

Devon Local Flood Risk Management Strategy

Habitats Regulations Assessment Final Report

March 2015

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1. Introduction

- 1.1 Flood risk is managed by a range of Risk Management Authorities as defined in the Flood and Water Management Act 2010.
- 1.2 The statutory *Local Flood Risk Management Strategy for Devon* sets out how Devon County Council as Lead Local Flood Authority will, in partnership with other Risk Management Authorities¹, carry out roles and responsibilities under the Flood and Water Management Act 2010.
- 1.2 The strategy does not include the geographical areas covered by Plymouth City Council and Torbay Council.
- 1.3 The strategy acts as a first point of call for guidance on 'local' flood risk management issues in Devon. It sets out principles that will balance the needs of communities, the economy and the environment through partnership working, with effective and sustainable risk management and prioritisation. The Strategy includes a live *Action Plan* which, in time, will highlight the improvement works being considered by all of the Risk Management Authorities. The Action Plan currently only includes the projects to which Devon County Council (Lead Local Flood Authority) is financially contributing to. The actions in the plan will be subject to change, depending on further flood events and changes in funding levels and opportunities.
- 1.4 The strategy focuses on 'local' sources of flood risk which include surface water run-off, groundwater and ordinary water courses.
- 1.5 The strategy is a 'living' document and will be updated on a six yearly cycle in line with the Flood Risk Regulations and update of the *Preliminary Flood Risk Assessment for Devon*. Supporting document such as *Devon's Local Flood Risk Management Strategy Action Plan* will be updated on a regular basis.

¹ Risk Management Authorities covered by this strategy are: Devon County Council, all district councils, Environment Agency, South West Water, Braunton Internal Drainage Board and the Highways Agency. Note that Plymouth and Torbay Councils will produce their own Flood Risk Strategies.

2. Requirement for Habitats Regulations Assessment

2.1 Article 6 of EU Habitats Directive on the conservation of natural habitats and of wild fauna and flora (Council Directive 92/43/EEC) states:

'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives... competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the public'.

2.2 The Conservation of Habitats and Species (Amendment) Regulations 2012 (the 'Conservation Regulations') transpose the Habitats Directive into national law in England and Wales. **Regulations 102 to 105 require planning authorities to assess the potential effects of plans on European Sites.**

2.3 **Habitats Regulations Assessment (HRA)** is the process by which the requirements of the Habitats Directive are implemented, and ensures that plans or projects will not adversely affect European Sites.

European Sites

2.4 Reference in this report to 'European sites' should be taken to include the following:

- (a) **Special Areas of Conservation (SACs)** for habitats and species designated through the EU Habitats Directive;
- (b) **Special Protection Areas (SPAs)** for the protection of wild birds and their habitats designated through the EU Birds Directive;
- (c) **Ramsar sites**, identified through the Convention on Wetlands of International Importance; and
- (d) Sites that are being considered for designation, referred to as Sites of Community Interest, candidate SACs or proposed SPAs.

Outline of the HRA Process

2.5 The HRA process followed is largely based on the process set out in *The Habitats Regulations Assessment of Local Development Documents*, David Tyldesley and Associates for Natural England - final draft (2009), another David Tyldesley paper, *Habitats Regulations Assessment of Plans, categorising the potential effects of a plan* and guidance from Scottish Natural Heritage, *Habitats Regulations Appraisal of Plans* (2012).

2.6 The main steps are:

- (A) gathering the necessary **evidence** on European sites and the potential effects from waste management development;
- (B) **screening** the Plan and policies for likely significant effects on a European site, including in combination with other plans and projects and taking account of mitigation measures;
- (C) where likely significant effects are identified, undertaking **appropriate assessment** to ascertain the effect on the site's integrity;

- (D) where it is not possible to conclude that no adverse effects will occur, having considered potential alterations to the plan and investigated alternative solutions, **exceptional circumstances** can be considered. However, it would have to be demonstrated that (i) there were no alternative solutions and (ii) there were imperative reasons of overriding public interest.

2.7 It should be noted that:

- these steps are sequential and if the screening process concludes that the plan will have no likely significant effects on European sites it is not necessary to undertake appropriate assessment or the subsequent stages;
- plans should not contain proposals that would be vulnerable to failure under the Habitats Regulations at project assessment stage, as this would be regarded as ‘faulty planning’²; and
- in this context ‘likely’ means ‘probably’, or ‘it well might happen’. ‘Significant’ means not trivial or inconsequential but an effect that is noteworthy and which could potentially undermine the site’s conservation objectives. Deciding if a potential impact is significant or not is dependent on issues such as: magnitude, type, extent, duration, intensity, timing, probability and cumulative effects³.

2.8 In preparing the *Local Flood Risk Management Strategy* Devon County Council has sought to ensure that potential effects on European sites have been addressed in the drafting of principles and actions, including through consideration of case law and best practice by other planning authorities.

Principle 16 includes wording to the effect that existing and future proposals included within the Action Plan must not be vulnerable to failure under the Habitats Regulations at the project assessment stage (see para 2.7 above). See below.

Principle 16: The Devon Flood Risk Management Strategic Partnership will seek to reduce the risk of flooding in a way that will conserve, and where appropriate enhance the interconnected needs of the economy, society and environment, enhancing Devon’s valuable agricultural land and incorporating its exceptional landscapes, biodiversity, cultural and historic environment and natural resources. An environmental assessment process will be developed to identify the likely negative and positive effects of any flood alleviation works, schemes and studies so that appropriate mitigation and enhancement measures can be incorporated into the design at an early stage. This will also ensure compliance with wildlife legislation including Habitats Regulations Assessment requirements.

