge – suitable for low frequency grass cut areas. ii. General grassed areas – suitable for cutting slopes and embankments. iii. Arable field margins – suitable for the encouragement of pollinators. The Applicant will consult NCC in devising its strategy for Amenity Grassland and Conservation Grassland. This will feed into the landscaping scheme.	To improve the biodiversity of the Scheme.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.8, 7.8.9, and 7.9.11 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.8, 7.8.9, and 7.9.11	Designer Main contractor	Landscape design discharged as required by the DCO by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape Design Certificate	Design	
S-L4	Plant stock will be planted using a combination of whips, transplants, feathered and standard tree nursey stock.	To better integrate the replacement plant stock with that of	**Chapter 7: Landscape and Visual, Volume 2** of	Main contractor	Landscape design discharged as required by the DCO Landscape Inspection Records	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	For Part A, the exception is the replacement trees identified along Coronation Avenue. Here, it is currently proposed to replace trees to be lost to the Scheme along Coronation Avenue with trees of advanced nursery stock sizes at the time of planting in order to better integrate the replacement plant stock with that of the existing trees.	the existing trees at Coronation Avenue.	the ES, Paragraph 7.9.14 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.13		As Built drawings Landscape Design Certificate		
ExA: S-L100	The Applicant will prepare a Landscape and Ecological Management Plan (LEMP) for each of Part A and Part B, prior to construction commencing on that Part and will follow Highways England (LA 120 Environmental Management Plan) guidance, and will include as a minimum: **a.** Overview and site context; **b.** Aims and objectives of the Management Plan; **c.** Scope of the Management Plan; **d.** Sources of information; **e.** Management Prescriptions; **f.** Implementation (scheduled); and **g.** Supporting figures. Documents to support the production of the LEMP will include, as a minimum: **a.** **Table 3-1** of this Outline CEMP; **b.** **Figure 7.8: Landscape Mitigation Masterplan Part A** of the ES [**APP-095**] (latest version submitted at Deadline 3); **c.** **Figure 7.10: Landscape Mitigation Plan Part B** of the ES [**APP-144**] or **Figure 7.14**: **Landscape Mitigation Plan including Assessment Parameter 3 Part B** of the ES **[APP-148**], whichever is appropriate; **d.** **Figure 9.2: Ecological Mitigation Plan (Public) Part A** of the ES [**APP-107**]; and **e.** **Appendix 9.21: Ancient Woodland Strategy Part A** of the ES [**APP-247**].	To ensure delivery of landscape and ecological requirements.	**Statement of Common Ground [REP1-028]**	Main contractor	Landscape design discharged as required by the DCO Landscape Inspection Records Landscape Design Certificate LEMP Report production	Design Pre-Construction	
Cultural Heritage							
S-CH1	Impacts on built heritage assets during operation will be minimised through the use of visual screening (such as landscape planting).	To reduce the visual impact of	**Chapter 8: Cultural Heritage, Volume 2**	Main contractor	As Built drawings	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	For Part A, the introduction of the screening around Highlaws Junction will reduce the visual impact of Part A from the Grade II Listed Church of St Cuthbert by making Part A less visible. Screening in the form of woodland planting is also proposed along the section of Part A by Causey Park and New Houses Farm, which will further reduce visual disturbance during the operation of Part A. Refer to the Landscape Mitigation Plans for additional detail (**Figure 7.8: Landscape Mitigation Masterplan, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) and **Figure 7.10: Landscape Mitigation Plan**, **Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**)).	the Scheme on built heritage	of the ES, Paragraph 8.9.9 **Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.12	Archaeologist (main contractor)			
Biodiversity							
S-B1	Habitat compensation for breeding birds is incorporated into the **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5)** and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES **(Application Document Reference: TR010041/APP/6.6**)), including hedgerows, woodland, scrub and grassland. Where possible, farmland will be retained, and habitat loss kept to a minimum. Farmland boundary features, such as hedgerows, will be reinstated within the Scheme design, where permissible and achievable, to retain these habitats of value.	To compensate for the loss of breeding bird and wintering bird habitat.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM040 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BI05 **Appendix 9.6: Breeding and Wintering Birds Report, Volume 8** of the ES, Table 7-1	Designer Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Scheme design drawings Landscape Design Certificate Landscape planting strategy discharged as required by the DCO Landscape Management Plan HEMP	Design	
S-B2	The **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**)) incorporates compensatory habitat, such as woodland and species rich grasslands, that is of higher value to terrestrial invertebrates than those habitats lost. A diverse	To compensate for the loss of terrestrial invertebrate habitat. To provide larval and adult food plants for a range	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM042 **Chapter 9: Biodiversity, Volume 3** of the	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Scheme design drawings Landscape design approved by the Secretary of State following consultation	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	range of floral species will be incorporated into the landscape design providing larval and adult food plants for a range of invertebrate species, including species of conservation importance highlighted recorded during the baseline surveys. Species-rich grassland creation will be designed to replace areas of poor semi-improved grassland which will be subject to direct loss. Seed mixes will comprise native species of local origin and context.	of invertebrate species, including species of conservation importance recorded during the baseline surveys.	ES, Paragraph 9.9.6 and Table 9-12, HAB02		with NCC as per Requirement 5, Schedule 2 of the **draft DCO** Landscape Design Certificate Landscape design discharged as required. DC Environmental Inspection Records Landscape Management Plan HEMP		
S-B3	Planting of detention basins will include a diverse floral community and enhance their attraction to wildlife. A diverse floral community refers to providing a range and mixture of floral species, including flowering plants and grasses, that provide resources and niches to a variety of invertebrates which in turn provide a resource for species that prey on the invertebrates. This will be achieved through the use of a native and locally appropriate seed mix. In addition, the shape of the detention basins will be considered and explored at detailed design, prior to the construction of the basins for each of Part A and Part B. Excluding the exceptions named below, it will be recommended that these could be designed to be ecologically sympathetic shapes rather than oval indentations. For Part A ,this is proposed for all detention basins with the exception of the ponds located within junctions (includes High Highlaws and West Moor Junctions) and ponds to the southwest of Eshott Airfield (Detention Basins DB15, DB15a and DB17 for Part A), due to the increased risk of mortality from road vehicle and air traffic collision. The exceptions detailed above will be established with grassland flora and maintained at a short sward height. For Part B, there will be marginal planting and wetland areas across Part B in the detention basins in accordance with the Landscape Mitigation Plan. For more information refer to the **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES (**Application Document Reference:**	To improve the wildlife value of detention basins.	**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4 and Table 9-23, EM043 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC14 **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.30 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.25	Main contractor ECoW (main contractor)	Scheme design drawings Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape Management Plan	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	TR010041/APP/6.5) and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**)).						
S-B20	The Applicant will develop a strategy of biodiversity enhancement, based on the opportunities identified within **paragraph 9.9.11** of **Chapter 9: Biodiversity Part A** [**APP-048**], **paragraph** ~~and~~ **9.9.9** of **Chapter 9: Biodiversity Part B** [**APP-049**], and **Section 3.2** of the **Ancient Woodland Strategy** [APP-247] (and as updated at Deadline 4). The strategy will be developed in consultation with relevant stakeholders.	To provide enhancements for biodiversity	**Chapter 9: Biodiversity Part A, Volume 2** of the ES, Paragraph 9.9.11 **Chapter 9: Biodiversity Part A, Volume 3** of the ES, Paragraph 9.9.9	The Applicant	Scheme design drawings Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape Management Plan Ancient Woodland Strategy	Design	
Road Drainage and the Water Environment							
S-W1	The following design measures will be implemented to manage risks to the water environment (specifically pollution risks): **a.** Limiting the clearance of vegetation on the channel banks and riparian zone. **b.** The use of seeded biodegradable fibre matting to encourage re-vegetation after works on, or near, the banks. This is applicable to the larger watercourses such as: the River Lyne, Fenrother Burn, Earsdon Burn, Longdike Burn and the River Coquet in relation to Part A, and Denwick Burn and its tributaries and Shipperton Burn in relation to Part B. **c.** Maintaining, where possible, vegetation cover on the banks close to the rivers and prompt reinstatement of vegetation to minimise the impact of reduced roughness, thus potentially reducing stream power, flow velocity and sediment transport capability through the construction zone.	To manage risks to the water environment (pollution).	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.12 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.12 **Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.9 **Appendix 10.2: Water Framework Directive, Volume 7** of the ES, Paragraph 15.1.23	Designer Main contractor Environmental Manager (Main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talk records	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
			Appendix 10.2: Water Framework Directive, Volume 8 of the ES, Paragraph 10.1.13				
S-W2	Bridge Foundations (Piles) For Part A, there are six proposed structures which incorporate piling into their design, and for Part B, there are two proposed structures which incorporate piling into their design. Due to the shallow water table along much of the route these structures terminate up to 15 m below the water table. Shallow drains either side of the foundations will be installed, which feed into the overall surface water or drainage system to mitigate against groundwater rise.	To manage risks to groundwater	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.10.52 and 10.10.53 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.10.43 and 10.10.44	Designer Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Design	
S-W3	Culverts A granular layer will be placed beneath proposed culverts in order to ensure groundwater can flow beneath them unimpeded thereby preventing potential groundwater rise and flooding.	To prevent potential groundwater rise and flooding	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.10.51 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.10.42	Designer Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Design	
S-W4	Detention Basins Higher permeability material will be placed beneath or around the detention basins to allow groundwater to move freely around the lined basins.	To manage risks to groundwater	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the	Designer Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft**	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
			ES, Paragraph 10.10.50 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.10.41		**DCO** (**Application Document Reference: TR010041/APP/3.1**)		
S-W5	Installation of new drainage infrastructure to accommodate increased runoff rates and volumes from the increase in impermeable area and construction of runoff detention basins to manage surface water flow from the drainage network. Advance drainage surveys with affected landowners will be undertaken prior to start of works to allow detailed design of land drains to be accommodated within the temporary works and final Scheme proposal.	To manage risk to the water environment associated with the design of changes to/new structures within watercourses.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.24 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.18 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 1.2.2 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Paragraph 1.2.3	Designer	As built drawings	Design	
S-W6	The design of the culverts has taken hydromorphological considerations into account, where appropriate. All culverts for Part A and the proposed culvert 25.1 along the southern tributary for Kittycarter Burn for Part B will tie into the existing	To improve culvert design in line with hydrological considerations.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the	Main contractor	As built drawings CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft**	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	channel and a gravel bed will be created throughout the length of the new culverts. Further analysis of flow dynamics will be undertaken during the detailed design stage, prior to the construction of the culverts for each of Part A and Part B, which will inform the selection of the most appropriate material size and grading (and for Part B, the need for baffles) within the natural bed of the culverts, to ensure that the natural bed material is not mobilised during high flow conditions.	To manage risks to the water environment To provide potential wildlife habitat	ES, Paragraph 10.9.29 and 10.10.29 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.24 and 10.10.23 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.2.2 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Table 10-3 and Paragraph 10.2.3		**DCO** (**Application Document Reference: TR010041/APP/3.1**)		
S-W7	The new sections of culvert will be made from precast concrete or pipes to reduce the potential for polluting the watercourses. For Part A, offline structures will be constructed offline to the watercourses.	To reduce the potential for increased sedimentation and pollution risks to the watercourses.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.9 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.9 **Appendix 10.2: Water Framework**	Main contractor Environmental Manager (main contractor)	As built drawings CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
			Directive Assessment, Volume 7 of the ES, Paragraph 15.1.22 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Paragraph 10.1.12				
Geology and Soils							
S-GS1	Detailed design elements of the Scheme have not yet commenced, and the final design will dictate the most appropriate ground stability mitigation measures.	To minimise risks associated with ground collapse and ground related structural damage.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.3 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.3	Environmental Consultant (designer)	As built drawings	Design	
S-GS2	All geotechnical related works will be undertaken in accordance with DMRB guidance document HD 22/08 – Managing Geotechnical Risk. This will include the production of a Geotechnical Design Report, which sets out geotechnical parameters to facilitate the safe design of the Scheme from a ground engineering perspective.	To manage geotechnical risk.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.2 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.2	Main contractor	Geotechnical design report	Design	
S-GS3	Elements within the proposed drainage strategy will be designed to reduce the risk of potential physical and chemical contaminants entering the surrounding surface watercourses. The permanent drainage strategy will incorporate the implementation of filter	To manage surface water runoff during construction	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.4 and 11.9.5	Environmental Consultant (designer)	As built drawings	Design	

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	drains, kerb and gully, combined kerb drainage and concrete surface water channels as the primary means of removing and collecting surface water runoff from the highway. These will be sited adjacent to the hardstrip at the edges of the carriageway. For Part A, the surface water runoff will then be directed into a storage swale (open and natural infiltration basin), a tank, and detention basins. Refer to **Chapter 2: The Scheme, Volume 1** of this ES (**Application Document Reference: TR010041/APP/6.1**) and the **Drainage Strategy Report** (**Appendix 10.5, Volume 7** of this ES (**Application Document Reference: TR010041/APP/6.7**)). For Part B, it is proposed that runoff from the highway is discharged into existing surface watercourses via storage retention basin where required. The drainage strategy recognises that there is a requirement to provide treatment prior to discharge to many of the surface watercourses and states that a permanent wet shallow area will be required in detention basins, the details of which will be confirmed at detailed design prior to the construction of the detention basins. Refer to **Chapter 2: The Scheme, Volume 1** of the ES and the **Drainage Strategy Report** (**Appendix 10.4, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)).		**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.4 and 11.9.5				
S-GS4	The following measures will be implemented: **a.** Pollution control measures including detention basins and filter drains will be incorporated into the drainage design of the Scheme. This will reduce the rate of the surface water run-off which will have flowed freely ultimately into surrounding surface watercourses. **b.** Sediment and pollutants will settle to the bottom of the detention basins to limit entry to surrounding controlled water bodies. **c.** Surface water run-off rates will be restricted to the existing greenfield run-off values for an equivalent storm event.	To prevent pollution of controlled water bodies.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.15 **Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.16	Main contractor Environmental Consultant (designer)	Scheme design drawings	Design	

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Population and Human Health							
S-PH1	The following measures will be implemented: **a.** The Scheme will either retain an existing standard or improve access arrangements to both residential and commercial properties and community facilities. **b.** Existing PRoW and WCH routes will be retained where possible. Where they are crossed by the route, an alternative proper means of access will be provided to prevent severance. This will be secured through the DCO. The permanent PRoW closures and diversions are provided in more detail in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**).	To reduce effects on community severance.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.6 and 12.9.9 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.4 and 12.9.8	Designer	As built drawings PRoW Management Plan	Design	
S-PH2	Use of best practice design, with regards to safety of WCH, will improve the amenity of users of footpaths in the surrounding areas, particularly in those areas where diversions of PRoW are proposed. Additionally, landscaping that can provide screening of the road will be provided where possible and practicable. Details of proposed screening are shown in **Figure 7.8: Landscape Mitigation Masterplan, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5)** and **Figure 7.10: Landscape Mitigation Plan**, **Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**)	To reduce community severance and effects on WCHs.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.5 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.5	Designer	As built drawings PRoW Management Plan	Design	
S-PH3	Appropriate signage for the Scheme will be implemented to avoid creating route uncertainty. The provision of grade separated crossings will reduce the fear of accidents for road users during operation. A Signage Strategy will be prepared. The Applicant will consult NCC in devising its signing strategy. This will feed into the Scheme sign design.	To reduce driver stress.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.2-12.9.3 **Chapter 12: Population and Human Health, Volume 3** of the	Designer	As built drawings	Design	

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			ES, Paragraph 12.9.2-12.9.3				
S-PH4	Use of best practice design, with regards to safety of WCH, including lighting, will improve the amenity of users of footpaths in the surrounding areas, particularly in those areas where diversions of PRoW are proposed. Additionally, landscape planting that can provide screening of the road where possible and reduce noise level for the wider network of PRoW will also improve amenity for users. Details of proposed screening are shown in **Figure 7.8: Landscape Mitigation Masterplan, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**).	To reduce community severance and improve the safety of WCH	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.5 and 12.9.14 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.5-12.9.6	Designer	As built drawings	Design	
Material Resources							
S-M1	The Scheme will be designed for resource optimisation by: **a.** Simplifying layout and form and using standard sizes. **b.** Balancing cut and fill. **c.** Setting net importation as a Scheme goal. For example, for Part A, the product of a net surplus of earthworks on Part A, has removed the requirement to import earthworks to Part A. **d.** Maximising the use of renewable material resources, and materials with recycled or secondary content. For example, the central reserve design will comprise slow viscoelastic recycled materials (up to 80%) for a hardened design	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.2 **Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.2	Designer Main contractor	Scheme design drawings CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Design	
S-M2	The Scheme will design for recovery and reuse by identifying, securing and using material resources at their highest value, whether they already exist on site, or are sourced from other schemes. For example, the re-use of suitable cut material on the Scheme as fill has already been incorporated within the Scheme design to minimise adverse impacts on virgin material consumption and landfill capacity.	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.2 **Chapter 13: Material**	Designer	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Scheme design drawings	Design	

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	In addition, Polished Stone Values (PSVs) will be varied across the carriageway to reduce the demand on premium high PSV aggregate and use more local aggregate. (PSVs are used for estimating the skid resistance of the road surface)		**Resources, Volume 3** of the ES, Paragraph 13.9.2				
S-M3	As far as possible, material resources from demolition will be re-used in the construction of the new road. The use of site arisings (earthworks cut) unsuitable for re-use on the Scheme as fill, will be used on site in specified environmental landscape bunds. For Part A, approximately 145,000 m^3 will be reused for essential mitigation in these landscape bunds, for screening or protected species mitigation. Refer to the **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**)). Where suitable, surplus material from Part A will be exported to Part B and others of the Applicant's projects in the North East. This material will be stored temporarily within Part A until the start of construction of these other schemes, or until required for the construction of Part B. This approach is discussed further in **Section 2.12** of **Chapter 2: The Scheme**, **Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**) as addressed by Assessment Parameters 4, 5 and 9. Should other schemes not be available to use the material, additional bunds and slackened earthworks slopes are proposed within Part A which will accommodate the surplus material except for a quantity of topsoil, some of which will be temporarily stored within topsoil storage areas. The surplus will then either be reused within proposed environmental bunds or sold locally. The viability of this approach will be determined following the results of ground investigations to determine whether the soil is chemically and geotechnically suitable.	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste. To promote the reuse of materials.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.3 **Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.3	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Materials Management Plan	Design	

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S-M4	The Scheme will be designed for the future by seeking to specify materials with low environmental impact (as determined through lifecycle assessment, Green Guide ratings or other industry recognised methods) to minimise lifetime environmental impact.	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.2 **Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.2	Project Manager Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Materials Management Plan	Design	
S-M5	The Scheme will be designed to be more easily adapted over an asset lifetime. For Part A, the design of the proposed Burgham Park Underbridge will specifically exclude the use of construction and expansion joints to ensure only minimal maintenance will be required in the future and there will be no need for bearing replacement. For Part B, the design of the Charlton Mires Junction and Heckley Fence Accommodation Overbridge will minimise the use of construction and expansion joints to ensure only minimal maintenance will be required in the future and there will be no need for bearing replacement.	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste by designing Part B to be adaptable and easily reused in the future.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.2 **Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.2	Designer	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As built drawings	Design	
Climate Change							
S-CC1	In order to reduce the impact of the Scheme on climate change, the Scheme design includes the following measures: **a.** Where possible, existing structures will be retained, such as footpaths, bus stops, laybys, culverts and (for Part A) the River Coquet bridge drainage as set out in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). **b.** The selection of structural elements (each bridge and culvert) has been completed using a matrix	To reduce the impact of the Scheme on climate change by reducing the GHG emissions associated with its design.	**Chapter 14: Climate, Volume 2** of the ES, Paragraph 14.9.4 **Chapter 14: Climate, Volume 3** of the ES, Paragraph 14.9.4	Main contractor Environmental Consultant (Designer)	The CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Detailed design drawings As built drawings	Design	

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	examination of the various potential structural forms. Sustainability considerations are one of the main areas through which the options were assessed. **c.** Wherever possible the most appropriate low carbon solution has been chosen for the Scheme, and will continue to be undertaken during detailed design in line with good practice **d.** Use of pre-fabricated elements and off-site construction to optimise efficiency, such as the girders and bracing for the deck works and culvert elements. **e.** Design initiatives will be realised through working with the Pavement Efficiency Group to ensure that emerging or improved practices will be adopted wherever possible. The design aspects will be confirmed as detailed design progresses; however, this may include specialist road recycling through cold reconstruction processes which reduces waste to landfill and energy reduction, mobile batching plant which will reduce vehicle movements, and warm mix asphalt, manufactured at lower temperatures reducing the carbon footprint and using less fuel in the manufacturing process. **f.** As far as possible, the Scheme will incorporate material resource efficiency and waste minimisation best practice into design, in particular improving the cut/fill balance of the Scheme. **g.** The main contractor will select and engage with material suppliers taking into account their policies and commitments to reduction of greenhouse gas emissions, including embodied emission in materials. **h.** The Scheme will minimise energy consumption including fuel usage by, for example, reducing the requirement for earth movements to/from and within the construction site.						

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S-CC2	The following design measures have been adopted within the design of the road surfacing: **a.** Re-use of materials to minimise resource consumption, waste disposal and emissions resulting from material haulage. **b.** Whole-lifecycle design, including that which maximises the residual life of existing surfacing components. **c.** Recycling of end-of-life materials **d.** Innovative and best practice design to ensure environmental protection and minimise construction periods and traffic disruption.	To reduce greenhouse gas emissions	**Chapter 14: Climate, Volume 2** of the ES, Paragraph 14.9.3 **Chapter 14: Climate, Volume 3** of the ES, Paragraph 14.9.3	Designer	Detailed design drawings As built drawings	Design	
S-CC3	Structures The detailed design will ensure culvert spans are compatible with predicted flow rates during period of high rainfall (during operation), particularly for extreme rainfall events with regard to surrounding topography and other watercourses. Drainage **a.** The drainage design includes Sustainable Urban Drainage System (SuDS) to limit the effect of the new works by attenuating the runoff during operation. **b.** An allowance will be made for increased intensity of rainfall. An increase of 20% will be used in line with DMRB. Flood Risk **a.** The culvert design includes for 300 – 600 mm freeboard allowance. Buildability **a.** Where landscape planting is included on embankments this will improve stability during operation. **b.** Embankment slopes will be constructed from sub soil rather than topsoil with appropriate planting. For Part B, the embankment slopes will be 3:1 and constructed from earthworks cut with appropriate planting.	To reduce the Scheme's vulnerability to extreme rainfall events.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Main contractor Designer	Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Detailed design drawings As built drawings	Design	

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	c. Drainage will be designed such that maintenance (during operation) is more accessible and easier to undertake. **d.** Drainage will be designed for minimal maintenance during operation. **e.** Self-cleansing drainage systems will be provided to remove silting. **f.** Agree higher discharge levels the Environment Agency to remove excess stored water from drainage system quicker during operation. **g.** Incorporate effective seals to equipment such as the weather station, Automatic Number Plate Recognition (ANPR), technology cabinets, electricity cabinets to minimize water ingress and subsequent equipment failure during operation.						
S-CC4	In order to reduce the Scheme's vulnerability to extreme temperature events, the following buildability measures will be implemented: **a.** Designing structures with expansion joints of appropriate capacity for extreme temperature events. For Part A, this includes the North abutment of the River Coquet Bridge. **b.** Considering materials for surface course that will withstand higher temperatures before skid resistance is affected during design.	To reduce the Scheme's vulnerability to extreme temperature events.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Designer	Detailed design drawings As built drawings	Design	
S-CC5	Relative humidity can lead to excessive condensation and water accumulation, particularly on steel surfaces. This will be collected/managed during operation through the inclusions of suitable drip details and water collection/drainage.	To reduce the Scheme's vulnerability to humidity.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Designer	Detailed design drawings As built drawings	Design	
S-CC6	Structures will be designed to current standards for wind loading.	To reduce the Scheme's vulnerability to extreme temperature events.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3**	Designer	Detailed design drawings As built drawings	Design	

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			of the ES, Table 14-16				
PRE-CONSTRUCTION / CONSTRUCTION MEASURES							
General							
S-G1	The main contractor will develop the Outline CEMP into the CEMP in line with Interim Advice Note (IAN) 183/14 (**Ref. 3**) Environmental Management Plans. The CEMP approved by the SoS for Transport following consultation with NCC, prior to construction works commencing on site. The measures contained in the CEMP will be reviewed by the main contractor in consultation with the Applicant on a regular basis. As a minimum it will be reviewed as follows: **a.** Every six months. **b.** To incorporate changes to legislation, policy or other requirements. **c.** To incorporate the outcomes of environmental audits and inspections. **d.** Following the outcome of environmental incident investigation on site. **e.** In response to near miss and good practice reporting.	To provide a framework for the implementation of environmental requirements on site.	CEMP	Main contractor	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**).	Pre-construction	
S-G2	Prior to construction, the main contractor will sign up to and adhere to the National Considerate Constructor's Scheme (CCS).	To implement and demonstrate best construction practices and promote good community relations.	CEMP	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Site registration CCS Monitor Report and Score	Pre-construction	
S-G3	The main contractor will inform the public of the nature, timing and duration of particular construction activities, for example those that might cause disruption (such as night time works) and the duration of the construction works, for example, by newsletters, letter drops and liaison with NCC.	To promote positive community engagement and ensure members of the public are	CEMP	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Pre-construction Construction	

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	A Communication Plan (that includes community engagement) will be developed before work commences on site.	kept up to date on the works.			Communications Plan		
S-G4	Standard working hours will be from 7:00 am until 7:00 pm, Monday to Friday. However, as detailed in Requirement 4(2)(c) of the dDCO [REP2-004 and 005] there are exemptions to these working hours including: **a.** Night-time closures for bridge demolition and installation; **b.** Any oversize deliveries or deliveries where daytime working would be excessively disruptive to normal traffic operation; **c.** Junction tie-in works; **d.** Removal of overhead power lines; **e.** Overnight traffic management measures; and **f.** Cases of emergency. All other extended hours beyond the standard working hours would need to be agreed in consultation with NCC. Construction operations outside the standard working hours will include traffic management installation, traffic management switches, carriageway resurfacing, bridge beam installation, construction of the new River Coquet bridge, statutory diversions, drainage works, and construction of Charlton Mires Junction and Heckley Fence Accommodation Overbridge. The construction of Charlton Mires Junction and Heckley Fence Accommodation Overbridge will also require 24-hour closures of the B6347 to the west and east of the A1. Any overnight full closures of the A1 will be carried out overnight between 8:00 pm and 6:00 am.	To minimise impacts to members of the public.	CEMP	Main contractor	Agreement in writing with NCC as per 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	
S-G5	A suitable lighting strategy will be developed for implementation across the Scheme in accordance with BS5489 Code of Practice for the Design of Road Lighting and good practice guidance on lighting with regards to protected species. Measures will include:	To minimise disruption to the public and the natural environment as a result of	CEMP **Chapter 9: Biodiversity, Volume 2** of the	Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	

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	a. Avoidance of direct lighting on any buildings or trees that contain bat roosts or barn owl nest/roost sites, habitats of value to foraging and commuting bats (such as hedgerows, trees, woodland) and other sensitive mammal habitats where defined from pre-construction surveys. **b.** Avoidance of artificial lighting of watercourses, particularly during the hours of darkness to prevent impacts to fish behaviour or passage. **c.** Avoidance of light spill using directional and/or baffled lighting. **d.** The use of movement triggers, thus lighting only turns on when people (large objects) move through the area (use within compound). **e.** Positioning of lighting columns away from habitats of value to foraging and commuting bats (hedgerows, trees, woodland). **f.** Reducing the height of lighting columns to reduce light spill onto adjacent habitats. **g.** Variable lighting regimes (VLR) - switching off when human activity levels are low i.e. 21:00 to 05:30. **h.** Avoid use of blue-white short wavelength lights and high ultraviolet (UV) content. **i.** Work during hours of darkness will be avoided as far as practicable and where unavoidable, directed lighting will be used to minimise light pollution and glare. **j.** Temporary lighting used for construction will be switched-off when not in use and positioned so as not to spill on to adjacent land, watercourses, sensitive receptors or retained vegetation within the area surrounding the works. **k.** Directed lighting will be used to minimise light pollution/glare, including for construction compounds. **l.** Lighting levels around construction compounds will be kept to the minimum necessary for security and safety by the main contractor. **m.** Where this is not possible the Contractor will agree any exceptions with the ECoW in advance of construction activities.	construction lighting.	ES, Table 9-23, EM005 and EM009 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC12, AQ03 and BAT01 **Appendix 9.9: Bat Survey Report 2018, Volume 7** of the ES, Paragraph 5.1.8-5.1.10 **Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.2.5, Table 7-2 **Chapter 7: Landscape and Visual, Volume 2** of the ES – Paragraph 7.9.2 **Chapter 7: Landscape and Visual, Volume 3** of the ES – Paragraph 7.9.2		Lighting strategy Precautionary working method statement Site Environmental Inspection Reports Signed toolbox talks records		

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S-G6	Material deliveries will be programmed to arrive 'just in time' as far as possible to avoid temporary storage, minimise the potential for damage and double handling.	To minimise waste generation due to damage and reduce materials handling costs.	CEMP	Main contractor	Site environmental inspection reports CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	
S-G7	The main contractor employed for construction will obtain and comply with the requirements of any protected species derogation licences in respect of works that have the potential to breach applicable conservation legislation necessary to construct the project. Licensing may be for UK and/or European protected species.	To comply with conservation legislation.	CEMP **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC04	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) EPS Method statement ECoW Weekly Log Construction Constraints Plan	Pre-construction	
S-G8	Any tree felling will be carried out by experienced contractors to reduce direct mortality of protected species according to agreed felling methods between contractors and the ECoW.	To protect fauna during removal of habitat.	CEMP **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC05	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) EPS Method statement ECoW Weekly Log Construction Constraints Plan	Pre-construction / construction	
S-G9	The main contractor will produce and submit an application under Section 61 (s61) of Part III of the 1974 Act to NCC's Environmental Health Department in whose area the works are to take place. Once approved, any conditions applied to the approval shall be complied with.	To manage any nuisance resulting from the Scheme	**Statement Relating to Statutory Nuisance,** Paragraph 3.4.7	Main contractor The Applicant	Section 61 (s61) of Part III of the 1974 Act Section 79(1)(g) and (ga) of EPA 1990 CEMP approved by the SoS following consultation with NCC	Pre-construction Construction	
S-G10	Adherence to the measures outlined in this Outline CEMP (and then in the CEMP produced by the main contractor) will ensure that statutory nuisance or noise impacts prejudicial to health under Section 79(1)(g) and (ga) of the EPA 1990 will be avoided.	To manage any nuisance resulting from the Scheme	**Statement Relating to Statutory Nuisance,** Paragraph 3.4.9	Main contractor The Applicant	Section 61 (s61) of Part III of the 1974 Act Section 79(1)(g) and (ga) of EPA 1990 CEMP approved by the SoS following consultation with NCC	Pre-construction Construction	

