Vale of Glamorgan Council

Deposit Local Development Plan

Habitats Regulations Assessment (Appropriate Assessment) Report

September 2013

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HABITATS REGULATIONS ASSESSMENT (APPROPRIATE ASSESSMENT) REPORT

VALE OF GLAMORGAN COUNCIL

DEPOSIT LOCAL DEVELOPMENT PLAN

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Vale of Glamorgan Council
Deposit Local Development Plan

Habitats Regulations Assessment
(Appropriate Assessment) Report

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EXECUTIVE SUMMARY

0.1 Habitats Regulations Assessment (HRA) of spatial, development plans is a requirement of the Habitats Directive (92/43/EEC) as set out in the Conservation of Habitats and Species Regulations 2010 (as amended).

0.2 The first stage of the HRA process (screening, December 2007) considered the likely significant effects of the Draft Preferred Strategy on European sites. An internal review of the 2007 Screening Report (March 2009) sought to ensure that no key issues or European sites were overlooked through the HRA process. As an integral part of the preparation of a Deposit Plan in 2012 (2012 Deposit LDP), a revised screening and then an Appropriate Assessment (AA) were carried out and presented in an HRA (AA) Report (Dec 2011), which was published alongside the 2012 LDP which was the subject of public consultation in February 2012.

0.3 The Vale of Glamorgan has since resolved not to progress the 2012 Deposit LDP and instead prepare a replacement Deposit LDP, and it is that Plan which is now the subject of this HRA Report. Nevertheless, the HRA process is an iterative one and, accordingly, this report builds upon the 2007 Screening Report and December 2011 HRA (AA) Report.

0.4 The Deposit LDP has undergone a number of changes from the 2012 Deposit LDP, which include the introduction of new policies and site allocations as well as amendments to existing policies and site allocations. As a result of the changes and in line with the requirements of the Habitats Regulations and current guidance the HRA (AA) Report (Dec 2011) has been revised and updated to accompany the Replacement Deposit LDP on consultation. The revised HRA (AA) Report sets out the methods, findings and the conclusions of the HRA for the Deposit LDP. In total, it was identified that nine European sites may be potentially affected by activities/ impacts arising from Deposit LDP Proposals.

0.5 The screening of Deposit LDP Policies and site allocations assessed that there was the potential for likely significant effects alone on the identified European sites as a result of the quantum and/ or location of proposed development. To address these issues the screening assessment recommended a number of policy safeguards in relation to specific LDP Policies and site allocations. The further screening work concluded that the Deposit LDP (including site allocations) would not have likely significant effects alone on European sites, if the recommended policy safeguards are incorporated into the Plan.

0.6 The further screening work identified four main areas of impact arising that may have the potential for significant in combination effects - with development proposed in surrounding areas - on the integrity of the identified European sites, which were water resources, water quality,

disturbance and air quality. These issues were taken forward into the AA and considered in further detail.

0.7 The AA concluded that the LDP would not have adverse in combination effects on the integrity of the identified European sites as a result of increased disturbance, reduced air quality and reduced water levels and quality. This was based on the mitigation contained within the LDP Policies and the incorporation of recommendations made by the AA.

0.8 Welsh Government guidance notes that it is good practice to make information on HRA available to the public at each formal development plan consultation stage. Therefore, in addition to the statutory consultation undertaken with NRW, this report is being made available for consultation to the wider public.

1.0 INTRODUCTION

1.1 The Vale of Glamorgan (VoG) Council is currently developing its Local Development Plan (LDP) and is undertaking Habitats Regulations Assessment (HRA) in line with the requirements set by the Conservation of Habitats and Species Regulations 2010 (as amended).

1.2 VoG Council produced a HRA Screening Report for the LDP Draft Preferred Strategy in December 2007. Enfusion Ltd, sustainability and environmental consultants, have been commissioned to further progress the HRA work. Enfusion undertook an internal review of the 2007 Screening Report (March 2009) to ensure that no European sites or significant issues had been overlooked. As an integral part of the preparation of a Deposit Plan in 2012 (2012 Deposit LDP), a revised screening of the 2012 LDP and then an Appropriate Assessment (AA) were carried out and presented in an HRA (AA) Report (Dec 2011), which was published alongside the Deposit LDP for consultation in February 2012.

1.3 Following local government elections in May 2012, the new administration resolved not to progress the 2012 Deposit LDP and commence work on a replacement Deposit LDP ("the Deposit LDP"). Since then the Council has been in the process of preparing a Deposit LDP, which includes new and amended policies and site allocations. To address these changes and ensure that the Deposit LDP is sufficiently considered through the HRA process, a Revised HRA (AA) Report has been produced.

1.4 This HRA (AA) Report provides a re-screening of Deposit LDP policies and site allocations to ensure that any likely significant effects are identified and addressed. It also provides a revised AA to take account of the findings of the re-screening and ensure that the Deposit LDP will have no adverse effects on the integrity of European sites. Comments provided by the Countryside Council for Wales (CCW) (now Natural Resources Wales (NRW)) on the previous HRA (AA) Report (Dec 2011) have also been used to inform this HRA (AA) Report.

Requirement for Habitats Regulations Assessment

1.5 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'].

1.6 Articles 6 (3) and 6 (4) of the Habitats Directive require AA to be undertaken on proposed plans or projects which are not necessary for

the management of the site but which are likely to have a significant effect on one or more European sites either individually, or in combination with other plans and projects[1]. This requirement is set out in the Conservation of Habitats and Species Regulations 2010 (as amended) which require the application of HRA to all land use plans. Welsh Government (WG) 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 HRA and that candidate SACs and proposed SPAs are treated as 'designated' sites in the context of HRA.

1.7 The purpose of HRA is to assess the impacts of a land-use plan, in combination with the effects of other plans and projects, against the conservation objectives of a European Site and to ascertain whether it would adversely affect the integrity[2] of that site. Where significant negative effects are identified, avoidance/ mitigation measures or alternative options should be examined to avoid any potential adverse effects. The scope of the HRA is dependent on the location, size and significance of the proposed plan or project and the sensitivities and nature of the interest features of the European sites under consideration.

Guidance for Habitats Regulations Assessment/Appropriate Assessment

1.8 Guidance for HRA 'The Appraisal of Development Plans in Wales under the Provisions of the Habitats Regulations', is provided in Technical Advice Note 5: Nature Conservation and Planning (WAG, September 2009). CCW (now NRW) has also produced draft guidance 'The Appraisal of Plans under the Habitats Directive' (D Tyldesley and Associates, November 2009 (Revised April 2010 and September 2012)) which takes account of developments in HRA practice.

1.9 The methods and approach used for this HRA are based on the formal Welsh guidance currently available and emergent practice, which recommends that HRA is approached in three main stages - outlined in **Table 1**. This report outlines the method and findings for stage 1 and 2 of the HRA process - the Screening and Appropriate Assessment.

[1] Determining whether an effect is 'significant' is undertaken in relation to the designated interest features and conservation objectives of the Natura 2000 sites. If an impact on any conservation objective is assessed as being adverse then it should be treated as significant. Where information is limited the precautionary principle applies and significant effects should be assumed until evidence exists to the contrary.

[2] Integrity is described as the sites' coherence, ecological structure and function across the whole area that enables it to sustain the habitat, complex of habitats and/or levels of populations of species for which it was classified, (ODPM, 2005).

Table 1 **Habitats Regulations Assessment: Key Stages**	
Stage 1	
Screening for likely significant effect	▪ Identify international sites in and around the plan/ strategy area in search area agreed with the Statutory Body, Natural Resources Wales (NRW) ▪ Examine conservation objectives of the interest feature(s)(where available) ▪ Review plan policies and proposals and consider potential pathways and effects on European sites (magnitude, duration, location, extent) ▪ Examine other plans and programmes that could contribute to 'in combination' effects
	▪ *If no effects likely – report no significant effect (taking advice from NRW as necessary).* ▪ *If effects are judged likely or uncertainty exists – the precautionary principle applies proceed to* ***stage 2***
Stage 2	
Appropriate Assessment	▪ Complete additional scoping work including the collation of further information on sites as necessary to evaluate impact in light of conservation objectives ▪ Agree scope and method of AA with NRW ▪ Consider how plan 'in combination' with other plans and programmes will interact when implemented (the Appropriate Assessment) ▪ Consider how effect on integrity of site could be avoided by changes to plan and the consideration of alternatives ▪ Develop mitigation measures (including timescale and mechanisms) ▪ Report outcomes of AA including mitigation measures, consult with NRW and wider [public] stakeholders as necessary ▪ If plan will not significantly effect European site proceed without further reference to Habitats Regs
	▪ *If effects or uncertainty remain following the consideration of alternatives and development of mitigations proceed to* ***stage 3***
Stage 3	
Procedures where significant effect on integrity of international site remains	▪ Consider alternative solutions, delete from plan or modify ▪ Consider if priority species/ habitats affected ▪ Identify 'imperative reasons of overriding public interest' (IROPI) economic, social, environmental, human health, public safety ▪ Notify Welsh Government ▪ Develop and secure compensatory measures

Consultation

1.10 The Habitats Regulations require the plan making/competent authority to consult the appropriate nature conservation statutory body [Natural Resources Wales (NRW)].

1.11 Consultation with NRW (formerly CCW) has been undertaken at key stages of the HRA of VoG's LDP development. NRW commented on the HRA Screening Report (Dec 2007) in February 2008 and on proposed site allocations in March and October 2010. They also commented on the HRA (AA) Report (Dec 2011) for the 2012 Deposit LDP in April 2012. These comments and advice have been taken forward in the iterative HRA work documented in this report.

1.12 The Habitats Regulations leave consultation with other bodies and the public to the discretion of the plan making authority. WG guidance notes that it is good practice to make information on HRA available to the public at each formal development plan consultation stage. Therefore, in addition to the statutory consultation undertaken with NRW, this HRA (AA) Report is available for wider public consultation.

Purpose & Structure of Report

1.13 This report documents the process and the findings from the re-screening work as it informed the AA and then the findings and recommendations of the main AA Stage. Following this introductory section the document is organised into a further four sections:

- **Section 2** - outlines the methods used for the previous HRA Reports as well as this Report including reference to the key information sources used and the consultation comments received to date.
- **Section 3** - outlines the process and summary findings of the re-evaluation screening findings.
- **Section 4** - outlines the process and summary findings of the Appropriate Assessment.
- **Section 5** - outlines the conclusions and recommendations, including how the LDP should now proceed with reference to the Habitats Regulations.

2.0 METHOD

AA Screening Report (December 2007) - HRA of the VoG Local Development Plan Draft Preferred Strategy

2.1 The first Screening Stage Report of the HRA of VoG's LDP Draft Preferred Strategy identified which European sites within and around the plan area should be considered in further detail by the HRA process. The sites considered were:

1. Cardiff Beech Woods SAC
2. Dunraven Bay SAC
3. Kenfig SAC
4. Severn Estuary SAC (this was a candidate SAC at the time)
5. Cefn Cribwr Grassland SAC
6. Severn Estuary SAC, SPA & Ramsar

2.2 Specifically, the screening identified that the following European sites may be potentially affected by activities/ impacts arising from Draft Preferred Strategy Proposals:

- Kenfig SAC; and
- Severn Estuary SAC, SPA & Ramsar.

2.3 With regard to Kenfig, it was assessed that mineral extraction and/or the potential use of three quarries (Ewenny, Pant, Lithalun) within 3 kilometres of the SAC could potentially have an impact of the Kenfig SAC. However, it was also assessed that significant impacts would be unlikely due to the distance and ground contours but it was still recommended that the site should be subject to a more detailed assessment at a later stage of the LDPs development.

2.4 With regard to the Severn Estuary, it was considered that given the extent of the Estuary and the diverse range of activities and operations that could result in adverse impact to the European Site, it was inevitable that the Draft Preferred Strategy will in some way have an impact on the European site. While much of the development proposed in the Draft Preferred Strategy was identified as being located well away from the Severn Estuary, the south-eastern zone has been identified as a growth area and abuts the boundary of the European site in certain areas. Therefore, it was recommended that a more detailed assessment of the LDP be undertaken following consultation on the Draft Preferred Strategy to ascertain and mitigate against any likely significant effects to the SPA, SAC & Ramsar.

