SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 5 PART 8

ENVIRONMENTAL SUSTAINABILITY AND WASTE

CONTENTS **Page No.**

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ENVIRONMENTAL SUSTAINABILITY AND WASTE

1. INTRODUCTION

1.1 General Requirements

1.1.1 The Operating Company shall follow the principles of the Scottish Government's and Transport Scotland's requirements for sustainable development as set out in this Part.

1.1.2 When undertaking any Operations, the Operating Company shall ensure all of its activities support and contribute towards the Scottish Ministers' objectives and targets for carbon reduction.

2. REQUIREMENTS FOR SUSTAINABILITY

2.1 General

2.1.1 The Operating Company shall have documented procedures detailed in the Management System, to enable it to achieve the requirements of this Part through planning and executing all Operations associated with the management and maintenance of the Unit, including as a minimum:

(i) the work of sub-contractors and sub-consultants,

(ii) the collection and reporting of data required by this Part, and

(iii) certification and compliance with statutory requirements including licences, environmental permits, exemptions, waste transfer notes and consignment notes to meet the requirements of this Contract.

2.2 The Transport Scotland Carbon Management System

2.2.1 The Operating Company shall supply and record all data required to meet the requirements for carbon reporting, carbon management and carbon accounting as detailed in the Carbon Management System. The relevant components of the Carbon Management System are:

(i) Carbon Management System Annual Account data template,

(ii) Carbon Management System Road Infrastructure Projects Tool,

(iii) Carbon Management System Data Template for Contractors, and

(iv) Carbon Management System Operational Data Templates for utility and fuel data.

2.2.2 The Operating Company shall comply with the requirements of the Carbon Management System in accordance with the guidance contained within the system as amended by the Director from time to time.

2.2.3 The Director will provide the Operating Company with the relevant components of the Carbon Management System listed in paragraph 2.2.1 of this Part. The Director will notify the Operating Company of any subsequent changes made to the scope of

the Carbon Management System and the Operating Company shall implement the changes.

2.3 Sustainability Requirements

2.3.1 For all Works Contracts with an Estimated Bid Value greater than £1,000,000, the Operating Company shall provide a report to the Director on the feasibility of sourcing at least 10% of the materials required for the Scheme from recycled, secondary or re-used sources. When required by the Director, the Operating Company shall include a requirement for such material sourcing within the Works Contract.

2.3.2 The Operating Company is expected to make an application for an award under the *Civil Engineering Environment Quality Assessment and Award Scheme Term Contracts Version* and achieve interim verifications in accordance with the timescales set out in this Part.

Once awarded an interim verification, the Operating Company shall achieve a final verification during the last Annual Period.

2.4 Site Waste Management Plans

2.4.1 The Operating Company, as part of its Design as stated in Schedule 6 Part 4, shall develop a Site Waste Management Plan for all Schemes with an Estimated Bid Value greater than £350,000. The Site Waste Management Plan shall be developed in accordance with current best practice guidance and instructions issued by the Director or any amendments to the *Design Manual for Roads and Bridges*.

The Site Waste Management Plan shall:

(i) provide details of the quantity and type of waste that will be produced for each Scheme and Works Contract,

(ii) provide details of how the waste produced will be minimised, reused, recycled, recovered or otherwise diverted from landfill,

(iii) provide details of how any materials that cannot be reused, recycled or recovered will be disposed of at a legitimate site,

(iv) take account of the Scottish Government's targets for waste reduction and recycling, and

(v) be regularly updated during the construction process to record how all waste is managed.

The Site Waste Management Plan developed as part of the Operating Company's Design shall be completed and implemented by the Operating Company for the relevant Scheme or the Works Contractor for the relevant Works Contract.

2.5 Forth Replacement Crossing Environmental Statement

2.5.1 The Operating Company shall comply with requirements of the *Forth Replacement Crossing: Environmental Statement Volume 1, Chapter 23 Schedule of Environmental Commitments* stated in Annex 5.8/A of this Part where such requirements relate to Operations.