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Air Quality							
S-A1	Site Management The main contractor will produce a Dust Management Plan prior to construction commencing, which will include site-specific mitigation measures for dust-generating activities. This may include: **a.** Records of dust and air quality complaints will be kept, including likely causes and mitigation measures to reduce impacts if appropriate. **b.** Site perimeter, fences etc will be kept clean. **c.** A dust audit programme will be devised and implemented by the main contractor, and will include visual inspections of offsite dust deposition. This may need to be supplemented by automatic monitoring of PM_{10} if the risk of impacts increases, such as during prolonged dry weather. Site Planning **a.** Consideration of weather conditions and the dust generating potential of material to be excavated will be ensured prior to the commencement of works. **b.** The main contractor will plan the site layout to maximise distance from plant/stockpiles etc. to sensitive receptors. **c.** Dusty materials will be removed from site as soon as possible.	To manage dust associated with the construction of the Scheme.	**Chapter 5: Air Quality, Volume 2** of the ES, Paragraph 5.9.1 **Chapter 5: Air Quality, Volume 3** of the ES, Paragraph 5.9.1	Main contractor	Dust audits carried out by site team and documented	Pre Construction Construction	
S-A2	Construction Traffic **a.** Traffic management measures will be required during the construction phase, taking into account the cumulative effects of construction traffic from other schemes and the Scheme as a whole (Part A and Part B). **b.** Loads entering and leaving the site with dust generating potential will be covered and wheel washing facilities made available. **c.** There will be no idling of vehicles.	To minimise dust and emissions associated with the construction of the Scheme.	**Chapter 5: Air Quality, Volume 2** of the ES, Paragraph 5.9.1 and 5.9.2 **Chapter 5: Air Quality, Volume 3** of the ES, Paragraph 5.9.1 and 5.9.2	Main contractor	Plant inspection checks Construction Traffic Management Plan approved by the SoS following consultation with NCC. Site Environmental Inspection Reports	Construction	

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	d. Vehicles will comply with site speed limits set by the main contractor (15 mph on hard surfaces, 10 mph on unconsolidated surfaces). **e.** Water assisted sweeping of local roads will be undertaken if material is tracked out of site. **f.** Hard surfaces will be installed as soon as practicable on site and ensured they are maintained in good condition.						
S-A3	Site Activities **a.** Exposed soils will be protected from winds until sealed or re-vegetated. **b.** Dust generating activities will be minimised, particularly near residential receptors/sensitive ecosystems during prolonged dry, dusty weather unless damping/other suppressants are used. **c.** An adequate water supply to site will be ensured and water will be used as dust suppressant where applicable. **d.** Any site machinery will be well maintained and in full working order. **e.** Sand and aggregates will be stored away from sensitive receptors and screened/shielded. Similarly, concrete batching will take place away from receptors.	To minimise dust and emissions associated with the construction of the Scheme.	**Chapter 5: Air Quality, Volume 2** of the ES, Paragraph 5.9.1 **Chapter 5: Air Quality, Volume 3** of the ES, Paragraph 5.9.1	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Dust audits carried out by site team and documented Site Environmental Inspection Reports	Construction	
S-A4	To manage dust emissions, the following measures will be implemented: **a.** During construction, monitoring will be required to determine the effectiveness of the proposed mitigation, or requirement for further mitigation. **b.** In the first instance, monitoring will be limited to visual inspections of emissions and/or dust soiling of local roads or properties. This will be undertaken daily for the duration of the construction of the Scheme. **c.** If risk levels rise, for example during prolonged dry weather, or the visual monitoring indicates persistent soiling, it may be necessary to install continuous monitoring of particulate matter (as 15-minute average PM_{10} and $PM_{2.5}$). The monitors will be equipped with an alert mechanism, set to agreed thresholds with NCC.	To monitor and manage dust emissions and take action to prevent detrimental effects.	**Chapter 5: Air Quality, Volume 2** of the ES, Paragraph 5.11.1-5.11.3 **Chapter 5: Air Quality, Volume 3** of the ES, Paragraph 5.11.1-5.11.3	Environmental Manager (main contractor) Main contractor	Dust audits carried out by site team and documented. Site Environmental Inspection Reports	Construction	

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Noise and Vibration							
S-N1	The calculated SOAEL zone distance is outside the prediction range of the calculation in BS:5228-2. Once more detail on the geology of the area and the exact piling technique is known, a more detailed vibration assessment should be undertaken prior to construction works commencing.	To identify a SOAEL zone.	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Table 6-26 **Chapter 6: Noise and Vibration, Volume 3** of the ES, Table 6-29	Main contractor	CEMP approved by the SoS following consultation with NCC	Pre-construction	
Level 1 Mitigation Measures – Applicable within 300 m of any construction activity							
S-N2	The following Level 1 measures will be implemented: **a.** The main contractor and their sub-contractors will assess, consider and implement best practicable means (BPM) at all times throughout the construction of the Scheme in order to control noise and vibration resulting from the construction works. S72 of Control of Pollution Act (CoPA) 1974, BS 5228-1 and BS 5228-2 will be adopted. The main contractor will develop and submit a noise and vibration management plan (NVMP) including method statements and any monitoring and reporting protocols that demonstrate to the Applicant that no significant impact will result from their construction works. The method statements shall specify how immediate neighbours will be kept informed of the measures taken to achieve this requirement. The main contractor will provide the method of working with at least 14 days' notice. No work shall commence without the written acceptance from the Applicant. **b.** Guidance given in BS 5228-1 (Section 8 - Control of noise and Annex B - Noise sources, remedies and their effectiveness) will be followed as far as is practicable and advice and training on noise minimisation given to staff during Site induction procedures.	To limit effects on sensitive receptors during construction. To avoid or reduce any disturbance from noise (and vibration) as far as is practicable.	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraph 6.9.8-6.9.10 **Chapter 6: Noise and Vibration, Volume 3** of the ES, Paragraph 6.9.7-6.9.8 **Appendix 6.8: Construction Noise and Vibration Mitigation Clauses, Volume 7** of the ES **Appendix 6.9: Construction Noise and Vibration Mitigation Clauses, Volume 8** of the ES	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Environmental Inspection Records Signed toolbox talk records Noise and Vibration Management Plan Communications Plan	Construction	

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	c. Each plant item will be well maintained and operated in accordance with manufacturers' recommendations and in such a manner as to minimise noise emissions. **d.** Electrically powered plant will be preferred, where practicable, to mechanically powered alternatives. All mechanically powered plant will also be fitted with suitable silencers, as appropriate. **e.** Items of plant operating intermittently will be shut down in the periods between use. **f.** Where feasible, all stationary plant will be located so that the noise effect at receptors is minimised and, if practicable, every item of static plant when in operation will be sound attenuated using methods based on the guidance and advice given in BS 5228-1. **g.** Careful selection of construction methods and plant will be investigated and utilised, for example, breaking-out of concrete structures using, if required, low noise methods such as munching or similar, rather than percussion breaking. **h.** Regular onsite observation monitoring and checks/audits will be undertaken to ensure that BPM is being employed at all times. The site reviews will be logged and any remedial actions recorded. Such checks will include but not be limited to: i. Hours of working. ii. Presence of mitigation measures, equipment (i.e. engines doors closed, airlines not leaking, etc.) and screening (i.e. location and condition of local screening, etc.) iii. Number and type of plant. iv. Construction Method. v. Where applicable, compliance with any noise and vibration commitments. **i.** Works (including deliveries) will be programmed such that the requirement for working outside of normal working hours is minimised.						

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	j. The main contractor will produce and submit an application under Section 61 (s61) of Part III of The Control of Pollution Act 1974 to the Local Authority Environmental Health Department in whose area the works are to take place. Once approved, any conditions applied to the approval will be complied with. **k.** The consent applications will be discussed with the relevant local authority, or authorities, throughout the construction period. **l.** All relevant plant will comply with permissible noise levels set out in the relevant European Directives. **m.** Unless for safety or engineering reasons, the number of instances of a particular diversion route being used will be limited to: i. Less than 10 days/nights in any 15 consecutive day period, and ii. Less than 40 days/nights in any consecutive 6-month period. **n.** Where an alternative diversion route cannot be accommodated, and use of a route is likely to exceed more than 10 days/nights in any 15 consecutive days, or 40 days/nights in any 6 consecutive months, alternative mitigation may be offered to properties within 50 m of the diversion route such as secondary insulation of the windows of affected habitable rooms or temporary re-housing in line with the example thresholds in BS 5228-1 Annex E.4 **o.** Where a diversion route is to be used the pavement will be checked to ensure it is in good condition, and the signalling of traffic lights adjusted to avoid the stop-start of traffic within 50 m of receptors in discussions with the NCC. **p.** The main contractor will liaise with relevant NCC Environmental Health Officers, affected residents and commercial operations within 300 m of construction works to ensure that local people and business are kept well informed of the timings and duration of construction works, via such means as newsletters and public meetings. **q.** The main contractor will appoint a reasonable person to liaise with the public and have a						

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	representative available on site during daytime working hours to answer queries or address any concerns expressed. **r.** Where construction activities are undertaken in the same area in tandem, the cumulative effects of both (or more) needs to be considered such that the Significant Observed Adverse Effect Level (SOAEL) is not exceeded at receptors previously predicted not to exceed the SOAEL.						
Level 2 Mitigation Measures – Applicable where noise or vibration levels at sensitive receptors are predicted to exceed the Significant Observed Adverse Effect Level (SOAEL) for construction. Must be undertaken in addition to Level 1 measures.							
S-N3	Where sensitive properties are within the SOAEL zone, the mitigation measures include but are not limited to: **a.** Unless for safety or engineering reasons construction works that cause noise levels at noise sensitive receptors above the SOAEL will not exceed the following durations: i. 10 days/nights in any 15 consecutive days/nights. ii. 40 days/nights in any consecutive six months. **b.** If the above durations need to be exceeded, temporary re-housing will be offered to residents for the duration of relevant works. The requirement or otherwise for an offer of temporary re-housing will be determined based upon the outcome of further detailed assessment adopting finalised construction methodology and phasing details to be provided by the appointed main contractor. Such an assessment will be undertaken as part of the Construction Environmental Management Plan (CEMP). **c.** The main contractor will develop method statements, monitoring and reporting protocols to demonstrate that: i. All plant and equipment will be properly maintained and operated in accordance with manufacturers' recommendations. Plant will be inspected on arrival to site. ii. Machines in intermittent use will be shut down in intervening periods of non-use or,	To limit effects on sensitive receptors during construction.	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraph 6.9.11-6.9.15 **Chapter 6: Noise and Vibration, Volume 3** of the ES, Paragraph 6.9.10-6.9.13, **Appendix 6.8: Construction Noise and Vibration Mitigation Clauses, Volume 7** of the ES **Appendix 6.9: Construction Noise and Vibration Mitigation Clauses, Volume 8** of the ES	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Environmental Inspection Records Noise and Vibration Management Plan Communications Plan	Construction	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	where this is impracticable, they will be throttled down to a minimum. iii. No vehicles will wait or queue on public highways or in the vicinity of construction compounds with engines running for periods in excess of ten minutes **d.** Temporary acoustic barriers and other noise containment measures such as screens and acoustic hoarding at the Scheme boundary will be erected where appropriate to minimise noise breakout and reduce noise levels at potentially affected receptors.						
S-N4	Where practicable, those activities which, by their very nature, can impart significant levels of vibration into the ground, will be substituted with alternatives that generate less vibration. If alternative plant cannot be sourced, then efforts should be made to minimise the use of such plant.	To minimise effects relating to vibration	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraph 6.9.17 **Chapter 6: Noise and Vibration, Volume 3** of the ES, Paragraph 6.9.16	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Environmental Inspection Records Noise and Vibration Management Plan	Construction	
S-N5	Where identified as being necessary, the construction process will be monitored closely, so far as is reasonably practicable, as set out in the CEMP. Any such monitoring protocols should also be incorporated in construction method statements prepared by the main contractor.	To ensure vibration effects are minimised	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraph 6.9.18 **Chapter 6: Noise and Vibration, Volume 3** of the ES, Paragraph 6.9.17	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Environmental Inspection Records Noise and Vibration Management Plan	Construction	
Landscape and Visual							
S-L5	In order to protect existing vegetation, the following measures will be implemented:	To protect existing	**Chapter 7: Landscape and Visual, Volume 2** of	Main contractor	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO**	Construction	

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	a. Avoidance and retention of existing mature vegetation wherever possible, as identified on **Figure 7.8: Landscape Mitigation Masterplan, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) and **Figure 7.10: Landscape Mitigation Plan, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**). The roots of vegetation that enter the construction corridor will be protected in accordance with BS5837 Trees in relation to design, demolition and construction – Recommendations. **b.** No works, including temporary works such as the creation of topsoil mounds will be carried out within the canopy spread of existing retained trees.	vegetation during construction.	the ES, Paragraph 7.9.2 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.2		(**Application Document Reference: TR010041/APP/3.1**) Site Environmental Inspection Reports Landscape design discharged as required by the DCO		
S-L6	In order to reduce landscape and visual impacts during construction, the following measures will be implemented: **a.** Construction compounds will be laid out such that, temporary soil mounds will be utilised to screen views of construction activities and light pollution in the surrounding area. **b.** The construction programme will be kept to the minimum practicable time to reduce the duration of any landscape and visual impacts. **c.** Areas will be cleared for construction as close as possible to works commencing and topsoiling, reseeding and planting will be undertaken during the next available season after sections of work are complete. **d.** As far as practicable, plant and material storage areas will be sited to avoid landscape and visual impact. **e.** Construction sites will be kept tidy (e.g. free of litter and debris) through robust construction compound management. **f.** A minimal topsoil depth of 300 mm will be achieved across all planting areas. Topsoil depth will be reduced to a minimum depth of 100 mm in areas of amenity grassland areas. Topsoil will not be used for species rich grassland areas.	To reduce the magnitude and duration of landscape and visual impacts during construction.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.2 and 7.9.3 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.2 and 7.9.3	Main contractor	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Site Environmental Inspection Reports Landscape design discharged as required by the DCO	Construction	

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	g. Construction will be managed such that the loss of any existing woodland, scrub, heath, grassland vegetation, and isolated trees and shrubs not affected by the permanent works is avoided as far as practicable. h. All existing trees and shrubs not affected by the construction of the permanent works will be fenced off with a suitable type of temporary fencing in accordance with BS5837. Fencing will be erected prior to construction activities in that area and will remain for the entire construction period in that area. i. Maintenance of existing pedestrian routes will occur as far as reasonably practical with traffic control measures. j. Surrounding roads and pavements will be maintained free of excessive dust and mud. k. No off-site planting is proposed as part of the Scheme. For Part B, advanced planting is proposed to the south west of the proposed Charlton Mires junction, to provide screening to the occupants of the nearby residential property.						
S-L7	To protect soil quality for the purposes of landscape planting, the following measures will be implemented. a. Uncontaminated topsoil for re-use will be stored in un-compacted mounds no more than 2 m high and stored separately from subsoil material. b. Stripped topsoil will be used in areas of similar proposed vegetation type to utilise the existing natural seed bank. c. Subsoil in planting areas will be replaced where appropriate following construction and appropriately treated, this may include being ripped to reduce compaction (depending on underlying soil type and conditions) before top soiling and planting. d. Proposed planting areas in existing arable and pasture land, subject to construction activity, will be ripped to 600 mm to alleviate compaction, where required.	To protect soil quality during construction.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.2 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.2	Main contractor	CEMP approved by the SoS following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Site Environmental Inspection Reports DCO Requirements	Construction	

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S-L8	The design and mitigation measures prescribed to protect arboricultural features will be implemented. Measures include: **a.** Trees up to 15 m outside of the Order Limits of the Scheme will be assessed prior to construction commencement to ensure that appropriate mitigation for roots within the Order Limits of the Scheme is in place to protect root protection areas. The exact location and extent of buffer and protection measures to be employed will be considered during detailed design prior to construction for each of Part A and Part B. **b.** Trees will be protected using protective measures such as ground protection within the root protection areas (RPA) and fencing on the boundary of the RPA (as shown on the Tree Protection Plans in Appendix B.4 of **Appendix 7.5: Arboricultural Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**) for Part A and Appendix B.2 of **Appendix 7.1: Arboricultural Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). **c.** Excavations will be carried out using manual techniques to reduce soil disturbance. **d.** No-dig construction will be prescribed at detailed design for access routes and footways to reduce or avoid root and soil disturbance. **e.** Working areas will be minimised as far as is practicable to and access routes diverted away from sensitive arboricultural features. **f.** Pruning will be carried out in accordance with BS3998:2010 Tree Work. Recommendations, to mitigate damage during trees works.	To avoid or reduce impacts on trees and woodland.	**Appendix 7.5: Arboricultural Report, Volume 7** of the ES, Paragraphs 6.1.3 to 6.1.10 **Appendix 7.1: Arboricultural Report, Volume 8** of the ES, Paragraphs 6.1.1 to 6.1.7	Main contractor Arboriculturalist (main contractor) Environmental Manager (main contractor) ECoW (main contractor)	Ancient Woodland Strategy Landscape design discharged as required by the DCO Landscape Design Certificate Arboricultural Method Statement DCO Requirements	Pre-construction Construction	

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	g. All Tree Works and Construction will be undertaken in accordance with BS5837:2012 Trees in relation to design, demolition and construction - Recommendations. All works to support mitigation of tree impacts will be incorporated into an Approved Arboricultural Method Statement at detailed design phase, prior to construction for each of Part A and Part B. This in turn will support the Construction Environmental Management Plan (CEMP) produced by the main contractor.						
S-L9	To minimise the impacts of the Scheme on existing vegetation, the following measures will be implemented: a. Where existing vegetation is removed by the construction of the Scheme, appropriate planting (in keeping with the existing landscape) in the form of woodland, hedgerows, arable field margins and individual trees will be planted, in line with the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**)) in order that the vegetative framework of the landscape is replaced/restored and to reduce impacts on trees and woodland b. Planting of native tree, shrub and hedgerow species will be in keeping with local landscape character as shown in the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES) and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES). For Part A, hedgerows and tree lines will be planted using native species along much of the length of Part A, on both east and west sides of the carriageway.	To minimise impacts on existing vegetation. To enhance and protect landscape character during operation. To provide connectivity to the retained woodland.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.14 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.13 **Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4	Main contractor Arboriculturalist (main contractor) Environmental Manager (main contractor) ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape design discharged as required by the **draft DCO** As Built drawings Landscape Design Certificate	Construction	

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	c. Screen planting around significant road embankments and around junctions will break up the scale of the road and screen structures, traffic and lighting, where it occurs. This is detailed on the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES) and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES). **d.** Provision of planting belts will provide visual links between existing and proposed vegetation, restoring landscape pattern and land cover as outlined in the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES) and **Landscape Mitigation Plan** (**Figure 7.10, Volume 6** of the ES). **e.** Bunds subject to planting will have a minimum depth of 300 mm of topsoil laid over formation layers, subject to topsoil availability and to make best use of available topsoil. Topsoil depth will be reduced to a minimum depth of 100 mm in areas of amenity grassland areas. Topsoil will not be used for species rich grassland areas. This depth may be increased and will be confirmed once material quantities are known at detailed design.						
S-L10	Upon completion areas used as construction compounds will be returned to their original use.	To reduce the magnitude and duration of landscape and visual impacts during construction.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.2 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.2	Main contractor	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Site Environmental Inspection Reports Landscape design discharged as required by the DCO	Construction	
Cultural Heritage							
S-CH2	In consultation with the NCC County Archaeologist, a programme of trial trenching evaluation following the consent of the DCO will be implemented to establish whether potential features identified from the **HEDBA** (**Appendix 8.1, Volume 7** of the ES	To determine the importance, extent, date, level of survival of the	**Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.9.3	Scheme Archaeologist (main contractor)	Written Scheme of Investigation approved by the Secretary of State following consultation with NCC as per Requirement 9, Schedule 2 of the **draft DCO**	Pre-construction Construction	

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	(**Application Document Reference: TR010041/APP/6.7**) and **Appendix 8.1, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**), **Geophysical Survey** (**Appendix 8.2, Volume 7** of the ES and **Appendix 8.2, Volume 8** of the ES) and Part A **LiDAR Assessment** (**Appendix 8.3, Volume 7** of the ES) are present, and to confirm the presence or absence of currently unknown below-ground remains in the Order Limits of the Scheme. The post development consent archaeological work is secured by Requirement 9 in Schedule 2 of the **draft DCO (Application Document Reference: TR010041/APP/3.1**). The evaluation will be undertaken post-consent and prior to any ground disturbance. The aim of the evaluation will be to determine the value, extent, date, level of survival of the assets, and to inform a mitigation strategy which will be implemented either prior to or during the construction phase. The programme of mitigation will also include measures to address effects on areas of ridge and furrow earthworks and potentially historic hedgerows.	assets, and to inform a mitigation strategy which will be implemented either prior to or during the construction phase.	**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.6		(**Application Document Reference: TR010041/APP/3.1**) Archaeological Method Statement (if required) to be approved in writing by NCC in line with Requirement 9(6) of the **draft DCO**. DCO Requirements		
S-CH3	The Written Scheme of Investigations (WSIs) for Part A and the Draft Written Scheme of Investigations (WSIs) for Part B outline the approach to post-development consent excavation assessment, reporting, dissemination of the results of the work and archiving. They have been produced in consultation with the NCC County Archaeologist and will supersede the draft WSIs as the Scheme progresses. Further work, as recommended by the outcomes of the trial trench evaluation will be determined in consultation with NCC and implemented by the main contractor prior to and/or during construction as appropriate.	To prevent direct physical impacts on buried archaeological remains. To identify the presence, extent and value of any below ground remains and to inform a subsequent programme of mitigation to be delivered either before or during the construction phase.	**Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.9.6 **Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.9	Scheme Archaeologist involved at the construction phase Main contractor with guidance from Archaeologist)	WSI Archaeological Method Statement (if required following response of the WSI)	Pre-construction Construction	

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S-CH4	Mitigation measures for the removal of any sections of field boundaries identified as being of historic significance, in accordance with Hedgerow Regulations, will be devised in consultation with NCC. For Part B, this will apply to any hedgerows to be removed around the Charlton Mires Junction, where the assessment has identified a potential for the presence of hedgerows to meet the criteria of Historic Importance, as set out in the Hedgerow Regulations Act 1997.	To prevent damage to features of historic significance.	**Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.9.10 **Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.13	Archaeologist (main contractor) Main contractor	Following consultation with NCC	Pre-Construction Construction	
S-CH5	Preservation in-situ typically requires adjustments in designs and is only usually applied where either such amendments are minor, or for assets of high or very high value. Any below-ground archaeological remains identified either during the evaluation or subsequent mitigation phase which are judged to be of very high or high value may require preservation in situ, while those of lesser value may undergo archive recording, where they are of regional to county or local to borough value. Where any below-ground archaeological remains are identified which require preservation in-situ, a detailed method statement will be required to set out how the remains will be protected during the construction phase, in line with Historic England's Preserving Archaeological Remains. The method statement will be produced in consultation with NCC and potentially Historic England (depending on the nature of the assets) and could include such measures such as avoidance through Scheme redesign or diversion (within the Order Limits), or reburial and protection. The mitigation measures adopted will be dependent on the nature and material of heritage assets identified.	To prevent damage to buried archaeological assets.	**Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraphs 8.9.4 and 8.9.5 **Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraphs 8.9.7 and 8.9.8	Scheme Archaeologist (main contractor) in consultation with the NCC County Archaeologist	CEMP approved by the Secretary of State following consultation with Historic England and NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Archaeological Method Statement if required) to be approved in writing by NCC in line with Requirement 9(6) of the **draft DCO**.	Pre-Construction Construction	
S-CH6	During the construction phase, any work undertaken around a designated heritage asset will be undertaken in adherence to the measures contained within the CEMP (as developed from this Outline CEMP) to ensure any adverse impacts are minimised. For Part A, these measures will include highlighting the location of the Grade II listed	To prevent damage to listed heritage assets.	**Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.9.2 **Chapter 8: Cultural Heritage, Volume 3**	Archaeologist (main contractor) Main contractor	CEMP approved by the SoS following consultation with Historic England, NCC and Milestone Society. Site environmental inspection reports.	Design	

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	mileposts to the construction team and in the **Construction Traffic Management Plan** (**Application Document Reference: TR010041/APP/7.4**) to ensure they are suitably protected from accidental damage through collision during the course of the construction phase. For Part B, these measures will include highlighting the location of any sensitive heritage assets (such as the Grade II listed dovecote to the east of Heckley Fence Farmhouse with attached wall, the Grade II Listed Heckley House and Grade II Listed Milepost 40 m North of the Entrance to Heckley House) to the construction team and in the **CTMP** to ensure they are suitably protected from accidental damage through collision during the course of the construction phase. The main contractor will be responsible for providing detailed method statements to NCC which outline how the mileposts will be appropriately recorded in-situ prior to works commencing. The main contractor is also responsible for preparing and providing a detailed method statement which outlines how the mileposts will be removed from their current location, protected and transported, together with the storage location, before construction commences. The method statement will also include proposed locations for the replacement, timescales for replacement and a second phase of recording. These will be produced in consultation with Historic England, NCC and the Milestone Society.		of the ES, Paragraph 8.9.5				
Biodiversity							
S-B4	All permits and assents will be requested and granted prior to the commencement of works. This will include for example, but not limited to, an Environment Agency Permit for works in and around watercourses. For Part A, this will include, but not be limited to, an EA Permit for works in and around watercourses and SSSI Assent from Natural England for works within and adjacent to the River Coquet and Coquet Valley Woodlands SSSI.	To protect sites, habitats and fauna.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM001 **Chapter 9: Biodiversity, Volume 3** of the	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Licences obtained in consultation with Natural England, Forestry Commission and Environment Agency. ECoW Weekly Log	Pre-construction/ Construction	

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			ES, Table 9-12, EC01		Construction Constraints Plan		
S-B5	Prior to construction, a suitably qualified and experienced (or team of suitably qualified and experienced) Ecological Clerk of Works (ECoWs) and a named bat licensed ecologist will be appointed and will support the main contractor with the implementation of the CEMP prepared by the main contractor. The ECoW will: **a.** Provide ecological advice to the main contractor over the entire construction programme, at all times as required. **b.** Undertake or oversee pre-construction surveys for protected species in the areas affected by the Scheme. **c.** Monitor ecological conditions during the construction phase to identify additional constraints that may arise as a result of natural changes to the ecological baseline overtime. Of particular importance to Part A will be the monitoring of badger activity within and in close proximity to the works area. **d.** Provide an ecological toolbox talk to site personnel to make them aware of ecological constraints and information, identify appropriate mitigation developed do minimise impacts and make site personnel aware of their responsibility with regards to wildlife. The toolbox talk will include, as required, all ecological receptors considered within the ES. **e.** Monitor the implementation of the mitigation measures during the construction phase to ensure compliance with protected species legislation and commitments within the ES. The ECoW will have previous experience in similar ECoW roles, be approved by the Applicant and be appropriately qualified for the role. The ECoW will be appointed in advance of the main construction programme commencing to ensure pre-construction surveys are undertaken and any advance mitigation measures required are implemented.	To ensure implementation of mitigation measures and legal requirements.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM002 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC03	ECoW (main contractor)	Appointment of the ECoW in advance of construction DCO Requirements CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Pre-construction surveys must take place prior to commencement of the Scheme as per Requirement 7, Schedule 2 of the draft DCO. Approval by the Secretary of State in consultation with NE as per Requirement 7(3) if Requirement 7(2)(a), (b) or (c) are met. ECoW Weekly Log Construction Constraints Plan	Pre-construction/Construction	

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S-B6	Prior to any works commencing, a badger pre-commencement walkover survey of the Order Limits, plus a 30 m buffer, will be undertaken by a ECoW to search for evidence of badger activity / presence and confirm that the baseline remains accurate and relevant. It is recommended that this is undertaken at least three months in advance of works commencing, which is a requirement for the badger licence (for additional detail relating to Part A refer to A-B25 of this Outline CEMP. Should badger activity be confirmed within the Order Limits or within a zone of influence as determined by the ECoW, a Natural England licence will then be applied for/mitigation developed, as required, in advance of Scheme commencement.	To obtain updated baseline data suitable for a badger Licence application and protect badger from impacts. To protect badger setts.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM003 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, B02 **Appendix 9.2: Badger Report (Confidential), Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	Badger Method Statement Pre-construction surveys must take place prior to commencement of the Scheme as per Requirement 7, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**). Approval by the Secretary of State in consultation with Natural England as per Requirement 7(3) if Requirement 7(2)(a), (b) or (c) are met. DCO Requirements ECoW Weekly Log Construction Constraints Plan	Pre-construction	
S-B7	A pre-construction walkover survey will be completed by the ECoW of areas within the Order Limits or a zone of influence (as determined by the ECoW) that could not be accessed during the 2020 bat preliminary roost verification survey of Part A. The walkover survey shall include a ground level and/or a climb and inspect assessment of trees to verify their roosting suitability as recorded during the 2016/2017 survey. Where roosting suitability of any tree is assessed to have increased to Moderate or High, further survey (dusk/dawn re-entry surveys) shall be undertaken to confirm the presence/likely absence of roosting bats. The walkover survey can be undertaken all year round, whilst the further survey (dusk/dawn re-entry surveys) are restricted to between May and September. All trees assessed with bat roost suitability (Low, Moderate or High) that require to be pruned or felled will be subject to a pre-felling inspection and/or dusk/dawn re-entry survey (as determined by the ECoW) no more than 24 hours prior to works in search of roosting bats. This will include the 27 individual trees recorded during the 2020 verification preliminary bat roost assessment that had increased in suitability to Moderate or High since the 2016/17 surveys, or additional trees recorded in 2020 that were classified as Moderate or High roosting	To confirm the absence of roosting bats.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM006 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT05 Bat Preliminary Bat Roost Assessment 2020 Verification Survey Report Part A (Document Reference: 6.18)	Main contractor ECoW (main contractor)	EPS Method statement Bat Report	Pre-construction Construction	

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	suitability and will either be felled or subject to high levels of disturbance during construction. Upon completion, those trees where suitability for roosting bats remains (Moderate or High suitability), although presence of a roost has not been confirmed, should be soft-felled under ecological supervision (by the ECoW (suitably experienced and licensed)). This will consist of the removal of major branches and limbs followed by section felling of the main trunk, with these lowered to the floor for inspection by the ECoW.						
S-B8	Implementation of and adherence to the measures contained within this Outline CEMP that details efforts taken to avoid, minimise and reduce impacts as a result of the Scheme construction. This is considered particularly important for works in and around watercourses. This includes measures to avoid disturbance of sensitive species and habitats by noise, dust and air pollution. A pre-commencement walkover survey will be undertaken to confirm the absence of invasive non-native species (INNS). Should invasive species be recorded within the construction area, this will be addressed through implementation of the Biosecurity Method Statement (refer to S-B8 of this Outline CEMP) to be developed at detailed design prior to construction for each of Part A and Part B.	To protect flora and fauna and minimise the impact of invasive non-native species.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM009 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC07	Main contractor ECoW (main contractor)	Invasive Species Management Plan approved by the SoS following consultation with NCC Biosecurity Method Statement ECoW Weekly Log	Pre-construction Construction	
S-B9	Vegetation and site clearance works will be undertaken outside the bird nesting period, March to August inclusive, to avoid damage or destruction of nests. Where this is not possible, site clearance will be preceded by an inspection from the ECoW within 24 hours of clearance works commencing to confirm the absence of active nests. If an active nest is recorded, a minimum buffer of 5 m will be implemented (as determined by the ECoW) and remain in place until the nest is confirmed as inactive. All cleared vegetation will be rendered unsuitable for nesting birds, for example, by covering or chipping	To protect nesting birds.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM001 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BI01 **Appendix 9.6: Breeding and Wintering Birds**	Main contractor Named Ecologist (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Breeding Bird Report Site Environmental Inspection Report	Pre-construction Construction	