2.5 The key potential impacts identified by the screening of the LDP Draft Preferred Strategy policies were:

- atmospheric pollution;
- disturbance;
- water pollution; and

- water abstraction.

2.6 The Screening Report 2007 concluded that an AA be undertaken to fully ascertain the effect of the LDP on the integrity of the identified European sites. In addition, whilst the screening considered it highly unlikely that the Draft Preferred Strategy will result in significant detrimental effects to the integrity of the other 4 sites identified, it recommended that a precautionary approach be adopted and that the potential for impacts to the designated sites be re-assessed when candidate sites have been considered.

HRA (AA) Report December 2011

2.7 Following the HRA Screening (December 2007) of the Draft Preferred Strategy, VoG progressed further with the development of the LDP. In line with current guidance and the recommendations of the Screening Report (December 2007), the December 2011 HRA (AA) Report revisited screening to determine whether the changes and additions made to the LDP have the potential to lead to likely significant effects. The same European sites identified in the 2007 Screening Report were considered.

2.8 The re-screening concluded that the 2012 Deposit LDP had the potential for likely significant effects on European sites alone as a result of development proposed in the 2012 Deposit LDP and/ or location of proposed development. To address these identified issues the HRA recommended a number of policy safeguards in relation to specific Deposit LDP Policies and site allocations. The HRA (AA) Report (Dec 2011) concluded that the 2012 LDP (including site allocations) would not have likely significant effects alone on European sites, if the recommended policy safeguards were incorporated into the Plan.

2.9 The 2011 HRA Report also identified four main areas of impact arising that may have the potential for significant in combination effects - with development proposed in surrounding areas - on the integrity of 5 identified European sites: water resources, water quality, disturbance and air quality. These issues were taken forward into the AA and considered in further detail in relation to the Cardiff Beech Woods SAC (air quality & disturbance) Kenfig SAC (air quality, water levels & water quality) and Severn Estuary SAC/ SPA/ Ramsar (considered against all the identified areas of impact).

<u>Air Quality (in combination)</u>

2.10 The AA assessed that the 2012 Deposit LDP contained suitable mitigation measures to address the potential in combination effects on European sites that could occur through changes to air quality. Specifically, the 2012 Deposit LDP ensures that development proposals do not cause or result in unacceptable impact to a range of interests, including the natural environment, as a result of air pollution. Other Policies aimed to reduce or limit traffic congestion through: promoting

sustainable transport modes; reducing the need to travel by providing local facilities within or close by development and improving walking and cycling networks.

Disturbance (in combination)

2.11 The AA considered that determining the significance of increased disturbance on European sites is complex and dependent on a variety of factors including the sensitivity of designated features and the level of their exposure to recreational activities. Given the unique recreational opportunities that the European sites provide and the level of development proposed around them, it is not likely that an individual authority alone could avoid, mitigate or compensate for adverse effects of increased disturbance on the integrity of the identified European sites if they should occur. The HRA (AA) Report stated that at a strategic level the 2012 Deposit LDP sought to address this issue through policies that provide important alternative spaces for recreation as well as the protection and enhancement of existing open space. The assessment noted that the direct impacts of recreational activity are most appropriately addressed at the site level through co-operative measures. The AA concluded that the 2012 Deposit Plan would not have adverse in combination effects on the integrity of European sites through increased disturbance given the mitigation provided by Deposit LDP Policies. This finding was subject to the incorporation of additional wording within the supporting text of Policy MG27 (Glamorgan Heritage Coast) to ensure that development has no adverse effects on European sites.

Water Resources and Quality (in combination)

2.12 The AA concluded that the 2012 Deposit Plan would not have adverse in combination effects on the integrity of European sites through reduced water levels and quality. This was based on the mitigation provided by 2012 Deposit LDP Policies - which included the requirement for development to demonstrate that it will not result in an unacceptable impact on the natural environment from pollution of land, surface water or ground water - and the incorporation of further mitigation measures. These further measures include the recommendation for the 2012 Deposit Plan to incorporate policy wording that requires the efficient use of water in new developments and ensure that there is sufficient capacity in waste water treatment facilities prior to occupation of any new development throughout the lifetime of the plan. In acknowledgement of the pressures on water resources and the uncertainties arising from new development in SE Wales the AA also recommended that the Council undertakes a Water Cycle Study (in collaboration with neighbouring authorities across South East Wales) during the first 4 years of the LDP after its adoption. This is consistent with NRW advice for other HRAs of LDPs in SE Wales.

2.13 The 2011 HRA (AA) Report was subject to consultation with CCW (now NRW) who provided comments in April 2012. These comments and a response to them have been provided in Appendix 5.

Re-Screening of the Replacement Deposit LDP (September 2013)

2.14 As explained in Section 1, since the publication of the previous HRA (AA) Report in February 2012, the 2012 Deposit LDP is no longer being progressed, and a Replacement Deposit LDP has been prepared. This incorporates a number of changes from the 2012 Deposit LDP, which include the introduction of new allocations and policies as well as changes to existing allocations and policies. In line with extant guidance and the recommendations of previous screening work presented in the HRA (AA) Report (Dec 2011), the HRA revisited the screening stage to determine whether the Deposit LDP has the potential to lead to likely significant effects.

2.15 In addition, CCW (NRW), as explained above, made comments on the 2011 HRA (AA) Report in April 2012. These comments have been addressed in this HRA (AA) Report and are presented in **Appendix 5**.

2.16 CCW (NRW) requested that the HRA also consider the River Usk SAC and River Wye SAC within the screening assessment, as part of the County Borough's water supply is sourced from the South East Wales Conjunctive Use System, which includes abstractions from these two SACs. To address this comment the River Usk SAC and Wye SAC have been scoped into the re-screening of the Deposit LDP and site characterisations have been included in **Appendix 1**.

2.17 The re-screening of the Deposit LDP policies and site allocations are presented in **Appendices 3 & 4** respectively and summarised in **Section 3** of this report.

Appropriate Assessment

2.18 Assessing the impacts of plans, policies and proposals against the European site conservation objectives is required by Regulation 102 of the Conservation of Habitats and Species Regulations 2010 (as amended). This 'Appropriate Assessment' is the core part of the HRA process and involves the key tasks set in **Table 2**.

2.19 The findings of the Screening identified that there was the potential for likely significant effects and therefore the possibility for adverse effects on site integrity should be considered further through the AA process for the following European sites:

- Cardiff Beech Woods SAC;
- Kenfig SAC;
- River Usk SAC;
- River Wye SAC; and
- Severn Estuary SAC, SPA & Ramsar.

Table 2 - Appropriate Assessment Stage: Key Tasks	
Task 1 **Scoping and Additional Information Gathering**	▪ Gathering additional information on European sites ▪ Gathering additional data on background environmental conditions ▪ Further analysis of plans/ projects that have the potential to generate 'in combination' effects
Task 2 **Assessing the Impacts (in-combination) Appropriate Assessment**	▪ Examination of the policies and proposals identified during the screening phase and their likely significant effects on European sites ▪ Consideration of whether effects are direct/ indirect/ cumulative ▪ Consideration of whether other plans and programmes are likely to generate effects that have the potential to act cumulatively with those arising from the plan
Task 3 **Developing Mitigation Measures (including initial avoidance)**	▪ If effects identified – either arising from the plan alone and/or 'in combination' with other plans – consider initial opportunities to avoid (e.g. delete/ remove or amend policy from plan) ▪ Develop mitigation measures – must be deliverable by the plan and have clear delivery/ monitoring responsibilities
Task 4 **Findings & Recommendations**	▪ Conclude the assessment, explain key findings and analysis informing conclusions.
Task 5 **Consultation**	▪ Undertake further consultation with NRW (assumes that consultation has also been an iterative process throughout the HRA/AA).

2.20 The full range of plans and projects [and their potential impacts] considered by the assessment in relation to possible in combination effects, are detailed in **Appendix 2** (updated since 2011). This in combination analysis is integral to the assessment process as detailed in **Section 4**. As part of the AA process consideration was also given to related HRA work undertaken at a strategic level (the HRA of the Wales Spatial Plan Update and HRA of Welsh Water's Revised Final Water Resource Management Plan) and neighbouring authorities' HRAs, where available.

3.0 RE-EVALUATION OF SCREENING FINDINGS (2013)

3.1 In line with current guidance and good practice, the HRA revisited the screening assessment to determine whether the Deposit LDP has the potential to lead to likely significant effects. This Section outlines the findings of this further screening assessment.

Deposit LDP Policy Screening

3.2 Screening of the Deposit LDP involved identifying the policies that may lead to significant effects on European sites both alone and in combination. The approach taken was in accordance with CCW (now NRW) draft guidance for plan making authorities in Wales, 'the Appraisal of Plans under the Habitats Directive' (Tyldesley, D. 2009 (Revised April 2010 and September 2012)). In order to complete the policy screening each policy was categorised as to its likely effects on the European sites identified in **Appendix 3**. There are four categories of potential effects:

- **Category A**: elements of the plan/options that would have no negative effect on a European site at all;
- **Category B**: elements of the plan/options that could have an effect, but the likelihood is there would be no significant negative effect on a European site either alone or in combination with other elements of the same plan, or other plans or projects;
- **Category C**: elements of the plan/options that could or would be likely to have a significant effect alone and will require the plan to be subject to an appropriate assessment before the plan may be adopted;
- **Category D**: elements of the plan/options that would be likely to have a significant effect in combination with other elements of the same plan, or other plans or projects and will require the plan to be subject to an appropriate assessment before the plan may be adopted.

3.3 Categories A, C and D are subdivided so that the specific reason why a policy has been allocated to a particular category is clear. The detail of the screening assessment which considers each of the Deposit LDP policies against the categories is provided in **Appendix 3** and policies which were considered to potentially lead to likely significant effects are listed in **Table 3.**