² Scottish Natural Heritage (2012) *Habitats Regulations Appraisal of Plans: Guidance for Plan-making Bodies in Scotland*. Available at: <http://www.snh.gov.uk/docs/B1116296.pdf>

³ Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impacts Assessment in the UK*. Available at: http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/EcIA_Guidelines/TGSEcIA-EcIA_Guidelines-Terrestrial_Freshwater_Coastal.pdf

3. Screening the *Devon Local Flood Risk Management Strategy* for Likely Significant Effects

3.1 The process outlined in paragraph 2.6 has been applied and the outcomes are outlined below.

Step A(1): Collation of information on European sites

3.2 A list of all European sites (including features for which they are designated and potential vulnerabilities / issues) which could be affected by the Flood Strategy is provided as Annex 2, and illustrated in Figure 1. This Annex was included in DCC's consultation on the Devon Waste Plan (2011 and 2012) and was amended to take on board comments received from Natural England (NE) and the Environment Agency (EA) and to reflect recent site changes.

Step A(2): Identification of potential impacts

3.3 A summary of potential impacts on European Sites arising from the Flood Strategy and Action Plan, and criteria for how principles and actions will be assessed for significant effects, are set out in Annexes 3 and 4.

Step B: Assessment of principles and actions

3.4 The principles and proposed actions have been considered in terms of the 2010 Regulations, including the scope for in-combination effects. Strategic plans with potential in-combination effects are listed in Box 1 below. The assessment is set out in Tables 1 and 2 below.

3.5 Summary of results:

Table 1 - No likely significant effects were identified.

Table 2 - The Action Plan given in Appendix B of the Strategy is still being developed and is a 'live' document. At this stage there is a lack of certainty in terms of which actions within this plan will be taken forward and no detail on how these actions will be implemented on the ground. It is therefore not possible to undertake an assessment of the impacts on Natura 2000 sites at this stage. However Principle 16 ensures that HRA issues will be addressed for all studies and projects listed in the Action Plan. The Strategy also states that this list of actions is subject to change. There is therefore flexibility in the Strategy to ensure that HRA requirements are met.

Box 1 - Relevant strategic plans (and associated projects) with potential in-combination effects

Devon Local Transport Plan
Devon Waste Plan
Devon Minerals Plan
District and Unitary Local Plans
Shoreline Management Plans
South West River Basin Management Plan
Devon Strategic Surface Water Management Plan + detailed SWMPs (e.g. Exeter)
South West Water Integrated Urban Drainage Studies

Table 1

Likely Significant Effects Screening Matrix – Principles

Principle	Comment	LSE alone or in combination
1: Integrated Flood Risk Management and Partnership Working	A general statement with no implications for European Sites	No
2. Addressing the skills gap	A general statement with no implications for European Sites	No
3. Flood Risk Management Studies	Studies will be undertaken following Principle 16 - to ensure that HRA issues are considered and addressed from the outset.	No
4. Maintaining an Asser Register and Record	A general statement with no implications for European Sites.	No
5. Designating Flood Risk Features	Principle 16 ensures that the HRA implications of any designations will be considered and addressed from the outset.	No
6. Improving Data Quality and Management	A general statement with no implications for European Sites	No
7. Investing in Local Flood Risk Management	Principle 16 ensures that the HRA implications of anything listed in Investment Programmes will be considered and addressed from the outset.	No
8. Property Level Protection	A general statement with no implications for European Sites	No
9. Sharing of Investment Programmes	A general statement with no implications for European Sites	No
10. Seeking additional funding	A general statement with no implications for European Sites	No
11. Sustainable Drainage Systems (SuDS)	Principle 16 ensures that the HRA implications of SuDS will be considered and addressed from the outset. This principle promotes the use of SuDS for biodiversity benefit.	No
12. Consenting to works to Ordinary Watercourses.	Principle 16 ensures that the HRA implications of consenting works will be considered and addressed from the outset. Note that the consenting process will be in line with the regulation of Main Rivers by the EA.	No
13. Raising Awareness and Improving Communication and Involvement.	A general statement with no implications for European Sites	No
14. Working with Emergency Response	A general statement with no implications for European Sites	No

15. Recording and Investigating Flood Events	A general statement with no implications for European Sites	No
16. Sustainable Management of Local Flood Risk	This principle states that <i>an environmental assessment process will be developed to identify the impacts of flood alleviation works, schemes and studies so that appropriate mitigation and enhancement measures can be incorporate into the design at an early stage.</i> This will ensure compliance all relevant wildlife legislation, including HRA requirements.	No

Table 2 Likely Significant Effects Screening Matrix – Action Plan

The Action Plan given in Appendix B of the Strategy is still being developed and is a ‘live’ document. At this stage there is a **lack of certainty in terms of which actions within this plan will be taken forward and no detail on how these actions will be implemented on the ground. It is therefore not possible to undertake an assessment of the impacts on Natura 2000 sites at this stage. However Principle 16 ensures that HRA issues will be addressed for all studies and projects listed in the Action Plan.** The Strategy also states that this list of actions is subject to change. There is therefore flexibility in the Strategy to ensure that HRA requirements are met. All projects listed below are led by DCC unless otherwise stated.