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	depending on the end purpose of the vegetation, or will be removed from the works area.		**Report**, **Volume 8** of the ES Table 7-1				
S-B10	Site/vegetation clearance and tree felling will be kept to a minimum as far as practicable to reduce the impacts of habitat loss and fragmentation. Areas of clearance, particularly those within temporary works, will be identified within a works plan and agreed with the ECoW. In relation to the proposed Private Means of Access for Northgate Farm (Part A), the track sits centrally between the Order Limits either side of the road (seen as the track between PR 1/2 and PA 1/3 on the **Rights of Way and Access Plans** [APP-009]). The alignment of the track will be explored further by the main contractor, in consultation with residents, to reduce the loss of trees/woodland where possible. Site clearance of dense vegetation will be undertaken carefully using hand tools and by experienced contractors to reduce the risk of mortality to wildlife. Care will be afforded to dense stands of bramble or similar vegetation, which may be used by sheltering hedgehog or other wildlife, particularly during the winter months.	To reduce the impact to fauna and flora of habitat loss and fragmentation.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM002 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC09	Main contractor with guidance from the ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Precautionary Working Method Statement Method Statement ECoW Weekly Log Precautionary Working Method Statement Construction Constraints Plan Works Plan Rights of Way and Access Plans	Pre-construction Construction	
S-B11	Plant, personnel and site traffic will be constrained to a prescribed working corridor through the use of temporary barriers, where practicable, to minimise the damage to habitats, encroachment of the construction zone, potential direct mortality and disturbance of fauna located within and adjacent to the construction zone (Scheme working corridor).	To minimise the damage to habitats, encroachment of the construction zone, potential direct mortality and disturbance of fauna located within and adjacent to the construction zone.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM003 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC10	Main contractor with guidance from the ECoW (main contractor) Main contractor	CEMP approved by the SoS following consultation with NCC Method Statement ECoW Weekly Log Construction Constraints Plan Works plan	Pre-construction Construction	
S-B12	Following the last harvest of arable fields within the works area, the area will be sprayed with a non-residual and neonicotinoid-free herbicide to prevent regrowth, rendering the arable habitat of negligible	To reduce the impact to	**Chapter 9: Biodiversity, Volume 2** of the	Main contractor with guidance	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO**	Pre-construction Construction	

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	value to wintering birds and, for Part A only, brown hare.	wintering birds and brown hare.	ES, Table 9-23, EM004 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BI02 **Appendix 9.6: Breeding and Wintering Birds Report**, **Volume 8** of the ES, Table 7-1	from the ECoW (main contractor) Main contractor	(**Application Document Reference: TR010041/APP/3.1**) ECoW Weekly Log		
S-B13	Given the presence of Schedule 9 invasive non-native species (and ash dieback for Part A), a Biosecurity Method Statement will be developed and implemented throughout construction. The Method Statement will detail the location and extent of any invasive or other biosecurity concerns, measures to control or eradicate the species from an area, where identified as being present or potentially present, measures to prevent the spread of the species and good site hygiene practices (such as Check, Clean, Dry). The latter measures will also be applied to prevent the spread of ash dieback and bullhead. Good site hygiene practice will include implementation of Check, Clean, Dry. Biosecurity will consider bullhead, where identified as being present or potentially present, to eliminate the risk of the species being accidentally introduced to other watercourses where in river works are proposed.	To prevent the spread of invasive species.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM010 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC08	Scheme ecologist (main contractor) Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Biosecurity Method Statement	Pre-construction Construction	
S-B14	Where appropriate, stand-off distances around watercourses and other sensitive habitats (such as woodland) will be implemented prior to commencement of works and clearly demarked on site through the use of physical barriers (fencing, tape or similar). A minimum of 10 m will be recommended around watercourses. The buffer around trees/ woodland/ hedgerows will be in accordance with British Standard BS 5837:2012 Trees in relation to design, demolition and	To protect habitats. To reduce the impacts on fish. To protect aquatic habitats and species from	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM018 and EM019 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12,	Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Tree Protection Plans (Appendix B.4 of **Appendix 7.5: Arboricultural Report, Volume 7** of the ES and Appendix C of	Pre-construction Construction	

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	construction – Recommendations (BS5837:2012) good practice to take into account root protection zones (as shown on the Tree Protection Plans in Appendix B.4 of **Appendix 7.5: Arboricultural Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**) and Appendix C of **Appendix 7.1: Arboricultural Report**, **Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)). Water quality will be monitored throughout the construction works where working with concrete in or within close proximity (within 10 m) to waterbodies or watercourses is required. Dry working areas will be created when using concrete, allowing concrete to dry before it is exposed to water. The use of quick drying cement will be used where appropriate. Monitoring of watercourses will be undertaken by suitably trained personnel, with the use of a multiparameter probe that can accurately detect changes in pH. Should a rise in pH be detected then work will stop until the cause has been identified and resolved. To minimise the impact to fish from disturbance (including noise, light and vibration), works outside of watercourses will be set back from the watercourse by a minimum of 10 m, where possible. Chemicals and fuels must be stored in secure containers located away from watercourses and waterbodies (at least 10 m away if possible). No refuelling of plant and machinery will take place near watercourses.	concrete pollution.	EC11, AQ02 & AQ05 **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.12 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.12 **Appendix 9.10 Aquatic Ecology Assessment Report**, **Volume 8** of the ES, Paragraph 7.2.3 **Appendix 7.5: Arboricultural Report**, **Volume 7** of the ES, Appendix B.4 - Tree Protection Plans **Appendix 7.1: Arboricultural Report**, **Volume 8** of the ES, Appendix B.2 - Tree Protection Plans		**Appendix 7.1: Arboricultural Report**, **Volume 8** of the ES Signed toolbox talks ECoW Weekly Log Construction Constraints Plan		
S-B15	Due to the widespread distribution of badger across Part A and the known presence of badger across Part B, temporary badger-resistant fencing will be provided around construction compounds and storage areas. This is particularly important for areas of temporary spoil storage, which may be used by badger for sett creation. Where possible,	To avoid badger becoming trapped within compound areas.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM020 **Chapter 9: Biodiversity,**	Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC Approval by Secretary of State if departure from standard (Volume 1, Series 0300 of the Manual of Contract Documents for Highways Works) in relation to Temporary Fencing to be provided in line with	Pre-construction Construction	

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	spoil will be stored in heaps with shallow angles to help prevent badgers creating setts.		**Volume 3** of the ES, Table 9-12, B04 **Appendix 9.2: Badger Report (Confidential), Volume 8** of the ES, Table 7-1		Requirement 13 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Badger Method Statement ECoW Weekly Log Construction Constraints Plan		
S-B16	Works during the construction period will be undertaken during daylight hours (07.00 to 19.00) Monday to Friday to reduce the impact to nocturnal and crepuscular species; particularly bats, barn owl and badger. However, extended hours, including night time, will be required for some construction operations. Should night working be required, these will be discussed with the ECoW and appropriate mitigation put in place as determined by the ECoW. (particularly concerning lighting, refer to **S-G5** of this Outline CEMP).	To reduce disturbance to nocturnal and crepuscular species during construction.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM023 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC12	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1)** ECoW Weekly Log Signed toolbox talk records	Construction	
S-B17	To prevent entrapment of wildlife, any trenches or voids will be excavated and infilled within the same working day. If this is not possible, the void will be securely covered overnight or a suitable means of escape provided (such as a ramp at no greater than a 45^{o} angle). Any void will then be visually inspected prior to re-starting works to confirm the absence of entrapped wildlife. All escape measures will be discussed and agreed with the ECoW to ensure they are suitable for the size of void and wildlife that may become trapped. If deemed appropriate, the ECoW may enforce additional measures, such as the installation of temporary amphibian/reptile fencing around the void to prevent entry.	To prevent the entrapment and mortality of wildlife.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM036 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC13	Main contractor	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Site Environmental Inspection Reports Site Environmental Inspection Records ECoW Weekly Log Signed toolbox talk records	Construction	
Road Drainage and the Water Environment							
S-W8	The CEMP will set out how construction activities will be undertaken in accordance with appropriate good practice guidance, such as CIRIA's control of water pollution from construction sites (C532). Although withdrawn, the Pollution Prevention	To manage all risks to the water environment	**Chapter 10: Road Drainage and the Water Environment,**	Main contractor	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO**	Construction	

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	Guidelines (PPG) published by the Environment Agency still provide good practice guidance, particularly PPG1 - General guide to the prevention of water pollution; PPG 5 - Works in, near or liable to affect watercourses; and PPG 6 - Working at construction and demolition sites. A Sediment Control Plan and appropriate monitoring programme will be further developed as part of the Main Contractor's working method statements.	according to good practice.	**Volume 2** of the ES, Paragraph 10.9.3 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.3		(**Application Document Reference: TR010041/APP/3.1**) Sediment Control Plan		
S-W9	The following measures will be implemented: **a.** Locating topsoil stores and construction compounds away from the banks of watercourses and within fluvial floodplains. **b.** Covering and/or seeding topsoil stores, or use of silt fences or similar, to prevent sediment entering the watercourses during periods of heavy rainfall. **c.** Covering stockpiles when not in use. **d.** All loose materials will be covered so as not to increase sediment load to the drainage network. **e.** The stripping of topsoil will be phased.	To manage risks to the water environment associated with increased sedimentation.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.4 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.4 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Table 15-2 **Chapter 9: Biodiversity, Volume 3** of the ES – Table 9-12, AQ01 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.2.2	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talk records	Construction	

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S-W10	The following measures will be implemented: **a.** Installing cut off ditches around the perimeter of the construction area to prevent sediment entering the watercourses during periods of heavy rainfall. **b.** Do not wash vehicles within 10 m of watercourses. **c.** Avoid undertaking works adjacent to watercourses, where practicable. When working adjacent to a watercourse is required, maintain the maximum distance possible from the watercourse along with appropriate mitigation for fine sediment management. **d.** The main contractor will be required to comply with the relevant sections of BS 6031:2009 Code of Practice for Earthworks with respect to protection of water quality and control of site drainage including washings, dewatering, abstractions and surface water. **e.** Dewatering working areas to maintain a dry construction area and passing any water generated by the dewatering process through silt busters or sediment tanks prior to returning this water to the watercourses. **f.** Dewatering as shallow groundwater is encountered (there may be a need to pass the water through a silt buster or settlement pond if the groundwater has a high sediment load). If the contractor abstracts more than 20 cubic metres a day, an abstraction license from the Environment Agency will be required.	To manage risks to the water environment (sedimentation and pollution risks).	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.4 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.4 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.1.23 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Paragraph 10.1.13	Main contractor Environment Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talk records	Construction	
S-W11	The following measures will be implemented: **a.** Management of surface water runoff to intercept and, where necessary, treat runoff to prevent the migration of pollutants to receiving water features, particularly within site construction compounds and storage areas. **b.** Management of polluting substances that are being brought on site and used as part of the construction process.	To manage risks to the water environment (pollution risks).	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.6 **Chapter 10: Road Drainage and the Water Environment,**	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talk records	Construction	

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	c. Where practicable, all works and mechanical plant will remain at least 8 m from the watercourse and from the top of the valley sides. **d.** Storing mechanical plant such as generators in bunded areas when not in use. **e.** Where use of pre-cast concrete is not feasible, wet concrete will be allowed to dry before it is exposed to water. The use of quick drying cement will be used where practicable.		**Volume 3** of the ES, Paragraph 10.9.5 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Table 15-2 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Table 10-1				
S-W12	The following measures will be implemented: **a.** Measures to deal with the first flush once flows are diverted through the new culverts, such as capturing and treating the first flush, relocating fish from the downstream reach, allowing vegetation to establish, providing a gravel bed to reduce fine sediment erosion, or filtering sediment from the water column. **b.** Avoid works during high flow events and intense rainfall to reduce the risk of fine sediment release and undertake works during lower flow conditions. **c.** Avoid critical periods for fish migration and spawning. The window for undertaking works in or near rivers is typically towards the end of May to October. This is important for the watercourses where notable species of fish have been identified. The window for undertaking works in or near rivers is typically towards the end of May to October. This is important for the watercourses where important species of fish have been identified. For Part A, the installation/extension of culverts along Longdike Burn and the River Lyne will be undertaken outside the period of March to May (inclusive), to avoid the optimal spawning period for lamprey.	To manage risks to the water environment specific to works within watercourses.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraphs 10.9.12 and 10.9.13 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.12 and 10.9.13 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.1.23 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Signed toolbox talk records	Construction	

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	d. The installation / extension of culverts along Longdike Burn and River Lyne will be undertaken outside the period September to April to avoid the spawning period for migratory and non-migratory brown trout. **e.** For Part B, the extension of the culvert along Shipperton Burn will be undertaken outside the period September to April to avoid the spawning period for migratory and non-migratory brown trout. A fish capture / rescue will be required along Shipperton Burn prior to the creation of the dry working area. **f.** Additionally, a step-weir within the Shipperton Burn will be removed as part of the works to aid fish passage through the watercourse and culvert. **g.** Fish capture / rescue will be undertaken if pumping / dewatering is required to create a dry working area within watercourses: • Any remaining fish found in dewatered areas should be rescued with hand nets and relocated to a safe distance away. • Fish rescues will be carried out to best practice and with appropriate licences in place. • Any pump used for dewatering will be appropriately screened to prevent ingress of fish. **h.** Any excavated sediment will be left on the channel edge below or close to the low water mark to allow Lamprey juveniles (ammocoetes) and European eels (if present) to return to the water. After a period of 24 hours the material can then be removed. **i.** Best practice measures associated with storage of oils and fuels. **j.** Locating concrete mixing and washing areas more than 10 m from any watercourse. **k.** Have settlement and re-circulation systems for water reuse. **l.** Have a contained area for washing out of concrete batching plant or ready-mix lorries; and collect wash-waters and, where necessary, contain wash-water for authorised off-site disposal.		ES, Paragraph 10.1.13 **Chapter 9: Biodiversity, Volume 2** of the ES – Table 9-23, EM014 and EM016 **Chapter 9: Biodiversity, Volume 3** of the ES – Table 9-12, AQ05 and AQ06 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraphs 7.3.4 and 7.3.9				

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	m. Wash-water from concrete will not be discharged into the watercourse. **n.** The main contractor will need to consult with the Environment Agency regarding any environmental permits such as for temporary discharge runoff during the construction phase. This will be developed further during the detailed design phase of the Scheme.						
S-W13	The following measures will be implemented: **a.** Ensure that flood conveyance routes are maintained during construction. **b.** Move any plant away from the banks of watercourses following heavy rainfall events. **c.** Monitoring of Environment Agency's flood warnings. Although there are no flood warning areas located within the Study Area for Part B, a general awareness of flood warnings elsewhere is recommended (particularly downstream along Denwick Burn and Shipperton Burn) as it is likely that this will also equate to mean high flows within the Study Area for Part B. **d.** Create safe working areas for the storage of plant and materials if a flood warning is received during construction. **e.** For Part A, due to the size and nature of the proposed works along the River Coquet it is recommended that the main contractor will sign up to receive the Environment Agency's flood warnings. Monitoring of local river levels will be undertaken for the Longdike Burn given the relatively large catchment and flood flow of this watercourse. The details regarding the monitoring will be decided during detailed design phase, and during the FRAP application. The FRAP and design of outfall will be in line with the Northumbria River Basin Management Plan (RBMP) and protected and notable species and habitats.	To manage flood risks during construction.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.19 and 10.9.20 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.15	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talk records	Construction	
S-W14	For Part A, for works to structures both located along a watercourse and not located along a watercourse, and for Part B, solely for structures located along a watercourse, a dry construction area	To prevent damage to watercourse during the	**Chapter 10: Road Drainage and the Water Environment,**	Designer Main contractor	CEMP approved by the SoS following consultation with NCC Scheme design drawings	Construction	

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	will be created. This will be done by diverting flows through an adjacent culvert, pipe or drainage channel. If this is deemed unfeasible by the main contractor due to local conditions, then a temporary sump is proposed. The sump will be excavated on the upstream side of the existing structure, and a pump will be used to divert flows through a pipe suspended above the base of the culvert.	construction of the culverts associated with the Scheme. To divert flows to reduce the release of polluting substances into the watercourse, to maintain water quality.	**Volume 2** of the ES, Paragraph 10.9.8 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.8 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Paragraphs 10.1.9 and 10.1.10	Environmental Manager (main contractor)			
S-W15	**a.** The draft culvert construction methodology has been included **in Appendix 2.3: Culvert Construction Methodology, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). **b.** The construction methodology for the River Coquet is discussed separately in Part A – refer to **A-W15** of this Outline CEMP.	To ensure no detrimental environmental effects occur relating to the culvert construction.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.7 **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.7 **Culvert Construction Methodology**	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	

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			(**Appendix 2.3, Volume 1** of the ES)				
Geology and Soils							
S-GS5	The soil handling strategy will be designed in accordance with key guidance documents including Ministry of Agriculture Fisheries and Food (MAFF) (now part of Defra) Defra's Good Practice Guide for Handling Soils and The Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. This strategy will as a minimum include the following measures during construction: **a.** Stripping and storage of topsoil and subsoil, when weather and soil conditions are suitable (subject to other environmental constraints, such as the presence of buried archaeological remains). **b.** Separating storage and management of topsoil and subsoil storage in well aerated covered heaps. **c.** Return of topsoil and subsoil to the original areas, in separate layers (where possible and where these areas are not occupied by permanent new infrastructure). **d.** Use of appropriate machinery to minimise soil compaction (e.g. reduce the use of heavy plant or tracked vehicles passing over organic soils). **e.** Relief of compaction of restored soils (i.e. dig out, aerating any highly compacted area of organic soil). **f.** Dust suppression measures, such as damping down, during periods of dry weather.	To reduce the amount of agricultural soil lost as a result of the Scheme. To help preserve land quality on temporary land take and areas of permanent land take.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.13 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.14	Main contractor Environmental Consultant (designer) Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Soil Handling Strategy	Pre-Construction Construction	
S-GS6	The following measures will be implemented to reduce the amount of agricultural soil lost as a result of the Scheme:	To reduce the amount of agricultural soil lost as a result of the Scheme and retain soil functions such as water and carbon storage.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.10 and 11.9.11 **Chapter 11: Geology and Soils, Volume 3** of the	Main contractor	Soil Handling Strategy (as part of the CEMP which will be approved by the SoS following consultation with NCC) Site Environmental Inspection Records	Construction	

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	a. Agricultural soil will be stripped as part of the preparation and construction phase and will be sustainably managed and re-used, where possible. For Part A, this will include storage and management within twelve proposed temporary topsoil storage areas, which have been identified along the length of Part A for the duration of the construction works, as illustrated on **Figure 2.2: Temporary Construction Works: Part A, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). For Part B, this will include storage and management within seven proposed temporary topsoil storage areas, which have been identified along the length of Part B for the duration of the construction works, as illustrated on **Figure 2.2: Temporary Construction Works: Part B, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). **b.** The location of storage areas will consider existing watercourses and the ground profile to ensure suitability and minimise any potential impacts upon surface water bodies. **c.** To manage this, a suitable soil handling strategy will be developed to help preserve land quality on temporary land take and areas of permanent land take (such as the Part A embankments) to help preserve the soil and retain soil functions such as water and carbon storage.		ES, Paragraph 11.9.13				
S-GS7	The following measures will be implemented during the construction phase to mitigate risks to human health (construction workers, surrounding site users and visitors, local residents, general public):	To mitigate the risks to human health and the environment during construction	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.8 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.9	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Materials Management Plan Environmental Inspection Records Signed toolbox talk records	Construction	

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	a. Earthworks will be completed in accordance with a Contaminated Land: Applications in Real Environments (CL:AIRE) compliant Materials Management Plan (MMP), to ensure re-used material does not present a risk to human health or the environment and in accordance with Series 600 6/14 and 6/15 that will prescribe criteria for the re-use of soil for the protection of human health and the environment. This will ensure any contaminated material are re-used suitably as part of the cut and fill earthworks associated with the Scheme. **b.** The main contractor will ensure the preparation of risk assessment and method statements (RAMS) will be undertaken to ensure construction workers wear appropriate Personal Protective Equipment (PPE), monitoring equipment and Respiratory Protective Equipment (RPE) where required to mitigate the potential risk of exposure to hazardous gas/vapour and/or depleted oxygen levels. **c.** It is recommended that to control potential risks during construction, suitable procedures and appropriate PPE are adopted to minimise the generation of dust and the potential for exposure when working with Made Ground materials. **d.** Should unexpected contamination be encountered as part of the earthworks, then a suitable remedial strategy will be formulated following consultation with the Local Authority and Environment Agency if required, to suitably mitigate the effects. **e.** Prior to works starting, all personnel involved in earthworks will require a toolbox talk to provide advice on contamination.						
S-GS8	The following measures will prevent the risk of pollution of controlled water bodies and ground contamination: **a.** Standing machinery will have drip trays placed underneath to prevent oil or fuel leaks causing pollution.	To prevent risk of ground contamination and surface watercourses.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.9 **Chapter 11: Geology and Soils,**	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talks records	Construction	

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	b. Should leaks or spills occur during construction, a detailed incident response plan will be formulated. There will be a requirement for regular toolbox talks outlining the incident response plan and measures required to minimise the potential for pollution of surface watercourses.		**Volume 3** of the ES, Paragraph 11.9.10				
S-GS9	Control measures to protect controlled water bodies will include: **a.** A temporary surface water drainage strategy to limit the uncontrolled run-off entering surrounding surface watercourses, including installing cut off ditches around the perimeter of the construction area to prevent sediment entering the watercourses during periods of heavy rainfall. **b.** Areas with a greater risk of spillage (e.g. vehicle maintenance and storage areas for hazardous materials) will be carefully sited (e.g. away from drains or areas where surface waters may pond). **c.** Measures will be put in place to prevent pollution from construction plant, vehicles and machinery including refuelling in designated areas, on an impermeable surface, away from drains and watercourses. **d.** Plant to be maintained in a good condition with wheel washing in place. All refuelling will be supervised and carried out in a designated area. **e.** All drains within the Order Limits of the Scheme will be identified and labelled and measures implemented to prevent polluting substances from entering them. **f.** All fuel, oil and chemicals will be stored in a designated secure area, with secondary containment provided. **g.** Minimise works in the watercourse channels and locate plant, stockpiles and other materials 8 m from the watercourse. **h.** Surface water run-off and excavation dewatering will be captured and settled out prior to being tested and disposed of either to foul sewer under licence or to surface water courses, subject to the test results and environmental permit.	To mitigate and prevent risks of pollution of controlled water bodies associated with the construction stage. To limit any contaminated run-off entering surrounding surface watercourses, including installing cut off ditches around the perimeter of the construction area to prevent sediment entering the watercourses during periods of heavy rainfall.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.9 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.10 **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, AQ01 and AQ02 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.2.2 and 7.2.3	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Temporary surface water drainage strategy Environmental Inspection Records Signed toolbox talk records	Construction	

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	i. Stockpiles including excavated materials will be stored in such a way to minimise silt laden runoff and windblown particles, such as by covering or seeding). j. All loose materials will be covered so as not to give rise to a significant increase in sediment load to the drainage network.						
S-GS10	The following measures will be implemented during the construction phase to minimise the risks associated with explosions in confined spaces: a. All works will be conducted in line with HSE publication, Safe Work in Confined Spaces (**Ref. 7**). b. Confined space specific risks assessment to be undertaken, before producing and implementing suitable Risk Assessment Method Statement (RAMS) to mitigate risks, and ensuring personnel have the appropriate training. c. Gas monitoring equipment to be used by all operatives entering below ground confined spaces. d. Mine gas detectors will be placed within surrounding buildings (located within 50 m) if any drilling and grouting activities are required, to monitor whether any hazardous ground gases are being released as void pressure is increased during grouting. e. In the event that elevated concentrations of ground gas are identified where entry into confined spaces or excavations is required by construction workers, a combination of appropriate PPE, monitoring equipment, safe entry procedures and RPE will be utilised to mitigate the potential risk of exposure to hazardous gas and vapours, and depleted oxygen levels.	To minimise risks associated with explosions in confined spaces.	**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.14 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.15	Environmental Manager	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talks records	Construction	
S-GS11	Preparation of a RAMS to ensure mitigation measures, such as temporary shoring will be incorporated into excavations should there be a risk of loose or unstable ground, will be implemented during the construction phase.	To minimise the risks associated with ground collapse and ground related	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.19	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	

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		structural damage.	**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.20				
S-GS12	Further intrusive ground investigation (GI) will be required at the detailed design phase, prior to construction for each of Part A and Part B to assess for the presence of shallow workings and inform grout stabilisation requirements. The following aspects will be reviewed following the completion of the GI works to ascertain whether these measures will be implemented: **a.** The incorporation of a high strength basal geogrid beneath new earthworks to control settlement in the case of surface movement due to collapse of any unrecorded workings, if required, subject to further detailed assessment as part of the detailed design. **b.** Additional capacity to be designed into the rigid inclusions and load transfer platform/distribution mat combination to further increase its ability to tolerate minor ground movements resulting from any shallow working collapse associated with bridges and embankments in areas considered to be as risks from collapse, if required, subject to further ground investigation data undertaken to support the detailed design. **c.** If grouting is required, grouting pressure checks to be undertaken when pumping any grout into the ground to monitor whether any anomalies in pressure are noted which could signify that grouting may be reaching areas outside those intended. **d.** Where required, a grout curtain will be installed (e.g. using pea gravel) to restrict the flow of grout beyond the treatment boundaries, and inhibit the impact upon any surrounding shaft walls. **e.** Mine shafts/adits located within the Order Limits of the Scheme will be fenced off for the duration of the works with adequate signage.	To minimise risks associated with ground collapse and ground related structural damage.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.20 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.21	Main contractor Environmental Manager (main contractor) Environmental Consultant (designer)	CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) GI Reports	Construction	

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S-GS13	During construction works surface watercourses located within 50 m of earthworks will be monitored/inspected regularly. Watercourses in high risk areas and where construction activities are more intensive will be subject to more regular checks, and clear actions will be defined by the main contractor in consultation with the Environment Agency, such as reporting when limits (such as turbidity NTU levels) are reached so that pollution incidents are appropriately reported to Environment Agency and issues are resolved. A baseline will be established prior to the commencement of construction.	To identify any pollution as a result of e.g. silt, fuel or chemicals.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.9 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.10	Main contractor Environmental Manager (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Environmental Inspection Records	Construction	
S-GS14	Detailed unexploded ordnance (UXO) risk assessment has identified there is an overall low risk of encountering UXO. The area proposed for use as the Main Compound lies outside the area included within the detailed UXO assessment, as there are no below ground excavations further investigation with respect to UXO is not required. Should excavations be proposed in areas not already covered by UXO assessments, e.g. the Main Compound further assessment with respect to UXO will be required.	To eliminate exposure to UXO's.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.7.49 – 11.7.50 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.7.149 and 11.7.150	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the draft DCO (**Application Document Reference: TR010041/APP/3.1**)	Construction	
Population and Human Health							
S-PH5	During the construction phase, traffic will be managed using speed restrictions and some overnight working as outlined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). Temporary signage and layout will be clear to avoid creating route uncertainty for users. Any diversions or closures undertaken during construction will be clearly advertised, and any diversionary routes will be clearly signposted and not lead to uncertainty. Details of traffic management measures will be listed within the **Construction Traffic Management Plan** (**Application Document Reference: TR010041/APP/7.4**).	To reduce effects on motorised users.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.10 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.10	Main contractor	CEMP approved by the SoS following consultation with NCC Construction Traffic Management Plan approved by the Secretary of State following consultation with NCC as per Requirement 11, Schedule 2 of the draft DCO CTMP	Construction	

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S-PH6	To ensure the negative effects on amenity value and disruption are reduced as far as possible during the construction phase for Walkers, Cyclists and Horse riders (WCH), the following measures will be implemented: **a.** Any temporary diversionary works or closure of (WCH) routes will be undertaken following consultation with affected individuals, groups, and NCC. **b.** The public will be informed of the nature, timing and duration of activities during the construction phase and the duration of any works by newsletter and other forms of appropriate communication. **c.** If alternative access points or routes are required, directions will be clearly communicated in appropriate locations.	To reduce community severance and effects on WCHs.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.16 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.13	Public Liaison Officer Main contractor	CEMP approved by the SoS following consultation with NCC Communications Plan CTMP PRoW Management Plan	Construction	
S-PH7	A PRoW Management Plan will be produced by the main contractor prior to construction. The PRoW Management Plan will highlight where potential PRoW closures and diversions are required and the extent of any reinstatement works required. Details of the temporary management of affected PRoW are outlined within the **Construction Traffic Management Plan** (**Application Document Ref: TR010041/APP/7.4**)	To reduce effects on WCHs.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.16 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.13	Main contractor	CEMP approved by the SoS following consultation with NCC CTMP PRoW Management Plan	Construction	
S-PH8	Traffic management systems and, potentially, diversion routes will be put in place to maintain access to the identified community facilities, residential properties and communities, businesses/commercial facilities and private land holdings during construction and operation.	To reduce effects on physical assets such as community facilities, residencies, and businesses.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.15 **Chapter 12: Population and Human Health, Volume 3** of the	The Applicant Main contractor	CTMP Communications Plan	Construction	

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			ES, Paragraph 12.9.15				
S-PH9	Temporary bus stops will be provided during construction and permanent bus stops during operation. The exact location of these temporary locations will be finalised prior to construction in discussions with the service provider and NCC as the Highway Authority. The location of the permanent bus stops has already been determined.	To maximise safety and security for WCHs.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.13 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraphs 12.9.12	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) PRoW Management Plan	Construction	
S-PH10	Pursuant to the Compensation Code, compensation will be agreed as part of the Scheme with the relevant parties whose land will be temporarily acquired to accommodate the Scheme. During the period when temporarily occupied land is in aftercare, any shortfall in production can be made up through the payment of compensation. The business should therefore not be disadvantaged in the short term. This will be agreed with the Applicant. Maintaining existing access wherever possible/creating new temporary tracks or access points.	To reduce temporary construction effects on Agricultural Land.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.23 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.21 **Appendix 12.1: Agricultural Assessment (Confidential), Volume 7** of the ES, Paragraph 4.4.9	The Applicant Main contractor	CEMP approved by the SoS following consultation with NCC Soil Management Strategy	Construction	
S-PH11	Measures will be put in place to maximise the potential for the workforce and project supply chain to be sourced locally. These measures will include:	To maximise benefits to the local economy.	**Chapter 12: Population and Human Health, Volume 2** of the	The Applicant Main contractor	CEMP approved by the SoS following consultation with NCC	Construction	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	a. Working with local people and local businesses to ensure that, wherever possible, investment in the North East, stays in the North East. **b.** Engaging with Jobcentre Plus to advertise job opportunities to local people seeking employment and identifying opportunities for work placements, further education, skills training. **c.** Opportunities for everybody working on the Scheme to upskill, through experience, training and development programmes.		ES, Paragraph 12.9.24 **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.28				
Material Resources							
S-M6	A CEMP, incorporating a Site Waste Management Plan (SWMP) and CL:AIRE compliant Materials Management Plan (MMP) will be implemented by the main contractor in order to identify, monitor and manage materials and arisings on site. The SWMP will be deployed to reduce waste disposal to landfill, and (therein) potential harm to the environment. The SWMP will set out the person(s) responsible for resource management on site and monitor: **a.** Types and volumes of waste reused, recycled and landfilled. **b.** Where the materials and waste have been reused, recycled and landfilled, both on and off site. **c.** Waste recovery and disposal facilities that will be used and their details of their permits, licences and exemptions, both on and off site. **d.** Waste recovery and disposal contractors that will be used and details of waste carriers' licence. **e.** Any waste exemptions that are in place in order to enable waste to be reused. **f.** Waste transfer notes (WTNs) and waste consignments notes to ensure that all waste movements are accompanied by a WTN and that all requisite information is provided. **g.** Scheme performance objectives and targets to ensure they are met.	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.2 and 13.11.2 **Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.2 and 13.11.2	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) SWMP MMP	Construction	S-M6