Table 3: Summary of Deposit LDP Policy Screening	Assessment Category
Strategic Policies	
SP 1 – DELIVERING THE STRATEGY	**C2 & D2**
SP 2 – STRATEGIC SITES	**C2 & D2**
SP 3 – RESIDENTIAL REQUIREMENT	**C2 & D2**
SP 4 – AFFORDABLE HOUSING PROVISION	**A1**
SP 5 – EMPLOYMENT REQUIREMENTS	**D2**
SP 6 – RETAIL	**D2**
SP 7 – TRANSPORTATION	**D2**
SP 8 – SUSTAINABLE WASTE MANAGEMENT	**C2 & D2**
SP 9 – MINERALS	**C4**
SP 10 – BUILT AND NATURAL ENVIRONMENT	**A1/A2**
SP 11 - TOURISM AND LEISURE	**D2**
Managing Growth in the Vale Of Glamorgan	
MG 1 - HOUSING SUPPLY IN THE VALE OF GLAMORGAN	**D2**
MG 2 - HOUSING ALLOCATIONS	**D2**
MG 3 – STRATEGIC SITE AT BARRY WATERFRONT	**C2 & D2**
MG 4 – AFFORDABLE HOUSING	**A1**
MG 5 – GYPSY AND TRAVELLER SITE	**B**
MG 6 – PROVISION OF EDUCATIONAL FACILITIES	**D2**
MG 7 – PROVISION OF COMMUNITY FACILITIES	**D2**
MG 8 – PROVISION OF HEALTH FACILITIES	**B**
MG 9 - EMPLOYMENT ALLOCATIONS	**D2**
MG 10 – ST ATHAN – CARDIFF AIRPORT ENTERPRISE ZONE	**D2**
MG 11 – LAND TO THE SOUTH OF JUNCTION 34 M4 HENSOL	**C2&D2**
MG 12 – RETAIL HIERARCHY	**A1**
MG 13 – EGDE AND OUT OF TOWN RETAILING AREAS	**A1**
MG 14 – NON A1 RETAIL USES WITHIN TOWN AND DISTRICT RETAIL CENTRES	**A1**
MG 15 – NON A1 RETAIL USES WITHIN LOCAL & NEIGHBOURHOOD RETAIL CENTRES	**A1**
MG 16 – TRANSPORT PROPOSALS	**D2**
MG 17 – SPECIAL LANDSCAPE AREAS	**A1**
MG 18 - GREEN WEDGES	**A1**
MG 19 - SITES OF IMPORTANCE FOR NATURE CONSERVATION	**A1**
MG 20 – DEVELOPMENT IN MINERALS SAFEGUARDING AREAS	**C2**
MG 21 – BUFFER ZONES	**A1**
MG 22 – DORMANT MINERAL SITES	**A1**
MG 23 - MINERAL WORKING	**D2**
MG 24 - GLAMORGAN HERITAGE COAST	**A2**
MG 25 – PUBLIC OPEN SPACE ALLOCATIONS	**A1**
MG 26 - TOURISM AND LEISURE FACILITIES	**C2 & D2**
Managing Development Policies	
MD1 - LOCATION OF NEW DEVELOPMENT	**A1**
MD 2 - PLACE MAKING	**A1**
MD 3 – DESIGN OF NEW DEVELOPMENT	**A1**
MD 4 - COMMUNITY INFRASTRUCTURE AND PLANNING OBLIGATIONS	**A1**
MD 5 – RESIDENTIAL DEVELOPMENT IN KEY, SERVICE CENTRE AND PRIMARY SETTLEMENTS	**D2**
MD 6 – RESIDENTIAL DEVELOPMENT WITHIN MINOR RURAL SETTLEMENTS	**D2**
MD 7 - HOUSING DENSITIES	**A1**
MD 8 - ENVIRONMENTAL PROTECTION	**A1**
MD 9 – HISTORIC ENVIRONMENT	**A3**
MD 10: PROMOTING BIODIVERSITY	**A1**
MD 11 - AFFORDABLE HOUSING IN RURAL AREAS	**A1**
MD 12 – CONVERSION AND RENOVATION OF RURAL BUILDINGS	**B**
MD 13 – DWELLINGS IN THE COUNTRYSIDE	**B**
MD 14 - TOURISM AND LEISURE	**D2**
MD 15 – NEW EMPLOYMENT PROPOSALS	**D2**
MD 16 – PROTECTION OF EMPLOYMENT LAND AND PREMISES	**D2**
MD 17 – RURAL ENTERPRISE	**B**
MD 18 – GYPSY AND TRAVELLER ACCOMMODATION	**B**
MD 19 – LOW CARBON AND RENEWABLE ENERGY GENERATION	**D2**

3.4 The HRA Screening Report (2007), consultation with CCW (now NRW), screening of 2012 Deposit LDP (Dec 2011) and the re-screening of policies identified a number of impacts that have the potential to result in likely significant effects on European sites. The significance of these impacts is dependent to some extent on the location of proposed development.

3.5 Certain policies (SP 1, SP 2, SP3, SP 8, MG 3, MG 11, MG 20, and MG 26) were identified as having the potential for a significant effect alone on European sites, given the quantum and/ or location of the proposed development. The screening of site allocations (**Appendix 4**) considered the capacity and location of proposed sites in further detail. The findings and recommendations of the site allocations screening are presented later in this Section.

3.6 Policies SP8, SP9 and MG20 concern mineral working and a key issue in relation to European Sites relate to activities that could impact the underlying limestone aquifer supplying the Kenfig SAC. Quarrying activities and subsequent after use of quarries (e.g. open air waste facilities or landfill) could therefore have an impact, even from a considerable distance away. Further research/evidence is required about the use of mineral working sites, any implications on the aquifer and the likelihood of any impact on Kenfig. This could be examined as part of recommendations made through the AA in Section 4 under Water Resources for a Water Cycle Study.

3.7 CCW stated (April 2012) that Policy MD 6 (Promoting Biodiversity) in the 2012 Deposit LDP was not compliant with The Conservation of Habitats and Species Regulations 2010 (as amended). This predominantly related to the policy text relating to the provision of compensation if impacts on important biodiversity cannot be addressed on site. Amended policy MD 10 (promoting Biodiversity) in the Deposit LDP no longer includes a reference to the provision of compensation with regard to European sites. It is recommended that Policy MD 10 (Promoting Biodiversity) clearly sets out that in line with the Habitats Regulations (Regulation 62) and in consultation with NRW, it will be necessary for project level assessments to be undertaken where there is a potential for significant effects on European sites. Any development project that could have an adverse effect on integrity of a European site will not be in accordance with the development plan, within the meaning of S.38(6) of the Planning and Compulsory Purchase Act 2004'. The incorporation of this recommendation should address the concerns of NRW.

3.7 If the recommendations outlined above are incorporated into the Deposit LDP, the HRA would be able to conclude that Deposit LDP Policies would not have likely significant effects alone on European sites.

3.8 The majority of LDP Policies (in particular the ones which allocate sites) were identified as having the potential for in combination effects with

other plans, programmes and projects. These potential effects were originally identified by the 2007 Screening Report and have been broadly characterised against the following 'pathways of impact':

- **Water Quality** - resulting from increased discharge requirements arising from new residential and employment developments and the potential for increased point source pollution, changes to surface water/ run-off.
- **Water Resources** - resulting from increased demand for water consumption arising from new residential and employment developments.
- **Atmospheric Pollution** - arising from a growth in airborne and surface transport as well as general development (emissions from construction/ building stock).
- **Disturbance** - predominantly as a result increased recreational activity arising from new residential and employment developments.

3.9 The potential for the LDP to act in combination with other plans, programmes and projects to have significant effects on European sites through the pathways of impact identified above is considered in **Section 4**.

Site Allocations Screening

3.10 The site allocations screening (**Appendix 4**) considered the potential for site allocations identified in the Deposit LDP to have likely significant effects on European sites. A range of information sources were used to carry out the screening, including information from the European site characterisations and strategic site studies. The capacity and location of the sites was taken into consideration alongside the potential pathways for impact and known sensitivities of European sites.

3.11 The screening found that for the majority of site allocations there were no pathways for development to have direct impacts on European sites, given the distance of the allocations from designated habitats and species, and the lack of connectivity between the development and the potential receptors. The potential for development at the sites to have indirect impacts on European sites was also considered. The screening assessed that the potential indirect impacts of development at all the proposed site allocations could be either avoided or mitigated through the Deposit LDP Policies, which seek to protect biodiversity and minimise the impact of development on the environment. This includes the following policy mitigation/ safeguards in the Deposit LDP:

- SP1: Strategy
- SP 7: Transportation
- SP 10: Built & Natural Environment
- MG 16: Transport Proposals
- MG 18: Green Wedges

- MG 19: Sites of Importance for Nature Conservation
- MD 1: Location of New Development
- MD 2: Place Making
- MD 3: Design of New Development
- MD 4: Community Infrastructure and Planning Obligations
- MD 8: Environmental Protection
- MD 10: Promoting Biodiversity

3.12 Policy SP10 in particular requires development proposals to protect and where appropriate enhance sites designated for their European nature conservation importance. It was also considered that appropriate site level mitigation would be available and could be required at the planning application stage to address any unforeseen impacts of individual developments on European sites.

3.13 The findings of the site allocations screening where impacts were identified for allocations alone are summarised below.

3.14 **Barry Waterfront, Barry** (SP 2 [1], SP 7 [1], MG 2 [1], MG 3, MG 6 [3], MG 7 [1]), comprises a large mixed use development (48.55 ha) including: 1,700 dwellings (reduction of 300 dwellings since 2011 HRA (AA) Report); 6,400 sq (Net) Retail Floorspace; Hotel, Café, Bars and Restaurants; B1(Offices); new community infrastructure; Barry Island Link Road; A new primary and nursery school (2 ha); and 7.83 ha of open space and recreational facilities. This was considered to potentially have indirect impacts through increased recreation, increased atmospheric pollution and increased pressure on sewerage capacity. However, given its distance from the Severn Estuary (around 7km), the mitigation policies contained in the Plan, plus the infrastructure and implementation requirements of the development (e.g. transport contributions, public open spaces) as well as the reduction in the number of houses, would make any significant impacts unlikely.

3.15 **The National Cycle Network Route 88** (SP 7 [6]), seeks to connect Barry, Sully and Penarth to Cardiff**.** No direct impacts are considered likely although there could be potential for indirect impacts through increased recreational disturbance. This would only be to the part of route 88 which is in close proximity to the Severn Estuary SAC, SPA and Ramsar. Given the relatively small section of the cycle route which is in close proximity to the European sites and the mitigation policies contained in the plan, it was assessed that development at this location will not have likely significant effects on the Severn Estuary SAC, SPA and Ramsar alone.

3.16 **Land at Upper Cosmeston Farm, Lavernock** (formerly known as Land at Fort Road) (MG 2 [23]) proposes 235 dwellings (reduction of 165 dwellings since 2011 HRA (AA) Report) including a new primary and nursery school and new community infrastructure. The Site is 400m away from the Severn Estuary SAC, SPA & Ramsar. Development will not result in any direct impacts as the site is raised on a headland

above the Severn Estuary. There are a range of indirect impacts possible, including recreational disturbance, disturbance through noise and vibration and pollution through ground and surface water run-off. There is however the potential for indirect impacts on the Severn Estuary SAC, SPA and Ramsar through increased recreation, atmospheric pollution, pressure on sewerage capacity and surface run-off.

3.17 The 235 dwellings proposed for the site will be phased over the life of the plan (2016 to 2026) and the mitigation provided by Deposit LDP policies will seek to protect biodiversity and minimise the impact of development on the environment. As a result of the planned phasing of the development, the reduction in the number of dwellings and the mitigation provided by the other policies in the Plan, it is assessed that development at this location will not have likely significant effects on the Severn Estuary SAC, SPA and Ramsar alone. The 2012 Deposit LDP included a requirement for project level HRA to be undertaken for any proposal at this site. The Deposit LDP no longer includes this requirement. It is recommended that this is reintroduced to the Plan.

3.18 **Headlands School, St Augustine's Road, Penarth** (MG 2 [25]), comprises 65 dwellings (reduction of 15 dwellings since 2011 HRA (AA) Report) including open space and recreational facilities (0.24 ha). There is no phasing of the development - all 65 units planed between now and 2016. It lies around 100m from part of the Severn Estuary SAC, SPA & Ramsar. There are a range of direct and indirect impacts possible, including land-take of supporting habitats (no direct land-take of European sites), recreational disturbance, disturbance through noise and vibration and pollution through ground and surface water run-off.

3.19 Given the small nature of the development in relation to the Severn Estuary site and the mitigation provided by other policies in the Plan, it is assessed that development at this location is unlikely to have significant effects on the Severn Estuary SAC, SPA and Ramsar alone. The 2012 Deposit LDP included a requirement for project level HRA to be undertaken for any proposal at this site. The Deposit LDP no longer includes this requirement. It is recommended that this is reintroduced to the Plan.

3.20 **Llandough Landings, Llandough (Penarth) (MG 2 [32]) (New site since 2011 HRA (AA)),** comprises 120 dwellings. Site lies around 2.4km away from the nearest European Site (Severn Estuary) so direct impacts are unlikely. However, given the site is directly adjacent to the Ely River which eventually flows into the Severn Estuary, there could be indirect impacts resulting from pollution of ground and surface water run-off both during construction and potentially during operation. Policy MD 8 requires that development proposals will need to demonstrate that they will not result in an unacceptable impact on the natural environment from pollution of land, surface water, ground and air. This along with other policy mitigation provided by the plan (including the recommendation set out earlier in this Section relating to Policy MD10)

should ensure that development at this site will not have significant effects on the Severn Estuary SAC, SPA and Ramsar.

