# 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

May 2021

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning (Examination Procedure) Rules 2010**

# The A1 in Northumberland: Morpeth to Ellingham

Development Consent Order 20[xx]

## Updated Outline Construction Environmental Management Plan (Tracked)

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|---|---|
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# CONTENTS



## *TABLES*

# *APPENDICES*

# 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**) as well as **Chapter 2** of **Environmental Statement Addendum: Earthworks Amendments** [**REP4-061**], **Environmental Statement Addendum: Stabilisation Works** [**REP4-063**] and **Environmental Statement Addendum: Southern Access Works** [**REP4-064**] (ES Addenda).

1.1.2. An Environmental Impact Assessment (EIA) has been undertaken for the Scheme and the ES and ES Addenda have 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 and ES Addenda contain 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 and ES Addenda.
**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 the Register of Environmental Actions and Commitments, in **Tables 3-1, 3-2 and 3-3** of 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**). Measures within the Register of Environmental Actions and Commitments, in **Tables 3-4, 3-5 and 3-6** of this Outline CEMP include proposed construction and operational mitigation measures that have been designed in part by the requirements arising from the technical assessments for the Scheme presented within the ES Addenda. **Table 4-1** details the consents and permissions potentially required for the construction works. **Table 5-1** outlines construction monitoring requirements.

1.1.5. The technical assessments within the ES and ES Addenda 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 **Landscape Mitigation Masterplan Part A** and **Landscape Mitigation Plan Part B.**

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

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. The CEMP will be approved by the Secretary of State following consultation with Northumberland County Council and the Environment Agency, to the extent that it relates to matters relevant to its function.

1.1.9. 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**).

1.1.10. If, during detailed design, a Landscape and Ecological Management Plan (LEMP) is produced, **Diagram 1-1** below illustrates how it would align with the CEMP and HEMP. **Diagram 1-2** shows the numerous other documents that might influence the LEMP.

Diagram 1-1 Potential relationship between the Outline CEMP, LEMP (if produced), CEMP and HEMP

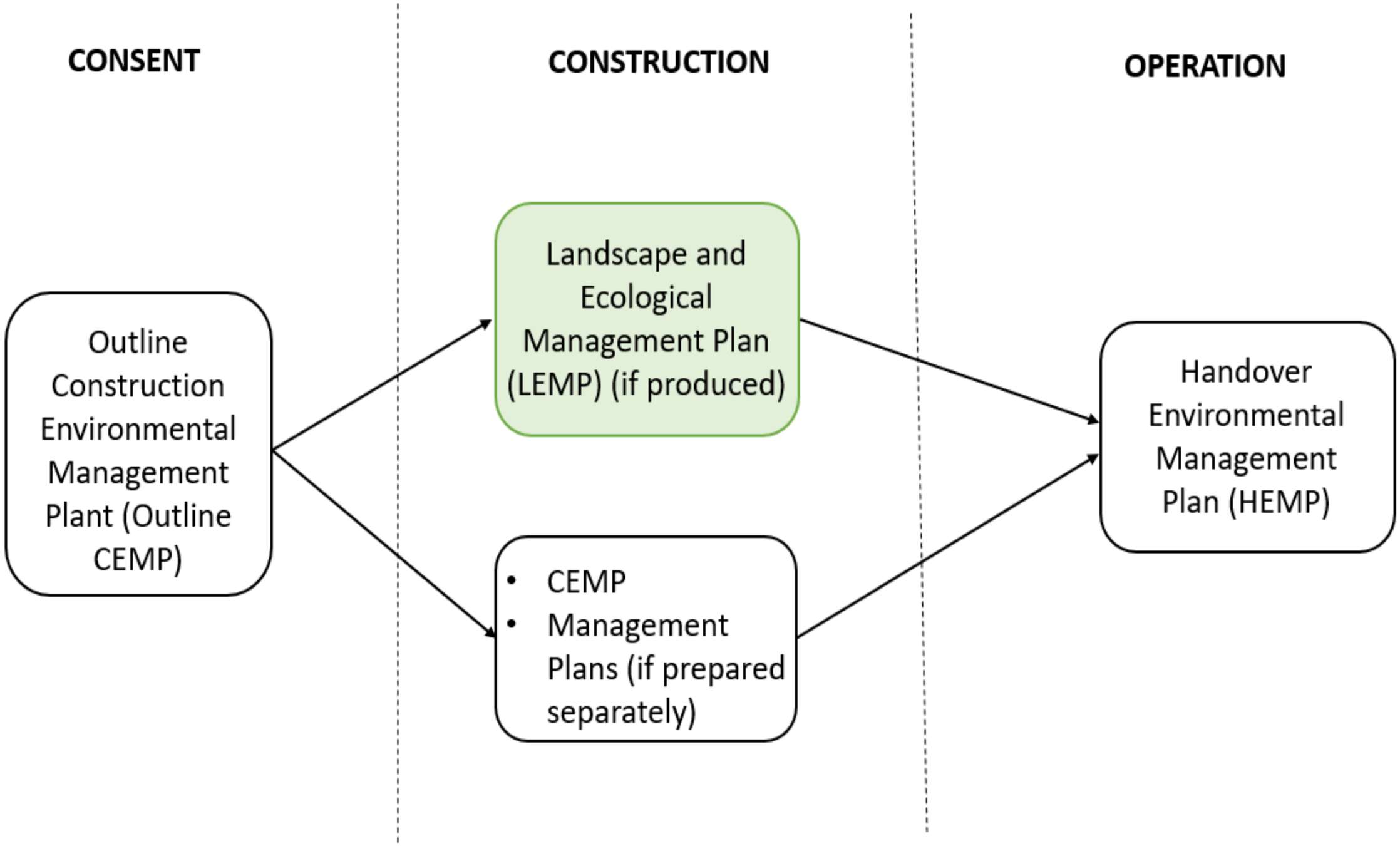
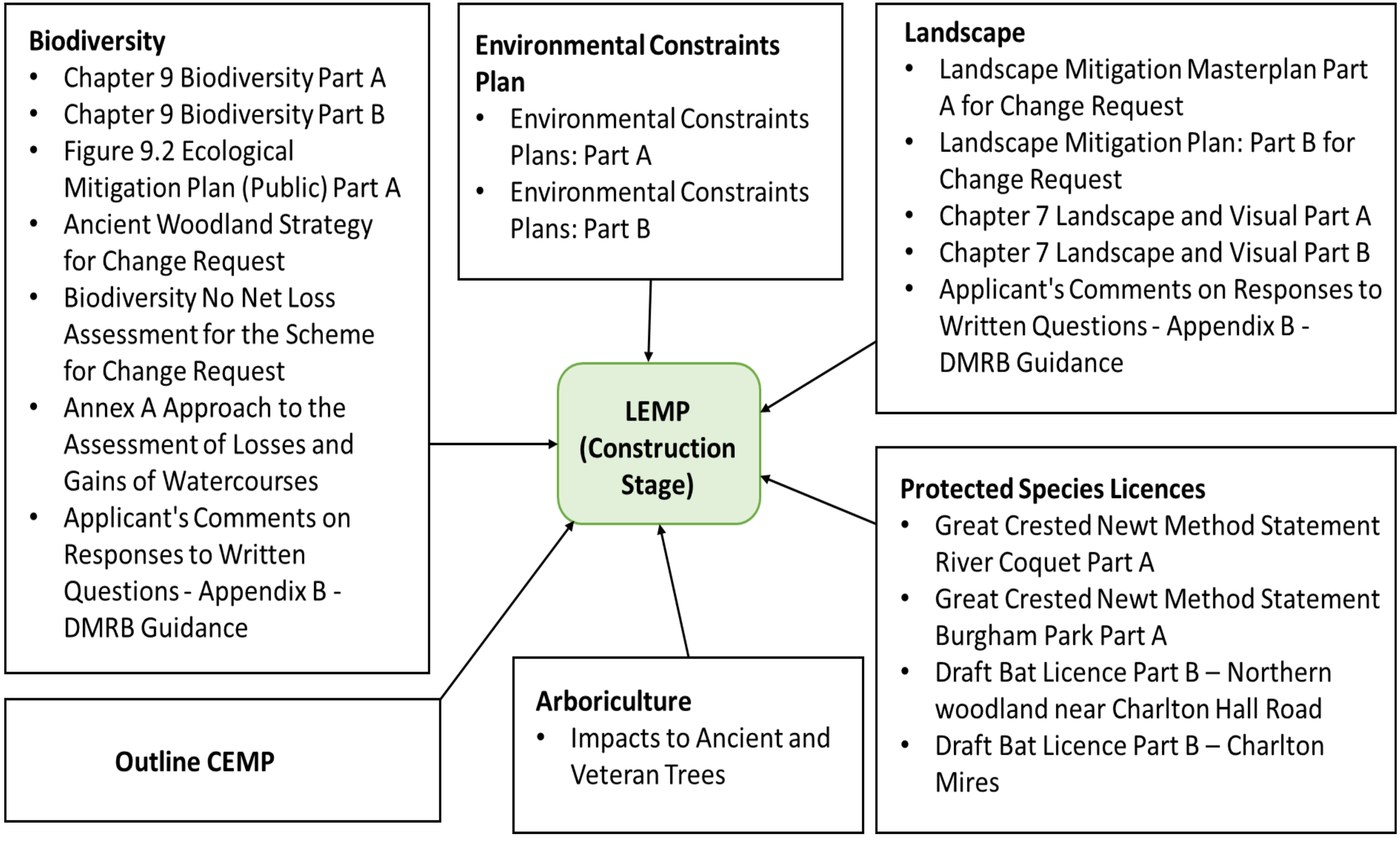


Diagram 1-2 Documents that might influence the LEMP (if produced)



### UPDATED DMRB GUIDANCE

1.1.11. 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 was undertaken in April / May 2020 by the Applicant either to demonstrate that the assessments reported in the ES were 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**), and within each **Technical Chapter** of the ES Addenda.

## 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**.

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**) and **Chapter 2** of the ES Addenda.

### 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**). 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**) and **Chapter 2** of the ES Addenda.

### 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**.

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)** 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**) and **Chapter 2** of the ES Addenda.

**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 1.2.18(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** 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.<br>**b.** Agree the content of the CEMP in consultation with the Local Authority and seek approval by the Secretary of State.<br>**c.** Primary responsibility for all matters under the DCO, its requirements and the CEMP.<br>**d.** Agree the content of the LEMP (if produced) in consultation with the Local Authority and seeking approval from the Secretary of State. |
| Environmental Consultant (designer) | **a.** Carry out EIA to identify potential environmental impacts, mitigation measures and significant effects.<br>**b.** Produce the CEMP.<br>**c.** Provide information to the design team to ensure Scheme design meets environmental requirements.<br>**d.** Development of topic specific management plans where necessary. |
| Scheme Archaeologist (designer) | **a.** Work with the Environmental Manager to produce detailed archaeology and cultural heritage measures within the CEMP .<br>**b.** Produce a suitable mitigation strategy for unknown archaeological remains and agree it with the County Archaeologist.<br>**c.** Oversee archaeological investigation works for the Scheme.<br>**d.** Work with the Environmental Manager to review, update and maintain elements within the CEMP relating to archaeology and cultural heritage throughout the works.<br>**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 Part A** and **Landscape Mitigation Plan Part B** on site.<br>**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.<br>**c.** Verifies the issue of Design Certificates related to landscape works.<br>**d.** Monitors and assesses the development of the Scheme in its landscape context throughout the contract maintenance period |

| Role | Key Environmental Responsibilities |
|---|---|
| | and provides inputs to the CEMP / LEMP and HEMP (if produced). |
| 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.<br>b. The SEE will work with the Environmental Consultant to produce the LEMP (if produced) before construction. |
| Project Manager/Contract Manager (main contractor) | a. Overall responsibility for ensuring all elements in the DCO, CEMP, LEMP (if produced) and all environmental legal and other requirements are implemented on site.<br>b. Main contractor internal review of the CEMP.<br>c. Ensure resources are made available to carry out environmental responsibilities on site.<br>d. Notifying the Applicant of any environmental incidents.<br>e. Ensure Risk Assessments and Method Statements (RAMS) incorporate environmental aspects and risks.<br>f. Ensure instructions from the Applicant are implemented.<br>g. Ensure a single point of contact for external parties is identified and communicated.<br>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.<br>b. Developing and reviewing the CEMP and LEMP (if produced) on a regular basis.<br>c. Ensure all environmental mitigation and monitoring measures identified in the CEMP and associated RAMS are implemented.<br>d. Carry out regular environmental site inspections and audits and report non-compliance to the Project/Contract Manager.<br>e. Establish and oversee environmental monitoring onsite.<br>f. Liaise with relevant environmental bodies and other third parties as appropriate.<br>g. Prepare, or ensure the preparation of, environmental permits, licences and consents and ensuring all associated conditions required are implemented.<br>h. Ensure site personnel are provided with a site environmental induction and appropriate training, briefings and toolbox talks are undertaken, and records kept.<br>i. Provide environmental advice and guidance to the team.<br>j. Carry out environmental incident investigations and review near miss and best practice reports. |

| Role | Key Environmental Responsibilities |
|---|---|
| | **k.** Engage other environmental specialists, including, (but not limited to, those detailed below as required). |
| Hydromorphologist (main contractor) | **a.** A hydromorphologist will be consulted to ensure that the impacts of new / replacement / removal of culverts, screens and outfalls are suitably considered in accordance with the Culvert Mitigation Strategy [**REP5-022**]. |
| Named Ecologist (main contractor) | **a.** Suitably experienced ecologist to be the named ecologist on the Natural England European Protected Species (EPS) licence(s).<br>**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.** Monitor compliance with environmental legislation and policy.<br>**b.** Responsible for monitoring the implementation of all ecological mitigation measures on site.<br>**c.** Monitor the implementation of the requirements of ecological licences e.g. protected species licences.<br>**d.** Undertake a watching brief during vegetation clearance.<br>**e.** Input into the CEMP and LEMP (if produced) as required.<br>**f.** Prepare and carry out ecological briefings and toolbox talks on site.<br>**g.** Prepare specific ecological method statements and ecological permits as required.<br>**h.** Provide ecological advice and support to the site team.<br>**i.** Attend site when unexpected ecological habitats or species are identified.<br>**j.** Responsible for movement of EPS if found. The ECoW will need to be licensed to undertake these works.<br>**k.** For works identified in the Register of Environmental Actions and Commitments (REAC) in the environment, the ECoW will need to be suitably experienced.<br>**l.** As required or requested, the ECoW will prepare compliance reports for the Applicant and stakeholders, and advisory reports for site managers / staff. |
| Archaeologist (main contractor) | **a.** Ensure all mitigation agreed with NCC are discharged on site and documented.<br>**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 | **a.** Ensure all environmental requirements of the CEMP are adhered to on site. |

| Role | Key Environmental Responsibilities |
|---|---|
| including subcontractors | **b.** Attend site induction, regular environmental training and toolbox talks and ensure learning points are implemented on site.<br>**c.** Carry out the works in accordance with environmental risk assessments and method statements.<br>**d.** Report anything that deviates from agreed processes.<br>**e.** Report environmental near misses, incidents and best practices.<br>**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:<br>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. **Table 3-4, Table 3-5** and **Table 3-6** identify the commitments to address the potential environmental effects of the Scheme that are included within the ES Addenda.

3.1.2. The REAC is split into six 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 and **Table 3-3** covers measures applicable only to Part B. **Table 3-4**, **Table 3-5** and **Table 3-6** set out the additional measures which apply to the Scheme as a whole as a result of the ES Addenda.

3.1.3. Where a measure appears in **Table 3-1**, it is not repeated in **Table 3-2** or **Table 3-3**. Where a measure appears in **Table 3-1**, **Table 3-2** or **Table 3-3**, it is not repeated within **Table 3-4**, **Table 3-5** and **Table 3-6** as these are additional measures. 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-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 | 21-24 |
| ExA: S-L100 and S-L101 (added to respond to comments raised during Examination) | | | 24-26 |
| S-CH1 | | Cultural Heritage | 26 |
| S-B1 to S-B3 and SB-20 | | Biodiversity | 27-28 |
| S-W1 to S-W7 | | Road Drainage and the Water Environment | 29-33 |
| ExA: S-W100 and W101 (added to respond to comments raised during Examination) | | | 33 |
| S-GS1 to S-GS4 | | Geology and Soils | 33-35 |

| REAC Reference | Stage of the Scheme | Environmental Topic | Page |
|---|---|---|---|
| S-PH1 to S-PH4 | | Population and Human Health | 35-36 |
| S-M1 to S-M5 | | Materials Resources | 36-38 |
| S-CC1 to S-CC6 | | Climate Change | 38-42 |
| S-G1 to S-G10 | Pre-construction / Construction | General | 42-46 |
| S-A1 to S-A4 | | Air Quality | 46-48 |
| S-N1 to S-N5 | | Noise and Vibration | 48-53 |
| S-L5 to S-L10 | | Landscape and Visual | 53-58 |
| S-CH2 to S-CH6 | | Cultural Heritage | 58-61 |
| S-B4 to S-B17 | | Biodiversity | 61-6869 |
| S-W8 to S-W15 | | Road Drainage and the Water Environment | 69-7569-75 |
| S-GS5 to S-GS14 | | Geology and Soils | 75-8275-81 |
| S-PH5 to S-PH11 | | Population and Human Health | 82-8481-84 |
| S-M6 to S-M10 | | Material Resources | 85-8784-86 |
| S-CC7 to S-CC13 | | Climate Change | 87-9086-89 |
| S-N6 | Operation and Monitoring | Noise and Vibration | 90-9189-90 |
| S-L11 to S-L13 | | Landscape and Visual | 91-9390-92 |
| S-CH7 | | Cultural Heritage | 9392 |
| S-B18 to S-B19 | | Biodiversity | 93-9593-94 |
| ExA: S-W102 (added to respond to comments raised during Examination) | | Road Drainage and the Water Environment | 9594 |
| S-GS15 to S-GS17 | | Geology and Soils | 95-9694-95 |
| S-PH12 to S-PH13 | | Population and Human Health | 96-9795-96 |
| S-CC14 | | Climate Change | 97-9896-97 |

**Table 3-2 Part A**

| REAC Reference | Stage of the Scheme | Environmental Topic | Page |
|---|---|---|---|
| A-N1 to A-N6 | Design | Noise and Vibration | 100-10199~~-100~~ |
| A-L1 to A-L6 | | Landscape and Visual | 102-106~~101-105~~ |
| A-CH1 | | Cultural Heritage | 106~~105~~ |
| A-B1 to A-B16 | | Biodiversity | 106-112~~105-111~~ |
| A-W1 to A-W14 | | Road Drainage and the Water Environment | 113-119~~112-117~~ |
| A-GS1 | | Geology and Soils | 119~~117~~ |
| A-PH1 | | Population and Human Health | 119-120~~117-118~~ |
| A-M1 | | Material Resources | 120~~118-119~~ |
| A-CC1 to A-CC4 | | Climate Change | 121-122~~119-120~~ |
| A-L7 to A-L8 | Pre-construction / Construction | Landscape and Visual | 122-123~~120-121~~ |
| A-CH2 | | Cultural Heritage | 123-124~~121-122~~ |
| A-B17 to A-B44 | | Biodiversity | 124-140~~122-138~~ |
| A-W15 to A-W17 | | Road Drainage and the Water Environment | 140-142~~138-140~~ |
| A-GS2 | | Geology and Soils | 142~~141~~ |
| A-PH2 to A-PH3 | | Population and Human Health | 142-144~~141-142~~ |
| A-M2 | | Material Resources | 144~~142~~ |

| REAC Reference | Stage of the Scheme | Environmental Topic | Page |
|---|---|---|---|
| **Table 3-6 Environmental Statement Addendum – Southern Access Works for Change Request** | | | |
| SAW-G1 | Construction Operation | General | 190~~186~~ |
| SAW-B1 to SAW-B9 | Design Construction Operation | Biodiversity | 190-193~~186-189~~ |
| SAW-W1 to SAW-W6 | Design Pre-Construction Construction | Road Drainage and the Water Environment | 193-196~~189-192~~ |
| SAW-M1 | Construction | Materials and Waste | 196-197~~192~~ |
| SAW-CC1 | Construction | Materials and Waste | 197~~192~~ |

3.1.4. Each commitment contains a cross-reference to the relevant ES Chapter or ES Addenda Chapter (and paragraph number) from which it derives. Within **Chapter 9: Biodiversity Part A [APP-048]** and **Part B [APP-049]**, and also **Chapter 8: Biodiversity** of **Environmental Statement Addendum: Stabilisation Works** [**REP4-063**] and **Chapter 7: Biodiversity** of **Environmental Statement Addendum: Southern Access Works** [**REP4-064**], 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).

3.1.5. 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.

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

3.1.7. 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.

3.1.8. In relation to **Table 3-1**, **Table 3-2**, **Table 3-3, Table 3-4, Table 3-5** and **Table 3-6** 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).