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	An MMP will be used to monitor the maximum reuse of both natural soils and made ground (contaminated or otherwise). The MMP forms part of the CL:AIRE code of practice to determine that the materials will not harm human health or pollute the environment and are no longer considered a waste. The MMP requires answers to a series of questions including: **a.** The parties involved. **b.** Suitability for use criteria. **c.** Certainty of use. **d.** Quantity of use. **e.** Contingency arrangements. **f.** Tracking and document control. **g.** Verification plan. As the detailed design stage of the Scheme progresses, the potential to refine materials specifications to incorporate greater recycled content, reuse on-site material resources from demolition, and reuse structures will be investigated and documented through the SWMP and MMP.						
S-M7	Use of secondary and recycled materials (e.g. steel, concrete or aggregate) will minimise the consumption of primary materials in line with the regional target of 26%.	In order to increase resource efficiency.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.3 **Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.3	Main contractor Environmental Manager (main contractor) Environmental Consultant (designer)	CEMP approved by the SoS following consultation with NCC MMP	Construction	
S-M8	As far as possible, material resources produced during demolition will be re-used in the construction of the new road (e.g. kerbing elements, concrete fencing, culverts and signage foundations will be crushed on site for re-use in hardstanding).	To avoid and mitigate adverse impacts from material resources consumption, and the generation	**Chapter 13: Material Resources**, **Volume 2** of the ES, Paragraph 13.9.3 and Table 13-16	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) SWMP MMP	Construction	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
		and disposal of waste.	**Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.3 and Table 13-16				
S-M9	Coal tar planings will only be sent to landfill if it was not possible to treat these arisings for reuse on the Scheme.	To reduce the volume of waste generated and sent to landfill.	**Chapter 13: Material Resources, Volume 2** of the ES, Table 13-17 **Chapter 13: Material Resources, Volume 3** of the ES, Table 13-17	Main contractor Environmental Manager	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Materials Management Plan	Construction	
S-M10	Earthworks material classified as unacceptable for reuse will be treated and reused on the Scheme in order to divert these arisings from landfill.	To reduce the volume of waste generated and sent to landfill.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.3 **Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.3	Main contractor Environmental Manager	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Materials Management Plan	Construction	
Climate Change							
S-CC7	The following measures will be implemented: **a.** Re-use of site arisings (earthworks, road planings, concrete (through crushing and use on haul roads), vegetation (through mulching and use as temporary footways).	To minimise waste and maximise re-use of materials on site.	**Chapter 14: Climate, Volume 2** of the ES, Paragraph 14.9.6 **Chapter 14: Climate, Volume 2** of the ES, Paragraph 14.9.6	Main contractor	CEMP approved by the SoS following consultation with NCC SWMP MMP	Construction	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	b. Minimise transportation of materials and wastes through selection of locally sourced materials and backhauling of arising road waste. **Chapter 13: Material Resources, Volume 2** of the ES (**Application Document Reference:TR010041/APP/6.2**) and **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**) identifies that materials will be sourced from the North East in the first instance and then nationally depending on the availability of construction materials. **c.** Collection of rainwater on-site to minimise transportation of fresh water for bowsers. **d.** Use of vehicles fitted with telematics and start – stop technology on construction plant to minimise fuel use.						
S-CC8	The following measures will be implemented: Structures **a.** Use of admixtures to maintain water/cement ratio during construction, thus enabling increase in consistency. In particular for Part B: i. Increase volume of a lignosulfonate-based plasticiser to use as a set retarder ii. Admixture combinations to ensure consistent retention of concrete iii. Use of super plasticiser to reduce the total cement content. **b.** Identify opportunities to use CEM 1 (cement grade using unblended cement) during construction to increase the rate and heat of hydration and reduce curing time, although careful consideration and testing must be given to reduction in concrete strength but under certain situations this may be an applicable approach. **c.** Manage concreting work during periods of day when temperature is not at maximum/cooler (during construction). Buildability **a.** Implement dust suppression during construction.	To reduce the Scheme's vulnerability to drier summers.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Main contractor Designer	Detailed design drawings As built drawings	Construction	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	b. Manage construction working hours to avoid concreting in middle of day.						
S-CC9	The following measures will be implemented: Buildability **a.** Schedule earthworks (where possible) to avoid work during winter months of construction phase. **b.** Provide appropriate temporary measures for maintaining site free from flood waters during construction phase. **c.** Use controlled methods for construction of embankments.	To reduce the Scheme's vulnerability to wetter winters including flooding and/or repeated wet cycles.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Main contractor Designer	Detailed design drawings As built drawings	Construction	
S-CC10	The following measures will be implemented: Structures **a.** Risk during construction of reduced working periods and delays from extreme temperature events is deemed to be very low, with no legal maximum temperature in the UK. HSE guidance offers no specific guidance of when it's too hot to work. **b.** Structures will be designed for temperature effects and to current standards. Buildability **a.** Provide protection to all UV resistant materials during construction. **b.** Provide appropriate curing methods for concrete during construction. **c.** Manage site working hours to avoid working in hotter times of day during construction.	To reduce the Scheme's vulnerability to extreme temperature events.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Main contractor	Detailed design drawings As built drawings	Construction	
S-CC11	The following measures will be implemented: Buildability **a.** Manage construction works to avoid working at heights and craneage during high wind events.	To reduce the Scheme's vulnerability to gales and extreme wind events and storms	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Main contractor	Detailed design drawings As built drawings	Construction	

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S-CC12	The following measures will be implemented: Buildability **a.** Carry out site testing of materials during construction to optimise moisture content and therefore ensure stability of any structures/embankments.	To reduce the Scheme's vulnerability to humidity	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16 **Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Main contractor Designer	Detailed design drawings As built drawings	Construction	
S-CC13	Highways England records monthly or quarterly carbon data returns using its Carbon Tool. As such, during the construction phase, data will be collected for materials and fuel/electricity consumption. The actual Greenhouse Gas (GHG) emissions of the Scheme (outturn data) can then be compared to the GHG emissions estimates at the ES phase (i.e. **Chapter 14: Climate, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)) for Part A and **Chapter 14: Climate, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**) for Part B) and the Applicant can iteratively feedback into the environmental assessment process. Any noteworthy increases in GHG emissions associated with the outturn data in comparison with the GHG emissions estimates at the ES phase will be managed and mitigated accordingly through the CEMP.	To enable embedded GHG emissions and emissions from energy to be monitored.	**Chapter 14: Climate, Volume 2** of the ES, Paragraph 14.11.1 and 14.11.2 **Chapter 14: Climate, Volume 3** of the ES, Paragraph 14.11.1 and 14.11.2 **Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.11.4 **Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.11.4	Main Contractor (or specialist appointed by contractor)	Highways England Carbon Tool	Construction	
OPERATION AND MONITORING MEASURES							
Noise and Vibration							
S-N6	Should it be considered necessary for the design to deviate from the proposed Scheme 3D General Arrangement alignment (within the limits of the Limits of Deviation (LODs) and assessment parameters), the earthworks associated with the	To limit effects on sensitive receptors during operation.	**Noise Addendum** (Document Reference: 6.22)	Main contractor	As built drawings	Design	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	Scheme would be re-considered and as necessary re-designed by the main contractor to compensate for the LODs and parameters and to ensure that no additional, greater or different significant adverse effects would arise. Should the height of the road increase as a result of any of the LODs, the heights of the four proposed noise barriers are also likely to need to increase proportionally to ensure that meaningful noise reductions at properties can be achieved from the noise barriers.						
Landscape and Visual							
S-L11	In order to ensure that the landscape elements shown in the Landscape Mitigation Masterplan (Figure 7.8, Volume 5 of the ES (Application Document Reference: TR010041/APP/6.5) and Landscape Mitigation Plan (Figure 7.10, Volume 6 of the ES (Application Document Reference: TR010041/APP/6.6)) fulfil their environmental function, the proposed planting will be supplied, planted and maintained in accordance with: **a.** Manual of Contract Documents for Highways Works, Series 3000 planting specification. **b.** Construction Environmental Management Plan. **c.** Landscape Management Plan **d.** Where applicable information contained within the species-specific method statements to accompany the project specific European Protected Species Licenses, refer to **Chapter 9: Biodiversity, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**) for Part A and **Chapter 9: Biodiversity, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**) for Part B.	To ensure proposed planting identified in the LMP fulfils its Environmental Function.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.11.1 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.11.1	Designer Main contractor	Landscape design discharged as required by NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape Design Certificate	Operation	
S-L12	Maintenance inspections will be undertaken on a regular basis during the maintenance period following Scheme completion, in order to review the effectiveness of the proposed Landscape Elements, in meeting their Environmental Functions.	To compensate for the loss of terrestrial invertebrate habitat	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.11.2 and 7.11.3	The Applicant	Landscape design discharged as required by the DCO Scheme design drawings Landscape Design Certificate	Operation	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	Inspection visits will review plant and seeding establishment. During each inspection, records will be made of general plant health and obvious signs of disease or plant stress recorded. At the autumn inspection the numbers of plant failures will be recorded, and the extent of replacement planting agreed with the main contractor. Where plants have failed, replacement planting will be carried out during the next appropriate planting season.	To provide larval and adult food plants for a range of invertebrate species, including species of conservation importance recorded during the baseline surveys.	**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.11.2 and 7.11.3		Environmental Inspection Records		
S-L13	In accordance with Manual of Contract Documents for Highways Works (MCHW), Volume 1 Specification for Highways Works, Series 3000 Landscape and Ecology (and MCHW, Volume 2 Notes for Guidance on the Specification for Highways Works, Series 3000 Landscape and Ecology, a five-year maintenance and establishment period is considered appropriate for a scheme of this scale, where planting is considered as being essential mitigation. For the remainder of the 15-year design period, monitoring surveys will be undertaken in order to review the success of landscape mitigation and identify any areas where mitigation commitments have not been met. The reviews should identify any management works required to ensure the longer-term success of the landscape elements and identify measures or develop proposals to rectify any areas where a commitment is not being met, such as through any replacement planting. For Part A, the viewpoints 5, 9, 16, 25, 28, 31 and 36 will be revisited to confirm the effects on views arising from Part B have been adequately mitigated. For Part B, the viewpoints 2, 4, 6, 7, 9 and 11 will be revisited to confirm the effects on views arising from Part B have been adequately mitigated. It is recommended that these surveys should be undertaken at approximately five yearly intervals as follows: **a.** Operational Year 5 (Summer) – end of the establishment period. To review the speed of the	To reduce operational impacts through landscape planting. To enhance value for wildlife. To reinstate habitat features. To connect existing habitat areas (especially woodland) and mitigate the effects of fragmentation and displacement. To encourage use of structures by wildlife.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraphs 7.11.4, 7.11.5, 7.11.7 and 7.11.9 **Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraphs 7.11.4 to 7.11.6 and Paragraph 7.11.8	Designer Main contractor	Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape Design Certificate	Operation	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	initial plant growth – to assess if growth is sufficient to meet screening requirements. **b.** Operational Year 10 (Summer) – midway interval, between the initial review and the proposed final assessment. **c.** Operational Year 15 (Summer) – end of the design period as per the assessment. To review and confirm findings of the assessment. Refer to **Chapter 7: Landscape and Visual, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**) and **Chapter 7: Landscape and Visual, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**) for further detail.						
Cultural Heritage							
S-CH7	The programme of post development consent investigations set out in the WSIs (refer to **Appendix 8.5: WSI for an Archaeological Trial Trench Evaluation**, and **Appendix 8.6: WSI for an Archaeological Strip, Map and Sample Excavation (National Grid Diversion Works), Volume 7** of this ES (**Application Document Reference: TR010041/APP/6.7**) and **Appendix 8.5: Draft WSI for post DCO-Consent Trial Trenching** and **Appendix 8.6: Draft WSI for Historic Building Recording, Volume 8** of this ES (**Application Document Reference: TR010041/APP/6.8**) will inform a suitable mitigation, and where necessary monitoring, strategy for any hitherto unknown archaeological remains. A suitable mitigation, and any necessary monitoring, strategy will be devised in consultation with NCC and set out in a WSI and/or a conservation management plan. This will set out how the monitoring, where required, will be undertaken. This is secured in Requirement 9 of the **draft DCO (Application Document Reference: TR010041/APP/3.1)**.	To prevent direct physical impacts on buried archaeological remains. To identify the presence, extent and value of any below ground remains and to inform a subsequent programme of mitigation to be delivered either before or during the construction phase.	**Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.11.1 **Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.11.1	Scheme Archaeologist involved at the construction phase Main contractor with guidance from Archaeologist)	WSI Conservation Management Plan Archaeological Method Statement (if required following response of the WSI)	Operation	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
Biodiversity							
S-B18	The following measures will be implemented to mitigate the impacts of the Scheme on bats: **a.** The Defra Landscape Scale transects will be subject to repeated survey effort during and post-construction. Transect will be replicated in accordance with the methodology presented in **Appendix 9.8: Bat Activity Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**) for Part A, and **Appendix 9.5: Bat Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**) for Part B. **b.** A single year of monitoring will be completed during the construction period and monitoring visits will be completed annually over a four year period post-construction. **c.** The monitoring will be undertaken by a SEE appointed by the Applicant. Following completion of each monitoring period, an interim assessment of the mitigation design will be undertaken. **d.** Following completion of the entire monitoring period, a final review will be undertaken. The review phase will include any statistical analysis of the data and consider the success of the mitigation implemented, in line with the standards detailed within the Defra guidelines (Berthinussen and Altringham, 2015). The results of the monitoring undertaken will determine effectiveness of proposed mitigation and inform any alterations to the designed mitigation system in place, if required. The Applicant/main contractor will identify a suitable body to ensure any alterations required are implemented and completed.	To mitigate the effects of habitat fragmentation on bats.	**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraphs 9.11.11 - 9.11.14 **Chapter 9: Biodiversity, Volume 3** of the ES, Paragraphs 9.11.8 - 9.11.11	The Applicant	As built drawings Defra Local Scale Study post-construction	Operation	
S-B19	Following completion of construction, monitoring will be required to confirm the successful establishment of habitats or use of ecological mitigation features. Post-construction monitoring will be undertaken in accordance with the proposed	To maintain the ecological value of retained and created habitats long-term.	**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraphs 9.9.5, 9.11.2, 9.11.4	The Applicant	HEMP	Operation	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	Ecological/Environmental Management Plan which will be developed at detailed design. The Ecological / Environmental Management Plan will be included within the Handover Environment Management Plan (HEMP), provided to the Applicant post-construction. The HEMP will be developed from the CEMP, and detail monitoring and management, including future maintenance arrangements, that must be adhered to throughout the future operation of the Scheme. The implementation of an Ecological/Environmental Management Plan which will detail the monitoring and maintenance of habitat and mitigation/compensation features following creation and installation. Created habitats will be managed so that they develop into their respective HPI quality and condition, in accordance with the biodiversity no net loss calculations (refer to **Appendix 9.20: Biodiversity No Net Loss Assessment, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) for Part A, and **Appendix 9.11: Biodiversity No Net Loss Assessment Report**, **Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**) for Part B).		and 9.11.5, Table 9-23, DM011 **Chapter 9: Biodiversity, Volume 3** of the ES, Paragraphs 9.9.5, 9.11.3 and 9.11.4 and Table 9-12, EC15				
Geology and Soils							
S-GS15	Following reinstatement of the temporary land take, there will be a programme of monitoring of soil conditions to identify if there are soil problems which need to be remediated. This will include an assessment of the problem and design of a suitable remediation strategy such as subsoiling or drainage followed by crop establishment. Monitoring will be completed in accordance with guidance with the Construction Code of Practice for the Sustainable Use of Soil on Construction Sites (Defra 2009) (**Ref. 8**), up to a period of five years.	To monitor soil conditions post-construction.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.11.1 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.11.1	Environmental Manager (main contractor) The Applicant	HEMP	Operation	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
S-GS16	Ongoing maintenance plans will be implemented to ensure the drainage scheme is meeting its operational requirements and preventing contamination within surface runoff from entering surface water bodies migrating to groundwater. Emergency procedures will in place in case of a considerable release of contaminants as a result of an incident, such as a road traffic accident, on the highway.	To control the pollution of controlled water bodies during operation	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.15 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.16	Environmental Manager (main contractor) The Applicant	HEMP	Operation	
S-GS17	The following measures would be implemented during operation to minimise the risk to human health via The Health and Safety at Work Act 1974, The Confined Space Regulations 1997, The Management of Health and Safety at Work Regulations 1999 and the HSE Guidance, Safe Work in Confined Spaces: **a.** Any personnel entering enclosed spaces, such as maintenance drainage chambers, will complete a confined spaces risks assessment and implement measures such as the inclusion of respirators and wearing gas monitors and RPE if deemed necessary. **b.** All personnel entering enclosed spaces will have appropriate training before being cleared to enter a below ground enclosed space. **c.** All maintenance works will be completed in accordance with appropriate RAMS which stipulate the level of PPE and monitoring required.	To mitigate the risks to human health during construction	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.22 **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.24	Environmental Manager (main contractor) The Applicant	HEMP	Operation	
Population and Human Health							
S-PH12	Any temporarily required land required will be reinstated to its original condition following the completion of construction. Restoration will be carried out to a high standard and compensation will be paid for loss of profits as a result of the Scheme. Measures to the correct specification as to soil stripping, storage and replacement will be outlined in the CEMP developed by the main contractor.	To reinstate any temporary agricultural land required during construction.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.22 **Chapter 12: Population and**	The Applicant Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Operation	

Ref	Action (Including Monitoring Requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
			Human Health, Volume 3 of the ES, Paragraph 12.9.23				
S-PH13	Field boundaries such as hedgerows will be re-built or replanted and be in keeping with the existing boundary (e.g. hedgerow species) wherever possible.	To reduce permanent operational effects on Agricultural Land.	**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.27 **Appendix 12.1: Agricultural Assessment (Confidential), Volume 7** of the ES, Paragraph 4.4.14	The Applicant Main contractor	CEMP approved by the SoS following consultation with NCC ALC Report	Operation	
Climate Change							
S-CC14	A schedule of general inspections and main inspections of each structure will be carried out. Inspections will be in accordance with DMRB CS 450 and will also occur following an intense rainfall event or heatwave to monitor any damage and implement appropriate mitigation as necessary. In addition, a list of extreme weather-related incidents (for example, road surface deformations, snow and ice etc.) will be maintained by the Applicant to assist in identifying thresholds which, when exceeded, require maintenance. Given the uncertainties inherent in climate science and projections, the impacts and effects identified will be monitored throughout the construction and operational phases of the Scheme. The monitoring will be undertaken to assess the appropriateness of the mitigation measures. The assessment will be revisited when new and/or updated information becomes available, for example when further updates to climate projections are published.	To determine condition of the structure and identify any potential maintenance requirements.	**Chapter 14: Climate, Volume 2** of the ES, Paragraphs 14.11.4-14.11.6 **Chapter 14: Climate, Volume 3** of the ES, Paragraphs 14.11.4-14.11.6	The Applicant	Schedule of General Inspections Records of, and information from, inspections stored on HE's Integrated Management Information System IAMIS-Structures	Operation	

Table 3-2 – Register of Environmental Actions and Commitments: Part A

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
DESIGN MEASURES							
Noise and Vibration							
A-N1	The following measures will be applied: **a.** The surface of the entire length of the A1, between the north and south extent of Part A, will be laid with a LNS (which is the quietest road surface type) apart from on structures (River Coquet Bridge, Parkwood Subway and Burgham Park Underbridge) where HRA will be laid. **b.** All existing sections of LNS on the A1 will be replaced with a new LNS (and if necessary, replaced again by the future year such that they can be considered to be well maintained). **c.** Where the 'de-trunked' A1 will become NCC's responsibility, the road surface type will remain the same as existing. **d.** The road surface type on the local authority road network will not change.	To limit effects on sensitive receptors during operation.	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraphs 6.5.18 and 6.9.2 **Noise Addendum** (Document Reference: 6.22)	Main contractor	As built drawings	Design	
A-N2	A reflective noise barrier will have a specified height of 4 m at (PNB2). The location of this barrier is shown on **Figure 6.1: Noise and Vibration Assessment Extents, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) (PNB2).	To limit effects on sensitive receptors during operation.	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraph 6.9.22 **Noise Addendum** (Document Reference: 6.22)	Main contractor	As built drawings	Design	
A-N3	An absorptive noise barrier will have a specified height of 4 m at (PNB3). The location of this barrier is shown on **Figure 6.1: Noise and Vibration Assessment Extents, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) (PNB3).	To limit effects on sensitive receptors during operation.	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraph 6.9.22 **Noise Addendum** (Document Reference: 6.22)	Main contractor	As built drawings	Design	

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A-N4	A reflective noise barrier will have a specified length of 70 m and height of 3 m, for four properties at Northgate Farm (PNB1) at the southern end of Part A, immediately east of the A1.	To reduce noise levels at these properties.	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraph 6.9.33 **Noise Addendum** (Document Reference: 6.22)	Main contractor	As built drawings	Design	
A-N5	A 3 m high reflective noise barrier will be provided in the location of the Felmoor Park and Bockenfield Holiday Park (PNB4). Although further investigation is required to determine whether the barrier can be built, it will be provided if it can be built meeting the value for money criteria.	To reduce noise levels at these properties.	**Chapter 6: Noise and Vibration, Volume 2** of the ES, Paragraph 6.9.34-6.9.35 **Noise Addendum** (Document Reference: 6.22)	Main contractor	As built drawings	Design	
A-N6	A full assessment in accordance with the Noise Insulation Regulations (NIR) will be carried out for the Scheme. The preliminary assessment for properties eligible for compensation under the NIR indicated that Capri Lodge and Strafford House are likely to be eligible. It should be noted that a preliminary assessment can only be undertaken at this stage as the assessment requires traffic data from the year before construction commences to be compared with data for the period within 15 years after opening.	Adhering to NIR.	**Noise Addendum** (Document Reference: 6.22)	Main contractor	CEMP approved by the SoS following consultation with NCC	Design	
Landscape and Visual							
A-L1	Where land is not permanently required for mitigation, land will be returned to former land use. Habitat features will also be reinstated within the same geographical area, where possible, maintaining connectivity to existing retained habitat features	To reinstate habitat features	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.12 **Chapter 9: Biodiversity,**	Designer Main contractor	Landscape design discharged as required by the DCO As Built drawings Landscape Design Certificate	Design	

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			Volume 2 of the ES, Paragraph 9.9.4				
A-L2	In order to minimise the impacts of the Part A on existing vegetation and habitats, the landscape design includes the following measures: **a.** Tree and shrub planting will be omitted to the east of Part A between Chainage 20000 - 20400 (in association with Detention Basin No. 15 and 15a and in association with Detention Basin 17), in order to discourage its use by birds, thereby reducing the collision risk with vehicles and planes in proximity to Eshott Airfield. Within this area planting will be restricted to grassland habitat that will be managed in order to maintain a short sward height, to discourage use by ground nesting birds and barn owls. **b.** Marginal and aquatic species will be planted within detention basins No 15, 15a and 17 in accordance with the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5)** This will be extended to include the embankments of open drainage ditches. Detention Basins No 15,15a, 17 are not intended to hold standing water, for prolonged phases of time to reduce the risk of bird strikes by planes from Eshott airfield. **c.** An isolated area of reed beds will be integrated within the design associated with the flood storage area at chainage 20880 to the west of the mainline. **d.** A 5 m wide space for any potential maintenance access will be required on either side of the proposed diverted gas lines, located primarily within third party land. Where planting is indicated within the affected area, only species recommended by industry good practice guidance will be used. This will be restricted to short sections of hedgerow	To reduce operational impacts through landscape planting. To enhance value for wildlife. To reinstate habitat features. To connect existing habitat areas (especially woodland) and mitigate the effects of fragmentation and displacement. To encourage use of structures by wildlife. To improve the biodiversity of Part A.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.4	Designer Main contractor	Landscape design discharged as required by the DCO by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As Built drawings Landscape Design Certificate	Design	

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	planting, where the gas line will otherwise sever the linear feature. The easements themselves will be seeded, using a mix appropriate to the adjoining area.						
A-L3	Reinforce existing woodland blocks will be retained and included within the Order Limits of Part A through infill planting. This is restricted to the area of woodland to the east of Part A between chainages 19520 – 20000. There will be inclusion of appropriate screen planting to mitigate views of Part A by the Design Year and beyond. This is detailed on the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)).	To minimise impacts on existing vegetation. To enhance and protect landscape character during operation. To provide connectivity to the retained woodland.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.14	Designer Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape design discharged as required by the **draft DCO** As Built drawings Landscape Design Certificate	Design	
A-L4	At the northern end of Part A, where the offline section re-joins the existing A1, anti-glare fencing is proposed in place of hedgerow planting where space is restricted. Within these areas hedgerows will be planted along the proposed permanent highway boundary where space allows. At its most southern limit, the anti-glare fencing will commence at Chainage 19900, where it will tie into the proposed noise barrier (PNB4). From here the anti-glare fencing will extend in a northerly direction, to the east of the carriageway as far north as West Moor Junction. A further length of anti-glare fencing will extend adjacent to the southbound carriageway between 20700 and 21450.	To reduce operational impacts through landscape planting.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.4	Designer Main contractor	Landscape design discharged as required by the DCO As Built drawings Landscape Design Certificate	Design	
A-L5	The **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) identifies the location of Proposed Environmental Elements associated with noise and biodiversity (for more detail refer to **A-N2** – **A-N5** of this Outline CEMP): **a.** Reflective noise barrier (3 m high and 70 m long) (PNB1)	To increase the effectiveness of the screen planting within the affected area, reducing overall dominance of embankments in and around the	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraphs 7.9.16, 7.9.18 to 7.9.20	Designer Main contractor	Site Environmental Inspection Reports CEMP approved by the SoS following consultation with NCC	Design	

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	b. Reflective noise barrier (4 m high) (PNB2) **c.** Absorptive noise barrier (4 m high) (PNB3) **d.** Noise barrier (3 m high) (PNB4) Along the length of Part A, there are a number of proposed earth bunds. These are split into those considered as essential mitigation, and those considered as desirable mitigation, which will be within defined assessment parameters. Those bunds identified as essential mitigation have been identified as No. 1, 2, 7, 8, 9, 10, 11, 12 and 13. The locations of the bunds are principally associated with the proposed grade separate junctions. The desirable bunds are intended to reduce the visual prominence of the built road elements within view by reducing the height difference of the junction in comparison to that of the adjoining land, providing better landscape integration during early plant establishment and increasing the effectiveness of the associated screen planting at design year. Each bund has a proposed maximum height of 4 m, with a slope gradient no greater than 1:3. In addition to landscape integration and screening, the following bunds provide secondary Environmental Functions: **a.** Bunds 1 and 2 are located directly on top of a foot and mouth burial site. Here the depth of growing material has been increased, in order to avoid, unnecessary ground disturbance within the affected area. **b.** Bunds 10 – 13 are intended to provide essential barn owl mitigation, beyond those functions noted above.	proposed junctions. To enhance the landscape within the highway boundary.					
A-L6	Ancient woodland compensation measures include the following: **a.** A proposed Woodland Creation Area will replace removed ancient woodland and provide connectivity to the adjacent and retained woodland. It is acknowledged that the area of compensation will not be deemed to be like for like replacement habitat given the time it takes for	To avoid or reduce impacts on trees and woodland. To prepare the Woodland Creation Area.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.13 **Appendix 7.5**: **Arboricultural Report, Volume 7** of the ES,	Main contractor with guidance from the Arboriculturalist (main contractor), Environmental Manager (main contractor) and	Ancient Woodland Strategy As Built drawings Landscape Design Certificate Arboricultural Method Statement Landscape design discharged as required by the DCO	Design	

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	replacement ancient woodland to become established. **b.** In agreement with Natural England 8.16 ha of woodland (Woodland Creation Area) adjacent to River Coquet and Coquet Valley Woodlands SSSI and ancient woodland is proposed to address the loss of 0.68 ha of ancient woodland. To supplement the woodland creation, salvage techniques will be undertaken where possible to take material from the ancient woodland donor site to the receptor area of the Woodland Creation Area (refer to **Figure 7.8: Landscape Mitigation Masterplan, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)). **c.** Following consultation with Natural England, woodland creation will be implemented in accordance with the **Ancient Woodland Strategy** (**Appendix 9.21, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)).	To compensate for loss of ancient woodland.	Paragraph 6.1.1, 6.1.2 and 6.1.13	ECoW (main contractor)			
Cultural Heritage							
A-CH1	Any potential impacts on below ground remains resulting from a change in hydrology will be mitigated by a robust surface water drainage system which forms part of the design of Part A, as set out in **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**).	To prevent damage to below ground archaeological remains	**Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.9.1	Main contractor Designer Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC. Temporary surface water drainage strategy	Design	
Biodiversity							
A-B1	Creation of bunds near Causey Park will raise the profile of road margins and encourage barn owl flight at a safe height over the road.	To enhance value for wildlife. To encourage use of structures by wildlife.	**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4	Designer Main contractor	Landscape design discharged as required by the DCO As built drawings Landscape Design Certificate	Design	