	Possible impact on Natura 2000 sites and potential mitigation measures required.	Possible in combination plans or projects	Possible mitigation measures	Conclusion
DCC highway related flood improvements	Unknown at this stage	Unknown at this stage	Unknown at this stage	Assessment at the project development stage is appropriate (see Principle 16).
Devon North and South Surface Water Management Plan – (- detailed assessment of high risk areas)	None. Does not in itself identify projects.	-	-	No LSE
Flood Resilience Community Pathfinder project	None. Relates to emergency plans / warning systems	-	-	No LSE
Minor works and improvements	Unknown at this stage	Unknown at this stage	Unknown at this stage	Assessment at the project development stage is appropriate (see Principle 16).
Minor Flood Investigations / Studies	None. Does not identify projects (although Principle 16 ensures that HRA issues will be considered in all studies / investigations)	-	-	No LSE
North Devon Nature Improvement Area (- contribution of funding to the project in order to encourage sustainable land use and associated wildlife benefits).	None	-	-	No LSE
Property Level Protection (-small scale works e.g. flood doors, air bricks etc)	None	-	-	No LSE
Flood Risk Management Team (- funding for staff).	None	-	-	No LSE
Sustainable Drainage Approval Body (- development and implementation of the SAB).	None	-	-	No LSE

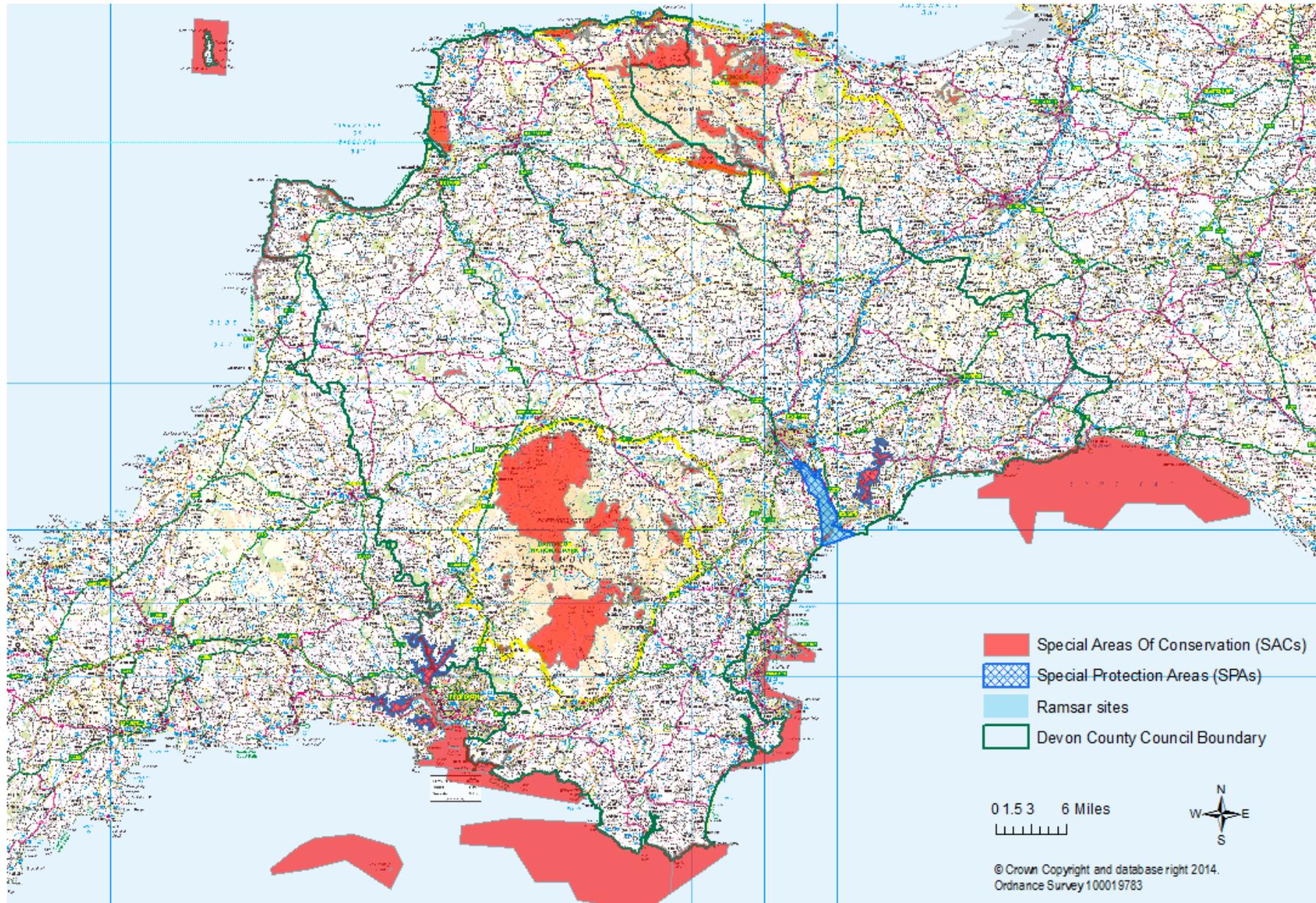
East Devon				
Axminster Millbrook (- detailed design for flood improvement works to be progressed subject to funding approval.)	Any potential impacts on the River Axe SAC will be addressed in the options appraisal / modelling and any subsequent projects - following Principle 16 and as required by legislation.	East Devon Local Plan South West River Basin Management Plan Devon Strategic Surface Water Management Plan		HRA assessment to be built into the study and subsequent projects.
Feniton - Major flood improvement scheme	East Devon District Council led. No potential impact due to the distance of Feniton from European sites.			No LSE
Sidmouth Surface Water Management Plan	Any potential impacts on Sidmouth to West Bay SAC and Lyme Bay and Torbay SAC will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation. .			HRA assessment to be built into the study and subsequent projects.
Uplyme Flood Study	EDDC / DCC led. Any potential impacts on Sidmouth to West Bay SAC and Lyme Bay and Torbay SAC will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Branscombe Flood Study	Any potential impacts on Sidmouth to West Bay SAC and Lyme Bay and Torbay SAC will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Whimble Flood Defence Improvements	EA led. No potential impact due to the distance of Whimble from European sites.			No LSE
Lympstone (- flood investigation to understand the level of flood risk and consider possible improvements, subject to funding)	Any potential impacts on the Exe Estuary SPA will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.