3.1.9. 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 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<br>**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.4<br>**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4 | Designer<br>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**)<br>As built drawings<br>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:<br>**a.** Existing vegetation within the Order Limits will be retained, in order to reduce potential impacts relating to screening and landscape integration. Where appropriate, components of the Scheme that are suitable for such treatment, will be micro-sited within the Order limits to avoid unnecessary removal of vegetation. Where replacement planting is carried out it will be in keeping with the existing landscape.<br>**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** | To minimise impacts on existing vegetation.<br>To reduce operational impacts through landscape planting.<br>To enhance value for wildlife.<br>To reinstate habitat features.<br>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<br>**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.4 and 7.9.7<br>**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4 | Designer<br>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**)<br>As Built drawings<br>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) |
|---|---|---|---|---|---|---|---|
| | **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: 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).<br>**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.<br>**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.<br>**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, | and displacement.<br>To encourage use of structures by wildlife.<br>To improve the biodiversity of the Scheme.<br>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) |
|---|---|---|---|---|---|---|---|
| | replacement hedgerow planting will be required, with species rich mix to match the existing hedgerow lost. | | | | | | |
| S-L3 | In order to improve the biodiversity of the Scheme, the landscape design includes the following measures:<br>**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.<br>**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**)).<br>**c.** Within the areas of Species Rich (conservation) grassland (LE1.3) mitigation, four distinct grass types will be required. These are:<br>i. Junctions/grass verge – suitable for low frequency grass cut areas.<br>ii. General grassed areas – suitable for cutting slopes and embankments.<br>iii. Arable field margins – suitable for the encouragement of pollinators.<br>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<br>**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.8, 7.8.9, and 7.9.11 | Designer<br>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**)<br>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) |
|---|---|---|---|---|---|---|---|
| S-L4 | Plant stock will be planted using a combination of whips, transplants, feathered and standard tree nursey stock.<br>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. | To better integrate the replacement plant stock with that of the existing trees at Coronation Avenue. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.14<br>**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.13 | Main contractor | Landscape design discharged as required by the DCO<br>Landscape Inspection Records<br>As Built drawings<br>Landscape Design Certificate | Design | |
| ExA: S-L100 | Where a ~~The Applicant will prepare a~~ Landscape and Ecological Management Plan (LEMP) would be produced pursuant to Requirement 17 of Schedule 2 of the DCO for each of Part A and Part B, prior to construction commencing on that Part, ~~and~~it will follow Highways England (LA 120 Environmental Management Plan) guidance and Applicants Comments on Reponses to Written Questions Appendix B – DMRB Guidance (Vol 10 Section 0 Part 2 and 3) [**REP2-022**], and will include as a minimum:<br>**a.** Overview and site context;<br>**b.** Aims and objectives of the Management Plan;<br>**c.** Scope of the Management Plan;<br>**d.** Sources of information;<br>**e.** Management Prescriptions;<br>**f.** Implementation (scheduled); and<br>**g.** Supporting figures.<br><br>Documents to support the production of the LEMP (if produced) will include, as a minimum:<br>**a.** This Outline CEMP Rev 4 [**REP5-012 and 013**] (submitted at Deadline 6);<br>**b.** **Environmental Constraints Plans: Part A** [**APP-066**]<br>**c.** **Environmental Constraints Plans: Part B** [**APP-067**]<br>**d.** **Figure 7.8: Landscape Mitigation Masterplan Part A** of the ES [**APP-095**] (latest version submitted at Deadline 3);<br>**e.** **Figure 7.10: Landscape Mitigation Plan Part B** of the ES [**APP-144**] or **Figure 7.14**: | To ensure delivery of landscape and ecological requirements. | **Statement of Common Ground [REP1-028]** | Main contractor | Landscape design discharged as required by the DCO<br>Landscape Inspection Records<br>Landscape Design Certificate<br>LEMP (if produced) ~~production~~ | Design<br>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) |
|---|---|---|---|---|---|---|---|
| | **Landscape Mitigation Plan including Assessment Parameter 3 Part B** of the ES **[APP-148]**, whichever is appropriate;<br>f. **Appendix 9.21: Ancient Woodland Strategy Part A** of the ES [**APP-247**];<br>g. **Chapter 7 Landscape and Visual Part A [APP-044];**<br>h. **Chapter 7 Landscape and Visual Part B [APP-045];**<br>i. **Chapter 9 Biodiversity Part A [APP-048];**<br>j. **Chapter 9 Biodiversity Part B [APP-049];**<br>k. **Figure 9.2: Ecological Mitigation Plan (Public) Part A** of the ES [**APP-107**];<br>l. **Biodiversity No Net Loss Assessment for the Scheme for Change Request [REP5-038];**<br>m. **Annex A Approach to the Assessment of Losses and Gains of Watercourses [REP2-010];**<br>n. **Applicant's Comments on Responses to Written Questions - Appendix B - DMRB Guidance [REP2-022];**<br>o. **Applicant's Written summaries of oral submissions to Hearings - Appendix A - Impacts to Ancient and Veteran Trees**; and<br>p. Protected species draft licences:<br>i. **Appendix 9.24 Great Crested Newt Method Statement River Coquet Part A [APP-250]**<br>ii. **Appendix 9.25 Great Crested Newt Method Statement Burgham Park Part A [APP-251]**<br>iii. **Draft Bat Licence Part B – Northern woodland near Charlton Hall Road**<br>iv. **Draft Bat Licence Part B – Charlton Mires** | | | | | | |
| ExA: S-L101 | Where potential veteran trees are identified within **Appendix 7.5 Arboricultural Report** [**APP-220**], further detailed assessment shall be undertaken to determine the Root Protection Area. The detailed design will be developed to take into account potential removal of these trees or impacts on their root zone, and all reasonable efforts shall be made | To retain where feasible existing potential veteran trees or to provide mitigation and compensatory | **Appendix 7.5 Arboricultural Report Part A** [**APP-220**] | ECoW (main contractor)<br>Scheme Ecologist (main contractor) | LEMP (during construction and if produced)<br>HEMP (following construction) | Design<br>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) |
|---|---|---|---|---|---|---|---|
| | to preserve the trees in place. Trees shall be protected in accordance with BS 5837 (2012) Trees in relation to design, demolition and construction. Where potential veteran trees cannot be retained and protected through the detailed design phase, and require removal, mitigation measures to preserve the remnants of the tree shall be developed as outlined in Impacts to Ancient / Veteran Trees Technical Note (as submitted at Deadline 6).<br>Where a potential veteran tree cannot be retained and protected, and requires removal, a replacement tree strategy will be developed to compensate for the tree loss on a 12:1 ratio of small feathered stock; this reflects the approach taken in relation to ancient woodland and which is agreed with Natural England. The replacement trees are to be located within the vicinity of the removed tree and locations will be identified at detailed design phase. | planting where they are to be removed. | | | | | |
| **Cultural Heritage** | | | | | | | |
| S-CH1 | Impacts on built heritage assets during operation will be minimised through the use of visual screening (such as landscape planting).<br>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.<br>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**)). | To reduce the visual impact of the Scheme on built heritage | **Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.9.9<br>**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.12 | Main contractor<br>Archaeologist (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) |
|---|---|---|---|---|---|---|---|
| **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<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BI05<br>**Appendix 9.6: Breeding and Wintering Birds Report, Volume 8** of the ES, Table 7-1 | Designer<br>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**)<br>Scheme design drawings<br>Landscape Design Certificate<br>Landscape planting strategy discharged as required by the DCO<br>LEMP (if produced)<br>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 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.<br>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. | To compensate for the loss of terrestrial invertebrate habitat.<br>To provide larval and adult food plants for a range of invertebrate species, including species of conservation importance recorded during the baseline surveys. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM042<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Paragraph 9.9.6 and Table 9-12, HAB02 | 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**)<br>Scheme design drawings<br>Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO**<br>Landscape Design Certificate<br>Landscape design discharged as required. DC Environmental Inspection Records<br>LEMP (if produced)<br>HEMP | Design | |
| 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 | To improve the wildlife value of detention basins. | **Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4 | Main contractor<br>ECoW (main contractor) | Scheme design drawings<br>Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule | 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) |
|---|---|---|---|---|---|---|---|
| | 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.<br><br>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.<br><br>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.<br><br>For more information 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**)). | | and Table 9-23, EM043<br><br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC14<br><br>**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.30<br><br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.25 | | 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)<br><br>LEMP (if produced) | | |
| 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**], **paragraph9.9.9** 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<br><br>**Chapter 9: Biodiversity Part A, Volume 3** of the ES, Paragraph 9.9.9 | The Applicant | Scheme design drawings<br><br>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**)<br><br>LEMP (if produced)<br><br>Ancient Woodland Strategy | 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) |
|---|---|---|---|---|---|---|---|
| **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):<br>**a.** Limiting the clearance of vegetation on the channel banks and riparian zone.<br>**b.** The use of seeded biodegradable fibre matting to encourage re-vegetation after works on, or near, the banks, and consideration of the use of green (soft) and hybrid engineering solutions as alternatives to hard solutions for erosion control, scour management, and wing walls. 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.<br>**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.<br>**d.** A temporary surface water drainage strategy will be in place for the duration of the construction works within each catchment. This strategy will be prepared by the Main contractor at the start of construction. This would include, where appropriate, the following aspects:<br>i. Appropriately sized attenuation ponds to accommodate the surface water runoff from the construction area.<br>ii. Sediment traps.<br>iii. Settlement ponds.<br>iv. Treatment systems / chemical dosing. | 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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.12<br>**Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.9<br>**Appendix 10.2: Water Framework Directive, Volume 7** of the ES, Paragraph 15.1.23<br>**Appendix 10.2: Water Framework Directive, Volume 8** of the ES, Paragraph 10.1.13 | Designer<br>Main contractor<br>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**)<br>Signed toolbox talk records | Design | |
| S-W2 | Bridge Foundations (Piles)<br>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 | To manage risks to groundwater | **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the | Designer<br>Main contractor | CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft** | Design | |

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| | 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.<br>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. | | ES, Paragraph 10.10.52 and 10.10.53<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.10.43 and 10.10.44 | | **DCO** (**Application Document Reference: TR010041/APP/3.1**) | | |
| S-W3 | Culverts<br>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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.10.42 | Designer<br>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<br>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 ES, Paragraph 10.10.50<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.10.41 | Designer<br>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 | |

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| 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.<br>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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.18<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 1.2.2<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Paragraph 1.2.3 | Designer | As built drawings | Design | |
| S-W6 | All culverts for Part A and the proposed culvert (reference 25.1) along the southern tributary for Kittycarter Burn for Part B will tie into the existing channel and a gravel bed will be created throughout the length of the new culverts.<br>The depth of the gravel bed will be as a minimum as detailed within the Culvert Mitigation Strategy [**REP5-022**] and within measures A-W2 to A-W13 and B-W1 of this Outline CEMP. However, the culvert design will be re-evaluated at the detailed design stage against the updated CIRIA guidelines with additional bed depths included where feasible.<br>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 | To improve culvert design in line with hydrological considerations.<br>To manage risks to the water environment.<br>To provide potential wildlife habitat. | **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.29 and 10.10.29<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph | Main contractor<br>Environment consultant (Hydromorphologist) | As built drawings<br>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 | |

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|---|---|---|---|---|---|---|---|
| | 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.<br>A hydromorphologist (as per **Table 2-1**) will be consulted to ensure that the impacts of new / replacement / removal of culverts, screens and outfalls are suitably considered in accordance with the Culvert Mitigation Strategy [**REP5-022**]. | | 10.9.24 and 10.10.23<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.2.2<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Table 10-3 and Paragraph 10.2.3 | | | | |
| 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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.9<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.1.22<br>**Appendix 10.2: Water Framework Directive Assessment,** | Main contractor<br>Environmental Manager (main contractor) | As built drawings<br>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 | |

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|---|---|---|---|---|---|---|---|
| | | | **Volume 8** of the ES, Paragraph 10.1.12 | | | | |
| ExA: S-W100 | Riparian planting to compensate for the loss of channels will be undertaken with a mix of native tree species with an understorey along a range of channels as detailed within the Culvert Mitigation Strategy [**REP5-022**]. | To compensate for the loss of channels | **Culvert Mitigation Strategy** [**REP5-022**] | Main contractor<br>Environmental Manager (main contractor) | As built drawings<br>CEMP approved by the Secretary of State following consultation with EA as per Requirement 4, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**) | Design | |
| ExA: S-W101 | Watercourse mitigation and compensation for the loss of channel associated with the widening of the culverts will be implemented as set out the **Culvert Mitigation Strategy [REP5-022]** including fish baffles, realigned watercourses, riparian planting and improvements to the Longdike Burn. | To compensate for the loss of channels | **Culvert Mitigation Strategy [REP5-022]** | Main contractor<br>Environmental manager (main contractor) | As built drawings.<br>CEMP approved by the Secretary of State following consultation with EA as per Requirement 4, Schedule 2 of the **draft DCO [REP6-010 and 011]** | Design | |
| 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<br>**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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.2 | Main contractor | Geotechnical design report | Design | |

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|---|---|---|---|---|---|---|---|
| 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 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.<br>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**)).<br>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**)). | 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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.4 and 11.9.5 | Environmental Consultant (designer) | As built drawings | Design | |
| S-GS4 | The following measures will be implemented:<br>**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.<br>**b.** Sediment and pollutants will settle to the bottom of the detention basins to limit entry to surrounding controlled water bodies. | To prevent pollution of controlled water bodies. | **Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.15<br>**Chapter 11: Geology and Soils, Volume 2** of the | Main contractor<br>Environmental Consultant (designer) | Scheme design drawings | Design | |

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|---|---|---|---|---|---|---|---|
| | **c.** Surface water run-off rates will be restricted to the existing greenfield run-off values for an equivalent storm event. | | ES, Paragraph 11.9.16<br>**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.24 | | | | |
| **Population and Human Health** | | | | | | | |
| S-PH1 | The following measures will be implemented:<br>**a.** The Scheme will either retain an existing standard or improve access arrangements to both residential and commercial properties and community facilities.<br>**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<br>**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.4 and 12.9.8 | Designer | As built drawings<br>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<br>**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.5 | Designer | As built drawings<br>PRoW Management Plan | Design | |
| S-PH3 | Appropriate signage for the Scheme will be implemented to avoid creating route uncertainty. | To reduce driver stress. | **Chapter 12: Population and** | Designer | As built drawings | Design | |

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| | The provision of grade separated crossings will reduce the fear of accidents for road users during operation.<br>A Signage Strategy will be prepared. The Applicant will consult NCC in devising its signing strategy. This will feed into the Scheme sign design. | | **Human Health, Volume 2** of the ES, Paragraph 12.9.2-12.9.3<br>**Chapter 12: Population and Human Health, Volume 3** of the 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<br>**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:<br>**a.** Simplifying layout and form and using standard sizes.<br>**b.** Balancing cut and fill.<br>**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.<br>**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<br>**Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.2 | Designer<br>Main contractor | Scheme design drawings<br>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 | |

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|---|---|---|---|---|---|---|---|
| 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.<br>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.<br>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) | 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<br>**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**)<br>Scheme design drawings | Design | |
| S-M3 | As far as possible, material resources from demolition will be re-used in the construction of the new road.<br>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**)).<br>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 | To avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste.<br>To promote the reuse of materials. | **Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.9.3<br>**Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.3 | Main contractor<br>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**)<br>Materials Management Plan | Design | |

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| | 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. | | | | | | |
| 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<br>**Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.2 | Project Manager<br>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**)<br>Materials Management Plan | Design | |
| S-M5 | The Scheme will be designed to be more easily adapted over an asset lifetime.<br><br>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.<br><br>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<br>**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**)<br>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: | To reduce the impact of the Scheme on climate change by reducing the | **Chapter 14: Climate, Volume 2** of the ES, Paragraph 14.9.4 | Main contractor<br>Environmental Consultant (Designer) | The CEMP approved by the SoS following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO** | Design | |

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|---|---|---|---|---|---|---|---|
| | **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**).<br>**b.** The selection of structural elements (each bridge and culvert) has been completed using a matrix examination of the various potential structural forms. Sustainability considerations are one of the main areas through which the options were assessed.<br>**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<br>**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.<br>**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.<br>**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.<br>**g.** The main contractor will select and engage with material suppliers taking into account their policies and commitments to reduction of | GHG emissions associated with its design. | **Chapter 14: Climate, Volume 3** of the ES, Paragraph 14.9.4 | | (**Application Document Reference: TR010041/APP/3.1**)<br>Detailed design drawings<br>As built drawings | | |

| 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) |
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| | greenhouse gas emissions, including embodied emission in materials.<br>**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. | | | | | | |
| S-CC2 | The following design measures have been adopted within the design of the road surfacing:<br>**a.** Re-use of materials to minimise resource consumption, waste disposal and emissions resulting from material haulage.<br>**b.** Whole-lifecycle design, including that which maximises the residual life of existing surfacing components.<br>**c.** Recycling of end-of-life materials<br>**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<br>**Chapter 14: Climate, Volume 3** of the ES, Paragraph 14.9.3 | Designer | Detailed design drawings<br>As built drawings | Design | |
| S-CC3 | Structures<br>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.<br>**Drainage**<br>**a.** The drainage design includes Sustainable Urban Drainage System (SuDS) to limit the effect of the new works by attenuating the runoff during operation.<br>**b.** An allowance will be made for increased intensity of rainfall. An increase of 20% will be used in line with DMRB.<br>**Flood Risk**<br>**a.** The culvert design includes for 300 – 600 mm freeboard allowance. | To reduce the Scheme's vulnerability to extreme rainfall events. | **Chapter 14: Climate, Volume 2** of the ES, Table 14-16<br>**Chapter 14: Climate, Volume 3** of the ES, Table 14-16 | Main contractor<br>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**)<br>Detailed design drawings<br>As built drawings | Design | |

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| | **Buildability**<br>**a.** Where landscape planting is included on embankments this will improve stability during operation.<br>**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.<br>**c.** Drainage will be designed such that maintenance (during operation) is more accessible and easier to undertake.<br>**d.** Drainage will be designed for minimal maintenance during operation.<br>**e.** Self-cleansing drainage systems will be provided to remove silting.<br>**f.** Agree higher discharge levels the Environment Agency to remove excess stored water from drainage system quicker during operation.<br>**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:<br>**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.<br>**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<br>**Chapter 14: Climate, Volume 3** of the ES, Table 14-16 | Designer | Detailed design drawings<br>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<br>**Chapter 14: Climate, Volume 3** | Designer | Detailed design drawings<br>As built drawings | Design | |

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| | | | of the ES, Table 14-16 | | | | |
| 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<br>**Chapter 14: Climate, Volume 3** of the ES, Table 14-16 | Designer | Detailed design drawings<br>As built drawings | Design | |
| **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.<br>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:<br>**a.** Every six months.<br>**b.** To incorporate changes to legislation, policy or other requirements.<br>**c.** To incorporate the outcomes of environmental audits and inspections.<br>**d.** Following the outcome of environmental incident investigation on site.<br>**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 | 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 | |

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| | | community relations. | | | Site registration<br>CCS Monitor Report and Score | | |
| 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 nighttime works) and the duration of the construction works, for example, by newsletters, letter drops and liaison with NCC.<br>A Communication Plan (that includes community engagement) will be developed before work commences on site. | To promote positive community engagement and ensure members of the public are kept up to date on the works. | 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**)<br>Communications Plan | Pre-construction<br>Construction | |
| 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:<br>**a.** Night-time closures for bridge demolition and installation;<br>**b.** Any oversize deliveries or deliveries where daytime working would be excessively disruptive to normal traffic operation;<br>**c.** Junction tie-in works;<br>**d.** Removal of overhead power lines;<br>**e.** Overnight traffic management measures; and<br>**f.** Cases of emergency.<br>All other extended hours beyond the standard working hours would need to be agreed in consultation with NCC.<br>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.<br>The construction of Charlton Mires Junction and Heckley Fence Accommodation Overbridge will also require 24-hour closures of the B6347 to the west | 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 | |

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| | 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. | | | | | | |
| 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:<br>**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.<br>**b.** Avoidance of artificial lighting of watercourses, particularly during the hours of darkness to prevent impacts to fish behaviour or passage.<br>**c.** Avoidance of light spill using directional and/or baffled lighting.<br>**d.** The use of movement triggers, thus lighting only turns on when people (large objects) move through the area (use within compound).<br>**e.** Positioning of lighting columns away from habitats of value to foraging and commuting bats (hedgerows, trees, woodland).<br>**f.** Reducing the height of lighting columns to reduce light spill onto adjacent habitats.<br>**g.** Variable lighting regimes (VLR) - switching off when human activity levels are low i.e. 21:00 to 05:30.<br>**h.** Avoid use of blue-white short wavelength lights and high ultraviolet (UV) content.<br>**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.<br>**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. | To minimise disruption to the public and the natural environment as a result of construction lighting. | CEMP<br>**Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM005 and EM009<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC12, AQ03 and BAT01<br>**Appendix 9.9: Bat Survey Report 2018, Volume 7** of the ES, Paragraph 5.1.8-5.1.10<br>**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.2.5, Table 7-2<br>**Chapter 7: Landscape and Visual, Volume 2** of the ES – Paragraph 7.9.2<br>**Chapter 7: Landscape and Visual, Volume 3** of the ES – Paragraph 7.9.2 | Main contractor<br>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**)<br>Lighting strategy<br>Precautionary working method statement<br>Site Environmental Inspection Reports<br>Signed toolbox talks records | Construction | |

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| | k. Directed lighting will be used to minimise light pollution/glare, including for construction compounds.<br>l. Lighting levels around construction compounds will be kept to the minimum necessary for security and safety by the main contractor.<br>m. Where this is not possible the Contractor will agree any exceptions with the ECoW in advance of construction activities. | | | | | | |
| 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<br>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<br>**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**)<br>EPS Method statement<br>ECoW Weekly Log<br>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<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC05 | Main contractor<br>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**)<br>EPS Method statement<br>ECoW Weekly Log<br>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 | To manage any nuisance resulting from the Scheme | **Statement Relating to Statutory Nuisance,** Paragraph 3.4.7 | Main contractor<br>The Applicant | Section 61 (s61) of Part III of the 1974 Act<br>Section 79(1)(g) and (ga) of EPA 1990<br>CEMP approved by the SoS following consultation with NCC | Pre-construction<br>Construction | |

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| | place. Once approved, any conditions applied to the approval shall be complied with. | | | | | | |
| 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<br>The Applicant | Section 61 (s61) of Part III of the 1974 Act<br>Section 79(1)(g) and (ga) of EPA 1990<br>CEMP approved by the SoS following consultation with NCC | Pre-construction<br>Construction | |
| **Air Quality** | | | | | | | |
| S-A1 | Site Management<br>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:<br>**a.** Records of dust and air quality complaints will be kept, including likely causes and mitigation measures to reduce impacts if appropriate.<br>**b.** Site perimeter, fences etc will be kept clean.<br>**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.<br>Site Planning<br>**a.** Consideration of weather conditions and the dust generating potential of material to be excavated will be ensured prior to the commencement of works.<br>**b.** The main contractor will plan the site layout to maximise distance from plant/stockpiles etc. to sensitive receptors.<br>**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<br>**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<br>Construction | |
| S-A2 | Construction Traffic | To minimise dust and emissions | **Chapter 5: Air Quality, Volume 2** | Main contractor | Plant inspection checks | Construction | |