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A-B2	Landscape planting has been designed to create linear features, such as hedgerows and treelines, to direct and guide wildlife parallel to the Scheme and to suitable crossing points incorporated into the Scheme design. Landscape planting will also be used at the entrances of culverts, creating a graded height of vegetation. Further details are presented within the **Landscape Mitigation Masterplan** (**Figure 7.8**, **Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)). Fencing has also been proposed, where necessary, to guide wildlife (mainly badger and otter) towards crossing points (refer to **A-B11** of this Outline CEMP). Inclusion of additional fencing to guide wildlife to culverts will be considered at detailed design, prior to construction for each of Part A and Part B.	To mitigate the effects of fragmentation on protected and notable species. To encourage flights lines of bats towards and into the culverts.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM028	Designer Main contractor	As built drawings Landscape design discharged as required by the DCO	Design	
A-B3	An **Ancient Woodland Strategy** (**Appendix 9.21**, **Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) has been developed in consultation with Natural England and will require the following actions: **a.** To comply with avoidance measures including siting of the route alignment to reduce land take and increase retention of ancient woodland. This will be achieved through construction design, including siting of compound and storage areas. **b.** Comply with the following construction mitigation requirements: i. Establishment of buffer/stand-off distances ii. Implementation of an arboriculture method statement iii. Access and construction traffic movements iv. Implementation of a Biosecurity Method Statement, as Himalayan balsam is known to be present downstream in Felton and the ancient woodland is infected with ash dieback	To address the loss of ancient woodland habitat and impacts to retained woodland as a result of Part A.	**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.7	Designer Main contractor	Site Environmental Inspection Reports CEMP approved by the SoS following consultation with NCC Ancient Woodland Strategy (developed in consultation with Natural England) Arboriculture Method Statement Biosecurity Method Statement Landscape design discharged as required by the DCO	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	c. Planting of Woodland Creation Area identified to the southwest of the River Coquet Bridge d. Preparation of the Woodland Creation Area, including soil testing and preparation, as required. e. Salvage of woodland soils and flora, where access permits f. Establishment of 8.16 ha of woodland, using native species of local provenance g. Establishment of hay meadow ground flora with provenance to the Coquet Valley, using locally sourced green hay or an appropriate hay meadow mix h. Sensitive sapling and seed collection from wider ancient woodland as stock plants for the woodland planting area						
A-B4	Where possible, crossing point structures for bats along the offline section of Part A have been incorporated into the design of Part A at the location of the bat crossing points recorded by the baseline surveys. The culverts beneath the new A1 carriageway range in dimensions between 3 m span by 2.1 m internal height to 4 m span by 3.75 m internal height. Full details on dimensions are presented within the **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**).	To maintain connectivity for wildlife	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM025	Main contractor	Scheme design drawings Landscape design discharged as required by the DCO	Design	
A-B5	The existing culvert at Burgham Park (Burgham Culvert (10)) will be retained and unmodified (other than minor works to headwalls). Vegetation at the culvert entrances will be modified and managed to create a graded vegetation height leading down to the entrance to encourage bat passage within the culvert (as detailed within the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)).	To mitigate the effects of fragmentation on protected and notable species. To maintain a crossing structure under a side road of the A1 for bats.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM026	Main contractor	Scheme design drawings Landscape design discharged as required by the DCO	Design	
A-B6	A culvert (Wildlife Eshott Burn Culvert) will be constructed at chainage 18300 as part of bat mitigation, with an internal diameter of 1.5 m	To mitigate the effects of habitat	**Chapter 9: Biodiversity,**	Designer Main contractor	As built drawings Defra Local Scale Study post-construction	Design	

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	(circular). This location will be subject to a further Defra Local Scale study during and post-construction to assess its effectiveness.	fragmentation on bats.	**Volume 2** of the ES, Table 9-23, EM027				
A-B7	Where watercourses are reinstated (primarily due to relocation of culverts), this will be designed in keeping with the wider watercourse, including bed and bankside structure and riparian vegetation composition. New channels will be designed to increase their biodiversity value, with the inclusion of rock armour to vary the substrate features, create natural meanders and facilitate the movement of aquatic species (in accordance with **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**). The channels will be planted with aquatic vegetation consistent with the existing floral community of the watercourse/catchment. The sourcing of any aquatic plants will be confirmed at detailed design but will be from suppliers that are free from aquatic invasive non-native species. Advice will be sought from the Environment Agency, if required, about relevant protocols for the sourcing of aquatic plants.	To mitigate for the loss of aquatic (running water) habitat.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM041	Designer Main contractor	Scheme design drawings	Design	

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A-B8	Mammal ledges have been incorporated into the culverts design, where possible[1]. The mammal shelf will be designed in accordance with the DMRB. Where constraints do not allow for a mammal ledge, a separate mammal underpass / culvert has been provided, where possible, with a minimum diameter of 600 mm (detailed in **A-B10** of this Outline CEMP). The exception to this is where there is insufficient cover to provide a separate culvert. In these instances, free passage is available to mammals except when in flood. Further details are presented in **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**). All culverts beneath the main alignment of Part A (the A1) that may be used by badger or otter[2] include a mammal ledge or separate underpass. All other culverts where installation of a mammal ledge/separate wildlife culvert has not been possible represent culverts beneath private means of access/minor access roads where the risk of vehicle collision is low, existing culverts where there will be no chance to current circumstance or culverts associated with dry ditches where evidence of otter or badger was not recorded during baseline surveys.	To provide safe passage beneath the A1 carriageway and maintain connectivity for mammals throughout the landscape	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM029	Designer Main contractor	As built drawings Defra Local Scale Study post-construction	Design	
A-B9	Baffles or similar structures will be installed within the existing culvert along the River Lyne (Priest's Bridge Culvert (4)). In addition, the wooden baffles currently installed within the retained Burgham Culvert (10) will be replaced with more permanent structures to improve the lifespan of the feature and maintain fish passage in the long-term. Baffles will also be provided along Longdike Burn as this (as well as the River Lyne) was identified as priorities for the catchment during consultation with the Environment Agency.	To mitigate for potential downstream impacts and maintain passage along watercourses.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM031 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Table 15-4	Designer Main contractor	As built drawings	Design	

[1] Subject to topography and design constraints.

[2] This includes all culverts under the A1 except for South Longdike Culvert (**Figure 9.2: Ecological Mitigation Plan, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**). South Longdike Culvert relates to a surface water flow path that, whilst it may be used for mammal passage, is not in an area of concern for otter/badger passage beneath the Scheme.

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A-B10	Suitable crossing points will be incorporated into the design of Part A (wildlife culverts), with a diameter of 600 mm minimum in accordance with guidance. These will be secured through the **Structures Engineering Drawings and Sections** (**Application Document Reference: TR010041/APP/2.8**). These are suitable for badger and other mammals and have been incorporated beneath slip roads at junctions to provide safe passage across the network and, where possible, beneath the off-line section and/or side roads. In addition, where achievable given topographical constraints mammal shelves have been incorporated into culverts along watercourses, providing safe passage under Part A (refer to **A-B8** of this Outline CEMP for additional detail). Culverts specific to wildlife are presented in Chapter 2: The Scheme, Volume 1 of the ES (Application Document Reference: TR010041/APP/6.1) and Figure 9.2: Ecological Mitigation Plan (Confidential), Volume 5 of the ES (Application Document Reference: TR010041/APP/6.5) as follows: **a.** Wildlife Fenrother Culvert **b.** Wildlife Causey Park Culvert **c.** Wildlife Eshott Burn Culvert **d.** Wildlife Burgham Culvert	To maintain connectivity for wildlife, including badger and otter.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM032	Designer Main contractor	As built drawings	Design	
A-B11	Badger exclusion fencing will be installed along highway boundary features (hedgerows or fence lines) to discourage crossing Part A at specific locations to reduce the risk of collision and mortality. This will include: **a.** Along both sides of Part A carriageway to the north of Highlaws Junction. **b.** Along both sides Part A carriageway at Causey Park. The badger fencing will be maintained for the life of Part A. Following construction, the badger fencing will be maintained in an effective condition, with any	To protect local badger populations.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM035	Main contractor with guidance from the ECoW (main contractor)	Scheme design drawings Site Inspection Records	Design	

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	repairs as a consequence of wear and tear or damage undertaken in a timely manner. Inclusion of additional fencing to guide wildlife to culverts will be considered at detailed design, prior to construction.						
A-B12	The **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)) will include bunding either side of the carriageway along the off-line section between chainage 16000 to 16400 and 16700 to 16900 to raise the profile of the landscape either side of the road and encourage barn owl to fly higher over the road, thereby reducing the risk of collision with vehicles. The bunding will also be planted with trees and woodland planting on the outer slope (away from the road).	To reduce the risk of vehicle collision with barn owl. To increase the height and success of the bunding with regards to the safe crossing for barn owl.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM038	Designer Main contractor	Scheme design drawings Landscape Design Certificate Landscape planting scheme discharged as required by the DCO	Design	
A-B13	The majority of the Order Limits of Part A encompasses very poor habitat for barn owl. To compensate for the loss of Type 1 and Type 2 linear and grassland habitat, the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)) will incorporate species-rich hedgerows, arable field margins (up to a width of 10 m) and open grassland.	To compensate for the loss of barn owl foraging habitat.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM039	Designer Main contractor	Scheme design drawings Landscape Design Certificate Landscape planting scheme discharged as required by the DCO	Design	
A-B14	The anti-glare fencing proposed near West Moor Junction will be created from inert materials to avoid an attraction to wildlife that may encourage movement into the road network and increase the risk of mortality.	To reduce the risk of vehicle collision.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM044	Main contractor	Scheme design drawings	Design	
A-B15	The design of the diverted public right of way (PRoW) footpath to the south of the River Coquet at detailed design, will enclose the footpath and deter access into the SSSI.	To avoid or reduce impacts on SSSI.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM022	Designer Main contractor	As built drawings	Design	

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A-B16	Planting of trees immediately adjacent to overbridges to discourage, primarily bats, crossing the road network at areas of high risk will be avoided. In addition, planting trees and shrubs to the east of Part A between chainage 20000 and 20400 will also be avoided due to the increased risk of bird mortality from road vehicle and air traffic collision.	To prevent bird and bat mortality.	**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4	ECoW (main contractor) Arboriculturalist (main contractor)	Landscape design discharged as required by the DCO Landscape Design Certificate Arboricultural Method Statement	Design	
Road Drainage and the Water Environment							
A-W1	Part A will comprise (from south to north) the following watercourse crossing works (as shown on the **General Arrangement Plans** (**Application Document Reference: TR010041/APP/2.4**): **a.** The replacement of the three existing circular culverts along Cotting Burn, downstream of the existing A1 and slip road with two new box culverts. **b.** The replacement of the existing culvert along Shieldhill Burn with a new circular culvert. **c.** The replacement of the existing arch culvert along Floodgate Burn with a new circular culvert. **d.** The construction of a new culvert where Part A crosses the River Lyne. **e.** The removal of the existing culvert along the tributary of Fenrother Burn, and the construction of two new culverts where Fenrother Burn crosses Fenrother Lane. The Fenrother Burn will be diverted along the west side of the Scheme between the two new culverts. **f.** Construction of two new box culverts where Part A crosses the Earsdon Burn, the first situated beneath the new A1 alignment and the second beneath a new access road that runs along the western side of the A1.	To manage risk to the water environment associated with the design of changes to/new structures within watercourses.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.24 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 1.2.2	Designer	As built drawings	Design	

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	g. The diversion and channel realignment of an unnamed watercourse to a new confluence with the Earsdon Burn. This will include a new circular culvert beneath a new access road upstream of the realignment and culverting of the downstream half of the diversion via the construction of a new circular culvert adjacent to the main A1 alignment. h. Modification of the headwall of the existing culvert along Longdike Burn. i. The extension of the existing culvert at Longdike Burn (and the Poxtondean Burn that discharges into the Longdike Burn). j. Construction of a new circular culvert where Part A will cross a surface water flow path south of Felmoor Park. k. Replacement of the culvert that drains agricultural land to the west of Eshott Airfield. l. Extension of the existing culvert on an unnamed watercourse which drains to the Thirston Burn. m. New bridge crossing the River Coquet to the immediate east of the existing bridge. n. Extension of the existing culvert on Bradley Brook. o. It should be noted that the wildlife culverts are not listed here, and are detailed in A-B10 of this Outline CEMP (refer to **Chapter 9: Biodiversity, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)).						
A-W2	West Cotting Burn Culvert (1.4) will include a 250 mm natural bed.	To manage risks to local ecology during operation. To encourage fish passage and will not include mammal passage provision due to the likely low risk of mammal casualty with it being a private	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 4.2.3	Main contractor	As built drawings	Design	

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		access with low usage.					
A-W3	East Cotting Burn Culvert (1.5) will include a 200 mm natural bed.	To manage risks to local ecology during operation. To encourage fish passage and will not include mammal passage provision due to the likely low risk of mammal casualty with it being a private access with low usage.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 4.2.5	Main contractor	As built drawings	Design	
A-W4	Shieldhill Culvert (1B), 600 mm in diameter will be provided adjacent to the Shieldhill Culvert (1A) at chainage 11810.	To improve the quality of the environment for local ecology during operation. To allow for mammal passage.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 5.2.3 and 5.2.4	Main contractor	As built drawings	Design	
A-W5	A 150 mm natural bed will be included at Paradise Culvert (3). The mammal ledge will be set 950 mm above the pipe invert level. A minimum of 600 mm headroom is required for mammal passage.	To improve the quality of the environment for local ecology during operation. To encourage fish passage and allow for mammal passage.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 6.2.4	Main contractor	As built drawings	Design	
A-W6	The Priest's Bridge Culvert (4) will comprise a 100 mm natural bed within a 250 mm low flow channel.	To improve the quality of the environment for	**Appendix 10.2**: **Water Framework Directive Assessment,**	Main contractor	As built drawings	Design	

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	A 500 mm wide shelf will be fixed to the culvert, 1.31 m above the culvert invert.	local ecology during operation. To encourage fish passage and to allow mammal passage.	**Volume 7** of the ES, Paragraph 7.2.3				
A-W7	The design of the new channel at Fenrother Burn will maintain a similar channel profile and dimensions to the existing watercourse. Rock armour (boulders) will be placed within the new channel. The design will be further developed during the detailed design phase, prior to construction of the new channel.	To improve the quality of the environment for local ecology during operation. To mimic existing environmental conditions, e.g. to provide varied substrate features and flow dynamics within the watercourse channel and assist the movement of aquatic species.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 8.2.2	Main contractor	As built drawings	Design	
A-W8	North Fenrother Burn Culvert (5.2) will comprise a 250 mm natural bed. Scour protection will be provided. South Fenrother Burn Culvert (5.3) will include a 250 mm natural bed to encourage fish passage. A separate wildlife culvert (Wildlife Fenrother Culvert (5.4)) will be provided at this location.	To encourage fish passage. To improve the quality of the environment for local ecology during operation.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 8.2.5 and 8.2.7	Main contractor	As built drawings	Design	
A-W9	Causey Park Culvert (6.2) will include a 150 mm natural bed to encourage fish passage. A wildlife ledge will also be provided 950 mm above the culvert invert level, to allow terrestrial mammal passage (including badger and otter).	To improve the quality of the environment for local ecology during operation.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 9.2.3	Main contractor	As built drawings	Design	

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A-W10	The design of the new channel at New Houses Farm Culvert (7.1) will maintain a similar channel profile and dimensions to the existing channel to mimic existing conditions. Rock armour (boulders) will be placed within the new channel to provide varied substrate features and flow dynamics and assist the movement of aquatic species.	To manage risks to local ecology during operation.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 9.2.6	Main contractor	As built drawings	Design	
A-W11	Bockenfield Culvert (12) will maintain a natural bed to encourage fish passage, and a new wildlife ledge 1.7 m above the river bed level will allow mammal passage. Scour protection will be provided.	To improve the quality of the environment for local ecology during operation.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 10.2.5	Main contractor	As built drawings	Design	
A-W12	Earsdon Burn Culvert (6.3) will include: **a.** A 150 mm natural bed to encourage fish passage **b.** A wildlife ledge will also be provided 1 m above the culvert invert level to allow for mammal passage **c.** A minimum of 600 mm headroom is required for mammal passage	To improve the quality of the environment for local ecology during operation. To encourage fish passage and allow for mammal passage.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 9.2.5	Main contractor	As built drawings	Design	
A-W13	The downstream culvert extension associated with Parkwood Culvert (16) will include a 150 mm natural bed to encourage fish passage and scour protection will be provided.	To improve the quality of the environment for local ecology during operation.	**Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 13.2.3	Main contractor	As built drawings	Design	
A-W14	The main contractor will ensure any backfill and made-ground following construction of the piers is to be composed of cohesive clay, sandy loam and suitably sized, compacted angular material. Made-ground will be planted with vegetation following construction. Where vegetation is unlikely to establish due to shading from the structure, coarse, angular and compacted coarse stones will be used for the surface horizon. The sizing will be sufficient	To reinstate made ground associated with the operation of the River Coquet bridge.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.31 **Appendix 10.4: Geomorphology Assessment –**	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Scheme design drawings	Design	

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	to resist sediment transport during out-of-bank flows. The analyses presented in the **Geomorphology Assessment – River Coquet, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**) suggests a minimum substrate size of greater than 40 mm up to small cobble size.		**River Coquet**, **Volume 7** of the ES, Table 5-7				
Geology and Soils							
A-GS1	Where BMV soils are to be lost through permanent land take they are generally associated with extending the existing carriageway and not the offline section of Part A. No areas of landscape planting mitigation are proposed over BMV soils outside the permanent Part A related land take areas.	To prevent loss of BMV soils.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.6	Main contractor Environmental Consultant (designer)	Landscape design discharged as required by the DCO	Design	
Population and Human Health							
A-PH1	Measures to reduce community severance will include: **a.** The proposed footways at the three new junctions will link into the existing side roads. Pedestrians are accommodated by footpaths immediately to each side of the proposed junctions and across the new bridges. This will increase linkages and provides safer pedestrian access across the A1. **b.** The proposed Causey Park overbridge will be designed to safely carry both pedestrians and vehicular traffic. **c.** The proposed Burgham underbridge will be designed with access for pedestrians using hardened verges, and vehicular traffic, with clear visibility for all users. **d.** A new segregated 3 m wide footway/cycleway will be provided along the length of the eastern side of the proposed link road, between the de-trunked A1 and Felton Road. This will improve access and safety for cyclists alongside the A1.	To reduce community severance and effects on WCHs.	**Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.7	Main contractor	CEMP approved by the SoS following consultation with NCC **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)) Scheme design drawings	Design	

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	e. Two bus stops will be relocated on the northbound and southbound carriageways from chainage 31500 to just north of the proposed Fenrother free-flow link road at chainage 31900. Two existing bus stops will be retained on the northbound and southbound carriageways, to the south of Burgham Park Underbridge at chainage 35500 to chainage 35600. On the A697 at Espley (outside of the Order Limits of Part A), a bus stop on both the northbound and southbound carriageways will be formalised prior to operation, including the provision of new bus stop signs (with further detail, for example new street furniture and road markings) to be confirmed at the detailed design phase of Part A).						
Material Resources							
A-M1	Part A will be designed for off-site construction by maximising the use of prefabricated structures and components, encouraging a process of assembly rather than construction: **a.** The construction method for the River Coquet bridge will comprise prefabricated elements which will reduce waste production on site. **b.** The Burgham Park Underbridge, Causey Park Overbridge and bridges at Highlaws, Fenrother and West Moor Junctions, will each comprise an integral single span bridge with a prestressed precast concrete beam deck, which will be constructed in a controlled environment off site, along with precast parapets. **c.** Precast elements of the new culvert structures will also be constructed off site, reducing waste production on site. **d.** Retention of an existing culvert (Burgham Culvert) and extensions to existing culverts have been proposed under Part A (e.g. Bockenfield, Glenshotton and Parkwood Culverts).	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste by designing for off-site construction.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.2	Designer	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As built drawings	Design	
Climate Change							

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A-CC1	Structures **a.** Flood risk during construction will be considered under the heading of sustainability in matrix assessment of structural options. **b.** Piled foundations (to manage structural stability and robustness) will be used for Burgham Park overbridge, River Coquet bridge and Parkwood Subway abutments. Flood Risk **a.** The design of Part A will incorporate both new culverts and the use of existing culvert. **b.** The culverts have been modelled and designed for the 1 in 100 year plus 25% climate change allowance.	To reduce Part A's vulnerability to extreme rainfall events.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16	Main contractor Designer	Detailed design drawings As built drawings	Design	
A-CC2	Structures **a.** Modelling for temperature effects will be undertaken in accordance with modern standards and incorporated into the design. Watercourses **a.** Low flow channel to improve fish passage during operation will be installed at Fenrother Burn and Earsdon Burn. Buildability **a.** Selection of native woodland and hedgerow species. **b.** Completion of regular inspections of landscape elements to ensure they meet their environmental functions, with replacement planting where necessary.	To reduce Part A's vulnerability to drought	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16	Main contractor Designer	Detailed design drawings As built drawings Landscape design discharged as required by the DCO	Design	
A-CC3	Drainage Structure drainage systems have maintenance access built in to ensure blockages are reduced as much as practically possible to eliminate build-up of water.	To reduce Part A's vulnerability to wetter winters including flooding and/or repeated wet cycles.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16	Main contractor Designer	Detailed design drawings As built drawings	Design	

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A-CC4	The following measures will be implemented: Structures **a.** The River Coquet bridge will be the only steel structure. Detailed design will consider provision of suitable drip/drainage details.	To reduce Part A's vulnerability to humidity	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16	Main contractor Designer	Detailed design drawings As built drawings	Design	
PRE-CONSTRUCTION/CONSTRUCTION MEASURES							
Landscape and Visual							
A-L7	In addition to the embedded mitigation, a number of specific mitigation measures relating to landscape and/or visual effects will be implemented for Part A. These are identified on the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)).	To reduce operational impacts through landscape design.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.5	Main contractor Arboriculturalist (main contractor) Environmental Manager (main contractor) ECoW (main contractor)	Landscape design discharged as required by the DCO As Built drawings Landscape Design Certificate	Construction	
A-L8	A mitigation principle adopted in the Landscape Mitigation Plan includes replacement planting for trees during the construction of Part A including those removed from the Coronation Avenue (between Northgate and Tritlington), where mature trees will be set within the grass verge creating a discernible character to the nature of the view along the road corridor at this section.	To minimise impacts on existing vegetation. To enhance and protect landscape character during operation. To provide connectivity to the retained woodland.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.14	Main contractor Arboriculturalist (main contractor) Environmental Manager (main contractor) ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape design discharged as required by the **draft DCO** As Built drawings Landscape Design Certificate	Construction	
Cultural Heritage							
A-CH2	The Grade II Listed milepost (NHL 1153544), which may be removed as a result of Part A, will be subject to a Level 1 Survey in accordance with Historic England's 2016 guide, titled 'Understanding Historic Buildings. A Guide to Good Recording Practice'	To create a permanent record of its existing setting and assist	**Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.9.7	Main contractor Archaeologist (main contractor)	Method Statement approved by the Secretary of State following consultation with NCC as per Requirement 10, Schedule 2 of the **draft DCO** (**Application**	Pre-construction Construction	

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	(**Ref. 9**) prior to the start of construction to create a permanent record of its existing setting. This will be followed by the careful removal of the asset, its safe storage during construction. On completion of construction, the milestone will be reinstated as close as possible to its original location to maintain its relationship with the route. Any mitigation will be devised in consultation with Historic England, NCC and the Milestone Society and set out in a method statement. The requirement to approve the works and method statements to discharge requirement 10 is the responsibility of the Secretary of State.	with its reinstatement upon completion of construction.		Scheme Archaeologist	**Document Reference: TR010041/APP/3.1**) CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO.** A written, drawn and photographic record will be compiled of the dismantling of the milepost in consultation with Historic England, NCC and the Milestone Society. DCO Requirements		
Biodiversity							
A-B17	A pre-commencement walkover survey for otter of watercourses crossed by the Scheme will be undertaken prior to construction to confirm that baseline conditions remain accurate and affirm mitigation proposals. The walkover survey will also include field signs for water vole as good practice. This will include the installation of a temporary mink raft to confirm whether the invasive species remains.	To protect riparian mammals (otter and water vole).	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM08	Main contractor ECoW (Main contractor)	Otter Report DCO Requirements	Pre-construction	
A-B18	The construction programme indicates that works within 500 m of the GCN ponds (A11, A12, A19 and A21) are to occur, at the earliest, in December 2021. Given that the existing baseline data will be four years old, updated GCN surveys of ponds A11, A12, A19 and A21 (and other waterbodies within 500 m of these and not separated by a barrier to dispersal, including A13) will be required to inform the European Protected Species (EPS) Licence application (refer to **A-B22** of this Outline CEMP). The EPS Licence will need to be in place prior to construction to commencing within 500 m of the GCN ponds. This will consist of six surveys undertaken by experienced and licenced surveyors between mid-March and mid-June, with at least three surveys undertaken within the peak period (mid-April to mid-May).	To obtain updated GCN baseline data suitable for an EPS Licence application.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM04 Great Crested Newt 2020 Verification Survey Report Part A (Document Reference: 6.20)	Main contractor ECoW (main contractor)	EPS Method statement GCN Report DCO Requirements	Pre-construction	

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A-B19	Update baseline surveys of building B4A and the bat boxes appended to tree T148A to support a bat EPS or Bat Mitigation Class Licence application (refer to **A-B25**). The EPS Licence will need to be in place prior to the demolition of building B4A and the relocation of the bat boxes of T148A. This will consist of three surveys undertaken between May and September, with at least two surveys completed within the peak period of May to August. For the bat boxes, surveys may alternatively consist of visual inspections undertaken by a licensed ecologist. Surveys will be completed in accordance with good practice.	To obtain update bat roost baseline data suitable for an EPS Licence application.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM05 Bat Activity 2020 Verification Survey Report Part A (Document Reference: 6.19)	Main contractor ECoW (main contractor) Main Contractor	EPS Method statement Bat Report DCO Requirements	Pre-construction	
A-B20	A pre-commencement inspection by the ECoW will be undertaken within woodland where red squirrels are known to be present or those connected (woodlands to the north of the River Coquet and around Felton Park) prior to any felling to confirm the absence of dreys. Where deemed necessary, felling will be supervised by the ECoW.	To protect red squirrel.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM07	Named ecologist (main contractor) Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC Red Squirrel Report Environmental Inspection Records	Pre-construction Construction	
A-B21	Tree felling within woodland where red squirrels are known to be present or those connected (woodlands to the north of the River Coquet and around Felton Park) will be conducted outside the breeding season (February to September). Tree felling within these areas will be immediately preceded by an inspection by the ECoW and if a drey is recorded, works will cease temporarily and Natural England contacted for advice and to confirm how to proceed. Should, at any time prior to or during felling works a red squirrel is identified or considered potentially present then works should cease and the ECoW contacted for advice prior to works re-commencing.	To protect red squirrel.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM013	Named ecologist (main contractor) Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC Red Squirrel Report Environmental Inspection Records	Pre-construction Construction	
A-B22	Given the confirmed presence of GCNs within ponds A11 and A12 (medium metapopulation) and A19 (low population) a European Protected Species (EPS) Licence application(s) and associated	To comply with conservation legislation, protect GCN	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM006	Designer Named Ecologist (main contractor)	CEMP approved by the SoS following consultation with NCC	Pre-construction Construction	

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	mitigation and compensation requirements will be required to enable the construction of Part A. Full details of mitigation and compensation are presented within the EPS Method Statements (draft licence documents) of **Appendix 9.24: Great Crested Newt Method Statement - River Coquet** and **Appendix 9.25: Great Crested Newt Method Statement - Burgham Park**, **Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**). As an overview, mitigation will include the installation of exclusion fencing to enclose the construction works area within 500 m of the GCN pond. This will be followed by a capture and translocation period, to move newts out of the works area prior to construction. This process will also include hand and destructive searches of habitats within the excluded area. Compensation will include terrestrial habitat creation for the benefit of GCNs, the creation of refugia/hibernacula and, for ponds A11 and A12, the creation of two new ponds and installation of an amphibian underpass. **Timing of works**: Subject to timeframes agreed with Natural England as part of the licence application and depending on the timing for receipt of the licence, licensable works (including exclusion fence installation, trapping period and hand/destructive searches) will be undertaken between March and November, during suitable weather conditions. Works cannot be undertaken during winter hibernation or dormancy periods. **Amphibian underpass**: An amphibian underpass has been incorporated into the design of Part A beneath the east-west road of the Burgham Park underbridge (NZ 1784 9681) to improve connectivity for great crested newts (GCN) in ponds A11 and A12 to retained and created habitats to the south of the road. The underpass will be created through the installation of a 900 mm wide, 600 mm high box-culvert (Wildlife Burgham Culvert) under the road. Further design features recommended at detailed	habitat and prevent an impact to the Favourable Conservation Status of the local GCN population.		ECoW (main contractor)	Protected species licenses as authorised by Natural England Scheme design drawings (Burgham Park Underbridge) (finalised at detailed design phase) As built drawings EPS Method Statements Landscape design discharged as required by the DCO DCO Requirements		

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	design phase, prior to construction of the underpass, are as follows: **a.** A shallow gradient to the culvert to assist free-drainage and prevent excessive waterlogging within the tunnel. **b.** Creation of wing-walls at either entrance to the culvert, to increase the capture area and encourage use of the culvert. **c.** Avoidance of dense planting at the openings to the culvert to increase natural light entering the internal space. **d.** Inclusion of a layer of soil and debris within the culvert to create a natural bed to encourage use. **Management and Monitoring**: Habitats will be established and managed for a minimum of five years, with grasslands managed as hay meadows (i.e. a single summer hay cut following seed production with cuttings removed). Woodland and scrub will be managed in accordance with the detail in **Chapter 7: Landscape and Visual**, **Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**).						
A-B23	Given the distance between pond A21 and works area (approximately 450 m) and the low level of habitat loss anticipated, the likelihood of an offence relating to GCN is considered highly unlikely. As such, works within 500 m of pond A21 will be undertaken under Precautionary Working Methods (PWM). Mitigation measures include: **a.** **Timing of works**: Site clearance within 500 m of pond A21 is recommended during the optimal period of mid-April to mid-June, the period when the majority of newts will have returned to their breeding ponds. Given the habitats are also suitable for nesting birds, clearance within this period will be preceded by a nesting bird check (S-B28). Habitat clearance will be avoided during the newt hibernation/dormancy period; November to February inclusive (weather dependent).	To protect GCN from potential impacts during construction.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM007	Scheme Ecologist (main contractor) ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC Precautionary Working Method Statement Toolbox Talk Records Contractors Programme DCO Requirements	Pre-construction Construction	

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	b. **Toolbox talk**: Prior to commencement on site, all site operatives will attend a briefing from the ECoW. The briefing will include a description of the location of known GCN populations in proximity to the works area, the legal protection afforded to GCNs, tips on identification of GCNs (and other amphibians), how works will proceed (PWMS) and what actions to take in the event that a GCN (or other wildlife) is encountered during the works. c. **Ecological supervision**: Immediately prior to and within 24 hours of the works commencing, suitable habitat within the works area will be thoroughly hand searched by the ECoW. If deemed necessary, ecological supervision from the ECoW will be provided during works.						
A-B24	As the roosts within buildings B8A, B84A, B101A, B105A, B86A, B20.2, B20.6, B20.8 and B20.9 and trees T136A, T147A and T220A will be retained and works are considered temporary during the construction phase, works within proximity to the roosts shall be conducted under a Precautionary Working Method Statement (PWMS). A toolbox talk will be provided to all on site personnel to make them aware of the location of the bat roosts and their proximity to the works area. The toolbox talk will also present the following precautionary working methods: The works area will be kept to a minimum, aiming to achieve maximum distance between the works area and bat roost. The duration of works within close proximity to the roosts (within 100 m) will be kept to a minimum and shall be restricted to daylight hours. Activities that may result in heavy disturbance (noise and vibration), such as piling or intrusive ground works, shall be conducted during the periods March to May and September to November, to avoid sensitive periods for bat ecology (maternity and hibernation). A physical barrier (such as heras fencing) will be installed between the works area and a bat roost (at	To protect roosting bats from potential disturbance impacts during construction	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM009 Bat Activity 2020 Verification Survey Report Part A (Document Reference: 6.19)	Named ecologist (main contractor) Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC Precautionary working method statement Environmental Inspection Records Signed toolbox talk records Evidence of bat boxes and bat features including records from the contractor, photos, and environmental inspections DCO Requirements	Pre-construction Construction	