Exeter				
Exeter Flood Defence Scheme (2013 – 2017)	EA led scheme. EA carrying out an HRA to address any potential impacts on the Exe Estuary SPA.			HRA being led by the EA
Exeter Surface Water Management Plan	Any potential impacts on the Exe Estuary SPA will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Mid Devon				
Cullompton Study (- catchment study to understand sources of flooding and identify improvement options.)	No potential impact due to the distance to European sites.			No LSE
North Devon				
Braunton Surface Water Management Plan (- Continuation of the SWMP).	Any potential impacts on Braunton Burrows SAC will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Umbreleigh Flood Investigations (- assessment of surface water flooding and progression of options, subject to funding).	No potential impact due to the distance to European sites.			No LSE
Barnstaple Flood Study (- review flood risk to Pilton, Pottington and Rolle Quay areas and consider future improvements required to increase level of protection to development standards.)	Any potential impacts on Braunton Burrows SAC will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
South Hams				
Ivybridge Flood Improvements (- design of flood improvement works to reduce risk of flooding, awaiting outcome of funding bid)	South Hams District Council led. Any potential impacts on Prawle Point to Plymouth Sounds SAC is unlikely due to distances involved but will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Kingsbridge Study (-catchment study to understand sources of flooding and identify improvement options)	Any potential impacts on Prawle Point to Plymouth Sounds SAC is unlikely due to distances involved but will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.

Modbury Flood Management Scheme (-delivery of minor improvements, review survey data and consider options for major flood defences and funding)	Any potential impacts on Prawle Point to Plymouth Sounds SAC is unlikely due to distances involved but will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Yealmpton, Boldventure (- review existing outlet and design of potential improvements, subject to funding)	Any potential impacts on Prawle Point to Plymouth Sounds SAC is unlikely due to distances involved but will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Chillington (- catchment study to identify sources of flooding and identify improvement options)	Any potential impacts on Prawle Point to Plymouth Sounds SAC and Prawle Point to Start Point SAC is unlikely due to distances involved but will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Frogmore (- DCC contribution towards local flood improvement scheme being promoted by the local community, subject to other funding opportunities and delivery by third party)	Any potential impacts on Prawle Point to Plymouth Sounds SAC and Prawle Point to Start Point SAC is unlikely due to distances involved but will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Buckland Tout Saints/Goverton (- DCC contribution towards local flood improvement scheme being promoted by the local community, subject to other funding opportunities and delivery by third party)	Any potential impacts on Prawle Point to Plymouth Sounds SAC and Prawle Point to Start Point SAC is unlikely due to distances involved but will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
Teignbridge				
Kennford	EA led. Any potential impacts on the Exe Estuary SPA is unlikely due to distances involved but will be addressed in any options appraisal and in subsequent projects - following Principle 16 and as required by legislation.			HRA assessment to be built into the study and subsequent projects.
West Devon				
Horrabridge, Chichester Court (- Reduction/removal of surface runoff from existing system and improved drainage)	No potential impact due to the distance to European sites.			No LSE

Tavistock, Butchers Park Hill (- Drainage Assessment as recommended in the Surface Water Management Plan	No potential impact due to the distance to European sites.			No LSE
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Fig 1 – European sites in and close to Devon



Annex 1 Baseline information on European sites

Note that the list of potential site vulnerabilities / issues is not exhaustive.

Special Areas for Conservation

Site name / NGR	Location description	Site Area (ha)	Features for which the site is designated	Site significance	Site vulnerability/ issues
Beer Quarry and Caves SAC SY215892	West of Seaton on south coast of Devon	31.1	<u>Annex I Habitats</u> - <u>Annex II Species</u> Bechstein's bat <i>Myotis bechsteinii</i> greater horseshoe bat <i>Rhinolophus ferrumequinum</i> lesser horseshoe bat <i>Rhinolophus hipposideros</i>	Important hibernation site	Quarry operations Disturbance Mobile species – potential effects out with the SAC boundary at any type and scale of development site e.g. at locations of summer roosts and foraging areas
Blackstone Point SAC SX535462	West of Netton on south coast of Devon	7.38	<u>Annex I Habitats</u> - <u>Annex II Species</u> Shore dock <i>Rumex rupestris</i>	Largest known extant population of shore dock in Devon, and one of the largest concentrations of this species on rocky sea-cliffs in south-west England.	Recreational activities and/or coastal processes resulting in habitat loss Habitat loss via nutrient/ acid deposition
Bracket's Coppice ST516071	North of Corscombe, Dorset, 14km east of Devon county boundary.	53.66	<u>Annex I Habitats</u> <i>Molinia</i> meadows on calcareous, peaty or clayey-siltladen soils (<i>Molinia caeruleae</i>) <u>Annex II Species</u> Bechstein's bat (<i>Myotis bechsteinii</i>)	The site supports a significant presence of <i>Molinia</i> meadows. The Bechstein's bat population is considered to be one of the best in the United Kingdom.	Bechstein's bats require closed canopy high forest with veteran trees where old forest conditions are present for both roosting and foraging. The bat forages along adjoining hedges, around hedgerow trees and copses that extend beyond the SAC boundary.
Braunton Burrows SAC SS451348	West of Barnstaple on north coast of Devon	1346.64	<u>Annex I Habitats</u> Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') Fixed dunes with herbaceous vegetation ('grey dunes') * Priority feature Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salix arenariae</i>) Humid dune slacks Mudflats and sandflats not covered by seawater at low tide <u>Annex II Species</u> Petalwort <i>Petalophyllum ralfsii</i>	One of the largest dune sites in the UK and is of particular importance because it is virtually intact and still active. A large population (around 3000 thalli) of petalwort is recorded from Braunton Burrows, one of two sites selected for this species in south-west England.	In recent decades, coarse, rank vegetation and willow scrub have spread on the Burrows due to a lack of grazing. Historic land drainage and/or abstraction has caused water tables to fall. Habitat loss via nutrient/ acid deposition
Chesil and the Fleet SY630795	South coast of Dorset, 12.5km east of Devon county boundary.	1631.63	<u>Annex I Habitats</u> Coastal lagoons (priority feature) Annual vegetation of drift lines	Considered to be one of the best areas in the UK for coastal lagoons and perennial vegetation of stony	The shingle beach and its plant communities may be sensitive to changes in natural coastal processes, e.g.

