
**Caerphilly County Borough Council
Local Flood Risk Management Strategy**

Habitats Regulations Assessment (HRA) Screening

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Caerphilly County Borough Council
Local Flood Risk Management Strategy

Habitats Regulations Assessment (HRA) Screening

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Caerphilly County Borough Council Local Flood Risk Management Strategy

Habitats Regulations Assessment: Screening Report

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EXECUTIVE SUMMARY

- 0.1 Habitats Regulations Assessment (HRA) of spatial development plans and strategies is a requirement of the Habitats Directive (92/43/EEC) as set out in the Conservation of Habitats and Species Regulations 2010. Local Flood Risk Management Strategies (LFRMS) are part of a hierarchy of spatial management plans under development to address flood and coastal erosion risks across Wales.
- 0.2 This report details the HRA Screening undertaken for Caerphilly County Borough Council's Local Flood Risk Management Strategy. It sets out the methods, findings and recommendations of the Screening Assessment.
- 0.3 Caerphilly's LFRMS addresses the requirement set out in the Flood Risk Regulations 2009, to develop, maintain, apply and monitor a strategy for local flood risk management. The Strategy identifies nineteen strategic objectives and a series of lower level measures designed to take forward the management of flood risk within the Authority area. The measures are grouped into seven overarching themes.
- 0.4 The Screening considered the potential for impacts arising from the implementation of the proposed measures to lead to likely significant effects (LSE) in relation to the five European sites scoped into the assessment process. The Screening identified that the majority of the measures considered will not in themselves lead to spatial development or change and that there is no potential pathway between these proposed plan measures and the noted sensitivities of the European sites scoped into the assessment process.
- 0.5 The Screening identified that three of the proposed strategy measures could lead to flood risk management activities that involve maintenance or construction in areas of habitat sensitivity, such as riverbanks and wetland areas. For these measures it is particularly important that the requirement for project level HRA is integral to the actions that arise from the implementation of the strategy. Accordingly, the HRA has recommended additional wording for these strategy measures in order to safeguard the known sensitivities of the Severn Estuary SAC and the Aberbargoed Grasslands SAC.
- 0.6 The recommendations of this HRA Screening reflect advice from the Statutory Body, the Countryside Council for Wales (CCW) and are subject to consultation.

1.0 INTRODUCTION

- 1.1 Caerphilly County Borough Council (CCBC) is currently developing its Local Flood Risk Management Strategy (LFRMS) in line with the requirements set out in the Flood and Water Management Act 2010.
- 1.2 In exercising its functions, the Council as the 'competent authority' is required to consider the requirements of the Habitats Directive. The Council appointed Ruth Thomas, Sustainability Consultant, to undertake a Habitat Regulations Assessment (HRA) Screening on its behalf, in line with the requirements set out in the Directive.
- 1.3 This report details the HRA Screening work undertaken; it sets out the approach, the screening findings and the recommendations arising.

Requirement for Habitats Regulations Assessment (HRA)

- 1.4 The European Directive (92/43/EEC) on the Conservation of Natural Habitats and Wild Flora and Fauna (the Habitats Directive) protects habitats and species of European nature conservation importance. The Habitats Directive establishes a network of internationally important sites designated for their ecological status. These are referred to as Natura 2000 (N2K) sites or European Sites, and comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) [which are classified under the Council Directive 79/409/EEC on the conservation of wild birds, the 'Birds Directive']. In Wales, the Conservation of Habitats and Species (Amendment) Regulations 2012 (the Habitats Regulations) provides the legal framework for the implementation of the Directive, taking account of the additions and changes made to the Conservation of Habitats and Species Regulations 2010.
- 1.5 In addition to the protection afforded to SAC/SPA sites, Welsh Assembly Government (WAG) guidance also requires that Ramsar sites (which support internationally important wetland habitats) and are listed under the Convention on Wetlands of International Importance (Ramsar Convention 1971) are included within the HRA process, and that candidate SACs and proposed SPAs are treated as 'designated' sites in the context of HRA. In this report the term 'European sites' is used when referring to SACs, cSACs, SPAs, pSPAs and Ramsar sites.
- 1.6 The purpose of HRA is to assess the potential impacts on European sites arising from the implementation of a plan or strategy. The assessment considers the potential effects of the plan alone, and the possibility of in combination effects with other, contemporaneous plans and projects. Any identified effects are considered against the conservation objectives of a European site to ascertain whether they could adversely affect the integrity of that site. Where significant effects are identified, alternative options, avoidance and mitigation measures should be considered. The scope and detail of the HRA is dependent on the location and proposed measures/actions directed by the plan or strategy, and the individual sensitivities of the European sites relevant to the assessment process.

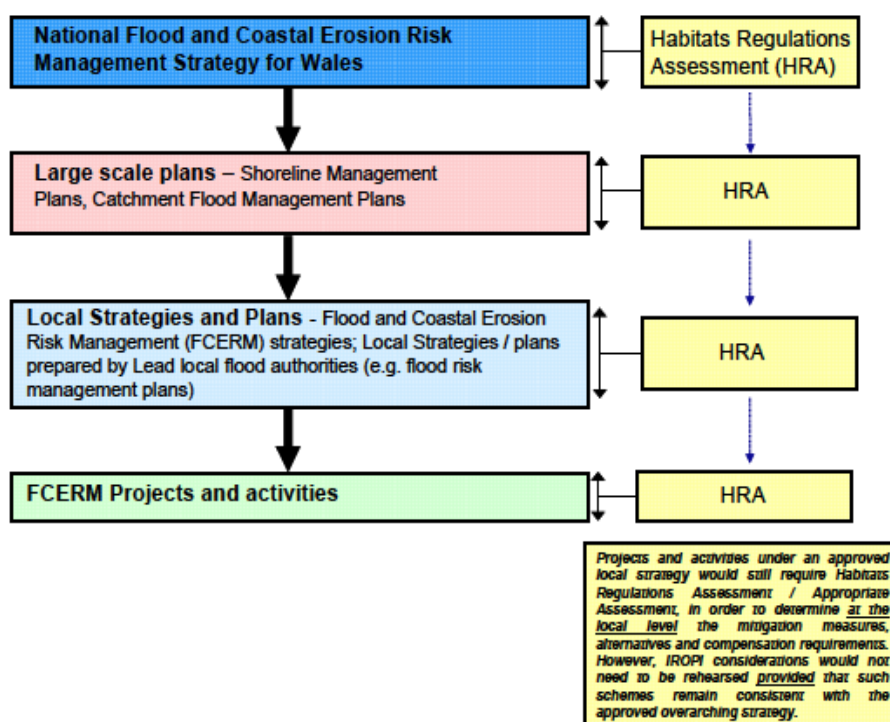
Local Flood Risk Management Strategies (LFRMS) & HRA

- 1.7 The Flood and Water Management Act 2010 and the Flood Risk Regulations 2009, place a responsibility on Local Authorities as Lead Local Flood Authorities (LLFAs) to

develop, maintain, apply and monitor a strategy for local flood risk management. The LFRMS should balance the needs of the community, the economy and the environment. The strategy, which is required to be consistent with the National Flood and Coastal Erosion Risk Management Strategy for Wales [the National Strategy] must address flood risk from: surface runoff, ground water and ordinary watercourses. The strategy should encourage effective risk management, taking into account the potential for flood events to occur both inland and downstream in coastal areas where changing processes will influence coastal erosion and water quality issues. The LFRMS is a strategic level document designed to serve as an evidence base for the decisions and actions necessary to manage local level flood risks. In delivering its key objectives the LFRMS must also meet wider environmental objectives, and contribute to broader sustainable development outcomes.

- 1.8 The LFRMS, therefore, forms part of a hierarchy of strategies designed to take forward the objectives set out in the National Strategy. The requirement for HRA of flood risk management strategies was established in relation to the National Strategy, and the report identified the need for the ongoing assessment of lower tier plans and strategies to ensure compliance with the regulatory requirement and the most effective management of Wales' European site interests.

Figure 1: Hierarchy of Flood and Coastal Erosion Management Plans and Relationship to the HRA Process¹



Caerphilly's Local Flood Risk Management Strategy

- 1.9 Caerphilly's LFRMS addresses the requirement set out in the Flood Risk Regulations 2009, to develop, maintain, apply and monitor a strategy for local flood risk management. The LFRMS is not required to consider flooding from main water

¹ Welsh Assembly Government (June, 2011). Habitats Regulations Assessment. Flood and Coastal Erosion Risk Management: Development of a National Strategy for Wales.

courses (for which EAW is the lead authority) however, the approach to risk identification takes account of the wider planning information provided by the TAN15 flood maps². The strategy is focused on the nine criteria for LFRMS identified in the Regulations, and builds on the Preliminary Flood Risk Assessment (PFRA) undertaken by the Council and approved by the Welsh Government in June 2011. The PFRA used Environment Agency Wales data to identify 59, 1km x 1km squares or 'Areas Above Flood Risk Threshold' that contain a minimum of 200 people, 20 business and 2 or more critical services. Where clusters of these 'Blue Squares' occur an area of concentrated flood risk is identified.

- 1.10 The Council has set a high level strategic intent to **'Endeavour to reduce flood risk in every area where significant flood risk has been identified'**. In order to do this the strategy takes forward the four overarching objectives set out in the National Strategy and has identified a further 19 detailed objectives relevant to CCBC, as detailed in **Table 1** below. The objectives are shown in relation to their contribution to wider social, economic and environmental sustainability outcomes.

Table 1: Local Flood Risk management Strategy Overarching and Detailed Objectives		Social	Eco- nomic	Environ- mental
Objectives				
Overarching Objective 1				
Reducing the impacts on individuals, communities businesses and the environment				
1	Reduce the number of people exposed to the risk of flooding.	√	√	
2	Reduce the number of residential and commercial properties affected by the risk of flooding	√	√	
3	Reduce the number of people exposed to risk of flooding of significant depth and velocity.	√	√	
4	Reduce disruption to critical infrastructure or prepare plans to allow the operations to be maintained.	√	√	
5	Protect and improve Natural 2000 Sites			√
6	Protect and improve Sites of Special Scientific Interest (SSSIs)			√
7	Protect and improve Sites of Importance for Nature Conservation (SINCs)			√
8	Contribute to the delivery of Caerphilly Biodiversity Action Plan			√
9	Minimise damage to known historic assets	√	√	√
Overarching Objective 2				
Raising awareness of and engaging people in the response to flood				
10	Provide systems to give early warning of potential flooding to individuals and communities.	√	√	
11	Provide efficient systems for the management and maintenance of surface assets.	√	√	
12	Reduce economic damage	√	√	
13	Endeavour to reduce cost of management		√	
Overarching Objective 3				
Providing an effective and sustained response to flood events				
14	Creating natural channels and water bodies with minimal modifications			√
15	Improving water quality	√		√
16	Providing Flood Risk management Plans for each area subject to flood risk	√	√	√
17	Ensuring that measures are designed and constructed in a sustainable way		√	√
18	Ensuring that CCBC works in partnership with all other Risk Partners and works collaboratively with adjacent Authorities	√	√	√
Overarching Objective 4				
Prioritising investment in the most at risk communities.				
19	Ensuring that investment decisions for the implementation of flood risk management schemes are made on a consistent, defensible basis and are subject to cost benefit analysis.		√	

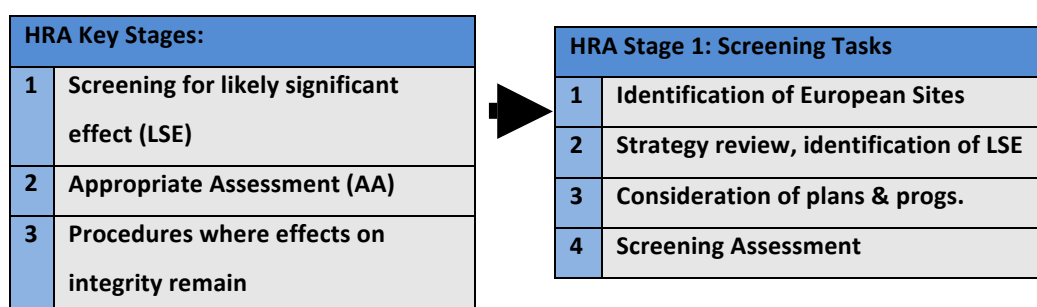
² Technical Advice Note (TAN) 15: Development and Flood Risk

- 1.11 Underlying these strategic objectives is a series of measures designed to take forward the management of flood risk within the CCBC area. The measures are grouped under seven themes:
- Sustainable and Strategic Development Planning
 - Flood Forecasting, Warning and Response
 - Land, Cultural and Environmental Management
 - Asset Management and Maintenance (SAMPs)
 - Studies, Assessments and Plans (SWMPs, Project Plans, SMP links)
 - High Level Awareness and Engagement
 - Monitoring
- 1.12 The full range of measures, which form the core of the LRMS, are detailed in the HRA Screening **Appendix 2**.

Approach to HRA Screening of LFRMS

- 1.13 Caerphilly's LFRMS takes forward the objectives of the National Strategy, and sets out a series of local level objectives relevant to the issues and risks identified in the County Borough. The objectives contained in the strategy set out the Council's strategic intent for the management of flood risk, as opposed to specific development actions, and accordingly a strategic focus for the HRA of the LFRMS is appropriate. In this context the aim of the assessment is to identify policy/objective/measure safeguards as necessary, and to ensure that when implemented, any lower tier actions take into account the findings and direction provided by the strategic assessment process.
- 1.14 This approach is reflected in the standard method applied to this first stage of the overall HRA process. Figure 2 summarises the main stages of HRA and outlines the individual tasks necessary to complete this screening stage.

Figure 2: HRA Key Stages – Stage 1: Screening Tasks



Structure of Report

- 1.15 This report documents the process and findings of the HRA Screening of Caerphilly County Borough Council's Local Flood Risk Management Strategy. Following this introductory section detailing the background to LFRMS, the requirement for HRA and the overarching approach to the assessment; the report is organised into two further sections:

- **Section 2** – details the screening tasks and summary findings of the Screening Assessment, including how the plan should proceed with reference to the Habitats Regulations.
- **Section 3** – provides the recommendations for strategy development as appropriate and the consultation steps necessary.

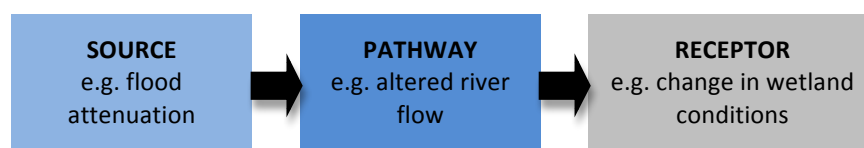
2.0 HRA SCREENING

- 2.1 This section of the report sets out the approach to the HRA Screening and details the findings arising. The aim of this process is: to assess in broad terms whether the objectives and measures set out in the Caerphilly LFRMS are likely to have a significant effect on the European sites scoped into the assessment; to consider the need for avoidance and/or mitigation measures; to determine if further Appropriate Assessment (AA) is necessary.

Task 1: Identification and Characterisation of European Sites

- 2.2 Strategies and their objectives can have spatial implications that extend beyond the intended strategy boundaries. For the purposes of HRA it is recognised that distance in itself is not a definitive guide to the likelihood or severity of an impact. Factors such as river flow direction, surface run off characteristics and ground water flow will all have a bearing on the relative distance at which an effect can occur. This means that European sites at some distance from the strategy or plan being screened may still need to be considered as part of the screening process. Rather than rely on distance, it is helpful to apply a 'source-pathway-receptor' model (**Figure 3**) that considers whether potential impacts arising from the plan or strategy could affect the identified sensitivities and vulnerabilities of the European site conditions.

Figure 3: Source, Pathway, Receptor Model



- 2.3 Taking into account the potential for impacts to occur across boundaries and downstream from development areas, the screening initially identified the European sites in **Figure 4** as relevant to the scope of this assessment.

Figure 4: European Site within HRA Scope

Figure 4: European Site within HRA Scope	
European Sites within Strategy area	Designation
Aberbargoed Grasslands	SAC
European Sites outside Strategy area	Designation
Cardiff Beech Woods	SAC
Cwm Clydach Woods	SAC
Usk Bat Sites	SAC
Severn Estuary	SAC /SPA /Ramsar

- 2.4 Each of the European sites listed in **Figure 4** was reviewed using the information provided by CCW's Natura 2000 Management Plans, and the Joint Nature Conservation Committee (JNCC) listings. The sites were examined with particular reference to their: condition status; vulnerabilities (including existing pressures and trends) and the factors that are necessary to maintain site integrity.³ Summary characterisations for these five sites are provided in **Figure 5** below, with more detailed descriptions including conservation objectives provided in **Appendix 1**.

Figure 5: European Site Characterisations

Aberbargoed Grasslands SAC

Aberbargoed Grasslands covers an area of 42.5ha and lies on a southwest facing hillside in the Rhymney Valley. The fields in the south and west of Aberbargoed Grasslands have impeded drainage and contain a mixture of marshy grassland communities. Areas of particular interest are characterised by abundant purple moor grass *Molinia caerulea* and meadow thistle *Cirsium dissectum* with devil's bit scabious *Succisa pratensis* and carnation sedge *Carex panicea*. The site is designated for the *molina* meadows and marsh fritillary butterfly. Light grazing is essential in maintaining the marshy grassland communities.