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| | **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).<br>**b.** Loads entering and leaving the site with dust generating potential will be covered and wheel washing facilities made available.<br>**c.** There will be no idling of vehicles.<br>**d.** Vehicles will comply with site speed limits set by the main contractor (15 mph on hard surfaces, 10 mph on unconsolidated surfaces).<br>**e.** Water assisted sweeping of local roads will be undertaken if material is tracked out of site.<br>**f.** Hard surfaces will be installed as soon as practicable on site and ensured they are maintained in good condition. | associated with the construction of the Scheme. | of the ES, Paragraph 5.9.1 and 5.9.2<br>**Chapter 5: Air Quality, Volume 3** of the ES, Paragraph 5.9.1 and 5.9.2 | | Construction Traffic Management Plan approved by the SoS following consultation with NCC.<br>Site Environmental Inspection Reports | | |
| S-A3 | Site Activities<br>**a.** Exposed soils will be protected from winds until sealed or re-vegetated.<br>**b.** Dust generating activities will be minimised, particularly near residential receptors/sensitive ecosystems during prolonged dry, dusty weather unless damping/other suppressants are used.<br>**c.** An adequate water supply to site will be ensured and water will be used as dust suppressant where applicable.<br>**d.** Any site machinery will be well maintained and in full working order.<br>**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<br>**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**)<br>Dust audits carried out by site team and documented<br>Site Environmental Inspection Reports | Construction | |
| S-A4 | To manage dust emissions, the following measures will be implemented:<br>**a.** During construction, monitoring will be required to determine the effectiveness of the proposed mitigation, or requirement for further mitigation.<br>**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 | 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<br>**Chapter 5: Air Quality, Volume 3** of the ES, | Environmental Manager (main contractor)<br>Main contractor | Dust audits carried out by site team and documented.<br>Site Environmental Inspection Reports | Construction | |

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| | undertaken daily for the duration of the construction of the Scheme.<br>**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. | | Paragraph 5.11.1-5.11.3 | | | | |
| **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<br>**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: | To limit effects on sensitive receptors during construction.<br>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<br>**Chapter 6: Noise and Vibration, Volume 3** of the ES, Paragraph 6.9.7-6.9.8<br>**Appendix 6.8: Construction Noise and Vibration Mitigation Clauses, Volume 7** of the ES<br>**Appendix 6.9: Construction** | Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Environmental Inspection Records<br>Signed toolbox talk records<br>Noise and Vibration Management Plan<br>Communications Plan | Construction | |

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| | **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.<br>**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.<br>**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.<br>**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.<br>**e.** Items of plant operating intermittently will be shut down in the periods between use.<br>**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. | | **Noise and Vibration Mitigation Clauses, Volume 8** of the ES | | | | |

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| | 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.<br>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:<br>i. Hours of working.<br>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.)<br>iii. Number and type of plant.<br>iv. Construction Method.<br>v. Where applicable, compliance with any noise and vibration commitments.<br>i. Works (including deliveries) will be programmed such that the requirement for working outside of normal working hours is minimised.<br>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.<br>k. The consent applications will be discussed with the relevant local authority, or authorities, throughout the construction period.<br>l. All relevant plant will comply with permissible noise levels set out in the relevant European Directives.<br>m. Unless for safety or engineering reasons, the number of instances of a particular diversion route being used will be limited to:<br>i. Less than 10 days/nights in any 15 consecutive day period, and | | | | | | |

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|---|---|---|---|---|---|---|---|
| | ii. Less than 40 days/nights in any consecutive 6-month period.<br>**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<br>**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.<br>**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.<br>**q.** The main contractor will appoint a reasonable person to liaise with the public and have a representative available on site during daytime working hours to answer queries or address any concerns expressed.<br>**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:<br>**a.** Unless for safety or engineering reasons construction works that cause noise levels at | To limit effects on sensitive receptors during construction. | **Chapter 6: Noise and Vibration, Volume 2** of the | Main contractor<br>Environmental Manager (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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| | noise sensitive receptors above the SOAEL will not exceed the following durations:<br>i. 10 days/nights in any 15 consecutive days/nights.<br>ii. 40 days/nights in any consecutive six months.<br>**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).<br>**c.** The main contractor will develop method statements, monitoring and reporting protocols to demonstrate that:<br>i. All plant and equipment will be properly maintained and operated in accordance with manufacturers' recommendations. Plant will be inspected on arrival to site.<br>ii. Machines in intermittent use will be shut down in intervening periods of non-use or, where this is impracticable, they will be throttled down to a minimum.<br>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<br>**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. | | ES, Paragraph 6.9.11-6.9.15<br>**Chapter 6: Noise and Vibration, Volume 3** of the ES, Paragraph 6.9.10-6.9.13,<br>**Appendix 6.8: Construction Noise and Vibration Mitigation Clauses, Volume 7** of the ES<br>**Appendix 6.9: Construction Noise and Vibration Mitigation Clauses, Volume 8** of the ES | | (**Application Document Reference: TR010041/APP/3.1**)<br>Environmental Inspection Records<br>Noise and Vibration Management Plan<br>Communications Plan | | |

| 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-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<br>**Chapter 6: Noise and Vibration, Volume 3** of the ES, Paragraph 6.9.16 | Main contractor<br>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**)<br>Environmental Inspection Records<br>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<br>**Chapter 6: Noise and Vibration, Volume 3** of the ES, Paragraph 6.9.17 | Main contractor<br>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**)<br>Environmental Inspection Records<br>Noise and Vibration Management Plan | Construction | |
| **Landscape and Visual** | | | | | | | |
| S-L5 | In order to protect existing vegetation, the following measures will be implemented:<br>**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.<br>**b.** No works, including temporary works such as the creation of topsoil mounds will be carried out | To protect existing vegetation during construction. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.2<br>**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**)<br>Site Environmental Inspection Reports<br>Landscape design discharged as required by the 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) |
|---|---|---|---|---|---|---|---|
| | within the canopy spread of existing retained trees.<br>**c.** Where appropriate, components of the Scheme that are suitable for such treatment, will be micro-sited within the Order limits to avoid unnecessary removal of vegetation. | | | | | | |
| S-L6 | In order to reduce landscape and visual impacts during construction, the following measures will be implemented:<br>**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.<br>**b.** The construction programme will be kept to the minimum practicable time to reduce the duration of any landscape and visual impacts.<br>**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.<br>**d.** As far as practicable, plant and material storage areas will be sited to avoid landscape and visual impact.<br>**e.** Construction sites will be kept tidy (e.g. free of litter and debris) through robust construction compound management.<br>**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.<br>**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 and where appropriate, components of the Scheme that are suitable for such treatment, will be micro-sited within the Order limits to avoid unnecessary removal of vegetation. | 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<br>**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**)<br>Site Environmental Inspection Reports<br>Landscape design discharged as required by the 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) |
|---|---|---|---|---|---|---|---|
| | **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.<br>**i.** Maintenance of existing pedestrian routes will occur as far as reasonably practical with traffic control measures.<br>**j.** Surrounding roads and pavements will be maintained free of excessive dust and mud.<br>**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.<br>**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.<br>**b.** Stripped topsoil will be used in areas of similar proposed vegetation type to utilise the existing natural seed bank.<br>**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.<br>**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<br>**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**)<br>Site Environmental Inspection Reports<br>DCO Requirements | Construction | |
| S-L8 | The design and mitigation measures prescribed to protect arboricultural features will be implemented. Measures include: | To avoid or reduce impacts on trees and woodland. | **Appendix 7.5: Arboricultural Report, Volume 7** of the ES, | Main contractor<br>Arboriculturalist (main contractor) | Ancient Woodland Strategy<br>Landscape design discharged as required by the DCO<br>Landscape Design Certificate | Pre-construction<br>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.** 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.<br>**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**).<br>**c.** Excavations will be carried out using manual techniques to reduce soil disturbance.<br>**d.** No-dig construction will be prescribed at detailed design for access routes and footways to reduce or avoid root and soil disturbance.<br>**e.** Working areas will be minimised as far as is practicable to and access routes diverted away from sensitive arboricultural features, and where appropriate, components of the Scheme that are suitable for such treatment, will be micro-sited within the Order limits to avoid unnecessary removal of vegetation.<br>**f.** Pruning will be carried out in accordance with BS3998:2010 Tree Work. Recommendations, to mitigate damage during trees works. | | Paragraphs 6.1.3 to 6.1.10<br>**Appendix 7.1: Arboricultural Report, Volume 8** of the ES, Paragraphs 6.1.1 to 6.1.7 | Environmental Manager (main contractor)<br>ECoW (main contractor) | Arboricultural Method Statement<br>DCO Requirements | | |

| 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.** 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:<br>**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<br>**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.<br>To enhance and protect landscape character during operation.<br>To provide connectivity to the retained woodland. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.14<br>**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.9.13<br>**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4 | Main contractor<br>Arboriculturalist (main contractor)<br>Environmental Manager (main contractor)<br>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**)<br>Landscape design discharged as required by the **draft DCO**<br>As Built drawings<br>Landscape Design Certificate | 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) |
|---|---|---|---|---|---|---|---|
| | 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).<br>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).<br>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<br>**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**)<br>Site Environmental Inspection Reports<br>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<br>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) |
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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.<br>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**)<br>Archaeological Method Statement (if required) to be approved in writing by NCC in line with Requirement 9(6) of the **draft DCO**.<br>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.<br>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.<br>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<br>**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.9 | Scheme Archaeologist involved at the construction phase<br>Main contractor with guidance from Archaeologist) | WSI<br>Archaeological Method Statement (if required following response of the WSI) | Pre-construction<br>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) |
|---|---|---|---|---|---|---|---|
| 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<br>**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.9.13 | Archaeologist (main contractor)<br>Main contractor | Following consultation with NCC | Pre-Construction<br>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.<br>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<br>**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**)<br>Archaeological Method Statement if required) to be approved in writing by NCC in line with Requirement 9(6) of the **draft DCO**. | Pre-Construction<br>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<br>**Chapter 8: Cultural Heritage, Volume 3** | Archaeologist (main contractor)<br>Main contractor | CEMP approved by the SoS following consultation with Historic England, NCC and Milestone Society.<br>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.<br><br>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.<br><br>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<br><br>**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**)<br><br>Licences obtained in consultation with Natural England, Forestry Commission and Environment Agency.<br><br>ECoW Weekly Log | Pre-construction/<br><br>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) |
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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:<br>**a.** Provide ecological advice to the main contractor over the entire construction programme, at all times as required.<br>**b.** Undertake or oversee pre-construction surveys for protected species in the areas affected by the Scheme.<br>**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.<br>**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.<br>**e.** Monitor the implementation of the mitigation measures during the construction phase to ensure compliance with protected species legislation and commitments within the ES.<br>The ECoW will have previous experience in similar ECoW roles, be approved by the Applicant and be appropriately qualified for the role.<br>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<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC03 | ECoW (main contractor) | Appointment of the ECoW in advance of construction<br>DCO Requirements<br>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**)<br>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.<br>ECoW Weekly Log<br>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) |
|---|---|---|---|---|---|---|---|
| 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.<br>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.<br>To protect badger setts. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM003<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, B02<br>**Appendix 9.2: Badger Report (Confidential), Volume 8** of the ES, Table 7-1 | Main contractor<br>ECoW (main contractor) | Badger Method Statement<br>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.<br>DCO Requirements<br>ECoW Weekly Log<br>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. Further survey (dusk/dawn re-entry surveys) will also be completed prior to construction for the following 21 trees with Moderate roosting suitability identified during the 2020 verification preliminary bat roost assessment and subsequent aerial climbing inspection (T2A, T29A, T44A, T53A, T54A, T55A, T56A, T68A, T105A, T20.9, T20.17, T20.52, 20.57, T20.58, T20.77, T20.97, T20.107, T20.122, T20.123, T20.132 and T20.135). 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.<br>All trees assessed with bat roost suitability (Low, Moderate or High) that require to be pruned or felled | To confirm the absence of roosting bats. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM006<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT05<br>**Bat Preliminary Bat Roost Assessment Verification Survey Report** [(Document Reference 6.18, Version 1) | Main contractor<br>ECoW (main contractor) | EPS Method statement<br>Bat Report | Pre-construction<br>Construction | |

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| | 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. 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.<br><br>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 to be developed at detailed design prior to construction for each of Part A and Part B and in consultation with the Environment Agency. | 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<br><br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC07 | Main contractor<br><br>ECoW (main contractor) | Biosecurity Method Statement / Invasive Species Management Plan approved by the SoS following consultation with and / or review by NCC and the Environment Agency<br><br>ECoW Weekly Log | Pre-construction<br><br>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. | To protect nesting birds. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM001<br><br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BI01<br><br>**Appendix 9.6: Breeding and** | Main contractor<br><br>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**)<br><br>Breeding Bird Report<br><br>Site Environmental Inspection Report | Pre-construction<br><br>Construction | |

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| | All cleared vegetation will be rendered unsuitable for nesting birds, for example, by covering or chipping depending on the end purpose of the vegetation or will be removed from the works area. | | **Wintering Birds 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.<br>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.<br>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<br>**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**)<br>Precautionary Working Method Statement<br>Method Statement<br>ECoW Weekly Log Precautionary Working Method Statement<br>Construction Constraints Plan<br>Works Plan<br>Rights of Way and Access Plans | Pre-construction<br>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<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC10 | Main contractor with guidance from the ECoW (main contractor)<br>Main contractor | CEMP approved by the SoS following consultation with NCC<br>Method Statement<br>ECoW Weekly Log<br>Construction Constraints Plan<br>Works plan | Pre-construction<br>Construction | |

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| 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 value to wintering birds and, for Part A only, brown hare. | To reduce the impact to wintering birds and brown hare. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM004<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BI02<br>**Appendix 9.6: Breeding and Wintering Birds Report**, **Volume 8** of the ES, Table 7-1 | Main contractor with guidance from the ECoW (main contractor)<br>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**)<br>ECoW Weekly Log | Pre-construction<br>Construction | |
| 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.<br>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<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC08 | Scheme ecologist (main contractor)<br>Main contractor<br>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**)<br>Biosecurity Method Statement | Pre-construction<br>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 | To protect habitats.<br>To reduce the impacts on fish. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM018 and EM019 | Main contractor<br>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**) | Pre-construction<br>Construction | |

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| | 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 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**)).<br><br>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 exceptions to this would be piling works where there is ground water present. The use of quick drying cement will be used where appropriate. Concrete mixing of washing areas will be located as far from possible from watercourses and no closer than 10 m from the watercourse, unless there is an unavoidable specific need (such as on the south side of the River Coquet). 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.<br><br>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.<br><br>Chemicals and fuels must be stored in secure containers located away from watercourses and waterbodies (as far as reasonably practicable from the watercourse and at least 10 m away if possible). At the River Coquet, chemicals and fuels will be stored outside the valley slopes. No refuelling of | To protect aquatic habitats and species from concrete pollution. | **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC11, AQ02 & AQ05<br><br>**Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.12<br><br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.12<br><br>**Appendix 9.10 Aquatic Ecology Assessment Report**, **Volume 8** of the ES, Paragraph 7.2.3<br><br>**Appendix 7.5: Arboricultural Report**, **Volume 7** of the ES, Appendix B.4 - Tree Protection Plans<br><br>**Appendix 7.1: Arboricultural Report**, **Volume 8** of the ES, Appendix B.2 - Tree Protection Plans | | Tree Protection Plans (Appendix B.4 of **Appendix 7.5: Arboricultural Report, Volume 7** of the ES and Appendix C of **Appendix 7.1: Arboricultural Report**, **Volume 8** of the ES<br><br>Signed toolbox talks<br><br>ECoW Weekly Log<br><br>Construction Constraints Plan | | |

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| | plant and machinery will take place near watercourses except in relation to the plant and machinery on the south side of the River Coquet. Fuels/ oils will be brought to the rig only under controlled measures for the minimum duration required. | | | | | | |
| 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, spoil will be stored in heaps with shallow angles to help prevent badgers creating setts. | To avoid badger becoming trapped within compound areas. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM020<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, B04<br>**Appendix 9.2: Badger Report (Confidential), Volume 8** of the ES, Table 7-1 | Main contractor<br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC<br>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 Requirement 13 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)<br>Badger Method Statement<br>ECoW Weekly Log<br>Construction Constraints Plan | Pre-construction<br>Construction | |
| 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 nighttime, 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<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, EC12 | Main contractor<br>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)**<br>ECoW Weekly Log<br>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. | To prevent the entrapment and mortality of wildlife. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM036<br>**Chapter 9: Biodiversity, Volume 3** of the | 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**)<br>Site Environmental Inspection Reports Site Environmental Inspection Records | Construction | |

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| | 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. | | ES, Table 9-12, EC13 | | ECoW Weekly Log<br>Signed toolbox talk records | | |
| **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 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.<br><br>A Sediment Control Plan and appropriate monitoring programme will be further developed as part of the Main Contractor's working method statements.<br><br>Should any pollution incidents to the water environment occur, they will be reported to the Environment Agency Pollution Incident Hotline (0800 80 70 60) | To manage all risks to the water environment according to good practice. | **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.3<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.3 | 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**)<br>Sediment Control Plan | Construction | |
| S-W9 | The following measures will be implemented:<br>**a.** Locating topsoil stores and construction compounds away from the banks of watercourses and within fluvial floodplains.<br>**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.<br>**c.** Covering stockpiles when not in use.<br>**d.** All loose materials will be covered so as not to increase sediment load to the drainage network.<br>**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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the | Main contractor<br>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**)<br>Signed toolbox talk records | 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) |
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| | | | ES, Paragraph 10.9.4<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Table 15-2<br>**Chapter 9: Biodiversity, Volume 3** of the ES – Table 9-12, AQ01<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.2.2 | | | | |
| S-W10 | The following measures will be implemented:<br>**a.** Installing cut off ditches around the perimeter of the construction area to prevent sediment entering the watercourses during periods of heavy rainfall.<br>**b.** Do not wash vehicles within 10 m of watercourses.<br>**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.<br>**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.<br>**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. | 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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.4<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.1.23<br>**Appendix 10.2: Water Framework** | Main contractor<br>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**)<br>Signed toolbox talk records | Construction | |

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| | **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. | | **Directive Assessment, Volume 8** of the ES, Paragraph 10.1.13 | | | | |
| S-W11 | The following measures will be implemented:<br>**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.<br>**b.** Management of polluting substances that are being brought on site and used as part of the construction process.<br>**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.<br>**d.** Storing mechanical plant such as generators in bunded areas when not in use.<br>**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. | 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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.5<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Table 15-2<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Table 10-1 | Main contractor<br>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**)<br>Signed toolbox talk records | Construction | |
| S-W12 | The following measures will be implemented:<br>**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 | 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 | Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Signed toolbox talk records | Construction | |

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| | reduce fine sediment erosion, or filtering sediment from the water column.<br>**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.<br>**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.<br>**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.<br>**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.<br>**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.<br>**g.** Fish capture / rescue will be undertaken if pumping / dewatering is required to create a dry working area within watercourses:<br>i. Any remaining fish found in dewatered areas should be rescued with hand nets and relocated to a safe distance away.<br>ii. Fish rescues will be carried out to best practice and with appropriate licences in place. | | **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.12 and 10.9.13<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.1.23<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Paragraph 10.1.13 **Chapter 9: Biodiversity, Volume 2** of the ES – Table 9-23, EM014 and EM016<br>**Chapter 9: Biodiversity, Volume 3** of the ES – Table 9-12, AQ05 and AQ06<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraphs 7.3.4 and 7.3.9 | | | | |

| 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) |
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| | iii. Any pump used for dewatering will be appropriately screened to prevent ingress of fish.<br>**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.<br>**i.** Best practice measures associated with storage of oils and fuels.<br>**j.** Locating concrete mixing and washing areas more than 10 m from any watercourse.<br>**k.** Have settlement and re-circulation systems for water reuse.<br>**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.<br>**m.** Wash-water from concrete will not be discharged into the watercourse.<br>**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:<br>**a.** Ensure that flood conveyance routes are maintained during construction.<br>**b.** Move any plant away from the banks of watercourses following heavy rainfall events.<br>**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. | 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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.15 | Main contractor<br>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**)<br>Signed toolbox talk records | 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) |
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| | **d.** Create safe working areas for the storage of plant and materials if a flood warning is received during construction.<br>**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. | | | | | | |
| 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 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. | To prevent damage to watercourse during the construction of the culverts associated with the Scheme.<br>To divert flows to reduce the release of polluting substances into the watercourse, to maintain water quality. | **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the ES, Paragraph 10.9.8<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.8<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.1.19<br>**Appendix 10.2: Water Framework Directive Assessment,** | Designer<br>Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC Scheme design 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) |
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| | | | **Volume 8** of the ES, Paragraphs 10.1.9 and 10.1.10 | | | | |
| 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**).<br>**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<br>**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES, Paragraph 10.9.7<br>**Culvert Construction Methodology** (**Appendix 2.3, Volume 1** of the ES) | 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 | |
| **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:<br>**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).<br>**b.** Separating storage and management of topsoil and subsoil storage in well aerated covered heaps. | To reduce the amount of agricultural soil lost as a result of the Scheme.<br>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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.14 | Main contractor<br>Environmental Consultant (designer)<br>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**)<br>Soil Handling Strategy | Pre-Construction<br>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) |
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| | **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).<br>**d.** Use of appropriate machinery to minimise soil compaction (e.g. reduce the use of heavy plant or tracked vehicles passing over organic soils).<br>**e.** Relief of compaction of restored soils (i.e. dig out, aerating any highly compacted area of organic soil).<br>**f.** Dust suppression measures, such as damping down, during periods of dry weather. | | | | | | |
| S-GS6 | The following measures will be implemented to reduce the amount of agricultural soil lost as a result of the Scheme:<br>**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**).<br>**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. | 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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.13 | Main contractor | Soil Handling Strategy (as part of the CEMP which will be approved by the SoS following consultation with NCC)<br>Site Environmental Inspection Records | Construction | |

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| | **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. | | | | | | |
| 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):<br>**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.<br>**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.<br>**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.<br>**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. | 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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.9 | Main contractor<br>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**)<br>Materials Management Plan<br>Environmental Inspection Records<br>Signed toolbox talk records | 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) |
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| | **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:<br>**a.** Standing machinery will have drip trays placed underneath to prevent oil or fuel leaks causing pollution.<br>**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. | To prevent risk of ground contamination and surface watercourses. | **Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.9<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.10 | 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**)<br>Signed toolbox talks records | Construction | |
| S-GS9 | Control measures to protect controlled water bodies will include:<br>**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.<br>**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).<br>**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.<br>**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.<br>**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. | To mitigate and prevent risks of pollution of controlled water bodies associated with the construction stage.<br>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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.10<br>**Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, AQ01 and AQ02<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.2.2 and 7.2.3 | Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Temporary surface water drainage strategy<br>Environmental Inspection Records<br>Signed toolbox talk records | 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) |
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| | **f.** All fuel, oil and chemicals will be stored in a designated secure area, with secondary containment provided.<br>**g.** Minimise works in the watercourse channels and locate plant, stockpiles and other materials 8 m from the watercourse.<br>**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.<br>**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).<br>**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:<br>**a.** All works will be conducted in line with HSE publication, Safe Work in Confined Spaces (**Ref. 7**).<br>**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.<br>**c.** Gas monitoring equipment to be used by all operatives entering below ground confined spaces.<br>**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. | To minimise risks associated with explosions in confined spaces. | **Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.14<br>**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**)<br>Signed toolbox talks records | 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) |
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| | **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. | | | | | | |
| 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 structural damage. | **Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.9.19<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.20 | 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 | |
| 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:<br>**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. | 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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.21 | Main contractor<br>Environmental Manager (main contractor)<br>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**)<br>GI Reports | Construction | |