Site name / NGR	Location description	Site Area (ha)	Features for which the site is designated	Site significance	Site vulnerability/ issues
			Perennial vegetation of stony banks Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)	banks. One of only four outstanding localities in the UK for rare Annual vegetation of drift lines and Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) habitats.	through sea defences. Water quality is a concern at the Fleet as blooms of blue green algae occur. Oil pollution. Recreational pressure on the Fleet is small and locally there is cultivation of shellfish. These activities are not thought to be serious concerns provided they remain at their present scale.
Culm Grasslands SAC SS843214	East from South Molton, adjacent to the A361 near Rackenford Moor	768.69	<u>Annex I Habitats</u> Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>); Northern Atlantic wet heaths with <i>Erica tetralix</i> <u>Annex II Species</u> Marsh fritillary butterfly <i>Euphydryas</i> (<i>Eurodryas</i> , <i>Hypodryas</i>) <i>aurinia</i>	Contains the largest cluster of sites for marsh fritillary in the south-west peninsula. It is judged to be the most important location for the species in its major south-west stronghold.	Habitat loss via nutrient/ acid deposition Mobile Species - potential effects out with the SAC boundary e.g. loss of suitable habitat used by the meta population
Dartmoor SAC SX590864	South of Okehampton, Devon	23,165.77	<u>Annex I Habitats</u> Northern Atlantic wet heaths with <i>Erica tetralix</i> European dry heaths Blanket bogs Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles <u>Annex II Species</u> Southern damselfly <i>Coenagrion mercuriale</i> Atlantic salmon <i>Salmo salar</i> Otter <i>Lutra lutra</i>	Representative of upland heath in south-west England. Southernmost blanket bog in Europe. Important oak woodlands with species rich bryophyte and lichen assemblages. The southern damselfly has very specialised habitat requirements, being confined to shallow, well-vegetated, base-rich runnels and flushes in open areas or small side-channels of chalk rivers. Most sites are on wet heath	Visitor and recreational pressures including accidental and deliberate burning. Habitat loss via nutrient/ acid deposition Mobile species – otter and salmon in particular are likely to be affected in areas that are not included with in the SAC boundary; water quality and traffic collisions are particular issues
Dawlish Warren SAC SX984792	At the mouth of the Exe estuary on the south coast of Devon	58.84	<u>Annex I Habitats</u> Humid dune slacks Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') Fixed dunes with herbaceous vegetation ('grey	One of the best areas in the UK with a large population of petalwort supported in two dune slacks.	Human visitor pressure is causing erosion problems affecting the shifting dunes along the shoreline. The humid dune slacks have suffered from a declining water-table in recent years.

Site name / NGR	Location description	Site Area (ha)	Features for which the site is designated	Site significance	Site vulnerability/ issues
			dunes`) <u>Annex II Species</u> Petalwort <i>Petalophyllum ralfsii</i>		Habitat loss via nutrient/ acid deposition
East Devon Pebblebed Heaths SAC SY040868	East of Woodbury, Devon	1119.94	<u>Annex I Habitats</u> Northern Atlantic wet heaths with <i>Erica tetralix</i> ; European dry heaths <u>Annex II Species</u> Southern damselfly <i>Coenagrion mercuriale</i>	This is the largest block of lowland heathland in Devon and is associated with various other mire communities.	Loss of habitat and species through changes in water quality and water levels. Habitat loss via nutrient/ acid deposition Mobile Species - potential effects out with the SAC boundary e.g. loss of suitable habitat used by the meta population of southern damselflies
Exmoor and Quantock Oakwoods SAC SS894440	Southwest of Luccombe	1895.17	<u>Annex I Habitats</u> Old sessile oak <i>Quercus Petraea</i> woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) <u>Annex II Species</u> Barbastelle <i>Barbastella barbastellus</i> Bechstein`s bat <i>Myotis bechsteinii</i> Otter <i>Lutra lutra</i>	This site supports extensive tracts of old sessile oak woods in conjunction with heath. A maternity colony of barbastelles utilises a range of tree roosts in this area of predominantly oak <i>Quercus spp.</i> Woodland.	Habitat loss via nutrient/ acid deposition Mobile species – potential effects out with the SAC boundary e.g. bats: at locations of hibernation roosts and foraging areas. For otters, water quality and traffic collisions are particular issues
Exmoor Heaths SAC SS864419	Exmoor, between Barnstaple, Devon and Bridgewater, Somers	10705.87	<u>Annex I Habitats</u> Northern Atlantic wet heaths with <i>Erica tetralix</i> European dry heaths Vegetated sea cliffs of the Atlantic and Baltic coasts Blanket bogs * Priority feature Alkaline fens Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles <u>Annex II Species</u> -	Exmoor is representative of upland heath in south-west England.	Habitat loss via nutrient/ acid deposition

