

A14
Cambridge to Huntingdon
improvement scheme
Development Consent Order
Application Environmental Statement
Appendix 20.1 Update

HE/A14/EX/45

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**Development Consent Order Application Appendix 20.1 Update: Register of
environmental actions and commitments**

June 2015

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



A14 Cambridge to Huntingdon improvement scheme

Environmental Statement Appendices

Appendix 20.1: Register of environmental actions and commitments

UPDATE JUNE 2015

HE/A14/EX/45

Appendix 20.1: A14 Cambridge to Huntingdon improvement scheme - Register of environmental actions and commitments

This register assumes that in addition to compliance with the measures in this table, all activities will comply with applicable environmental legislation.

Air quality and noise							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref.	DCO ref.	Works information ref.				
AN1	Ch 14			<p>Develop a noise and vibration management plan (NVMP) as detailed in the <i>Code of Construction Practice (CoCP) (Paragraph 13.2.1 of Appendix 20.2)</i>.</p> <p>Prepare initial section 61 consistent application (<i>Annex 2 of the CoCP Appendix 20.2</i>), in consultation with the relevant local authorities. Mitigation will be selected using the guidance provided in the CoCP and considering engineering practicability and implications for other environmental disciplines.</p>	Manage noise and vibration during construction within Section 61 of the Control of Pollution Act 1974	<p>Detailed in paragraph 13.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2</p> <p>Detailed in Annex 2 of the Code of Construction Practice (CoCP) Appendix 20.2</p>	P and C
AN2	Ch 14			Develop permanent noise mitigation as part of detailed design in line with <i>Appendix 14.1 of the ES (scheme operational noise and vibration policy)</i> and indicative noise barrier locations in <i>Figure 3.2</i> .	Noise mitigation of affected areas during operational phase.	A new Requirement will be added to the draft DCO, the wording of which is currently being considered by Highways England. This will secure the details of the noise mitigation for the scheme, reflecting the measures set out in the environmental statement.	A.
AN3	Ch 14			Publish list of potential Noise Insulation Regulation qualifiers (<i>paragraph 13.2.1 and section 13.4 of the Code of Construction Practice (CoCP) Appendix 20.2</i>).	Identify properties meeting eligibility criteria of the Noise Insulation Regulations. Meet requirements of Land Compensation Act 1973 Part 2, Design Manual for Roads and Bridges (DMRB), Calculation of Road Traffic Noise (CRTN).	Detailed in paragraph 13.2.1 and section 13.4 of the Code of Construction Practice (CoCP) Appendix 20.2	P.

Air quality and noise							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref.	DCO ref.	Works information ref.				
AN4	Ch 14			Identify properties where road traffic noise levels may change and predict changes for each property. Identify the contribution of the scheme to the overall noise level for the year of opening and the design year. Pass results to district valuer (<i>sections 13.1, 13.3 and 13.4 of the Code of Construction Practice (CoCP) Appendix 20.2.</i>)	Meet requirements of <i>Land Compensation Act 1973, Part 1. Noise Insulation Regulations, DMRB, CRTN.</i>	Detailed in sections 13.1, 13.3 and 13.4 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
AN5	Ch 8			Manage dust, air pollution, odour and exhaust emission during the construction works in accordance with best practicable means (BPM). General approach set out in the <i>CoCP (Paragraphs 6.3.1, 6.4.1, 6.5.1, 6.6.1, 6.7.1, 6.8.1 and 6.9.1 of Appendix 20.2).</i>	Limit and control dust and odour generation from works.	Detailed in paragraphs 6.3.1, 6.4.1, 6.5.1, 6.6.1, 6.7.1, 6.8.1 and 6.9.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C
AN6	Ch 8			Plan construction traffic routes and works to limit the number of vehicles needed, and limit the numbers passing receptors and using existing roads. General approach set out in the <i>CoCP (Paragraph 6.4.1 and 6.5.1 of Appendix 20.2).</i>	Limit numbers of construction vehicles using sensitive routes where practicable.	Detailed in paragraph 6.4.1 and 6.5.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C
AN7	Ch 14			Continue to engage with the owners and operators of all the non-residential receptors to establish sensitivity of the receptors and develop additional mitigation where necessary and practicable as required by the <i>CoCP (Paragraph 3.5.1 of Appendix 20.2).</i> Specific mitigation would be included, where needed, in the relevant local environmental management plan (LEMPs) as per the <i>CoCP (Annex 1 Appendix 20.2).</i>	Establish sensitivity of receptors and develop additional mitigation where necessary and practicable.	Detailed in paragraph 3.5.1 and Annex 1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C

Air quality and noise							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
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AN8	App 14.4			Before construction commences consultation with the property owners and occupants at receivers CV-N01 and CV-N02 will be carried out. The Highways Agency will refine the assessment and bring forward any additional mitigation measures that may be required at these locations. This would be in accordance with the general approach set in <i>Chapter 13 of the Code of Construction Practice (CoCP) Appendix 20.2</i> . Measures to be detailed in local environmental management plans (LEMPs) in conjunction with local authority environmental health officers (EHO) and main contractors (<i>Annex 1 the CoCP Appendix 20.2</i>)	Provide additional mitigation for property owners and occupants at receivers CV-N01 and CV-N02.	Detailed in Section 13 and Annex 1 of the Code of Construction Practice (CoCP) Appendix 20.2	P

Appendix 20.1: A14 Cambridge to Huntingdon improvement scheme - Register of environmental actions and commitments

This register assumes that in addition to compliance with the measures in this table, all activities will comply with applicable environmental legislation.