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| | **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.<br>**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.<br>**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.<br>**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. | | | | | | |
| 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 (which may include turbidity NTU levels for example) 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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.10 | Main contractor<br>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**)<br>Environmental Inspection Records | 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) |
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| 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<br>**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**).<br>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<br>**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<br>Construction Traffic Management Plan approved by the Secretary of State following consultation with NCC as per Requirement 11, Schedule 2 of the draft DCO<br>CTMP | Construction | |
| 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:<br>**a.** Any temporary diversionary works or closure of (WCH) routes will be undertaken following consultation with affected individuals, groups, and NCC.<br>**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 | To reduce community severance and effects on WCHs. | **Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.16<br>**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.13 | Public Liaison Officer<br>Main contractor | CEMP approved by the SoS following consultation with NCC Communications Plan<br>CTMP<br>PRoW Management Plan | Construction | |

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| | newsletter and other forms of appropriate communication.<br>**c.** If alternative access points or routes are required, directions will be clearly communicated in appropriate locations. | | | | | | |
| 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. The PRoW Management Plan will be required to include the widths for each type of proposed PRoW.<br>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<br>**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<br>CTMP<br>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<br>**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.15 | The Applicant<br>Main contractor | CTMP<br>Communications Plan | Construction | |
| 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.<br>The location of the permanent bus stops has already been determined. | To maximise safety, ~~and~~ security and inclusivity for WCHs. | **Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.13<br>**Chapter 12: Population and Human Health,** | The Applicant<br>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**)<br>PRoW Management Plan | Construction | |

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| | The Applicant will explore opportunities during the detailed design stage (as far as reasonably practicable, and in conjunction with the bus operator) to make routes to temporary and permanent alternative bus stops suitable for different users. | | **Volume 3** of the ES, Paragraphs 12.9.12<br>**Section F, Equality Impact Assessment [REP2-007]** | | | | |
| S-PH10 | 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 3** of the ES, Paragraph 12.9.21<br>**Appendix 12.1: Agricultural Assessment (Confidential), Volume 7** of the ES, Paragraph 4.4.9 | The Applicant<br>Main contractor | CEMP approved by the SoS following consultation with NCC | 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:<br>**a.** Working with local people and local businesses to ensure that, wherever possible, investment in the North East, stays in the North East.<br>**b.** Engaging with Jobcentre Plus to advertise job opportunities to local people seeking employment and identifying opportunities for work placements, further education, skills training.<br>**c.** Opportunities for everybody working on the Scheme to upskill, through experience, training and development programmes. | To maximise benefits to the local economy. | **Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.24<br>**Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.28 | The Applicant<br>Main contractor | CEMP approved by the SoS following consultation with NCC | Construction | |

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| **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:<br>**a.** Types and volumes of waste reused, recycled and landfilled.<br>**b.** Where the materials and waste have been reused, recycled and landfilled, both on and off site.<br>**c.** Waste recovery and disposal facilities that will be used and their details of their permits, licences and exemptions, both on and off site.<br>**d.** Waste recovery and disposal contractors that will be used and details of waste carriers' licence.<br>**e.** Any waste exemptions that are in place in order to enable waste to be reused.<br>**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.<br>**g.** Scheme performance objectives and targets to ensure they are met.<br>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:<br>**a.** The parties involved.<br>**b.** Suitability for use criteria.<br>**c.** Certainty of use.<br>**d.** Quantity of use.<br>**e.** Contingency arrangements.<br>**f.** Tracking and document control. | 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<br>**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**)<br>SWMP<br>MMP | Construction | |

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| | **g.** Verification plan.<br>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.<br>The MMP and SWMP will provide for achievement of sustainable resource management initiatives and outcomes to be reported to NCC at a suitable level of detail to support its function(s). Where appropriate, this information will be provided to NCC during detailed design. | | | | | | |
| 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<br>**Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.3 | Main contractor<br>Environmental Manager (main contractor)<br>Environmental Consultant (designer) | CEMP approved by the SoS following consultation with NCC<br>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 and disposal of waste. | **Chapter 13: Material Resources**, **Volume 2** of the ES, Paragraph 13.9.3 and Table 13-16<br>**Chapter 13: Material Resources, Volume 3** 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**)<br>SWMP<br>MMP | Construction | |

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| 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<br>**Chapter 13: Material Resources, Volume 3** of the ES, Table 13-17 | Main contractor<br>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**)<br>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<br>**Chapter 13: Material Resources, Volume 3** of the ES, Paragraph 13.9.3 | Main contractor<br>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**)<br>Materials Management Plan | Construction | |
| **Climate Change** | | | | | | | |
| S-CC7 | The following measures will be implemented:<br>**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).<br>**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. | To minimise waste and maximise re-use of materials on site. | **Chapter 14: Climate, Volume 2** of the ES, Paragraph 14.9.6<br>**Chapter 14: Climate, Volume 2** of the ES, Paragraph 14.9.6 | Main contractor | CEMP approved by the SoS following consultation with NCC<br>SWMP<br>MMP | Construction | |

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| | **c.** Collection of rainwater on-site to minimise transportation of fresh water for bowsers.<br>**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:<br>**Structures**<br>**a.** Use of admixtures to maintain water/cement ratio during construction, thus enabling increase in consistency. In particular for Part B:<br>i. Increase volume of a lignosulfonate-based plasticiser to use as a set retarder<br>ii. Admixture combinations to ensure consistent retention of concrete<br>iii. Use of super plasticiser to reduce the total cement content.<br>**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.<br>**c.** Manage concreting work during periods of day when temperature is not at maximum/cooler (during construction).<br>**Buildability**<br>**a.** Implement dust suppression during construction.<br>**b.** Manage construction working hours to avoid concreting in middle of day. | To reduce the Scheme's vulnerability to drier summers. | **Chapter 14: Climate, Volume 2** of the ES, Table 14-16<br>**Chapter 14: Climate, Volume 3** of the ES, Table 14-16 | Main contractor<br>Designer | Detailed design drawings<br>As built drawings | Construction | |
| S-CC9 | The following measures will be implemented:<br>**Buildability**<br>**a.** Schedule earthworks (where possible) to avoid work during winter months of construction phase.<br>**b.** Provide appropriate temporary measures for maintaining site free from flood waters during construction phase. | 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<br>**Chapter 14: Climate, Volume 3** of the ES, Table 14-16 | Main contractor<br>Designer | Detailed design drawings<br>As built drawings | Construction | |

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|---|---|---|---|---|---|---|---|
| | **c.** Use controlled methods for construction of embankments. | | | | | | |
| S-CC10 | The following measures will be implemented:<br>**Structures**<br>**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.<br>**b.** Structures will be designed for temperature effects and to current standards.<br>**Buildability**<br>**a.** Provide protection to all UV resistant materials during construction.<br>**b.** Provide appropriate curing methods for concrete during construction.<br>**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<br>**Chapter 14: Climate, Volume 3** of the ES, Table 14-16 | Main contractor | Detailed design drawings<br>As built drawings | Construction | |
| S-CC11 | The following measures will be implemented:<br>**Buildability**<br>**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<br>**Chapter 14: Climate, Volume 3** of the ES, Table 14-16 | Main contractor | Detailed design drawings<br>As built drawings | Construction | |
| S-CC12 | The following measures will be implemented:<br>**Buildability**<br>**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<br>**Chapter 14: Climate, Volume 3** of the ES, Table 14-16 | Main contractor<br>Designer | Detailed design drawings<br>As built drawings | Construction | |

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| 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.<br><br>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<br><br>**Chapter 14: Climate, Volume 3** of the ES, Paragraph 14.11.1 and 14.11.2<br><br>**Chapter 13: Material Resources, Volume 2** of the ES, Paragraph 13.11.4<br><br>**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 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.<br><br>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 | To limit effects on sensitive receptors during operation. | **Noise Addendum** (Document Reference: 6.22) | Main contractor | As built drawings | Design | |

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| | 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:<br>**a.** Manual of Contract Documents for Highways Works, Series 3000 planting specification.<br>**b.** Construction Environmental Management Plan.<br>**c.** Landscape and Ecological Management Plan<br>**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 LEMP (if produced) fulfils its Environmental Function. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.11.1<br>**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.11.1 | Designer<br>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**)<br>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.<br>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 compensate for the loss of terrestrial invertebrate habitat<br>To provide larval and adult food plants for a range of invertebrate species, including species of conservation importance recorded during | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.11.2 and 7.11.3<br>**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraph 7.11.2 and 7.11.3 | The Applicant | Landscape design discharged as required by the DCO<br>Scheme design drawings<br>Landscape Design Certificate<br>Environmental Inspection Records | 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) |
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| | | the baseline surveys. | | | | | |
| 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.<br><br>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.<br><br>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.<br><br>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.<br><br>It is recommended that these surveys should be undertaken at approximately five yearly intervals as follows:<br><br>**a.** Operational Year 5 (Summer) – end of the establishment period. To review the speed of the initial plant growth – to assess if growth is sufficient to meet screening requirements.<br>**b.** Operational Year 10 (Summer) – midway interval, between the initial review and the proposed final assessment.<br>**c.** Operational Year 15 (Summer) – end of the design period as per the assessment. To review and confirm findings of the assessment. | To reduce operational impacts through landscape planting.<br><br>To enhance value for wildlife.<br><br>To reinstate habitat features.<br><br>To connect existing habitat areas (especially woodland) and mitigate the effects of fragmentation and displacement.<br><br>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<br><br>**Chapter 7: Landscape and Visual, Volume 3** of the ES, Paragraphs 7.11.4 to 7.11.6 and Paragraph 7.11.8 | Designer<br><br>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**)<br><br>Landscape Design Certificate | Operation | |

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| | 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.<br>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<br>**Chapter 8: Cultural Heritage, Volume 3** of the ES, Paragraph 8.11.1 | Scheme Archaeologist involved at the construction phase<br>Main contractor with guidance from Archaeologist) | WSI<br>Conservation Management Plan<br>Archaeological Method Statement (if required following response of the WSI) | Operation | |
| **Biodiversity** | | | | | | | |
| S-B18 | The following measures will be implemented to mitigate the impacts of the Scheme on bats: | To mitigate the effects of habitat fragmentation on bats. | **Chapter 9: Biodiversity, Volume 2** of the ES, Paragraphs 9.11.11 - 9.11.14<br>**Chapter 9: Biodiversity, Volume 3** of the | The Applicant | As built drawings<br>Defra Local Scale Study post-construction | Operation | |

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| | **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.<br>**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.<br>**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.<br>**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<br>**e.** The Applicant/main contractor will identify a suitable body to ensure any alterations required are implemented and completed. | | ES, Paragraphs 9.11.8 - 9.11.11 | | | | |
| 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~~ a proposed Landscape and Ecological Management Plan (LEMP), ~~which will be~~ developed at detailed design, if produced pursuant to Requirement 17 of Schedule 2 to the DCO. | 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 and 9.11.5, Table 9-23, DM011<br>**Chapter 9: Biodiversity, Volume 3** of the | The Applicant | LEMP (if produced)~~production~~<br>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) |
|---|---|---|---|---|---|---|---|
| | The LEMP (if produced) will be included within the Handover Environment Management Plan (HEMP), provided to the Applicant post-construction.<br>The HEMP will be developed from the CEMP and LEMP (if produced), and detail monitoring and management, including future maintenance arrangements, that must be adhered to throughout the future operation of the Scheme.<br>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). | | ES, Paragraphs 9.9.5, 9.11.3 and 9.11.4 and Table 9-12, EC15 | | | | |
| **Road Drainage and the Water Environment** | | | | | | | |
| ExA: S-W102 | Following completion of construction, there will be a programme of monitoring to confirm the successful establishment of channels (where they have been realigned or improved) and culverts (where natural bed or fish baffles have been installed). | To monitor watercourses post-construction. | Applicant's Responses to Deadline 6 Submissions | Environmental Manager (main contractor)<br>The Applicant<br>Hydromorphologist | HEMP | Operation | |
| **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.<br>Monitoring will be completed in accordance with guidance with the Construction Code of Practice for | To monitor soil conditions post-construction. | **Chapter 11: Geology and Soils, Volume 2** of the ES, Paragraph 11.11.1<br>**Chapter 11: Geology and Soils, Volume 3** of the | Environmental Manager (main contractor)<br>The Applicant | HEMP | Operation | |

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| | the Sustainable Use of Soil on Construction Sites (Defra 2009) (**Ref. 8**), up to a period of five years. | | ES, Paragraph 11.11.1 | | | | |
| 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.<br>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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.16 | Environmental Manager (main contractor)<br>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:<br>**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.<br>**b.** All personnel entering enclosed spaces will have appropriate training before being cleared to enter a below ground enclosed space.<br>**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<br>**Chapter 11: Geology and Soils, Volume 3** of the ES, Paragraph 11.9.24 | Environmental Manager (main contractor)<br>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. | To reinstate any temporary agricultural land required during construction. | **Chapter 12: Population and Human Health, Volume 2** of the | The Applicant<br>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) |
|---|---|---|---|---|---|---|---|
| | Measures to the correct specification as to soil stripping, storage and replacement will be outlined in the CEMP developed by the main contractor. | | ES, Paragraph 12.9.22<br>**Chapter 12: Population and 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<br>**Appendix 12.1: Agricultural Assessment (Confidential), Volume 7** of the ES, Paragraph 4.4.14 | The Applicant<br>Main contractor | CEMP approved by the SoS following consultation with NCC<br>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.<br>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.<br>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 | 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<br>**Chapter 14: Climate, Volume 3** of the ES, Paragraphs 14.11.4-14.11.6 | The Applicant | Schedule of General Inspections<br>Records of, and information from, inspections stored on HE's Integrated Management Information System IAMIS-Structures | 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) |
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| | revisited when new and/or updated information becomes available, for example when further updates to climate projections are published. | | | | | | |

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**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) |
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| **DESIGN MEASURES** | | | | | | | |
| **Noise and Vibration** | | | | | | | |
| A-N1 | The following measures will be applied:<br>**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.<br>**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).<br>**c.** Where the 'de-trunked' A1 will become NCC's responsibility, the road surface type will remain the same as existing.<br>**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<br>**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<br>**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 | Main contractor | As built drawings | Design | |

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| | | | **Noise Addendum** (Document Reference: 6.22) | | | | |
| 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<br>**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<br>**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.<br>The preliminary assessment for properties eligible for compensation under the NIR indicated that Capri Lodge and Strafford House are likely to be eligible.<br>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 | |

| 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) |
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| **Landscape and Visual** | | | | | | | |
| A-L1 | Where land is not permanently required for mitigation, land will be returned to former land use.<br>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<br>**Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4 | Designer<br>Main contractor | Landscape design discharged as required by the DCO<br>As Built drawings<br>Landscape Design Certificate | Design | |
| A-L2 | In order to minimise the impacts of the Part A on existing vegetation and habitats, the landscape design includes the following measures:<br>**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.<br>**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. | To reduce operational impacts through landscape planting.<br>To enhance value for wildlife.<br>To reinstate habitat features.<br>To connect existing habitat areas (especially woodland) and mitigate the effects of fragmentation and displacement.<br>To encourage use of structures by wildlife. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.4 | Designer<br>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**)<br>As Built drawings<br>Landscape Design Certificate | Design | |

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| | **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.<br>**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 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. | To improve the biodiversity of Part A. | | | | | |
| 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.<br>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.<br>To enhance and protect landscape character during operation.<br>To provide connectivity to the retained woodland. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.14 | Designer<br>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**)<br>Landscape design discharged as required by the **draft DCO**<br>As Built drawings<br>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 Highways England's Scheme website) | Project Phase (Design, Pre-Construction, Construction, Operation) | Record of Completion (Signature and Date) |
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| 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<br>Main contractor | Landscape design discharged as required by the DCO<br>As Built drawings<br>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):<br>**a.** Reflective noise barrier (3 m high and 70 m long) (PNB1)<br>Reflective noise barrier (4 m high) (PNB2)<br>Absorptive noise barrier (4 m high) (PNB3)<br>Noise barrier (3 m high) (PNB4)<br>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.<br>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 | To increase the effectiveness of the screen planting within the affected area, reducing overall dominance of embankments in and around the proposed junctions.<br>To enhance the landscape within the highway boundary. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraphs 7.9.16, 7.9.18 to 7.9.20 | Designer<br>Main contractor | Site Environmental Inspection Reports<br>CEMP approved by the SoS following consultation with NCC | Design | |

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| | landscape integration during early plant establishment and increasing the effectiveness of the associated screen planting at design year.<br>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:<br>**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.<br>**b.** Bunds 10 – 13 are intended to provide essential barn owl mitigation, beyond those functions noted above. | | | | | | |
| A-L6 | Ancient woodland compensation measures include the following:<br>**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 replacement ancient woodland to become established.<br>**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**)).<br>**c.** Following consultation with Natural England, woodland creation will be implemented in accordance | To avoid or reduce impacts on trees and woodland.<br>To prepare the Woodland Creation Area.<br>To compensate for loss of ancient woodland. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.13<br>**Appendix 7.5**: **Arboricultural Report, Volume 7** of the ES, Paragraph 6.1.1, 6.1.2 and 6.1.13 | Main contractor with guidance from the Arboriculturalist (main contractor), Environmental Manager (main contractor) and ECoW (main contractor) | Ancient Woodland Strategy<br>As Built drawings<br>Landscape Design Certificate<br>Arboricultural Method Statement<br>Landscape design discharged as required by the DCO | Design | |

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| | with the **Ancient Woodland Strategy** (**Appendix 9.21, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)). | | | | | | |
| **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.<br>To encourage use of structures by wildlife. | **Chapter 9: Biodiversity, Volume 2** of the ES, Paragraph 9.9.4 | Designer<br>Main contractor | Landscape design discharged as required by the DCO<br>As built drawings Landscape Design Certificate | Design | |
| 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**)). | To mitigate the effects of fragmentation on protected and notable species.<br>To encourage flights lines of bats towards and into the culverts. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM028 | Designer<br>Main contractor | As built drawings<br>Landscape design discharged as required by the DCO | Design | |

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| | 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. | | | | | | |
| 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:<br>**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.<br>**b.** Comply with the following construction mitigation requirements:<br>i. Establishment of buffer/stand-off distances<br>ii. Implementation of an arboriculture method statement<br>iii. Access and construction traffic movements<br>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<br>**c.** Planting of Woodland Creation Area identified to the southwest of the River Coquet Bridge<br>**d.** Preparation of the Woodland Creation Area, including soil testing and preparation, as required.<br>**e.** Salvage of woodland soils and flora, where access permits<br>**f.** Establishment of 8.16 ha of woodland, using native species of local provenance<br>**g.** Establishment of hay meadow ground flora with provenance to the Coquet Valley, using locally sourced green hay or an appropriate hay meadow | 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<br>Main contractor | Site Environmental Inspection Reports<br>CEMP approved by the SoS following consultation with NCC<br>Ancient Woodland Strategy (developed in consultation with Natural England)<br>Arboriculture Method Statement<br>Biosecurity Method Statement<br>Landscape design discharged as required by the DCO | Design | |

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| | mix<br>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<br>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.<br>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<br>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 (circular). This location will be subject to a further Defra Local Scale study during and post-construction to assess its effectiveness. | To mitigate the effects of habitat fragmentation on bats. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM027 | Designer<br>Main contractor | As built drawings<br>Defra Local Scale Study post-construction | Design | |
| 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, with | To mitigate for the loss of aquatic (running water) habitat. | **Chapter 9: Biodiversity, Volume 2** of the | Designer<br>Main contractor | Scheme design drawings | Design | |

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| | suitable consideration given to the predicted design flows.<br>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. | | ES, Table 9-23, EM041 | | | | |
| 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**).<br>All culverts beneath the main alignment of Part A (the A1) that may be used by badger or otter[2] include a | 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<br>Main contractor | As built drawings<br>Defra Local Scale Study post-construction | 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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| | 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. | | | | | | |
| 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.<br>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<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Table 15-4 | Designer<br>Main contractor | As built drawings | Design | |
| 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**).<br>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.<br>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). | To maintain connectivity for wildlife, including badger and otter. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM032 | Designer<br>Main contractor | As built drawings | Design | |

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| | 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:<br>**a.** Wildlife Fenrother Culvert<br>**b.** Wildlife Causey Park Culvert<br>**c.** Wildlife Eshott Burn Culvert<br>**d.** Wildlife Burgham Culvert | | | | | | |
| 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:<br>**a.** Along both sides of Part A carriageway to the north of Highlaws Junction.<br>**b.** Along both sides Part A carriageway at Causey Park.<br>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 repairs as a consequence of wear and tear or damage undertaken in a timely manner.<br>Inclusion of additional fencing to guide wildlife to culverts will be considered at detailed design, prior to construction. | 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<br>Site Inspection Records | Design | |
| 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 | To reduce the risk of vehicle collision with barn owl.<br>To increase the height and success of the bunding with regards to the | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM038 | Designer<br>Main contractor | Scheme design drawings<br>Landscape Design Certificate<br>Landscape planting scheme discharged as required by the DCO | Design | |

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| | bunding will also be planted with trees and woodland planting on the outer slope (away from the road). | safe crossing for barn owl. | | | | | |
| 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<br>Main contractor | Scheme design drawings<br>Landscape Design Certificate<br>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<br>Main contractor | As built drawings | Design | |
| 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)<br>Arboriculturalist (main contractor) | Landscape design discharged as required by the DCO<br>Landscape Design Certificate<br>Arboricultural Method Statement | Design | |