Cardiff Beech Woods SAC

Cardiff Beech Woods lies to the north east of Cardiff and is intersected by the A4054 and the A470. The site contains one of the largest concentrations of beech forests in Wales, and represents the habitat close to the western limit of its past native range in both the UK and Europe. The woods show mosaics and transitions to other types, including more acidic beech woodland and oak *Quercus* and ash *Fraxinus excelsior* woodland. The site is designated for its beech forests, *Asperulo-Fagetum* and forests of slopes, screes and ravines, *Tilio-Acerion*. Management of public (recreational) access and the adjacent woodland areas is key to supporting the site's long term integrity.

Cwm Clydach Woods SAC

Cwm Clydach is situated on the southern side of the River Clydach valley, approximately 2km east, north east of Brynmawr and is in close proximity to the A465 Heads of the Valley Road. This site is of special interest for its stands of broadleaved woodland dominated by beech, intergrading with more open habitats, which together support a number of rare and scarce vascular plants including whitebeams *Sorbus spp.* and soft-leaved sedge *Carex montana*. There are important woodland and grassland fungi assemblages with rare species such as *Squamanita paradoxa*. The site is designated for its beech forests *Asperulo-Fagetum* and *Atlantic Acidophilous* with *Ilex*. The site needs light grazing to support growth although is vulnerable to overgrazing, invasive species, recreational and dumping pressures.

Usk Bat Sites SAC

The site encompasses a series of lesser horseshoe bat roosts, upland habitats, woodlands and cave systems located around the valley of the River Usk near to Abergavenny. The collection of sites are designated for a number of habitat features that support the lesser horseshoe bat population including: European dry heath, degraded raised bogs, blanker bogs, calcareous rocky slopes, caves and *Tilio-Acerion* forests. The bat species are vulnerable to disturbance and loss of key habitat features, which in turn are influenced by factors including air quality, hydrological changes and recreational impacts.

³ JNCC and CCW data sources – see references and bibliography.

Figure 5: European Site Characterisations**Severn Estuary SAC/SPA/Ramsar**

The Severn Estuary is the largest coastal plain estuary in the UK with extensive mudflats and sandflats, rocky shore platforms, shingle and islands. Saltmarsh fringes the coast, backed by grazing marsh with freshwater and occasional brackish ditches. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second highest tidal range in the world at more than 12 meters. This tidal regime results in plant and animal communities typical of the extreme physical conditions of strong flows, mobile sediments, changing salinity, high turbidity and heavy scouring. The resultant low diversity invertebrate communities, that frequently include populations of ragworms, lugworms and other invertebrates in high densities, form an important food source for passage and wintering birds. The site is important in the spring and autumn migration periods for waders moving along the west coast of Europe, as well as in winter for large numbers of waterbirds including swans, geese, ducks and waders. These bird populations are regarded as internationally important. The site is designated for a number of wetland habitats, fish and bird species. Key vulnerabilities include: the physical loss of habitat, noise and visual disturbance, contamination, changes in nutrient and organic loading.

Task 2: Strategy Review, Identification of Potential Effects & Screening

- 2.5 The first stage of the Screening process is to determine whether the objectives and measures proposed by the strategy have the potential to lead to likely significant effects (LSE) on the European sites scoped into the assessment. The types of potential impacts and likely effects that can arise from flood risk strategies are summarised in **Figure 6**. This relationship between potential impacts and likely effects has informed the screening process.

Figure 6: Infrastructure Development for Flood Risk Management: Summary of Potential Effects on European Sites and Impact Types

Effects on European Sites	Impact Types
Habitat (& species) fragmentation and loss	• Direct land take from structural measures • Bypass channels, widening, deepening • Hard defences, flood walls, creating barriers to migration
Disturbance	• Altered river flow rates, turbidity, increased water velocity, and changes to water levels from hard defences • Changes in recreational accessibility
Changes to hydrological regime	• Introduction of Sustainable Drainage Systems (SUDs) • Introduction of retention areas, wetlands • Laying pipes, culverts • Riverbank realignment
Changes to water quality	• Change in run-off/ pollutants from non-permeable surfaces • Introduction of retention areas, wetlands • Introduction of Sustainable Drainage Systems (SUDs)

- 2.6 The approach taken for the HRA Screening is in accordance with the Countryside Council for Wales' draft guidance for the appraisal of plans under the Habitats Directive (Tyldesley, 2009). The Guidance details four main categories (with detailed sub-categories, see **Appendix 2**) of effect; which are summarised in **Figure 7**. Objectives or measures assessed as Category A and B are not considered to have

effects on European sites and can be eliminated from the assessment procedure. Proposals that are identified as meeting Category C and D criteria require further analysis, including the consideration of in combination effects to determine whether they should be taken further in the HRA process.

Figure 7: Categorising the Potential Effects of the Plan (Tyldesley, 2009)
Category A: elements of the strategy/ measures that would have no negative effect on a European site
Category B: elements of the strategy/ measures that could have an effect but that would be 'de-minimis' either alone or in combination
Category C: elements of the strategy/ measures that could or would be likely to have a significant effect alone and will require the strategy to be subject to appropriate assessment prior to adoption
Category D: elements of the strategy/ measures that would be likely to have a significant effect in combination with other elements of the same strategy or other strategies/ plans or projects and will require the strategy to be subject to appropriate assessment prior to adoption

- 2.7 **Appendix 2** provides the full details of the results of the HRA Screening process for the objectives and measures set out in the Caerphilly LFRMS. The key findings are summarised below.

Caerphilly Local Flood Risk Management Strategy – Objectives and Measures Screening

- 2.8 The Caerphilly LFRMS is a strategic document that serves to collate and organise objectives and plans for flood risk management. The Screening noted that for the purposes of the HRA process, the objectives and measures can be organised into four main groups:
- **1. Strategic measures** – measures that relate to existing plans and strategies or that propose new strategic management approaches, e.g. the Local Development Plan, a Water Cycle Strategy.
 - **2. Lower level measures** – measures for new, lower tier strategies and plans emerging as a direct result of the imperatives set out in the LFRM, e.g. flood risk management plans.
 - **3. Activity based measures** – measures that set the framework for a specific activity or action on the ground e.g. establish SUDs, create habitat.
 - **4. Enabling measures** – measures that support strategy, plan and activity development, e.g. awareness raising, information gathering, surveys etc.
- 2.9 The majority of the measures proposed by the Caerphilly FRMS are strategic, lower level or enabling measures that will not in themselves lead to spatial development or land use change. As such, there is no potential pathway between the proposed plan measures and the noted sensitivities of the European sites scoped into the assessment process. These measures are all assessed as Category A, no negative effect (see Figure 6, full details in **Appendix 2**).
- 2.10 All the activity measures screened are also assessed as Category A, no negative effect. This is because, although some development is possible once the strategy is adopted (for example, a change of landuse), it will be implemented through more

specific (as yet undetermined) actions that will occur at a project level as a result of the framework set by the LFRMS. Depending on their nature, specific location and wider spatial extent, these actions will be subject to project specific HRA and other relevant environmental assessment process (e.g. Environmental Impact Assessment) as necessary.

- 2.11 However, in this context, three of the measures assessed (**Figure 8**) that set out potential lower level actions, are specifically highlighted by the HRA. This is because the Screening indicated that these proposed strategy measures could lead to development activities that involve maintenance or construction in areas of habitat sensitivity, such as riverbanks and wetland areas. For these measures it is particularly important that the requirement for project level HRA is integral to the actions that arise from the implementation of the strategy. Accordingly, the Screening recommends the introduction of additional wording to strengthen the avoidance of likely significant effects (see **Appendix 2** and the Screening Summary below).

Figure 8: Objectives and Measures Screening Summary Caerphilly Local Flood Risk Management Strategy – <i>Activity based measures requiring supporting avoidance measures</i>	Assessment Category
6.13.4 Relocation	A5
6.16.3 Channel Maintenance	A5
6.16.4 Culvert Maintenance	A5

Task 3: Consideration of other plans, programmes and projects

- 2.12 Although the Screening process undertaken at Task 2 did not identify the potential for likely significant effects from the proposed measures in Caerphilly's LFRMS, it is appropriate to review other strategies, plans and projects that are being prepared and/or implemented in the area covered by the Strategy. HRA guidance recommends a targeted approach focused on relevant plans and projects to ensure that the assessment is manageable and effective. The purpose of this review is to consider whether the residual effects of other development activities, including those within the LFRMS, will make the unlikely effects of the plan likely, or the insignificant effects significant. Accordingly, the review process has focused on initiatives that have spatial overlaps with the Caerphilly LFRMS and/ or that may give rise to the types of development impacts identified in Figure 5.
- 2.13 The plans and projects reviewed included: Local Development Plans incorporating transport and minerals planning; Water Resource Plans; Catchment Abstraction Plans; and Flood Management Plans; full details are provided in **Appendix 3**. The review considered the potential impacts/ effects arising from wider development activity giving particular attention to the findings of individual, supporting HRAs where available. All the key plan HRAs reviewed have to date assessed that potential effects on the European sites also scoped into this (Caerphilly LFRMS) assessment could be effectively managed through appropriate policy measures, caveats and lower tier planning processes. No changes to the assessment categories detailed in Task 2 have been made as a result of the requirement to consider in combination effects.

Task 4: Screening Assessment Summary

- 2.14 The Screening assessment identified 1 European site within CCBC's strategy boundary and 4 European sites with spatial connections that should be considered by the HRA. Each European site was reviewed in terms of its sensitivities and vulnerabilities and the conditions required to maintain the Sites' integrity. The Caerphilly LFRMS was reviewed to determine the types of impact and effects that could arise from the strategy in implementation. This analysis informed the Screening process which was guided by the assessment framework (Figure 7) recommended by the Welsh Assembly Government (WAG) and CCW.
- 2.15 The screening process did not identify any impacts arising from the Strategy's proposed objectives and measures that might significantly affect the terrestrial European sites scoped into the process, that are located outside the LFRMS area. The Screening did note the potential for habitat disturbance, hydrological changes and water quality effects in relation to three proposed measures (Figure 8) that may occur as a result of the LFRMS in implementation. These effects could arise from activities directed at waterway management and the maintenance and control of surface water movement within the County Borough, and are most relevant to the sensitivities of the Severn Estuary SAC and the Aberbargoed Grasslands SAC scoped into the assessment.
- 2.16 The HRA Screening did not assess these effects to be significant, however, it is recommended that [in relation to the three proposed measures highlighted] the strategy make specific provision for lower level, project HRA (see, **Appendix 2**) to ensure that the designated environmental interests considered in this assessment process are safeguarded. This approach will also ensure that the competent authority is actively managing the risk that any small-scale effects from flood risk management actions taken in the future, could combine [negatively] with the effects from ongoing, contemporaneous plans, strategies and projects. With these safeguards in place, the European sites considered can be screened out of any further, more detailed assessment through the HRA process.

Figure 9: HRA Screening Assessment Summary				
European Sites	Potential Likely Significant Effects			
	Habitat (& species) fragmentation and loss	Disturbance	Changes to hydrological regime	Changes to water quality
Aberbargoed Grasslands SAC	X	X	X	X
Cardiff Beech Woods SAC	X	X	X	X
Cwm Clydach Woods SAC	X	X	X	X
Usk Bat Sites SAC	X	X	X	X
Severn Estuary SAC, SPA, Ramsar	X	X	X	X
Key				
Likely significant effect v				
No likely significant effect X				
Significant effect uncertain ?				

3.0 HRA SCREENING RECOMMENDATIONS

- 3.1 Based on the findings detailed in Section 2 of this report it is recommended that the following wording, or equivalent text specifying the requirement for project level HRA, is included in the Caerphilly Local Flood Risk Management Strategy addressing the proposed measures:

- **6.13.4 Relocation** - any activities arising from the procedures No: 6&7 [as listed] are required to apply project level HRA if proposed at upstream locations with identified spatial connections (pathways) to the Severn Estuary SAC, and/or if the proposals may alter habitats (supporting the Marsh Fritillary butterfly) within a 2km radius of the Aberbargoed Grasslands SAC.
- **6.16.3 Channel Maintenance** - any maintenance or improvement action should be subject to project level HRA if developments are proposed at upstream locations with identified spatial connections (pathways) to the Severn Estuary SAC, and/or if the proposals may alter habitats (supporting the Marsh Fritillary butterfly) within a 2km radius of the Aberbargoed Grasslands SAC.
- **6.16.4 Culvert Maintenance** - any maintenance or improvement action should be subject to project level HRA if developments are proposed at upstream locations with identified spatial connections (pathways) to the Severn Estuary SAC, and/or if the proposals may alter habitats (supporting the Marsh Fritillary butterfly) within a 2km radius of the Aberbargoed Grasslands SAC.

Consultation

- 3.2 The Habitats Regulations require the plan making/ competent authority to consult the appropriate nature conservation statutory body, the Countryside Council for Wales (CCW). Consultation on the approach to this HRA Screening has been undertaken with CCW, and the advice provided by the statutory body on the method and the assessment findings has been reflected in the report.
- 3.3 The Habitats Regulations leave consultation with other bodies and the public to the discretion of the strategy and plan making authority. WAG guidance indicates that it is good practice to make information on HRA available to the public at each formal consultation stage. Therefore, in addition to the statutory consultation undertaken with CCW, this report will also be made available for wider circulation.

REFERENCES AND BIBLIOGRAPHY

Catchment Abstraction Management Strategies (CAMS) Wales:

<http://www.environment-agency.gov.uk/business/topics/water/119927.aspx>

Countryside Council for Wales (CCW) - Site Management Plans:

<http://www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/special-sites-project.aspx>

CCW - Protected Sites Map:

<http://www.ccw.gov.uk/interactive-maps/protected-sites-map.aspx>

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Appendix 1: European Site Characterisations⁴

Site Name: Aberbargoed Grasslands Location Grid Ref: ST163992 JNCC Site Code: UK0030071 Size: 39.78 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	Aberbargoed Grasslands covers an area of 42.5ha and lies on a southwest facing hillside in the Rhymney Valley, 1km east of Bargoed and adjacent to the A4049. A large and relatively isolated population of marsh fritillary butterfly (<i>Euphydryas aurinia</i>) is present on a series of damp pastures and heaths in Gwent, representing the species on the eastern edge of its range in Wales. The fields in the south and west of Aberbargoed Grasslands have impeded drainage and contain a mixture of marshy grassland communities. Areas of particular interest are characterised by abundant purple moor grass <i>Molinia caerulea</i> and meadow thistle <i>Cirsium dissectum</i> with devil's bit scabious <i>Succisa pratensis</i> and carnation sedge <i>Carex panicea</i>. Other species such as saw-wort <i>Serratula tinctoria</i> and lousewort <i>Pedicularis sylvatica</i> occur frequently in heavily flushed areas. Associated stands of <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire contain abundant purple moor grass with tormentil <i>Potentilla erecta</i>, mat grass <i>Nardus stricta</i>, common sedge <i>Carex nigra</i> and spotted orchid <i>Dactylorhiza maculata</i>. Small stands of rush pasture are scattered across the site, with soft rush <i>Juncus effuses</i>, greater bird's foot trefoil <i>Lotus uliginosus</i> and marsh bedstraw <i>Galium palustre</i>.
Qualifying Features	Annex I Habitats qualifying feature: ▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) Annex II Species primary reason for selection: ▪ Marsh fritillary butterfly <i>Euphydryas</i> (<i>Eurodryas</i>, <i>Hypodryas</i>) <i>aurinia</i>
Conservation Objectives	Conservation Objective for Feature 1: Marsh fritillary Butterfly <i>Euphydryas</i> (<i>Eurodryas</i>, <i>Hypodryas</i>) <i>aurinia</i> The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

⁴ South East Wales Strategic Planning Group (March 2011). Habitats Regulations Assessment: A Toolkit to Support HRA Screening and Appropriate Assessment of Plans.

Site Name: Aberbargoed Grasslands Location Grid Ref: ST163992 JNCC Site Code: UK0030071 Size: 39.78 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ The site will support a sustainable metapopulation of the marsh fritillary in the Aberbargoed area. This will require at least 50ha of suitable habitat, although not all of this will be within the SAC ▪ The population will be viable in the long term, acknowledging the extreme population fluctuations of the species. ▪ Habitats on the site will be in optimal condition to support the metapopulation. ▪ At least 25ha of the total site area will be marshy grassland suitable for supporting marsh fritillary, with <i>Succisa pratensis</i> present and only a low cover of scrub. ▪ At least 6.25ha will be good marsh fritillary breeding habitat, dominated by purple moor-grass <i>Molinia caerulea</i>, with <i>S. pratensis</i> present throughout and a vegetation height of 10-20cm over the winter period. ▪ All factors affecting the achievement of the foregoing conditions are under control. Conservation Objective for Feature 2: <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) Vision for feature 2 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ <i>eu-Molinion</i> marshy grassland will occupy at least 70% of the total site area. ▪ The remainder of the site will be other semi-natural habitat or areas of permanent pasture. ▪ The following plants will be common in the <i>eu-Molinion</i> marshy grassland: purple moor-grass <i>Molinia caerulea</i>; meadow thistle <i>Cirsium dissectum</i>; devil's bit scabious <i>Succisa pratensis</i>; carnation sedge <i>Carex panicea</i>; saw wort <i>Serratula tinctoria</i>; and lousewort <i>Pedicularis sylvestris</i>. ▪ Cross-leaved heath <i>Erica tetralix</i> and common heather <i>Calluna vulgaris</i> will also be common in some areas. ▪ Rushes and species indicative of agricultural modification, such as perennial rye grass <i>Lolium perenne</i> and white clover <i>Trifolium repens</i> will be largely absent from the <i>eu-Molinion</i> marshy grassland. ▪ Scrub species such as willow <i>Salix</i> and birch <i>Betula</i> will also be largely absent from the <i>eu-Molinion</i> marshy grassland.