Cultural heritage							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
CH1	Ch 9			Prepare one or more written schemes of investigation (WSI) to cover mitigation work as required in consultation with English Heritage and Cambridgeshire County Council . WSI(s) to cover all phases of mitigation work (including geoarchaeological survey, earthwork and photographic surveys, archaeological excavation and reporting). General approach set out in <i>CoCP (Paragraphs 7.2.6 to 7.2.9 of Appendix 20.2)</i> . Further detail held within <i>Chapter 9 of the ES</i> .	Preservation by record of archaeological remains.	Detailed in paragraphs 7.2.6 to 7.2.9 of the Code of Construction Practice (CoCP) Appendix 20.2 . Requirement 7 of Schedule 2 to the DCO	P, C.
CH2	Ch 9			Produce WSI to contain method statement for process of the removal, storage and reinstatement for milestones and for measures to protect historic structures. General approach set out in <i>CoCP (Paragraph 7.2.8 of Appendix 20.2)</i> . Further detail held within <i>Chapter 9 of the ES</i> .	To protect and preserve milestones; to protect historic structures.	Detailed in paragraph 7.2.8 of the Code of Construction Practice (CoCP) Appendix 20.2 Requirement 7 of Schedule 2 to the DCO	P, C.
CH3	Ch 9			Produce WSI for recording historic buildings prior to construction. General approach set out in <i>CoCP (Paragraph 7.2.8 of Appendix 20.2)</i> . Further detail held within <i>Chapter 9 of the ES</i> .	Preservation by record of historic structures.	Detailed in paragraph 7.2.8 of the Code of Construction Practice (CoCP) Appendix 20.2 Requirement 7 of Schedule 2 to the DCO	P, C.
CH4	Ch 9			Implement mitigation requirements detailed in <i>Tables 9.12 and 9.16 in Chapter 9 of the ES</i> in relation to individual known archaeological assets. Mitigation measures include targeted excavation, earthwork survey and watching brief.	To protect and preserve individual archaeological assets.	Requirement 7 of Schedule 2 to the DCO	P, C.

Cultural heritage							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref.	DCO ref.	Works information ref.				
CH5	Ch 9			Implement mitigation requirements detailed in <i>Tables 9.13, 9.14, 9.17 and 9.18 in Chapter 9 of the ES</i> in relation to historical buildings. Mitigation measures include recording to level 1 and level 2 standard, photographic survey in accordance with English Heritage guidance (2006), and hard and soft landscaping.	To protect and preserve historical buildings during construction and operation.	Requirement 7 of Schedule 2 to the DCO	P, C.
CH6	Ch 9			Implement mitigation requirements detailed in <i>Table 9.15 and 9.19 in Chapter 9 of the ES</i> in relation to historical landscape. Mitigation measures include landscape survey of Mill Common and Views Common, sample excavation of borrow pit 5.	To protect and preserve historical landscapes during construction and operation.	Requirement 7 of Schedule 2 to the DCO	P, C.

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Social and community							
Source							
Ref	ES ref	DCO ref.	Works information ref.	Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
S1	Ch 16			Review landtake as part of detailed design process. Sensitive engineering and environmental mitigation design. Restoration of disturbed land to agriculture as set out <i>in paragraphs 8.2.1 to 8.2.3 of CoCP in Appendix 20.2.</i>	Maintain access and limit impact on local business.	Detailed in paragraphs 8.2.1 to 8.2.3 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
S2	Ch 16			Careful design of stripping, storage and reuse of soil materials (<i>Paragraph 8.2.2 of CoCP in Appendix 20.2.</i>)	Avoid or reduce impact on local residents and local communities.	Detailed in paragraph 8.2.2 of the Code of Construction Practice (CoCP) Appendix 20.2	A.
S3	Ch 16			Maintain essential access for private residences, community facilities and businesses throughout the construction period (<i>paragraphs 15.1.5 and 15.4.1 of the Code of Construction Practice (CoCP) Appendix 20.2</i>)	Avoid or reduce impact on local residents and local communities.	Detailed in paragraphs 15.1.5 and 15.4.1 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
S4	Ch 16			Where reasonably practicable, maintenance of public rights of way (including diversions) for pedestrians, cyclists and equestrians affected by the scheme, including reasonable adjustments to maintain or achieve inclusive access. (<i>Paragraph 5.2.1 of CoCP in Appendix 20.2</i>)	Avoid or reduce impact on local residents and local communities through construction and operational (by design) phases.	Detailed in paragraph 5.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2	C and O.
S5	Ch 3			Comply with Civil Aviation Authority requirements on managing bird hazard risk to Cambridge Airport.	Reduce bird hazard risk to lowest practicable level, primarily at borrow pit 6.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P.

Social and community							
Source							
Ref	ES ref	DCO ref.	Works information ref.	Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
S6	Ch 15			Consult with bus operators and Cambridgeshire County Council to plan suitable mitigation for construction phased impacts, including relocation of bus stops from the existing A14 trunk road onto the local access road. Provide signage, information and temporary bus stops where practicable. (<i>Paragraph 15.5.1 of CoCP in Appendix 20.2</i>)	Maintain access for bus users for continuation of bus services throughout the construction phase.	Detailed in paragraphs 15.5.1 and 15.5.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
S7	Ch 15			Provide and maintain information on the Highways Agency's website to reflect construction and community liaison requirements of the scheme, including construction progress. (<i>Paragraph 4.2.1 of CoCP in Appendix 20.2</i>)	Assist drivers to plan journeys and take account of potential disruption during construction of the scheme.	Detailed in paragraph 4.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.

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Agriculture							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
A1	Ch 16			Review landtake as part of detailed design process. Employ sensitive engineering and environmental mitigation design. Restoration of disturbed land to agriculture where practicable as set out in <i>paragraphs 8.2.1 to 8.2.3 of CoCP in Appendix 20.2.</i>	Conserve agricultural land and assets.	Detailed in paragraphs 8.2.1 to 8.2.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
A2	Ch 16			Careful design of soil stripping and storage and appropriate reuse of soils materials. Compliance with <i>Soil Management Strategy (Appendix 12.2)</i> . General approach set out in <i>paragraphs 8.2.2 and 8.2.4 of the CoCP (Appendix 20.2)</i> .	Reduce impact on farming businesses and the soil resource.	Detailed in paragraphs 8.2.2 and 8.2.4 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
A3	Ch 16			Provide temporary alternative access routes as necessary to limit disturbance to farming work. General approach set out in <i>paragraphs 15.4.1 and 15.4.2 of CoCP in Appendix 20.2.</i>	Reduce impact on farming businesses.	Detailed in paragraphs 15.4.1 and 15.4.2 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
A4	Ch 16			Restore temporary construction areas (e.g. haul road, construction compounds, etc.) to a condition similar to pre-existing. Compliance with <i>Soil Management Strategy in Appendix 12.2.</i>	Maintain long term farming viability on temporary sites. Protect agricultural assets.	SMS secured in paragraph 9.1.4 of the Code of Construction Practice (CoCP) Appendix 20.2 Contractual responsibilities between the Highways Agency and the design and construction contractors.	O.
A5	Ch 16			Design works to avoid pollution of natural springs, ditches and brooks on farm holdings	Avoid contamination of agricultural assets.	Contractual responsibilities between the Highways Agency and the design and construction contractors	P and C
A6	Ch 16			Provision of new access to farming land which would otherwise be severed.	Limit loss of viability of farming land.	Contractual responsibilities between the Highways Agency on the design and construction contractors.	A.