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| **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**):<br>**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.<br>**b.** The replacement of the existing culvert along Shieldhill Burn with a new circular culvert.<br>**c.** The replacement of the existing arch culvert along Floodgate Burn with a new circular culvert.<br>**d.** The construction of a new culvert where Part A crosses the River Lyne.<br>**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.<br>**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.<br>**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.<br>**h.** Modification of the headwall of the existing culvert along Longdike Burn.<br>**i.** The extension of the existing culvert at Longdike Burn (and the Poxtondean Burn that discharges into the Longdike Burn). | 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<br>**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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| | **j.** Construction of a new circular culvert where Part A will cross a surface water flow path south of Felmoor Park.<br>**k.** Replacement of the culvert that drains agricultural land to the west of Eshott Airfield.<br>**l.** Extension of the existing culvert on an unnamed watercourse which drains to the Thirston Burn.<br>**m.** New bridge crossing the River Coquet to the immediate east of the existing bridge.<br>**n.** Extension of the existing culvert on Bradley Brook.<br>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.<br>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 4.2.3 | Main contractor | As built drawings | Design | |
| A-W3 | East Cotting Burn Culvert (1.5) will include a 200 mm natural bed. | To manage risks to local ecology during operation.<br>To encourage fish passage and will not include mammal passage | **Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the | Main contractor | As built drawings | Design | |

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| | | provision due to the likely low risk of mammal casualty with it being a private access with low usage. | ES, Paragraph 4.2.5 | | | | |
| 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.<br>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.<br>The culvert will be designed to include a minimum natural bed depth of 150 mm. As this culvert is proposed to be a 1800 mm diameter pipe rather than a box culvert the provision of a low flow channel is not possible.<br>Measures, where feasible, will be incorporated within the culvert to prevent scour / erosion of the natural bed. | To improve the quality of the environment for local ecology during operation.<br>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~~ 200 mm natural bed with~~in~~ a ~~250 mm~~ low flow channel. A 500 mm wide shelf will be fixed to the culvert, 1.31 m above the culvert invert.<br>The culvert will be designed to include a minimum natural bed depth of 200 mm, with the low flow channel provided in a notch or via the provision of a deeper / wider section of natural bed to create the low flow channel should a culvert without a notch be chosen. The low flow channel | To improve the quality of the environment for local ecology during operation.<br>To encourage fish passage and to allow mammal passage. | **Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 7.2.3 | Main contractor | As built drawings | Design | |

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| | is to be sized based upon sections of the natural channel width in the upstream wooded area. A check will be undertaken to confirm the viability of this low flow channel maintaining 100 mm depth of water above the natural bed during times of optimum fish passage.<br>Should the notch solution be adopted, then detailed design will consider and include, where feasible, baffles or other features to trap low levels of sediment on the bed of the culvert outside of the notch, to enhance the bed of the culvert for biodiversity purposes. | | | | | | |
| A-W7 | The design of the new channel at Fenrother Burn will maintain a similar channel profile and dimensions to the existing watercourse, with consideration given to the predicted flows to minimise the risk of flooding to the adjacent land. 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.<br>The outline design provided in Figure 8 of the Water Framework Directive Assessment [APP-255] will be utilised for the reach between the access track and the A1 carriageway, should it not be feasible to enhance this section.<br>For the reach between the access track and the junction, the banks will be slackened and the bed widened as appropriate, to generate more of a natural profile than that of an artificial / engineered field drainage ditch. Around the detention pond, the adjacent bank and that of the detention pond will be further slackened as appropriate to enable ease of movement of biodiversity between the wetland habitat in the pond and that in the channel. | To improve the quality of the environment for local ecology during operation.<br>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. | To encourage fish passage. | **Appendix 10.2**: **Water Framework Directive** | Main contractor | As built drawings | Design | |

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| | 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 improve the quality of the environment for local ecology during operation. | **Assessment, Volume 7** of the ES, Paragraph 8.2.5 and 8.2.7 | | | | |
| 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).<br>The culvert will be designed to include a minimum natural bed depth of 150mm, with the low flow channel provided in a notch or via the provision of a deeper / wider section of natural bed to create the low flow channel should a culvert without a notch be chosen. The low flow channel is to be sized based upon the upstream natural channel width. | 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 | |
| A-W10 | The design of the new channel on the Tributary of Earsdon Burn will maintain a similar channel profile and dimensions to the existing channel to mimic existing conditions, with consideration given to the predicted flows to minimise the risk of flooding to the adjacent land. 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 | Earsdon Burn Culvert (6.3) will include:<br>**a.** A 150 mm natural bed to encourage fish passage<br>**b.** A wildlife ledge will also be provided 1 m above the culvert invert level to allow for mammal passage<br>**c.** A minimum of 600 mm headroom is required for mammal passage<br>The culvert will be designed to include a minimum natural bed depth of 150 mm, with the low flow channel provided | To improve the quality of the environment for local ecology during operation.<br>To encourage fish passage and allow | **Appendix 10.2**: **Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 9.2.5 | 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 Highways England's Scheme website) | Project Phase (Design, Pre-Construction, Construction, Operation) | Record of Completion (Signature and Date) |
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| | in a notch or via the provision of a deeper / wider section of natural bed to create the low flow channel should a culvert without a notch be chosen. The low flow channel is to be sized based upon the upstream natural channel width. c. | for mammal passage. | | | | | |
| A-W12 | Bockenfield Culvert (12) will maintain a natural bed to encourage fish passage, and a new wildlife ledge 1.7 m above the riverbed 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-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 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 | 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<br>**Appendix 10.4: Geomorphology Assessment – River Coquet**, **Volume 7** of the ES, Table 5-7 | Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC Scheme design drawings | Design | |

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| | substrate size of greater than 40 mm up to small cobble size. | | | | | | |
| **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<br>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:<br>**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.<br>**b.** The proposed Causey Park overbridge will be designed to safely carry both pedestrians and vehicular traffic.<br>**c.** The proposed Burgham underbridge will be designed with access for pedestrians using hardened verges, and vehicular traffic, with clear visibility for all users.<br>**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<br>**Landscape Mitigation Masterplan** (**Figure 7.8, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**))<br>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:<br>**a.** The construction method for the River Coquet bridge will comprise prefabricated elements which will reduce waste production on site.<br>**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.<br>**c.** Precast elements of the new culvert structures will also be constructed off site, reducing waste production on site.<br>**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**)<br>As built drawings | Design | |

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| | d. | | | | | | |
| Climate Change | | | | | | | |
| A-CC1 | **Structures**<br>a. Flood risk during construction will be considered under the heading of sustainability in matrix assessment of structural options.<br>b. Piled foundations (to manage structural stability and robustness) will be used for Burgham Park overbridge, River Coquet bridge and Parkwood Subway abutments.<br>**Flood Risk**<br>a. The design of Part A will incorporate both new culverts and the use of existing culvert.<br>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<br>Designer | Detailed design drawings<br>As built drawings | Design | |
| A-CC2 | **Structures**<br>a. Modelling for temperature effects will be undertaken in accordance with modern standards and incorporated into the design.<br>**Watercourses**<br>a. Low flow channel to improve fish passage during operation will be installed at Fenrother Burn and Earsdon Burn.<br>**Buildability**<br>a. Selection of native woodland and hedgerow species.<br>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<br>Designer | Detailed design drawings<br>As built drawings<br>Landscape design discharged as required by the DCO | Design | |

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| A-CC3 | **Drainage**<br>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<br>Designer | Detailed design drawings<br>As built drawings | Design | |
| A-CC4 | The following measures will be implemented:<br>**Structures**<br>**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<br>Designer | Detailed design drawings<br>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<br>Arboriculturalist (main contractor)<br>Environmental Manager (main contractor)<br>ECoW (main contractor) | Landscape design discharged as required by the DCO<br>As Built drawings<br>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.<br>To enhance and protect landscape character during operation. | **Chapter 7: Landscape and Visual, Volume 2** of the ES, Paragraph 7.9.14 | Main contractor<br>Arboriculturalist (main contractor)<br>Environmental Manager (main contractor)<br>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** | Construction | |

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| | | To provide connectivity to the retained woodland. | | | **Document Reference: TR010041/APP/3.1**)<br>Landscape design discharged as required by the **draft DCO**<br>As Built drawings<br>Landscape Design Certificate | | |
| **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' (**Ref. 9**) prior to the start of construction to create a permanent record of its existing setting.<br>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. | To create a permanent record of its existing setting and assist with its reinstatement upon completion of construction. | **Chapter 8: Cultural Heritage, Volume 2** of the ES, Paragraph 8.9.7 | Main contractor<br>Archaeologist (main contractor)<br>Scheme Archaeologist | Method Statement approved by the Secretary of State following consultation with NCC, Historic England and the Milestone Society as per Requirement 10, Schedule 2 of the **draft DCO** (**Application Document Reference: TR010041/APP/3.1**)<br>CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO.** | Pre-construction<br>Construction | |

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| | | | | | 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.<br>DCO Requirements | | |
| **Biodiversity** | | | | | | | |
| A-B17 | A pre-commencement walkover survey for otter of watercourses crossed by the Scheme will be undertaken immediately prior to construction (as a minimum) to confirm that baseline conditions remain accurate and affirm mitigation proposals. In the event that an otter rest site is recorded, and activities may result in an offence, Natural England will be consulted and a license obtained where necessary. If an otter rest site is recorded but an offence can be avoided through mitigation (either as detailed within this document or additional measures), the ECoW will develop an appropriate plan and work with the main contractor to implement this.<br>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<br>ECoW (Main contractor) | Otter Report<br>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 | To obtain updated GCN baseline data suitable for an EPS Licence application. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, DM04<br>Great Crested Newt 2020 | Main contractor<br>ECoW (main contractor) | EPS Method statement<br>GCN Report<br>DCO Requirements | Pre-construction | |

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| | (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). | | Verification Survey Report Part A (Document Reference: 6.20) | | | | |
| 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<br>Bat Activity 2020 Verification Survey Report Part A (Document Reference: 6.19) | Main contractor<br>ECoW (main contractor) Main Contractor | EPS Method statement<br>Bat Report<br>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)<br>Main contractor<br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC Red Squirrel Report<br>Environmental Inspection Records | Pre-construction<br>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).<br>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 | To protect red squirrel. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM013 | Named ecologist (main contractor)<br>Main contractor<br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Red Squirrel Report<br>Environmental Inspection Records | Pre-construction<br>Construction | |

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| | England contacted for advice and to confirm how to proceed.<br>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. | | | | | | |
| 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 mitigation and compensation requirements will be required to enable the construction of Part A.<br>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).<br>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.<br>**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 | To comply with conservation legislation, protect GCN habitat and prevent an impact to the Favourable Conservation Status of the local GCN population. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM006 | Designer<br>Named Ecologist (main contractor)<br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Protected species licenses as authorised by Natural England<br>Scheme design drawings (Burgham Park Underbridge) (finalised at detailed design phase)<br>As built drawings<br>EPS Method Statements<br>Landscape design discharged as required by the DCO<br>DCO Requirements | Pre-construction<br>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) |
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| | undertaken during winter hibernation or dormancy periods.<br><br>**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 design phase, prior to construction of the underpass, are as follows:<br><br>**a.** A shallow gradient to the culvert to assist free-drainage and prevent excessive waterlogging within the tunnel.<br>**b.** Creation of wing-walls at either entrance to the culvert, to increase the capture area and encourage use of the culvert.<br>**c.** Avoidance of dense planting at the openings to the culvert to increase natural light entering the internal space.<br>**d.** Inclusion of a layer of soil and debris within the culvert to create a natural bed to encourage use.<br><br>**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 | To protect GCN from potential impacts during construction. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM007 | Scheme Ecologist (main contractor)<br><br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC Precautionary | Pre-construction<br><br>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) |
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| | m of pond A21 will be undertaken under Precautionary Working Methods (PWM).<br>Mitigation measures include:<br>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).<br>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.<br>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. | | | | Working Method Statement<br>Toolbox Talk Records<br>Contractors Programme<br>DCO Requirements | | |
| 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). | To protect roosting bats from potential disturbance impacts during construction | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM009<br>Bat Activity 2020 Verification Survey Report Part A (Document Reference: 6.19) | Named ecologist (main contractor)<br>Main contractor<br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Precautionary working method statement<br>Environmental Inspection Records | Pre-construction<br>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) |
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| | 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:<br><br>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).<br><br>A physical barrier (such as heras fencing) will be installed between the works area and a bat roost (at least 10 m distance from the tree where possible), to prevent accidental damage or destruction of the bat roost.<br><br>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:<br><br>**a.** Two tree-mounted 'woodcrete' bat box (Schwegler 1FF or similar) on mature trees at Burgham Park.<br>**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.<br><br>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 | | | | Signed toolbox talk records<br><br>Evidence of bat boxes and bat features including records from the contractor, photos, and environmental inspections<br><br>DCO Requirements | | |

| 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) |
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| | 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.<br><br>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 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.<br><br>**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. | To protect roosting bats from potential disturbance impacts during construction. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM008<br><br>Bat Activity 2020 Verification Survey Report Part A (Document Reference: 6.19) | Named ecologist (main contractor)<br><br>Main contractor<br><br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC Precautionary working method statement<br><br>Environmental Inspection Records<br><br>Signed toolbox talk records<br><br>Evidence of bat boxes and bat features including records from the contractor, photos, and environmental inspections<br><br>DCO Requirements | Pre-construction<br><br>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) |
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| | **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.<br>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)).<br>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. | To comply with conservation legislation and protect badger. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM010 | Named ecologist (main contractor)<br>Main contractor<br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC Badger Method Statement<br>Badger license in consultation with Natural England<br>Badger report | Pre-construction<br>Construction | |
| 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.<br>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.<br>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. | 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)<br>Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Evidence of bat boxes and bat features including records from the contractor, photos, and environmental inspections<br>EPS Method Statement<br>Bat report | Pre-construction<br>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) |
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| | 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.<br>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 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. | | | | | | |
| A-B28 | No site personnel will enter a space or building occupied by a barn owl.<br>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). | To protect barn owl. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM012 | Named ecologist (main contractor)<br>Main contractor<br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Barn Owl Report<br>Precautionary Working Method Statement<br>Barn Owl License granted by Natural England<br>Signed toolbox talks | Pre-construction<br>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) |
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| Activity Type | Examples | Disturbance Risk | Min protection zones (m) |
|---|---|---|---|
| Pedestrian movement | Site personnel walking near nests/roosts | Low/ medium | 20 |
| Artificial lighting | Illumination of works area (no direct lighting or nest/roost) | Low/ medium | 30 |
| Vehicular movements | Vehicles or heavy plant moving past nest/ roost sites | Medium | 40 |
| General light building and landscape works | Laying concrete, bricks, roofing using mechanised plant | Medium/ high | 60 |
| Heavy construction | Piling or compaction works, ground levelling, crushing of materials | High | 175 |

| 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) |
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| 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.<br><br>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.<br><br>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:<br><br>**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.<br>**b.** In river works will be restricted to daylight hours.<br>**c.** In river works are anticipated to be short in duration (two-three weeks).<br>**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).<br>**e.** Soft-start and intermittent working techniques outlined will be applied. | 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<br><br>ECoW (main contractor)<br><br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC<br><br>Environmental Permit for Flood Risk Activities in consultation with the EA. | Pre-construction<br><br>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) |
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| 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<br>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.<br>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.<br>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<br>ECoW (main contractor) | Ecological watching brief<br>As built drawings<br>Flood Risk Activities Permit (in consultation with the EA) for River Coquet and Longdike Burn<br>Land Drainage Consent (following consultation with the Lead Local Flood Authority) for all other watercourses<br>CEMP approved by the Secretary of State following consultation with | 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) |
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| | Any remaining fish found in dewatered areas should be rescued with hand nets and relocated to a safe distance away.<br>Fish rescues will be carried out to best practice and with appropriate licences in place.<br>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. | | | | NCC as per Requirement 4, Schedule 2 of the draft DCO (Application Document Reference: TR010041/APP/3.1)<br>Signed toolbox talks<br>ECoW Weekly Log<br>Construction Constraints Plan<br>Precautionary Working Method Statement | | |
| 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)<br>Named ecologist (main contractor)<br>Main contractor<br>Arboriculturalist (main contractor) | CEMP approved by the SoS following consultation with NCC<br>EPS Method Statement<br>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<br>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 | To ensure maintenance of the nocturnal | **Chapter 9: Biodiversity, Volume 2** of the | Main contractor | CEMP approved by the SoS following | Construction<br>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) |
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| | in accordance with the lighting strategy (refer to **S-G5** of this Outline CEMP) | environment for animals in the vicinity of Park Wood Subway. | ES, Table 9-23, EM034 | | consultation with NCC<br>Signed toolbox talks | | |
| 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<br>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<br>Scheme design drawings<br>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**)).<br>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 | To compensate for the loss of habitats. | **Chapter 9: Biodiversity, Volume 2** of the ES, Table 9-23, EM0046 | Main contractor<br>The Applicant<br>ECoW (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Landscape design discharged as required by the DCO<br>Landscape Design Certificate<br>LEMP (if produced)<br>HEMP | 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) |
|---|---|---|---|---|---|---|---|
| | 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.<br>Landscape planting and newly created habitat will comprise of locally native species of local provenance and will comprise a mixture of species.<br>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.<br>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:<br>**a.** Riparian woodland planting (subject to detailed design this could include native tree species)<br>**b.** Enhancements to an existing berm with suitable planting particularly wetland tolerant / amphibious vegetation.<br>**c.** Aquatic macrophyte planting to compliment the riparian planting and enhancements to the berm feature.<br>**d.** Understorey planting (this may be beneficial along other parts of the reach) this could include amphibious or reeds or rushes.<br>~~nutrient management measures to address adverse impacts of run-off from agricultural land, aquatic planting and bankside stabilisation~~. These ~~M~~measures will be | 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<br>ECoW (main contractor) in consultation with the Environment Agency | CEMP approved by the SoS following consultation with NCC<br>Results of the walkover survey and WFD status | 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) |
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| | 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. | | | | | | |
| 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.<br><br>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 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:<br><br>**a.** Longhirst – NZ247903<br>**b.** Ulgham – NZ229913<br>**c.** Acklington – NU221017<br>**d.** Morwich – NU223033<br><br>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 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)<br><br>Named (licensed) ecologist will undertake monitoring | Evidence of barn owl boxes/roost feature<br><br>Barn owl report<br><br>Environmental Inspection Records | 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) |
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| | to undertake the first nest box check in the second half of May to avoid missing early breeding.<br>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)<br>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)<br>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 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. | To prevent spread of ash dieback disease. | **Appendix 9.21: Ancient Woodland Strategy**, **Volume 7** of the ES, Paragraph 3.3.3 | ECoW (main contractor)<br>Arboriculturalist (main contractor) | Ancient Woodland Management Plan<br>CEMP approved by the SoS following consultation with NCC<br>Statutory Plant Health Notice | Construction | |
| **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:<br>**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 | To reduce or prevent the impact of the River Coquet bridge construction. | **Chapter 10: Road Drainage and the Water Environment, Volume 2** of the | Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Scheme design 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 Highways England's Scheme website) | Project Phase (Design, Pre-Construction, Construction, Operation) | Record of Completion (Signature and Date) |
|---|---|---|---|---|---|---|---|
| | 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.<br>**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.<br>**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.<br>**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 the watercourse and top of the valley sides will be maintained as far as practicable.<br>**e.** Use a sediment trap to treat surface runoff.<br>**f.** Avoid works during high flow events to reduce the risk of fine sediment release.<br>**g.** Use seeded biodegradable fibre matting to encourage re-vegetation after works on, or near, the banks.<br>**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. | | ES, Paragraphs 10.9.14 to 10.9.17<br>**Appendix 10.4: Geomorphology Assessment – River Coquet, Volume 7** of the ES, Table 5-6<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Table 15-1 | | Relevant sections of BS6031:2009 Code of Practice for Earthworks (British Standards, 2009) | | |

| 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) |
|---|---|---|---|---|---|---|---|
| | 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.<br>j. In river works will be restricted to daylight hours to reduce the impacts to fish including salmon and brown trout.<br>k. In river works will not occur during high flows.<br>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.<br>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, notable species and habitats. This will ensure that an appropriate method of construction in line with the sensitivity of the watercourse can be developed. | 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<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 7** of the ES, Paragraph 15.1.20 | Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Scheme design drawings | Construction | |
| 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 | To prevent damage to watercourse during the | **Appendix 10.2: Water Framework Directive** | Main contractor | CEMP approved by the SoS following | 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) |
|---|---|---|---|---|---|---|---|
| | 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. | construction of the culverts associated with Part A. | **Assessment, Volume 7** of the ES, Paragraph 15.1.21 | Environmental Manager (main contractor) | consultation with NCC<br>Scheme design drawings | | |
| **Geology and Soils** | | | | | | | |
| A-GS2 | Control measures to protect controlled water bodies will include:<br>**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.<br>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<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with NCC<br>Temporary surface water drainage strategy<br>Environmental Inspection Records<br>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 anticipated in and around the River Coquet and Felton Park). | To reduce effects on amenity value and disruption for recreational users of Felton Park and River Coquet. | **Chapter 12: Population and Human Health, Volume 2** of the ES, Paragraph 12.9.19 | Main contractor | CTMP<br>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 Highways England's Scheme website) | Project Phase (Design, Pre-Construction, Construction, Operation) | Record of Completion (Signature and Date) |
|---|---|---|---|---|---|---|---|
| A-PH3 | Measures to reduce the impacts of the construction of Part A on agricultural land and land holdings will include:<br>**a.** Returning agricultural land, which is used temporarily for construction to the owner, restored close to its former productive capacity.<br>**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.<br>**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.<br>**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<br>Main contractor | CEMP approved by the SoS following consultation with NCC<br>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<br>Main contractor | CEMP approved by the SoS following consultation with NCC | Construction | |
| **Climate Change** | | | | | | | |
| A-CC5 | The following measures will be implemented: | 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<br>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 Highways England's Scheme website) | Project Phase (Design, Pre-Construction, Construction, Operation) | Record of Completion (Signature and Date) |
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| | **Structures**<br>**a.** Ensure appropriate storage of inflammable materials during construction and operation. | | | | | | |
| A-CC6 | The following measures will be implemented:<br>**Buildability**<br>**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<br>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<br>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**)<br>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: | 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<br>Defra Local Scale Study post-construction<br>LEMP (if produced)~~production~~<br>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) |
|---|---|---|---|---|---|---|---|
| | **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**)).<br>**b.** The six visits to consist of the same number of dusk and dawn visits.<br>**c.** A single year of monitoring completed during the construction period.<br>**d.** Monitoring visits completed annually over a four year period post-construction.<br>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:<br>**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.<br>**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<br>The Applicant | LEMP (if produced)~~production~~<br>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<br>Badger Method Statement<br>LEMP (if produced)~~production~~<br>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) |
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| A-B48 | A bird survey will be carried out ~~will be included within the LEMP~~ 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)<br>ECoW (main contractor) | Environmental Inspection Reports<br>LEMP (if produced) ~~production~~<br>HEMP | 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.<br>It is recommended that all mitigation and compensation features are subject to an annual 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. | To ensure mitigation prescribed and enacted performs as required. | **Chapter 9: Biodiversity, Volume 2** of the ES – Paragraph 9.11.7 | Named Ecologist<br>The Applicant/ main contractor | Environmental Inspection Reports<br>LEMP (if produced)~~production~~<br>HEMP | Operation | |
| 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<br>The Applicant/ main contractor | Environmental Inspection Reports<br>LEMP (if produced)~~production~~<br>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<br>Environmental Manager (main contractor)<br>Arboriculturalist (main contractor) | Landscape Mitigation Masterplan<br>As built drawings<br>LEMP (if produced)~~production~~<br>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) |
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| **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<br>Main contractor | CEMP approved by the SoS following consultation with NCC<br>ALC Report | Operation | |