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	least 10 m distance from the tree where possible), to prevent accidental damage or destruction of the bat roost. To compensate for the potential temporary functional loss of these roosts during the construction phase, the following features will be installed. The proposed locations are either in close proximity to the existing roosts and/or in locations of high bat activity, as recorded during the baseline surveys: **a.** Two tree-mounted 'woodcrete' bat box (Schwegler 1FF or similar) on mature trees at Burgham Park. **b.** Five tree-mounted 'woodcrete' bat box (Schwegler 1FF or similar) on mature trees along the edge of the River Coquet valley woodland to the west of the River Coquet bridge. These features will be erected prior to any works commencing to provide roosting opportunities during and post-completion of Part A. The features will remain in place for a minimum of five years and can only be removed after this time should there be no evidence of use during this period (to be confirmed by an experienced ecologist). However, it is recommended that the features are permanent to provide ecological enhancement and opportunities for roosting bats over an extended period.						
A-B25	Given the presence of a confirmed bat roost within building B4A (North Gate House), which will be demolished to facilitate Part A, an EPS Licence application or Bat Mitigation Class Licence (BMCL) will be required. The licenced ecologist will determine the suitability of either licence application following the completion of the update baseline surveys. An EPS Licence will also be required for the relocation of the bat boxes of tree T148A. Mitigation for B4A will include exclusion of bats from the buildings and/or an ecologically supervised soft strip of the building prior to demolition. Mitigation for the bat boxes of T148A will include a pre-inspection of the bat boxes and relocation of bat boxes to	To protect roosting bats from potential disturbance impacts during construction.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM008 Bat Activity 2020 Verification Survey Report Part A (Document Reference: 6.19)	Named ecologist (main contractor) Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC Precautionary working method statement Environmental Inspection Records Signed toolbox talk records Evidence of bat boxes and bat features including records from the contractor, photos, and environmental inspections DCO Requirements	Pre-construction Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	retained mature trees to the north of the existing roost location. Compensation for B4A will include the installation of three bat boxes on suitable trees to the southwest. No compensation is proposed in relation to the bat boxes of T148A as these are retained and relocated. **Timing of works**: Subject to agreement with Natural England as part of the licence application, the capture and exclusion of bats and the removal of the roost prior to the demolition of Building B4A will be undertaken between September and April, avoiding the summer period during which the bats are known to occupy the roost. The building is currently occupied and considered of low risk during the winter (hibernation) period. Timings will be confirmed following the completion of the baseline surveys and to reflect conditions at the time of works. Relocation of the bat boxes of tree T148A will be timed during transitional roosting periods (March to May, September to October) to reduce the likelihood of bats being present. **Toolbox talk:** Prior to commencement, the Named Ecologist (or accredited agent) will provide a briefing to the site contractor to outline the proposed works, actions to take if a bat is encountered and their legal responsibility regarding bats and their roosts.						
A-B26	Given the loss of two outlier setts, a badger licence to interfere with setts will be required to enable Part A. As the setts to be lost are classified as outlier setts, including one inactive sett, and given the expanse of suitable habitat in the wider area for sett creation, artificial setts will not be considered necessary. Full details of mitigation and compensation are presented within the **Badger Method Statement** (**Appendix 9.23 [Confidential], Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)).	To comply with conservation legislation and protect badger.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM010	Named ecologist (main contractor) Main contractor ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC Badger Method Statement Badger license in consultation with Natural England Badger report	Pre-construction Construction	

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	As an overview, mitigation will include the exclusion of badgers from the sett during the appropriate period (July to November, inclusive) followed by an ecologically supervised excavation of the sett. Methods will be in compliance with Natural England requirements.						
A-B27	Given the extension of the Bockenfield Culvert (12) on the upstream side, the two bat boxes mounted on the headwall will need to be relocated. There is no record of the bat boxes on the Applicant's Environment Database (EnvIS) and no known record of installation as part of a mitigation project. Prior to works commencing, an inspection by a licenced ecologist will need to be undertaken to confirm an absence of signs of roosting bats. If no signs are recorded, the bat boxes will be removed and placed into temporary storage on site until the culvert extension is completed. Once completed, the bat boxes will be installed back onto the upstream headwall to reinstate the features. In the event that roosting bats or their signs are recorded within either bat boxes during the inspection, an EPS Licence application will be required to enable the culvert extension. Subject to agreement with Natural England, the licence will include the removal and temporary storage of the bat boxes during culvert construction, with these to be reinstated following completion of the culvert extension. The provision of 1 tree mounted 'woodcrete' bat box (Schwegler 1FF or similar) is considered necessary mitigation/compensation as part of the licence. This feature will be erected on a suitable mature tree to the west of the culvert prior to any works commencing to provide roosting opportunities during and post-completion of the culvert extension works. The feature will remain in place for a minimum of five years and could only be removed after this time should there be no evidence of use during this	To comply with conservation legislation and protect roosting bats.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM011	Named ecologist (main contractor) Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Evidence of bat boxes and bat features including records from the contractor, photos, and environmental inspections EPS Method Statement Bat report	Pre-construction Construction	

<table>
<tr><th>Ref</th><th>Action (including monitoring requirements)</th><th>Objective</th><th>Source Reference</th><th>Organisation / Individual (Delivering Measure)</th><th>Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)</th><th>Project Phase (Design, Pre-Construction, Construction, Operation)</th><th>Record of Completion (Signature and Date)</th></tr>
<tr><td></td><td>period (to be confirmed by an experienced ecologist). However, it is recommended that the feature is permanent to provide ecological enhancement and opportunities for roosting bats over an extended period.</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>A-B28</td><td>No site personnel will enter a space or building occupied by a barn owl.

Construction in proximity to barn owl roost and nest sites will be temporally and spatially restricted to avoid or reduce impacts of disturbance in accordance with the table below (developed in accordance with good practice). It is assumed that works will be undertaken during daylight hours. Where works need to be conducted within the minimum protection zone, they are to be conducted outside peak nesting season (March to August), most importantly outside the sensitive period (March to June).

<table>
<tr><th>Activity Type</th><th>Examples</th><th>Disturbance Risk</th></tr>
<tr><td>Pedestrian movement</td><td>Site personnel walking near nests/roosts</td><td>Low/ medium</td></tr>
<tr><td>Artificial lighting</td><td>Illumination of works area (no direct lighting or nest/roost)</td><td>Low/ medium</td></tr>
<tr><td>Vehicular movements</td><td>Vehicles or heavy plant moving past nest/ roost sites</td><td>Medium</td></tr>
<tr><td>General light building and landscape works</td><td>Laying concrete, bricks, roofing using mechanised plant</td><td>Medium/ high</td></tr>
<tr><td>Heavy construction</td><td>Piling or compaction works,</td><td>High</td></tr>
</table>
</td><td>To protect barn owl.</td><td>Chapter 9: Biodiversity, Volume 2 of the ES, Table 9-23, EM012</td><td>Named ecologist (main contractor)

Main contractor

ECoW (main contractor)</td><td>CEMP approved by the SoS following consultation with NCC

Barn Owl Report

Precautionary Working Method Statement

Barn Owl License granted by Natural England

Signed toolbox talks</td><td>Pre-construction

Construction</td><td></td></tr>
</table>

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	ground levelling, crushing of materials						
A-B29	In order to construct the southern pier base, a sheet piled cofferdam will be installed avoiding the requirement to enter the watercourse. This will be installed with a tracked piling rig and, dependant on the quality of the underlying rock, some pre-augering may be needed to allow the piles to be driven to the required level. Temporary works will comprise the installation of sheet piled retaining walls prior to excavating the north and south abutments, to retain the existing carriageway. These will be installed with a tracked piling rig and piles installed to a depth of approximately 8 m below ground level. Once constructed, the sheet piles will be burnt off to the pile cap level. Installation of the river training measures is proposed outside the 'in river works' period (to be undertaken between end April to end September). As such, to reduce the impact to migratory and spawning salmon and brown trout, installation will be in accordance with the following: **a.** Piling activities during the period October to May would be restricted to low flows. Should water levels rise during works, work shall cease and only recommence once water returns to low flow levels. **b.** In river works will be restricted to daylight hours. **c.** In river works are anticipated to be short in duration (two-three weeks). **d.** Supervision to be provided by the ECoW throughout installation (fish rescue to be implemented as required, refer to **S-W12** and **A-B33** of this Outline CEMP). The ECoW may also temporarily suspend works should evidence be obtained to suggest works may impact fish migration/spawning (such as migration during the period of works).	To reduce the impacts to fish, including salmon and brown trout.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM014	Main contractor ECoW (main contractor) Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Environmental Permit for Flood Risk Activities in consultation with the EA.	Pre-construction Construction	

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	e. Soft-start and intermittent working techniques outlined will be applied.						
A-B30	Culverts have been designed where possible (subject to topography and design constraints) to include natural beds (between 100 mm and 250 mm) to maintain and assist fish passage. In addition, the natural bed of Bockenfield Culvert will also be maintained within the extension.	To maintain and assist fish passage.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM030	Main contractor	CEMP approved by the SoS following consultation with NCC As built drawings	Construction	
A-B31	The installation/extension of culverts along Longdike Burn (Burgham Culvert (10.1) and the River Lyne (Priest's Bridge Culvert (4)) will be undertaken outside the period of March to May (inclusive), to avoid the optimal spawning period for lamprey.	To prevent impacts to lamprey.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM015	Main contractor	CEMP approved by the SoS following consultation with NCC	Construction	
A-B32	The extension of culvert along Longdike Burn (Bockenfield Culvert (12)) will be undertaken outside the period September to April to avoid the spawning period for migratory and non-migratory brown trout.	To reduce the impacts on brown trout.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM016	Main contractor	CEMP approved by the SoS following consultation with NCC	Construction	
A-B33	During any river dewatering and/or in-channel working, an ecological watching brief and fish rescue plan will be instigated. Where areas are required to be temporarily dewatered to permit construction activities, fish will be removed by means of electrofishing and relocated upstream prior to dewatering. Suitable temporary channels may be implemented to divert water during culvert construction works. Any environmental permit(s) will be obtained and in place prior to the creation of a temporary channel. The construction of a temporary channel will be undertaken in accordance with any mitigation measures outlined within the CEMP and be supervised by the ECoW. A pump may be required to divert flows during extension of culverts along the online route. Where this occurs, the ECoW will be in attendance and a mesh or cover will be used to prevent small fish or other aquatic life from being drawn into the pump system.	To protect fish (including eel and white-clawed crayfish).	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM017	Main contractor ECoW (main contractor)	Ecological watching brief As built drawings Flood Risk Activities Permit (in consultation with the EA) for River Coquet and Longdike Burn Land Drainage Consent (following consultation with the Lead Local Flood Authority) for all other watercourses CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the draft DCO (Application Document Reference: TR010041/APP/3.1) Signed toolbox talks ECoW Weekly Log Construction Constraints Plan Precautionary Working Method Statement	Pre-construction Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	Any remaining fish found in dewatered areas should be rescued with hand nets and relocated to a safe distance away. Fish rescues will be carried out to best practice and with appropriate licences in place. Should a crayfish of any species be found during any subsequent works then work will cease until a suitably licensed ecologist is consulted, to identify any crayfish found to species level, and if necessary, to formulate a suitable mitigation plan, should the presence of white-clawed crayfish be confirmed.						
A-B34	Upon completion of the update pre-construction baseline surveys, those trees where suitability for roosting bats remains (Moderate or High suitability), although presence of a roost has not been confirmed, will be soft-felled under ecological supervision (by the ECoW (suitably experienced and licenced)). This will consist of the removal of major branches and limbs followed by section felling of the main trunk, with these lowered to the floor for inspection by the ECoW.	To protect roosting bats.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM024	ECoW (main contractor) Named ecologist (main contractor) Main contractor Arboriculturalist (main contractor)	CEMP approved by the SoS following consultation with NCC EPS Method Statement Arboricultural Method Statement	Construction	
A-B35	The construction of the extension of Park Wood Subway will be restricted to daylight hours (07.00 to 19.00) due to its importance as a crossing feature for nocturnal wildlife (particularly bats and badger). The underpass will be closed temporarily during installation of bridge beams and finishing of the road surface; however, this will also be restricted to daylight hours to maintain the crossing point feature during night hours.	To maintain a crossing point of significance for protected/ notable species (including bats and badger).	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM033	Main contractor	CEMP approved by the SoS following consultation with NCC Signed toolbox talks	Construction	
A-B36	The subway at Park Wood will not be artificially lit during the hours of darkness (taken as sunset to sunrise). Any lighting within proximity of the subway will be developed in accordance with the lighting strategy (refer to **S-G5** of this Outline CEMP)	To ensure maintenance of the nocturnal environment for animals in the vicinity of Park Wood Subway.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM034	Main contractor	CEMP approved by the SoS following consultation with NCC Signed toolbox talks	Construction Operation	

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A-B37	Works likely to generate significant disturbance (such as noise from piling or compaction activities) within 200 m of a badger sett will be conducted within the period July to November inclusive (to avoid the breeding period). Locations are presented in **Appendix 9.10: Badger Survey Report (Confidential)** and **Appendix 9.11: Badger Bait Marking Survey Report (Confidential)**, **Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**).	To protect badger.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM0037	Main contractor	CEMP approved by the SoS following consultation with NCC Signed toolbox talk records	Construction	
A-B38	Mitigation measures as set out in the appropriate sections in this Outline CEMP (S-W an A-W) and in **Chapter 10: Road Drainage and the Water Environment**, **Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2)** to avoid or reduce potential impacts on surface waters will be employed, including adherence to Pollution Prevention Guidance (PPG) during construction and appropriate road drainage and runoff treatment.	To protect fauna and habitats from pollution of surface waters during construction.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM0045	Main contractor	CEMP approved by the SoS following consultation with NCC Scheme design drawings Signed toolbox talk records	Construction	
A-B39	Mitigation and compensation for the loss of ecologically important habitats (those classified as Habitats of Priority Importance (HPI)) will occur through habitat creation. This will include roadside planting, where appropriate, as shown on the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)). Where feasible, HPI will be replaced on a like-for-like (1:1) basis or greater (as informed by the biodiversity no net loss calculations in **Appendix 9.20: Biodiversity No Net Loss Assessment, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) with habitats of a similar type and character to be created within the vicinity of the area where the loss has occurred. Where this is not possible, habitat creation will occur within other suitable areas identified within Part A. Landscape planting and newly created habitat will comprise of locally native species of local provenance and will comprise a mixture of species.	To compensate for the loss of habitats.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM0046	Main contractor The Applicant ECoW (main contractor)	CEMP approved by the SoS following consultation with NCC Landscape design discharged as required by the DCO Landscape Design Certificate Landscape Management and Maintenance Plan HEMP	Construction	

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	Sowing/planting should be undertaken in the appropriate planting season but as soon as possible following completion of the works to reduce the likelihood of the areas being colonised by invasive, non-native species, which are of lower value to wildlife. Replacement habitats will be monitored and managed during the establishment phase of Part A in accordance with the detail of **Chapter 7: Landscape and Visual, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**).						
A-B40	To compensate for the direct loss of approximately 35 m of Longdike Burn as part of the Bockenfield Culvert (12) extension, the ~ 850 m long section of the watercourse that falls within the temporary boundary will be improved. This will include nutrient management measures to address adverse impacts of run-off from agricultural land, aquatic planting and bankside stabilisation. Measures will be developed further at detailed design, prior to construction of the culvert, supported by a target walkover survey to confirm appropriateness of enhancement opportunities. Actions will be developed in partnership with the Environment Agency, with reference to the WFD status and reasons for deterioration.	To compensate for the loss of aquatic habitat associated with Longdike Burn.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM0047	Main contractor ECoW (main contractor) in consultation with the Environment Agency	CEMP approved by the SoS following consultation with NCC Results of the walkover survey and WFD status	Construction	
A-B41	To compensate for the functional loss of the three active barn owl breeding sites within the Study Area for Part A, three compensatory roosting features (preferably barn owl boxes installed within suitable buildings, or alternatively tree-mounted) have been installed at suitable receptor sites, located over 1 km from any major roads. Given the offline section of Part A will result in the potential fragmentation of a connection between an occupied breeding site and active roost/potential breeding site near Causey Park (approximately chainage 16,100), a single additional compensatory roost feature has been installed at a suitable	To compensate for the loss of barn owl nesting sites.	**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM0048	Main contractor (in accordance with advice from Northumberland Coast AONB Partnership) Named (licensed) ecologist will undertake monitoring	Evidence of barn owl boxes/roost feature Barn owl report Environmental Inspection Records	Construction	

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	receptor site, located over 1 km from any major roads. Through consultation and collaboration with the Northumberland Coast AONB Partnership, the barn owl boxes have been installed at the following locations outside of the Order Limits of Part A: **a.** Longhirst – NZ247903 **b.** Ulgham – NZ229913 **c.** Acklington – NU221017 **d.** Morwich – NU223033 Annual monitoring will be undertaken for a minimum period of five years to confirm that the barn owl box remains intact and inspect the barn owl box for use. The monitoring will be undertaken by a licensed person appointed by the Applicant. Monitoring may involve multiple visit throughout the year. Whilst close inspection of occupied nest sites should be avoided during the period March to May inclusive, local knowledge from licensed barn owl surveyors has identified that it is best to undertake the first nest box check in the second half of May to avoid missing early breeding. Damaged or missing barn owl boxes within the five year monitoring period will be replaced like-for-like.						
A-B42	The species for collection will be informed by a detailed botanical assessment prior to the works commencing to allow for the targeting of the most appropriate woodland species.	To target the most appropriate woodland species for ancient woodland translocation.	**Appendix 9.21: Ancient Woodland Strategy**, **Volume 7** of the ES, Paragraph 4.3.2	ECoW (main contractor) Scheme Ecologist (main contractor)	Ancient Woodland Management Plan	Pre-construction	
A-B43	Soil sampling and analysis of the ancient woodland and Woodland Creation Area will occur to test for pH and Total P, N, K and Mg.	To determine soil conditions and nutrient levels in the donor and receptor ancient woodland sites.	**Appendix 9.21: Ancient Woodland Strategy**, **Volume 7** of the ES, Paragraph 4.2.1	ECoW (main contractor) Scheme Ecologist (main contractor)	Ancient Woodland Management Plan	Construction	
A-B44	Translocation of materials must consider the movement of ash, seeds, plants and trees between areas of ancient woodland (potential carrier of ash dieback) and the Woodland Creation Area. This will	To prevent spread of ash dieback disease.	**Appendix 9.21: Ancient Woodland Strategy**, **Volume 7**	ECoW (main contractor)	Ancient Woodland Management Plan CEMP	Construction	

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	require a Statutory Plant Health Notice (SPHN) to be obtained. The translocation of materials from the ancient woodland to the Woodland Creation Area will be secured following further consultation with Plant Health England, Natural England and the Forestry Commission prior to construction.		of the ES, Paragraph 3.3.3	Arboriculturalist (main contractor)	Statutory Plant Health Notice		
Road Drainage and the Water Environment							
A-W15	In addition to the general mitigation measures set out throughout this Outline CEMP, the following measures specific to the River Coquet will be implemented: **a.** Construction access will be via haul roads down the valley sides on both banks. Tower cranes located at the top of bank as defined by the normal river level will be used to construct the pier-base and stem construction and for servicing the deck construction. Haul routes and laydown areas will not encroach on the adjacent SSSI and environmental measures will be in place to avoid potential impacts from construction activities. **b.** A sheet-piled cofferdam will be installed to construct the southern pier base, which will avoid entering the watercourse under normal flow conditions. This will be installed using a tracked piling rig; some pre-augering may be required to drive the piles to the required level, depending on the quality of the underlying rock. The bore piled rig wall will be installed to bedrock level. **c.** A FRAP will be required prior to the start of any construction. The FRAP and design of the outfall will give due consideration to the Northumbria River Basin Management Plan (RBMP), protected species, notable species and habitats. **d.** Provide sediment barriers between earth works and the construction zone and the watercourse to prevent sediment from washing into the river. Silt management will be implemented not only adjacent to the watercourse, but also up the valley sides and at the valley top to minimise fine sediment input to the watercourse. An exclusion zone around the construction works of 8 m from	To reduce or prevent the impact of the River Coquet bridge construction.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraphs 10.9.14 to 10.9.17 **Appendix 10.4: Geomorphology Assessment – River Coquet, Volume 7** of the ES, Table 5-6 **Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Table 15-1	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Scheme design drawings Relevant sections of BS6031:2009 Code of Practice for Earthworks (British Standards, 2009)	Construction	

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	the watercourse and top of the valley sides will be maintained as far as practicable. e. Use a sediment trap to treat surface runoff. f. Avoid works during high flow events to reduce the risk of fine sediment release. g. Use seeded biodegradable fibre matting to encourage re-vegetation after works on, or near, the banks. h. During construction, vegetation will be maintained for roughness during flows that exceed the assumed bankfull channel. This will potentially reduce the flow velocities and stream power through the construction zone compared with total vegetation clearance. i. The creation of a dry-working area outside of the assumed bankfull channel will minimise the risk of potential impacts on flow during construction. Impacts on flow will only be incurred should out-of-bank flows that encroach on the construction zone occur. j. In river works will be restricted to daylight hours to reduce the impacts to fish including salmon and brown trout. k. In river works will not occur during high flows. l. Monitoring of flows and rainfall within the upstream catchment will be undertaken, and action taken to halt works should high flows be anticipated due to prevailing weather conditions. The frequency and type of monitoring will be developed during detailed design. m. The main contractor will monitor water quality prior to and during construction and take appropriate action if water quality deteriorates.						
A-W16	For the Longdike Burn where flows are too large for a temporary sump and due to the presence of important aquatic species, an individual construction plan will be developed during the detailed design phase, prior to construction of culverts, in consultation with the EA during the FRAP application and design of outfall, which will give due consideration to the Northumbria River Basin Management Plan (RBMP), protected species,	To prevent damage to watercourse during the construction of the culverts associated with Part A.	**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.11 **Appendix 10.2: Water Framework Directive**	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Scheme design drawings	Construction	

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	notable species and habitats. This will ensure that an appropriate method of construction in line with the sensitivity of the watercourse can be developed.		**Assessment, Volume 7** of the ES, Paragraph 15.1.20				
A-W17	For works to the offline section of Part A, where new culverts are not located along the alignment of a watercourse provision for the first flush through the structures will be considered. Where new culverts are located along the alignment of a watercourse a dry construction area will be created by diverting flows through an adjacent pipe or drainage channel. If this is deemed infeasible by the main contractor, then a temporary sump is proposed.	To prevent damage to watercourse during the construction of the culverts associated with Part A.	**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.1.21	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Scheme design drawings	Construction	
Geology and Soils							
A-GS2	Control measures to protect controlled water bodies will include: **a.** Particular consideration around the implementation of the pollution control measures is to be undertaken associated with the River Coquet bridge construction works given the sensitivity of the surroundings environment (SSSI designation). This will include sediment barriers between earthworks and the construction zone and the watercourse to prevent sediment from washing into the river. Piling in the vicinity of the River Coquet will be designed to limit any concrete reaching sensitive surface water features, likely to be with the incorporation of casing.	To mitigate and prevent risks of pollution of controlled water bodies. To limit any contaminated run-off entering surrounding surface watercourses, including installing cut off ditches around the perimeter of the construction area to prevent sediment entering the watercourses during periods of heavy rainfall.	**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.9	Main contractor Environmental Manager (main contractor)	CEMP approved by the SoS following consultation with NCC Temporary surface water drainage strategy Environmental Inspection Records Signed toolbox talk records	Construction	
Population and Human Health							
A-PH2	Directions at the appropriate places will be provided for alternative access points (only potentially	To reduce effects on amenity value	**Chapter 12: Population and**	Main contractor	CTMP	Construction	

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	anticipated in and around the River Coquet and Felton Park).	and disruption for recreational users of Felton Park and River Coquet.	**Human Health, Volume 2** of the ES, Paragraph 12.9.19		Communications Plan		
A-PH3	Measures to reduce the impacts of the construction of Part A on agricultural land and land holdings will include: **a.** Returning agricultural land, which is used temporarily for construction to the owner, restored close to its former productive capacity. **b.** Maintain water supplies and utility services where required. Water troughs will be moved and re-located to an agreed alternative location before work begins if stock are to remain grazing the land. **c.** Land and surface drainage affected by the construction works will be reinstated and land restored to a functional state. Any damage to the land or surface drains will be made good. **d.** Appropriate access to the affected fields will be provided where required and any farm boundaries such as hedgerows, fences and walls affected during construction will be reinstated to maintain the boundary and restore landscape and ecology features. Farm boundaries will be reinstated like for like.	To reduce temporary construction effects on Agricultural Land.	**Appendix 12.1: Agricultural Assessment (Confidential)**, **Volume 7** of the ES, Paragraphs 4.4.3, 4.4.7, 4.4.8 and 4.4.11	The Applicant Main contractor	CEMP approved by the SoS following consultation with NCC Soil Management Strategy	Construction	
Material Resources							
A-M2	Identification of how the reuse of general construction and demolition waste arisings (in this case, particularly the earthworks where approximately 315,000 tonnes unsuitable earthworks cut (Class 4) is currently forecast to be disposed of to landfill) could be recovered and deployed in high value applications.	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste.	**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.10.17	The Applicant Main contractor	CEMP approved by the SoS following consultation with NCC	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
Climate Change							
A-CC5	The following measures will be implemented: Structures **a.** Ensure appropriate storage of inflammable materials during construction and operation.	To reduce Part A's vulnerability to extreme temperature events.	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16	Main contractor	Detailed design drawings As built drawings	Construction	
A-CC6	The following measures will be implemented: Buildability **a.** Use of adequate safety equipment.	To reduce Part A's vulnerability to gales and extreme wind events	**Chapter 14: Climate, Volume 2** of the ES, Table 14-16	Main contractor	Detailed design drawings As built drawings	Construction	
OPERATION AND MONITORING MEASURES							
Landscape and Visual							
A-L9	In order to ensure that the landscape elements shown in the **Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)) fulfil their environmental function, the proposed planting for Part A will be supplied, planted and maintained in accordance with the **Ancient Woodland Strategy** (**Appendix 9.21, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)).	To ensure proposed planting identified in the LMP fulfils its Environmental Function.	**Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.11.1	Designer Main contractor	Landscape design discharged as required by NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape Design Certificate	Operation	
Biodiversity							
A-B45	All locations identified as bat crossing points will be subject to repeated survey effort during and post-construction. This will also include Wildlife Eshott Burn Culvert to monitor usage of the culvert by bats. It is recommended that this takes the form of: **a.** Six survey visits per year, undertaken as closely as possible to the timeframes of the baseline surveys (**Appendix 9.9: Bat 2018 Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)). **b.** The six visits to consist of the same number of dusk and dawn visits.	To mitigate the effects of habitat fragmentation on bats.	**Chapter 9: Biodiversity, Volume 2** of the ES – Paragraph 9.11.10	The Applicant	As built drawings Defra Local Scale Study post-construction	Operation	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	c. A single year of monitoring completed during the construction period. **d.** Monitoring visits completed annually over a four year period post-construction. The results of the monitoring undertaken would determine the effectiveness of the mitigation and inform any alterations to designed mitigation, if required. The findings would also inform the design of future schemes.						
A-B46	Habitats will be managed in accordance with the following principles: **a.** Maintenance of a short vegetation sward for those detention basins contained within junctions and the two detention basins to the southwest of Eshott Airfield to reduce the attraction for wildlife and the potential for strike with vehicles and planes. **b.** Maintenance of a short vegetation sward along roadside verges (within 4 m of the carriageway) to reduce the value for foraging bats and barn owl and decrease the likelihood of vehicle strike.	To reduce the impacts of vehicle strike on fauna.	**Chapter 9: Biodiversity, Volume 2** of the ES – Table 9-23, EM050	Main contractor The Applicant	HEMP	Operation	
A-B47	In the event that badger are killed by traffic along Part A over the five year period following construction completion, requirements for additional/alternative fencing will be discussed and agreed with a SEE to reduce badger mortality.	To address impacts of mortality to badger.	**Chapter 9: Biodiversity, Volume 2** of the ES – Table 9-23, EM051	Named Ecologist (main contractor)	Environmental Inspection Reports Badger Method Statement	Operation	
A-B48	A bird survey will be included within the Ecological/Environmental Management Plan to assess the effectiveness of the mitigation measures (refer to S-B14) associated with detention basins DB15, DB15a and DB17 (those near Eshott Airfield).	To protect birds from impacts associated with detention basins.	**Chapter 9: Biodiversity, Volume 2** of the ES – Paragraph 9.11.3	Named Ecologist (main contractor) ECoW (main contractor)	Environmental Inspection Reports Ecological/Environmental Management Plan	Operation	
A-B49	Subject to agreement with Natural England, no post-completion monitoring survey requirements have been identified for the loss of the bat roost in Building B4A as part of the EPS Licence. It is recommended that all mitigation and compensation features are subject to an annual	To ensure mitigation prescribed and enacted performs as required.	**Chapter 9: Biodiversity, Volume 2** of the ES – Paragraph 9.11.7	Named Ecologist The Applicant/ main contractor	Environmental Inspection Reports Ecological/Environmental Management Plan HEMP	Operation	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on Highways England's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	visual check by a licensed bat ecologist for at least 5 years following installation for damaged or missing features. Missing features will be replaced, like-for-like. Damaged features will be assessed/surveyed by a licensed ecologist and replaced if not in use.						
A-B50	Four years post-completion monitoring will be required for ponds A11 and A12, proportionate to the impact type and size and the population size class within each pond. This level of post-completion monitoring is in accordance with best practice (**Ref. 10**). The monitoring surveys will consist of 6 survey visits each year (population size class survey).	To ensure mitigation prescribed and enacted performs as required.	**Chapter 9: Biodiversity, Volume 2** of the ES – Paragraph 9.11.9	Named Ecologist The Applicant/ main contractor	Environmental Inspection Reports Ecological/Environmental Management Plan HEMP	Operation	
Road Drainage and the Water Environment							
A-W18	The main contractor will reinstate vegetation post-construction with a mix of native tree species with an understorey, including reinstatement of the riparian zone.	To reduce operational impacts of the River Coquet bridge on river flow and geomorphology.	**Appendix 10.4: Geomorphology Assessment – River Coquet**, **Volume 7** of the ES, Table 5-7	Main contractor Environmental Manager (main contractor) Arboriculturalist (main contractor)	Landscape Mitigation Masterplan As built drawings HEMP	Operation	
Population and Human Health							
A-PH4	The Applicant and the contractors will take care to minimise the land loss, disturbance and where possible mitigate any permanent effects of the road. This issue will be fully addressed in the CEMP.	To reduce permanent operational effects on Agricultural Land.	**Appendix 12.1: Agricultural Assessment (Confidential), Volume 7** of the ES, Paragraphs 4.4.7, 4.4.14 and 4.4.16	The Applicant Main contractor	CEMP approved by the SoS following consultation with NCC ALC Report	Operation	