Site Name: Aberbargoed Grasslands Location Grid Ref: ST163992 JNCC Site Code: UK0030071 Size: 39.78 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	All factors affecting the achievement of these conditions are under control. Performance indicators for Feature 1 The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators. The performance indicators can be found within the Aberbargoed Grasslands SAC Management Plan.
Component SSSIs	Aberbargoed Grasslands SSSI The site has been divided into 2 management units of which unit 1 forms the Aberbargoed Grasslands SAC. A map of the management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity)	The Marsh fritillary butterfly is dependent on the <i>Molinia</i> meadows and wet heath. Livestock grazing - The <i>eu-Molinion</i> marshy grassland needs to be maintained through traditional farming practices. Without an appropriate grazing regime, the grassland will continue to become rank and eventually turn to scrub and woodland. Light grazing by cattle and ponies between April and November each year is essential in maintaining the marshy grassland communities.
SAC Condition Assessment	Conservation Status of Feature 1: Marsh fritillary butterfly <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i> The Marsh Fritillary feature at Aberbargoed Grasslands SAC is considered to be in unfavourable condition and conservation status (October 2003). Web counts have in recent years been very low, but the species naturally undergoes significant fluctuations in population numbers due to a variety of factors, including cold and wet weather conditions and parasitic attack.

Site Name: Aberbargoed Grasslands Location Grid Ref: ST163992 JNCC Site Code: UK0030071 Size: 39.78 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Conservation Status of Feature 2: <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) The SAC report dated October 2003 states that the site is considered to be Unfavourable condition and conservation status. This is because the habitat is not in suitable condition for the marsh fritillary. In areas of the site the vegetation is too tall, is dominated by <i>Molinia</i> and does not have sufficient <i>Succisa</i>. There is only 2.3ha of good condition habitat and 9.7ha of suitable habitat within the site.
Vulnerabilities (includes existing pressures and trends)	The marsh fritillary butterfly population is under threat from: ▪ Parasites - Parasitic wasps. The <i>Molinia</i> meadows is under threat from: ▪ Anti-social behaviours - In previous years anti-social behaviour such as off-roading and burning have occurred at Aberbargoed grasslands. This issues need to be addressed to prevent the <i>eu-Molinion</i> habitat from being damaged. CCW states that work has progressed well on the site in the past few years; the site is now stock-proof and a mixture of Welsh Black and Belted Galloways graze the land with a Limousin bull. Scrub clearance and bracken control has begun and flight lines have been cut to improve the connectivity for the butterflies. A programme has been set up to educate the local community to understand why this area is important. A newsletter has been created detailing activities on the grassland and difficulties the site is facing. This and the presence of staff and stock onsite seem to have halted the illegal burning and off-roading.
Landowner/ Management Responsibility	▪ Caerphilly County Borough Council.

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	Cardiff Beech Woods lies to the north east of Cardiff and is intersected by the A4054 and the A470. The site contains one of the largest concentrations of <i>Asperulo-Fagetum</i> beech forests in Wales, and represents the habitat close to the western limit of its past native range in both the UK and Europe. The woods show mosaics and transitions to other types, including more acidic beech woodland and oak <i>Quercus</i> and ash <i>Fraxinus excelsior</i> woodland. Characteristic and notable species in the ground flora include ramsons <i>Allium ursinum</i>, sanicle <i>Sanicula europaea</i>, bird's-nest orchid <i>Neottia nidus-avis</i> and yellow bird's-nest <i>Monotropa hypopitys</i>.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ Asperulo-Fagetum beech forests Annex I Habitats qualifying feature: ▪ Tilio-Acerion forests of slopes, screes and ravines* Priority feature
Conservation Objectives	Conservation Objective for Feature 1: Aperulo-Fagetum beech forest Vision for feature 1 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ At least 85% of the site will continue to be covered by semi-natural broadleaved woodland. ▪ The range of woodland communities within the site will be maintained - including both of the woodland types considered to be of international importance - <i>Asperulo-Fagetum</i> and <i>Tilio Acerion</i>. ▪ At least 95% of canopy forming trees will be locally native species such as beech, ash and oak. ▪ The tree canopy will not be completely closed; approximately 10% of the canopy will include a dynamic shifting pattern of gaps encouraging natural regeneration of tree species of all ages. ▪ Dead wood, standing and fallen, will be maintained where possible to provide habitat for invertebrates, fungi and other

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	woodland species. ▪ The ground flora will comprise species typical of lime-rich beech wood, including indicators of ancient woodland, such as wood anemone, ramsons and sanicle. ▪ There is little evidence of browsing. ▪ Recreational use of the site will continue to be managed so it does not damage the wildlife interest of the site. ▪ All factors affecting the achievement of these conditions are under control. Performance indicators for feature 1 The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators. The performance indicators can be found within the Cardiff Beech Woods SAC Management Plan. Conservation Objective for Feature 2: <i>Tilio-Acerion</i> forest of slopes, screes and ravines Vision for feature 2 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ At least 85% of the site will continue to be covered by semi-natural broadleaved woodland. ▪ The range of woodland communities within the site will be maintained, as for feature 1 ▪ At least 95% of canopy forming trees will be locally native species (sycamore included). ▪ The tree canopy will not be completely closed; approximately 10% of the canopy will include a dynamic shifting pattern of gaps encouraging natural regeneration of tree species of all ages. ▪ Dead wood, standing and fallen, will be maintained where possible to provide habitat for invertebrates, fungi and other woodland species.

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ The ground flora will comprise species typical of lime-rich beech wood, including indicators of ancient woodland, such as wood anemone, ramsons and sanicle. ▪ There is little evidence of browsing. ▪ Recreational use of the site will continue to be managed so it does not damage the wildlife interest of the site. ▪ All factors affecting the achievement of these conditions are under control. Performance indicators for feature 2 (see performance indicators for feature 1)
Component SSSIs	▪ Fforestganol, Tongwynlais a Cwm Nofydd (units 1-5) ▪ Castell Coch Woodlands and Road Section (units 6-9) ▪ Garth Wood (units 10-12) There are 12 management units of which numbers 1, 2, 3, 4, 8, 9 and 10 comprise to form the Cardiff Beech Woods SAC. A map showing the management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity)	▪ Maintain/manage the surrounding woodland - Commercial forestry in the vicinity of Castell Coch may have implications for surface water supply and quality. There are also a number of active and disused limestone quarries in the area. Garth Wood surrounds Taff's Well Quarry but there are other, smaller quarries in and around all component SSSIs. Quarrying can lead to direct loss of the feature together with indirect impacts from issues such as access. There are also a number of impacts arising from restoration at the end of a quarry's working life. ▪ Manage public access - Management of the recreational use of the woodlands should focus on maintaining the network of public footpaths and access routes. Regular maintenance of the footpaths and bridleways is essential to stop them spreading onto the adjacent woodland habitat. By restricting recreational use of the woodlands to certain areas and paths, natural woodland processes can be left to occur away from these areas of recreational use and without the need for

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	intervention from a public health and safety perspective.
SAC Condition Assessment	Conservation Status of Feature 1 Aperulo-Fagetum beech forest The sites were monitored in March 2004 to gather the extent or condition of the habitat. The current feature status for the Asperulo-fagetum beech forest is Unfavourable - Unclassified (March 2004). The justification for the above feature status (March 2004) is as follows: CCW view is that the site is still recovering from undesirable effects of past management. Although most if not all aspects of the component sites are heading in the right direction the status is still short of favourable. Implementation of appropriate management will be addressed but in our view there is no urgent or immediate need for action. The Garth Wood component is thought to be 'unfavourable recovering' although a management plan has not been prepared to date so its status has not been fully assessed. The management is mostly limited intervention and for most of the site there is good age structure and gap regeneration. Natural processes could be enhanced by localised intervention and this will be addressed through management recommendations. Fforestganol a Chwm Nofydd is thought to be 'unfavourable recovering', although a management plan has not been prepared to date so its status has not been fully assessed. Although there are small areas of even age structure there is generally a diverse age structure. This, together with concerns at the percentage of beech at some locations, will be addressed through management recommendations. Castell Coch Woodlands and Road Section is thought to be 'unfavourable recovering'. A full management plan has not been prepared to date so its status has not been fully assessed. There is generally an even age structure with low canopy cover. However, there is evidence of natural woodland processes, with good regeneration within the pattern of gaps. Recovery is expected over time and this could be hastened with increased localised intervention. This, together with concerns over the species

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	composition (particularly ash and sycamore) at some locations will be addressed through management recommendations. Conservation Status of Feature 2 Tilio-Acerion forest of slopes, screes and ravines The sites were monitored in February 2004 to gather the extent or condition of the habitats and the species. The current feature status for the Tilio-Acerion forest of slopes, screes and ravines is Unfavourable - Recovering (February 2004). The justification for the above feature status (February 2004) is as follows: CCW view is that the site is still recovering from undesirable effects of past management. Although most if not all aspects of the component sites are heading in the right direction the status is still short of favourable. Implementation of appropriate management will be addressed but in our view there is no urgent or immediate need for action. The Garth Wood component is thought to be 'unfavourable recovering' although a management plan has not been prepared to date so its status has not been fully assessed. The management is mostly limited intervention and for most of the site there is good age structure and gap regeneration. Natural processes could be enhanced by localised intervention and this will be addressed through management recommendations. Fforestganol a Chwm Nofydd is thought to be 'unfavourable recovering', although a management plan has not been prepared to date so its status has not been fully assessed. Although there are small areas of even age structure there is generally a diverse age structure. This, together with concerns at the percentage of beech at some locations, will be addressed through management recommendations.
Vulnerabilities (includes existing pressures and trends)	▪ Atmospheric Pollution - its location in industrialised South Wales, together with the presence of nearby quarrying and associated activities, means that there is the potential for localised atmospheric pollution. Quarry dust deposition is an issue that occasionally comes up. ○ Nitrogen deposition.

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	○ Photochemical oxidants (ozone). ○ Acidification. ▪ Recreational pressure - All component SSSIs are used to a greater or lesser extent for recreation purposes. Castell Coch Woodlands and Fforestganol a Chwm Nofydd experience the most recreation pressure, and are popular for walking, climbing and mountain biking. The Taff train runs through part of the Castell Coch Woodlands site and the historic building of Castell Coch attracts many visitors, which increases the access pressure on the woodlands. The road section is becoming increasingly popular for climbing, and this is unlikely to be a problem for the geological interest of the site. However, climbing could be potentially damaging to trees at the top of the crag and needs to be kept under review. Management of access is nominally through the individual site owners but there are potential conflicts between different users which to date have been addressed through the Local Authority Access Forum. Recreation within the areas supporting this habitat feature is restricted due to the steep and rocky nature of the terrain. Therefore the recreational pressure on areas of Tilio-acerion is less than on areas of Asperulo-fagetum habitat. Nonetheless, given the high recreation pressure experienced by Fforestganol a Chwm Nofydd, which supports areas of Tilio-acerion habitat, aspects of recreational management still apply to this feature. ▪ Mineral extraction and related activities - There are a number of active and disused limestone quarries in the area. Garth Wood surrounds Taff's Well Quarry but there are other, smaller quarries in and around all component SSSIs. Quarrying can lead to direct loss of the feature together with indirect impacts from issues such as access. There are also a number of impacts arising from restoration at the end of a quarry's working life. ▪ Development - Its location in the populated South Wales area means that there is considerable development pressure in the vicinity including associated infrastructure on land adjacent to the site. There is the potential for a range of impacts arising from increasing urbanisation. ▪ Commercial Forestry - Commercial forestry in the vicinity of Castell Coch may have implications for surface water supply and quality. ▪ Non-native species - The presence of a number of species considered to be non-native e.g. sycamore and Japanese knotweed, is currently under review to determine any detrimental effects on the woodland communities of special

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	interest.
Landowner/ Management Responsibility	The majority of the woodlands are owned, or in the guardianship of government agencies, with most of the remainder of the woodland covered by a Section 106 agreement. Cardiff County Council, Cadw and Forestry Commission carry out woodland management for conservation purposes and occasionally health and safety purposes.

Site Name: Cym Clydach Woodlands Location Grid Ref: SO207123 JNCC Site Code: UK0030127 Size: 28.81 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	The site is situated on the southern side of the River Clydach valley, approximately 2km east, north east of Brynmawr and is in close proximity to the A465 Heads of the Valley Road. The underlying geology varies across the site, consisting of sedimentary rocks that range from Old Red Sandstone through Carboniferous Limestone into shales and sandstones of the Millstone Grit and Coal Measures. Soils mainly consist of typical brown earths and humo-ferric podzols. Altitude ranges from 170m by the River Clydach to 350m in Cwm Llamarch. Cwm Clydach is of special interest for its stands of broadleaved woodland dominated by beech, intergrading with more open habitats, which together support a number of rare and scarce vascular plants including whitebeams <i>Sorbus spp.</i> and soft-leaved sedge <i>Carex montana</i>. There are important woodland and grassland fungi assemblages with rare species such as <i>Squamanita paradoxa</i>.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ Asperulo-Fagetum beech forests Annex I Habitats qualifying feature:

Site Name: Cym Clydach Woodlands Location Grid Ref: SO207123 JNCC Site Code: UK0030127 Size: 28.81 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ Atlantic <i>acidophilous</i> beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion robori-petraeae</i> or <i>Ilici-Fagenion</i>)
Conservation Objectives	Conservation Objective for Feature 1: <i>Asperulo – Fagetum</i> beech forests Vision for feature 1 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ At least 50% of the canopy-forming trees are beech. ▪ The canopy cover is at least 80% (excluding areas of crag) and composed of locally native trees. ▪ The woodland has trees of all age classes with a scattering of standing and fallen dead wood. ▪ Regeneration of trees is sufficient to maintain the woodland cover in the long term. ▪ The shrub layer and ground flora can be quite sparse, but where present consist of locally native plants such as yew, hawthorn, wych elm, ash, hazel, field maple and elder, bramble, dog's mercury, enchanter's-nightshade, lords-and-ladies, woodruff, male fern, sanicle, wood melick, ivy, false brome, violets, herb robert, wood avens, and tufted hair-grass. ▪ Scarcer plants, such as soft-leaved sedge and bird's-nest orchid are locally frequent and, more rarely, yellow bird's-nest orchid can be found. ▪ All factors affecting the achievement of the above conditions are under control. Performance indicators for Feature 1 The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators. The performance indicators can be found within the Cym Clydach SAC Management Plan.

Site Name: Cym Clydach Woodlands Location Grid Ref: SO207123 JNCC Site Code: UK0030127 Size: 28.81 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Conservation Objective for Feature 2: Atlantic <i>acidophilous</i> beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion robori-petraeae</i> or <i>Ilici-Fagenion</i>) Vision for feature 2 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: At least 75% of the woodland vegetation meets the criteria for intact acid beech wood, where: ▪ At least 10% of the canopy forming trees are beech. ▪ The canopy cover is at least 80% and composed of locally native species. ▪ The woodland has trees of all age classes with a scattering of standing and fallen dead wood. ▪ Regeneration of trees is sufficient to maintain the woodland cover in the long term. ▪ The shrub layer and ground flora can be quite sparse, but where present consist of locally native plants. ▪ All factors affecting the achievement of the above conditions are under control. Performance indicators for Feature 2 (see performance indicators for feature 1)
Component SSSIs	▪ Cym Clydach SSSI The site is divided into 5 management units that form the Cym Clydach Woodlands SAC. A map of the management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity)	▪ Grazing - Sufficiently low to allow regeneration in the long term. ▪ Non-native and invasive species - No increase in the area of woodland floor that is dominated by invasive species.