Site name / NGR	Location description	Site Area (ha)	Features for which the site is designated	Site significance	Site vulnerability/ issues
Hestercombe House ST240287	North of Taunton, Somerset. 21km east of Devon county boundary.	0.08	<u>Annex II Species</u> Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>).	Representative of lesser horseshoe bats in the south-west.	The bat roosts are situated in buildings which are actively used on a regular basis. Current knowledge of bat movements by site managers is good so there is no immediate threat but change of use, development or change of personnel could all potentially pose a problem.
Holme Moor and Clean Moor ST094260	Vale of Taunton, Somerset. 5.3km east of Devon county boundary.	7.58	<u>Annex I Habitats</u> Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>)	The site supports a significant presence of <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>) and is one of the best sites in the UK for alkaline fens and Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	Fen communities are sensitive to invasion of woody species.
Lundy SAC SS136465	Lundy Island, Bristol Channel ~25 miles west of Ilfracombe and 30 miles south of Tenby	3064.53	<u>Annex I Habitats</u> Reefs Sandbanks which are slightly covered by sea water all the time Submerged or partially submerged sea caves <u>Annex II Species</u> Grey seal <i>Halichoerus grypus</i>	The reefs of Lundy extend well over 1 km offshore and drop steeply into deep water in some areas. The variety of habitats and associated species on the reefs is outstanding and includes, for example, a large number of seaweeds and many rare or unusual species.	Vulnerable to increased suspended sediment load. Mobile species: Grey seal has a wide range therefore may often be out with the SAC boundary and is potentially affected by degradation in water quality and disturbance.
Lyme Bay and Torbay SCI SY31583	The site comprises two areas: the reefs offshore from Lyme Bay and the coastline and subtidal areas between Mackerel Cove and Dartmouth.	31248	<u>Annex I Habitats</u> Reefs Submerged or partially submerged sea caves	Lies off the south coast of the counties of Dorset and Devon. A large number of infralittoral sea caves have been identified within Torbay and the surrounding coastline.	Physical damage by siltation, abrasion or selective extraction; Toxic contamination by introduction of synthetic or non-synthetic compounds; Non-toxic contamination from changes in nutrient loading, organic loading, changes in thermal regime or changes in turbidity; Changes in salinity (for sea caves only);

Site name / NGR	Location description	Site Area (ha)	Features for which the site is designated	Site significance	Site vulnerability/ issues
Plymouth Sound and Estuaries SAC SX472506	Network of estuaries surrounding Plymouth	6402.03	<p><u>Annex I Habitats</u> Sandbanks which are slightly covered by sea water all the time Estuaries Large shallow inlets and bays Reefs Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) Mudflats and sandflats not covered by seawater at low tide.</p> <p><u>Annex II Species</u> Shore dock <i>Rumex rupestris</i> Allis shad <i>Alosa alosa</i></p>	<p>Representative of ria estuaries in south-west England with extensive areas of sublittoral sandbanks.</p> <p>One of the chief rocky-shore strongholds for shore dock on the UK mainland</p>	<p>Potential threats include: increased pressure for recreational moorings and associated facilities; port development; ongoing maintenance dredging.</p> <p>Sensitive to oil pollution</p> <p>Mobile species: Allis shad migrates up river to spawn therefore vulnerable to impacts outwith the SAC boundary e.g. degradation in water quality, noise and vibration.</p>
Phoenix United Mine and Crow's Nest SAC SX265723	12.5km west of the Cornwall/Devon border, 7km north of Liskeard	48.72	<p><u>Annex I Habitat</u> Calaminarian grassland of the <i>Violetalia calaminariae</i></p>	<p>Considered to be one of the best sites for this habitat within the UK. Supports total world population of Cornish path-moss <i>Ditrichum cornubicum</i>.</p>	<p>The site supports rare mosses and liverworts dependent on retention of areas of mine spoil. Requires careful site management and prevention of tipping landscaping and recreational activities such as motorbike scrambling which can be difficult to control.</p>
Start Point to Plymouth Sound & Eddystone SCI lat 50.211 deg; N long 4.009 deg; W	Start Point to East Rutts and Bigbury Bay to Plymouth Sound.	31525	<p><u>Annex I Habitats</u> Reefs</p>	<p>Reef habitats comprise complex topography supporting a wide variety of reef fauna and flora showing excellent examples of zonation from the infralittoral down to deeper water communities.</p> <p>The site supports the most extensive and highest density beds and communities of several species of sea fan and coral and supports deeper water reef species.</p>	<p>Physical loss by removal, smothering, siltation or abrasion; Toxic contamination by introduction of synthetic or non-synthetic compounds; Non-toxic contamination from changes in nutrient loading, organic loading, or changes in turbidity; Biological disturbance by introduction of non-native species and translocation or selective extraction of species.</p>

Site name / NGR	Location description	Site Area (ha)	Features for which the site is designated	Site significance	Site vulnerability/ issues
Quants SAC ST186178	Vale of Taunton, 0.5km east of Devon county boundary.	20.29	<u>Annex II Species</u> Marsh fritillary butterfly (<i>Eurodryas aurinia</i>)	The site supports a medium sized but string population of marsh fritillary, and is close of other small sub-populations with which it forms a metapopulation.	The population is restricted to a relatively small area with population numbers maintained by appropriate management of the site. Disruption/ discontinuation of management may lead to reduction in the population.
River Axe SAC SY267961	North of Whitford, near Axminster	25.78	<u>Annex I Habitats</u> Water courses of plain to montane levels with the <i>Ranunculum fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation <u>Annex II Species</u> Sea lamprey <i>Petromyzon marinus</i> Brook lamprey <i>Lampetra planeri</i> Bullhead <i>Cottus gobio</i>	The Axe is a south-western example of sub-type 2 and only the lower reaches of the main river have been designated.	Nitrification Degradation in water quality Mobile species; sea lamprey is migratory therefore susceptible to changes in water quality, levels and noise and vibration.
River Camel SAC SX061708	21km west of the Cornwall/Devon county border, west, north and north east of Bodmin	621.17	<u>Annex I Habitats</u> European dry heaths, Old sessile woods with Ilex and Blechnum, and Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> <u>Annex II Species</u> Bullhead (<i>Cottus gobio</i>), otter (<i>Lutra lutra</i>), and Atlantic salmon (<i>Salmo salar</i>)	The site represents bullhead in the extreme southwest of its range and provides particularly suitable habitat for this species. The site represents otter in its main stronghold in the southwest of the country, and the area has acted as a nuclei for the recolonisation of the species.	Bullhead and otter are dependent on high water quality. Otter also require strong fish populations and the cover of woodland and trees. Maintenance of these features is being pursued by the Environment Agency. The role of the local water company is also important in relation to future catchment uses. Disturbance is an issue particularly due to the Camel Trail being located next to the site.
Sidmouth to West Bay SAC SY326912	Adjacent to south west coast path, west of Lyme Regis	897.3	<u>Annex I Habitats</u> Vegetated sea cliffs of the Atlantic and Baltic coasts <i>Tilio-Acerion</i> forests of slopes, screes and ravines Annual vegetation of drift lines <u>Annex II Species</u> -	Example of a highly unstable soft cliff coastline subject to mudslides and landslips.	Habitat loss via nutrient/ acid deposition Interference with natural coastal processes