Agriculture							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
A7	Ch 16			Maintain integrity of stock proof fencing to grazing lands.	Provide for livestock, prevent from straying off holdings.	Contractual responsibilities between the Highways Agency and the design and construction contractors	C.
A8	Ch 16			Provide appropriate information and support to affected landowners to allow compliance with terms of stewardship schemes. Community engagement during construction outlined in <i>paragraphs 4.1.1 to 4.1.3 of the CoCP in Appendix 20.2.</i>	Maintain overall agricultural and environmental quality of region and conserve agricultural assets.	Detailed in paragraphs 4.1.1 to 4.1.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
A9	Ch 16			Implement appropriate bio-security advice/actions. Compliance with the <i>Soil Management Strategy in Appendix 12.2.</i>	Avoid contamination of agricultural assets.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	C.
A10	Ch16, 17			Design flood plain compensation areas to limit loss of agricultural land.	Limit loss of agricultural land. Protect agricultural assets.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P.

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Geology and soils							
Source							
Ref	ES ref	DCO ref.	Works information ref.	Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
G1	Ch 12			Carry out contaminated land ground investigation (in association with geotechnical investigation) including soil and groundwater sampling and laboratory analysis. Investigation to include locations targeted at areas of specific concern and also general non targeted testing (<i>paragraphs 9.3.1 to 9.3.4 of the CoCP Appendix 20.2</i>)	Obtain baseline data on presence and characteristics of potential contaminants of concern in the soil, groundwater and gas in the area of the scheme.	Detailed in paragraphs 9.3.1 to 9.3.4 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
G2	Ch 12			Undertake interpretive assessment including assessment against generic assessment criteria and source pathway receptor risk assessment. Prepare contaminated land interpretive report with source-pathway-receptor risk assessment and a geotechnical interpretive report (GIR).	Assess significance of ground investigation findings to the detailed design of the scheme.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P.
G3	Ch 12			Undertake site-specific quantitative risk assessment (<i>paragraph 9.1.3 of the CoCP Appendix 20.2</i>)	Develop criteria for re-use or import of material without adverse impact on human health or water quality. Use CLEA and Consim Models to develop site specific assessment criteria (SSAC) for generic situations including proximity to aquifer.	Detailed in paragraph 9.1.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
G4	Ch 13			Adoption of either environmental permitting regulations or <i>CL:AIRE Code of Practice for the deposition of suitable for use material</i> . The appropriate re-use of materials is secured within <i>paragraph 9.2.1 of the CoCP in Appendix 20.2</i> .	Establish measures for regulatory compliance for re-use of materials.	Detailed in paragraph 9.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
G5	Ch 12			Develop a detailed soil management strategy. Referred to in paragraph 9.1.4 of <i>Appendix 20.2</i> and written within <i>Appendix 12.2</i> .	Reduce risk of losing, damaging or contaminating valuable soil resources during construction.	Detailed in paragraph 9.1.4 of the Code of Construction Practice (CoCP) Appendix 20.2	P.

Geology and soils							
Source							
Ref	ES ref	DCO ref.	Works information ref.	Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
G7	Ch 12			Monitor groundwater quality and levels during construction works. As referred to in paragraph 14.5.2 of the <i>CoCP in Appendix 20.2.</i>	Identify changes in groundwater conditions for appropriate action where required.	Detailed in paragraphs 14.5.2 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
G8	Ch 12			Monitor groundwater quality and levels during construction works. As referred to in <i>paragraph 14.5.2 of the CoCP in Appendix 20.2.</i>	Maintain safe working conditions - identify mitigation measures and safe methods of work required for known ground conditions.	Detailed in paragraph 9.1.1 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
G9	Ch 12			Replace landfill monitoring boreholes at Milton landfill and continue compliance with permit requirements.	Maintain integrity of Milton landfill and associated monitoring infrastructure.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P and C.
G10	Ch 12			Protect Milton landfill infrastructure within working area to avoid damage to existing landfill infrastructure including cap, sidewalls, gas and leachate monitoring and extraction system.	Maintain integrity of Milton landfill and associated monitoring infrastructure.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P and C.

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Landscape							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
L1	Ch 10			Undertake detailed survey of trees next to scheme boundary (15m either side) at detailed design stage to inform detail design and construction planning. Compliance with <i>BS5837: 2012 (paragraph 10.2.7 and section 10.3 of the Code of Construction Practice (CoCP) Appendix 20.2)</i>	Limit damage to trees and significant vegetation outside of land take.	Detailed in paragraph 10.2.7 and section 10.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
L2	Ch 10			Identify all trees and hedgerows to be retained - erect and maintain protective fencing to retain vegetation for duration of construction works. General approach set out in <i>paragraph 10.1.2 of the CoCP (Appendix 20.2)</i> .	Limit damage to trees and significant vegetation to be retained within the permanent land take.	Detailed in paragraph 10.1.2 of the Code of Construction Practice (CoCP) Appendix 20.2 Requirement 6 of Schedule 2 to the DCO	P and C.
L3	Ch 10			Design layout and construction of compounds, soils stores, haul routes and borrow pits to provide appropriate clearance to vegetation to be retained, and limit requirements for tree surgery. (<i>Paragraph 10.2.7 of CoCP in Appendix 20.2</i>). Compliance with <i>BS5837: 2012</i>	Limit damage to trees and significant vegetation to be retained within the temporary land take.	Detailed in paragraph 10.2.7 of the Code of Construction Practice (CoCP) Appendix 20.2 Requirement 6 of Schedule 2 to the DCO	P and C.