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**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<br>(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.<br><br>All existing sections of LNS on the A1 beyond the Order Limits of Part B will remain.<br><br>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<br>**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:<br>**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.<br>**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**).<br>**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.<br>To enhance value for wildlife.<br>To reinstate habitat features.<br>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<br>**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**)<br>As built drawings<br>Landscape Design Certificate<br>Landscape Mitigation Plan | Design | |

| Ref | Action (including monitoring requirements) | Objective | Source Reference | Organisation / Individual (Delivering Measure) | Achievement Criteria and Reporting Requirements<br>(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. 12**).<br>**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.<br>**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.<br>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:<br>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<br>Ancient Monuments and Archaeological Areas Act, 1979<br>**Construction Working Areas Around Scheduled Monuments** plan, **Appendix A** of this Outline CEMP. | Scheme Archaeologist, in consultation with Historic England, NCC County Archaeologist.<br>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**)<br>**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)<br>Main contractor | CEMP approved by the SoS following consultation with NCC.<br>Site environmental inspection reports | Design | |

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| | **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<br>**Appendix 9.1**: **Habitats and Designated Sites, Volume 8** of the ES, Table 7-1 | Designer<br>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**)<br>Landscape design approved by the Secretary of State following consultation with NCC as per Requirement 5, Schedule 2 of the **draft DCO**.<br>Site Environmental Inspection Reports<br>Arboriculture Method Statement<br>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<br>**Appendix 9.1**: **Habitats and Designated Sites, Volume 8** of the ES, Table 7-1 | Designer<br>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**)<br>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.<br>To prevent barn owl foraging adjacent to the carriageway, and | **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BO01 and BI03<br>**Appendix 9.7: Barn Owl Survey Report**, **Volume 8** of the ES, Table 7-1 | Designer<br>Main Contractor<br>Bat Specialist ECoW<br>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**)<br>Landscape Design Certificate<br>Arboricultural Method Statement | Design | |

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| | 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.<br>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<br>**Appendix 9.6**: **Breeding and Wintering Birds Report, Volume 8** of the ES Table 7-1 | Designer<br>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**)<br>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.<br>**b.** Roughened beds (addition of rocks and boulders), baffles and refuge areas (such as masonry with cavities) will achieve this.<br>**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<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Table 7-2<br>**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<br>(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) |
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| | **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<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.3.21 | The Applicant | As built drawings | Design | |
| ExA: B-B100 | Otter exclusion fencing will be installed along highway boundary features (hedgerows or fence lines) to guide otter into suitable crossing points beneath Part B ( through culverts), discourage otter crossing the road (Part B) at specific locations and to reduce the risk of collision and mortality. This will include fencing at the following culverts:<br>**a.** Shipperton Burn (culvert reference 27.1 at chainage 60385)<br>**b.** Western Tributary of Kittycarter Burn (Linkhall Culvert, reference 26.1 (cattle creep) at chainage 59275)<br>**c.** White House Burn (culvert reference 23.1 (cattle creep) at chainage 56920<br>**d.** Denwick Burn (culvert reference 21.1 at chainage 54600)<br>The exact alignment of the fencing will be confirmed at detailed design, but will tie into the headwalls of the culvert and go around the top of the headwall. The fencing will extend parallel with the road either side of the culvert and on both sides of the Part B carriageway. The lengths of the otter fencing are shown on the Landscape Mitigation Plan Part B [REP6-018] (and as updated at Deadline 8). | To protect the local otter population | Engagement with the Environment Agency<br>Landscape Mitigation Plan Part B [REP6-018] (and as updated at Deadline 8) | Main contractor with guidance from the ECoW (main contractor) | Scheme design drawings<br>Site Inspection Records | Design | |

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| | The otter fencing will be maintained for the life of Part B. Following construction, the otter fencing will be maintained in an effective condition, with any repairs as a consequence of wear and tear or damage undertaken in a timely manner. | | | | | | |
| **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**):<br>**a.** The extension of the existing culvert Denwick Burn (19.1) at chainage 54080.<br>**b.** The extension of the existing culvert Denwick Burn (21.1) at chainage 54600.<br>**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.<br>**d.** The extension of the existing culvert White House Burn (23.1) at chainage 56920.<br>**e.** The extension of the existing culvert Kittycarter Burn (24.2) at chainage 58600.<br>**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.<br>**g.** The diversion and channel realignment of the southern tributary of Kittycarter Burn to reduce the length of culvert required.<br>**h.** The extension of the existing Linkhall Culvert (26.1) along the western tributary of Kittycarter Burn at chainage 59275.<br>**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. | 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<br>**Appendix 10.2: Water Framework Directive Assessment, Volume 8** of the ES, Paragraph 10.2.4, Table 10-3 | Designer | As built drawings | Design | |

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| | **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.<br>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.<br>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.<br>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.<br>Detailed design of the realignment of the Kittycarter Burn will, where feasible:<br>**a.** Slacken the banks and widen the bed as appropriate, to generate more of a natural profile than that of an artificial / engineered field drainage ditch.<br>**b.** Where the channel is close to the attenuation pond, the adjacent bank and that of the attenuation pond will be further slackened as appropriate to enable ease of movement of wildlife between the wetland habitat in the pond and that in the channel. | | | | | | |

| Ref | Action (including monitoring requirements) | Objective | Source Reference | Organisation / Individual (Delivering Measure) | Achievement Criteria and Reporting Requirements<br>(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) |
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| **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.<br>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<br>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:<br>**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.<br>**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.<br>**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<br>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 | | |

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| | 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.<br>**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.<br>**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.<br>**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**)<br>As built drawings | Design | |

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| | sections. There will be no requirement for in-situ foundations.<br>**d.** In addition, a new culvert system will be installed north of Heckley Fence comprising precast concrete pipes constructed off-site.<br>**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.<br>**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**)<br>Detailed design drawings<br>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.<br>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**)<br>CEMP approved by the Secretary of State following consultation with NCC as per Requirement 4, Schedule 2 of the **draft DCO.** | Construction | |

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| | 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**)<br>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.<br>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<br>**Appendix 9.4: Red Squirrel Report,** | Main contractor<br>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**)<br>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.<br>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.<br>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<br>**Appendix 9.2: Badger Report (Confidential), Volume 8** of the ES, Table 7-1<br>**Appendix 9.4: Red Squirrel Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>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**)<br>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<br>**Appendix 9.4: Red Squirrel Report, Volume 8** of the ES, Table 7-1 | Main | EPS Method Statement<br>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<br>**Appendix 9.2: Badger Report (Confidential), Volume 8** of the ES, Table 7-1 | Main contractor<br>ECoW (main contractor) | Badger Method Statement<br>ECoW Weekly Log<br>Construction Constraints Plan | Pre-construction | |

| Ref | Action (including monitoring requirements) | Objective | Source Reference | Organisation / Individual (Delivering Measure) | Achievement Criteria and Reporting Requirements<br>(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) |
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| 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.<br>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<br>**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>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**)<br>Precautionary working method statement<br>Site Environmental Inspection Reports<br>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<br>**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>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**)<br>ECoW Weekly Log<br>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:<br>**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).<br>**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.<br>To comply with conservation legislation and protect roosting bats. | **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT06<br>**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>Bat Specialist ECoW<br>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**)<br>Precautionary working method statement<br>Site Environmental Inspection Reports<br>Evidence of bat boxes and bat features including records from the contractor, photos and Site Environmental Inspection Reports<br>ECoW Weekly Log<br>Signed toolbox talks records<br>Construction Constraints Plan | Pre-construction / construction | |

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|---|---|---|---|---|---|---|---|
| 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<br>**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>Bat Specialist ECoW<br>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**)<br>ECoW Weekly Log<br>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:<br>**a.** European Protected Species licences will be obtained for all bat roosts to be lost or disturbed during the construction of Part B.<br>**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).<br>**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.<br>To comply with conservation legislation and protect roosting bats.<br>To replace bat roosting habitat. | **Chapter 9: Biodiversity, Volume 3** of the ES, Table 9-12, BAT08<br>**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>Bat Specialist ECoW<br>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**)<br>Precautionary working method statement<br>Site Environmental Inspection Reports<br>Signed toolbox talks records<br>Evidence of bat boxes and bat features including records from the contractor, photos, and Site Environmental Inspection Reports<br>ECoW Weekly Log<br>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<br>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 | |

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| | 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**).<br>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.<br>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.<br>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**<br>Precautionary working method statement<br>Site Environmental Inspection Reports<br>Signed toolbox talks records<br>Evidence of bat boxes and bat features including records from the contractor, photos, and Site Environmental Inspection Reports<br>ECoW Weekly Log<br>Construction Constraints Plan<br>EPS Method Statement<br>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<br>**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>Bat Specialist ECoW<br>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**)<br>Precautionary working method statement<br>Signed toolbox talks records<br>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.<br>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.<br>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.<br>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.<br>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.<br>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<br>ECoW Weekly Log<br>Construction Constraints Plan<br>EPS Method Statement<br>Bat Report | | |

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| 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<br>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**)<br>Precautionary working method statement<br>Site Environmental Inspection Reports<br>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<br>**Appendix 9.5: Bat Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>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**)<br>ECoW Weekly Log<br>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<br>**Appendix 9.7: Barn Owl Survey Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>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**)<br>Precautionary Working Method Statement<br>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<br>**Appendix 9.7: Barn Owl Survey Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>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**)<br>Barn Owl Report<br>Precautionary Working Method Statement<br>Barn Owl License granted by NE<br>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<br>**Appendix 9.7: Barn Owl Survey Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>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**)<br>Barn Owl Report<br>Precautionary Working Method Statement<br>Barn Owl License granted by NE<br>Signed toolbox talks<br>ECoW Weekly Log<br>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<br>**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**)<br>Signed toolbox talks<br>ECoW Weekly Log<br>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.<br>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<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Table 7-2 | Main contractor<br>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**)<br>Signed toolbox talks<br>ECoW Weekly Log<br>Construction Constraints Plan<br>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<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.3.11 | Main contractor<br>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**)<br>Signed toolbox talks<br>ECoW Weekly Log<br>Construction Constraints Plan<br>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<br>**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES, Paragraph 7.3.5 | Main contractor<br>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**)<br>Signed toolbox talks<br>ECoW Weekly Log<br>Construction Constraints Plan<br>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**)).<br>The PMW will detail a prescribed works method to ensure the safety of any reptiles that might be present, likely to include:<br>**a.** Hand search for reptiles in area to be cleared<br>**b.** Strim of vegetation to 10 cm<br>**c.** Second search by hand for reptiles<br>**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<br>**Appendix 9.9: Reptile Assessment Report, Volume 8** of the ES, Table 7-1 | Main contractor<br>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**)<br>Precautionary Working Method Statement<br>Signed toolbox talks<br>ECoW Weekly Log<br>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)<br>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:<br>**a.** Monitoring of the *Nyctalus* roost to ensure no adverse disturbance effects upon roosting bats.<br>**b.** Monitoring of spoil heaps for the presence of badger activity/sett building and excavation.<br>**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<br>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**)<br>Environmental Inspection Reports<br>ECoW Weekly Log<br>Construction Constraints Plan | 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<br>Table 10-1 within **Appendix 10.2:** | Main contractor<br>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 | |

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| | | 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<br>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<br>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 agricultural land holdings. | **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraphs 12.9.22, 12.9.24-12.9.26 | The Applicant<br>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**)<br>Soil handling strategy | Construction | |

| Ref | Action (including monitoring requirements) | Objective | Source Reference | Organisation / Individual (Delivering Measure) | Achievement Criteria and Reporting Requirements<br>(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) |
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| | **a.** 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.<br>**b.** 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.<br>**c.** 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.<br>**d.** 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.<br>**e.** 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. | | | | | | |
| B-PH5 | During construction, safe crossing points across the A1 for pedestrians and agricultural vehicles will be 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 | To maximise safety and security for WCHs. | **Chapter 12: Population and Human Health, Volume 3** of the ES, Paragraph 12.9.11 | 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**)<br>PRoW Management Plan | Construction | |

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| | of the construction works. The exact type and location of crossing points will be developed at detailed design, prior to their construction. | | | | | | |
| **Climate Change** | | | | | | | |
| B-CC2 | The following measures will be implemented in order to reduce the Scheme's vulnerability to extreme temperature events.<br>**Structures**<br>**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<br>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**)<br>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 south, and the translocation of bat boxes from the woodland at the northern end of Part B to a receptor woodland. | 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<br>The Applicant/ main contractor | Environmental Inspection Reports<br>LEMP (if produced)<br>~~production~~<br>HEMP | Operation | |

| Ref | Action (including monitoring requirements) | Objective | Source Reference | Organisation / Individual (Delivering Measure) | Achievement Criteria and Reporting Requirements<br>(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) |
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| | 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.<br>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. | | | | | | |
| ~~B-B30~~ | ~~Post-construction monitoring of Part B will be undertaken quarterly (as a minimum) for at least a three-year period to identify any road traffic collisions of otter and monitor the usage of the culverts beneath Part B by otter. All monitoring will be undertaken by a suitably experienced person and records of road traffic collisions shall be maintained on the Applicant's environmental database (EnvIS).~~ | ~~To monitor impacts from the road on otter.~~ | ~~Engagement with the Environment Agency.~~ | ~~The Applicant~~ | ~~Environmental Inspection Reports~~<br>~~LEMP production~~<br>~~HEMP~~ | ~~Operation~~ | |

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**Table 3-4 - Register of Environmental Actions and Commitments: Environmental Statement Addendum Earthworks Amendments for Change Request [REP4-061]**

| 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** | | | | | | | |
| EA-L1 | The north-east edge of the proposed temporary storage/stockpile of soils at Part A approximate ch17400 (M2F-CH172-SB-NGA-4) will be allowed to naturally self-seed with grass to provide a more natural visual screen for residential receptors R48 (Causey Park Lodge (North)) and R49 (Causey Park Lodge (South)), which are both located within 100-150 m to the north-east. | To reduce visual impacts of the Scheme during construction. | **Paragraph 5.9.2** of Environmental Statement Addendum: Earthworks Amendments for Change Request [REP4-061] | Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Landscape design discharged as required by the **draft DCO.** | Construction | |
| **Cultural Heritage** | | | | | | | |
| EA-CH1 | The potential impacts on below-ground heritage assets outside of the Order limits as a result of the excavation and backfilling of borrow pits A2E-CH586-SB-BPT-1, A2E-CH591-SB-BPT-2, A2E-CH590-SB-BPT-3, A2E-CH570-NB-BPT-4 and A2E-CH570-NB-BPT-5, including the Scheduled Monument Ellsnook Round Barrow (NHL 1006564) will be removed through the use of a suitable fill material with a similar permeability and fill quality within the borrow pits. | To reduce the impact of the Scheme on below-ground heritage assets. | **Paragraph 6.9.5** of Environmental Statement Addendum: Earthworks Amendments for Change Request [REP4-061] | Designer<br>Main contractor | As built drawings<br><br>CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**] | Design | |
| EA-CH2 | The extent of the area used for borrow pit A2E-CH570-NB-BPT-5 will not be within 35 m of the location of the Scheduled Monument Ellsnook Round Barrow. | To reduce the impact of the Scheme on below-ground heritage assets. | **Paragraph 6.9.2** of Environmental Statement Addendum: Earthworks Amendments for Change Request [REP4-061] | Designer<br><br>Main contractor | As built drawings<br><br>CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**] | Design<br>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) |
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| **Road Drainage and the Water Environment** | | | | | | | |
| EA-W1 | A dewatering appraisal will be undertaken at detailed design stage to support a water resources abstraction licence application ~~if required~~. Groundwater level monitoring will be undertaken to supplement the dewatering appraisal. A dewatering strategy will be developed pre-construction and implemented during construction. A water resources abstraction licence (for dewatering activities) and Environmental Permit (for water discharge) will be required for the Scheme. | To managed dewatering activities | **Table 1-2** of Environmental Statement Addendum: Earthworks Amendments for Change Request [REP4-061] | Designer<br>Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Water resources abstraction licence and Environmental Permit | Pre-construction / Construction | |
| EA-W2 | Design and implementation of backfilled material within the borrow pits will be suitable fill material with a similar permeability to existing material. | To reduce the impact of the Scheme on the water environment | **Paragraph 7.9.5** of Environmental Statement Addendum: Earthworks Amendments for Change Request [REP4-061] | Designer<br>Main contractor | As built drawings<br>CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**] | Design | |
| EA-W3 | The following measures will be implemented:<br>**a.** Ensuring that flood conveyance routes are maintained during construction. This would include temporary earth bunds that are located along overland flow paths.<br>**b.** Ensuring that a minimum buffer of 8 m between bunds and any watercourses is maintained to ensure that local flood risk is not increased.<br>**c.** Groundwater level dewatering of aquifer drainage would be required for the construction of the borrow pits. Captured groundwater would be treated to settle any sediments prior to discharge into local watercourses.<br>**d.** Construction works would avoid high flow events where practicable to reduce the risk of shallow groundwater levels. | To manage risks to the water environment (sedimentation and pollution risks). | **Paragraph 7.9.3** of Environmental Statement Addendum: Earthworks Amendments for Change Request [REP4-061] | Main contractor<br>Environment Manager (main contractor) | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Signed toolbox talk records | Construction | |
| ExA: EA-W100 | Further Ground Investigation works will be undertaken at the borrow pit locations (anticipated summer 2021). The Ground Investigation data will aim to determine the groundwater level, low flow (low permeability) and high flow (high permeability) | To manage dewatering activities | Borrow Pit Dewatering Assessment | Designer<br>Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as | Design<br>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) |
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| | layers at the proposed borrow pits locations. Where high flow layers are identified further mitigation measures will be implemented to reduce the abstraction rates during construction. | | | | per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**] | | |
| **Geology and Soils** | | | | | | | |
| EA-GS1 | Preparation of specific Risk Assessments and Method Statements (RAMS) for works to be completed in the area of the former foot and mouth burial site. RAMS to be prepared in line with specific guidance to be obtained from the Department for Environment, Food & Rural Affairs (DEFRA). | To prevent contamination from the former foot and mouth burial pit | **Paragraph 8.9.2** of Environmental Statement Addendum: Earthworks Amendments for Change Request [REP4-061] | Main contractor Environmental Manager (main contractor) | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br><br>RAMS | Pre-Construction<br><br>Construction | |
| **Materials and Waste** | | | | | | | |
| EA-M1 | The following design measures will be implemented as part of the Earthworks Amendments:<br>**a.** Where site-won material meets re-use criteria it will be retained within the Scheme as part of, for example, refill of borrow areas, footway foundations or access tracks, or as thickened topsoil spread; and<br>**b.** Any additional unsuitable material (beyond that which has already been identified from the Scheme) will be treated (for example, with lime) to improve materials for reuse and retention on the Scheme.<br>Off-site disposal will, where possible, to be limited to contaminated materials only. | | **Paragraphs 9.9.1 and 9.9.2** of Environmental Statement Addendum: Earthworks Amendments for Change Request [REP4-061] | Designer<br>Main contractor | Scheme design drawings<br>CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035]** | Design | |