2.6 Data Recording

2.6.1 The Operating Company shall prepare and keep Records for submission to the Director of:

(i) evidence of the levels of materials sourced for Works Contracts with an Estimated Bid Value greater than £1,000,000 that have been obtained from recycled or secondary sources for all Schemes where this requirement has been required by the Director,

(ii) execution of the requirements for carbon reporting, management and accounting detailed in the Carbon Management System,

(iii) Site Waste Management Plans as required in paragraph 2.4.1 of this Part,

(iv) the *Civil Engineering Environment Quality Assessment and Award Scheme Term Contracts Version*,

(v) the total amount of material resources consumed in undertaking its Operations and separately in Works Contracts measured in tonnes per £100,000 of construction value,

(vi) the proportion of total material resources consumed in Operations and separately in Works Contracts which are sourced from recycled, secondary or re-used sources,

(vii) the proportion of total material resources consumed in Operations and separately in Works Contracts which are sourced from renewable or certified sources,

(viii) the total amount of controlled waste produced in Operations and separately in Works Contracts measured in tonnes per £100,000 of construction value, including a breakdown of the individual waste types produced,

(ix) the total amount measured in tonnes per £100,000 of construction value and the proportion of the total amount of controlled waste produced in Operations and separately in Works Contracts that is re-used, recycled and sent for disposal to landfill,

(x) the total amount measured in tonnes per £100,000 of construction value and the proportion of construction and demolition waste produced which is re-used, recycled and sent for disposal to landfill in Operations and separately in Works Contracts,

(xi) the total volume of water consumed in Operations and separately in Works Contracts, and

(xii) the monthly total fuel consumption measured in litres and the monthly total kilometres travelled by the Trunk Road Incident Support Service vehicle.

2.6.2 The Operating Company shall ensure that obligations are included in all Works Contracts to require Works Contractors to prepare and keep the same Records as required by this Part as appropriate.

2.6.3 The Operating Company shall undertake regular documented and recorded reviews to ensure it complies with:

(i) the requirements for implementing and managing the Carbon Management System,

(ii) the requirements for Site Waste Management Plans,

(iii) the collection, recording and reporting of other information required by this Part, and

(iv) the control of all documentation including the identification and traceability of documents, document issues and status. This shall also include the control of documentation recording the relevant environmental licences, permits, exemptions, waste transfer notes, consignment notes and other environmental Records in respect of Operations and Works Contracts.

The outcomes of these reviews shall be recorded by the Operating Company and provided to the Director and the Performance Audit Group when requested.

3. REPORTS

3.1 Requirements

3.1.1 The Operating Company shall provide an annual report on the sustainability aspects of all Operations and Works undertaken during each Annual Period. This report shall be provided to the Director and the Performance Audit Group no later than 25 Working Days after the start of each Annual Period and shall include:

(i) the total carbon emissions recorded in the Carbon Management System Annual Account data templates associated with carrying out the Operations required by this Contract,

(ii) the activities stated in paragraph 2.5.1 of this Part, and

(iii) any other sustainability aspects required by the Director.

3.1.2 The annual report shall contain separate sections including the following information:

(i) the Records detailed in paragraph 3.1.1 of this Part,

(ii) matters subject to any notice from a regulatory body, and

(iii) any other relevant matters that will either be required by the Director or, which in the opinion of the Operating Company, should be brought to the attention of the Director.

3.1.3 The Operating Company shall provide the following reports using the carbon emissions data generated by the contract control and management function of the Integrated Roads Information System as required by Schedule 4 Part 1:

(i) a quarterly and an annual report of carbon emissions associated with material usage and transportation in Schemes using the contract control and management function of the Integrated Roads Information System's carbon conversion factors for individual Schedule of Rates and Prices items within the one year programme.

The annual report of carbon emissions shall be included within the annual report required in paragraph 3.1.1 of this Part.