3.21 **Ogmore Residential Centre** (MG 2 [41]) **and Caravan Park, Ogmore-by-Sea** (MG 2 [42]) both these two sites lie around 2km from both Kenfig and Dunraven Bay European Sites. Dunraven Bay SAC is primarily designated for the population of shore dock which is located on an inaccessible cliff face. Therefore, development is unlikely to have direct or indirect impacts on this site. Kenfig SAC is a largely intact dune system in South Wales with extensive areas of fixed dune vegetation; part of which is in direct proximity to Ogmore. Development in this vicinity has the potential for likely significant effect on the Kenfig SAC through changes to the groundwater which feeds the site. Development in smaller settlements may also have an impact on the Kenfig and Ogwr Rivers and potential cumulative impacts will need to be considered. The Kenfig SAC is designated for its internationally significant coastal dune systems. Annex I habitats of the EC Habitats Directive that are the primary reasons for designating the site include fixed dunes with herbaceous vegetation, dunes with *Salex repens spp. Argentea*, humid dune slacks and Hard *oligo-mesotrophic* waters with benthic vegetation of *Chara spp*. Annex II species that are the primary reason for designating the site include Petalwort and Fen Orchid. The particular vulnerabilities of the site include:

- falling water tables from local extraction of water and/or drainage of adjacent land used for agriculture or housing.
- water quality the major water quality concerns are related to elevated nutrient levels. Elevated levels of nitrogen have been found at Burrows Well on Merthyr Mawr and there is also some indication that dune slacks are becoming increasingly eutrophic. The nature of the underlying limestone aquifer means that off-site activities a considerable distance away can potentially have an impact on the SAC.
- petalwort is vulnerable to impacts of drainage.

3.22 Water pollution could cause nutrient enrichment resulting in changes to the types and abundance of vegetation, with an impact on species that are integral to the combined site designation. These impacts can be from poor water quality from insufficient treatment of waste water and therefore can in part be addressed through the LDP, although this would need to be in combination with the implementation of other measures to control pollution.

3.23 There could also be impacts on water quantity, with the pools and dune slacks on the combined site requiring high ground water levels. Therefore, water demand from new built development could have an impact on this. NRW will ensure that any new abstractions will not have adverse effects on the integrity of Kenfig SAC through reduced water levels. Even with this regulatory process in place the Council should ensure that suitable policies are in place to require the efficient use of

water in new development. It is considered that the mitigation contained in the Plan policies should make any significant impact unlikely.

3.24 **Land West of Swanbridge Road, Sully (reserve site)** (MG 2 [46]), lies 2.5km from the Severn Estuary European Site and whilst it is a large development of 500 units (reduction of 220 dwellings since 2011 HRA (AA) Report) direct impacts are unlikely. The 500 dwellings proposed for the site will be phased over the life of the plan (2016 to 2026) and the mitigation provided by LDP policies will seek to protect biodiversity and minimise the impact of development on the environment. There could be indirect impacts from this proposal in terms of recreational disturbance but the mitigation contained in the Plan policies should make any significant effect unlikely.

3.25 **Land to the South of Junction 34, M4, Hensol** (MG 11) lies over 5km from the nearest European site, Cardiff Beech Woods SAC. Policy SP5 states that this site (along with the other SP5 employment locations) is intended to meet the needs of the following key economic sectors: Aerospace Industry; High Tech Manufacturing and Logistics and Distribution. Impacts could therefore occur from increased pollution associated with the development, either from increased road use (from distribution and logistics) or from specific industrial purposes. The Council's 2007 HRA Screening Report advised that 'a detailed evaluation of air pollution impacts to the Cardiff Beech Woods SAC will be required before the potential risks to the habitats and species can be properly assessed' - this was in relation to development contained in the Plan as a whole (not any particular development). The 2007 Report also stated that 'the woodlands' 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. There is no evidence to date that this has had an adverse impact on the features but this may need to be addressed in more detail in the future.

3.26 Development proposed in the Plan and at this site allocation is likely to result in increased vehicular movements and therefore produce a resultant increase in air pollution. However, the location of the designated site within industrial South Wales means that it is already subject to high levels of pollution. Given that the uses are unknown, any air pollution impacts are difficult to assess. However, it is unlikely that this development in isolation would lead to any direct or indirect impacts and mitigation/ protection is in place through the Plan policies. To effectively address the issue of air quality across SE Wales, and in particular, the effects on European designated sites, a strategic regional approach to air quality management is required.

3.27 The screening assessment concluded that the site allocations would not have likely significant effects on European sites alone if the recommended policy safeguards are incorporated into the Plan.

4.0 APPROPRIATE ASSESSMENT (2013)

AA Scope

4.1 The re-screening of Deposit LDP policies and site allocations found that there is potential for likely significant effects on European sites as a result of development proposed in the LDP and surrounding areas. This AA takes forward the findings of the screening assessment to determine if there is the potential for the LDP to have adverse in combination effects on the integrity of the identified European sites.

4.2 The policy screening (**Appendix 3**), site allocation screening (**Appendix 4**) and review of plans and programmes in combination (**Appendix 2**) identified four main areas of impact arising that may have the potential for significant effects when combined with the effects arising from other plans, programmes and projects on the integrity of the identified European sites: water resources, water quality, disturbance and air quality. These issues are investigated further below. This potential for in combination effects is explained in more detail through the AA analysis below. **Table 4** shows (shaded red) the European sites against the potential issues that will be investigated further below.

Table 4: AA Scope

European sites	Pathways of Impact			
	Disturbance	Water resources	Water Quality	Air Quality
Cardiff Beech Woods SAC				
Kenfig SAC				
Severn Estuary SAC, SPA & Ramsar				
River Usk SAC				
River Wye SAC				

Air Quality

4.3 The screening assessment concluded that there is uncertainty with regard to the potential for likely significant effects at the following European sites through increased atmospheric pollution:

- Cardiff Beech Woods SAC;
- Kenfig SAC; and
- Severn Estuary SAC, SPA & Ramsar.

What are the issues arising from the plan?

4.4 Development proposed in the LDP and surrounding areas has the potential to increase atmospheric pollution, which will predominantly arise from an increase in traffic associated with the projected population growth over the life of the plan.

How might the European sites be affected?

4.5 Atmospheric pollution from traffic is most likely to affect the habitats which comprise the qualifying features of the identified European sites, although there is the potential for designated species to also be affected, as in most cases they rely upon the designated habitats. **Table 5** below, identifies the potential impacts of atmospheric pollution on the designated habitats of the European sites considered in this AA.

Table 5: Impacts of Atmospheric Pollution on Annex I Habitats[3]

Annex I Habitats[4]	Impacts of Atmospheric Pollution[5]
Marine, Coastal and Halophytic[6] Habitats (Severn Estuary SAC)	
▪ Sandbanks which are slightly covered by sea water all the time (1110) ▪ Estuaries (1130) ▪ Mudflats and sandflats not covered by seawater at low tide (1140) ▪ Reefs (1170) ▪ Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (1330)	The air pollutant threats to coastal and marine habitats may differ compared with other environments, either because of different air pollution stresses or ecosystem sensitivity. **Eutrophication** - Many coastal habitats are potentially sensitive to nitrogen deposition. Similarly, salt water ecosystems, such as estuarine habitats may be under the dual threat of nutrient inputs from river inputs and atmospheric deposition. Some coastal environments can be highly eutrophic (highly productive ecosystems, which are rich in plant nutrients) as a result of droppings from sea bird colonies. **Ozone** - As with other semi-natural ecosystems, coastal habitats are expected to be sensitive to ozone concentrations. The effects are expected to parallel those for example grassland ecosystems. It should be noted, however, that the structure of the coastal atmospheric boundary layer permits a greater mixing down of ozone concentrations, so that the ozone exposure of coastal ecosystems is larger than for inland areas. This additional stress will encourage the development of ozone tolerant ecotypes. As these are expected to have different competitive abilities, the community species composition may gradually change. Impacts of ozone on marine ecosystems are not expected, since the ozone is rapidly destroyed following contact with the sea surface.
Coastal sand dunes and continental dunes (Kenfig SAC)	

[3] Adapted from the South East Wales Strategic Planning Group HRA Toolkit (2011)
[4] JNCC - Annex I Habitat Accounts: http://www.jncc.gov.uk/ProtectedSites/SACselection/SAC_habitats.asp
[5] APIS - Impacts by Ecosystem: http://www.apis.ac.uk/
[6] Halophytic plants are plants that can tolerate salty conditions.

Annex I Habitats[4]	Impacts of Atmospheric Pollution[5]
▪ Fixed dunes with herbaceous vegetation (`grey dunes`) (2130) ▪ Dunes with Salix repens ssp. argentea (Salicion arenariae (2170) ▪ Humid dune slacks (2190)	**Atmospheric nutrient deposition** is considered to be a factor adversely affecting sand dunes. It is also suspected that nutrient deposition on many sand dunes is already above their critical threshold for impacts on vegetation. For dune slacks, this could lead to a speeded up succession away from dune slack vegetation. **Nitrogen (N) deposition** is thought to be a major contributor to over-stabilisation and species decline in UK dune systems.
Freshwater habitats (Kenfig SAC)	
▪ Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. (3140)	There are five pollutant groups that could affect the quality of freshwaters: nutrients; acid deposition; heavy metals; POPs and radioactive particles. **Eutrophication** - nutrients, specifically phosphorus and nitrogen, are responsible for the eutrophication of rivers and lakes. The response of lakes to increased phosphorus concentrations is quite well understood and, in general, there is increased growth and change of species of phytoplankton, zooplankton, sediment-dwelling invertebrates, fish and macrophytes and lower oxygen concentrations, especially in the deeper parts of lakes. **Acid Deposition** - onto freshwaters (and catchments) can lead to acidification. The management and regulation of the acidification of freshwater is well developed in the United Kingdom. The biological groups affected by freshwater acidification are fish (mainly brown trout), invertebrates (mayfly and caddis larvae), macrophytes and the dipper. **Deposition of heavy metals and Persistent Organic Pollutants (POPs)** - onto lakes occurs, even in rural and remote areas, but the ecological effects of this are not known. If any biological group are affected, they are likely to be fish (and fish-eating birds) and sediment-dwelling organisms.
Forests (Cardiff Beech Woods SAC)	
▪ *Asperulo-Fagetum* beech forests (9130)	**Nitrogen Deposition** - Woodlands and forests scavenge air pollutants effectively, with the result that inputs of nitrogen deposition to woodlands are generally larger than for other habitat types. There has been a long-running debate regarding the extent to which actual "forest decline" occurs as a result of nitrogen deposition. What is clear is that the most sensitive elements are actually the woodland ground flora and epiphyte communities, which are particularly relevant in defining conservation status. Changes in forest ground flora have been clearly documented as a result of enhanced N deposition near farms and are also expected to occur in regions with high wet deposition of ammonium and nitrate. **Acid Deposition** - Deposition of acidifying air pollutants is primarily seen as affecting the soils of woodland habitats, where effective inputs of sulphuric and nitric acids lead to leaching of the soil. The resulting soil acidification can lead to mobilisation of naturally occurring aluminium in the soil, which may have toxic effects on plant roots, leading to problems of tree health. Acidification also has the potential to reduce tree growth. **Ozone** - The impacts of ozone on forests are predicted to be widespread in the UK, due to the exceedance of the critical level for forests. The expected impacts include reduction in growth, as well as possibly changes in ground flora and epiphyte species

Annex I Habitats[4]	Impacts of Atmospheric Pollution[5]
	composition. The latter is an area where there is a serious gap in information. **Heavy Metals** - Heavy metals (especially lead, cadmium, copper, mercury and zinc) can, at high concentrations, have toxic effects on plants. Symptoms include reduced root growth, and inhibition of various physiological processes including transpiration, respiration and photosynthesis. However large variations in inter-species sensitivity and bioavailability heavy metals must be taken into account when assessing possible effects. Heavy metals can accumulate over a long period in the organic layer and top soil leading to contamination of soil organisms, especially those that play a role in the formation of the soil. Furthermore, acidification of soils cause the mobilisation of these accumulations in the soil where they can be taken up by plant and animal species of the forest ecosystems.

