

A417 Missing Link  
TR010056

8.24 HRA Matrices - Severn Estuary  
Ramsar site

Planning Act 2008

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

Volume 8

February 2022

Infrastructure Planning

Planning Act 2008

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

**A417 Missing Link**

Development Consent Order 202[x]

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<b>Regulation Number:</b>	
<b>Planning Inspectorate Scheme Reference</b>	TR010056
<b>Application Document Reference</b>	8.24
<b>Author:</b>	A417 Missing Link

<b>Version</b>	<b>Date</b>	<b>Status of Version</b>
C01	February 2022	Deadline 3

### HRA Matrices - Severn Estuary Ramsar site

This document provides updated Habitat Regulations Assessment (HRA) matrices for the Severn Estuary Ramsar site, in response to a Hearing Action Point taken at Issue Specific Hearing 2 on 27 January 2022 (Reference Number ISH2-AP7).

#### PINS HRA Screening Matrix

The screening matrix in Table 1 below supersedes the version provided within Appendix C of the Habitats Regulations Assessment: Screening Report (Document Reference 6.5, APP-414).

#### Matrix key

- ✓: Likely significant effect cannot be excluded
- ✗: Likely significant effect can be excluded
- C: Construction
- O: Operation
- D: Decommissioning

**Table 1 Severn Estuary Ramsar site PINS Screening Matrix**

Name of European site and designation: Severn Estuary Ramsar									
EU code: UK11081									
Distance to NSIP: 19km									
European site features	Likely effects of NSIP								
	Water quality			Reduction in habitat area			In combination effects		
Effect	C	O	D	C	O	D	C	O	D
Stage of development	C	O	D	C	O	D	C	O	D
Ramsar criterion 1 – Annex I features present include: <ul style="list-style-type: none"> <li>• Sandbanks which are slightly covered by sea water all the time</li> <li>• Estuaries</li> <li>• Mudflats and sandflats not covered by sea water at low tide</li> <li>• Atlantic salt meadows</li> </ul>	✗*i	✗*i		✗*ii	✗*ii		✗*vi	✗*vi	

<p>Ramsar criterion 3 – due to unusual estuarine communities, reduced diversity and high productivity</p>	<p>✗ *i</p>	<p>✗ *i</p>		<p>✗ *ii</p>	<p>✗ *ii</p>		<p>✗ *vi</p>	<p>✗ *vi</p>	
<p>Ramsar criterion 4 – this site is important for the run of migratory fish between sea and river estuary. Species include:</p> <ul style="list-style-type: none"> <li>• Salmon</li> <li>• Sea trout</li> <li>• Sea lamprey</li> <li>• Allis shad</li> <li>• Twaite shad</li> <li>• Eel</li> </ul> <p>It is also of importance for migratory birds during spring and autumn</p>	<p>✗ *i</p>	<p>✗ *i</p>		<p>✓ *iii</p>	<p>✗ *iv</p>		<p>✓ *vii</p>	<p>✗ *vi</p>	
<p>Ramsar criterion 8 – the fish of the estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. The following species use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary:</p> <ul style="list-style-type: none"> <li>• Salmon</li> <li>• Sea trout</li> <li>• Sea lamprey</li> <li>• River lamprey</li> <li>• Allis shad</li> <li>• Twaite shad</li> <li>• Eel</li> </ul> <p>The site is important as a feeding and nursery ground for many fish species, particularly:</p> <ul style="list-style-type: none"> <li>• Allis shad</li> <li>• Twaite shad</li> </ul>	<p>✗ *i</p>	<p>✗ *i</p>		<p>✓ *iii</p>	<p>✗ *iv</p>		<p>✓ *vii</p>	<p>✗ *vi</p>	

Ramsar criterion 5 – assemblages of international importance of waterfowl with peak counts in winter	X <sup>*v</sup>	X <sup>*v</sup>		X <sup>*v</sup>	X <sup>*v</sup>		X <sup>*vi</sup>	X <sup>*vi</sup>	
Ramsar criterion 6 – species/ populations occurring at levels of international importance:  <ul style="list-style-type: none"> <li>• Tundra swan</li> <li>• Greater white-fronted goose</li> <li>• Common shelduck</li> <li>• Gadwall</li> <li>• Dunlin</li> <li>• Common redshank</li> </ul> Species/ populations identified subsequent to designation for possible future consideration under Ramsar Criterion 6:  <ul style="list-style-type: none"> <li>• Lesser black-backed gull</li> <li>• Ringed plover</li> <li>• Eurasian teal</li> <li>• Northern pintail</li> </ul>	X <sup>*v</sup>	X <sup>*v</sup>		X <sup>*v</sup>	X <sup>*v</sup>		X <sup>*vi</sup>	X <sup>*vi</sup>	

\*i Construction of the scheme will adopt a ground and surface water management plan to prevent the risk of pollution and contamination to ground and surface water, as is required to ensure wider legislative compliance. Adoption of these measures will avoid pollution of the general water environment during construction including any surface water or groundwater that could be linked to the site. No impacts on the site are anticipated from changes to surface water during operation due to the operational drainage design, including flow volume and quality control measures incorporated into the scheme design.

\*ii There will be no loss of habitat area within the Severn Estuary Ramsar from construction or operation of the scheme.