3.1.4 The Operating Company shall provide a report detailing the total carbon emissions using the carbon emissions data generated from the Carbon Management System Road Infrastructure Projects Tool for each Works Contract. This report shall be provided no later than 25 Working Days following completion of the Works Contract and include a comparison between Statement of Intent (Scheme approval) carbon emissions estimates of Works as required by Schedule 4 Part 1 and the total carbon emissions recorded in the Carbon Management System Road Infrastructure Projects Tool at the completion of the Works Contract subject to limitation of the Carbon Management System.

This is Annex 5.8/A to Schedule 5 Part 8 referred to in the foregoing Agreement between Scottish Ministers and Amey LG Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 5 PART 8

ENVIRONMENTAL SUSTAINABILITY AND WASTE

ANNEX 5.8/A – Forth Replacement Crossing: Environmental Statement Volume 1, Chapter 23 Schedule of Environmental Commitments at Operation

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 5 PART 8

ENVIRONMENTAL SUSTAINABILITY AND WASTE

ANNEX 5.8/A – Forth Replacement Crossing: Environmental Statement Volume 1, Chapter 23 Schedule of Environmental Commitments at Operation

All references and details in the extract below taken from the Forth Replacement Crossing Environmental Statement Volume 1 Chapter 23 are to details within the Environmental Statement and not to this Contract.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
LU2	All agricultural land	Operation	Access to agricultural land and woodland will be maintained during the construction process and post construction in accordance with the requirements of the Bill.
G11	N1-N29 (refer to Figure 8.4a); S1-S14 (refer to Figure 8.4b and 8.4c).	Operation	Ground gas monitoring of confined spaces will be undertaken before entry.
G13	S13 (refer to Figure 8.4a).	Pre-construction/ Construction/ Operation	Groundwater, surface water and soil sampling results from the 2009 GI will be assessed. Surface water and groundwater monitoring will be undertaken during construction. Where necessary, post construction groundwater monitoring will be undertaken.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
G19	Ch0-350 (Castlandhill Road) Ch0-290 (Ferrytoll Road) Ch0-1050 (temporary access road) Proposed scheme around M9 Junction 1A Ch2000-2500 (Queensferry Junction) Ch3200-4600 (mainline including associated roads and part of the main construction compound). Ch7900-8430 (mainline and associated side roads) Ch8500-8800 (mainline)	Construction/ Operation	Road drainage, detention basins and swales will be lined to protect the surrounding water environment in the locations specified.
G20	Throughout scheme	Construction/ Operation	All detention basins and swales will be lined unless risk assessment during design development indicates that lining is not necessary at specific locations.
W1	Throughout scheme	Construction/ Operation	Best practice guidance including but not limited to the following will be adhered to: SEPA Pollution Prevention Guidelines - PPG01, PPG02, PPG03,PPG04, PPG05, PPG06, PPG07, PPG08, PPG10, PPG13, PPG14, PPG18, PPG20, PPG21, PPG22, and PPG26; CIRIA Guidelines Report 142 Control of Pollution from Highway Drainage Discharges; CIRIA Report 168 Culvert Design Guide; CIRIA C609 Sustainable Drainage Systems; CIRIA C648 Control of Water Pollution from Linear Construction Projects; CIRIA C649 Control of Water Pollution from Linear Construction Projects Site Guide; CIRIA C697 The SUDS Manual;