Site Name: Cym Clydach Woodlands Location Grid Ref: SO207123 JNCC Site Code: UK0030127 Size: 28.81 Designation: SAC	Habitats Regulations Assessment: Data Proforma
SAC Condition Assessment	Conservation Status of Feature 1 <i>Asperulo – Fagetum</i> beech forests The conservation status of this feature within the site is considered to be Favourable (2006). Conservation Status of Feature 2 Atlantic <i>acidophilous</i> beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion robori-petraeae</i> or <i>Ilici-Fagenion</i>) The conservation status of this feature within the site is considered to be Favourable (2006).
Vulnerabilities (includes existing pressures and trends)	▪ Woodland management - Recent changes in management within the locality, a general reduction of sheep numbers and the construction of cycle route through the site may have the potential to adversely effect the grassland areas and the fungi in particular. ▪ Grazing - Past grazing has influenced the structure of the woodland, such as the dominance of beech in the canopy. It is therefore likely that occasional light grazing would be beneficial for the woodland habitat, although any increase in grazing pressure could prevent all tree and shrub regeneration and and suppress the woodland ground flora. ▪ Dumping - Due to roads passing through the site, parts are accessible to vehicles and the illegal dumping of domestic and commercial waste and abandoned vehicles can be a problem. It is essential that these barriers be maintained to prevent any future occurrences. ▪ Invasive alien plants - Japanese knotweed is a problem in parts of the site, usually having been introduced by illegal dumping of waste material, and this species will be controlled as necessary. ▪ Airborne acid and nutrient deposition are not a significant threat here as most of the woodland soils are well-buffered and nutrient-rich.
Landowner/ Management Responsibility	▪ Unit 1 is owned by CCW and comprises the bulk of the SAC beech woodland. Most of the acidiophilous beech woodland is found towards the western part of Unit 1.

Site Name: Cym Clydach Woodlands Location Grid Ref: SO207123 JNCC Site Code: UK0030127 Size: 28.81 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Unit 5 is other land within the SAC not owned by CCW.

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	The site encompasses a series of lesser horseshoe bat roosts, upland habitats, woodlands and cave systems located around the valley of the River Usk near to Abergavenny. Mynydd Llangatwg is an area of open moorland and bog, with an impressive limestone escarpment along the northeastern edge, and is one of the largest exposures of upland limestone crag in south Wales. The Craig y Cilau National Nature Reserve (NNR) covers a large proportion of this escarpment area, including most of the unquarried scarp, with areas of limestone grassland, scree and quarry spoil, woodland and scrub. A small raised bog (Waun Ddu) bordered by two small streams has developed below the escarpment. An extensive system of caves lies beneath Mynydd Llangatwg and the plateau is peppered with sinkholes. The main reason for the presence of the NNR is to help control and manage access to the cave system to protect the bat roosts and the underground geology and also the surface habitats, which support an outstanding assemblage of plants. Species include large and small-leaved lime, several species of whitebeam (including least whitebeam (<i>Sorbus minima</i>) which is unique to this area of Brecknock), limestone fern, endemic hawkweeds and alpine enchanter's-nightshade. The chasmophytic vegetation encompasses the various crevices, nooks and crannies on the cliffs, boulders and partially vegetated unstable slopes of the limestone escarpment. It supports a typical range of ferns, bryophytes and calcareous lichens; these include ferns such as maidenhair spleenwort, mosses like <i>Tortella tortuosa</i>, and liverworts like <i>Scapania aspera</i>. This site is known to support a number of notable lichen species and provides some of the best examples in the area of calcicolous lichen communities, which include the jelly lichen <i>Collema cristatum</i> and examples of lichen communities like the <i>Leproplacetum chrysodetae</i> and

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	<i>Aspicilon calcarea</i>. Patches of Tileo-Acerion forest are also scattered along the length of the cliffs on Mynydd Llangatwg and intermixed with beechwood in the Clydach gorge. These areas also support a number of rare whitebeams (<i>Sorbus</i> spp.).
Qualifying Features	Annex I Habitats qualifying feature: ▪ European dry heaths ▪ Degraded raised bogs still capable of natural regeneration ▪ Blanket bogs* Priority feature ▪ Calcareous rocky slopes with chasmophytic vegetation ▪ Caves not open to the public ▪ Tilio-Acerion forests of slopes, screes and ravines* Priority feature Annex II Species primary reason for selection: ▪ Lesser horseshoe bat <i>Rhinolophus hipposideros</i>
Conservation Objectives	Conservation Objective for Feature 1: Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i> Vision for Feature 1 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The site will support a sustainable population of lesser horseshoe bats in the River Usk area. ▪ The population will viable in the long term, acknowledging the population fluctuations of the species. ▪ Buildings, structures and habitats on the site will be in optimal condition to support the populations. ▪ Sufficient foraging habitat is available, in which factors such as disturbance, interruption to flight lines, and mortality from predation or vehicle collision, changes in habitat management that would reduce the available food source are not at

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	levels which could cause any decline in population size or range - Management of the surrounding habitats is of the appropriate type and sufficiently secure to ensure there is likely to be no reduction in population size or range, nor any decline in the extent or quality of breeding, foraging or hibernating habitat. - There will be no loss or decline in quality of linear features (such as hedgerows and tree lines) which the bats use as flight lines - there will be no loss of foraging habitat use by the bats or decline in its quality, such as due to over-intensive woodland management - All factors affecting the achievement of the above conditions are under control. Performance indicators for Feature 1 The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators. The performance indicators can be found within the Usk Bat Sites SAC Management Plan. Conservation Objective for Feature 2: Blanket bog Vision for Feature 2 - The extent, quality and species richness of the blanket bog vegetation is maintained and, where possible, degraded bog is restored to good condition so that this habitat occupies its full potential range within the site. - The bog vegetation is largely a mixture of dwarf shrubs, hare's-tail cottongrass and mosses, including bog-mosses. - Extensive areas of purple moor-grass or hare's-tail cottongrass show signs of recovery towards a more mixed dwarf shrub sward. - The natural hydrological regime is maintained and there is continued peat formation and thus carbon storage. - Areas of bare peat are not extensive and most areas show signs of recovery.

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	▪ Peat profiles containing important pollen records are maintained. ▪ All factors affecting the achievement of the above conditions are under control. Performance indicators for Feature 2 (see performance indicators for feature 1) Conservation Objective for Feature 3: Tilio-Acerion forests of slopes, screes and ravines Vision for Feature 3 The vision for this feature is for it to be in favourable conservation status within the site, as a functioning and regenerating ash woodland, where all of the following conditions are satisfied: ▪ There are extensive patches of semi-natural woodland on the cliffs of the Llangatwg escarpment and hillsides in the Clydach gorge. ▪ The woodland canopy is dominated by locally native species, including lime ash <i>Fraxinus excelsior</i>, <i>Tilia</i> spp., pedunculate oak <i>Quercus robur</i>, hazel <i>Corylus avellana</i>, birch <i>Betula</i> spp., whitebeams <i>Sorbus</i> spp. and, in the Clydach gorge, beech <i>Fagus sylvatica</i>. Rare whitebeams are a significant component of the canopy. ▪ Saplings of locally native species dominate the tree regeneration and there is evidence of sufficient regeneration to maintain the canopy in the long term. ▪ There is an accumulation of standing and fallen deadwood as the woodland develops. ▪ The woodland ground flora is composed of a range of typical native plants including enchanters-nightshade <i>Circaea lutetiana</i>, dog's-mercury <i>Mercurialis perennis</i>, wood-sorrel <i>Oxalis acetosella</i>, hart's-tongue <i>Phyllitis scolopendrium</i> and wood sage <i>Teucrium scorodonia</i>. ▪ The populations of rare whitebeams are stable or increasing. ▪ Young sycamore <i>Acer pseudoplatanus</i> trees are rare, as are beech <i>Fagus sylvatica</i> in areas away from the Clydach gorge. ▪ Plants indicating disturbance and nutrient enrichment, such as nettles, cleavers and weeds, are not dominant in the

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	ground flora of the woodland. ▪ All factors affecting the achievement of the above conditions are under control. Performance indicators for Feature 3 (see performance indicators for feature 1) Conservation Objective for Feature 4: Calcareous rocky slopes with chasmophytic vegetation Vision for Feature 4 ▪ Sufficient vegetation within crevices remains free from disturbance to support typical plants, including mosses, ferns and rare hawkweeds (<i>Hieracium</i> spp.) and allow them to sustain their populations into the future. ▪ Areas accessible to grazing animals should free from being smothered by ivy or heavily shaded by trees. ▪ All factors affecting the achievement of the above conditions are under control. Performance indicators for Feature 4 (see performance indicators for feature 1) Conservation Objective for Feature 5: Caves not open to the public Vision for Feature 5 ▪ The cave system provides a winter hibernation site for large numbers of lesser horseshoe bats and other bat species, including Brandt's, whiskered, Daubenton's, Natterer's, brown long-eared and, occasionally, greater horseshoe bats. ▪ Numbers of roosting bats are stable or increasing in the system as a whole. ▪ All factors affecting the achievement of the above conditions are under control. Also see the vision for lesser horseshoe bats.

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	As outlined in the JNCC description of this feature, the cavernicolous fauna is considered to be impoverished throughout the UK and this feature is not a primary reason for selection of any SAC in the UK (www.jncc.gov.uk). There is however significant bat interest associated with many of the caves within this SAC, particularly Lesser Horseshoe Bat. Great Horseshoe Bat has also been recorded in very small numbers. Several other bat species are recorded, particularly from the genus <i>Myotis</i>, but their habit of hibernating deep within crevices in the caves (rather than hanging freely from the cave roof, like horseshoe species) makes them extremely difficult to record. Performance indicators for Feature 5 (see performance indicators for feature 1) Conservation Objective for Feature 6: Degraded raised bogs still capable of natural regeneration Vision for Feature 6 ▪ The extent, quality and diversity of raised bog vegetation is maintained and, where possible, restored to good condition, with active moss and peat growth across the raised bog surface. ▪ The vegetation consists of a mixture of dwarf shrubs, hare's-tail cottongrass, deergrass and bog mosses, grading at the edges into acid and alkaline flushes influenced by acidic water draining from the bog and springs rising in the limestone catchment. ▪ All factors affecting the achievement of the above conditions are under control. Performance indicators for Feature 6 (see performance indicators for feature 1) Conservation Objective for Feature 7: European dry heaths Vision for Feature 7 ▪ The extent, quality and diversity of heath vegetation within the constituent sites is maintained and, where possible,

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	degraded heath is restored to good condition. ▪ The main heathland areas have a varied age structure with a mosaic of young heath, mature heath and degenerate heath. ▪ All factors affecting the achievement of these conditions are under control. Performance indicators for Feature 7 (see performance indicators for feature 1)
Component SSSIs	▪ Mynydd Llangatwg/ Mynydd Llangattock SSSI (units 1 to 15) ▪ Siambre Ddu SSSI (unit 19) ▪ Buckland Coach House & Ice House SSSI (unit 20) ▪ Foxwood SSSI (unit 21) The site has been divided into 21 management units of which units 1 to 15, 19, 20 and 21 comprise to form the Usk Bat Sites SAC. A map of the management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity)	Key environmental conditions for the Lesser Horseshoe Bat: Buckland House Maternity Roost ▪ Site security - Access to the site should be secured against unauthorized access ensuring doors, gates and security fences are in sound condition. ○ External condition of building - Fabric of building sufficient to maintain roost conditions internally with: ▪ Weatherproof roof. The roof covering materials (slates, tiles etc.) in weatherproof condition with no significant gaps, slippage or damage. ○ No holes large enough to allow soaking of roof timbers, excessive heat loss or high light levels in the roost area ▪ Walls sound, rainwater goods in adequate condition. ○ The building is structurally stable. No significant deterioration in overall condition of the building. ▪ Roost entrance -buildings and underground sites: ○ Unobstructed roost entrance large enough for bats to fly through unimpeded. Normal minima: 300 x 200 mm. ▪ No artificial lights shining on access or associated flight paths.

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	▪ External Disturbance - Disturbance levels acceptable to bats with: ○ No increase since previous visit. ○ Human access to roost controlled and limited. ○ Internal condition of building/ underground site in roost area: ○ A vital element of the bats' behaviour involves extensive flight within a roost prior to emergence, which occurs shortly after dusk. Therefore the bats require fairly large open areas within the coach house roof and first floor voids to fly before they emerge. It is important that these areas are unobstructed and that the flying space (volume) is not significantly reduced. Areas used for pre-emergence flight should not be used for storage. ○ Low light levels with no through draught. ▪ No toxic substances present, which would adversely affect the health of the bats (e.g. chemical timber treatment within inappropriate substances). ▪ Temperature of roost area: ○ Range of temperatures available to bats with mean temperature in July greater than 20°C ▪ Internal disturbance: ○ Human access to roost area controlled and limited. ○ Disturbance is kept to a minimum. ▪ Hibernation Sites ▪ Site entrance: ▪ Existing entrances should be unobstructed. ▪ No human-influenced new entrances causing a change to ventilation. ▪ No change in size sufficient to affect airflow and internal temperature. ▪ External conditions of site: ▪ Vegetation present close to entrance(s) but not obstructing it (them). ▪ No artificial lights shining on entrance(s). ▪ Internal conditions: ▪ The temperature should remain constantly cool (8-12°C) and dark, once beyond the entrance zone.

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	▪ No significant man-induced changes to ventilation or temperature regime. ▪ No toxic substances present (dumping of oil or other substances). ▪ Internal disturbance: ▪ Human access to roost area controlled and limited (at Agen Allwedd the number of visitors is already controlled). Lesser horseshoe bats are very sensitive to disturbance and even the presence of a single person in close proximity can cause problems. Cavers and geologists should avoid areas where bats are likely to be disturbed during the winter months. Where there is a risk of disturbance by unauthorised persons, grilling the cave entrances should be considered. Any structures placed at cave entrances to prevent unauthorized access should not hinder the passage of bats. ▪ Disturbance is kept to a minimum. Foraging areas and links to roosts ▪ Habitat Quality: ○ There should be no nett loss of suitable woodland, scrub and hedgerows within the SAC or adjoining areas used by the bats. Lesser horseshoe bats feed on flies (mainly midges), small moths, caddis flies, lacewings, beetles, small wasps and spiders. Suitable foraging habitat includes open broadleaved woodland, scrub, parkland, scrubby wetland and permanent pasture. Lesser horseshoe bats do not normally fly across open land and when foraging, remain close to wooded canopy. The insects they eat, though, may be derived from other unimproved insect rich habitat nearby. Management of foraging habitat should aim to maximise the amount of insect food as well as provide sufficient canopy cover to maximise opportunities for the bats to find their prey. ▪ Connectivity: ○ Connectivity of woodland, hedgerows, linear habitat and field boundary features should be maintained as lesser horseshoe bats tend to feed in wooded areas and use linear features to navigate their way between roosts and foraging habitat. Some management of woodlands and hedgerows and trees will be necessary to preserve these features in the landscape but such work should be carried out in a sensitive manner, particularly within the SAC itself, so as not to disrupt habitat continuity. ▪ Disturbance: ○ Lesser horseshoe bats are very sensitive to disturbance and even the presence of a single person in close proximity can cause problems.

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	Key Environmental Conditions for the Blanket Bog: ▪ Drainage - No new drainage ditches should be dug, and wherever possible old drainage ditches should be allowed to infill naturally. ○ There should be no evidence of new drains or major clearance of old drains or deepening of bog outlet streams. ▪ Burning - blanket bog should not normally be burnt, as burning is likely to damage important plant and animal species, especially bog mosses and invertebrates, and encourage the growth of rank species, like hare's-tail cottongrass; it can also result in erosion of the peat which can then cause water quality problems in cave system and adjacent reservoirs. Past unplanned or uncontrolled burning is likely to be at least partly responsible for the scarcity of bog-mosses in some areas. ○ No evidence of significant burning (patches larger than 1ha) in any areas of blanket bog. ▪ Peat Erosion - There is a natural cycle of peat erosion and deposition but the balance can be upset by burning, heavy grazing, pollution and vehicle damage. ○ The total extent of active erosion over a 5-year period should not exceed the total extent of areas showing signs of peat accumulation and re-vegetation. ▪ Air quality - No exceedence of critical loads for: ○ Sulphur dioxide – 20µg/m³ ○ Nitrous Oxides – 30µg/m³ ○ Ozone – 3000 ppb ○ ammonia – 1µg/m³ ○ N – 5-10 kg/ha/yr ○ acid – 0.35keq/ha/yr Monitoring stations located at grid location: 319097.79 214637.88 Key Environmental Conditions for the Tilio-Acerion forests of slopes, screes and ravines:

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	▪ Grazing - The greatest influence on the woodland, and its continued regeneration, is grazing. The present structure and species composition of the northern escarpment woodland, excluding the cliff ledges, is a result of natural regeneration. The cliff ledges are inaccessible to stock, have developed naturally and are not actively managed. ▪ Woodland Management - Natural ecological processes should be allowed to operate as far as possible. In many areas, these are gradually creating greater structural diversity. Most of the woodland on the site is not actively managed as the woodland occupies cliffs and steeply sloping ground, such that active woodland management is not a practical or desirable option ▪ Non-native species - Beech is at the edge of its range in this part of Wales. In units 5, 12 and 13 the beech wood appears to be natural, but the spread of beech over much of Units 1 & 2 may not be desirable, as it would replace the ash woodland. Key Environmental Conditions for the Calcareous rocky slopes with chasmophytic vegetation: ▪ Grazing - Low grazing levels on the more accessible rocky areas in units 1 & 2 in are important in controlling the growth of ground-smothering species such as ivy, which have the potential to smother boulders and cliff faces that are important for their lower plant communities. Tree growth at the base of the cliffs may shade out important calcareous chasmophytic habitat, so should be controlled within limits outside the areas of agreed woodland. ▪ Rock Climbing - Intensive rock climbing can dislodge plants and disturb breeding birds. These impacts may be avoided if climbing is subject to specific agreements, which include a code of conduct. ▪ Quarrying - any quarrying in the key areas of units 1 & 2 would lead to habitat loss. Key Environmental Conditions for the Degraded raised bogs still capable of natural regeneration: ▪ Drainage - See blanket bog above. ▪ Grazing - A way of reducing the grazing to acceptable levels must be found. A period without grazing will promote recovery, although some light grazing, ideally by cattle or ponies, will be required in the longer term to prevent the development of scrub or the dominating growth of dwarf shrubs or purple moor-grass.