Landscape							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
L4	Ch 10 and Ch 11			Develop planting strategy to guide detailed landscape and ecological design including plant selection. Implement mitigation for operational impacts as detailed in <i>Chapter 10 of the ES</i> . Mitigation includes the provision of environmental bunds, the rounding of crests and toes of embankments, screening of traffic, planting, and use of selected materials, where practicable (<i>detailed in Section 10.2 of the CoCP Appendix 20.2</i>)	Mitigation planting to provide habitat replacement/enhancement, integrate the scheme design in to the surrounding landscape and provide screening functions.	Detailed in Section 10.2 of the Code of Construction Practice (CoCP) Appendix 20.2 Requirement 6 of Schedule 2 to the DCO	A.
L5	Ch 10			Where land will be used temporarily, such as for compounds, haul roads, regrading areas, it will be returned to a condition suitable for the continuation of its original use. This will include the replanting of hedgerows and trees, where these have had to be removed.	Return land used temporarily to a condition which can continue to be used.	Requirement 6 of Schedule 2 to the DCO	A.
L6	Ch 10			Where environmental bunds are proposed as part of the permanent works, these will be constructed as early as is practicable to provide screening for the construction work (in paragraph 10.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2)	Provide screening for the construction work.	Detailed in paragraph 10.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2 Requirement 6 of Schedule 2 to the DCO	P, C.
L7	Ch 10			A five year aftercare period for all the soft environmental features of the scheme would be included as part of the construction contract requirements. Thereafter, the soft estate would be maintained by the Highways Agency through its managing agents.	Ensure adequate establish sustained viability of soft estate features	Future maintenance will be detailed in the HEMP which will be prepared by the contractor	O.

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Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E1	Ch 11			Carry out pre-construction surveys to identify any changed protected/notable species activity before works commence on site . To include late stage design-change areas, all temporary and permanent works, newly culverted watercourses and those receiving a surface water discharge from the scheme. Account for new ecological receptors identified pre-construction.	To comply with protected species legislation and limit impacts. Identify/verify the location, extent and value of protected species and habitats along the scheme.	Detailed in paragraph 12.1.7 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
E2	Ch 11			Carry out pre-construction surveys to record the location and extent of invasive species within all works areas, e.g. Japanese knotweed. Preparation of an invasive species control method statement (to include waste management strategy). Implement the measures contained within the method statement (under ecological supervision) during advanced mitigation and construction phase.	To prevent the spread of invasive species and comply with environmental legislation. To eradicate invasive species from the works area.	Detailed in paragraphs 12.2.1 - 12.2.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
E3	Ch 11			Undertake detailed design with regard to the commitments in the <i>Highways Agency Biodiversity Action Plan (HABAP)</i> .	To ensure the scheme is further developed in accordance with the Highways Agency's commitments to biodiversity.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P.
E4	Ch 11			Include, where practicable, habitat creation/enhancement opportunities within landscape and visual, noise and drainage design.	To maximise mitigation provision and comply with national guidance and HA policy.	Detailed in paragraphs 10.1.2, 10.3.7 and 12.1.3 of the CoCP Appendix 20.2	P.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E5	Ch 11			Review engineering design and vegetation lost at detail design stage. Where appropriate undertake tree surgery in preference to tree felling, e.g. crown reductions, pollarding, coppicing, so as to retain habitat resource. Translocate living vegetation where appropriate and of high value.	To limit loss of existing, and where possible enhance, connectivity for wildlife.	Detailed in paragraph 10.3.5 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
E6	Ch 11			Manage retained habitats within the scheme boundary to maintain and improve their value for biodiversity. Five year aftercare period, following which the Highways Agency will be responsible for appropriate management of mitigation measures.	To limit impacts and where possible enhance biodiversity.	Detailed in paragraph 10.5.1 and 12.3.2 of the Code of Construction Practice (CoCP) Appendix 20.2 Future maintenance will be detailed in the HEMP which will be prepared by the contractor. This will be secured under the CoCP.	P and O.
E7	Ch 11			Ensure ecologically sensitive sites defined and protected with appropriate fencing during course of works. Ensure temporary drainage arrangements avoid sensitive areas.	To avoid direct/indirect impacts on protected species and habitats to be retained.	Detailed in paragraphs 12.1.7 and 14.2.1 of the CoCP Appendix 20.2	A.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E8	Ch 11			Maintain key existing north-south wildlife dispersal corridors across scheme as far as practicable, using bridges, culverts, underpasses and structural planting (in conjunction with appropriate fencing and sensitive lighting) within the design, and identifying the need for additional permeability following the pre-construction surveys.	To limit loss of existing, and where practicable enhance, connectivity for wildlife.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground. Contractual responsibilities between the Highways Agency and the design and construction contractors	P and C.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E9	Ch 11			Provision of additional crossing structures, as required, to be determined through pre-construction surveys and at detailed design.	To limit loss of existing, and where practicable enhance, connectivity for wildlife.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	P and C.
E10	Ch 11			Enhance east-west habitat connectivity along the scheme with new landscaping where practicable. Include linkage to existing habitat features and designated sites adjacent to scheme boundary.	To limit loss of existing, and where practicable enhance, connectivity for wildlife.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	C and O.