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
			BS6031:1981 Code of Practice for Earthworks; and Defra Code of Practice for Using Plant Protection Products.
W28	Throughout Scheme	Design/ Construction/ Operation	For each outfall, a treatment train will be provided to maximise pollutant removal. For new sections of road and roads to be upgraded, the treatment train will consist of 3 levels of SUDS in accordance with CIRIA (2007) and approved by SEPA, including filter drains, swales and detention basins.
W29	St Margaret's Marsh (refer to Figure 9.3a)	Design/ Construction/ Operation	The design will maintain the hydrological connectivity of the marsh whilst ensuring that the directional flow of groundwater is not affected (as per mitigation measure G24 in Table 23.2).
W30	Linn Mill Burn (refer to Figure 9.3c)	Design/Construction/ Operation	To mitigate against an increase in flood risk from the carriageway drainage onto lands adjacent to the viaduct abutments, excess runoff will be directed toward areas of detention, and/ or conveyed toward the Firth of Forth without impacting areas of high risk.
W31	Tributary of Niddry Burn, Niddry Burn, Swine Burn, River Almond (refer to Figure 9.3e)	Design/ Construction/ Operation	Where structures or embankments are constructed within the floodplain, compensatory storage will be created by landforming and this will be provided directly adjacent to the watercourse floodplain where practicable.
W32	Swine Burn (refer to Figure 9.3e)	Design/ Construction/ Operation	Two outfalls appropriately positioned with scour protection will be provided. Two treatment trains will be provided. For flood flows in excess of carriageway drainage capacity, detention or conveyance of flood water toward areas of less risk.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
W33	Swine Burn (refer to Figure 9.3e)	Design/ Construction/ Operation	One new depressed invert culvert and one double-barrel culvert extension will be provided. The culvert will be designed in line with CIRIA 168 guidance and with allowance for freeboard above the 0.5% AEP (200-year return period event) flood level and mammal passage. Regular inspection to ensure the culverts are free from debris is recommended.
W35	Tributary of Swine Burn (refer to Figure 9.3e)	Design/ Construction/ Operation	One treatment train will be provided.
W36	Niddry Burn (refer to Figure 9.3e)	Design/ Construction/ Operation	One treatment train will be provided.
W39	River Almond	Design/ Construction/ Operation	One treatment train will be provided.
W40	Ferry Burn	Design/ Construction/ Operation	One treatment train will be provided.
W42	Firth of Forth (refer to Figure 9.3d)	Design/ Construction	Two land-based treatment trains will be provided. Drainage over intertidal areas on both shores will be taken back to land-based SUDS systems. Drainage on Main Crossing will include droplet-dispersal system to disperse discharge and any road contaminants. Outfalls will be positioned at reasonably regular spacings (15m indicatively) on either side of bridge deck. Enhancement of drainage system along the viaduct to capture flood flows from the 0.5% AEP (200-year return period) event if practicable will be undertaken.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
W45	Throughout scheme	Operation	Filter drains and filtration devices will be maintained through inspection and weed control, grass cutting, removal of sediment and vegetation build up, annual reinstatement of eroded areas or damaged vegetation and replacement of clogged filter material as required.
W46	Throughout scheme	Operation	Scour protection will be provided at the drainage discharge outfall to protect the banks and bed of the receiving watercourse and to limit erosion.
TE18	Throughout scheme	Scheme design/ Construction/ Operation	Lighting design will be according to BS 5489 and best practice guidance on lighting (e.g. Bat Conservation Trust and Institute of Lighting Engineers, 2007). Where practicable, night time working (undertaken between sunset and sunrise) will be avoided.
TE20	Throughout scheme	Scheme design/ Construction/ Operation	Construction work at watercourses will not prevent the movement of animals along the bank throughout the works period. Watercourse realignments in low gradient areas will be designed to minimise sedimentation and in high gradient areas to minimise erosion. The opportunity to create suitable habitat will be incorporated through the inclusion of meander bends, secondary channels or, riparian zones where appropriate. Where bridging is not practical and culverts are required, their length will be kept to a practical minimum. Where practical, the insertion of each culvert will not alter the gradients markedly from existing conditions so as to avoid altering flow patterns and resulting habitat loss and to avoid excessive siltation or erosion.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
			Altered flow regimes resulting from the use of culvert extensions or channel realignments will be avoided. Culverts will be oversized to allow natural bed and bank profiles to remain, where practicable. On sites where dewatering is anticipated, the creation of a temporary diversion channel with suitable sized replacement substrate or transplanted substrate from the section being dewatered will be undertaken, making sure that the size and flow in the diversion channel is as near to the existing channel as practicable. Fish will be removed from channels to be dewatered for construction of culverts, realignments or bridges. In salmonid waters, in-channel works and piling will be avoided during sensitive periods for migrating and spawning fish (October-May inclusive). Drainage systems will be designed to prevent otter entering and becoming trapped. There will be no stockpiling of material within 10m of any watercourse. Mammal ledges will be installed in new culverts and will comprise the installation of a ledge of minimum 500mm wide with access to the bank via ramps. Ledges must be a minimum of 150mm above high water levels and allow 600mm headroom. Ledges must take account of the preferred bank used by otters.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
TE21	Throughout scheme	Operation	Any maintenance works required during the breeding bird season will be subject to the same restrictions as during construction. Mammal proof fencing will be maintained during operation of the proposed scheme. Crossing points for bats will be monitored as part of the operational aftercare management contract to assess whether additional provision will be required. Culverts will be appropriately maintained to ensure continual operation of the asset during operation.
TE22	Throughout scheme	Construction/ Operation	Landscape planting and newly created habitat will be comprised of predominantly native species of local provenance where available, and will comprise a mixture of species. Where loss or degradation of valuable habitat is unavoidable and where watercourses are realigned, they will be returned to their former quality or improved once construction is complete where practicable. Sowing/ planting will be undertaken 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. All areas of habitat loss due to temporary works, site compounds, easements, working areas or access roads will be reinstated following construction on a like for like basis. Habitat creation will contribute to biodiversity targets identified in local (LBAP) and national (UKBAP) strategies. During the operation of the proposed scheme, management and maintenance of roadside