Site name / NGR	Location description	Site Area (ha)	Features for which the site is designated	Site significance	Site vulnerability/ issues
South Dartmoor Woods SAC SX710701	South of New Bridge, nr Ashburton, Devon	2157.15	<u>Annex I Habitats</u> Old sessile oak woods with Ilex and <i>Blechnum</i> in the British Isles European dry heaths <u>Annex II Species</u> -	This complex is the most southerly of the sites selected and is representative of old sessile oak woods in south-west England, with regionally important assemblages of lower plants and dry <i>Lobarion</i> communities that are unique in Western Europe.	Habitat loss via nutrient/ acid deposition
South Devon Shore Dock SAC SX787362	On Devon south west coast path near Lannacombe Bay	341.01	<u>Annex I Habitats</u> Vegetated sea cliffs of the Atlantic and Baltic coasts <u>Annex II Species</u> Shore dock <i>Rumex rupestris</i>	Important rocky-shore site for shore dock lies at the eastern limit of its current UK range	Inadvertent damage resulting from recreational activities of tourists and/or by extreme coastal process events which are beyond human control and influence.
South Hams SAC SX942565	Berry Head, near Brixham	129.53	<u>Annex I Habitats</u> European dry heaths Semi-natural dry grasslands and scrubland faces: on calcareous substrates (<i>Festuco-Brometalia</i>) Vegetated sea cliffs of the Atlantic and Baltic coasts Caves not open to the public Tilio-Acerion forests of slopes, screes and ravines * Priority feature <u>Annex II Species</u> Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>	Important for its extensive limestone grasslands Holds the largest population of greater horseshoe bat in the UK	Habitat loss via nutrient/ acid deposition Mobile species: loss / fragmentation of foraging habitat and flight lines outside the SAC boundary (see <i>NE South Hams SAC planning guidance</i>)
Tintagel-Marsland-Clovelly SAC SS225234	Adjacent to south west coast path, west of Hartland	2429.84	<u>Annex I Habitats</u> Vegetated sea cliffs of the Atlantic and Baltic coasts Old sessile oak woods with Ilex and <i>Blechnum</i> in the British Isles European dry heaths	This site represents an extensive length of largely hard coastal cliff in south-west England. Stretches of old sessile oak wood occur at various points along this section of coast. The trees are frequently wind-pruned.	The sea cliffs support a variety of maritime vegetation that is dependent upon natural processes and climatic influence. The sea cliffs require limited management, and are fairly inaccessible in many areas.
West Dorset Alder Woods SAC SY538968	7km southeast of Somerset county border, northeast of Bridport	329.29	<u>Annex I Habitats</u> Alluvial forest with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> , Molinia meadows on calcareous, peaty or clay-silt-laden soils (<i>Molinion</i>)	The site is considered to support a significant presence of Molinia meadow, old acidophilus oak wood, and great crested newt. It is considered to be one of the best areas in	The vulnerability of habitats within the site is linked primarily with the surrounding land use and management of the water environment in the catchment. Deer browsing and

Site name / NGR	Location description	Site Area (ha)	Features for which the site is designated	Site significance	Site vulnerability/ issues
			<i>caeruleae</i>), old acidophilous oak woods with <i>Quercus robur</i> on sandy plains <u>Annex II Species</u> Marsh fritillary butterfly (<i>Euphydryas aurinia</i>) and great crested newt (<i>Triturus cristatus</i>)	the UK for alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> and marsh fritillary.	game management are a concerned and impacts need to be monitored. Marsh fritillary requires extensive grazing which is being addressed by agri-environmental schemes and management plans.

Special Protection Areas – Baseline Information

Site name & designation	Location description	Site Area (ha)	Features for which the site is designated	Features of ecological significance	Site vulnerabilities/ issues
East Devon Heaths SPA SY040866	East of Woodbury, Devon	1119.94	<u>Article 4.1</u> European nightjar <i>Caprimulgus europaeus</i> Dartford warbler <i>Sylvia undata</i> <u>Article 4.2</u> -	European nightjar <i>Caprimulgus europaeus</i> (2.4% of GB breeding population, count as at 1992) Dartford warbler <i>Sylvia undata</i> (8% of the GB breeding population, count as at 1994)	Habitat loss – water abstraction, water quality, acid and nitrate deposition in important wetland areas. Mobile species: potential effects out with the SPA boundary at any type and scale of development site e.g. other nightjar roost locations, foraging areas and commuting.
Exe Estuary SPA SX981840	The Exe Estuary extends 10 km south from Exeter to the open sea at Dawlish Warren	2345.71	<u>Article 4.1</u> <i>Slavonian grebe</i> <i>Podiceps auritus</i> Pied Avocet <i>Recurvirostra avosetta</i> <u>Article 4.2</u> <i>Dark-bellied brent goose</i> <i>Branta bernicla bernicla</i> <i>Dunlin</i> <i>Calidris alpina alpina</i> <i>Eurasian oystercatcher</i> <i>Haematopus ostralegus</i> <i>Black-tailed godwit</i> <i>Limosa limosa islandica</i> <i>Grey plover</i> <i>Pluvialis squatarola</i> Over winter the area regularly supports:23811 waterfowl (5 year peak mean 01/04/1998)	<i>Podiceps auritus</i> (5% of the GB population, 5 year peak mean 1984/85-1988/9) <i>Recurvirostra avosetta</i> (28.3% of the GB population, 5 year peak mean 1991/92-1995/96) <i>Calidris alpina alpina</i> (1.1% of the population in Great Britain, 5 year peak mean 1991/92-1995/96) <i>Haematopus ostralegus</i> (1.2% of the population in Great Britain, 5 year peak mean 1991/92-1995/96) <i>Limosa limosa islandica</i> (7.2% of the population in Great Britain, 5 year peak mean 1991/92-1995/96) <i>Pluvialis squatarola</i> (1.1% of the population in Great Britain, 5 year peak mean 1991/92-1995/96).	Disturbance to waterfowl Habitat loss – water quality, acid and nitrate deposition in important wetland areas.