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	▪ Burning - will damage the feature and could encourage dominance by purple-moor grass if grazing is significantly reduced and result in a decline in the cover of bog mosses. At present there is generally insufficient vegetation to be burnt here. ▪ Air quality - See blanket bog above. Key Environmental Conditions for the European dry heaths: ▪ Burning - can be a useful management tool on the heathlands, provided that it forms part of an appropriate and controlled cycle of management. It is important to ensure that such management does not encourage the spread of bracken. ▪ Erosion/Bare Ground - Is generally caused by uncontrolled fires (see above) or heavy trampling. ▪ Air Quality - Increased cover of grasses and de-generate heather may be symptomatic of air pollution, as there is evidence that pollution makes heather plants more susceptible to damage by frost and heather beetles. The Environment Agency has set critical levels for these pollutants in relation to various types of vegetation. No critical loads are exceeded: ○ Sulphur dioxide - 20µg/m³ ○ Nitrous Oxides - 30µg/m³ ○ Ozone - 3000 ppb ○ Ammonia - 1µg/m³ ○ N - 10-20 kg/ha/yr ○ Acid - 0.35keq/ha/yr
SAC Condition Assessment	Conservation Status of Feature 1: Lesser horseshoe bat <i>Rhinolophus hipposideros</i> The conservation status of this feature within the site is considered to be Favourable (2006). Based on annual counts made at all locations between 2000 and 2006, the lesser horseshoe bat feature is considered to be in favourable condition.

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	Conservation Status of Feature 2: Blanket bog The conservation status of this feature within the site is considered to be Unfavourable (2006). Assessment carried out in April 2002 indicated that feature condition was: Unfavourable, no change. In many areas there was little or no bog mosses and the cover of dwarf shrubs exceeded the upper limits defined. In other areas the vegetation was dominated by hare's-tail cottongrass and the cover of bog mosses was limited. Past grazing, burning and drainage activity means that some stands of blanket bog have been damaged by deep drainage. There is also concern that the vegetation is being damaged by atmospheric pollution, due to exceedence of many of the critical loads identified for this feature. Conservation Status of Feature 3: Tilio-Acerion forests of slopes, screes and ravines The conservation status of this feature within the site is considered to be Favourable (2006). Assessment carried out in August 2004 indicated that feature condition was: Favourable, maintained. All the factors affecting the features appear to be under control. Conservation Status of Feature 4: Calcareous rocky slopes with chasmophytic vegetation The conservation status of this feature within the site is considered to be Favourable (2006). Assessment carried out in August 2004 indicated that feature condition was: Favourable, maintained. All the factors affecting the

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	features appear to be under control. Conservation Status of Feature 5: Caves not open to the public The conservation status of this feature within the site is considered to be Favourable (2006). Based on records of made at all locations between 2000 and 2006, the feature condition is considered to be: Favourable, maintained. All the factors affecting the features appear to be under control. Conservation Status of Feature 6: Degraded raised bogs still capable of natural regeneration The conservation status of this feature within the site is considered to be Unfavourable (2006). Assessment carried out in July 2002 indicated that feature condition was: Unfavourable, declining. The feature is currently (2007) too heavily grazed because the most of it is common land and because it is on the sheltered side of the hill, is subject to high levels of grazing, particularly by sheep. There is also concern that the vegetation is being damaged by atmospheric pollution, due to exceedence of many of the critical loads identified for this feature. Conservation Status of Feature 7: European dry heaths The conservation status of this feature within the site is considered to be Unfavourable (2006). Assessment carried out in April 2002 indicated that feature condition was: Unfavourable, no change. Past grazing and burning activity means that some stands of dry heath have insufficient cover of dwarf shrubs. There is also concern that the vegetation is being damaged by atmospheric pollution, due to exceedence of many of the critical loads identified for this feature.

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Vulnerabilities (includes existing pressures and trends)	Lesser Horseshoe bat: ▪ Deterioration of buildings used to roost - Alterations/neglect to the structure of the buildings could result in the site becoming unsuitable as a nursery roost by causing changes to the internal conditions of the roost. ▪ Disturbance - It is important that access to the cave systems and roosts is managed to protect the bats. Lesser horseshoe bats are very sensitive to disturbance, such as light and noise pollution and even the presence of a single person in close proximity can cause problems. Where there is a risk of disturbance by unauthorised persons, grilling the cave entrances should be considered. Any structures placed at cave entrances to prevent unauthorised access should not hinder the passage of bats. ▪ Temperature change - Underground hibernation roosts should be dark, cool and humid with stable temperature (8 -120C) beyond the entrance zone. However, the boulder roof of the Foxwood cave is gappy and internal temperatures are dependant on external temperatures, unlike the situation in many true caves. The consequence is that declining winter ambient temperature leads to a decline in roost temperature and in the colder winter months roost temperature falls below the required temperature range, triggering departures of bats to other unknown roosts. ▪ Habitat fragmentation - Development allocations pressures and transport development could lead to the loss or decline in quality of linear features (such as hedgerows and tree lines) which the bats use as flight lines. Connectivity of woodland, hedgerows, linear habitat and field boundary features are important as lesser horseshoe bats tend to feed in wooded areas and use linear features to navigate their way between roosts and foraging habitat. Blanket bog:

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	▪ Air pollution - High levels of air pollution are believed to be damaging and there may be combined effects. Increased cover of hare's-tail cottongrass and flat-topped bog-moss may be symptoms, as could increased levels of peat erosion. Blanket bogs are at risk from* : ○ Acidification; ○ Photochemical oxidants; ○ Direct toxicity; and ○ Eutrophication. ▪ Hydrological change - the blanket bog has been subject to hydrological change as a result of past ditch construction to supply water to reservoirs. ▪ Recreational activities - Unauthorised vehicle use is a threat to the moorland areas. Bog vegetation is easily damaged and may take a long time to recover. Ground nesting birds may be disturbed during the breeding season. Although the common land within the site is subject to a right of public access on foot, such use does not appear to be so intensive as to cause habitat damage or significant disturbance to birdlife. ▪ Development - The ground along the existing pipeline routes, which cross the Llangatwg hill, has been disturbed during the engineering phase. Some habitats naturally recover better than others, whilst some will require specific management to restore it to its natural state. Generally, further pipeline construction or other engineering works affecting sensitive habitats within the site should be avoided. Any future engineering or pipeline works would need to show that the SAC features would not be adversely affected and if any licence was approved then there would be a requirement to restore the vegetation to its original character and quality.

* Pollution Information System (APIS). Raised bog and blanket bog. Available from:
http://www.apis.ac.uk/cgi_bin/habitat_result.pl?habResult=Raised+bog+and+blanket+bog&choice=allHabs&haborspec=habitat&submit.x=27&submit.y=9

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Tilio-Acerion forests of slopes, screes and ravines: ▪ Grazing - In the cliff and woodland areas any more than light grazing may prevent tree regeneration and damage the populations of rare and scarce plants that may be accessible to grazing stock. ▪ Non-native species - The ash woodland in units 1 & 2 is vulnerable to the introduction of beech. Calcareous rocky slopes with chasmophytic vegetation: ▪ Invasive plants - Introduced and invasive species such as cotoneaster can smother large areas of grassland and cliff habitats, displacing native species and would need to be controlled. Cotoneaster has spread on the south side of Mynydd Llangatwg above the Clydach gorge and some control is desirable to stop it spreading into feature habitats. ▪ Recreational activities - Rare plants, and plants in general, on the cliffs and ledges, may be dislodged by climbers and some breeding birds are particularly sensitive to disturbance during the nesting season. Rock climbing at this site should be restricted to suitable areas and be subject to a suitable code of conduct in order to minimise such damage and disturbance. Degraded raised bogs still capable of natural regeneration: ▪ Air Pollution - See blanket bog above. ▪ Hydrological Change - No new drainage ditches should be dug within the bog and outlet and inflow channels must not be deepened or altered in any way. ▪ Grazing - This area of bog has been damaged by heavy grazing in the past and current (2008) grazing levels are still too high to enable the re-generation of the bog habitats. Most of the bog is on commonland and therefore it is difficult to control grazing without agreement and fencing. Supplementary stock feeding can lead to damage of the sward and cause

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	poaching and gradual nutrient enrichment. Feeding should not occur on this habitat. European dry heaths: ▪ Grazing - levels are believed to be lower than they have been historically but they may still be too high in some parts of the common to enable the heathland to regenerate. It may not be possible to address this problem in unit 1 because the adjoining limestone grassland and rocky habitats require a relatively high stocking rate to maintain their interest. Supplementary stock feeding can lead to localised damage of the sward and cause poaching and gradual nutrient enrichment. Feeding should be confined to acceptable areas off the common, such as agriculturally improved land. ▪ Bracken and scrub encroachment - Scrub invasion in the open moorland areas can be controlled by the correct combination of grazing and burning. Bracken however can be more problematical. Grazing may not prevent bracken invasion particularly if sheep rather than heavier animals are the main stock-type and burning can encourage the spread of bracken. Bracken control will be considered if there is significant spread within the drier heathy areas. ▪ Burning in combination with intense grazing - can result in the loss of those heathland shrub species that give this habitat its characteristic appearance, and which are so important to the value of these moorland habitats. ▪ Dumping - The plateau areas at Mynydd Llangatwg are easily accessible from nearby population centres, so the illegal dumping of domestic and commercial waste and abandoned vehicles is a problem. ▪ Development - See blanket bog above.
Landowner/ Management Responsibility	▪ N/A

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	The Severn Estuary is the largest coastal plain estuary in the UK with extensive mudflats and sandflats, rocky shore platforms, shingle and islands. Saltmarsh fringes the coast, backed by grazing marsh with freshwater and occasional brackish ditches. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second highest tidal range in the world (after the Bay of Fundy in Canada) at more than 12 meters. This tidal regime results in plant and animal communities typical of the extreme physical conditions of strong flows, mobile sediments, changing salinity, high turbidity and heavy scouring. The resultant low diversity invertebrate communities, that frequently include populations of ragworms, lugworms and other invertebrates in high densities, form an important food source for passage and wintering birds. The site is important in the spring and autumn migration periods for waders moving along the west coast of Europe, as well as in winter for large numbers of waterbirds including swans, geese, ducks and waders. These bird populations are regarded as internationally important. Glassworts and annual sea-blite colonise the open mud, with beds of all three species of eelgrass <i>Zostera</i> occurring on more sheltered mud and sandbanks. Large expanses of common cord-grass also occur on the outer marshes. Heavily grazed saltmarsh fringes the estuary with a range of saltmarsh types present. The middle marsh sward is dominated by common saltmarsh-grass with typical associated species. In the upper marsh, red fescue and saltmarsh rush become more prominent. Areas of saltmarsh fringe the estuary, mostly grazed with a range of vegetation communities. There are gradual and stepped transitions between bare mudflat to upper marsh and grassland. Main vegetation types are: upper saltmarsh with <i>Festuca rubra</i> and <i>Juncus gerardii</i>; middle marsh dominated by <i>Puccinellia maritima</i> with <i>Glaux maritima</i> and <i>Triglochin maritima</i>; dense monocultures of <i>Spartina anglica</i> at the edge of the mudflats-brackish pools and depressions with <i>Phragmites australis</i> and <i>Bolboschoenus maritimus</i>.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ Estuaries ▪ Mudflats and sandflats not covered by seawater at low tide ▪ Atlantic salt meadows (<i>Glaux-Puccinellietalia maritimae</i>)

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Annex I Habitats qualifying feature: ▪ Sandbanks which are slightly covered by sea water all the time ▪ Reefs Annex II Species primary reason for selection: ▪ Sea lamprey <i>Petromyzon marinus</i> ▪ River lamprey <i>Lampetra fluviatilis</i> ▪ Twaite shad <i>Alosa fallax</i>
Conservation Objectives	To maintain in favourable condition: Estuaries: i. the total extent of the estuary is maintained; ii. the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained; iii. the characteristic range and relative proportions of sediment sizes and sediment budget within the site is maintained; iv. the extent, variety and spatial distribution of estuarine habitat communities within the site is maintained; v. the extent, variety, spatial distribution and community composition of notable communities is maintained; vi. the abundance of the notable estuarine species assemblages is maintained or increased; vii. the physico-chemical characteristics of the water column support the ecological objectives described above; viii. Toxic contaminants in water column and sediment are below levels which would pose a risk to the ecological objectives described above. Subtidal sandbanks which are covered by seawater all of the time: i. the total extent of the subtidal sandbanks within the site is maintained; ii. the extent and distribution of the individual subtidal sandbank communities within the site is maintained; iii. the community composition of the sub tidal sandbank feature within the site is maintained; iv. the variety and distribution of sediment types across the subtidal sandbank feature is maintained; v. the gross morphology (depth, distribution and profile) of the subtidal sandbank feature within the site is maintained.

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	Mudflats and sandflats not covered by seawater at low tide: i. The total extent of the mudflats and sandflats feature is maintained; ii. the variety and extent of individual mudflats and sandflats communities within the site is maintained; iii. the distribution of individual mudflats and sandflats communities within the site is maintained; iv. the community composition of the mudflats and sandflats feature within the site is maintained; v. the topography of the intertidal flats and the morphology (dynamic processes sediment movement and channel migration across the flats) are maintained. Atlantic Saltmeadows: i. the total extent of Atlantic salt meadow and associated transitional vegetation communities within the site is maintained; ii. the extent and distribution of the individual Atlantic salt meadow and associated transitional vegetation communities within the site is maintained; iii. the zonation of Atlantic salt meadow vegetation communities and their associated transitions to other estuary habitats is maintained; iv. the relative abundance of the typical species of the Atlantic salt meadow and associated transitional vegetation communities is maintained; v. the abundance of the notable species of the Atlantic salt meadow and associated transitional vegetation communities is maintained; vi. the structural variation of the salt marsh sward (resulting from grazing) is maintained within limits sufficient to satisfy the requirements of conditions iv and v above and the requirements of the Ramsar and SPA features; vii. the characteristic stepped morphology of the salt marshes and associated creeks, pills, drainage ditches and pans, and the estuarine processes that enable their development, is maintained; - viii Any areas of <i>Spartina anglica</i> salt marsh (SM6) are capable of developing naturally into other saltmarsh communities. Reefs: i. the total extent and distribution of <i>Sabellaria</i> reef is maintained; ii. the community composition of the <i>Sabellaria</i> reef is maintained; iii. the full range of different age structures of <i>Sabellaria</i> reef are present; iv. the physical and ecological processes necessary to support <i>Sabellaria</i> reef are maintained. River lamprey: i. the migratory passage of both adult and juvenile river lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality; - ii the size of the river lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;

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	iii. the abundance of prey species forming the river lamprey's food resource within the estuary is maintained; vi. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above. Sea lamprey: i. the migratory passage of both adult and juvenile sea lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality; ii. the size of the sea lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained as is at a level that is sustainable in the long term; iii. the abundance of prey species forming the sea lamprey's food resource within the estuary is maintained; vi. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above. Twaite shad: i. the migratory passage of both adult and juvenile twaite shad through the Severn Estuary between the Bristol Channel and their spawning rivers is not obstructed or impeded by physical barriers, changes in flows or poor water quality; ii. the size of the twaite shad population within the Severn Estuary and the rivers draining into it is at least maintained and is at a level that is sustainable in the long term; iii. the abundance of prey species forming the twaite shad's food resource within the estuary, in particular at the salt wedge, is maintained; iv. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.
Component SSSIs	▪ N/A
Key Environmental Conditions (factors that maintain site integrity)	▪ Hydrodynamic and sedimentary regime - The conservation of the site features is dependent on the tidal regime. The tidal range in the Severn Estuary is the second-highest in the world and the scouring of the seabed and strong tidal streams result in natural erosion of the habitats and the presence of high sediment loads. ▪ Maintain suitable distance between the site and development - to allow for managed retreat of intertidal habitats and avoid coastal squeeze. ▪ Manage public access and activities.