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
			verges is to be undertaken to maintain and enhance floral diversity. Appropriate management will be undertaken of existing boundary habitats such as hedgerows or rough edges for the benefit of key farmland species of conservation concern such as yellowhammer (Emberiza citronella), skylark (Alauda arvensis), linnet (Carduelis cannabina), tree sparrow (Passer montanus), meadow pipit (Anthus pratensis) and grey partridge (Perdix perdix). Replacement roosts will be monitored during the aftercare and operation phase of the road in order to identify further roost requirements.
TE23	Throughout scheme	Construction/ Operation	Best practice measures will be implemented to prevent pollution (see mitigation measure W1 in Table 23.3).
TE25	Along existing hedge south of Inchgarvie House. Along the access road north of Queensferry Junction (ch3700-4300) and on the western side of the proposed scheme (ch3600-3900). Along the A904 west of Queensferry Junction and along the minor road southwest of Queensferry Junction. Along the proposed scheme east of Queensferry Junction (ch2500-3500) and alongside the bus links east of ch500. North of Lindsay's Craigs Woodland alongside M9 WB from the M9 Spur Interchange Link to Overton Road (ch1700-2200).	Construction/ Operation	Hedgerow and tree planting will be provided.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
TE26	Areas of Habitat Creation	Operation	Bankside habitat creation comprising planting and enhancement of detention basins will be undertaken.
TE27	Confidential	Operation	Replacement badger setts will be provided prior to the exclusion of badgers from social group A from their parent sett and population group C for a main and two outlier setts. Where practicable, replacement setts will be created within the same woodland area as the existing setts. Where this is not possible, the alternative site will be located such that a clear path leads to it from an existing sett.
TE31	Niddry Burn	Construction/ Operation	An artificial otter holt will be provided.
TE32	Watercourses	Operation	In order to reduce disturbance of otters, lighting will be sensitively sited to reduce light spill onto burns and where required screens will be provided.
TE34	Swine Burn. Niddry Burn.	Construction/ Operation	Habitat enhancement/ creation will be incorporated through the inclusion of meander bends, secondary channels and riparian zones, where appropriate.
TE38	Scheme drainage including detention ponds	Operation	Detention basins, culverts, filter drains, swales and catchpits will be inspected and maintained as appropriate (refer to Table 23.3).
TE39	Ch3350. Ch2750. East of ch1500 on the A90.	Construction/ Operation	Suitable structures such as temporary fencing during construction and ITS/ ADS gantries during operation will be provided to act as bat bridges.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
TE40	Ch 3350. Ch 2750. fencing locations.	Construction/ Operation	Temporary mammal-resistant fencing will be provided around construction compounds following a specification agreed in consultation with SNH. Where required, permanent mammal fencing will be erected in accordance with DMRB and SNH guidance 'Otters and Development' (The Highways Agency et al., 1993; Scottish Natural Heritage, Undated). Associated planting will be placed in such a way that animals will be directed towards safe passing places. Where the operational scheme crosses watercourses otter-proof fencing will be installed 150m either side.
TE41	Ch1700-4300.	Construction/ Operation	Badger proof fencing will be provided. Note at certain locations integrated with noise barriers refer to Table 23.6.
TE44	Between ch2500-3100.	Construction/ Operation	A dry mammal passage will be provided.
TE45	Castlandhill Woods. Woodland at St Margaret's Hope. East Shore Wood adjacent to Society Rd (west of Main Crossing). Echline Strip (ch2920).	Construction/ Operation	Bat surveys will be undertaken to determine the species, seasonal and dimensional requirements of replacement roost habitat including provision of bat boxes.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
TE46	Ch8200-8300 (cemetery)	Construction/ Operation	If required, maiden pink (Dianthus deltoides) to be translocated to a suitable adjacent location. Translocation will be undertaken with necessary permissions under the supervision of an ECoW in accordance with a detailed method statement prepared in advance.
TE51	St. Margaret's Marsh	Construction/ Operation	A management strategy to enhance the site's condition will be implemented in consultation with stakeholders.
EE6	Firth of Forth	Construction/ Operation	Best practice measures will be implemented to prevent pollution (see mitigation measure W1 in Table 23.3).
V1	Throughout scheme	Scheme design/ Construction /Operation	All landscape mitigation in Table 23.6 will be provided.
V2	Throughout scheme	Scheme design/ Construction/ Operation	Where lighting is essential, all reasonable precautions will be undertaken to reduce energy consumption and avoid/ reduce the amount of light pollution of the night sky and rural landscape where this can be achieved safely and effectively.
CH10	Throughout scheme	Construction/ Operation	Planting proposed as part of the landscape/ ecology mitigation measures (refer to Table 23.6 and Figure 12.4) and noise barriers (refer to Table 23.10) will be provided to reduce impacts on setting.
P6	NCR 1 on east side of A90 (path 6); NCR 1 on B981 (path 6a); and NCR 76 at Ferrytoll Junction (path 10). Refer to Figure 17.3a.	Construction/ Operation	New signage will be installed as appropriate for NCR 1 and NCR 76.