Ecology							
Ref	Source			Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
E11	Ch 11			Increase habitats where practicable for key species limited by low habitat area/poor connectivity across the scheme. Creation of new habitats (including those of <i>Principal Importance for the Conservation of Biodiversity</i> , the <i>HABAP</i> and <i>local BAPs</i>) along the highways estate in order to achieve net habitat gain along the scheme.	To limit impacts and, where practicable, enhance habitat availability, connectivity and general biodiversity.	Detailed in paragraph 12.1.3 of the Code of Construction Practice (CoCP) Appendix 20.2	A.
E12	Ch 11			Use locally native tree, shrub and herbaceous species in the landscape mitigation, wherever reasonably practicable. Avoid the use of invasive and competitive grass species.	To enhance biodiversity.	Detailed in paragraph 10.4.1 and 12.1.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
E13	Ch 11			Incorporate river restoration and enhancement techniques to increase opportunities for habitats and species when realigning watercourses. Also refer to <i>Chapter 17 of the ES</i> .	To limit impacts.	Detailed in paragraph 12.1.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E14	Ch 11			Ensure culverting of watercourses only where necessary. Where unavoidable, meet current best practice design (e.g. <i>CIRIA C689D</i>) to limit impact on the watercourse and increase their suitability to provide safe passage for wildlife.	To limit impacts.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	P and C.
E15	Ch 11			Where culverts do not provide safe passage for terrestrial, riparian and aquatic wildlife species at locations where significant severance impacts are predicted, provide alternative bespoke mitigation (e.g. underpass where practicable, structural/guiding planting).	To limit impacts.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	P and C.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E16	Ch 11			Production of habitat and species management plans to be implemented within the main contractors' construction environmental management plans (CEMP)	To manage environmental commitments effectively.	Detailed in paragraph 12.1.1 of the Code of Construction Practice (CoCP) Appendix 20.2	A
E17	Ch 11			Use experienced ecological clerk of works (EcCoW) to provide on-site advice, supervise habitat clearance/advanced mitigation works and ensure compliance with protected species licences, consenting processes and the CoCP, associated local environmental management plans (LEMPs) and ecological specification	To ensure compliance with protected species licenses and oversee/advise on ecological elements of the environmental commitments.	Detailed in paragraph 12.1.6 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
E18	Ch 11			Adhere to the <i>Environment Agency's Pollution Prevention Guidelines (2014)</i> . In particular <i>PPG01, PPG06, PPG13, PPG18, PPG22 and PPG23</i> and ensure the necessary consents for working in proximity to watercourses are obtained.	To limit impacts on species and habitats.	Detailed in paragraph 14.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
E19	Ch 11			Adopt <i>Construction Industry Research and Information Association (CIRIA)</i> guidance in particular <i>CIRIA C650 - Environmental Good Practice on Site (2nd Edition) (2005)</i> ., <i>CIRIA C532 - Control of Water Pollution from Construction Sites (2001)</i> . and <i>CIRIA C648 - Control of Water Pollution from Linear Construction Projects (2006)</i>	To limit impacts.	Detailed in paragraph 14.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2 Contractual responsibilities between the Highways Agency and the design and construction contractors.	P and C.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E20	Ch 11			Install exclusion zones around protected habitat areas, designated sites and known sensitive receptors, e.g. bat roosts, to avoid accidental damage	To limit impacts and comply with protected species legislation.	Detailed in paragraphs 12.1.2 and 12.1.7 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
E21				Ensure careful timing of works to avoid sensitive periods for protected species where practicable	To limit impacts and comply with protected species legislation.	Detailed in paragraph 12.1.10 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
E22				Manage soil storage areas to discourage excavation of new badger setts within works area	To limit impacts and comply with protected species legislation.	Detailed in paragraph 12.1.8 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
E23				Use appropriate signage, toolbox talks and an incident recording system for protected species/habitats to increase site awareness of environmental receptors and their protection measures.	To limit impacts and comply with protected species legislation.	Detailed in paragraphs 3.7.2 and 12.1.7 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
E24	Ch 11			Ensure measures to avoid and limit harm to protected species during construction due to open excavations	To limit impacts and comply with protected species legislation.	Detailed in paragraph 12.1.8 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
E25	Ch 11			Measures to prevent the deliberate or reckless harm of protected animals during construction	To limit risk of mortality and significant disturbance.	Detailed in paragraph 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.

Ecology							
Ref	Source			Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
E26	Ch 11			Provide replacement habitat for affected protected and notable species as defined in the environmental statement. Receptor sites to be fenced to prevent encroachment and delineate sensitive management regime. Require management during aftercare period to ensure/prolong suitability.	To limit impacts through the provision of appropriate habitats in appropriate locations.	Detailed in paragraphs 12.1.2, 12.1.6 and 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	A.
E27				Planting in areas adjacent to the highway to avoid species that provide foraging resources for birds, particularly fruiting species e.g. hawthorn or rowan which may attract large numbers of birds.	To limit risk of mortality.	Contractual responsibilities between the Highways Agency and the design and construction contractors	A
E28	Ch 11			Landscaping detail of ecological mitigation areas to be determined during detailed design. Mitigation areas will aim to deliver broader biodiversity benefit rather than just being focussed on a single species' requirements (where these are broadly compatible e.g. barn owl foraging habitat and great crested newt (GCN) grassland).	To maximise the biodiversity benefit of the mitigation land provided.	Requirement 6 of Schedule 2 to the DCO	A
E29	Ch 11			Ensure habitat creation and management is programmed with sufficient time for vegetation and invertebrate communities to mature to provide required purpose e.g. receptor sites for species translocations must be suitable for foraging and shelter of translocated animals.	To ensure successful mitigation	Detailed in paragraph 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
E30	Ch 11			Retain appropriate site won materials for habitat creation purposes e.g. timber, brush, vegetation, stone etc. for hibernacula, egg laying sites, temporary shelter and connectivity	To provide locally sourced material for mitigation features.	Detailed in paragraph 10.3.7 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.

Ecology							
Ref	Source			Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
E31	Ch 11			Assess any works within a 250m radius of a GCN pond (that cannot reasonably be avoided) to determine whether the works may result in an offence under relevant wildlife legislation and assess the requirement for a mitigation licence from Natural England. Seasonal restrictions on licensing apply.	To comply with protected species legislation.	Detailed in paragraph 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
E32	Ch 11			Ensure no excavations or other works that could significantly disturb badgers within close proximity to any active badger sett. Avoid unnecessary disturbance and put measures in place to ensure compliance with guidance and legislation	To comply with protected species legislation.	Detailed in paragraphs 12.1.1, 12.1.8 and 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
E33	Ch 11			Works that could breach the legislation protecting bats would require a mitigation licence from Natural England. Any confirmed impacted roosts will be included in the licence application and be subject to proportionate mitigation, in accordance with legislation and published best practice	To comply with protected species legislation.	Detailed in paragraphs 12.1.1 and 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
E34	Ch 11			Works that could breach the legislation protecting water voles would require a conservation licence from Natural England. The proposed mitigation would need to demonstrate a conservation benefit to water voles for the works to be licensed as there is no development licensing route for this species	To comply with protected species legislation.	Detailed in paragraphs 12.1.1 and 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
E35	Ch 11			Works that could breach the legislation protecting otters would require a mitigation licence from Natural England	To comply with protected species legislation if resting places found during pre construction surveys would be disturbed.	Detailed in paragraphs 12.1.1 and 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	P.