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SAC Condition Assessment	▪ N/A
Vulnerabilities (includes existing pressures and trends)	▪ Physical loss of supporting habitats through removal - The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. The intertidal mudflats and sandflats and the saltmarsh are highly sensitive to removal by land reclamation and barrage construction. Information provided by NE and CCW states that large areas of the European marine site are not currently under threat, however when combined with a high level of sensitivity this leads to a moderate vulnerability. ▪ Contamination by synthetic and/or non-synthetic toxic compounds - At the moment there is no evidence to show that this is the case on the Severn Estuary, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. NE and CCW identify this is an area which requires further assessment. The intertidal mudflats and sandflats and the saltmarsh are currently highly vulnerable to the introduction of synthetic and non-synthetic compounds. ▪ Damage by abrasion or selective extraction - Saltmarsh may be physically damaged from overgrazing or eroded when boats are moored on it and when paths are worn through it to reach moored boats on foot or via vehicles. Currently all supporting habitats are considered to be moderately vulnerable to abrasion. Intertidal habitats are highly sensitive to damage by direct and indirect effects of aggregate dredging. The intertidal mudflats and sandflats and the shingle and rocky shore are therefore considered by NE and CCW to be highly vulnerable to selective extraction. ▪ Changes in nutrient and/or organic loading - Changes in organic or nutrient loading can change the species composition of the plants on the saltmarsh and thus the structure of the sward. Increases in nutrients can also cause excessive algal growth on the mudflats, denying the birds access to their invertebrate prey and changing the invertebrate species composition in the sediment. Though the water quality has been improved in recent years there are still local areas of concern and any increase in nutrient loading should be avoided. At present the intertidal mudflats and sandflats are moderately vulnerable to this category of operation. ▪ Inappropriate grazing - Much of the saltmarsh is managed by grazing and changes in management can alter the availability

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	of prey and suitability of roosting sites. The saltmarsh is currently highly vulnerable to the selective extraction of species.
Landowner/ Management Responsibility	N/A

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Site Description	The Severn Estuary is the largest coastal plain estuary in the UK with extensive mudflats and sandflats, rocky shore platforms, shingle and islands. Saltmarsh fringes the coast, backed by grazing marsh with freshwater and occasional brackish ditches. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second highest tidal range in the world (after the Bay of Fundy in Canada) at more than 12 meters. This tidal regime results in plant and animal communities typical of the extreme physical conditions of strong flows, mobile sediments, changing salinity, high turbidity and heavy scouring. The resultant low diversity invertebrate communities, that frequently include populations of ragworms, lugworms and other invertebrates in high densities, form an important food source for passage and wintering birds. The site is important in the spring and autumn migration periods for waders moving along the west coast of Europe, as well as in winter for large numbers of waterbirds including swans, geese, ducks and waders. These bird populations are regarded as internationally important. Glassworts and annual sea-blite colonise the open mud, with beds of all three species of eelgrass <i>Zostera</i> occurring on more sheltered mud and sandbanks. Large expanses of common cord-grass also occur on the outer marshes. Heavily grazed saltmarsh fringes the estuary with a range of saltmarsh types present. The middle marsh sward is dominated by common saltmarsh-grass with typical associated species. In the upper marsh, red fescue and saltmarsh rush become more prominent. Areas of saltmarsh fringe the estuary, mostly grazed with a range of vegetation communities. There are gradual and stepped

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	transitions between bare mudflat to upper marsh and grassland. Main vegetation types are: upper saltmarsh with <i>Festuca rubra</i> and <i>Juncus gerardii</i>; middle marsh dominated by <i>Puccinellia maritima</i> with <i>Glaux maritima</i> and <i>Triglochin maritima</i>; dense monocultures of <i>Spartina anglica</i> at the edge of the mudflats-brackish pools and depressions with <i>Phragmites australis</i> and <i>Bolboschoenus maritimus</i>.
Qualifying Features	Article 4.1 Qualification Over winter the area regularly supports: ▪ Bewick's Swan <i>Cygnus columbianus bewickii</i> 3.9% of the GB population Article 4.2 Qualification Over winter the area regularly supports: ▪ Gadwall <i>Anas strepera</i> 0.9% of the population ▪ White-fronted Goose <i>Anser albifrons albifrons</i> 0.4% of the population ▪ Dunlin <i>Calidris alpina alpina</i> 3.3% of the population ▪ Shelduck <i>Tadorna tadorna</i> 1.1% of the population ▪ Redshank <i>Tringa totanus</i> 1.3% of the population Article 4.2 Qualification: Internationally Important Assemblage of Birds Over winter the area regularly supports: ▪ 84317 waterfowl
Conservation Objectives	Interest feature 1: Internationally important population of regularly occurring Annex 1 species: Bewick's swan

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	The conservation objective is to maintain the Bewick's swan population and its supporting habitats in favourable condition, as defined below. The interest feature Bewick's swan will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: i. the 5 year peak mean population size for the Bewick's swan population is no less than 289 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh at the Dumbles is maintained; iii. the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose is maintained; iv. the extent of vegetation with an effective field size of >6 ha and with unrestricted bird sightlines > 500m at feeding, roosting and refuge sites are maintained; v. greater than 25% cover of suitable soft leaved herbs and grasses in winter season throughout the transitional saltmarsh at the Dumbles is maintained; vi. aggregations of Bewick's swan at feeding, roosting and refuge sites are not subject to significant disturbance. Interest feature 2: Internationally important population of regularly occurring migratory species: wintering dunlin The conservation objective is to maintain the dunlin population and its supporting habitats in favourable condition, as defined below. The interest feature dunlin will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: i. the 5 year peak mean population size for the wintering dunlin population is no less than 41,683 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);

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	ii. the extent of saltmarsh is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of shingle and rocky shore is maintained; v. the extent of vegetation with a sward height of <10cm is maintained throughout the saltmarsh; vi. the distribution and abundance of suitable invertebrates in intertidal mudflats and sandflats is maintained; vii. the distribution and abundance of suitable invertebrates in shingle and rocky shore is maintained; viii. the extent of strandlines is maintained; ix. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; x. aggregations of dunlin at feeding or roosting sites are not subject to significant disturbance. Interest feature 3: Internationally important population of regularly occurring migratory species: wintering European white-fronted goose The conservation objective is to maintain the European white-fronted goose population and its supporting habitats in favourable condition, as defined below. The interest feature European white-fronted goose will be considered to be in favourable condition when, subject to natural processes (Box 1), each of the following conditions are met: i. the 5 year peak mean population size for the wintering European white fronted goose population is no less than 3,002 individuals (ie the 5 year peak mean between 1988/9-1992/3); ii. the extent of saltmarsh at the Dumbles is maintained; iii. the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose is maintained; iv. greater than 25% cover of suitable soft-leaved herbs and grasses is maintained during the winter on saltmarsh areas; v. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;

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	vii. aggregations of European white-fronted goose at feeding or roosting sites are not subject to significant disturbance. Interest feature 4: Internationally important population of regularly occurring migratory species: wintering redshank The conservation objective is to maintain the redshank population and its supporting habitats in favourable condition, as defined below. The interest feature redshank will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: i. the 5 year peak mean population size for the wintering redshank population is no less than 2,013 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of shingle and rocky shore is maintained; v. the extent of vegetation with a sward height of <10cm throughout the saltmarsh is maintained; vi. the distribution and abundance of suitable invertebrates in intertidal mudflats and sandflats is maintained; vii. the distribution and abundance of suitable invertebrates in shingle and rocky shore is maintained; viii. strandlines are not subject to significant disturbance; ix. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; x. aggregations of redshank at feeding or roosting sites are not subject to significant disturbance. Interest feature 5: Internationally important population of regularly occurring migratory species: wintering shelduck The conservation objective is to maintain the shelduck population and its supporting habitats in favourable condition, as defined below.

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	The interest feature shelduck will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: i. the 5 year peak mean population size for the wintering shelduck population is no less than 2,892 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of shingle and rocky shore is maintained; v. the distribution and abundance of suitable invertebrates in intertidal mudflats and sandflats is maintained; vi. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; aggregations of shelduck at feeding or roosting sites are not subject to significant disturbance. Interest feature 6: Internationally important assemblage of waterfowl The conservation objective is to maintain the waterfowl assemblage and its supporting habitats in favourable condition, as defined below. The interest feature waterfowl assemblage will be considered to be in favourable condition when, subject to natural processes (Box1), each of the following conditions are met: i. the 5 year peak mean population size for the waterfowl assemblage is no less than 68,026 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of shingle and rocky shore is maintained;

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	v. extent of vegetation of <10cm throughout the saltmarsh is maintained; vi. the distribution and abundance of suitable invertebrates in intertidal mudflats and sandflats is maintained; vii. the distribution and abundance of suitable invertebrates in shingle and rocky shore is maintained; viii. greater than 25% cover of suitable soft leaved herbs and grasses during the winter on saltmarsh areas is maintained; ix. strandlines are not subject to significant disturbance; x. unrestricted bird sightlines of >500m at feeding and roosting sites are maintained; xi. waterfowl aggregations at feeding or roosting sites are not subject to significant disturbance.
Component SSSIs	▪ Severn Estuary SSSI ▪ Flat Holm SSSI ▪ Bridgwater Bay SSSI ▪ Penarth Coast SSSI ▪ Steep Holm SSSI ▪ Sully Island SSSI ▪ Upper Severn Estuary SSSI Maps of the site can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity)	Key supporting habitats for the Annex I species: ▪ Intertidal mudflats and sandflats: ○ Habitat extent - The focal area for the Bewick's swans is the upper Severn Estuary in the vicinity of the New Grounds, Slimbridge area. The mudflats and sandflats exposed as the tide falls where the estuary widens in the upper reaches of the site at Waveridge Sands, Frampton Sands and The Noose are used as safe refuge areas when the birds are disturbed.

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	○ Unimpeded sightlines at feeding and roosting sites - Bewick's swan require unrestricted views >500m to allow early detection of predators when feeding and roosting. ▪ Saltmarsh communities: ○ Habitat extent - The birds feed on the saltmarsh and the transition from saltmarsh to coastal grazing marsh in front of the sea defences in the upper estuary at The Dumbles, where areas of the high marsh are mainly affected only by brackish water during tidal inundation. ○ Vegetation characteristics - Bewick's swan graze on a range of 'soft' meadow grasses such as <i>Agrostis stolonifera</i> and <i>Alopecurus geniculatus</i> found in wet meadows which are outwith the European marine site boundary. ○ Unimpeded sightlines at feeding and roosting sites - Bewick's swan require unrestricted views >500m to allow early detection of predators when feeding and roosting. Key supporting habitats for populations of regularly occurring migratory species and assemblage of waterfowl: ▪ Intertidal mudflats and sandflats: ○ Habitat extent - Intertidal mudflats and sandflats and their communities are important habitats as they provide both roosting and feeding areas. The European white-fronted geese roost at night on estuarine sandbanks and usually fly less than 10km to the daytime feeding grounds. Therefore conservation of traditional roosting sites is necessary to enable the population to exploit potential feeding habitats. ○ Food availability - Most of the waders and waterfowl within the assemblage including the internationally important regularly occurring migratory birds feed on invertebrates within and on the sediments. ○ Unimpeded sightlines at feeding and roosting sites - Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting.

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	▪ Saltmarsh: ○ Habitat extent - Saltmarsh and their communities are important habitats as they provide both roosting and feeding areas. Upper and lower saltmarsh provide important feeding and roosting areas for the internationally important migratory birds throughout the estuary. ○ Food availability - The saltmarshes provide a rich feeding habitat for redshank and shelduck, which feed on invertebrate species in the sediments, such as the mudsnail Hydrobia. The European white-fronted geese graze on a range of saltmarsh grasses and herbs such as common saltmarsh grass <i>Puccinellia maritime</i> and sea barley <i>Hordeum marinum</i>. The birds feed on the saltmarsh and the transition to coastal grazing marsh in front of the sea defences in the upper estuary and particularly at the The Dumbles. ○ Vegetation characteristics - Vegetation of <10 cm is required throughout areas used by roosting waders. This is managed by grazing. ○ Unimpeded sightlines at feeding and roosting sites - Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting. The saltmarshes also have an important function providing a safe haven from the tides that flood the mudflats twice a day. The low-growing dense vegetation provides a suitable roosting habitat for redshank and dunlin, which prefer to roost on areas of short vegetation ensuring good visibility. ▪ Shingle and rocky shore: ○ Habitat extent - the shingle and rocks in the estuary provide feeding areas for dunlin and redshank and some limited foraging at high tide. It also provides important roost sites at high tide particularly for the dunlin and redshank. Many of the rocks are off shore and are therefore generally free from human disturbance. These include Guscar Rocks in the upper reaches, Blackstone Rocks at Clevedon and Stert Island in Bridgwater Bay. ○ Food availability - see above. ○ Unimpeded sightlines at feeding and roosting sites - Waterfowl require unrestricted views >500m to allow early

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	detection of predators when feeding and roosting. ▪ Wet coastal grazing marsh, improved grassland and open standing waters - these supporting habitats lie outside the European marine site boundary but within the SPA. They provide key areas for feeding and roosting for all the migratory species particularly at high tide Key environmental conditions for the supporting habitats: ▪ Hydrodynamic and sedimentary regime - the tidal range in the Severn Estuary is the second-highest in the world and the scouring of the seabed and strong tidal streams result in natural erosion of the habitats and the presence of high sediment loads. ▪ Maintain suitable distance between the site and development - to allow for managed retreat of intertidal habitats and avoid coastal squeeze. Other key conditions: ▪ Manage/restrict public access - at certain times of the year. Significant disturbance attributable to human activities can result in reduced food intake and/or increased energy expenditure. ▪ Maintain levels of prey. Maps showing supporting habitats of the Severn Estuary SPA can be found on the CCW Website.
SPA Condition Assessment	Severn Estuary SSSI condition summary⁵ (compiled 09 April 2008).

⁵ Natural England SSSI condition summary. Available [online]: <http://www.english-nature.org.uk/special/ssi/reportAction.cfm?report=sdrt18&category=S&reference=1002284>

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	% Area meeting PSA* target	% Area favourable	% Area unfavourable recovering	% Area unfavourable no change	% Area unfavourable declining	% Area destroyed / part destroyed
	95.71%	95.71%	0.00%	2.44%	1.85%	0.00%
	*PSA target - The Government's Public Service Agreement (PSA) target to have 95% of the SSSI area in favourable or recovering condition by 2010.					
Vulnerabilities (includes existing pressures and trends)	Internationally important populations of regularly occurring Annex 1 species: ▪ Physical loss of supporting habitats through removal - The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. Activities or developments resulting in physical loss of the intertidal supporting habitats are likely to reduce the availability of feeding and roosting habitat and thus be detrimental to the favourable condition of the SPA interest features including the Annex 1 species, Bewick's swan. The intertidal mudflats and sandflats and the saltmarsh are highly sensitive to removal by land reclamation and barrage construction. Information provided by NE and CCW states that large areas of the European marine site are not currently under threat, however when combined with a high level of sensitivity this leads to a moderate vulnerability. ▪ Noise or visual disturbance - Overwintering birds are disturbed by sudden movements and sudden noises. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Such a response affects energy budgets and thus survival. There is intermittent disturbance from both the landward and seaward side of the site. Bewick's swans are mainly affected by disturbance from					

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	the landward side and any increase in disturbance should be avoided. At present NE and CCW assess that the Annex 1 species are moderately vulnerable to noise and visual disturbance on the intertidal mudflats and sandflats and highly vulnerable to this category of operation on the saltmarsh. ▪ Contamination by synthetic and/or non-synthetic toxic compounds - Waterfowl are subject to the accumulation of toxins through the food chain or through direct contact with toxic substances when roosting or feeding. Their ability to feed can also be affected by the abundance or change in palatability of their prey caused by toxic contamination. At the moment there is no evidence to show that this is the case, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. NE and CCW identify this is an area which requires further assessment. They also identify Bewick's swans as currently moderately vulnerable to toxic contamination. Internationally important waterfowl assemblage including populations of regularly occurring migratory species: ▪ Physical loss through removal - The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. Eelgrass beds are being affected by siltation due to changes in sediment movement after construction of the Second Severn Crossing which has resulted in smothering. Activities or developments resulting in physical loss of the intertidal supporting habitats are likely to reduce the availability of food and roosting habitat and thus be detrimental to the favourable condition of the SPA interest features including all the migratory species and waterfowl assemblage. All three supporting habitats are highly sensitive to removal by land reclamation and barrage construction. Information provided by NE and CCW states that large areas of the European marine site are not currently under threat, however when combined with a high level of sensitivity this leads to a moderate vulnerability. ▪ Damage by abrasion or selective extraction - Saltmarsh may be physically damaged from overgrazing or eroded when