Table 3-3 – Register of Environmental Actions and Commitments: Part B

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
DESIGN MEASURES							
Noise and Vibration							
B-N1	The surface of the entire length of the A1 comprised within Part B, other than bridge decks (such as Charlton Mires overbridge) will be laid with a LNS (which is the quietest road surface type). For technical reasons, bridge decks will be laid with HRA. All existing sections of LNS on the A1 beyond the Order Limits of Part B will remain. All other links within the Order Limits of Part B, with the exception of bridge decks, will be laid with LNS.	To limit effects on sensitive receptors during operation.	Chapter 6: Noise and Vibration, Volume 3 of the ES, Paragraphs 6.5.18 and 6.9.1 **Noise Addendum** (Document Reference: 6.22)	Designer	As built drawings	Design	
Landscape and Visual							
B-L1	To reduce the operational impacts of Part B on the landscape and local habitat quality, the following design measures will be implemented: **a.** Habitat creation has been developed and incorporated into **Figure 7.10: Landscape Mitigation Plan, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**). The landscape design incorporates ecological mitigation measures to reduce the significance of effects, maintain and improve connectivity along and around Part B and to mitigate the effects of fragmentation and displacement. **b.** All mitigation planting will comprise native species mixes in keeping with local landscape character as shown in **Figure 7.10: Landscape Mitigation Plan**, **Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**). **c.** Plant stock will be of local provenance, which in this instance is defined as being Area 109 in	To reduce operational impacts through landscape planting. To enhance value for wildlife. To reinstate habitat features. To connect existing habitat areas (especially woodland) and mitigate the effects of fragmentation and displacement.	**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.13 **Chapter 9: Biodiversity, Volume 3** of the ES, Paragraph 9.9.3 and 9.10.22	Designer	Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As built drawings Landscape Design Certificate Landscape Mitigation Plan	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	accordance with the Forestry Commission Practice note 'Using Local Stock for Planting Native Trees and Shrubs' 1999 (**Ref. 11**). **d.** The reinstatement/creation of hedgerows is only approximately 89 m less than that lost to Part B (approximately 17,128 m reinstated/created in comparison to 17,217 m lost), with the majority of hedgerows lost comprising native, species-poor hedgerow. Reinstated/created hedgerows will comprise native species-rich and therefore be of arguably greater ecological importance. **e.** Retain as much, as is practicable, existing planting to the south west of the proposed Charlton Mires Junction, between the B6341 and the existing A1.	To encourage use of structures by wildlife. To integrate Part B into the wider landscape.					
Cultural Heritage							
B-CH1	There are two Scheduled Monuments which abut the Order Limits of Part B and a further two located in close proximity. During the construction phase, any work undertaken around the Scheduled Monuments will be undertaken in adherence to this measure: No construction activity is permitted within any Scheduled Monument, or adjacent to the North Charlton Scheduled Monument within the Construction Exclusion Zone shown hatched red on the **Construction Working Areas Around Scheduled Monuments** plan, shown in **Appendix A**. The limits of the Scheduled Monuments will be clearly marked out as an exclusion zone, as shown on the **Construction Working Areas Around Scheduled Monuments** plan, shown in **Appendix A**.	To prevent accidental damage to Scheduled Monuments	**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.4 Ancient Monuments and Archaeological Areas Act, 1979 **Construction Working Areas Around Scheduled Monuments** plan, **Appendix A** of this Outline CEMP.	Scheme Archaeologist, in consultation with Historic England, NCC County Archaeologist. Main contractor	CEMP approved by the Secretary of State following consultation with Historic England and NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) **Construction Working Areas Around Scheduled Monuments** plan	Design	
B-CH2	Potential impacts on other waterlogged archaeological remains will be minimised through appropriate mitigation measures implemented, as detailed within this Outline CEMP and **Chapter 10: Road Drainage and the Water Environment,**	To prevent damage to buried remains.	**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.3	Archaeologist (main contractor) Main contractor	CEMP approved by the SoS following consultation with NCC. Site environmental inspection reports	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	Volume 3 of the ES (**Application Document Reference: TR010041/APP/6.3**), which indicates that there will be no detrimental impact to groundwater catchments.						
Biodiversity							
B-B1	In order to retain the largest amount possible of broadleaved woodlands of semi-natural origin and associated ground flora (which are often irreplaceable in the short/medium term), the design of Part B will minimise the amount of broad-leaved semi-natural woodland subject to direct loss and avoid where possible. Prior to construction this will include a reassessment of whether the removal of trees earmarked for felling are essential to facilitate construction.	To retain the largest amount possible of those woodlands of semi-natural origin and with associated ground flora containing typical woodland plant species.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, HAB01 **Appendix 9.1**: **Habitats and Designated Sites, Volume 8** of the ES, Table 7-1	Designer Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO**. Site Environmental Inspection Reports Arboriculture Method Statement Biosecurity Method Statement	Design	
B-B2	Overall connectivity of new and existing habitats within the Order Limits of Part B will be increased to link up with the wider landscape including woodland, hedgerows, watercourses and ponds, where possible.	To link up existing and newly created areas of valuable habitat to allow increased movement of species between habitat parcels.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, HAB03 **Appendix 9.1**: **Habitats and Designated Sites, Volume 8** of the ES, Table 7-1	Designer Main contractor	Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As built drawings	Design	
B-B3	Where trees are removed to facilitate construction of Part B, these will be replaced, to encourage safe bird/barn owl/bat flight lines at height over the carriageway above potential collision height with traffic. Locations of prescribed planting design are included within **Figure 7.10: Landscape Mitigation Plan**, **Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**) at all possible considered locations bounding Part B, irrespective	To reduce potential traffic collisions and risk of barn owl mortality. To prevent barn owl foraging adjacent to the carriageway, and	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BO01 and BI03 **Appendix 9.7: Barn Owl Survey Report**, **Volume 8** of the ES, Table 7-1	Designer Main Contractor Bat Specialist ECoW ECoW (main contractor)	Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape Design Certificate Arboricultural Method Statement	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	of whether trees were originally present. Tree and hedge planting has been designed to provide thick screening planting using native, scrubby species adjacent to the widened carriageway as detailed in **Figure 7.10: Landscape Mitigation Plan**, **Volume 6** of the ES. This will be as dense as possible.	if flying across the carriageway, flight lines will be over traffic and reduce the likelihood of mortality through collision.		Arboriculturalist (main contractor)			
B-B4	As shown on **Figure 7.10: Landscape Mitigation Plan**, **Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**), landscape planting associated with Part B will include native species of local origin and include berry bearing shrubs. This is in order to provide food resources for thrushes and finches and cover for species such as dunnock (SPI, BoCC amber list, UKBAP) and compensate for the loss of hedgerows and scrub habitat, where this is unavoidable to enable the construction of Scheme. Wherever possible new habitats will be designed as connective corridors, linking to other habitat areas, rather than in isolated parcels.	To provide foraging resources for wintering birds.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BI04 **Appendix 9.6**: **Breeding and Wintering Birds Report, Volume 8** of the ES Table 7-1	Designer Main contractor	Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As built drawings	Design	
B-B5	**a.** New culverts (i.e. Kittycarter Burn culvert (24.2)) and culvert structures which need to be replaced following detailed surveys at the detailed design phase, prior to construction of the culverts, will be designed and installed to modify the current characteristics, to produce a variable flow rate and reduce overall speed of water flow. **b.** Roughened beds (addition of rocks and boulders), baffles and refuge areas (such as masonry with cavities) will achieve this. **c.** To minimise the impact to fish from disturbance (including noise, light and vibration), works outside of watercourses will be set back from the watercourse by a minimum of 10 m, where possible.	To facilitate the movement of fish, macroinvertebrates and other aquatic species through the culverts.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, AQ09, AQ12 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Table 7-2 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Table 10-1	Main contractor	As built drawings	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	d. Riparian habitat temporarily lost will be reinstated naturally within two years once construction has been completed. The removal of riparian habitats will be minimised as much as possible.						
B-B6	A surface water drainage system will be installed with a robust treatment system using filter drains, grassed detention basins, swales and reed beds to achieve sufficient sediment and pollutant removal.	Prevent pollution of watercourse by hydrocarbons and sediments from carriageway.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, AQ11 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.3.21	The Applicant	As built drawings	Design	
Road Drainage and the Water Environment							
B-W1	With specific regards to the water environment, Part B will comprise (from south to north) the following watercourse crossing works (as shown on the **General Arrangement Plans** (**Application Document Reference: TR10041/APP/2.4**): **a.** The extension of the existing culvert Denwick Burn (19.1) at chainage 54080. **b.** The extension of the existing culvert Denwick Burn (21.1) at chainage 54600. **c.** The replacement of the existing culvert at Heckley Fence (22.1) at chainage 55300. The small drainage ditch upstream of the culvert will be realigned to discharge into the new culvert. **d.** The extension of the existing culvert White House Burn (23.1) at chainage 56920. **e.** The extension of the existing culvert Kittycarter Burn (24.2) at chainage 58600. **f.** The removal of the existing culvert along the southern tributary of Kittycarter Burn and the construction of a new circular culvert underneath the B6347 at chainage 58840.	To manage risk to the water environment associated with the design of changes to/new structures within watercourses.	**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraphs 10.9.18 and 10.9.19 **Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Paragraph 10.2.4, Table 10-3	Designer	As built drawings	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	g. The diversion and channel realignment of the southern tributary of Kittycarter Burn to reduce the length of culvert required. h. The extension of the existing Linkhall Culvert (26.1) along the western tributary of Kittycarter Burn at chainage 59275. i. The extension of the existing culvert Shipperton Burn (27.1) at chainage 60385. A natural bed will be provided along the base of the culvert extension. The extension will remove the step weir and tie into the downstream channel. j. The construction of a new circular culvert called Rock Culvert (28.1) at chainage 58100 upstream of the existing culvert along the unnamed tributary of Embleton Burn. All new and full replacements of existing culverts (determined following detailed surveys during the detailed design phase, prior to construction of the culverts) offer an opportunity to improve the performance of the culvert, for example, by providing a natural bed. All culvert outlets will tie into the downstream channel. Some culverts were identified to be blocked or submerged during the site walkover and this will be addressed as part of the works. This is relevant in particular to the southern tributary of Kittycarter Burn. Baffles will be used to retain the natural bed along the base of the culverts and to create a natural low flow channel. Vegetation at the upstream and downstream face of the culverts will be reinstated as soon as practicable post-construction. Once vegetation is established, fine sediment inputs will reduce to baseline conditions, or near to baseline conditions.						

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
Geology and Soils							
B-GS1	Part B has been designed to minimise the amount of land take within agricultural areas. This has included using online widening, keeping areas of land take for mitigation purposes close to the new carriageway and by undertaking discussions with landowners to highlight preferences with regard to land take areas. Where BMV soils are to be lost through permanent land take, they are generally associated with extending the existing carriageway. No areas of landscape planting mitigation are proposed over BMV soils where land is to be acquired for Part B on a temporary basis.	To prevent loss of BMV soils.	**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.6	Main contractor Environmental Consultant (designer)	Landscape design discharged as required by the DCO	Design	
Population and Human Health							
B-PH1	In order to reduce community severance and effects on WCH, the Part B design will include: **a.** A footway to facilitate safe pedestrian access across Charlton Mires Junction will be provided. The footway will link the diverted Footpath 129/004, to the east of Part B, extend across the A1 and along the improved B6341, to the west of Part B, to approximately Rock Lodge. **b.** A footway to facilitate safe pedestrian access across the proposed Heckley Fence Accommodation Overbridge will be provided. The footway will link the diverted Footpath 110/004, to the east of Part B, across the A1 to PRoW 129/023. **c.** Heckley Fence Accommodation Overbridge will be designed to provide safe access for walkers, cyclist and horse riders.	To reduce community severance and effects on WCHs.	**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.6 and 12.10.11	Designer	As built drawings PRoW Management Plan	Design	
B-PH2	Three existing bus stops on the A1 will be removed as part of Part B. To replace these bus stops, two new bus stops are proposed along the B6341 to the west of the A1. One of these new bus stops will be located alongside the southbound lane and the other	To improve safety of public transport users.	**Chapter 12: Population and Human Health,**	Designer	General Arrangement Plans		

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	alongside the northbound lane. No new bus stops are proposed along the route of the A1 for safety purposes. The location of the proposed bus stops and parking lay-bys are shown on the **General Arrangement Plans** (**Application Document Reference: TR010041/APP/2.4**).		**Volume 3** of the ES, Paragraph 12.9.7				
B-PH3	The proposed Heckley Fence Accommodation Overbridge has been located to ensure that access is maintained to land farmed by Broxfield Farm.	To reduce impact on physical assets and land use	**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.9	Designer	As built drawings		
Material Resources							
B-M1	Part B will design for off-site construction by maximising the use of pre-fabricated structures and components, encouraging a process of assembly rather than construction. **a.** The construction method for the new Charlton Mires Junction will comprise an integral single span bridge with pre-stressed precast concrete beams, along with precast parapets. The precast units will be constructed in a controlled environment off-site, minimising risk to the environment, before transport to Site. The use of prefabricated elements will reduce waste production on site. **b.** The new Heckley Fence Accommodation Overbridge will also comprise an integral single span bridge with a pre-stressed precast concrete beam deck, which will be constructed in a controlled environment off site, along with precast parapets. **c.** Precast elements of the new culvert structures will also be constructed off site, reducing waste production on site. For example, the replacement of Rock Culvert will comprise installation of precast concrete pipes, wing walls and headwalls constructed off-site and delivered to Site in	To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste by designing for off-site construction.	**Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.2	Designer	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) As built drawings	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	sections. There will be no requirement for in-situ foundations. **d.** In addition, a new culvert system will be installed north of Heckley Fence comprising precast concrete pipes constructed off-site. **e.** Extensions to existing culverts located at White House Burn, Linkhall and Shipperton Burn Culverts will each comprise precast reinforced concrete box units constructed off-site. **f.** For extensions to Kittycarter Burn and Denwick Burn Culverts, the new extension structures will each comprise precast concrete pipes constructed off-site.						
Climate Change							
B-CC1	Proposed hedgerows will be supported by linear belts of woodland block planting, to enable successful plant establishment and reduce the loss of vegetation. For further information on the planting, refer to the **Chapter 7: Landscape and Visual, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**).	To reduce the Scheme's vulnerability to drought	**Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Designer	Landscape design approved by the Secretary of State following consultation with the NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Detailed design drawings As built drawings	Design	
PRE-CONSTRUCTION/CONSTRUCTION MEASURES							
Cultural Heritage							
B-CH3	The non-designated milepost North of Shipperton Bridge (HER 16878), which will be removed as a result of Part B, will be subject to a Level 1 Survey in accordance with Historic England's 2016 guide, titled 'Understanding Historic Buildings. A Guide to Good Recording Practice' (**Ref. 9**) prior to the start of construction to create a permanent record of its existing setting. This will be followed by the careful removal of the asset and its safe storage during construction. On completion of construction, the milestone will be	To prevent damage to non-designated heritage assets.	**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.10	Archaeologist (main contractor)	Written Scheme of Investigation approved by the Secretary of State following consultation with NCC as per Requirement 10, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO.**	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	reinstated as close as possible to its original location to maintain its relationship with the route. Any mitigation will be devised in consultation with Historic England, NCC and the Milestone Society and set out in a method statement. The requirement to approve the works and method statements to discharge requirement 10 is the responsibility of the Secretary of State. This is presented in **Appendix 8.6: Draft WSI for Historic Building Recording, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8)**.				A written, drawn and photographic record will be compiled of the dismantling of the milepost in consultation with Historic England, NCC and the Milestone Society.		
B-CH4	A programme of historic building recording will be undertaken post development consent and prior to the demolition of Charlton Mires (WSP002) to ensure it is preserved by record. This will be undertaken as a 'Level 3 Survey' in accordance with Historic England's 2016 guide, titled 'Understanding Historic Buildings. A Guide to Good Recording Practice' (**Ref. 9**). This will compromise an analytical record which will aim to assess and document the building's origins, development and use (including any associated structures within the farm complex). This is presented in **Appendix 8.6: Draft WSI for Historic Building Recording, Volume 8** of the ES (**Application Document Reference TR010041/APP/6.8**). Any mitigation will be devised in consultation with NCC and set out in a method statement. The requirement to approve the works and method statements to discharge requirement 9 is the responsibility of the Secretary of State.	To preserve by record listed heritage assets.	**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.11	Archaeologist (main contractor)	Written Scheme of Investigation approved by the Secretary of State following consultation with NCC as per Requirement 9, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO**.	Construction	
Biodiversity							
B-B7	A pre-commencement inspection by the ECoW will be undertaken within woodland prior to any tree felling to confirm the absence of dreys between February to September. Where deemed necessary, felling will be supervised by the ECoW. Tree felling within WB9, or any other woodland subsequently identified with dreys, will be completed	To protect red squirrel.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC06 and RS03 **Appendix 9.4: Red Squirrel Report,**	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) ECoW Weekly Log	Pre-construction / construction	

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	outside of the red squirrel breeding season recognised as between February to September inclusive. Where this cannot be achieved, all works will be discussed with, and overseen by, the ECoW prior to commencement.		**Volume 8** of the ES, Table 7-1				
B-B8	A Species Protection Plan (SPP) for badgers and red squirrels will be produced during detailed design, prior to construction. The SPP will form the basis of a 'toolbox talk' to be given to contractors to increase awareness of potential badger and red squirrel presence, detail typical activity, field signs and setts for badgers and feeding signs and drey presence within woodlands. The SPP will detail the methodology for managing any badgers, red squirrels or dreys encountered during works.	To protect badgers and squirrels.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, B01 and RS01 **Appendix 9.2: Badger Report (Confidential), Volume 8** of the ES, Table 7-1 **Appendix 9.4: Red Squirrel Report, Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Badger Method Statement	Pre-construction	
B-B9	A pre-works inspection will be undertaken by the ECoW in all areas of woodland within 50 m from the works/compound boundary, in search of evidence of squirrel activity/presence, prior to any works taking place in any woodland habitat.	To protect red squirrel.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, RS02 **Appendix 9.4: Red Squirrel Report, Volume 8** of the ES, Table 7-1	Main	EPS Method Statement ECoW Weekly Log	Pre-construction	
B-B10	Vegetation/earth removal will, where possible, be undertaken outside the badger breeding season recognised as December to April.	To protect breeding badgers.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, B03 **Appendix 9.2: Badger Report (Confidential), Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	Badger Method Statement ECoW Weekly Log Construction Constraints Plan	Pre-construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
B-B11	Construction works will be undertaken taking into account sensitive ecological seasons (e.g. breeding, hibernation or migration seasons) and the potential impact that the type of construction work could have on bats within that season. The key sensitive periods for bats are between May-August (inclusive) when bats form maternity roosts; and between November-February (sometimes extending into October and March dependent on weather conditions) when bats occupy hibernation roosts.	To protect bats during construction works.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT02 **Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Precautionary working method statement Site Environmental Inspection Reports Signed toolbox talks records	Construction	
B-B12	A Species Protection Plan (SPP) will be produced during detailed design, prior to construction. Where appropriate, the SPP will include monitoring regimes during construction. The SPP will cover mitigation and compensation for known roosts to be affected by the Scheme which will require licensing, citing any necessary licences obtained and the conditions associated with such licensing.	To comply with conservation legislation and to protect bats.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT03 **Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) ECoW Weekly Log Construction Constraints Plan	Pre-construction	
B-B13	In order to protect the bats, which roost in the boxes which are being translocated as part of the Scheme, the following mitigation measures will be implemented: **a.** Any bats present within roosts will be translocated to bat boxes erected to mitigate the loss of the roost and proportionate to the type of roost to be lost (refer to **B-B16** of this Outline CEMP). **b.** Location of bat box placement will be under direction and guidance of a bat licensed ecologist. Thereafter, the roost and any features with roost potential within a 10 m circumference of the roost, will be filled/blocked appropriately.	To protect bats which roost in the boxes which are being translocated as part of the Scheme. To comply with conservation legislation and protect roosting bats.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT06 **Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1	Main contractor Bat Specialist ECoW ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Precautionary working method statement Site Environmental Inspection Reports Evidence of bat boxes and bat features including records from the contractor, photos and Site Environmental Inspection Reports ECoW Weekly Log Signed toolbox talks records Construction Constraints Plan	Pre-construction / construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
B-B14	Where possible, trees will be retained and pruned/modified so as not to pose a health and safety concern for the new road layout. Pruning of any retained trees should reduce limbs and retain parts of the tree which can be utilised for wildlife. Suitable features for roosting bats can then be created. This will be carried out under the guidance of a bat licensed ecologist.	To enhance bat roosting habitat and ensure future viability of roosting bats and nesting birds in the area.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT07 **Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1	Main contractor Bat Specialist ECoW ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) ECoW Weekly Log Construction Constraints Plan	Pre-construction / construction	
B-B15	In order to protect bats whose habitat is being lost as a result of the Scheme, the following measures will be implemented: **a.** European Protected Species licences will be obtained for all bat roosts to be lost or disturbed during the construction of Part B. **b.** Any bat roosts to be lost will be mitigated through the erection of bat boxes (or other suitable roosting features), to be erected prior to the loss of any roost. The requirement for replacement roosts will be determined following pre-construction surveys (refer to B-B18). **c.** Where roosts have already been identified during baseline surveys, locations for compensatory bat boxes have been identified and are presented within the **Figure 7.10: Landscape Mitigation Plan, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**). However, their ultimate placement within those predefined areas will be completed under guidance of a Suitably Qualified Ecologist/ECoW. The specification of mitigation bat box will be proportionate to that of the roost to be lost and selected by the suitably qualified ecologist/ECoW, with two suitable bat boxes provided for each roost lost.	To protect bats whose habitat is being lost as part of the Scheme. To comply with conservation legislation and protect roosting bats. To replace bat roosting habitat.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT08 **Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1	Main contractor Bat Specialist ECoW ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Precautionary working method statement Site Environmental Inspection Reports Signed toolbox talks records Evidence of bat boxes and bat features including records from the contractor, photos, and Site Environmental Inspection Reports ECoW Weekly Log Construction Constraints Plan	Pre-construction / construction	
B-B16	The woodland to the northern end of the of the Order Limits of Part B (Central OS Grid Ref: NU 17110 21927) will be lost to facilitate Scheme construction. This woodland has 12 recorded bat roosts within it including roosts of Regional	To comply with conservation legislation and protect roosting bats.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT09	Main contractor Bat Specialist ECoW	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Pre-construction / construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	importance. All 12 bat roosts are within bat boxes which will be translocated to an adjacent woodland (Central OS Grid Ref: NU 17216 21929) by an experienced bat licenced ecologist and under a NE licence. Further details can be found in the **Consents and Agreements Position Statement** (**Application Document Reference: TR010041/APP/3.3**). In addition to boxes being translocated, the area next to the A1 where trees are to be replanted, adjacent to where the woodland is being lost (near central OS Grid Ref: NU 17111 21977), 12 rocket style bat boxes on poles (Nestbox, Eco Rocket Bat Box with 6 m Pole) will be installed in amongst the newly planted woodland. A further 12 bat boxes will be installed within the existing adjacent woodland that extends eastwards from the Order Limits of Part B. As the area supports a significant number of bat roosts, this increased effort of mitigation and compensation will help to ensure when boxes are translocated, ample roosting opportunities are present for bats within the area. Areas have been identified for these bat boxes and are presented within the **Figure 7.10: Landscape Mitigation Plan, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**).	To enhance bat roosting habitat and ensure future viability of roosting bats in the area.	**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1	ECoW (main contractor)	Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** Precautionary working method statement Site Environmental Inspection Reports Signed toolbox talks records Evidence of bat boxes and bat features including records from the contractor, photos, and Site Environmental Inspection Reports ECoW Weekly Log Construction Constraints Plan EPS Method Statement Bat Report		
B-B17	To further increase suitable roosting locations for bats and to compensate for loss of roosting opportunities within trees which will be felled to facilitate Part B, a minimum of five rocket style bat boxes[3] (Nestbox, Eco Rocket Bat Box, two as cavity option, three as crevice, with 6 m Pole) will be erected between the noctule maternity roost and a known foraging location at Heckley Fence, as shown within **Figure 7.10: Landscape Mitigation Plan**, **Volume 6** of the ES (**Application Document**	To enhance bat roosting habitat and ensure future viability of roosting bats in the area.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT10 & BAT11 **Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1	Main contractor Bat Specialist ECoW ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Precautionary working method statement Signed toolbox talks records Evidence of bat boxes and bat features including records from the contractor,	Pre-construction / construction	

[3] https://www.nestbox.co.uk/products/eco-rocket-bat-box

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	Reference: TR010041/APP/6.6) (near central OS Grid Ref: NU 19117 16651). The siting of the bat boxes will be determined by the appointed Suitably Qualified Ecologist/ECoW. Construction of and access along the proposed access track (entering the field around OS Grid Ref: NU 18558 16175) in proximity to tree G02 should be undertaken outside the bat maternity season (mid-May to mid-August inclusive) to ensure the noctule maternity roost present is not disturbed by construction works. To ensure the noctule maternity roost present within tree G02 (in woodland west of Heckley House) is not disturbed by construction works, continuous camera trap monitoring will be implemented (using a suitably high trigger speed camera, with the camera trap installed and checked with as little disturbance and noise as possible) throughout construction. This will be supplemented with activity surveys of the roost conducted once a month in the active bat season (May to September) by an experienced bat licensed ecologist, taking counts of the number of bats emerging/re-entering. Camera trap footage will be reviewed monthly to ensure bats are not leaving the roosts due to noise disturbance as a result of construction traffic/works. The results of the activity surveys will be compared to the 2019 survey results to discern whether there is any reduction in numbers of bats which may indicate that construction has compromised the use of the roost by bats. If bats' behaviour is observed to deviate from anticipated norms (e.g. emergence and flight activity during daylight hours), or if there is a drastic difference in the range of numbers of roosting bats utilising the roost compared to data accumulated across surveys in 2019, additional mitigation will be required which will be determined by an experienced bat licensed ecologist and in liaison with Natural England.				photos, and Site Environmental Inspection Reports ECoW Weekly Log Construction Constraints Plan EPS Method Statement Bat Report		

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
B-B18	Pre-construction surveys will be undertaken to verify and, where required, update the baseline ecological conditions set out in **Chapter 9: Biodiversity, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**). The scope of the pre-construction surveys will be discussed with NE prior to being undertaken and will be specific to each ecological receptor under consideration.	To update the baseline ecological conditions set out in the ES (**Application Document Reference: TR010041/APP/6.3**)	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC02	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Precautionary working method statement Site Environmental Inspection Reports Signed toolbox talks records	Pre-construction / construction	
B-B19	No construction works (including facilitation works) will take place within 30 m of known roost locations that are not to be lost directly to the Part B. Where essential works are required, the nature of the works will be discussed with the ECoW to establish what mitigation measures are required. Works will only take place with the agreement of the ECoW and following any application for necessary licensing/adherence to license conditions.	To prevent disturbance to bats leaving/entering roosts.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT04 **Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) ECoW Weekly Log Construction Constraints Plan	Construction	
B-B20	In any instances where roadside tree planting is not feasible, roadside verges will be planted with scrub species (e.g. gorse, broom, hawthorn) to discourage barn owl foraging.	To reduce potential traffic collisions and risk of barn owl mortality.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BO02 **Appendix 9.7: Barn Owl Survey Report, Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Precautionary Working Method Statement Signed toolbox talks	Construction	
B-B21	In the absence of tree or scrub planting and where seeding mixes are utilised along roadside verges, regular mowing will be undertaken to maintain a short sward, thereby reducing the suitability of habitat to support barn owl prey species.	To reduce potential traffic collisions and risk of barn owl mortality.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BO03 **Appendix 9.7: Barn Owl Survey Report, Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Barn Owl Report Precautionary Working Method Statement Barn Owl License granted by NE Signed toolbox talks	Construction	

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					ECoW Weekly Log		
B-B22	In the event of a previously unknown/new barn owl roost/nest site being discovered within the Order Limits of Part B, or beyond the Scheme at such a distance as to be judged at risk of disturbance by a Suitably Qualified Ecologist (SQE) using recognised guidance; any such sites discovered will be protected from works by a buffer, the extent of which will be as deemed appropriate by the SQE. The buffer will remain in place until any dependent young had left the site and/or until an appropriate course of action had been determined.	To prevent the loss of active barn owl nest and roost sites.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BO04 **Appendix 9.7: Barn Owl Survey Report, Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Barn Owl Report Precautionary Working Method Statement Barn Owl License granted by NE Signed toolbox talks ECoW Weekly Log Construction Constraints Plan	Construction	
B-B23	Any construction works (including enabling works) will be conducted from the bank and tracking within the channel will be avoided. Should work need to be carried out within a watercourse, then tracking will be minimised and sediment trapping equipment (hessian mats or similar), will be deployed and appropriately maintained. Any displaced substrate will be returned to as close to its original condition as possible upon completion of the works.	To protect aquatic habitats and species from pollution through physical disruption of sediments.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, AQ04 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.3.1	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talks ECoW Weekly Log Construction Constraints Plan	Construction	
B-B24	Carrying out construction works (including enabling works) within waterbodies during the brown trout spawning season, between September and March, will be avoided. For works within or in close proximity to Denwick Burn (within 10 m), this period will be extended to the end of May (September to May inclusive).	To protect fish species of conservation importance.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, AQ06 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Table 7-2	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talks ECoW Weekly Log Construction Constraints Plan Environment Agency Permit	Construction	

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B-B25	Should any part of any watercourse need to be impounded during the works, then a fish translocation will be carried out to remove fish from the impoundment. Fish translocation operations will require a permit from the Environment Agency in order to use electric fishing and ancillary equipment (such as hand nets). It should be noted that it can take as long as 20 days to obtain a permit. Such an operation will require careful planning to set-up and drain any coffer dam used.	To protect fish species of conservation importance and to adhere to Environmental Permitting good practice.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, AQ07 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.3.11	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talks ECoW Weekly Log Construction Constraints Plan Environment Agency Permit	Construction	
B-B26	Should a crayfish of any species be found during any subsequent works then work will cease until a suitably licensed ecologist is consulted, to identify any crayfish found to species level, and if necessary, to formulate a suitable mitigation plan, should the presence of white-clawed crayfish be confirmed.	To protect species of conservation importance and to comply with conservation legislation.	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, AQ08 **Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.3.5	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Signed toolbox talks ECoW Weekly Log Construction Constraints Plan Precautionary Working Method Statement	Construction	
B-B27	A Precautionary Method of Works (PMW) will be developed for enabling works and construction associated with the vegetation clearance at Rock Midstead shelterbelt (approximate chainage 58300) (refer to **Figure 9.20: Reptile Survey Site Locations – Sheet 9, Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**)). The PMW will detail a prescribed works method to ensure the safety of any reptiles that might be present, likely to include: **a.** Hand search for reptiles in area to be cleared **b.** Strim of vegetation to 10 cm **c.** Second search by hand for reptiles **d.** Strim of vegetation to ground level	To protect reptiles present within suitable supporting habitat	**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, RE01 **Appendix 9.9: Reptile Assessment Report, Volume 8** of the ES, Table 7-1	Main contractor ECoW (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Precautionary Working Method Statement Signed toolbox talks ECoW Weekly Log Construction Constraints Plan	Construction	