Ecology							
Ref	Source			Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
E36	Ch 11			All sites that could be disturbed by the scheme that are known to have been used or have the potential to be used as barn owl (or any other Schedule 1 bird species) nest site to be surveyed prior to nesting season and demonstrated to not be an active nest site before making the site unsuitable for nesting and/or destroying the site prior to or during site clearance.	To comply with protected species legislation.	Detailed in paragraphs 12.1.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
E37	Ch 11			Produce a detailed methodology to demonstrate compliance with relevant legislation protecting common reptiles, including the identification, and careful management, of appropriate receptor sites	To comply with protected species legislation.	Detailed in paragraphs 12.1.1 and 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
E38	Ch 12			Produce and implement a plan for monitoring in accordance with requirements of protected species licences and to confirm conclusions of assessment. Liaise with Natural England if changing site conditions require alterations to mitigation strategy/programme	To comply with protected species legislation and limit impacts.	Detailed in paragraphs 12.3.1 and 12.3.2 of the Code of Construction Practice (CoCP) Appendix 20.2	A
E39	Ch 11			Design and build balancing ponds and drainage swales to have a secondary biodiversity function. Designs to include appropriate native species and avoiding hard/steep edges. Where possible the drainage will be of sensitive design for amphibians (including GCN).	To limit impacts and enhance biodiversity.	Detailed in paragraph 12.1.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E40	Ch 11			Lighting on scheme to avoid vicinity of sensitive receptors e.g. known bat roosts where practicable and consistent with safety requirements	To avoid wildlife legislation contravention and limit scheme impacts.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	P and C.
E41	Ch 11			Avoid disturbing nesting birds by avoiding vegetation clearance during the bird breeding season (typically March to August inclusive). If vegetation clearance is required during the breeding season it would be undertaken under the supervision of a suitably qualified ecologist. Cleared areas would be maintained in a condition considered unsuitable for re-colonisation by breeding birds. +E25	Compliance with protected species legislation.	Detailed in paragraph 12.1.10 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E42	Ch 11			Install and maintain badger proof fencing to guide badgers to suitable crossings, including tunnels, underpasses and over-bridges to allow badgers safe passage across the road.	To comply with <i>Design Manual for Roads and Bridges (DMRB)</i> guidance and allow safe passage of animals across the road.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.
E43	Ch 11			Maintenance of important bat commuting routes and foraging areas along the river Great Ouse corridor.	To enable safe passage of animals across scheme.	Detailed in paragraph 12.1.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P.
E44	Ch 11			Retention of structures and trees along the route with moderate, or greater, bat roost potential, where practicable.	To avoid wildlife legislation contravention and limit scheme impacts.	Detailed in section 10.3 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E45	Ch 11			Provision management and monitoring of artificial bat roost sites e.g. bat boxes on trees to potentially include integral boxes within bridges and other new structures.	To mitigate potential impacts/enhance roosting opportunities.	Detailed in paragraph 12.1.3, 12.1.6, 12.1.9 and 12.3.2 of the Code of Construction Practice (CoCP) Appendix 20.2	A.
E46	Ch 11			Provision management and monitoring of other wildlife boxes especially bird boxes, including barn owl, kestrel and swift boxes.	To mitigate potential impacts/enhance nesting opportunities.	Detailed in paragraph 12.1.3, 12.1.6 and 12.3.2 of the Code of Construction Practice (CoCP) Appendix 20.2	A.
E47	Ch 11			Plant tall screen planting to elevate the flight path of bats above heavy goods vehicles (HGV) height to limit mortality. Early planting and use of mature or suitable fast growing species to minimise maturation time until barrier becomes effective.	To limit the impacts on protected species.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E48	Ch 11			To elevate the flight path of bats above HGV height to limit mortality provide hop-over tree planting for bats at known severed commuting routes. Where possible manage existing trees to raise their canopy height either side of the road. Early planting and use of mature or fast growing planting stock to minimise maturation time until mitigation becomes effective. Consider use of lighting features, artificial screens e.g. camouflage netting clad construction fencing or fast growing species e.g. willow screen planting to act as an interim measure/speed up maturation period of planting.	To limit the impacts on protected species.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.
E49	Ch 11			Guiding tree and shrub planting linked to crossing features under and over the road, i.e. culverts, underpasses and bridges. In conjunction with badger/otter fencing where required. Where practicable early planting and use of mature or fast growing planting stock to minimise maturation time until mitigation becomes effective. Consider use of artificial screens e.g. camouflage netting clad construction fencing or fast growing species e.g. willow screen planting to act as an interim measure/speed up maturation period of planting.	To guide bats, badgers, otters etc. to safe crossing locations along the scheme so as to limit mortality and reduce the severance impact.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E50	Ch 11			Ensure the design of accommodation overbridges at key locations incorporate badger friendly features. Use of guiding planting, no lighting or a sensitive lighting design and, if practicable, solid parapets to reduce noise and light dazzle on the bridge.	To facilitate a secondary function as a protected species crossing and thereby reduce traffic mortality and severance.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	P and C.
E51	Ch 11			Where practicable install ledges within existing and new large bore culverts (2m or greater diameter). In conjunction with guiding otter/badger fencing, particularly where a known population has been impacted. Where ledges are not possible provide separate dedicated underpasses.	To permit the passage of badgers beneath the road (and otters during high flows) to limit traffic mortality and reduce the severance impact.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E52	Ch 11			Sensitive design of the West Brook bridge to facilitate use as a crossing feature by protected species. To incorporate ledges, integral bat boxes, guiding planting and no/sensitive lighting. To include access to both banks and within the water so suitable for both terrestrial and aquatic mammals.	To facilitate the passage of animals beneath the road to limit traffic mortality and reduce the severance impact.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.
E53	Ch 11			Provide dedicated dry underpasses for badgers, otters and GCN at key locations/where no drainage culvert to provide secondary function. In conjunction with guide fencing.	To facilitate the safe passage of animals beneath the road to limit traffic mortality and reduce the severance impact.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E54	Ch 11			Provide an enhanced wildlife corridor in the borrow pit 1 area. To comprise a wide belt of shrubs and tree planting to bolster and extend an existing tree line. To include a range of flowering and fruiting shrubs to provide a reliable food source for dormice and other animals. Requires infrequent management to promote flowering and fruiting. Where practicable early planting and use of large stock or fast growing species to minimise maturation time until mitigation becomes effective.	To benefit a wide range of species including badgers, bats and dormice. To enable the range expansion of dormice out of Brampton Wood and provide linkage for bats (including the rare barbastelle bat) to hop-over features to facilitate west-east/east-west movements.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.
E55	Ch 11			Provide a hedgerow diversion beneath the river Great Ouse crossing. Use of mature or fast growing planting stock to minimise maturation time until mitigation becomes effective.	To divert a known important bat commuting route to a safe crossing point beneath the bridge.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E56	Ch 11			<p>Provide a temporary area near sett 6.1 for badger foraging habitat during scheme construction. Adjacent provision of a permanent area of habitat for badgers for foraging and sett building in close vicinity to the main sett. Habitat within permanent mitigation area to be planted at earliest stage that doesn't interfere with construction. Permanent mitigation area to the north of the access track will remain. Requires post-planting management.</p> <p>UPDATE: 2015 surveys indicate that this sett has been abandoned and this mitigation is no longer required.</p>	To mitigate for the temporary severance impact of the road during construction, which severs the social group's territory. Permanent habitat provision to mitigate for loss of foraging habitat beneath scheme.	Detailed in paragraph 12.1.9 of the Code of Construction Practice (CoCP) Appendix 20.2	A.
E57	Ch 11			<p>Conversion of a World War II concrete pillbox to a bat roost. The mitigation measures to be agreed in conjunction with the cultural heritage team. Typically involves clearing out debris, blocking up/reducing the width of rifle slits, providing a grille over the main gun port, installing bat boxes internally and providing a secure lockable steel door. Undertake post-construction monitoring to determine whether bats have made use of the structure. Take remedial action if a clear reason for bat absence exists.</p>	To provide additional resource for roosting bats, in particular during the winter months for hibernation usage.	Following engagement with Natural England, Highways England is discussing an additional requirement for securing detailed design of certain ecological mitigation to be included in the DCO. Highways England will discuss the detail further with Natural England and document the status of those discussions in the Statement of Common Ground.	A.