Site name & designation	Location description	Site Area (ha)	Features for which the site is designated	Features of ecological significance	Site vulnerabilities/ issues
Somerset Levels and Moors SPA	Located to the west and southwest of Glastonbury	6388.49	<p><u>Article 4.1</u> Bewicks Swan <i>Cygnus columbianus bewickii</i> Goldern Plover <i>Pluvialis apricaria</i></p> <p><u>Article 4.2</u> Common Teal <i>Anas crecca</i> Lapwing <i>Vanellus vanellus</i></p> <p>Over winter the area regularly supports: 73014 waterfowl (5 year peak mean 01/04/1998)</p>	<p><i>Cygnus columbianus bewickii</i> (Western Siberia/North-eastern & North-western Europe) 2.7% of the GB population 5 year peak mean 1991/92-1995/96</p> <p><i>Pluvialis apricaria</i> (North-western Europe - breeding) 1.2% of the GB population 5 year peak mean 1991/92-1995/96</p> <p><i>Anas crecca</i> (North-western Europe) 3.3% of the population 5 year peak mean 1991/92-1995/96</p> <p><i>Vanellus vanellus</i> (Europe - breeding) 0.5% of the population 5 year peak mean 1991/92-1995/96</p>	<p>Agricultural trends – conversion of grassland to arable, land drainage, application of inorganic fertiliser, silage cutting.</p> <p>Water level management.</p>
Tamar Estuaries Complex SPA SX441621	Plymouth. Extends between Devon and Cornwall	1955	<p><u>Article 4.1</u> Pied Avocet <i>Recurvirostra avosetta</i> Little Egret <i>Egretta garzetta</i></p> <p><u>Article 4.2</u> -</p>	<p>Over winter the area regularly supports: <i>Recurvirostra avosetta</i> (Western Europe/Western Mediterranean - breeding) 15.8% of the GB population 5 year peak mean 1991/92-1995/96</p> <p>On passage the area regularly supports: <i>Egretta garzetta</i> (Sub-Saharan Africa - breeding) at least 9.3% of the GB population Count, as at 1995</p>	<p>Disturbance to waterfowl</p> <p>Habitat loss – water quality, acid and nitrate deposition in important wetland areas.</p>

RAMSAR Sites – Baseline Information

Site name / Coordinates	Location description	Site Area (ha)	Features for which the site is designated	Features of ecological significance	Site vulnerabilities/ issues
Exe Estuary RAMSAR SX981840	The Exe Estuary extends 10 km south from Exeter to the open sea at Dawlish Warren	2346	Designated as the site supports an internationally important assemblage of waterfowl and supports species populations at levels of international importance including Dark-bellied brent	See Exe Estuary SPA data	<p>Disturbance to waterfowl</p> <p>Habitat loss – water quality, acid and nitrate deposition in</p>

			goose, <i>Branta bernicla bernicla</i> .		important wetland areas.
Somerset Levels and Moors	Located to the west and southwest of Glastonbury	6388.49	Designated as the site supports 1) 17 species of red data book invertebrates, 2) an internationally important assemblage of waterfowl, and 3) supports species populations at levels of international importance including tundra swan <i>Cygnus columbianus bewickii</i> , teal <i>Anas crecca</i> , lapwing <i>Vanellus vanellus</i> .	See Somerset Levels and Moors SPA data	Agricultural trends – conversion of grassland to arable, land drainage, application of inorganic fertiliser, silage cutting. Water level management.

Annex 2 - Summary of potential impacts

Example interventions	Potential impact	Potential receptor	European sites most likely to be affected	
SuDS	Water table level changes	Sites dependent on existing water levels and water quality status to maintain their integrity.	Sidmouth to West Bay SAC Lyme Bay and Torbay SAC River Axe SAC Exe Estuary SPA Dawlish Warren SAC Plymouth Sounds & Estuaries SAC Tamar Estuary SPA Prawle Point to Plymouth Sounds SAC Prawle Point to Start Point SAC	
Temporary or demountable flood defences	Water quality (e.g. increased concentration of pollutants to aquatic habitats through reduced flow levels)			
Restoring or increasing capacity in drainage systems	Increased risk of facilitating spread of invasive species			
Separation of foul and surface water sewers				
Managing overland flows (e.g. changing cambers, raising kerbs)				
New or altered runoff routes				
Offline/online storage of pluvial (rainwater) flow	New physical barriers to migration e.g. new structures in ordinary watercourses.			Migratory fish species and their supporting habitats in main rivers (that are connected to ordinary water courses)
Improved maintenance of flood defences				
Changes in land management to reduce / control flows	Direct loss, deterioration of habitat.			All sites
	Increased recreational opportunities and associated disturbance / impacts			Sites vulnerable to visitor pressure, particularly human and dog physical and noise disturbance to SPA qualifying bird species.