Which other plans/ projects could lead to in-combination effects?

4.6 The following plans and programmes have the potential to act in-combination with the LDP as they propose development that will lead to cumulative increases in emissions to air over the life of the plan:

- People, Places, Futures: The Wales Spatial Plan
- Property Strategy for Employment in Wales
- National Transport Plan Wales
- The Trunk Road Forward Programme
- Minerals Planning Policy Wales
- Welsh Coastal Tourism Strategy
- Partnership for Growth: The Welsh Government Strategy for Tourism 2013-2020
- Turning Heads... A Strategy for the Heads of the Valleys
- Bridgend County Borough Council Local Development Deposit Plan
- Cardiff Council Local Development Plan: Preferred Strategy
- Rhondda Cynon Taff County Borough Council Local Development Plan
- Bridgend County Borough Council Municipal Waste Strategy
- Cardiff Council Local Development Municipal Waste Management Strategy
- Vale of Glamorgan Council Municipal Waste Strategy
- Cardiff International Airport Master Plan
- Economic Renewal : A New Direction (2010)

Air Quality - What is the current situation?

4.7 At a national level, the ninth annual report on air quality in Wales[7] identified that the long term trend for nitrogen dioxide, PM10 and

[7] Welsh Government (Welsh Air Quality forum) (2011) Air Pollution in Wales 2011. Online at http://www.welshairquality.co.uk/documents/reports/424121010_AQ_wales_2011_English.pdf [Accessed September 2013].

ozone concentrations in Wales since the 1990s has made a significant improvement although concentrations have remained fairly stable since 2000. In 2011 none of the sites in Wales measured concentrations above the limit or target value for lead, cadmium, arsenic or mercury. In addition, ambient concentrations of Particulate Matter (PM10) were Moderate or High according to the Air Quality banding system on 69 days during the year but this was considered to be related to the long-range transport of Saharan dust to the UK. There were no Moderate or High levels recorded in 2011 for CO, NO2 , SO2 and O3 at any of the Local Authority-operated monitoring sites.

4.8 The concentrations of the key pollutants in Vale of Glamorgan are all below their respective objectives. However, concentrations of Nitrogen dioxide (NO2) as determined by diffusion tube at locations along Windsor Road (Penarth), Andrew Road (Llandough) and Railway Terrace (Dinas Powys) are at or close to the relevant annual mean objective. Concentrations of nitrogen dioxide increased at all but eight of the 44 nitrogen dioxide diffusion tube monitoring locations compared to the last two years. Of the remaining eight locations, concentration remained the same at four and reduced at the others[8].

4.9 The Council is now proposing to designate an Air Quality Management Area in Penarth as they have identified that nitrogen dioxide emissions from road traffic are likely to exceed healthy limits set by Regulations.

Is there potential for adverse effects on the integrity of European sites?

4.10 Levels of primary pollutants, those emitted directly into the atmosphere, tend to be highest around their sources; these are usually located in urban and industrial areas. Motor vehicles are a major source of primary pollution throughout the UK, in particular, traffic is an important source of carbon monoxide, nitrogen dioxide and volatile hydrocarbons (VOCs) such as benzene and 1,3-butadiene and primary particles (PM10). Concentrations of all these pollutants are therefore usually highest in built-up urban areas[9].

4.11 Currently the pollutant of most concern in the Vale is NO2, the impacts of which are most relevant close to source. Therefore, the contribution of NO2 beyond the specific areas where development and related infrastructure is located is likely to be negligible. The most acute impacts of NO2 take place close to where they are emitted (generally within 200m of the roadside[10]) but these gases also have the potential to contribute to background pollution levels.

[8] VoG (2011) Air Quality Progress Report for the Vale of Glamorgan 2011. Online at Vale of Glamorgan (2011) Air Quality Progress Report for the Vale of Glamorgan 2011. Online at: https://www.valeofglamorgan.gov.uk/Documents/Living/Environment/Environmental%20protection/Air%20Quality/AQ%20Progress%20Report%202011%202.pdf

[9] Welsh Air Quality forum (2013) Air Quality in Wales: Trends - Air Quality Indicators Online at http://www.welshairquality.co.uk/trend.php?t=4 [Accessed September 2013].

[10] Highways Agency (2007) Design Manual for Roads and Bridges: Volume 11, Section 3, Part 1.

4.12 There are no European sites in the Vale in close proximity (200m) to a major road that is likely to see a significant increase in traffic as a result of development proposed in the LDP and surrounding areas. In neighbouring areas, Cardiff Beech Woodlands SAC is close to the M4. Given that the most acute impacts of NO2 take place within 200m of the roadside only a very small proportion of the European sites have the potential to be acutely impacted by atmospheric pollution from increased levels of traffic.

4.13 Several features at Kenfig are potentially sensitive to air quality impacts. These effects can be direct; such as damage to sensitive plant species by high levels of ethylene/ethene; or indirect such as changes to water chemistry due to input of atmospheric nitrogen. Acidity is unlikely to be an issue at Kenfig due to the underlying carbonate geology. Atmospheric nitrogen dioxide (NO2) levels may be exceeded on the site with several nearby sources including industrial (such as Margam steel works and Baglan Bay), agricultural (chicken farms - mainly ammonia), old landfill sites, transport (M4) and wind blown particulates (from adjacent tips) being potential sources. Inputs of atmospheric nitrogen from increased levels of traffic can contribute to the increase of nutrients in the water and therefore eutrophication. Prevailing winds would generally take air pollution, especially from transport, away from Kenfig.

4.14 The Core Management Plan for the Severn Estuary European Marine Site identifies that whilst nutrient levels and loadings within the Estuary are considered significant in UK terms, the high natural turbidity of the system negates these high levels, with algal productivity being generally low except in localised hotspots.

What existing mitigations are provided in the LDP?

4.15 The LDP (Policy MD 8) seeks to ensure that development proposals do not cause or result in unacceptable impact to a range of interests, including the natural environment, as a result of air pollution. Other policies such as SP1, MD 1, MD 3 and MD 19 will only permit development which would not cause or exacerbate existing traffic congestion, favours development which has access to or promotes the use of sustainable transport modes and supports proposals for the generation of low carbon and renewable energy. The Welsh Government also promotes the widespread use of travel plans. In addition, policies SP 7 and MG 20 seek to provide sustainable transport improvements which will help reduce emission to the air. Where appropriate the Council will seek through the use of planning obligations and/ or the Community Infrastructure Levy improvement or provision of pollution management under policy MD4.

4.16 Furthermore, in order to enable the effective delivery of the Plan, the Council has developed a detailed monitoring framework that will form the basis of the Council's Annual Monitoring Report (AMR). Within the monitoring framework a number of indicators have been identified to

collect information on air quality including contextual, local and environmental indicators. The results of the AMR will feed into ongoing review and adjustment of the LDP and also any other Supplementary Planning Guidance.

Future recommendations for avoidance and mitigation

4.17 At a strategic level the Vale of Glamorgan Council has sought to ensure that LDP policies address identified issues - in relation to potential adverse impacts on air quality - and put robust policy measures in place to provide mitigation.

4.18 Given the scale and nature of the proposed development and the mitigation provided in the LDP, **it is assessed that the LDP will not have adverse effects on the integrity of European sites through increased atmospheric pollution either alone or in combination.**

Disturbance

4.19 The screening assessment identified that there was the potential for likely significant effects at the following European sites due to disturbance:

- Cardiff Beech Woods SAC; and
- Severn Estuary SAC, SPA & Ramsar.

What are the issues arising from the plan?

4.20 Development proposed in the LDP and surrounding areas has the potential to increase the population and therefore levels of recreational activity. Proposed development also has the potential to result in increased levels of noise and light pollution.

How might the European sites be affected?

4.21 Increased recreational activity at European sites has the potential to cause disturbance to designated habitats and species through a variety of different pathways. This could include physical disturbance through trampling of habitats or water-based recreation, or non-physical disturbance through noise and light pollution.

Which other plans/ projects could lead to in-combination effects?

4.22 The following plans and programmes have the potential to act in-combination with the LDP through increased disturbance:

- People, Places, Futures: The Wales Spatial Plan
- Property Strategy for Employment in Wales
- One Wales: Connecting the Nation. The Wales Transport Strategy.

- National Transport Plan Wales
- The Trunk Road Forward Programme
- Minerals Planning Policy Wales
- Welsh Coastal Tourism Strategy
- 'Catching the Wave' - A watersports tourism strategy for Wales
- The South East Wales Regional Waste Plan
- South East Wales Transport Alliance: Regional Transport Plan
- SEWTA Rail Strategy Study
- Turning Heads... A Strategy for the Heads of the Valleys
- Lavernock Point to St Ann's Head Shoreline Management Plan 2
- Bridgend County Borough Council Local Development Deposit Plan
- Cardiff Council Local Development Plan: Preferred Strategy
- Rhondda Cynon Taff County Borough Council Local Development Plan
- Bridgend County Borough Council Municipal Waste Strategy
- Cardiff Council Local Development Municipal Waste Management Strategy
- Vale of Glamorgan Council Municipal Waste Strategy
- Cardiff International Airport Master Plan
- Economic Renewal : A New Direction (2010)

Disturbance - What is the current situation?

4.23 Limited evidence/ information to determine the impact of recreational activity on the identified European sites. The Vale of Glamorgan Tourism Strategy promotes Glamorgan's Heritage Coast as one of its main tourism assets.

Is there potential for adverse effects on the integrity of European sites?

4.24 All the European sites considered in this assessment are in some way vulnerable to the impacts of physical and non-physical disturbance, e.g. as a result of recreational activity.

4.25 The significance of recreational impacts is dependent on a variety of factors including the sensitivity of designated features and the level of their exposure to recreational activities. The European sites considered in this assessment are popular areas for a range of recreational activities especially water-based recreation and walking.

4.26 As stated in the previous HRA (AA) Report (Dec 2011), given the unique recreational opportunities that the European sites provide and the level of development proposed around them, it is not likely that an individual authority alone could avoid, mitigate or compensate for adverse effects of increased disturbance on the integrity of the identified European sites if they should occur. However, at a strategic level, such as the LDP, authorities should seek to ensure that policies recognise and address identified issues and put robust measures in place to provide mitigation.

4.27 To address recreational impacts at European sites it is appropriate to impose voluntary restrictions for particular recreational activities, such as for the use of personal water craft. This should be done in co-operation with key stakeholders including the various sport associations and land owners. The development of co-operative measures should already be going on through the management plans for European sites where NRW plays a key role in the collation of information to monitor the identified European sites and is responsible for assessing the condition of each feature within the sites. If monitoring carried out by NRW on the European sites were to find that voluntary agreements and restrictions in place are not protecting the designated features then they should be re-evaluated and possibly replaced by stricter regulations.

What existing mitigations are provided in the LDP?

4.28 The LDP can only mitigate adverse effects arising as a result of recreational activity through policies that provide alternative recreational spaces and by contributions to strategic management approaches in collaboration with NRW and other Local Authorities. Policy mitigation and joint working at a strategic level can help to mitigate the impacts of recreational activity to a certain extent, however; the direct impacts of recreational activity are most appropriately addressed at the site level through co-operative measures. Disturbance to designated species and habitats by recreational activities should be tackled through management schemes for the European sites produced by NRW.

4.29 The LDP seeks to provide, protect and enhance open spaces in the Plan area that are important for recreation and biodiversity. The provision of new areas of open space and /or contributions towards improving existing areas of open space will be sought in connection with new residential developments (MG 25) in order to enable the provision of an accessible network of open space for all. Policy MD 3 requires new development to provide public and private amenity space whilst Policy MD 2 seeks to conserve and enhance existing open spaces. Policies SP 11 and MD 14 seek to enhance tourism and leisure facilities and the 'offer' to residents and visitors. MD 4 includes open space as a community benefit in terms of planning obligations.