Ecology							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
E58	Ch 11			Undertake the detailed design of the scheme cognisant of the mitigation requirements detailed in <i>Chapter 11 of the ES</i> in relation to temporary and permanent engineering design.	To ensure the scheme is further developed in accordance with the findings of the environmental impact assessment of the scheme.	Detailed in paragraph 12.1.3 and 12.1.7 of the Code of Construction Practice (CoCP) Appendix 20.2	P.

Appendix 20.1: A14 Cambridge to Huntingdon improvement scheme - Register of environmental actions and commitments

This register assumes that in addition to compliance with the measures in this table, all activities will comply with applicable environmental legislation.

Water							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
W1	Ch 17			Provision of floodplain compensation through bespoke areas (including some borrow pits) for all watercourses where compensation has been found to be necessary. Reference: <i>Flood Risk Assessment (FRA) in Appendix 17.1. Construction aspects referenced in paragraph 14.6.1 to 14.6.6 of the CoCP in Appendix 20.2.</i>	Flood risk: to ensure that there is no detriment (i.e. rise in water levels).	Detailed in paragraph 14.6.1 to 14.6.6 of the Code of Construction Practice (CoCP) Appendix 20.2	A.
W2	Ch 17			New culverts designed to convey the 1% AEP event peak flow.	Flood risk: to ensure that there is no detriment (i.e. rise in water levels).	Requirement 9 of Schedule 2 to the DCO	P.
W3	Ch 17			Attenuation of highway runoff through adequate drainage system design (during both construction and operation). Measures include swales, balancing and treatment ponds, and inclusion of a shut-off valve into the design of outfalls.	Flood risk: to ensure that there is no detriment (i.e. rise in water levels).	Contractual responsibilities between the Highways Agency and the design and construction contractors	C and O.
W4	Ch 17			River realignments to have naturalised outline and detailed designs, provided by geomorphologists/ecologists. This is of particular importance for the two EU designated Water Framework Directive (WFD) water bodies (West Brook and Alconbury and Brampton Brook).	Comply with WFD and Highways Agency internal policy (HD45/09) regarding mitigation of pollution from runoff.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P and C.
W5	Ch 17			Prevent encroachment on river corridors where practicable. To be applied to all watercourses with the exception of specified locations for watercourse crossings, culverts and outfalls.	Comply with the WFD.	Contractual responsibilities between the Highways Agency and the design and construction contractors	C.
W6	Ch 17			Design of culverts will follow best practice regarding length, natural morphology (including natural bed substrate where possible). Geomorphologist/ hydromorphologist input during detailed design process.	Comply with the WFD and ensure no deleterious effects on flood risk.	Contractual responsibilities between the Highways Agency and the design and construction contractors	P and C.

Water							
Ref	Source			Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
W7	Ch 17			Design of headwalls and outfalls will follow best practice in terms of the location, size and angle of headwalls to minimise channel erosion. Geomorphologist/ hydromorphologist input during detailed design process.	Comply with the WFD.	Requirement 9 of Schedule 2 to the DCO	P and C.
W8	Ch 17			The scheme design will provide treatment ponds, interceptors and cut-off valves to isolate flows in the event of accidental spillage. Water quality specialist to input to detailed design.	To comply with WFD and HA guidance on prevention of pollution from surface water runoff as detailed in HD45/09.	Requirement 9 of Schedule 2 to the DCO	A.
W9	Ch 17			The scheme will include naturalised design to all EU designated WFD water bodies and other watercourses as far as practicable. Outline and detailed design will be inputted to/reviewed by a geomorphologist and ecologist.	Comply with the WFD (including tributary watercourses).	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P.
W10	Ch 17			The scheme design will keep all development as far back from each watercourse/river corridor as is practicable.	Comply with the WFD (watercourses/ ditches drain to downstream water bodies).	Contractual responsibilities between the Highways Agency and the design and construction contractors	P.
W11	Ch 17			Design of culverts will follow best practices, including: depression of culvert invert to provide a natural bed, avoidance of river shortening and keeping length of culvert to a minimum. Geomorphologist/ hydromorphologist input during detailed design process.	Comply with the WFD (watercourses/ ditches drain to downstream water bodies).	Contractual responsibilities between the Highways Agency and the design and construction contractors	P.
W12	Ch 17			Design of headwalls and outfalls will follow best practice in terms of the location, size and angle of headwalls to minimise channel erosion. Geomorphologist/ hydromorphologist input during detailed design process.	Comply with the WFD i.e. these watercourses connect to downstream water bodies.	Contractual responsibilities between the Highways Agency and the design and construction contractors	P.