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**Table 3-5 - Register of Environmental Actions and Commitments: Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063]**

| 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) |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| SW-G1 | Following completion of construction of the Stabilisation Works as set out in Environmental Statement Addendum: Stabilisation Works for Change Request [**REP4-063**], the main contractor will be responsible for defects over a set period (12 months). After this period the scour protection constructed as part of the Stabilisation Works will be adopted by the Applicant and fall within their routine schedule of maintenance and inspections. At the end of the construction period the CEMP will be developed as a Handover Environmental Management Plan (HEMP) which will include the monitoring and management arrangements of the scour protection going forward during future maintenance and operation. The indicative contents of a HEMP are detailed in Annex C of IAN 183/14. | To ensure the continued maintenance of the revised Scheme once operational. | **Paragraph 2.7.2** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | The main contractor, or the Applicant, or Northumberland County Council | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>HEMP | Construction<br>Operation | |
| **Landscape and Visual** | | | | | | | |
| SW-L1 | During the construction phase, the following additional mitigation measures will be included:<br>**a.** The partial re-planting of woodland within the areas (405 $m^2$ to the west, and 2,400 $m^2$ to the east of the existing A1 bridge crossing) which will be subject to vegetation removal during the construction period. This will be constrained by the need for offsets from above and below ground structures meaning that not all existing woodland planting will be replaced; and<br>**b.** The planting of an additional 3.1 hectares of woodland (compensatory habitat), to replace 0.28 hectares of broadleaved woodland lost within the Coquet River Felton Park LWS, to be provided in addition to the Woodland Creation Area set out in the revised Ancient Woodland Strategy Part A for Change Request (submitted at Deadline 4). The additional planting would be located to the south of the existing ancient woodland to the south of the River Coquet as shown in in Figure 2: Location Plan and Compensatory Habitat Location in Appendix A of Environmental Statement | To reduce the impact of construction on local landscape and visual receptors. | **Paragraph 6.9.2** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Main contractor | CEMP approved by the SoS following consultation with the Environment Agency NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Site Environmental Inspection Reports<br>Landscape design discharged as required by the 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) |
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| | Addendum Stabilisation Works for Change Request [REP4-063]. This will require permanent land-take as shown as land parcel 9/1bb in the **Land Plans for Change Request** [**REP4-035**]. | | | | | | |
| **Biodiversity** | | | | | | | |
| SW-B1 | Any temporary river training measures and permanent scour protection will be constructed using suitable materials to avoid changes in water chemistry, such as the use of washed stone or inert materials. | To manage risk to ecology associated with the design of changes to/new structures within watercourses. | **Paragraph 8.9.2** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Designer<br>Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>As built drawings | Design | |
| SW-B2 | Following the removal of the temporary river training measures, the riverbed will be restored to a pre-works comparable condition where reasonably practicable. Further detail is provided in the Bed Reinstatement Following Temporary Works Method Statement, which can be found at Appendix B of this Outline CEMP. | To manage risk to ecology associated with the design of changes to/new structures within watercourses. | **Paragraph 8.9.6** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Designer<br>Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>As built drawings | Construction | |
| SW-B3 | The temporary loss of woodland to the west of the carriageway would be incorporated into the future great crested newt European Protected Species (EPS) licence application (as detailed in measure A-B22 of the **Outline CEMP [REP3-013 and -014]** and as updated at Deadline 4). The future licence application would be issued to Natural England prior to construction. The additional area to the west of the carriageway would be included within the area enclosed by amphibian exclusion fencing. This would be followed by a capture and translocation period, to move newts out of the works area prior to site clearance and | To comply with conservation legislation, protect GCN habitat and prevent an impact to the Favourable Conservation Status of the local GCN population. | **Paragraph 8.9.10** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Designer<br>Named Ecologist (main contractor)<br>ECoW (main contractor) | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Protected species license as authorised by Natural England | Pre-Construction<br>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) |
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| | construction. Following construction, the woodland would be reinstated (temporary loss of habitat). | | | | As built drawings<br>EPS Method Statements<br>Landscape design discharged as required by the DCO | | |
| SW-B4 | The permanent scour protection will be designed so far as possible to be in keeping with existing natural rocky areas of the River Coquet. Whilst the scour protection will result in the permanent loss of natural riverbank habitat, the design of the scour protection should provide suitable sheltering habitat for aquatic invertebrates and juvenile fish and naturally become vegetated over time. | To manage risk to ecology associated with the design of changes to/new structures within watercourses. | **Paragraph 8.9.7** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Designer<br>Main contractor | As built drawings | Design<br>Construction | |
| SW-B5 | An assessment of the biological water quality and water chemistry will be undertaken prior to and during construction to monitor the river during the Stabilisation Works. The main contractor will monitor and take appropriate action if water quality deteriorates, following consultation with Natural England and the Environment Agency where required (for example where a permit or licence is in place with conditions/restrictions). The monitoring will assess pH, suspended solids, Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD). The methodology of the monitoring will be determined at detailed design and captured within a monitoring and management strategy for the Stabilisation Works. | To reduce or prevent the impact of the Stabilisation Works. | **Paragraph 8.9.4** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | ECoW | Water Quality Monitoring and Management Strategy | Construction | |
| SW-B6 | To address the loss of woodland within the Coquet River Felton Park LWS, adopted as ancient woodland for the purposes of mitigation, the areas of additional permanent land take to facilitate the compensatory habitat have been incorporated into revised **Ancient Woodland Strategy Part A for Change Request** (submitted at Deadline 4). In addition to the measures detailed within the former **Ancient Woodland Strategy Part A** [**APP-247**], the following | To address the loss of woodland within the Coquet River Felton Park LWS | **Paragraph 8.9.8** of Environmental Statement Addendum Stabilisation Works for Change | Main contractor with guidance from the Arboriculturalist (main contractor), Environmental Manager (main contractor) and | Ancient Woodland Strategy<br>As Built drawings<br>Landscape Design Certificate<br>Arboricultural Method Statement | Construction<br>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) |
|---|---|---|---|---|---|---|---|
| | measures have been included in the revised **Ancient Woodland Strategy Part A for Change Request** (submitted at Deadline 4):<br><br>**a.** Planting will be undertaken in line with the approach outlined in the revised Ancient Woodland Strategy Part A for Change Request (submitted at Deadline 4) [**REP4-054 and 055**];<br>**b.** There would be site-specific sampling for the additional land to determine soil pH and nutrient status, which would be used to inform soil preparation post-construction prior to planting (see item b below);<br>**c.** The land take (0.28 ha), shown as land parcel 9/13jj in the **Land Plans for Change Request** [**REP4-035**], would be replanted as broadleaved, semi-natural woodland, using native species of local provenance, in keeping with the retained surrounding woodland (referred to as the "Replanted Area" within the revised Ancient Woodland Strategy Part A for Change Request submitted at Deadline 4);<br>**d.** An additional area of approximately 3.1 ha of compensatory woodland habitat (as shown as land parcel 9/1bb in the **Land Plans for Change Request** [**REP4-035**]) will be created, an expansion to the Woodland Creation Area located to the south-west of the existing River Coquet Bridge (as detailed in the revised Ancient Woodland Strategy Part A [APP-247] for Change Request (submitted at Deadline 4).In combination with the replanting of the 0.28 ha of land to the north of the River Coquet, the proposed woodland creation equates to a ratio of approximately 1:12 (loss:creation); and<br>**e.** Monitoring and maintenance of the associated replanted and created woodland as part of the revised Ancient Woodland Strategy Part A for Change Request (submitted at Deadline 4). | | Request [REP4-063] | ECoW (main contractor) | Landscape design discharged as required by the DCO | | |
| SW-B7 | A management and monitoring strategy for the proposed scour protection of the northern riverbank will be developed at detailed design in consultation with Natural England and the Environment Agency. The strategy will include, but not | To monitor the impact of the revised Scheme on biological water | **Paragraph 8.9.11** of Environmental Statement | The Applicant | LEMP ~~production~~ (if produced)<br><br>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) |
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| | be limited to, inspections of the scour protection at an appropriate frequency throughout its lifespan to monitor the structural condition and conduct repairs/replacement where necessary. Any repair or replacement works will be subject to the same construction mitigation detailed within **Section 9.9**, **Chapter 9: Biodiversity Part A** of the ES [**APP-048**] and Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063]. | quality during operation. | Addendum Stabilisation Works for Change Request [REP4-063] | | | | |
| SW-B8 | An assessment of the biological water quality and water chemistry will be undertaken for six months post-construction to monitor water conditions within the River Coquet. The results of the monitoring will be compared against baseline data collected prior to and during construction. If an impact as a result of the Scheme is identified, remedial actions (proportionate to the changes recorded) will be implemented following consultation with Natural England and the Environment Agency. Remedial actions would be scenario-specific and informed by the findings of the monitoring and consultations with statutory bodies. | To monitor the impact of the revised Scheme on biological water quality during operation. | **Paragraph 8.9.12** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | The Applicant | LEMP (if produced)~~production~~<br>HEMP | Operation | |
| **Road Drainage and the Water Environment** | | | | | | | |
| SW-W1 | Drainage arrangements will be designed to prevent build-up of groundwater behind the installed piles, if necessary. | To minimise the impacts of the north bank stabilisation piles. | **Table 9-6** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Designer<br>Main Contractor<br>Environmental Manager (main contractor) | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>As built drawings | Design | |
| SW-W2 | The detailed design stage will seek to minimise the extent of hard engineered erosion protection required and consider the use of sympathetic materials and construction techniques likely to provide increased roughness and improve riparian structure (such as vegetated rock armour). | To minimise the impacts of the north bank stabilisation piles. | **Paragraph 9.10.32** of Environmental Statement Addendum Stabilisation | Designer<br>Main Contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule | 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) |
|---|---|---|---|---|---|---|---|
| | | | Works for Change Request [REP4-063] | | 2 of the **draft DCO** [**REP5-034 and 035**]<br>As built drawings | | |
| SW-W3 | The following design measures associated with the Stabilisation Works including erosion protection will include the following:<br>**a.** Construct erosion protection to reflect the natural bank profile.<br>**b.** Minimise the extent of hard engineered erosion protection.<br>**c.** Use sympathetic materials and construction techniques, likely to replicate existing bank roughness. Likely measures to be refined during detailed design.<br>**d.** Re-plant the reinstated made ground, using a locally appropriate tree, shrub and seed mix. Apply seeded biodegradable geotextile if outside of growing season, to reduce likelihood of erosion following reinstatement during out-of-bank flows.<br>**e.** A total of 24 m of bank impacted by construction activities, and lying outside of the proposed permanent scour protection is proposed to be reinstated (where possible) using green or green-grey erosion control methods set out in Green approaches in river engineering, Supporting implementation of green infrastructure (**Ref. 10**) and planted to allow recovery of the riparian vegetation structure.<br>**f.** Reinstate bed substrate to a pre-works comparable condition. | To minimise the impacts of the Stabilisation Works including erosion protection. | **Table 9-6** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Designer<br>Main Contractor<br>Environmental Manager (main contractor) | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>As built drawings | Design | |
| SW-W4 | The following additional measures will be implemented during the construction of the lower north bank piling platform and associated works, including temporary retaining wall / river training works:<br>**a.** Bank and bed features (outside the extent of permanent works) as far as practicable to be reinstated to existing profiles following completion of the permanent works. | To reduce the impact of the construction of the lower north bank piling platform and associated works, including temporary retaining wall / river training works on the River Coquet. | **Table 9-5** of Environmental Statement Addendum Stabilisation Works for Change | Main contractor<br>Environmental Manager (main contractor) (with Geomorphological Specialist support) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Scheme design drawings | Pre-Construction<br>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.** Prior to construction, any sedimentary bed features that may be will be mapped and photographed, and boulders (>0.5 m) will be surveyed, numbered and marked to show orientation relative to the channel bed. ~~At onset of the construction phase, these sediments will be removed and stored. Upon completion of construction, the sedimentary bed features will be reinstated where practicable, with boulders placed according to the surveyed data.~~ During construction of the temporary works, the following principles will be followed:<br>– Wherever possible, sediment will not be moved.<br>– Construction fill will be placed on top of existing bed sediments, but separated from them with a suitable geomembrane, which will be removed along with the construction fill at the end of the works.<br>– Where possible, legato block walls will be placed onto a gabion mattress to provide a level surface for construction, to avoid removal of sediment or bedrock. This may involve moving some of the sediment a short distance to create a level, stable surface.<br>– Where sediment, including individually identified large boulders, must be moved to enable construction of temporary works or tracking across the riverbed, it will be moved the smallest distance possible within the channel (<5 m).<br>– Where it is necessary to excavate bedrock from the riverbed, this will be set aside and retained for reinstatement into the excavations following construction.<br>**c.** There is a risk of failure associated with the reinstatement of depositional features. Consequently, all mitigation plans will be further developed as the detailed design progresses and where necessary will seek the views of the relevant statutory consultees prior to the commencement of construction. Further detail is provided in the Bed Reinstatement Following | | Request [REP4-063] | | | | |

| 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) |
|---|---|---|---|---|---|---|---|
| | Temporary Works Method Statement, which can be found at Appendix B of this Outline CEMP.<br>~~b.~~**d.** River training walls to be lined with geotextile to prevent release of construction aggregate associated with the piling platform, to the channel. | | | | | | |
| SW-W5 | The following additional measures will be implemented during the construction of the Stabilisation Works:<br>**a.** Bank and bed features which will not be replaced by permanent infrastructure (see SW-W1 and SW-W2 of this REAC), will be reinstated as close as possible to their original form.<br>**b.** Silt fences will be installed at regular intervals following slope contours. The silt fences will be placed at regular intervals between the slope crest and foot to reduce the silt accumulation burden placed on silt fence. Silt fences and/or other edge protection measures will be installed along the River Coquet bank to reduce the risk of increased sedimentation entering the channel during construction. A site specific drainage management plan will be created to attenuate, treat and discharge site runoff.<br>**c.** Where required, drainage systems will be implemented to collect, attenuate, treat and discharge any groundwater seepage that may occur due to cuts into the slope.<br>**d.** Suitable surface material will be used on haul roads to reduce structural damage from vehicular movements and exposure of bare ground which will be susceptible to surface water runoff. | To reduce the impact of the Stabilisation Works on the River Coquet. | **Paragraph 9.9.3** and **Table 9-5** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063]<br>**Paragraph 8.8.3** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Main contractor<br>Environmental Manager (main contractor) (with Geomorphological Specialist support) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Scheme design drawings | Construction | |
| SW-W6 | The following additional measures will be implemented during the construction of the Stabilisation Works:<br>**a.** Deploy in-channel silt barriers (i.e. silt curtains or similar) as far as reasonably practical or a similar form of barrier if silt water runoff is discharging into the River Coquet to control the downstream dispersion of suspended solids. | To reduce the impact of the Stabilisation Works on the River Coquet. | **Table 9-5** of Environmental Statement Addendum Stabilisation Works for Change | Main contractor<br>Environmental Manager (main contractor) (with Geomorphological Specialist support) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**] | 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.** Install a suitable geomembrane between the river training works and piling platform to minimise the release of construction aggregate associated with the piling platform. These measures will be designed to be sufficiently robust to last the duration of the construction works and will be subject to regular inspection and maintenance, as and when required during construction.<br>**c.** During periods of heavy rain, adopt regular visual inspections of the watercourse to identify discharges of silt laden runoff and take immediate action if required. | | Request [REP4-063]<br>**Paragraph 8.9.3** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | | Scheme design drawings | | |
| SW-W7 | During construction, visual survey of the bed and banks will be undertaken to understand the degree and nature of change following any high flow events during construction to verify the findings of the assessment set out in **Section 9.10** of Environmental Statement Addendum Stabilisation Works for Change Request [**REP4-063**] .This should be undertaken by an appropriately qualified geomorphologist or environmental clerk of works with appropriate fluvial geomorphological experience. | To manage risks to the water environment (pollution risks). | **Paragraph 9.11.1** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Signed toolbox talk records<br>Water Quality Monitoring and Management Strategy | Construction | |
| **Geology and Soils** | | | | | | | |
| SW-GS1 | Slope stability monitoring instrumentation in the form of Shape Accel-Arrays was installed as part of the ground investigation which was undertaken between January and March 2020. This instrumentation will be used during construction to monitor ground movement and hence minimise the impact of the slope instability on construction. | To monitor ground movement during construction. | **Paragraph 10.9.2** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Main contractor<br>Environmental Manager (main contractor) | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Environmental Inspection Records | 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) |
|---|---|---|---|---|---|---|---|
| **Materials and Waste** | | | | | | | |
| SW-M1 | Where site-won material meets re-use criteria (as described in **paragraph 12.10.6** and **12.10.7** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063]), it will be retained within the revised Scheme for use within, for example, footway and bridleway construction, or surfacing materials. This will be monitored as part of the MMP and SWMP. | In order to increase resource efficiency. | **Paragraph 12.9.2** of Environmental Statement Addendum Stabilisation Works for Change Request [REP4-063] | Main contractor<br>Environmental Manager (main contractor)<br>Environmental Consultant (designer) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>MMP | Construction | |

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**Table 3-6 - Register of Environmental Actions and Commitments: Environmental Statement Addendum Southern Access Works for Change Request [REP4-064]**

| 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) |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| SAW-G1 | Following completion of construction of the Southern Access Works as set out in Environmental Statement Addendum: Southern Access Works for Change Request [**REP4-064**], the main contractor will be responsible for defects over a set period (12 months). After this period the scour protection constructed as part of the Southern Access Works will be adopted by the Applicant and fall within their routine schedule of maintenance and inspections. At the end of the construction period the CEMP will be developed as a Handover Environmental Management Plan (HEMP) which will include the monitoring and management arrangements of the scour protection going forward during future maintenance and operation. The indicative contents of a HEMP are detailed in Annex C of IAN 183/14. | To ensure the continued maintenance of the Scheme once operational. | **Paragraph 2.6.2** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | The main contractor, or the Applicant, or Northumberland County Council | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>HEMP | Construction<br>Operation | |
| **Biodiversity** | | | | | | | |
| SAW-B1 | Any temporary river training measures and scour protection would be constructed using suitable materials to avoid changes in water chemistry, such as the use of washed stone or inert materials. | To manage risk to ecology associated with the design of changes to/new structures within watercourses. | **Paragraph 7.9.2** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Designer<br>Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>As built drawings | Design | |
| SAW-B2 | The permanent scour protection will be designed so far as possible to be in keeping with existing natural rocky areas of the River Coquet. Whilst the scour protection will result in the permanent loss of natural riverbank habitat, the design of the scour protection should provide suitable sheltering habitat for aquatic invertebrates and juvenile fish as it will become naturally vegetated over time. | To manage risk to ecology associated with the design of changes to/new structures within watercourses. | **Paragraph 7.9.9** of Environmental Statement Addendum Southern Access Works for Change | Designer<br>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) |
|---|---|---|---|---|---|---|---|
| | | | Request [REP4-064] | | | | |
| SAW-B3 | The design/configuration of the scour protection has been considered to reduce the level of impact to the SSSI. The design of the scour protection will provide suitable sheltering habitat for aquatic invertebrates and fish (qualifying features of the SSSI) and shall naturally become vegetated over time. In addition, the scour protection will be designed to avoid permanent impacts to the watercourse (SSSI) as a result of changes in water chemistry. | To manage risk to ecology associated with the design of changes to/new structures within watercourses. | **Paragraph 7.9.11** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Designer<br>Main contractor | As built drawings | Design | |
| SAW-B4 | Any temporary river training measures and scour protection will be constructed using suitable materials to avoid changes in water chemistry, such as the use of washed stone or inert materials. | To manage risk to ecology associated with the design of changes to/new structures within watercourses. | **Paragraph 7.9.2** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Designer<br>Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>As built drawings | Design<br>Construction | |
| SAW-B5 | An assessment of the biological water quality and water chemistry will be undertaken prior to and during construction to monitor the river during the Southern Access Works. The main contractor will monitor and take appropriate action if water quality deteriorates, following consultation with Natural England and the Environment Agency where required (for example where a permit or licence is in place with conditions/restrictions). The monitoring will assess pH, suspended solids, Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD). The methodology of the monitoring will be determined at detailed design and captured within a monitoring and management strategy for the Southern Access Works. | To reduce or prevent the impact of the Southern Access Works | **Paragraph 7.9.6** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | ECoW | Water Quality Monitoring and Management Strategy | 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) |
|---|---|---|---|---|---|---|---|
| SAW-B6 | Following the removal of the temporary river training measures, the riverbed will be restored to a comparable pre-works condition. | To manage risk to ecology associated with the design of changes to/new structures within watercourses. | **Paragraph 7.9.8** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Designer<br><br>Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br><br>As built drawings | Construction | |
| SAW-B7 | The following measures specific to the Southern Access Works and installation the temporary bridge will be implemented to mitigate for site runoff and potential pollution events:<br>**a.** All plant and vehicles using the temporary bridge are to be well maintained and serviced. Use of biodegradable oils for all plant and equipment working in the vicinity of the River Coquet.<br>**b.** A haul road on the approach to the temporary bridge will be maintained as clean stone and/or blinded (where a thin layer of concrete is added over the stone to protect it) to minimise debris collecting on the vehicle prior to entry onto the bridge.<br>**c.** A surface water drainage system will be developed by the main contractor for the temporary bridge structure. This will ensure that runoff or spillages on the bridge do not enter the River Coquet and transfer any collected runoff to appropriate treatment measures. The system may include the implementation of a containment screen on the underside of the temporary bridge to prevent any falling debris or sediment from entering the River Coquet. | To minimise the impact of the construction of the Southern Access Works | **Paragraph 7.9.4** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Designer<br><br>Main contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br><br>As built drawings | Construction | |
| SAW-B8 | A management and monitoring strategy for the proposed scour protection for the River Coquet will be developed at detailed design in consultation with Natural England and the Environment Agency. The strategy will include, but not be limited to, inspections of the scour protection at an appropriate frequency throughout its lifespan to monitor the | To monitor the impact of the Scheme on biological water quality during operation. | **Paragraph 7.9.10** of Environmental Statement Addendum Southern | The Applicant | LEMP (if produced)~~production~~<br><br>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) |
|---|---|---|---|---|---|---|---|
| | structural condition and conduct repairs / replacement where necessary. Any repair or replacement works will be subject to the same construction mitigation detailed within **Section 9.9, Chapter 9: Biodiversity Part A** of the ES [**APP-048**] and Environmental Statement Addendum Southern Access Works for Change Request [REP4-064]. | | Access Works for Change Request [REP4-064] | | | | |
| SAW-B9 | An assessment of the biological water quality and water chemistry will be undertaken post-construction to monitor water conditions within the River Coquet. The results of the monitoring will be compared against baseline data collected prior to and during construction. If required, remedial actions will be implemented following consultation with Natural England and the Environment Agency. Remedial actions would be scenario-specific and informed by the findings of the monitoring and consultations with statutory bodies. | To monitor the impact of the Scheme on biological water quality during operation. | **Paragraph 7.9.12** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | The Applicant | LEMP (if produced)~~production~~<br>HEMP | Operation | |
| **Road Drainage and the Water Environment** | | | | | | | |
| SAW-W1 | The detailed design stage will seek to minimise the extent of hard engineered erosion protection required and consider the use of sympathetic materials and construction techniques likely to provide increased roughness and improve riparian structure (such as vegetated rock armour). | To minimise the impacts of the south bank scour protection. | **Paragraph 8.10.38** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Designer<br>Main Contractor | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>As built drawings | Design | |
| SAW-W2 | The following design measures associated with the south bank pier scour protection will include the following:<br>**a.** Construct erosion protection to reflect the natural bank profile.<br>**b.** Minimise the extent of hard engineered erosion protection.<br>**c.** Use sympathetic materials and construction techniques, likely to replicate existing bank roughness. Likely measures to be refined during detailed design. | To minimise the impacts of the south bank scour protection. | **Table 8-6** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Designer<br>Main Contractor<br>Environmental Manager (main contractor) | CEMP approved by the Secretary of State following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**] | 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.** Re-plant the reinstated made ground, using a locally appropriate tree, shrub and seed mix. Apply seeded biodegradable geotextile if outside of growing season, to reduce likelihood of erosion following reinstatement during out-of-bank flows. | | | | As built drawings | | |
| SAW-W3 | Prior to construction, any sedimentary bed features that may be disturbed will be mapped and photographed, and boulders (>0.5 m) will be surveyed, numbered and marked to show orientation relative to the channel bed. ~~At onset of the construction phase, these sediments will be removed and stored. Upon completion of construction, the sedimentary bed features will be reinstated where practicable, with boulders placed according to the surveyed data.~~<br>During construction of the temporary works, the following principles will be followed:<br>**a.** Wherever possible, sediment will not be moved.<br>**b.** Construction fill will be placed on top of existing bed sediments, but separated from them with a suitable geomembrane, which will be removed along with the construction fill at the end of the works.<br>**c.** Where possible, legato block walls will be placed onto a gabion mattress to provide a level surface for construction, to avoid removal of sediment or bedrock. This may involve moving some of the sediment a short distance to create a level, stable surface.<br>**d.** Where sediment, including individually identified large boulders, must be moved to enable construction of temporary works or tracking across the riverbed, it will be moved the smallest distance possible within the channel (<5m).<br>**e.** Where it is necessary to excavate bedrock from the riverbed, this will be set aside and retained for reinstatement into the excavations following construction. | To reduce the impact of the Southern Access Works on the geomorphology of the River Coquet | **Table 8-5** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Main contractor<br>Environmental Manager (main contractor) (with Geomorphological Specialist support) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**] | 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) |
|---|---|---|---|---|---|---|---|
| | There is a risk of failure associated with the reinstatement of depositional features. Consequently, all mitigation plans will be further developed as the detailed design progresses and where necessary will seek the views of the relevant statutory consultees prior to the commencement of construction. Further detail is provided in the Bed Reinstatement Following Temporary Works Method Statement, which can be found at Appendix B of this Outline CEMP. | | | | | | |
| SAW-W4 | The following additional measures will be implemented during the construction of the southern bank associated works, including temporary bridge and temporary retaining wall works, alongside measures outlined in A-W15 of the **Outline CEMP** [**REP3-013 and 014**]:<br>**a.** Bank and bed features (outwith extent of permanent works) will be reinstated to existing profiles following completion of the permanent works.<br>**b.** Temporary bridge abutments to be removed when crossing no longer required.<br>**c.** Elevation of temporary bridge to be set to be above the 1% AEP (100 year) flood level.<br>**d.** Temporary bridge to be single span to reduce bed and conveyance impacts. Maximum feasible span to be used to minimise constriction to channel width.<br>**e.** River training walls to be lined with geotextile to prevent release of construction aggregate, associated with the working platform, to the channel. | To reduce the impact of the Southern Access Works on the River Coquet | **Table 8-5** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Main contractor<br>Environmental Manager (main contractor) (with Geomorphological Specialist support) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**].<br>Scheme design drawings | Pre-Construction<br>Construction | |
| SAW-W5 | The following additional measures will be implemented during the construction of the Southern Access Works, alongside measures outlined in A-W15 of the **Outline CEMP** [**REP3-013 and 014**]:<br>**a.** A surface water drainage system will be developed by the main contractor for the temporary bridge structure. This will ensure that runoff or spillages on the bridge do not enter the River Coquet and transfer any collected runoff and sediment to appropriate treatment measures.<br>**b.** The main contractor will consider the implementation of a containment screen on the underside of the temporary | To reduce the impact of the Southern Access Works on the River Coquet. | **Table 8-5** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064]<br>**Paragraph 8.9.3** of Environmental | Main contractor<br>Environmental Manager (main contractor) (with Geomorphological Specialist support) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**].<br>Scheme design 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) |
|---|---|---|---|---|---|---|---|
| | bridge to prevent any falling debris or sediment from entering the River Coquet.<br>**c.** Silt fences and / or other edge protection measures will be installed along the River Coquet bank to reduce the risk of increased sedimentation entering the channel during construction. A site specific drainage management plan will be created to attenuate, treat and discharge site runoff.<br>**d.** Deploy in-channel silt barriers (i.e. silt curtains or similar) as far as reasonably practical or a similar form of barrier if silt water runoff is discharging into the River Coquet to control the downstream dispersion of suspended solids.<br>**e.** Install a suitable geomembrane between the river training works and piling platform to minimise the release of construction aggregate associated with the piling platform. These measures will be designed to be sufficiently robust to last the duration of the construction works and will be subject to regular inspection and maintenance, as and when required during construction<br>**f.** During periods of heavy rain, adopt regular visual inspections of the watercourse to identify discharges of silt laden runoff and take immediate action if required. | | Statement Addendum Southern Access Works for Change Request [REP4-064] | | | | |
| SAW-W6 | Visual survey of the bed and banks will be undertaken to understand the degree and nature of change following any high flow events during construction to verify the findings of the assessment set out in **Section 8.10** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064]. This should be undertaken by an appropriately qualified geomorphologist or environmental clerk of works with appropriate fluvial geomorphological experience. | To manage risks to the water environment (pollution risks). | **Paragraph 8.11.1** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Main contractor<br>Appropriately qualified geomorphologist or Environmental Manager (main contractor) with appropriate fluvial geomorphological experience | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Signed toolbox talk records<br>Water Quality Monitoring and Management Strategy | Construction | |
| **Materials and Waste** | | | | | | | |
| SAW-M1 | Where site-won material meets re-use criteria, it will be retained within the Scheme for use within, for example, | In order to increase resource efficiency. | **Paragraph 10.9.1** of | Main contractor | CEMP approved by the SoS following consultation | 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) |
|---|---|---|---|---|---|---|---|
| | footway and bridleway construction, or surfacing materials. This will be monitored as part of the MMP and SWMP. | | Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Environmental Manager (main contractor)<br>Environmental Consultant (designer) | with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Materials Management Plan | | |
| **Climate** | | | | | | | |
| SAW-CC1 | Where practicable, the construction materials required for temporary structures would be reused within the Scheme (e.g. the steel or Legato blocks for other temporary structures or retaining walls) or reused / recycled offsite by third parties. | In order to increase resource efficiency. | **Paragraph 11.9.2** of Environmental Statement Addendum Southern Access Works for Change Request [REP4-064] | Main contractor<br>Environmental Manager (main contractor)<br>Environmental Consultant (designer) | CEMP approved by the SoS following consultation with the Environment Agency and NCC as per Requirement 4, Schedule 2 of the **draft DCO** [**REP5-034 and 035**]<br>Materials Management Plan | Construction | |