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	boats are moored on it and when paths are worn through it to reach moored boats on foot or via vehicles. Currently all supporting habitats are considered to be moderately vulnerable to abrasion. Intertidal habitats are highly sensitive to damage by direct and indirect effects of aggregate dredging. The intertidal mudflats and sandflats and the shingle and rocky shore are therefore considered by NE and CCW to be highly vulnerable to selective extraction. ▪ Noise or visual disturbance - Overwintering birds are disturbed by sudden movements and sudden noises. This can have the effect of displacing the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Such a response affects energy budgets and thus survival. There is intermittent disturbance to the internationally important migratory species and the waterfowl assemblage from both the landward and seaward side of the site which has increased in recent years, due to the estuary becoming more populated and the development of all weather recreational pursuits. All supporting habitats are currently highly vulnerable to noise and visual disturbance. ▪ Contamination by synthetic and/or non-synthetic toxic compounds - Waterfowl are subject to the accumulation of toxins through the food chain or through direct contact with toxic substances when roosting or feeding. Their ability to feed can also be affected by the abundance or change in palatability of their prey caused by toxic contamination. At the moment there is no evidence to show that this is the case on the Severn Estuary, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. NE and CCW identify this is an area which requires further assessment. The intertidal mudflats and sandflats and the saltmarsh are currently highly vulnerable to the introduction of synthetic and non-synthetic compounds. ▪ Changes in nutrient and/or organic loading - Changes in organic or nutrient loading can change the species composition of the plants on the saltmarsh and thus the structure of the sward. Increases in nutrients can also cause excessive algal growth on the mudflats, denying the birds access to their invertebrate prey and changing the invertebrate species composition in the sediment. Though the water quality has been improved in recent years there are still local areas of

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	concern and any increase in nutrient loading should be avoided. At present the intertidal mudflats and sandflats are moderately vulnerable to this category of operation. ▪ Biological disturbance through the selective extraction of species - Wildfowling is carried out all around the estuary. NE and CCW have not established that it has a detrimental effect on the overall bird populations but state that wildfowling needs to be exercised in a managed and sustainable manner preferably by a British Association of Shooting and Conservation (BASC) affiliated association, applying the BASC wildfowlers code of conduct. Bait digging is also carried out around the estuary. If too large an area is regularly dug over, it can change the availability of prey in the sediment as the area needs a period of recovery and recolonisation. The removal of strandline vegetation by beach cleaning removes an important habitat for invertebrates, as well as many of the invertebrates themselves, reducing the quantity and variety of prey available to the birds. Much of the saltmarsh is managed by grazing and changes in management can alter the availability of prey and suitability of roosting sites. The saltmarsh is currently highly vulnerable to the selective extraction of species.
Landowner/ Management Responsibility	▪ N/A

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK11081 Size: 24662.98 Designation: Ramsar	Habitats Regulations Assessment: Data Proforma
Site Description	The Severn Estuary is the largest coastal plain estuary in the UK with extensive mudflats and sandflats, rocky shore platforms,

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK11081 Size: 24662.98 Designation: Ramsar	Habitats Regulations Assessment: Data Proforma
	shingle and islands. Saltmarsh fringes the coast, backed by grazing marsh with freshwater and occasional brackish ditches. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second highest tidal range in the world (after the Bay of Fundy in Canada) at more than 12 meters. This tidal regime results in plant and animal communities typical of the extreme physical conditions of strong flows, mobile sediments, changing salinity, high turbidity and heavy scouring. The resultant low diversity invertebrate communities, that frequently include populations of ragworms, lugworms and other invertebrates in high densities, form an important food source for passage and wintering birds. The site is important in the spring and autumn migration periods for waders moving along the west coast of Europe, as well as in winter for large numbers of waterbirds including swans, geese, ducks and waders. These bird populations are regarded as internationally important. Glassworts and annual sea-blite colonise the open mud, with beds of all three species of eelgrass <i>Zostera</i> occurring on more sheltered mud and sandbanks. Large expanses of common cord-grass also occur on the outer marshes. Heavily grazed saltmarsh fringes the estuary with a range of saltmarsh types present. The middle marsh sward is dominated by common saltmarsh-grass with typical associated species. In the upper marsh, red fescue and saltmarsh rush become more prominent. Areas of saltmarsh fringe the estuary, mostly grazed with a range of vegetation communities. There are gradual and stepped transitions between bare mudflat to upper marsh and grassland. Main vegetation types are: upper saltmarsh with <i>Festuca rubra</i> and <i>Juncus gerardii</i>; middle marsh dominated by <i>Puccinellia maritima</i> with <i>Glaux maritima</i> and <i>Triglochin maritima</i>; dense monocultures of <i>Spartina anglica</i> at the edge of the mudflats-brackish pools and depressions with <i>Phragmites australis</i> and <i>Bolboschoenus maritimus</i>.
Qualifying Features	Ramsar criterion 1 ▪ Immense tidal range (second-largest in world) creating diversity of physical environment and biological communities. Ramsar criterion 3 ▪ Due to unusual estuarine communities, reduced diversity and high productivity.

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK11081 Size: 24662.98 Designation: Ramsar	Habitats Regulations Assessment: Data Proforma
	Ramsar criterion 4 - This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon <i>Salmo salar</i>, sea trout <i>S. trutta</i>, sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i>, twaite shad <i>A. fallax</i>, and eel <i>Anguilla anguilla</i>. It is also of particular importance for migratory birds during spring and autumn. Ramsar criterion 5 Species with peak counts in winter: 70919 waterfowl Ramsar criterion 6 Species with peak counts in winter: - Bewick's swan - Greater white-fronted goose - Common shelduck - Gadwall - Dunlin - Common redshank Ramsar criterion 8 - The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon <i>Salmo salar</i>, sea trout <i>S. trutta</i>, sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i>, twaite shad <i>A. fallax</i>, and eel <i>Anguilla Anguilla</i> use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad <i>Alosa alosa</i> and twaite shad <i>A. fallax</i> which feed on mysid shrimps in the salt

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	wedge.
Conservation Objectives	See SAC data sheet.
Component SSSIs	- Sully Island SSSI - Steep Holm SSSI - Bridgwater Bay SSSI - Flat Holm SSSI - Severn Estuary SSSI - Severn Estuary SSSI - Flat Holm SSSI - Upper Severn Estuary SSSI - Bridgwater Bay SSSI - Penarth Coast SSSI - Steep Holm SSSI - Sully Island SSSI - Upper Severn Estuary SSSI
Key Environmental Conditions (factors that maintain site integrity)	Key supporting habitats for the Berwick's swan: Intertidal mudflats and sandflats: - Habitat extent - The focal area for the Bewick's swans is the upper Severn Estuary in the vicinity of the New Grounds, Slimbridge area. The mudflats and sandflats exposed as the tide falls where the estuary widens in the upper reaches of the site at Waveridge Sands, Frampton Sands and The Noose are used as safe refuge areas when the birds are disturbed. - Unimpeded sightlines at feeding and roosting sites - Bewick's swan require unrestricted views >500m to allow early detection of predators when feeding and roosting. Saltmarsh communities:

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	▪ Habitat extent - The birds feed on the saltmarsh and the transition from saltmarsh to coastal grazing marsh in front of the sea defences in the upper estuary at The Dumbles, where areas of the high marsh are mainly affected only by brackish water during tidal inundation. ▪ Vegetation characteristics - Bewick's swan graze on a range of 'soft' meadow grasses such as <i>Agrostis stolonifera</i> and <i>Alopecurus geniculatus</i> found in wet meadows which are outwith the European marine site boundary. ▪ Unimpeded sightlines at feeding and roosting sites - Bewick's swan require unrestricted views >500m to allow early detection of predators when feeding and roosting. Key supporting habitats for populations of regularly occurring migratory species and assemblage of waterfowl Intertidal mudflats and sandflats: ▪ Habitat extent - Intertidal mudflats and sandflats and their communities are important habitats as they provide both roosting and feeding areas. The European white-fronted geese roost at night on estuarine sandbanks and usually fly less than 10km to the daytime feeding grounds. Therefore conservation of traditional roosting sites is necessary to enable the population to exploit potential feeding habitats. ▪ Food availability - Most of the waders and waterfowl within the assemblage including the internationally important regularly occurring migratory birds feed on invertebrates within and on the sediments. ▪ Unimpeded sightlines at feeding and roosting sites - Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting. Saltmarsh: ▪ Habitat extent - Saltmarsh and their communities are important habitats as they provide both roosting and feeding areas. Upper and lower saltmarsh provide important feeding and roosting areas for the internationally important migratory birds throughout the estuary. ▪ Food availability - The saltmarshes provide a rich feeding habitat for redshank and shelduck, which feed on invertebrate species in the sediments, such as the mudsnail <i>Hydrobia</i>. The European white-fronted geese graze on a range of saltmarsh grasses and herbs such as common saltmarsh grass <i>Puccinellia maritime</i> and sea barley <i>Hordeum marinum</i>. The birds feed

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	on the saltmarsh and the transition to coastal grazing marsh in front of the sea defences in the upper estuary and particularly at the The Dumbles. - Vegetation characteristics - Vegetation of <10 cm is required throughout areas used by roosting waders. This is managed by grazing. - Unimpeded sightlines at feeding and roosting sites - Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting. The saltmarshes also have an important function providing a safe haven from the tides that flood the mudflats twice a day. The low-growing dense vegetation provides a suitable roosting habitat for redshank and dunlin, which prefer to roost on areas of short vegetation ensuring good visibility. Shingle and rocky shore: - Habitat extent - the shingle and rocks in the estuary provide feeding areas for dunlin and redshank and some limited foraging at high tide. It also provides important roost sites at high tide particularly for the dunlin and redshank. Many of the rocks are off shore and are therefore generally free from human disturbance. These include Guscar Rocks in the upper reaches, Blackstone Rocks at Clevedon and Stert Island in Bridgwater Bay. - Food availability - see above. - Unimpeded sightlines at feeding and roosting sites - Waterfowl require unrestricted views >500m to allow early detection of predators when feeding and roosting. Wet coastal grazing marsh, improved grassland and open standing waters - these supporting habitats lie outside the European marine site boundary but within the SPA. They provide key areas for feeding and roosting for all the migratory species particularly at high tide. Key environmental conditions for the supporting habitats: Hydrodynamic and sedimentary regime - the tidal range in the Severn Estuary is the second-highest in the world and the scouring of the seabed and strong tidal streams result in natural erosion of the habitats and the presence of high sediment loads. Maintain suitable distance between the site and development - to allow for managed retreat of intertidal habitats and avoid coastal squeeze.

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	Other key conditions: ▪ Manage/restrict public access - at certain times of the year. Significant disturbance attributable to human activities can result in reduced food intake and/or increased energy expenditure. ▪ Maintain levels of prey.
Ramsar Condition Assessment	▪ N/A
Vulnerabilities (includes existing pressures and trends)	▪ Physical loss of supporting habitats through removal - The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. Activities or developments resulting in physical loss of the intertidal supporting habitats are likely to reduce the availability of feeding and roosting habitats. The intertidal mudflats and sandflats and the saltmarsh are highly sensitive to removal by land reclamation and barrage construction. Information provided by NE and CCW states that large areas of the European marine site are not currently under threat, however when combined with a high level of sensitivity this leads to a moderate vulnerability. ▪ Noise or visual disturbance - Overwintering birds are disturbed by sudden movements and sudden noises. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Such a response affects energy budgets and thus survival. There is intermittent disturbance to the internationally important migratory species and the waterfowl assemblage from both the landward and seaward side of the site which has increased in recent years, due to the estuary becoming more populated and the development of all weather recreational pursuits. Bewick's swans are mainly affected by disturbance from the landward side and any increase in disturbance should be avoided. All supporting habitats are currently highly vulnerable to noise and visual disturbance. ▪ Contamination by synthetic and/or non-synthetic toxic compounds - Waterfowl are subject to the accumulation of toxins

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	through the food chain or through direct contact with toxic substances when roosting or feeding. Their ability to feed can also be affected by the abundance or change in palatability of their prey caused by toxic contamination. At the moment there is no evidence to show that this is the case, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. NE and CCW identify this is an area which requires further assessment. The intertidal mudflats and sandflats and the saltmarsh are currently highly vulnerable to the introduction of synthetic and non-synthetic compounds. ▪ Damage by abrasion or selective extraction - Saltmarsh may be physically damaged from overgrazing or eroded when boats are moored on it and when paths are worn through it to reach moored boats on foot or via vehicles. Currently all supporting habitats are considered to be moderately vulnerable to abrasion. Intertidal habitats are highly sensitive to damage by direct and indirect effects of aggregate dredging. The intertidal mudflats and sandflats and the shingle and rocky shore are therefore considered by NE and CCW to be highly vulnerable to selective extraction. ▪ Changes in nutrient and/or organic loading - Changes in organic or nutrient loading can change the species composition of the plants on the saltmarsh and thus the structure of the sward. Increases in nutrients can also cause excessive algal growth on the mudflats, denying the birds access to their invertebrate prey and changing the invertebrate species composition in the sediment. Though the water quality has been improved in recent years there are still local areas of concern and any increase in nutrient loading should be avoided. At present the intertidal mudflats and sandflats are moderately vulnerable to this category of operation. ▪ Biological disturbance through the selective extraction of species - Wildfowling is carried out all around the estuary. NE and CCW have not established that it has a detrimental effect on the overall bird populations but state that wildfowling needs to be exercised in a managed and sustainable manner preferably by a British Association of Shooting and Conservation (BASC) affiliated association, applying the BASC wildfowling code of conduct. Bait digging is also carried out around the estuary. If too large an area is regularly dug over, it can change the availability of prey in the sediment as the area needs a period of recovery and recolonisation. The removal of strandline vegetation by beach cleaning removes an

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	important habitat for invertebrates, as well as many of the invertebrates themselves, reducing the quantity and variety of prey available to the birds. Much of the saltmarsh is managed by grazing and changes in management can alter the availability of prey and suitability of roosting sites. The saltmarsh is currently highly vulnerable to the selective extraction of species.
Landowner/ Management Responsibility	▪ N/A

Appendix 2: Local Flood Risk Management Strategy: Objectives and Measures HRA Screening

Policy Screening: Categorising the Potential Effects of the Plan (Tyldesley, 2009)	
Criteria Category	Rationale
Category A: No negative effect	
A1	Options/ policies that will not themselves lead to development e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy.
A2	Options/ policies intended to protect the natural environment, including biodiversity.
A3	Options/ policies intended to conserve or enhance the natural, built or historic environment, where enhancement measures will not be likely to have any negative effect on a European site.
A4	Options/ policies that positively steer development away from European sites and associated sensitive areas.
A5	Options/ policies that would have no effect because no development could occur through the policy itself, the development being implemented through later policies in the same plan, which are more specific and therefore more appropriate to assess for their effects on European Sites and associated sensitive areas.
Category B: No significant effect	
B	Options/ policies that could have an effect but would not be likely to have a significant (negative) effect on a European site (alone or in-combination with other plans or projects) because the effects are trivial or 'de minimis' even if combined with other effects.
Category C: Likely significant effect alone	
C1	The option, policy could directly affect a European site because it provides for, or steers, a quantity or type of development onto a European site, or adjacent to it.
C2	The option, policy could indirectly affect a European site e.g. because it provides for, or steers, a quantity or type of development that may be very close to it, or ecologically, hydrologically or physically connected to it or it may increase disturbance as a result of increased recreational pressure.
C3	Proposals for a magnitude of development that, no matter where it is located, the development would be likely to have a significant effect on a European site.
C4	An option, or policy that makes provision for a quantity/ type of development (and may indicate one or more broad locations e.g. a particular part of the plan area), but the effects are uncertain because the detailed location of the development is to be selected following consideration of options in a later, more specific plan . The consideration of options in the later plan will assess potential effects on European Sites, but because the development could possibly affect a European site a significant effect cannot be ruled out on the basis of objective information
C5	Options, policies or proposals for developments or infrastructure projects that could block options or alternatives for the provision of other development or projects in the future, which will be required in the public interest, that may lead to adverse effects on European sites, which would otherwise be avoided.
C6	Options, policies or proposals which depend on how the policies etc are implemented in due course, for example, through the development management process. There is a theoretical possibility that if implemented in one or more particular ways, the proposal could possibly have a significant effect on a European site
C7	Any other options, policies or proposals that would be vulnerable to failure under the Habitats Regulations at project assessment stage; to include them in the plan would be regarded by the EC as 'faulty planning'.
C8	Any other proposal that may have an adverse effect on a European site, which might try to pass the tests of the Habitats Regulations at project assessment stage by arguing that the plan provides the imperative reasons of overriding public interest to justify its consent despite a negative assessment.
Category D: Likely significant effects in combination	
D1	The option, policy or proposal alone would not be likely to have significant effects but if its effects are combined with the effects of other policies or proposals provided for or coordinated by the Local Development Document (internally) the cumulative effects would be likely to be significant.

Policy Screening: Categorising the Potential Effects of the Plan (Tyldesley, 2009)	
Criteria Category	Rationale
D2	Options, policies or proposals that alone would not be likely to have significant effects but if their effects are combined with the effects of other plans and projects and possibly the effects of other developments provided for in the Local Development Document as well, the combined effects are likely to be significant.
D3	Options or proposals that are, or could be, part of a programme or sequence of development delivered over a period, where the implementation of the early stages would not have a significant effect on European sites, but which would dictate the nature, scale, duration, location, timing of the whole project, the later stages of which could have adverse effects on such sites.