\*iii The realignment of Norman’s Brook in the upper Severn catchment could potentially lead to the loss of functionally linked habitats utilised for life stages of fish species associated with the Ramsar site. However, fish habitat assessment carried out on the affected reach of Norman’s Brook in October 2019 indicates that habitat within Norman’s Brook is unlikely to support life stages of River or Sea Lamprey due to the small size and temporal nature of flow within this waterbody. Furthermore, significant in-stream barriers observed downstream of this reach are anticipated to present as complete barriers to upstream movement of these species. In addition, the affected reach of Norman’s Brook does not support suitable habitat for any of the life stages of Twaite Shad. The realignment of Norman’s Brook in the upper Severn catchment may lead to the loss of habitats utilised for life stages of fish species. However, due to the small size and temporal nature of flow within this waterbody, Norman’s Brook is anticipated to present sub-optimal habitat for Atlantic salmon and sea trout. Furthermore, significant in-stream barriers observed downstream of this reach are anticipated to present as complete barriers to upstream movement of these species. The affected reach of Norman’s Brook does not

support suitable habitat for any of the life stages of Allis Shad. It cannot be concluded that European eel would not be able to pass the in-stream barriers present downstream of the affected reach of Norman's Brook. Therefore, in the absence of mitigation measures, there is the possibility of eels being impacted by construction works. A likely significant effect cannot therefore be excluded for European eel, a qualifying interest feature of the Ramsar site.

\*iv No further loss of potentially functionally linked habitats for fish species associated with the Ramsar site would occur in the operational phase of the scheme.

\*v There will be no effect on populations of waterfowl due to the distance between the scheme and the Ramsar site.

\*vi There are no elements of the proposals at this stage of the development which are likely to have a significant impact upon this qualifying interest feature of the Ramsar site alone, therefore no in combination effects with other plans or projects are anticipated.

\*vii If further assessment of the scheme, taking into account mitigation, concluded that construction phase impacts upon European eel could not be avoided, there would be potential for in combination effects with any other plans and projects that result in detrimental impacts to functionally linked watercourses of the Severn Estuary.

PINS HRA Integrity Matrix

An integrity matrix for the Severn Estuary Ramsar site is provided below, relating to those effects upon qualifying interest features for which the screening matrix concludes that a likely significant effect cannot be excluded. This is the first version of an integrity matrix produced for this Ramsar site in relation to this scheme.

**Matrix key**

- ✓: Adverse effect on integrity **cannot** be excluded
- ✗: Adverse effect on integrity **can** be excluded

**Table 2 Severn Estuary Ramsar site PINS Integrity Matrix**

Name of European site and designation: Severn Estuary Ramsar site		
EU Code: UK11081		
Distance to NSIP: 19km		
European site features	Adverse effect on integrity	
Effect	Reduction in habitat area	In combination effects
Stage of Development	Construction	Construction
Ramsar criterion 4 – this site is important for the run of migratory fish between sea and river estuary. Species include: <ul style="list-style-type: none"> <li>• Salmon</li> <li>• Sea trout</li> <li>• Sea lamprey</li> <li>• Allis shad</li> <li>• Twaite shad</li> <li>• Eel</li> </ul> It is also of importance for migratory birds during spring and autumn	✗ *i	✗ *ii
Ramsar criterion 8 – the fish of the estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. The following species use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary: <ul style="list-style-type: none"> <li>• Salmon</li> <li>• Sea trout</li> <li>• Sea lamprey</li> <li>• River lamprey</li> </ul>	✗ *i	✗ *ii

<ul style="list-style-type: none"> <li>• Allis shad</li> <li>• Twaite shad</li> <li>• Eel</li> </ul> <p>The site is important as a feeding and nursery ground for many fish species, particularly:</p> <ul style="list-style-type: none"> <li>• Allis shad</li> <li>• Twaite shad</li> </ul>		
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\*i Mitigation measures for the fish assemblage (including European eel) within the affected reach of the tributary of Norman’s Brook are described within paragraphs 8.9.103 – 8.9.104 and 8.10.198 – 8.10.199 of the Environmental Statement (ES) Chapter 8 Biodiversity. These measures would ensure that the impacts from construction of the scheme upon the fish assemblage (including European eel) would be negligible, and that the residual effects associated with the scheme upon the fish assemblage would be neutral and not significant (as per conclusion within paragraph 8.10.205 of the ES).

The mitigation measures that would ensure no significant upon European eel comprise:

- pre-construction fish surveys and a fish translocation prior to realignment of the tributary of Norman’s Brook to ensure that the fish assemblage is protected from construction works as secured through commitment BD6 within the ES Appendix 2.1 EMP (Document Reference 6.4, APP-317).
- sensitive timings of works during the construction phase and supervision by an ecological clerk of works to further minimise habitat damage and mortality/ injury of fish as secured through commitment BD28 within the ES Appendix 2.1 EMP (Document Reference 6.4, APP-317).
- detailed design of the new river habitat within the diverted channel of the tributary of Norman’s Brook would return the watercourse to a more natural form, improving conditions for fish passage compared to the existing channel that is modified by numerous weirs. This would include improving the potential of the watercourse to support European eel. This commitment is described within section 5.16 of Annex D Landscape and Ecological Management Plan (LEMP) of ES Appendix 2.1 EMP (Document Reference 6.4, APP-321).

\*ii The mitigation measures to be implemented would ensure that impacts of the scheme upon the European eel population associated with the Severn Estuary Ramsar site would be negligible, as described above. There are therefore no elements of the proposals which would adversely affect the integrity of the Severn Estuary Ramsar site, either alone or in combination with other plans or projects