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	e. Removal by hand, any features with potential to support reptiles (e.g. log piles, rubble piles, stone walls) In the event that reptiles are encountered at any time, they will be captured by hand and translocated away from the construction area to a predefined release area within suitable supporting habitat. The release site shall be identified by the ECoW.						
B-B28	Monitoring will be undertaken throughout the construction period by a site-based Ecological Clerk of Works (ECoW). The ECoW will ensure construction works remain compliant with mitigation measures prescribed within this Outline CEMP and then in the CEMP produced by the main contractor. The CEMP will additionally identify the monitoring requirements of environmental best practice, for example, waste management processes, pollution and siltation events upon watercourses/waterbodies, and dust management. The ECoW will additionally monitor works and ensure compliance with any protected species licence conditions. Examples of ecological receptor-specific monitoring include: **a.** Monitoring of the *Nyctalus* roost to ensure no adverse disturbance effects upon roosting bats. **b.** Monitoring of spoil heaps for the presence of badger activity/sett building and excavation. **c.** Inspections and monitoring of vegetation (hedgerows, trees, grassland) for the presence of nesting birds during the breeding season.	To monitor the impacts of construction and ensure compliance with the CEMP and the ES.	**Chapter 9: Biodiversity, Volume 3** of the ES, Paragraph 9.11.2	Named Ecologist The Applicant/ main contractor	Environmental Inspection Reports Ecological/Environmental Management Plan HEMP	Construction	
Road Drainage and the Water Environment							
B-W2	No cement or mechanical plant will be stored on the site compound at Charlton Mires.	To reduce risk of pollution from the Charlton Mires compound to the adjacent watercourse (southern tributary of	**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.6 Table 10-1 within **Appendix 10.2:**	Main contractor Environmental Manager (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
		Kittycarter Burn) due to the associated fluvial flood risk.	**Water Framework Directive Assessment, Volume 3** of the ES				
Geology and Soils							
B-GS2	To minimise the sterilisation of potential mineral resources located within MSAs in the working area, consideration will be given to the incorporation of site won materials from these MSAs into Part B where possible.	To minimise the produce of waste associated with Part B.	**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.22	Main contractor Environmental Manager (main contractor)	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)		
B-GS3	Elevated concentrations of TPH were recorded within the groundwater during the post-site works monitoring period. Further observations as a precaution should be considered during the construction stage. Consideration should be given to completing additional groundwater monitoring and to the completion of a detailed quantitative risk assessment to further assess the risk from these contaminant concentrations to sensitive receptors.	To prevent risk of ground contamination and surface watercourses.	**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.11	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	
B-GS4	Further groundwater monitoring will be undertaken as a precaution during the construction phase to ensure no contamination of groundwater receptors. Consideration will be given to completing detailed quantitative risk assessment to further assess the risk to receptors from elevated concentrations of contaminants recorded in the groundwater during the ground investigation.	To minimise risks of pollution of controlled water bodies	**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.11	Main contractor Environmental Manager	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	
Population and Human Health							
B-PH4	In order to reduce the temporary effects on agricultural land during construction, the following measures will be implemented:	To reduce temporary construction effects on private property and on	**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraphs 12.9.16,	The Applicant Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	a. Pursuant to the Compensation Code, compensation will be agreed as part of the Scheme with the occupiers of those houses which are proposed to be demolished to facilitate the construction of the new Charlton Mires Junction (East Cottage and Charlton Mires Farm). **b.** The temporary loss of land during construction will impact on the day to day management and potentially the ability to claim Basic Payment Scheme, a grant and payment scheme for the farming industry offered by the EU (or any replacement thereof following the UK's departure). The impact of the temporary loss of land on farm management during construction will be mitigated through financial compensation. **c.** Correspondence will take place with landowners to understand livestock rotation and designing working arrangements, as far as possible, to avoid impact. If unavoidable then secure fencing which is appropriate to the type of livestock will be erected and safe working area established. **d.** Where the existing drainage infrastructure is of a suitable standard, the Scheme will tie the proposed drainage infrastructure into this existing infrastructure. However, where the existing drainage infrastructure is considered to have too many defects it will be abandoned and replaced with new. **f.** Land and surface drainage affected by the construction works will be reinstated and land restored to a functional state. Any damage to the land or surface drains will be made good. **g.** Appropriate access to the affected fields will be provided where required and any farm boundaries such as hedgerows, fences and walls affected during construction will be reinstated to maintain the boundary and restore landscape and ecology features. Farm boundaries will generally be reinstated like for like.	agricultural land holdings.	12.9.22, 12.9.24-12.9.26		Soil handling strategy		
B-PH5	During construction, safe crossing points across the A1 for pedestrians and agricultural vehicles will be	To maximise safety and	**Chapter 12: Population and**	Main contractor	CEMP approved by the Secretary of State following consultation with NCC as per	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	provided at Charlton Mires. Safe crossing points across the A1 will be provided for pedestrians, cyclists, equestrians and agricultural vehicles at Broxfield or Heckley Fence depending on the phase of the construction works. The exact type and location of crossing points will be developed at detailed design, prior to their construction.	security for WCHs.	**Human Health, Volume 3** of the ES, Paragraph 12.9.11		Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) PRoW Management Plan		
Climate Change							
B-CC2	The following measures will be implemented in order to reduce the Scheme's vulnerability to extreme temperature events. Structures: **a.** Fires are less of a concern for highways structures, provided inappropriate materials will not be stored nearby during construction and operation.	To reduce the Scheme's vulnerability to extreme temperature events.	**Chapter 14: Climate, Volume 3** of the ES, Table 14-16	Main contractor	Detailed design drawings As built drawings	Construction	
OPERATION AND MONITORING MEASURES							
Landscape and Visual							
B-L2	As set out in **Figure 7.10: Landscape Mitigation Plan**, **Volume 6** of the ES (**Application Document Reference: TR010041/APP/6.6**), the existing hedgerow to the west of Rock South Farm access track will be retained and replaced.	To mitigate against landscape and visual effects from the Scheme.	**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.13	Main contractor	Landscaping scheme approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) Landscape Design Certificate	Operation	
Biodiversity							
B-B29	Any protected species licences required to facilitate construction of Part B will likely require some form of monitoring. Post-completion monitoring survey requirements have been identified for the loss of bat roosts associated with the demolition of Charlton Mires Farm buildings, adjacent East Cottage to the	To ensure mitigation prescribed and enacted performs as required.	**Chapter 9: Biodiversity, Volume 3** of the ES, Paragraphs 9.11.5 – 9.11.7	Named Ecologist The Applicant/ main contractor	Environmental Inspection Reports Ecological/Environmental Management Plan HEMP	Operation	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual (Delivering Measure)	Achievement Criteria and Reporting Requirements (Reported on the Requirements Register Published on the Applicant's Scheme website)	Project Phase (Design, Pre-Construction, Construction, Operation)	Record of Completion (Signature and Date)
	south, and the translocation of bat boxes from the woodland at the northern end of Part B to a receptor woodland. Monitoring and inspections of bat boxes will, as a minimum, be undertaken twice a year during May and August, during the first, third and fifth years after translocation of boxes (to their receptor location) or newly erected mitigation boxes (this minimum monitoring program may be otherwise altered dependent on specific licence conditions) by a suitably qualified and bat licensed surveyor. Missing features will be replaced, like-for-like. Damaged features will be assessed/surveyed by a licensed ecologist and replaced if not in use. This will be secured within the CEMP, as part of the DCO process. The level of post-completion monitoring will be agreed with Natural England and secured through the licensing process. Any licences required to facilitate construction of Part B will generally include conditions for monitoring of features/mitigation/compensation post-construction and are specific to the receptor and/or feature.						

4 CONSENTS AND PERMISSIONS

4.1.1. A **Consents and Agreement Position Statement** (**Application Document Reference: TR010041/APP/3.3**) has been submitted as part of the DCO application, which sets out the Applicant's intended strategy for obtaining the consents and associated agreements needed to implement the Scheme. It identifies at a high-level what consents are expected to be needed for the Scheme, together with how those consents will be obtained.

4.1.2. This section of the Outline CEMP identifies those environmental consents, permissions and agreements that will be, or will likely be, sought by the Applicant or the main contractor for the Scheme. It will be the responsibility of the main contractor to secure these consents and permissions for the Scheme where not sought by the Applicant.

4.1.3. In addition to the DCO, there are other regulatory regimes that must be complied with and licences and/or consents that will need to be obtained to allow the Scheme to proceed including, but not limited to:

a. European Species and Notable species licences
b. Natural England Assent (Site of Special Scientific Interest (SSSI)) Assent) for proposed River Coquet bridge construction works
c. Environmental Permit (works within 8 m of a main river, works within a flood zone);
d. Environmental Permit from the Environment Agency for flood risk activities (previously known as A Flood Defence Consent) for any works in a flood plain
e. Environmental Permit from the Environment Agency if the main contractor discharges contaminated wastewater into watercourses
f. Ordinary Watercourse Consent / Land Drainage Consent (works within an ordinary watercourse) from the LLFA
g. Abstraction Licence from the Environment Agency if more than 20 cubic metres a day of water is abstracted
h. Waste exemption U1 - for re-use of suitable material on site (if required)

4.1.4. The other consents above are largely dependent on finalisation of the detailed design, the detailed construction site set up and methodologies, and discussions with stakeholders (e.g. Environment Agency (EA) and NCC). This information is not sufficiently developed at this phase to confirm the requirements and therefore it is not practicable to include them within the DCO.

4.1.5. It is the responsibility of the main contractor to ensure that consents have been obtained and to ensure compliance with the latest environmental legislation.

4.1.6. The main contractor will update **Table 4-1** once the necessary consents have been established to record and document the requirements.

Table 4-1 – Consents and Permissions potentially Required during Construction

Type	Issuing Authority	Requirement
European Species and Notable species licences	Natural England	Consent must be obtained before construction works can commence.
Statutory Plant Health Notice	Forestry Commission	Consent must be obtained before construction works can commence.
Natural England Assent for proposed River Coquet bridge construction works	Natural England	Consent must be obtained before construction works can commence.
Environmental Permits for Flood Risk Activities (FRAP)	Environment Agency	Permit must be obtained for works: **a.** On or near a main river **b.** On or near a flood defence structure **c.** In a flood plain Any FRAP will give due consideration to the Northumbria River Basin Management Plan (RBMP) and protected and notable species and habitats.
Environmental Permit from the Environment Agency if the main contractor discharges contaminated wastewater into watercourses	Environment Agency	Consent must be obtained before construction works can commence.
Ordinary Watercourse Consent	Lead Local Flood Authority	Consent must be obtained for: **a.** Renewal of an existing gateway crossing by means of a culvert or bridge. **b.** Creation of a new gateway crossing by means of a culvert or bridge. **c.** Piping a watercourse for a length of 8 m or less. **d.** All structures or modifications in or within 9 m of a watercourse (headwalls, sluices and fencing). **e.** Any temporary works in or within 9 m of a watercourse, that will be in place for less than 6 months.
Waste exemption U1 - for re-use of suitable material on site	Environment Agency	Main contractor to identify and register relevant and required

Type	Issuing Authority	Requirement
		exemptions with the Environment Agency.
Abstraction Licence	Environment Agency	Main contractor to identify when more than 20 cubic metres a day of water is abstracted and apply for abstraction license through the Environment Agency.

5 DETAILS OF MAINTENANCE AND MONITORING ACTIVITIES

5.1 MONITORING

5.1.1. The ES and REAC propose certain requirements for environmental monitoring during construction to ensure the identified mitigation measures and actions can be tracked and recorded when completed. Some of these are specific, for example, noise monitoring: others are more general, for example, covered by regular environmental inspections. These are identified in **Table 5-1**.

5.1.2. The main contractor will be responsible for conducting monitoring during construction and following completion of construction for a set period. After this period, the trunk road network associated with the Scheme will be adopted by the Applicant. These works will fall within the Applicant's routine schedule of maintenance and inspections as detailed in **Section 6.2** below. The maintenance responsibility for the local road network will be with NCC.

5.1.3. A central filing system will be in place to store monitoring records and site environmental inspection reports. Furthermore, records of compliance with the requirements of the CEMP, derived from audits and other inspections, will be held at the main contractor's site office.

5.1.4. The following monitoring will typically be carried out during construction:

Table 5-1 - Monitoring to be Carried out During Construction

Monitoring	Responsible Person	Frequency
Noise and vibration monitoring	Environmental Manager/main contractor	To be confirmed by the main contractor once a detailed programme of works has been produced.
Air quality monitoring	Environmental Manager	Daily (throughout the construction of the Scheme only)
Monitoring of the freshwater environment	Environmental Manager ECoW	As required, for instance during fish rescue activities.
Monitoring of flows and rainfall and halt works during high flow	Environmental Manager	To be confirmed after consultation with the Environment Agency as part of the Flood Risk Activity Permit (FRAP) and the Lead Local Flood Authority (NCC) as part of ordinary watercourse consents.
Monitoring impacts on cultural heritage	Environmental Manager Scheme Archaeologist (designer)	To be confirmed, informed by post-consent investigations

Monitoring	Responsible Person	Frequency
Review effectiveness of Landscape Elements	Environmental Manager	Quarterly
Review plant and seeding establishment	Environmental Manager Arboriculturalist	Monthly
Surface watercourses located within 50 m of earthworks will be monitored/inspected to identify any pollution as a result of e.g. silt, fuel or chemicals.	Environmental Manager	Weekly
Environmental Inspections	Environmental Manager	Weekly
Environmental audits	Environmental Manager	Quarterly / Bi-annually
SWMP update and review	Environmental Manager	Monthly
MMP update and review	Environmental Manager	Monthly
PRoW Management Plan update and review	Environmental Manager (main contractor)	Monthly
CEMP update and review	Environmental Manager	Updated to take account of the following as soon as information becomes available: **a.** Changes in design **b.** Changes in external factors such as regulations and standards **c.** Any unforeseen circumstances as they arise such as new protected species or new archaeological finds **d.** The results of inspections and audits **e.** Learning points from environmental near misses and incidents **f.** As a minimum the CEMP should be reviewed every six months.

POST-CONSTRUCTION MONITORING

5.1.5. Following completion of the Scheme and to establish the effectiveness of the proposed mitigation strategy associated with it, on-going monitoring will be required and will be managed on behalf of the Applicant.

5.1.6. This will take two forms:

a. Monitoring of the growth and establishment of the landscape mitigation plan implemented as part of the Scheme.
b. Periodic review of agreed viewpoints to confirm that views associated with the Scheme have been mitigated as anticipated.

5.1.7. Regular inspection will be carried out quarterly, after Scheme completion, and for the duration of the maintenance period, in order to review the effectiveness of the proposed Landscape Elements, in meeting their Environmental Functions. Where plants have failed, replacement planting will be carried out to ensure that plants have established within acceptable levels such that the mitigation will be delivered in the future.

5.1.8. There will be a requirement for any tree or shrub planted, within a period of 5 years after planting, that is removed, dies or becomes in the opinion of the local authority, seriously damaged or diseased, must be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the Secretary of State, following consultation with the local authority, gives consent to a variation.

5.1.9. The periodic review of agreed viewpoints (as detailed in **Chapter 7: Landscape and Visual, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)) will be carried out through the regular surveying of specific viewpoints carried out at in the following periods. The proposed viewpoints for Part A will be:

a. **Viewpoint 5:** View looking south-west from PRoW (407/018) at Beacon Hill
b. **Viewpoint 9:** View looking west, at south bound bus stop along existing A1
c. **Viewpoint 16:** View looking north-west from PRoW 422/020
d. **Viewpoint 25**: View looking south-east from junction of PRoWs 422/002, 422/001 & 115/013
e. **Viewpoint 28:** View looking east from PRoW (422/011) adjacent to Burgham Park Golf & Leisure Club
f. **Viewpoint 31:** View looking east from Causey Park Hag / Causey Park road
g. **Viewpoint 36:** View looking east from Fenrother from PRoW 423/001

5.1.10. The proposed viewpoints for Part B (as detailed in **Chapter 7: Landscape and Visual, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.1**)) will be:

a. **Viewpoint 2:** View looking east from West Linkhall, illustrative of nearby properties and PRoW 112/008 and PRoW 112/009).
b. **Viewpoint 4:** View looking north from Rock Lodge and Rock Nab, illustrative of nearby properties.
c. **Viewpoint 6:** View looking east from Heckley Fence, illustrative of nearby properties and walkers travelling along PRoW 110/019.

d. **Viewpoint 7:** View looking east from Heckley House, illustrative of nearby properties and walkers travelling along PRoW 110/013.
e. **Viewpoint 9:** View looking west along PRoW 110/013, illustrative of adjacent PRoW (PRoW 129/022 and PRoW 129/014) and close proximity residents at Broxfield and Silvermoor.
f. **Viewpoint 11:** View looking south west along PRoW 129/004 and illustrative of close proximity residential properties at Rock Midstead.

5.1.11. The above viewpoints have been selected on the basis that they are representative of the occupants for residential properties, users of Public Rights of Way, or visitor attractions where the view and setting are intrinsic to the visitor's experience; and where the view will be mitigated as a result of the establishment of vegetation.

5.1.12. Appropriate points for this periodic review to be undertaken will be:

a. **Operational Year 5 (Summer) –** at the end of the establishment phase, when the initial growth of the proposed mitigation planting has occurred, and an initial review of the speed by which plant establishment is taking effect, can be assessed, in order to meet the required levels of screening.
b. **Operational Year 10 (Summer)** – mid way interval, between the initial review and the proposed final assessment.
c. **Operational Year 15 (Summer**) – end of the design period, considered within the assessment. This will enable the findings of the assessment to be reviewed and confirmed as having been delivered.

Biodiversity

5.1.13. It is likely that any Natural England EPS licences issued for the Scheme will require conditions for monitoring to be undertaken. Monitoring recommendations have therefore been identified in relation to the loss of bat roosts at Charlton Mires Farm, East Cottage, and bat boxes in the northern woodland. These recommendations will be subject to consultation and agreement with Natural England and will require agreement in advance of construction commencement, with stipulations of the extent, type and duration of any monitoring required.

5.1.14. Following the installation of compensatory bat boxes for those bat roosts lost as a result of the Scheme, a monitoring program will be devised and implemented. Monitoring and inspections of bat boxes should, as a minimum, be undertaken twice a year during May and August, during the first, third and fifth years after translocation of boxes to their receptor location. This additionally applies to any additional boxes erected as compensation or those boxes newly erected as mitigation. This minimum monitoring program may be otherwise altered dependent on specific licence conditions and discussion with NE. Results of monitoring surveys should be compiled to determine the effectiveness of mitigation employed and subsequently identifying further mitigation or maintenance requirements (e.g. pruning of tree limbs to maintain access to a bat box).

5.1.15. In accordance with Defra guidelines and given activity levels recorded during Landscape Scale Surveys, monitoring of all of transects is required during construction and post-construction. In line with the guidelines, it is recommended that Landscape Scale Surveys are repeated once during the construction phase and for a minimum of three years' post-construction. Monitoring should be completed at the same time of year as baseline surveys were completed.

5.1.16. Following completion of surveys during construction, an interim assessment of bat activity against baseline survey results should be undertaken following Defra guidelines. Following completion of the entire monitoring program a final assessment, completing the statistical analyses following the Defra guidelines, will be undertaken. This assessment will consider the success of mitigation implemented, in line with the standards detailed within the guidelines. The results of the assessment will aid in determining whether mitigation / compensation has been sufficient to sustain the bat population, or where further mitigation may be required.

5.2 MAINTENANCE

5.2.1. Following completion of construction, the main contractor will be responsible for defects over a set period. Towards the end of the construction period the CEMP will be developed as a HEMP which will include the monitoring and management arrangements going forward during future maintenance and operation. The Scheme must be operated and maintained in accordance with the HEMP.

5.2.2. Maintenance of the trunk road network is the responsibility of the Applicant, whilst maintenance of the local road network is the responsibility of the local highway authority. Therefore, the main Scheme alignment and its proposed junctions will be maintained by the Applicant. Side roads, link roads (including East Linkhall Access Road and West Linkhall Access Road) and the de-trunked A1 will be adopted by NCC.

5.2.3. Short-term maintenance and repair activities are likely to comprise inspections on the new works and installed assets, and any unplanned works due to damage to assets in events such as road traffic incidents. Longer term maintenance and repair works will include measures such as road restraint systems and traffic and road markings.

5.2.4. There will also be on-going (annual) inspections and general routine maintenance works such as debris removal, sweeping, litter picking and weed killing will still be required.

5.2.5. In the longer term, expected planned maintenance will include activities such as resurfacing the road and replacement of assets when they become life expired.

6 INDUCTION, TRAINING AND BRIEFING PROCEDURES FOR STAFF

6.1 INDUCTIONS

6.1.1. In order to meet the environmental commitments, set out in this Outline CEMP, all staff will be suitably trained for their roles, including their environmental responsibilities. A record of training will be maintained by the main contractor. As a minimum all site personnel will be given a site induction, regular environmental toolbox talks and RAMS briefings which will cover environmental issues related to the works or working area and the draft CEMP.

6.1.2. The items relating to environmental matters which are likely to be covered during site induction may include, but are not limited to the following:

a. The main contractor's or Scheme-specific environmental policy
b. Site environment and risks
c. Prevention and control of pollution (e.g. fuel containment; spill kits)
d. Risks of exposure to contamination associated with earthworks and excavations
e. Materials storage (defined for excavated and imported materials)
f. Waste management and storage (defined for domestic waste and construction waste)
g. Wheel washing and road sweeping
h. Nuisance minimisation (e.g. noise, dust, vibration and odour)
i. Traffic management plans (e.g. haulage routes)
j. Communication with the public
k. Reporting procedure of environmental hazards and incidents
l. Emergency Response Plans

6.2 TRAINING AND COMPETENCY

6.2.1. The training and competency of personnel will be ensured by the main contractor, who will prepare and deliver a programme of training relevant to environmental management. This may include more detailed training in the topics listed above and those relevant to the site-specific hazards. Any personnel carrying out activities with a potential for specific environmental impacts (e.g. refuelling of plant) will be provided with specific training to that task.

6.2.2. Additional requirements for training should be identified and added to throughout the construction phase. Additional requirements for training will be identified through environmental audits and feedback on non-compliance. A log of training and competency will be maintained by the main contractor.

6.3 TOOLBOX TALKS

6.3.1. The competency of personnel will be reinforced through daily 'toolbox talks' led by the main contractor. Topics for toolbox talks will include those relevant to the site-specific hazards or tasks. A log of toolbox talks provided for personnel will be maintained by the main contractor.

6.3.2. A summary of the minimum training to be provided on site is summarised in **Table 6-1**.

Table 6-1 - Proposed Site Training Schedule

Meeting/Briefing/Training	Frequency	Attendees
Safety, health and environment (SHE) Progress Meetings	Weekly / Monthly	Environment Manager TBC
Induction Training (which will include environmental aspects)	On first visit to site	All persons attending site (site personnel, sub-contractors, Applicant, visitors).
RAMS briefings	Every job task	All involved in task.
Environmental Toolbox Talks will be carried out appropriate to the construction works being carried out on site at that time.	Minimum of one per month	All persons carrying out work on site (site personnel, sub-contractors).
Environmental briefings e.g. Environmental Bulletins / Alerts, Lessons Learnt, Results of Inspections / Audits	As required.	All persons carrying out work on site (site personnel, sub-contractors).
Job specific training e.g. Institution of Occupational Safety and Health (IOSH) working with Environmental Responsibilities and Site Waste Management.	As required	As identified for personnel with environmental responsibilities.
Scheme specific information, including the CEMP.	As required	Briefed out to all staff and displayed on notice board.

ACRONYMS

Acronym	Definition
AEP	Annual Exceedance Probability
AOD	Above Ordnance Data
BMCL	Bat Mitigation Class Licence
BPM	Best Practical Means
CCS	Considerate Constructor's Scheme
CEMP	Construction and Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DfT	Department for Transport
EA	Environment Agency
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EnvIS	Environmental Information System
EMP	Ecological Management Plan
EPS	European Protected Species
ES	Environmental Statement
FRA	Flood Risk Assessment
FRAP	Flood Risk Activities Permit
GHG	Greenhouse Gas
GPP	Guidance for Pollution Prevention
HAGIS	Highways Agency Geographical Information System
HEDBA	Historic Environment Desk Based Assessment
HEMP	Handover Environmental Management Plan
HPGM	High Pressure Gas Main
HPI	Habitats of Priority Importance
IAN	Interim Advice Note
IEEM	Institute of Ecology and Environmental Management
IOSH	Institution of Occupational Safety and Health
LLFA	Lead Local Flood Authority
LWS	Local Wildlife Site

Acronym	Definition
MMP	Materials Management Plan
MSA	Minerals Safeguarding Area
NCC	Northumberland County Council
NGN	Northern Gas Networks
NPG	Northern Powergrid
PRoW	Public Right of Way
PWMS	Precautionary Working Method Statement
RAMS	Risk Assessment and Method Statement
REAC	Register of Environmental Actions and Commitments
SOAEL	Significant Observed Adverse Effect Level
SHE	Safety, health and environment
SM	Scheduled Monument
SMS	Soil Management Strategy
SoS	Secretary of State
SPHN	Statutory Plant Health Notice
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
SWMP	Site Waste Management Plan
TBC	To be confirmed
VLR	Variable lighting regimes
WFD	Water Framework Directive
WSI	Written Scheme of Investigation
UK	United Kingdom

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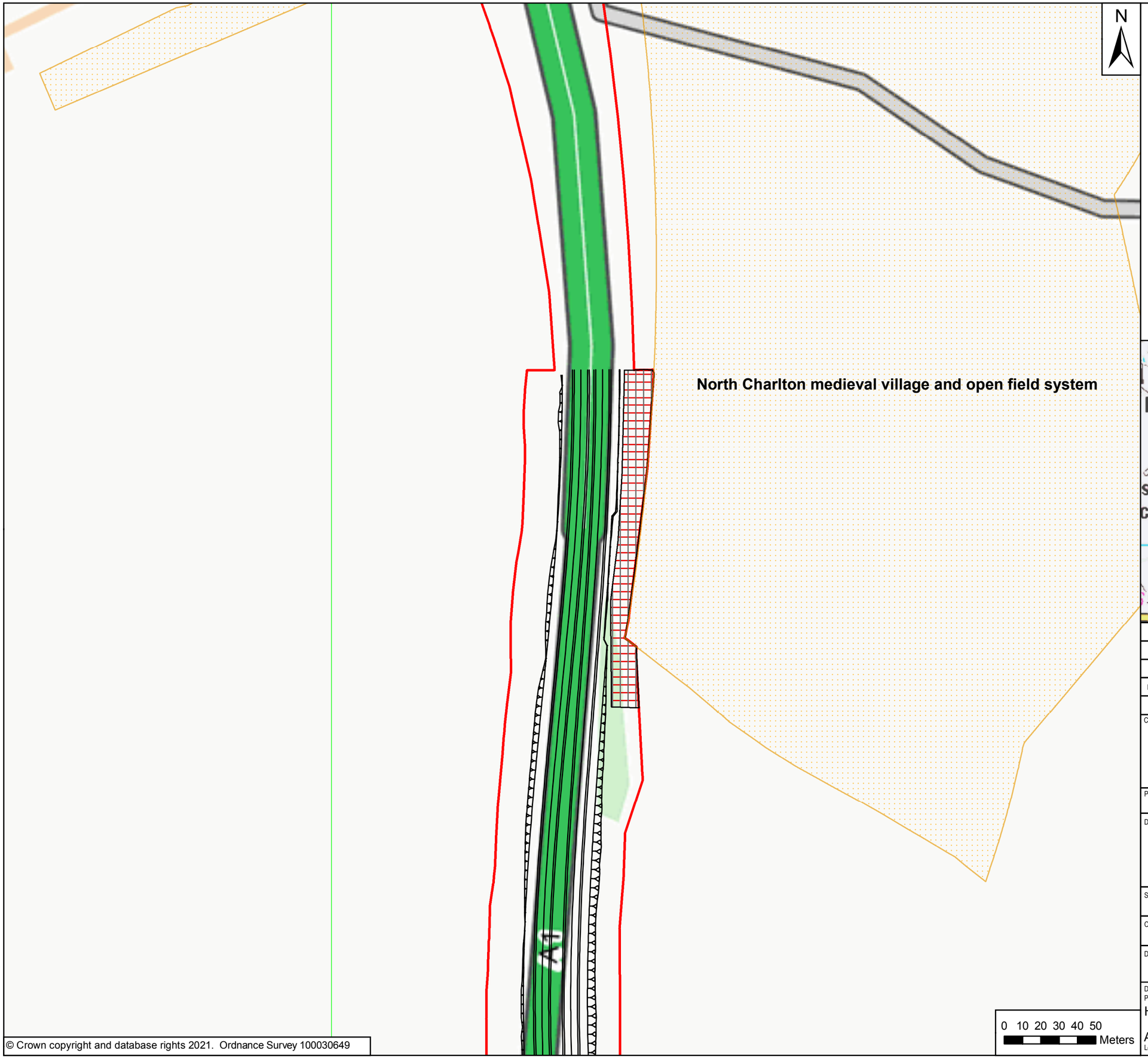
Appendix A

CONSTRUCTION WORKING AREAS AROUND NORTH CHARLTON SCHEDULED MONUMENTS

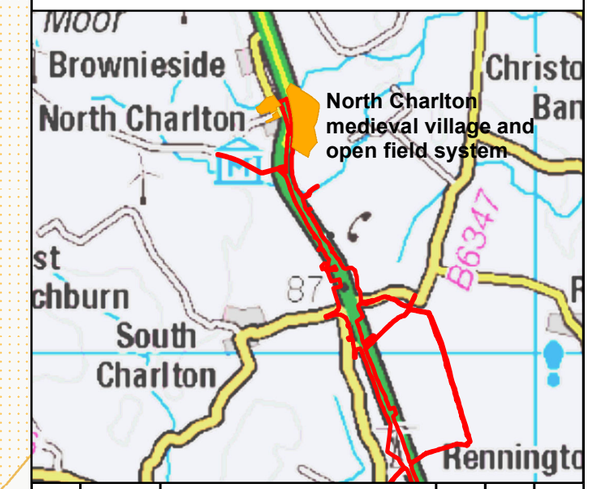
Confidential

Document Path: \\uk.wspgroup.com\central data\Projects\700380xx\70038006 - A1 in Northumberland\02 WIP\EI EIA and flood risk\02 Drawing\Archaeological Plans for CEMP Dec 2020\M2E_Template_NorthCharlton.pdf.mxd Date Saved: 06/01/2021 08:27:43 User Name: UKACG001



Key

- Order Limits
- Construction Exclusion Zone
- Scheduled Monument



Rev	Date	Description	By	Chk'd	App'd
P02	06/01/2021	Second Issue	AG	NM	KS
P01	22/12/2020	First Issue	AG	NM	KS

Client

highways england

Project Title
A1 in Northumberland: Morpeth to Ellingham

Drawing Title
Construction Working Areas Around Scheduled Monument

Scale	Drawn	Checked	Approved	Authorised
1:2,000	AG	NM	KS	DM
Original Size	**Date**	**Date**	**Date**	**Date**
A3	06/01/2021	06/01/2021	06/01/2021	06/01/2021

Drawing Status
For Information

Suitability
S1

Drawing Number
Project: HE551459 | Originator: WSP | Volume:
A2E | RP | LE | 2130
Location | Type | Role | Number

Project Ref. No.
70044137

Revision
P01

0 10 20 30 40 50 Meters

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