# 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:<br>**a.** On or near a main river<br>On or near a flood defence structure<br>In a flood plain<br>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:<br>**a.** Renewal of an existing gateway crossing by means of a culvert or bridge.<br>**b.** Creation of a new gateway crossing by means of a culvert or bridge.<br>**c.** Piping a watercourse for a length of 8 m or less.<br>**d.** All structures or modifications in or within 9 m of a watercourse (headwalls, sluices and fencing).<br>**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 exemptions with the Environment Agency. |

| Type | Issuing Authority | Requirement |
|---|---|---|
| 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<br>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<br>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<br>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. Clear actions will be defined with the main contractor in consultation with the Environment Agency. | Environmental Manager | Weekly: 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 (which may include turbidity NTU levels for example) 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. |
| Borrow pit groundwater level monitoring | Environmental Manager | Frequency and location in accordance with the dewatering assessment / abstraction license. |
| 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:<br>**a.** Changes in design |

| Monitoring | Responsible Person | Frequency |
|---|---|---|
| | | b. Changes in external factors such as regulations and standards<br>c. Any unforeseen circumstances as they arise such as new protected species or new archaeological finds<br>d. The results of inspections and audits<br>e. Learning points from environmental near misses and incidents<br>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 and the LEMP (if produced) 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<br>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 |

# REFERENCES

**Ref. 1** – The Infrastructure Planning (Environmental Impact Assessment) Regulations 2019. Available at: http://www.legislation.gov.uk/uksi/2017/572/contents/made

**Ref. 2** – DMRB Volume 11, Section 2, Part 5, Assessment and Management of Environmental Effects

**Ref. 3** – Highways Agency (2014). Interim Advice Note 183/14, Environmental Management Plans

**Ref. 4** – CIRIA (2015). Charles, P, Edwards, P. Environmental good practice on site guide (fourth edition).

**Ref. 5** – Planning Inspectorate (2019) Advice Note Six: Preparation and Submission of Application Documents. Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/05/Advice-note-6-version-71.pdf

**Ref. 6** – Department for Transport, Road Investment Strategy (2015 to 2020). Available at: https://www.gov.uk/government/collections/road-investment-strategy

**Ref. 7 –** Health and Safety Executive (2014) Confined Space Regulations 1997. Approved Code of Practice, Regulations and Guidance.

**Ref. 8 –** Defra (2009) Construction Code of Practice for the Sustainable Use of Soil on Construction Sites. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf

**Ref. 9** – Historic England (2016) Understanding Historic Buildings. A Guide to Good Recording Practice.

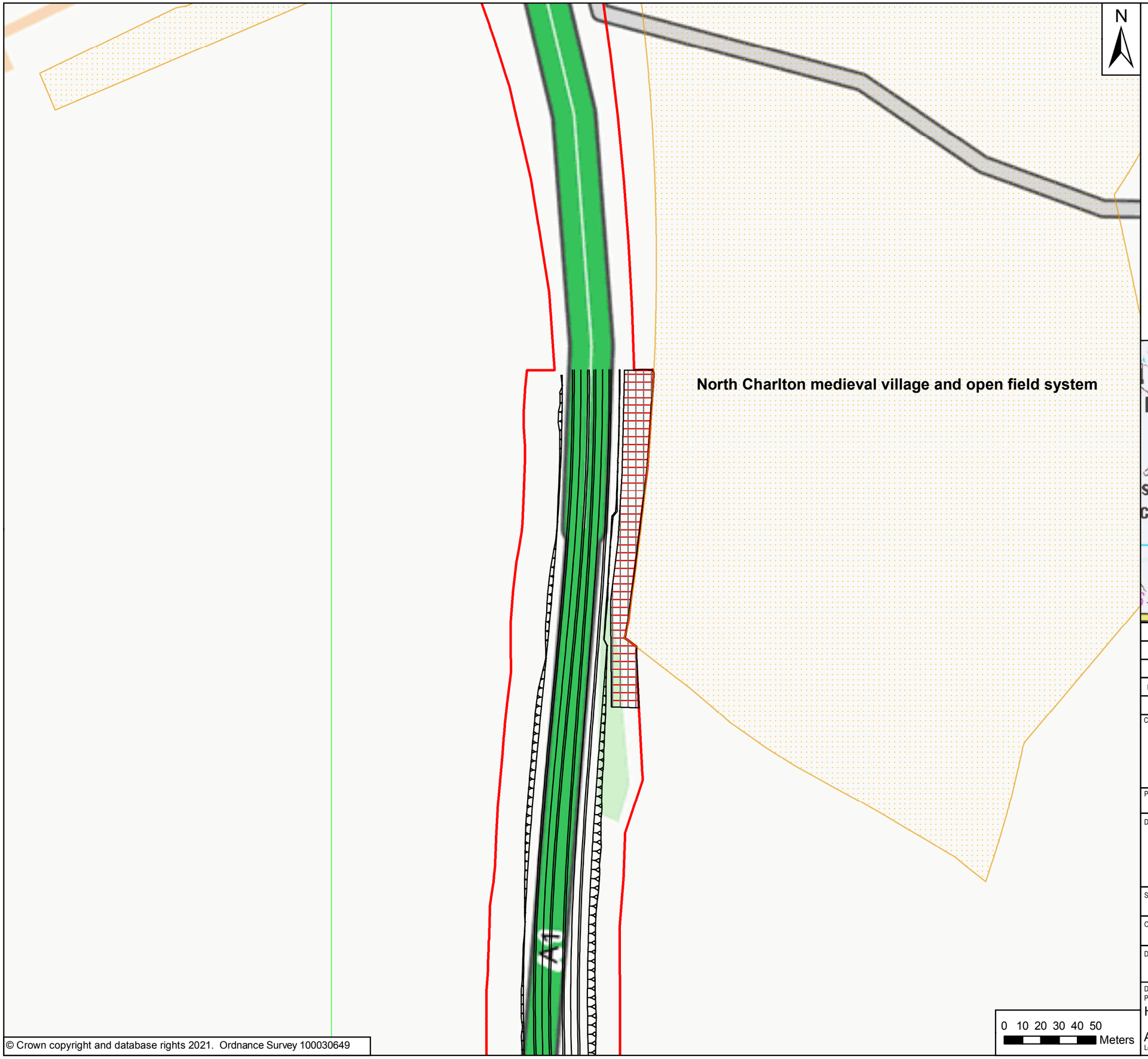
**Ref. 10** - HR Wallingford (2017) Green approaches in river engineering, Supporting implementation of green infrastructure

**Ref. 11** – English Nature (2001). Great crested newt mitigation guidelines. August 2001.

**Ref. 12** – Forestry Commission (1999) Forestry Commission Practice note 'Using Local Stock for Planting Native Trees and Shrubs' 1999 [online] Available at: www.forestry.gov.uk [Accessed December 2019]

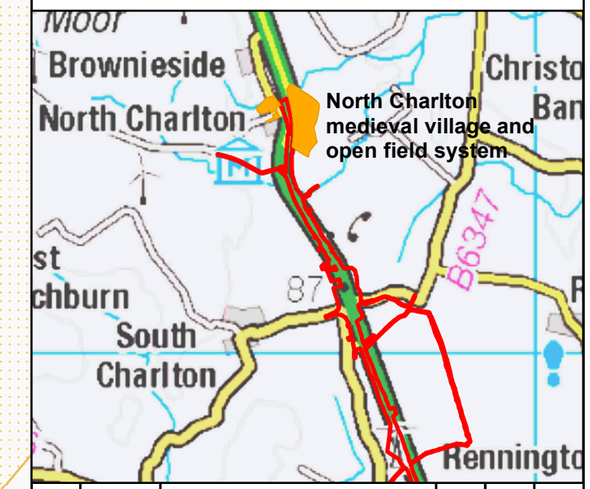
# Appendix A

## CONSTRUCTION WORKING AREAS AROUND NORTH CHARLTON SCHEDULED MONUMENTS




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

# Appendix B

## BED REINSTATEMENT FOLLOWING TEMPORARY WORKS - METHOD STATEMENT

# A1 MORPETH TO ELLINGHAM RIVER COQUET – BED REINSTATEMENT FOLLOWING TEMPORARY WORKS - METHOD STATEMENT

## INTRODUCTION

At Item REAC Ref SW-B2 of their Deadline 7 submissions, the EA stated that they welcomed the commitment to restore the riverbed to pre-works comparable condition. However, they also requested further information as to:

- how the baseline conditions will be established;
- how the restoration will take place;
- what the risks are; and
- whether any aftercare/monitoring will be implemented.

The new River Coquet crossing will require the construction of temporary works to facilitate:

- piling works for the north bank stabilisation as described in **Environmental Statement Addendum: Stabilisation Works [REP4-063]**;
- piling works for the north and south bridge piers as described in **Environmental Statement - Chapter 2 The Scheme [APP-037]**, and provided for by Parameter 10; and
- construction of associated permanent bank protection as described in **Environmental Statement Addendum: Stabilisation Works [REP4-063]** and **Environmental Statement Addendum: Southern Access Works [REP4-065].**

In summary, these temporary works will consist of:

- piling platforms on the north bank at 43.5m OD and 38m OD;
- a piling platform on the south bank at 38m OD;
- a temporary bridge, and associated abutments, with its deck at 38m OD to facilitate access to the south bank from the north bank; and
- training walls, likely constructed with legato blocks, to retain and protect the north and south bank piling platforms.

In addition, some tracking of vehicles across the river will be required to facilitate construction and decommissioning of the temporary crossing. A full description of these works can be found in the **Environmental Statement Addendum: Stabilisation Works [REP4-063],** the **Environmental Statement Addendum: Southern Access Works [REP4-065]** and the **Environmental Statement - Chapter 2 The Scheme [APP-037]**.

By their nature, these temporary works elements will involve some disturbance to the bed of the River Coquet. Paragraph 9.10.12 of the **Environmental Statement Addendum: Stabilisation Works [REP4-063]** and paragraph 8.10.20 of the **Environmental Statement**

**Addendum: Southern Access Works [REP4-064]** state that some bed deposits showing indications of long term stability may be unlikely to reform through natural deposition, but over time would develop if boulders exhibiting long term stability can be replaced or reinstated at their original locations. Table 9-7 in the **Environmental Statement Addendum: Southern Access Works [REP4-064]** and Table 8-7 in the **Environmental Statement Addendum: Southern Access Works [REP4-064]** state that some channel bed impacts may be reversible following the end of the construction, with mitigation provided to reinstate features where practicable, although any loss of bedrock may not be reversible. Both documents assess this amongst other morphological impacts as 'Minor adverse' impact magnitude and a 'Slight (not significant)' effect.

In the Outline Construction Environmental Management Plan (Clean) [REP1-023] item SW-B2 the Applicant has committed to restoring the riverbed to a 'pre-works comparable condition where reasonably practicable', following removal of the temporary river training works. In addition, items SW-W4 and SAW-W3 set out measures to reduce the impact of the temporary works construction on sedimentary bed features and boulders.

This method statement provides further detail on the implementation of the measures described in Outline Construction Environmental Management Plan items SW-B2, SW-W4 and SAW-W3.

## BASELINE

Prior to the works taking place, the following actions have been or will be undertaken to facilitate a return to a pre-works comparable condition (i.e. the baseline):

- Bathymetric survey – detailed bathymetric survey of the riverbed has already been undertaken to allow levels to be matched following construction. This is the same survey which has been used in support of the hydraulic modelling report **River Coquet Hydraulic Modelling Report [REP7-005].**
- Photographic survey – a comprehensive set of photographs at approximately Q18 and Q25 levels has been captured during the geomorphological walkover surveys, and a fluvial geomorphology sketch map has been created, both to aid understanding of the baseline conditions and used to inform **River Coquet Fluvial Geomorphology Assessment [RE7-003]**. However, this will be supplemented by a fixed-point photography survey, with photo positions determined with a high level of accuracy through topographic survey, at a flow level <Q50.
- Topographic survey (to be undertaken at a flow level <Q50) within the longitudinal extent of the temporary works to:
    - determine the position of large boulders (>0.5m in size) in the channel. These boulders will be marked:
        - with an individual reference (which will be recorded in the topographic survey)
        - to indicate their upper side
        - to indicate their orientation relative to the flow.

- where possible, determine the positions and orientations of other bed features, such as linear alignments of smaller boulders (but not the individual boulders themselves) and accumulations of submerged mobile sediment.
- All markings will be carried out with a non-toxic marker and be unobtrusive.
- This survey may be supplemented, if reasonably practicable, through a photogrammetric or LiDAR based survey

## METHODOLOGY

Ahead of the construction of the temporary works, the lowest impact, practically achievable location for tracking across the channel will be identified. This is likely to be immediately upstream of the proposed temporary bridge. Small plant may also need to be used in the channel adjacent to the legato block walls during their construction and decommissioning.

During construction of the temporary works, the following principles will be followed:

- Wherever possible, sediment will not be moved.
- Construction fill will be placed on top of existing bed sediments, but separated from them with a suitable geomembrane, which will be removed along with the construction fill at the end of the works.
- Where possible, legato block walls will be placed onto a gabion mattress to provide a level surface for construction, to avoid removal of sediment or bedrock. This may involve moving some of the sediment a short distance to create a level, stable surface. This differs from the original measure described in **Environmental Statement Addendum: Stabilisation Works [REP4-063]**, the **Environmental Statement Addendum: Southern Access Works [REP4-065]**, as at the time of writing, the most prominent sedimentary feature appeared to be within the footprint of the piling platform, however it has since been established that this is no longer the case.
- Where sediment, including individually identified large boulders, must be moved to enable construction of temporary works or tracking across the riverbed, it will be moved the smallest distance possible within the channel (<5m).
- Where it is necessary to excavate bedrock from the riverbed, this will be set aside and retained for reinstatement into the excavations following construction.

During decommissioning of the temporary works, the following actions will be undertaken:

- Construction fill, legato blocks, separating geomembranes and gabion baskets will be removed.
- Mobile sediment moved or set aside for reinstatement will be returned to the location from where it was removed and reprofiled to achieve comparable bed forms and levels to the baseline condition.
- Large, individually identified boulders will be returned to the locations from where they were moved in their original location and orientation.
- Where it has been necessary to remove bedrock, appropriately sized rock (preferably that which was originally removed from any particular excavation) will be used to

return the bed to its previously surveyed level. This is both for hydromorphological/hydraulic reasons and for health and safety reasons.

## RISKS

The approach described above seeks, where reasonably practicable, to return the riverbed to a pre-works comparable condition. Table B-1 presents the geomorphological risks foreseen at this point in time, the suggested mitigation included in the process outlined above, and the residual risks remaining after mitigation.

**Table B-1 - Risks (geomorphological) with bed reinstatement approach**

| Initial risk | Mitigation | Residual risk |
|---|---|---|
| Sediment moved in channel alters flow dynamics (including scour risk) | Sediment moved as little as possible and in such a way as not to further constrain the channel or deflect flows towards the opposite bank | Slight, localised changes to flow dynamics. Unlikely to have a material impact at high flows |
| Boulders cannot be relocated and reoriented to their original position | Boulders to be surveyed and marked prior to movement | Slight, localised changes to size and composition of sedimentary features |
| Sediment compacted when underneath compaction fill | Sediment to be loosened once construction fill removed where required. | Slight, localised changes to size, composition and mobility of sedimentary features |
| Reinstatement of bed features inadequate | Sediment movements and channel restoration to be supervised by a geomorphologist. | Slight, localised changes to size and composition of sedimentary features |
| Bedrock excavations alter channel dynamics | Bedrock excavations to be backfilled with rock, preferably that which was excavated in the first place. | Slight, localised changes to flow dynamics and bed levels |
| Sediment moved in channel releases fine sediment | Where possible, movement of existing bed material will be minimised. | Localised, short duration releases of fine sediment already present within the channel. Unlikely to materially |

| | | |
|---|---|---|
| | | impact water quality or channel morphology |

## AFTERCARE/MONITORING

A geomorphologist will be present on site during river sediment movement and reinstatement activities to inspect the activities and confirm the above actions and principles are being undertaken and followed.

Following completion of the reinstatement works, a single repeat fixed-point photographic survey and geomorphological inspection will be undertaken, and a post-works condition report submitted to the Environment Agency, showing the condition of the bed.

This document is also available on our website at **www.gov.uk /highways**

If you have any enquiries about this document
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or call **0300 470 4580***.