Future recommendations for avoidance and mitigation

4.30 Policy MG 24, Glamorgan Heritage Coast restricts any new development unless it is necessary for coastal defence (as identified within the Lavernock Point to St Ann's Head Shoreline Management Plan 2) or is required for agriculture, nature conservation, informal recreation, appropriate tourism or coastal access, and other development for which a coastal location is essential. It seeks to encourage activities but will not permit development that

unacceptably affects the special environmental qualities of the Glamorgan Heritage Coast.

4.31 Mitigation is also provided by Policy SP 10 which requires that developments must preserve and where appropriate enhance sites designated for their European nature conservation importance and Policy MD 1 states that development will be favored if it does not have an unacceptable impact on sites for nature conservation importance.

4.32 Given the mitigation provided by Policies and the incorporation of the recommendation above, **it is assessed that the LDP will not have adverse effects on the integrity of European sites through increased recreational activity either alone or in combination.**

Water Resources

4.33 The screening assessment identified that there was the potential for likely significant effects at the following European sites through reduced water levels:

- Kenfig SAC;
- Severn Estuary SAC, SPA & Ramsar;
- River Usk SAC; and
- River Wye SAC.

What are the issues arising from the plan?

4.34 The level of development proposed in the LDP has the potential to act in combination with development proposed in surrounding areas through increased levels of abstraction to provide water supply.

How might the European sites be affected?

4.35 Increased abstraction has the potential to lead to reduced water levels, which can have adverse effects on the integrity of water dependent European sites. Changes to water levels can impact river flow and water quality, which can adversely affect water dependent habitats and the species that rely upon them.

Which other plans/ projects could lead to in-combination effects?

4.36 The following plans and programmes have the potential to act in-combination with the LDP as they propose development that will lead to the cumulative increase in water abstraction:

- People, Places, Futures: The Wales Spatial Plan
- Property Strategy for Employment in Wales
- Welsh Water's Final Water Resource Management Plan 2012

- The Thaw & Cadoxton Catchment Abstraction Management Strategy
- The Taff and Ely Catchment Abstraction Management Strategy
- The Neath, Afan and Ogmore Catchment Abstraction Management Strategy
- Bridgend County Borough Council Local Development Deposit Plan
- Cardiff Council Local Development Plan: Preferred Strategy
- Rhondda Cynon Taff County Borough Council Local Development Plan

Water Resources - What is the current situation?

4.37 Welsh Water (WW) has produced a Water Resource Management Plan (WRMP), which identifies twenty-four water resource zones[11] (WRZs) within the supply area for which it is responsible. The South East Wales Conjunctive Use System (SEWCUS) WRZ and Tywi Conjunctive Use System (TCUS) jointly include the Plan area. The level of development proposed in the LDP in combination with development proposed in the surrounding area is likely to increase abstraction levels within the SEWCUS and TCUS WRZs. Water is not only transferred between water bodies within WRZs but also between the WRZs themselves, therefore the SEWCUS and TCUS WRZs have not been considered in isolation.

4.38 Welsh Water assesses that there are sufficient resources in the SEWCUS until 2028/29 (when it becomes in deficit). TCUS is in surplus for the whole 2010 - 2035 planning period. WW envisages that the increase in housing demand during the life of the plan will be offset by customers switching to a measured water supply. This is based on a number of uncertainties, including the level of development that will occur up to 2035 and the amount of water that will be saved through metering and other potential measures, such as reducing leakage. The WRMP accounts for the Sustainability Reductions required by the RoC process, and so explicitly accounts for effects on European sites that are occurring (or predicted to occur) as a result of existing water-resource permissions. It concludes that the post-RoC abstraction regimes will not have an adverse effect on any water-resource sensitive European sites. Together, the RoC and WRMP processes also ensure (as far as is achievable) that future changes in demand will not affect any European sites (this is aided by the WRMP's five-year review cycle, which monitors the performance of the WRMP and allows for adjusted demand forecasts).

Is there potential for adverse effects on the integrity of European sites?

4.39 Considering the sensitivities of the designated features, the European sites with the highest vulnerability to reduced water levels are the Severn Estuary SAC/ SPA/ Ramsar, Kenfig SAC, the River Usk SAC and the River Wye SAC. The work undertaken by EAW (now NRW) for the

[11] Welsh Water defines Water Resource Zones as, "the largest area in which all resources can be shared".

Severn Estuary SAC and SPA through the RoC process[12] concluded that there are no other actions to be taken by another competent authority to achieve no adverse in combination effects on site integrity as a result of abstractions.

4.40 The Stage 4 RoC Action Plans for the River Usk SAC[13] and River Wye SAC[14] could not conclude no adverse effect upon site integrity due to the in combination effects of licensed abstraction on the quantity and variability of river flows and fish entrainment at abstraction intakes. The maintenance of river flows is important to support the life stages of designated features. The in combination effects of abstraction are particularly evident during low flows in the River. NRW has developed environmental outcomes that establish criteria to ensure adequate flows are maintained, which enables them to conclude that permissions have no adverse effect.

4.41 Any applications for new licences will be assessed by the NRW to make sure that they do not have adverse impacts on internationally important nature conservation sites. If the assessment of a new application shows that it could have an impact on a European site the NRW will have to follow strict rules in setting a time limit for that license. This ensures that water levels at European sites do not fall below critical levels.

What existing mitigations are provided in the LDP?

4.42 MD 1 seeks to safeguard water resources and MD 3 states that development proposals will only be permitted where they demonstrate efficient use of water.

Future recommendations for avoidance and mitigation

4.43 In acknowledgement of the pressures on water resources and the uncertainties arising from new development it is recommended that the Council take a practical approach to understanding future water requirements in the context of planning development. It is recommended that the Council undertake a Water Cycle Study (in collaboration with neighbouring authorities across South East Wales) during the first 4 years of the LDP after its adoption. This is consistent with NRW advice for other HRAs of LDPs in SE Wales.

4.44 Given the mitigation provided in the LDP, further evidence provided in the Final WRMP and incorporation of the recommendations above, **it is assessed that the LDP will not have adverse effects on the integrity of European sites through reduced water levels either alone or in combination.**

[12] EA (Jan 2010) Severn Estuary SAC and SPA Stage 4 Proforma & Action Plan: Final Version
[13] EA (March 2010) River Usk SAC Habitats Directive Review of Consents - Draft Stage 4 Site Action Plan, Version 2.
[14] EA (March 2010) River Wye SAC Habitats Directive Review of Consents - Stage 4 Site Action Plan, Version 2.

Water Quality

4. 45 The screening assessment identified that there was the potential for likely significant effects at the following European sites through reduced water quality:

- Kenfig SAC; and
- Severn Estuary SAC, SPA & Ramsar.

What are the issues arising from the plan?

4.46 Development proposed in the LDP has and surrounding areas has the potential to increase pressure on sewerage capacity and increase surface water run-off.

How might the European sites be affected?

4.47 Increased discharges (consented) and surface water run-off (which can transfer pollutants to water bodies) has the potential to reduce water quality, which can have adverse effects on designated habitats and species.

Which other plans/ projects could lead to in-combination effects?

4.48 The following plans and programmes have the potential to act in-combination with the LDP as they propose development that will lead to the cumulative increase in discharges and surface water run-off:

- People, Places, Futures: The Wales Spatial Plan
- Property Strategy for Employment in Wales
- One Wales: Connecting the Nation. The Wales Transport Strategy.
- National Transport Plan Wales
- The Trunk Road Forward Programme
- Minerals Planning Policy Wales
- Welsh Coastal Tourism Strategy
- 'Catching the Wave' - A watersports tourism strategy for Wales
- The South East Wales Regional Waste Plan
- South East Wales Transport Alliance: Regional Transport Plan
- SEWTA Rail Strategy Study
- Turning Heads... A Strategy for the Heads of the Valleys
- Welsh Water's Final Water Resource Management Plan 2012
- The Thaw & Cadoxton Catchment Abstraction Management Strategy
- The Taff and Ely Catchment Abstraction Management Strategy
- The Neath, Afan and Ogmore Catchment Abstraction Management Strategy
- Bridgend County Borough Council Local Development Deposit Plan
- Cardiff Council Local Development Plan: Preferred Strategy

- Rhondda Cynon Taff County Borough Council Local Development Plan
- Bridgend County Borough Council Municipal Waste Strategy
- Cardiff Council Local Development Municipal Waste Management Strategy
- Vale of Glamorgan Council Municipal Waste Strategy
- Cardiff International Airport Master Plan
- Economic Renewal : A New Direction (2010)

Water Quality - What is the current situation?

4.49 The biological and chemical quality of river waters in Wales has been steadily improving for the past 10 years. The percentage of river lengths in Wales of good or fair chemical quality has been consistently higher than 98 per cent since 1994 and the percentage of river lengths in Wales of good or fair biological quality has consistently been 99 per cent or higher since 2002[15].

4.50 Stretches of the Rivers Kenfig and Ogwr (affecting the Kenfig SAC) were at risk in of failing targets under the Water Framework Directive[16]. The River Severn Estuary is currently classified as a heavily modified water body with moderate biological quality and good chemical quality[17].

4.51 Five Ground Water Source Protection Zones have been designated within the Vale of Glamorgan. These are centred upon: Ogmore, Dinas Powys, Llansannor, Llangan and Treoes.

Is there potential for adverse effects on the integrity of European sites?

4.52 Considering the sensitivities of the designated features and environmental pathways, the European sites with the highest vulnerability to reduced water quality are the Severn Estuary SAC/ SPA/ Ramsar and Kenfig SAC. The work undertaken by EAW (now NRW) for the Severn Estuary SAC and SPA through the RoC process [18] concluded that there are no other actions to be taken by another competent authority to achieve no adverse in combination effects on site integrity as a result of discharges.

4.53 Maintenance of the Kenfig SAC is directly dependent upon the hydrological and hydro chemical regime. Kenfig is unusual in that it is predominantly rain and groundwater fed although, the Rivers Kenfig and Ogwr do border the sites and may have localised impacts the major water quality concerns are related to elevated nutrient levels. Elevated levels of nitrogen have been found at Burrows Well on

[15] WAG (July 2012) State of the Environment.
[16] Bridgend LDP SA Scoping Report July 2006.
[17] The Severn Estuary Partnership (2011) The State of the River Severn Report. Online at http://viewer.zmags.com/publication/ad5b93bd#/ad5b93bd/1
[18] EA (Jan 2010) Severn Estuary SAC and SPA Stage 4 Proforma & Action Plan: Final Version

Merthyr Mawr and there is also some indication that dune slacks are becoming increasingly eutrophic. The nature of the underlying limestone aquifer means that off-site activities a considerable distance away can potentially have an impact on the SAC. Impacts related to quarrying activities and disused and existing landfill operations in the surrounding catchment could impact on the SAC. Other possible sources could include farming activities close or adjacent to the site e.g. muck spreading/fertiliser application. Uncertainties with regard to the exact sources of the groundwater means that to identify detailed relationships of development and their potential impacts is not possible.

What existing mitigations are provided in the LDP?

4.54 Policy MD 8, Environmental Protection states that development proposals will be required to demonstrate that they will not result in an unacceptable impact on the natural environment from pollution of land, surface water or ground water.

4.55 In addition, in the supporting text of Policy MD 3, where appropriate, proposals will need to demonstrate that there is sufficient capacity in local waste water treatment facilities prior to occupation. Also under Policy MD 4 through planning obligations and/ or the Community Infrastructure Levy, provision or improvement of services and utilities and pollution management will be sought.

Future recommendations for avoidance and mitigation

4.56 Given the mitigation provided in the LDP and regulatory processes already in place (Review of Consents) **it is assessed that the LDP will not have adverse effects on the integrity of European sites through reduced water quality either alone or in combination.**

5.0 CONCLUSIONS/ FUTURE WORK

5.1 This report outlines the methods used and the findings for the re-screening and AA of the HRA for the VoG's Deposit LDP. The re-screening of policies and site allocations identified that there is the potential for likely significant effects on 7 European sites as a result of increased disturbance and atmospheric pollution as well as reduced water quality and water levels. These issues and European sites were carried through to the AA to be considered in more detail.