Water							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
W13	Ch 17			Water quality mitigation measures will include some of the following: provision of temporary storage lagoons; on-site availability of oil spill kits; use of drip trays; sediment trapping matting; preparation of incident response plans; careful timing of works; use of construction materials free from pollutants; ensuring no wet cement comes into contact with water; testing of made and reworked soils (for contamination). General requirements can be found in <i>paragraph 14.2.1 of the CoCP in Appendix 20.2.</i>	Comply with WFD and avoid construction impacts on water quality.	Detailed in paragraph 14.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2	C.
W14	Ch17			Groundwater quality mitigation will potentially include: monitoring of surface waters and groundwater abstractions; provision of temporary supplies if required during dewatering (mitigation measures listed above for surface water quality may also assist with groundwater); and maintain a protective layer of Gault Clay above the Woburn Sands Principal Aquifer at borrow pit 6 (as required - to be confirmed as part of the detailed design). The following will also be considered where applicable: re-routing of drains and the re-direction of water to recharge a specific ecological site or surface water receptor; General construction requirements can be found in <i>paragraph 14.2.1 of the CoCP in Appendix 20.2.</i>	Comply with legislation and avoid construction impacts on groundwater quality.	Detailed in paragraph 14.2.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.

Water							
Ref	ES ref	Source		Action	Objective	How secured	When P = Pre- construction C = Construction O = Operation A = All
		DCO ref.	Works information ref.				
W15	Ch 17			Swales to be lined where required to prevent infiltration of surface water runoff into groundwater. Mitigation includes the majority of road runoff passing through attenuation ponds prior to discharge; use of devices allowing isolation of flows in the event of accidental spillage; and leaving a protective layer of Gault Clay over the Woburn Sands Principal Aquifer (at borrow pit 6) (if required). Building reinforcements will mitigate against settlement (if required) and monitoring groundwater abstractions and provision of alternative supplies will be undertaken if necessary.	Comply with legislation and avoid operational impacts on groundwater quality.	Requirement 9 of Schedule 2 to the DCO	O.
W16	Ch 17			Consult with the Environment Agency prior to the use of de-icing agents other than rock salt.	Comply with the Memorandum of Understanding between the Highways Agency and the Environment Agency regarding de-icing.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	C and O.

Appendix 20.1: A14 Cambridge to Huntingdon improvement scheme - Register of environmental actions and commitments

This register assumes that in addition to compliance with the measures in this table, all activities will comply with applicable environmental legislation.

Materials							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
M1	Ch 13			Mitigation measures for materials used on-site would be managed by the <i>Code of Construction Practice (paragraphs 4.1.1 to 4.1.3 of the CoCP in Appendix 20.2)</i> and the <i>Soil management strategy (Appendix 12.2)</i> .	To use material resources more efficiently, reduce waste at source and reduce the quantity of waste that requires final disposal to landfill. To correctly handle topsoil during site restoration.	Detailed in paragraph 11.6.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C.
M2	Ch 13			Borrow pits would be established within the scheme footprint to provide earthworks materials for construction of the scheme.	To avoid the need to import earthworks materials for the scheme.	Schedule 1 to the DCO Requirement 2 of Schedule 2 to the DCO	C and O.
M3	Ch 13			Develop and implement a Site Waste Management Plan in line with the mitigating items within <i>Table 13.11 in Chapter 13 of the ES</i> . General construction overview within <i>paragraphs 11.2.5 to 11.5.8 of the CoCP Appendix 20.2</i>	To ensure that demolition and construction wastes are dealt with in an appropriate manner and in accordance with the waste hierarchy.	Detailed in paragraphs 11.2.5 to 11.5.8 of the Code of Construction Practice (CoCP) Appendix 20.2	A.
M4	Ch 13			Conduct a CEEQUAL assessment for the client and design aspects of the scheme.	The CEEQUAL assessment includes a section for materials and waste, which looks for opportunities throughout the design and construction period to conserve the use of materials through the reduction, reuse and recycling of wastes.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P
M5	Ch 13			The means of importing materials would be explored with the contractor which would include exploring the use of railheads. Transport routes for road haulage shall be identified and discussed with the highways authority.	Limit the potential effects of construction traffic on the local road network where practicable.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P and C

Materials							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
M6	Ch 13			Wherever practicable materials for all products used on the scheme would be procured on the basis of having some recycled content (<i>paragraphs 4.1.1 to 4.1.3 of the CoCP in Appendix 20.2</i>) and thus would assist with achieving the Highways Agency's Procurement Strategy target of "25% of products (<i>minimum</i>) used in construction projects from schemes recognised for responsible (<i>sustainable</i>) sourcing" (Highways Agency, 2009).	Support for the Highways Agency's procurement strategy - Highways Agency (2009). Procurement Strategy 2009.	Detailed in paragraph 11.6.1 of the Code of Construction Practice (CoCP) Appendix 20.2	P and C

Appendix 20.1: A14 Cambridge to Huntingdon improvement scheme - Register of environmental actions and commitments

This register assumes that in addition to compliance with the measures in this table, all activities will comply with applicable environmental legislation.

General							
Ref	Source			Action	Objective	How secured	When P = Pre-construction C = Construction O = Operation A = All
	ES ref	DCO ref.	Works information ref.				
G1	App 13.2			Further investigation into opportunities for reducing greenhouse emissions during construction and operation of the scheme would be undertaken during the detailed design phase. Measures would be in line with those presented in <i>section 4 and 6 of Appendix 13.2 of the ES</i> . Measures relate to design and materials, transport and logistics, use of plant, traffic and energy use.	To reduce greenhouse gas emissions during construction and operation of the scheme.	Contractual responsibilities between the Highways Agency and the design and construction contractors.	P and C.
G2	Ch 20			Produce handover environmental management plan (HEMP) as defined by IAN 18/14.	To ensure suitable environmental measures are in place for future maintenance and operation of the scheme.	Future maintenance will be detailed in the HEMP which will be prepared by the contractor. This will be secured under the CoCP.	O