Mitigation Item	Approximate chainage/location	Timing of Measure	Description
P7	Ferrytoll Junction - NCR 76 (path 10, 80) North end of Forth Road Bridge (refer to Figure 17.3a). Local path across the proposed Queensferry Junction (path 45b) - refer to Figure 17.3b.	Construction/ Operation	Traffic signals will be provided to enable safe crossing of roads for all NMUs and crossing points will be DDA compliant. Puffin or Toucan crossings will be chosen ahead of Pelican crossings.
P9	NCR1/Local Path (path 6). NCR 76 (path 10) Right of way (path 16) Local paths (21) Core path (23) Core path (38) Local paths (46) Local paths (78) Recreational areas - Ferry Hills and Echline fields	Construction/ Operation	Planting proposed as part of the landscape/ ecology mitigation measures (refer to Table 23.6 and Figure 12.4) will be provided to reduce impact on amenity value.
VT1	Throughout scheme	Scheme design/ Construction /Operation	All landscape mitigation in Table 23.6 will be provided.

signed for and on behalf of The Scottish Ministers

by ……...Roy Brannen…….

on ….…… December 2014……

at ……Glasgow……...……

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Authorised Signatory

signed for and on behalf of AMEY LG Limited

by

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on ……..… December 2014……

at ……Glasgow……..….

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Director/Company Secretary/
Authorised Signatory*