Policy Screening Schedule: Caerphilly LFRMS					
Objective/ Measure Ref:	Objective/ Measure	Assessment Category	Commentary	Can elements be changed at screening stage to avoid likely significant effect (LSE)	Is an Appropriate Assessment required?
Overarching Objective 1					
1.	Reduce no of people exposed to the risk of flooding	A1	Strategic objective that will not in itself lead to development	N/A	N/A
2	Reduce the number of residential and commercial properties affected by the risk of flooding	A1	Strategic objective that will not in itself lead to development	N/A	N/A
3	Reduce the number of people exposed to risk of flooding of significant depth and velocity.	A1	Strategic objective that will not in itself lead to development	N/A	N/A
4	Reduce disruption to critical infrastructure or prepare plans to allow the operations to be maintained	A1	Strategic objective that will not in itself lead to development	N/A	N/A
5	Protect and improve Natura 2000 (N2K Sites)	A2	Objective intended to protect natural environment	N/A	N/A
6	Protect and improve Sites of Special Scientific Interest (SSSIs)	A2	Objective intended to protect natural environment	N/A	N/A
7	Protect and improve Sites of Importance for Nature Conservation (SINCs)	A2	Objective intended to protect natural environment	N/A	N/A
8	Contribute to the delivery of Caerphilly Biodiversity Action Plan	A2	Objective intended to protect natural environment	N/A	N/A
9	Minimise damage to known historic assets	A3	Objective intended to protect historic environment, not likely to have any negative effects	N/A	N/A
Overarching Objective 2					
10	Provide systems to give early warning of potential flooding to individuals and communities.	A1	Strategic objective that will not in itself lead to development	N/A	N/A

Policy Screening Schedule: Caerphilly LFRMS					
Objective/ Measure Ref:	Objective/ Measure	Assessment Category	Commentary	Can elements be changed at screening stage to avoid likely significant effect (LSE)	Is an Appropriate Assessment required?
11	Provide efficient systems for the management and maintenance of surface assets.	A1	Strategic objective that will not in itself lead to development	N/A	N/A
12	Reduce economic damage	A1	Strategic objective that will not in itself lead to development	N/A	N/A
13	Endeavour to reduce cost of management	A1	Strategic objective that will not in itself lead to development	N/A	N/A
Overarching Objective 3					
14	Creating natural channels and water bodies with minimal modifications	A2	Objective intended to protect and enhance natural environment	N/A	N/A
15	Improving water quality	A2	Objective intended to protect natural environment	N/A	N/A
16	Providing Flood Risk Management Plans for each area subject to flood risk	A1	Strategic objective that will not in itself lead to development	N/A	N/A
17	Ensuring that measures are designed and constructed in a sustainable way	A2	Objective intended to provide environmental protection	N/A	N/A
18	Ensuring that CCBC works in partnership with all other Risk Partners and works collaboratively with adjacent Authorities	A1	Strategic objective that will not in itself lead to development	N/A	N/A
Overarching Objective 4					
19	Ensuring that investment decisions for the implementation of flood risk management schemes are made on a consistent, defensible basis and are subject to cost benefit analysis	A1	Strategic objective that will not in itself lead to development	N/A	N/A
Themes and Measures					
6.13	Development Planning and Adaption				
6.13.1	Sustainable and Strategic Development Planning	A5	Measure addresses LDP planning processes with respect to flood risk. LDP subject to full HRA process (2008).	N/A	N/A
6.13.2	Strategic Flood Risk Assessment (SFRA) / Strategic Flood Consequences Assessment (SFCA)	A1	Strategic measure designed to assess flood risk, no development flows directly from this measure.	N/A	N/A
6.13.3	Water Cycle Strategies	A1	Strategic measure, focused on providing direction for	N/A	N/A

Policy Screening Schedule: Caerphilly LFRMS					
Objective/ Measure Ref:	Objective/ Measure	Assessment Category	Commentary	Can elements be changed at screening stage to avoid likely significant effect (LSE)	Is an Appropriate Assessment required?
			sustainable water use.		
6.13.4	Relocation	A5	Overarching relocation measure will not lead to development. Sub-measures proposed within the relocation measure, list procedures indicating that flood relief systems & hard defences may be considered, depending on the nature of the risk identified. These sub-measures include developments (which depending on their exact location and scale) have the potential to lead to habitat fragmentation/ loss, changes to hydrological regime and impacts on water quality. Potential effects are relevant to sensitivities of Severn Estuary SAC/SPA/Ramsar and the supporting habitats of the Aberbargoed Grasslands SAC (within a 2km radius of the European site boundary, given the mobility of the designated Marsh Fritillary butterfly species). Although these effects are unlikely to be significant, the strategy should ensure that development actions of this nature are subject to project level HRA	This measure should include the requirements that any activities arising from the procedures No: 6&7 as listed are required to apply project level HRA if proposals are at upstream locations with identified spatial connections (pathways) to the Severn Estuary European site, and/or if the proposals may alter habitats within a 2km radius of the Aberbargoed Grasslands SAC.	No
6.13.5	Mineral and Waste Plans	A1/A2	Measure addresses existing strategic plans that include environmental protection measures.	N/A	N/A
6.13.6	Sustainable Drainage (SuDS)	A3/A5	Measure promotes sustainable approaches to water management. Development activity through lower tier actions.	N/A	N/A
6.13.7	Contaminated Land	A1/A2	Strategic measures designed to provide information and ensure environmental protection.	N/A	N/A
6.13.8	Scheduled Ancient Monuments and Historic Buildings	A3	Strategic measure designed to provide information	N/A	N/A

Policy Screening Schedule: Caerphilly LFRMS					
Objective/ Measure Ref:	Objective/ Measure	Assessment Category	Commentary	Can elements be changed at screening stage to avoid likely significant effect (LSE)	Is an Appropriate Assessment required?
			and ensure protection of the historic environment.		
6.14	Flood forecasting, Warning and Response				
6.14.1	Planning and Response Awareness	A1	Strategic measures design to manage flood risk.	N/A	N/A
6.14.2	Flood Awareness	A1	Strategic measures addressing flood awareness.	N/A	N/A
6.14.3	Flood Warning	A1	Strategic measure providing information.	N/A	N/A
6.14.4	Flood Forecasting	A1	Strategic measure providing information.	N/A	N/A
6.14.5	Emergency Response Plans	A1	Strategic measure providing information.	N/A	N/A
6.14.6	Community Flood Plans	A1	Measure to ensure flood risk plans in place for identified local community.	N/A	N/A
6.14.7	Multi-Agency Flood Plans	A1	Measure addressing plans to coordinate various stakeholder inputs in flood response.	N/A	N/A
6.14.8	Major Incident Plans	A1	Measure addressing emergency planning.	N/A	N/A
6.15	Land, Cultural and Environmental Management				
6.15.1	Land Management	A5	Measure sets intent to ensure that land management activity within CCBC influence, takes account of flood risk issues.	N/A	N/A
6.15.2	Resilience	A2	Measure takes direct account of environmental interests.	N/A	N/A
6.15.3	Resistance	A2	Measure focused on environmental protection.	N/A	N/A
6.15.4	Restoration	A2	Measure addressing environmental improvements.	N/A	N/A
6.15.5	Environmental Enhancement	A2	Measure designed to enhance the environment.	N/A	N/A
6.15.6	Water Level Management Plans	A1	Strategic measure, information gathering.	N/A	N/A
6.15.7	Habitat Creation	A2	Measures designed to improve the environment. Measure should include a requirement that any habitat creation reflects existing conservation management priorities for the designated site interests that may have spatial connections to the proposed new habitats.	N/A	N/A
6.16	Asset Management and Maintenance (SAMPs)				

Policy Screening Schedule: Caerphilly LFRMS					
Objective/ Measure Ref:	Objective/ Measure	Assessment Category	Commentary	Can elements be changed at screening stage to avoid likely significant effect (LSE)	Is an Appropriate Assessment required?
6.16.1	System Asset Management Plans	A1	Measure seeks to provide survey information & data.	N/A	N/A
6.16.2	Defence/Structure Management	A1	Measure addresses survey data.	N/A	N/A
6.16.3	Channel Maintenance	A5	Measure addresses need to update information. This measure provides for some actions to manage and maintain water channels. These activities include removal of vegetation to ensure flow and channel capacity is maintained, as well as maintenance of concrete inverts and bank protection. These management activities, depending on scale and location could affect the hydrological regime and water quality. Potential effects are relevant to sensitivities of Severn Estuary SAC/SPA/Ramsar and the supporting habitats of the Aberbargoed Grasslands SAC (within a 2km radius of the European site boundary, given the mobility of the designated Marsh Fritillary butterfly species). Although these effects are unlikely to be significant, the strategy should ensure that development actions of this nature are subject to project level HRA	This measure should include the requirements that any maintenance action undertaken is subject to project level HRA if developments are proposed at upstream locations with identified spatial connections (pathways) to the Severn Estuary European site, and/or if the proposals may alter habitats within a 2km radius of the Aberbargoed Grasslands SAC.	No
6.16.4	Culvert Maintenance	A5	Measure addresses need to update information. This measure provides for some actions to manage and maintain culverts. These activities include replacement and repair of culverts and the construction of new intakes where necessary. These management activities, depending on scale and location could affect the hydrological regime and water quality. Potential effects are relevant to	This measure should include the requirements that any maintenance or improvement action undertaken is subject to project level HRA if developments are proposed at upstream	No

Policy Screening Schedule: Caerphilly LFRMS					
Objective/ Measure Ref:	Objective/ Measure	Assessment Category	Commentary	Can elements be changed at screening stage to avoid likely significant effect (LSE)	Is an Appropriate Assessment required?
			sensitivities of Severn Estuary SAC/SPA/Ramsar and the supporting habitats of the Aberbargoed Grasslands SAC (within a 2km radius of the European site boundary, given the mobility of the designated Marsh Fritillary butterfly species). Although these effects are unlikely to be significant, the strategy should ensure that development actions of this nature are subject to project level HRA	locations with identified spatial connections (pathways) to the Severn Estuary European site, and/or if the proposals may alter habitats within a 2km radius of the Aberbargoed Grasslands SAC.	
6.17	Studies, Assessments and Plans				
6.17.1	Investigation	A1	Measure addressing information gathering in support of flood risk management.	N/A	N/A
6.17.2	Risk Assessment	A1	Measure to ensure up-to-date flood risk management.	N/A	N/A
6.17.3	Strategy Plan	A1	Measure confirming commitment to plan preparedness.	N/A	N/A
6.17.4	Local Property-level Flood Mitigation – Resilience	A1	Measure addressing specification for individual building, not spatial/ location specific.	N/A	N/A
6.17.5	Local Property-level Flood Mitigation – Resistance	A1	Measures addressing flood risk at individual properties.	N/A	N/A
6.17.6	Pre-feasibility Studies, Feasibility Studies	A1	Measure to consider most effective flood risk management plans.	N/A	N/A
6.17.7	Project Plans	A1	Appraisal measure for feasibility plans. Opportunity to include strategic environmental criteria (protection/ impacts) in measures proposed.	N/A	N/A
6.18	High Level Awareness and Engagement				
6.18.1	Partnership Working	A1	Measure to encourage partnership working.	N/A	N/A
6.19	Monitoring				
6.19.1	Erosion Monitoring	A1	Monitoring measure.	N/A	N/A

Policy Screening Schedule: Caerphilly LFRMS					
Objective/ Measure Ref:	Objective/ Measure	Assessment Category	Commentary	Can elements be changed at screening stage to avoid likely significant effect (LSE)	Is an Appropriate Assessment required?
6.19.2	Habitats Monitoring	A1/A2	Monitoring measure, promotes environmental protection.	N/A	N/A
6.19.3	Topographical Survey	A1	Measure ensuring information provision.	N/A	N/A
6.19.4	Aerial Photography	A1/A2	Measure ensuring information provision, supports environmental management.	N/A	N/A

Appendix 3: Plans, Programmes and Projects Review

Selected Plans, Programmes and Projects In Combination	
Document Aims	Potential for in combination effects/ relevant HRA findings
Local Development	
Caerphilly LDP	- Provision for housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) - HRA/AA (2008) addressed potential LSE for Aberbargoed Grassland SAC. LSE alone and in combination addressed by policy mitigation, monitoring measures.
Blaenau Gwent LDP	- Provision for housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) - HRA/AA (2011) addressed Cwm Clydach Woodlands SAC, Usk Bat Sites SAC, Aberbargoed Grasslands SAC, River Usk SAC, concluded no LSE alone and in combination with strategic policy, development management policy and project level HRA requirement in place.
Merthyr Tydfil LDP	- Provision for housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) - HRA Screening (2008) No European sites in authority area – assessment considered neighbouring terrestrial sites, no LSE identified.
Newport LDP	- Provision for housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) - HRA Screening (2012) considered Severn Estuary SAC, SPA and Ramsar site and Cardiff Beechwoods SAC, River Wye SAC, Wye Valley Woodland SAC, Wye Valley and Forest of Dean Bat SAC and Aberbargoed Grasslands SAC. Mitigation measure considered appropriate to address LSE including for in combination effects.
Torfaen LDP	- Provision for housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) - HRA/AA (2011) focused on Usk Bat Sites and River Usk, policy caveats and monitoring measures introduced to remove potential for LSE alone and in combination.
Cardiff LDP	- Provision for housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) (LDP withdrawn 2010) - HRA Screening (2009) on following sites concluded no LSE alone or in combination. Cardiff Beech Woods SAC, Severn Estuary SAC, SPA, Ramsar Site, the River Usk SAC, the River Wye SAC, Blackmill Woodlands SAC and Aberbargoed Grasslands SAC.
Monmouthshire LDP	- Provision for housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) - HRA/AA (2011) assessed that no LSE alone and in combination for following sites in context of appropriate mitigation measures. Coed y Cerrig SAC, Cwm Clydach Woodlands SAC, River Usk SAC, River Wye SAC, Severn Estuary SAC, SPA & Ramsar, Sugar Loaf Woodlands SAC, Usk Bat Sites SAC, Wye Valley Woodlands SAC.
Rhondda LDP	- Provision for housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) - HRA/AA 2010 focused on Blaen Cynon SAC, introduced policy measures and caveats to remove potential for LSE alone and in combination.
Brecon Beacons LDP	- Provision for [limited] housing, employment and infrastructure (land take, recreation & traffic increases, air, water, noise & light pollution) - HRA Screening (2010) considered potential for LSE at Blaen Cynon SAC, Llangorse Lake SAC, River Usk SAC, River Wye SAC, Usk Bat Sites SAC. Recommended monitoring measures, policy caveats, and water cycle study to ensure finding of LSE supported.
Water Resources, Catchment Management	
Catchment Abstraction Management Strategy –	CAMs area comprises hydrological surface water catchment to River Rhymney, includes River and all of its tributaries. Split into 4 Water Resource Management Units – 1,2 and 3 have water available. Aberbargoed Grasslands SAC situated in WRMU 3, all licences required to take consideration

Selected Plans, Programmes and Projects In Combination	
Document Aims	Potential for in combination effects/ relevant HRA findings
Rhymney	- of SAC requirement into account. - All licencing in CAMS subject to HRA requirements, in line with wider River Basin Management and Water Framework Directive objectives.
Eastern Valleys Catchment Flood Management Plan	- Provides assessment of flood risk and plan for sustainable flood risk management 50-100 years. Policies 1-6 address areas of flood risk from low to high. Some flood risk measures may include physical change e.g. water storage, run off management. - HRA/AA of CFMP (2009) focused on in combination effects for Severn Estuary SAC, SPA, Ramsar, with particular focus on sediment dynamics, turbidity, flow, localised habitat loss, and barrier to fish movement. No significant in combination effects identified between this CFMP and other CFMP or wider relevant plans.
Severn River Basin Management Plan	- RBMP describes pressures faced by water environment and measures to protect and improve the water environment in the context of Water Framework Directive. Measures largely positive in term of habitats management. - HRA Screening (2009) identified no LSE alone or in combination. Measures likely to trigger specific actions near or on European sites required to be subject to lower project level HRA requirements.
Welsh Water – draft Water Resources Management Plan	- Strategy for managing water resources in water resource zones (WRZ) based on supply/demand calculations and assessment of deficits, water supply options (dam & reservoir construction, abstraction changes) potential to impact European sites - HRA (2011) considered potential impacts arising from strategic options (taking account of Review of Consents (ROC) findings) concluded that most options unlikely to have LSE alone or in combination, taking into account introduced measures and lower level assessment requirements. Where uncertain effects, alternative options were proposed and measures introduced enable conclusion of no adverse effect.
Transport	
South East Wales Transport Plan	- Improve regional transport, move investment away from road-based infrastructure to cycling and walking. Overall proposals support environmental protection - HRA not available. Infrastructure developments potential for LSE, depending on scale location should be subject to lower tier HRA.
Head of Valleys Road A465 Dualling Scheme	- A465 Gilwern To Brymawr section runs through Usk Bat Site SAC and Cwm Clydach Woodlands SAC, work due to start 2014. - Potential effects on European sites from direct land take, and pollution (air, water, land) from engineering activity and increased traffic.
Other	
Greater Bargoed Community Regeneration Scheme	- Multiple project infrastructure development, retail, roadway, communications, retail, leisure, services (gas/ electricity) (2009- 2013, ongoing) - Potential effects on European sites from construction activity proximal/ adjacent to water courses with connectivity to protected sites (quality/sediment/ barriers to migration).