Effects of the Plan Alone

5.2 The screening of Deposit LDP Policies and site allocations assessed that there was the potential for likely significant effects alone on the indentified European sites as a result of the quantum and/ or location of proposed development. To address these identified issues it recommends a number of policy safeguards in relation to specific Deposit LDP Policies and site allocations. The further screening concluded that the LDP (including site allocations) would not have likely significant effects alone on European sites, if the recommended policy safeguards are incorporated into the Plan.

Effects of the Plan In combination

5.3 The further screening work identified four main areas of impact arising that may have the potential for significant in combination effects - with development proposed in surrounding areas - on the integrity of 7 out of the nine identified European sites: these were water resources, water quality, disturbance and air quality. These issues were taken forward into the AA and considered in further detail in relation to: the Cardiff Beech Woods SAC (air quality & disturbance); Kenfig SAC (air quality, water resources & water quality); River Usk SAC (water resources); River Wye SAC (water resources); Severn Estuary SAC/SPA/Ramsar (considered against all the identified areas of impact).

Air Quality (in combination)

5.4 The AA assessed that the Deposit LDP contains suitable mitigation measures to address the potential in combination effects on European sites that could occur through changes to air quality. Specifically, the LDP ensures that development proposals do not cause or result in unacceptable impact to a range of interests, including the natural environment, as a result of air pollution. Other Policies aim to reduce or limit traffic congestion through: promoting sustainable transport modes; reducing the need to travel by providing local facilities within or close by development; improving walking and cycling networks; and encouraging proposals for generation of low carbon/ renewable energy. Where appropriate the Council will also seek through the use of planning obligations and/ or the Community Infrastructure Levy improvement or provision of pollution management under policy MD4. Furthermore, in order to enable the effective delivery of the Plan, the

Council has developed a detailed monitoring framework that will form the basis of the Council's Annual Monitoring Report (AMR). Within the monitoring framework a number of indicators have been identified to collect information on air quality including contextual, local and environmental indicators. The results of the AMR will feed into ongoing review and adjustment of the LDP and also any other Supplementary Planning Guidance.

Disturbance (in combination)

5.5 The AA considered that determining the significance of increased disturbance on European sites is complex and dependent on a variety of factors including the sensitivity of designated features and the level of their exposure to recreational activities. Given the unique recreational opportunities that the European sites provide and the level of development proposed around them, it is not likely that an individual authority alone could avoid, mitigate or compensate for adverse effects of increased disturbance on the integrity of the identified European sites if they should occur. At a strategic level the LDP seeks to address this issue through policies that provide important alternative spaces for recreation as well as the protection and enhancement of existing open space. The assessment noted that the direct impacts of recreational activity are most appropriately addressed at the site level through co-operative measures. The AA concluded that the Plan would not have adverse in combination effects on the integrity of European sites through increased disturbance given the mitigation provided by LDP Policies.

Water Resources and Quality (in combination)

5.6 The AA concluded that the Plan would not have adverse in combination effects on the integrity of European sites through reduced water levels and quality. This was based on the mitigation provided by LDP Policies which includes the requirement for development to demonstrate that it will not result in an unacceptable impact on the natural environment from pollution of land, surface water or ground water and wording that requires the efficient use of water in new developments and ensure that there is sufficient capacity in waste water treatment facilities prior to occupation of any new development. In acknowledgement of the pressures on water resources and the uncertainties arising from new development in SE Wales the AA also recommends that the Council undertakes a Water Cycle Study (in collaboration with neighbouring authorities across South East Wales) during the first 4 years of the LDP after its adoption. This is consistent with NRW advice for other HRAs of LDPs in SE Wales.

Consultation and Further Work

5.7 This AA is subject to consultation with NRW, and the Vale of Glamorgan Council will take advice from the Statutory Body and other relevant stakeholders, in taking forward the HRA and recommended inputs to

the development plan process. Accordingly, this AA may be revised should further relevant comments be received or if there are significant changes to the Plan.

5.8 The findings of this plan level HRA do not obviate the need to undertake HRA for lower level, project scale/ implementation plans where there is potential for significant effect on one or more European sites. The findings of this HRA should be used to inform any future assessment work.

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Appendix 1: European Site Characterisations

Special Areas of Conservation

1. Cardiff Beech Woods SAC
2. Dunraven Bay SAC
3. Kenfig SAC
4. Severn Estuary
5. Cefn Cribwr Grasslands SAC
6. River Usk SAC
7. River Wye SAC

Special Protection Areas

8. Severn Estuary

Ramsar Sites

9. Severn Estuary

All core site specific information unless otherwise stated has been referenced from the Natural Resources Wales (NRW) (formerly Countryside Council for Wales (CCW)) website and the Joint Nature Conservation Committee (JNCC) website.

Special Areas of Conservation

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 *Asperulo-Fagetum* 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. Characteristic and notable species in the ground flora include ramsons *Allium ursinum*, *sanicle Sanicula europaea*, bird's-nest orchid *Neottia nidus-avis* and yellow bird's-nest *Monotropa hypopitys*.
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: ▪ The existing *Asperulo-fagetum* beech forest will be maintained.

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ At least 95% of canopy forming trees will be locally native species such as beech, ash and oak, with some areas dominated by beech. ▪ 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. ▪ There are pockets of ground flora across the site, comprising 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 or squirrel damage to trees. ▪ 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 (2008, map amended in 2012). **Conservation Objective for Feature 2:** ***Tilio-Acerion* 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

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	are satisfied: ▪ The existing *Tilio-acerion* forest will be maintained. ▪ 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. ▪ There are pockets of ground flora across the site, comprising 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 or squirrel damage to trees. ▪ 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 NRW website is fully functional.
Key Environmental Conditions	▪ **Maintain/manage the surrounding woodland** - Commercial forestry in the vicinity of Castell Coch may have

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
(factors that maintain site integrity	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 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: NRW (formerly 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

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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 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: NRW (formerly CCW) view is that the site is still recovering from undesirable effects of past management.

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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. ○ 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

Site Name: Cardiff Beech Woods Location Grid Ref: ST118824 JNCC Site Code: UK0030109 Size: 115.62 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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 interest.

Site Name: Cardiff Beech Woods **Location Grid Ref: ST118824** **JNCC Site Code: UK0030109** **Size: 115.62** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
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: Dunraven Bay **Location Grid Ref: SS886727** **JNCC Site Code: UK0030139** **Size: 6.47** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	Dunraven Bay SAC is situated on a southwest facing cliff about 1km south east of the village of Southerndown in the Vale of Glamorgan. The coastline is generally eroding and the 20 or so plants of shore dock growing here on damp coastal limestone are the only remnant of the species former Bristol Channel range. This has now declined to six individuals due to cliff falls removing plants. The Dunraven Bay population is a significant seed-source for recolonisation of Bristol Channel dunes and beachheads when future management restores these habitats to favourable condition.
Qualifying Features	Annex II Species primary reason for selection: ▪ Shore dock *Rumex rupestris*
Conservation Objectives	**Conservation Objective for Feature 1:** ***Rumex rupestris* (shore dock)** 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: ▪ There are at least 10 mature plants at the site ▪ The plant present are flowering and setting seed ▪ The population is stable and viable in the long term. 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

Site Name: Dunraven Bay Location Grid Ref: SS886727 JNCC Site Code: UK0030139 Size: 6.47 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	performance indicators can be found within the Dunraven Bay SAC Management Plan (2008).
Component SSSIs	▪ Southerndown Coast SSSI The site is divided into 3 management units that form the Dunraven Bay SAC. A map of the site can be viewed on the NRW website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Manage Scrub** - no increase in area of scrub from 2003 area. ▪ **Hydrological regime** - Availability of water seeping down the cliff face, Shore dock appears to prefer slightly damp ground.
SAC Condition Assessment	**Conservation Status of Feature 1:** ***Rumex rupestris* (shore dock)** In September 2003, 14 plants with flowering spikes greater than 10cm were identified (10 of which were confirmed as being shore dock). There was at least one plant found in each of the two areas, A and B. Therefore these two attributes were considered to be favourable. In October 2004, 10 plants were identified again with at least one plant in Area A and one in Area B. Therefore these attributes are again considered to be favourable. It is noted however that due to lateness in the season it was extremely difficult to locate the plants, even with binoculars and it is likely that more plants were present. In 2006 a cliff fall swept away 4 of the plants, leaving 6 remaining. The feature is therefore considered to be **unfavourable**.
Vulnerabilities (includes existing pressures and trends)	The Rumex rupestris colony has a naturally very restricted distribution within the site, being limited to a small area of groundwater seepage. It is accessible only with difficulty and this gives it natural protection from

Site Name: Dunraven Bay Location Grid Ref: SS886727 JNCC Site Code: UK0030139 Size: 6.47 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	grazing animals and accidental damage by people. It is important that the hydrological regime is maintained but there are no known threats to it at present. Research will be undertaken to ascertain the source of the groundwater. In the very long term, the current site of the R. rupestris colony will be lost as a result of coastal erosion. Nothing can be done to prevent this, but the natural processes of erosion may be expected to simultaneously create replacement habitat for this plant in the immediate vicinity.
Landowner/ Management Responsibility	▪ N/A

Site Name: Kenfig **Location Grid Ref: SS790813** **JNCC Site Code: UK0012566** **Size: 1191.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	Kenfig is a largely intact dune system in south Wales with extensive areas of fixed dune vegetation with red fescue *Festuca rubra* and lady's bedstraw *Galium verum* and semi-fixed dune grassland with marram *Ammophila arenaria* and red fescue. The site also contains one of the largest series of dune slacks in Wales. The dune slacks are species-rich and there are extensive areas of dunes with *Salix repens* ssp. *argentea*, which represent a mature phase in dune slack development. This site is in the central part of the range of this community on the west coast and is a highly representative example of this habitat type. Kenfig Pool is a shallow lake system within the extensive sand dune system of Kenfig, alongside Swansea Bay in south Wales. The water chemistry is indicative of a coastal, alkaline lake with a moderate nutrient status. High alkalinity, conductivity, sodium and chloride values reflect this marine influence. Elevated calcium values are probably derived from marine shell remains in the sandy substrate. Large stands of common reed *Phragmites australis* are found on the pool's seaward side. Grey club-rush Scirpus *lacustris* ssp. *tabernaemontani*, sea club-rush *Scirpus maritimus*, branched bur-reed *Sparganium erectum* and yellow iris *Iris pseudacorus* are also present. The site is also designated as it is one of two sites selected for petalwort *Petalophyllum ralfsii* in south Wales and supports a large population of the species, numbering thousands of thalli. The calcareous dune system has many dune slacks that include the early successional, open slack vegetation this species requires. It also holds the largest populations of fen orchid *Liparis loeselii* in the UK, comprising about 50% of the UK resource. Management of the site is directed towards the maintenance and enhancement of the populations of fen orchid. The variety that occurs here, as at Whiteford Burrows, is var. *ovata*, which is currently known to occur only in Wales and on the coast of Brittany, as well as in the past at Braunton Burrows, Devon, England.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ Fixed dunes with herbaceous vegetation (`grey dunes`)* Priority feature ▪ *Dunes with Salix repens ssp. argentea (Salicion arenariae)*

Site Name: Kenfig **Location Grid Ref: SS790813** **JNCC Site Code: UK0012566** **Size: 1191.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ Humid dune slacks ▪ Hard oligo-mesotrophic waters with benthic vegetation of *Chara spp.* Annex I Habitats qualifying feature: ▪ Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* Annex II Species primary reason for selection: ▪ Petalwort Petalophyllum ralfsii ▪ Fen orchid Liparis loeselii
Conservation Objectives	**Conservation Objective for Feature 1 and 2:** **Humid dune slacks and Dunes with Salix *repens* ssp. argentea (*Salicion arenariae*)** NB The division between 'humid dunes' and 'dunes with *Salix repens* ssp. *argentea* is unclear and difficult to define. The humid dune slack habitat includes both successionally young and mature slacks, which equate to NVC communities SD13-16. The dunes with *Salix repens* spp. *argentea* equate to drier areas of mature dune slack, and the low hummocks found around dune slacks which support *Salix repens*. These are sometimes known as hedgehog dunes. Because of the difficulties in separating these two habitats, for the purposes of monitoring these features are considered together. 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: ▪ Dunes with *Salix repens* and humid dune slacks will occur as part of the dune system, their location will be determined by natural processes and appropriate grazing management

Site Name: Kenfig Location Grid Ref: SS790813 JNCC Site Code: UK0012566 Size: 1191.67 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ A range of successional stages will be found in both features ▪ Factors affecting the features will be under control Performance indicators for Feature 1 & 2 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 Kenfig SAC Management Plan (2008, map edited in 2013). **Conservation Objective for Feature 3:** **Fixed dunes with herbaceous vegetation (`grey dunes`)** Vision for feature 3 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ Fixed dunes with herbaceous vegetation (grey dunes) will occur where older, shifting dunes become more stabilised and in early successional stages become colonised by lichens and other species indicative of the transition from less mobile habitat. ▪ The habitat will encompass a range of successional stages throughout the area, determined by patterns of natural factors and grazing. ▪ Grey dunes will comprise a significant part of the dune system but will increase and decrease in extent and location as natural processes determine the landscape of the dune systems ▪ All factors are under management control Performance indicators for Feature 3 (see performance indicators for feature 1)

Site Name: Kenfig **Location Grid Ref: SS790813** **JNCC Site Code: UK0012566** **Size: 1191.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Conservation Objective for Feature 4: **Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.** Vision for feature 4 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ Submerged *Chara* beds (mainly *Chara aspera* and *C. virgata*) growing in relatively shallow water form the predominant submerged macrophyte vegetation throughout most of the lake. ▪ *Chara* occur at more than 50% frequency along regular surveillance transects within the Western and Central arms. ▪ Charophyte species and uncommon pondweeds such as *Potamogeton gramineus* and *P. x nitens* are present in other embayments and pools, including *Tolypella glomerata* in dune pools. ▪ The lake is spring-fed so nutrient levels remain low. One of the main nutrients (phosphorus) reaches no more than 25 micrograms per litre in regular sampling areas. Nitrogen levels in the water are low (less than 1 milligram per litre) and declining or stable. ▪ The lake water is clear, but well vegetated with dense beds of submerged and marginal plants. A Secchi disc is visible on the lake bed in the deepest part of the lake (2.6m). ▪ Water depth is relatively stable, fluctuating naturally with groundwater. ▪ Reed, swamp and fringing bur-reed are restricted to shallow zones – covering not more than 10 % of the site. ▪ All factors affecting the achievement of these conditions are under control. Performance indicators for Feature 4 (see performance indicators for feature 1)

Site Name: Kenfig Location Grid Ref: SS790813 JNCC Site Code: UK0012566 Size: 1191.67 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Conservation Objective for Feature 5: **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)** Vision for feature 5 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The quality of the saltmarsh is within specified limits ▪ There is no increase in erosion along the length of the transition from salt marsh to sand dune ▪ The saltmarsh flora will continue to include the following scarce species; *Limonium binervosum*, and *Frankenia laevis* ▪ Light grazing by rabbits and /or stock will continue to be tolerated within limits ▪ The damaging effects of pony riding will have been reduced or eliminated Performance indicators for Feature 5 (see performance indicators for feature 1) **Conservation Objective for Feature 6:** **Petalwort *Petalophyllum ralfsii*** Vision for feature 6 *Petalophyllum ralfsii* will continue to be found at its current locations in each of the two SSSI within the SAC. The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

Site Name: Kenfig **Location Grid Ref: SS790813** **JNCC Site Code: UK0012566** **Size: 1191.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ The species will be found where conditions are suitable in sufficient numbers to form a viable and sustainable population ▪ The population will vary from year to year depending on conditions, especially in drier years, but the long term population will remain steady and sustainable ▪ Suitable dune slacks will have patches of bare ground that is being colonised by jelly lichens (*Collema* spp.) and *Barbula* mosses. ▪ The factors affecting the feature are under control Performance indicators for Feature 6 (see performance indicators for feature 1) **Conservation Objective for Feature 7:** **Fen orchid *Liparis loeselii*** Vision for feature 7 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ Sufficient suitable habitat is present to support the populations ▪ The factors affecting the feature are under control Performance indicators for Feature 7 (see performance indicators for feature 1)
Component SSSIs	▪ Cynffig/ Kenfig (units 1 to 9) ▪ Merthyr Mawr Warren (10 to 16) The two SSSIs above are divided into 16 management units of which numbers 1, 2, 5 to 9 and 10 to 15 comprise

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	to form the Kenfig SAC. The management units can be viewed on maps available on NRW website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Hydrological regime** - It is thought that the dune slacks at Kenfig and Merthyr Mawr as well as Kenfig Pool are mainly fed by groundwater, and possibly a deep Carboniferous Limestone aquifer. There are also three small ephemeral streams that enter Kenfig Pool. Maintenance of the natural hydrological regime of both dune systems is critical for the maintenance of the character, composition and condition of the features. ▪ **Water quality** - management should aim to protect and maintain the required water quality. The major water quality concerns are related to elevated macro-nutrient levels. Elevated levels of nitrogen have been found at Burrows Well (a karstic spring) on the Merthyr Mawr component and there is also some indication that dune slacks are becoming increasingly eutrophic. The nature of the underlying limestone aquifer means that off-site activities a considerable distance away can potentially have an impact on the SAC. This effect may occur both spatially and temporally. ▪ **Air quality** - management should aim to protect and maintain the required air quality. Critical level or exposure (over the averaging/summing period): ○ Acid - 4 keq ha^{-1} yr^{-1} (calendar year) ○ NO_X as NO_2 - 30 µg m^{-3} (calendar year) ○ SO_2 - 20 µg m^{-3} (calendar year and winter Oct 1 to Mar 31) ○ Nitrogen - 10-20 kg ha^{-1} yr^{-1} (calendar year) ○ Ammonia - 3 µg m^{-3} (calendar year) ○ Ozone - 3000 ppb h (3 months) ▪ **Manage/Restrict recreation and access** - People and vehicle access should be managed so that it does not adversely affect the dune slack SAC features. Dune stabilisation works should only be considered in exceptional cases where severe erosion has been caused by vehicle or visitor pressure. The first action should be to manage the source of the problem. Vehicle restrictions to the dunes need to be continued,

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	and be reviewed as problems arise. Wardening and surveillance of access for horse riders among certain areas of the dune slacks at Merthyr Mawr where it is impacting on *P. ralfsii* habitat should be continued, with access to sensitive habitats discouraged via deviation onto other less sensitive habitat. ▪ **Maintain natural coastal processes** - management should be aimed at minimising any constraints to the natural movement of sand. This should allow the continued process of slack formation, maintaining a presence of embryo and successionally young slacks on site. ▪ **Management of Grazing/ Scrub** - Humid dune slacks and dunes with *Salix repens* are maintained by the seasonally high water table, grazing and scrub control. Grazing by domestic stock facilitates rabbit and hare grazing since rabbits tend to graze where the sward is already short. Grazing levels should be set to allow the maintenance of a low, species rich sward throughout the majority of the dune slacks and to reduce the spread of scrub. Continued scrub clearance is necessary at Merthyr Mawr and Kenfig since scrub encroachment has been considerable over the last 30 years and grazing alone cannot keep scrub in check. Where natural processes such as mobility, erosion, and wind scour are significant, scrub invasion is not an issue. Dune slacks should be lightly grazed, preferably by cattle during the summer. Grazing by cattle in winter is acceptable provided supplementary feeding and poaching do not take place. Management aimed at encouraging the return of rabbits and hares at Kenfig, such as mowing and burrow creation, should be continued, and rabbit grazing should be maintained at Merthyr Mawr. Mowing has taken place within certain dune slacks at Kenfig on a regular basis over the past few years, to facilitate the spread of grazing and to some extent to control dense low willow scrub growth and re-growth following initial clearance management. Mowing has achieved good results by reducing the competitive advantage of coarse and woody growth thereby favouring desirable species such as marsh helleborine *Epipactis palustris*. ▪ **Fishery** (Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp) - No further fish species introduction. Removal of the few remaining carp is an essential prerequisite to the site achieving favourable status.

Site Name: Kenfig **Location Grid Ref: SS790813** **JNCC Site Code: UK0012566** **Size: 1191.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
SAC Condition Assessment	**Conservation Status and Management Requirements of Feature 1 & 2:** **Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) and Humid dune slacks** These two features have been considered together as the issues and management of both are intimately linked. Conservation Status of Feature 1 & 2 No distinction has been made between the Humid dune slacks and Dunes with *Salix repens* ssp. *argentea* as outlined in the conservation objectives, and this monitoring data will be used to determine the condition of both features. Results show that the proportion of early successional stages in Areas Y and Z is below that required. Therefore, vegetation in both areas is considered to be unfavourable. Areas Y and Z contained the largest blocks of embryo and successionally young habitat in 1997. As the system is stabilising and no new natural areas of habitat have been created, we can assume that the slack habitats outside of the sample plots are also unfavourable, despite mowing and scraping has artificially created areas of habitat (see comments below). Therefore, the Humid dune slacks and Dunes with *Salix repens* ssp. *argentea* at Kenfig SAC are considered to be in **unfavourable declining** condition (August 2006 SAC Monitoring Report). **Conservation Status and Management Requirements of Feature 3:** **Fixed dunes with herbaceous vegetation (`grey dunes`)** Conservation Status of Feature 3 The fixed dune with herbaceous vegetation feature of Kenfig/Cynffig SAC is considered to be in **Unfavourable declining** conservation status (August 2006 SAC Monitoring Report). This is due primarily to over-stabilisation, undergrazing and scrub development. **Conservation Status and Management Requirements of Feature 4:** **Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.**

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	Conservation Status of Feature 4 The Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. feature of Kenfig/Cynffig SAC is considered to be in **unfavourable recovering** conservation status (2006). The main reason for the unfavourable condition is the presence of introduced fish (carp). If carp removal can be carried out favourable condition should follow. (Burgess et al., 2006) **Conservation Status and Management Requirements of Feature 5:** **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)** Conservation Status of Feature 5 The condition of the Atlantic salt meadows at Merthyr Mawr were assessed as **favourable** condition on the basis of SAC monitoring carried out in December, 2004. In addition the SSSI salt marsh feature was assessed as being in favourable condition (December, 2004). **Conservation Status and Management Requirements of Feature 6: Petalwort *Petalophyllum ralfsii*** Conservation status of Feature 6 The *Petalophyllum ralfsii* of Kenfig/Cynffig SAC is considered to be in **unfavourable declining** conservation status (November 2007). This analysis is based on the most recent SAC monitoring report for the feature, which shows that the performance indicators for the habitat and the extent, distribution and numbers of thalli were not met. Long-term surveillance indicates that *P. ralfsii* used to have a much wider distribution and that it was regularly found with greater than 50 thalli per m² in more than two discrete locations within more than two dune slacks. **Conservation Status and Management Requirements of Feature 6:**

Site Name: Kenfig **Location Grid Ref: SS790813** **JNCC Site Code: UK0012566** **Size: 1191.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Fen Orchid *Liparis loeselii* Conservation status of Feature 6 The *Liparis loeselii* of Kenfig/Cynffig SAC is considered to be in **unfavourable declining** conservation status (July 2007). This analysis is based on the most recent SAC monitoring report for the feature, which shows that the number of plants and the number of slacks within which it occurs have decreased dramatically. Long-term surveillance indicates that *L. loeselii* used to have a much wider distribution and that on any occasion it was regularly found in six or more discrete dune slacks with numbers of flowering spikes greater than 200.
Vulnerabilities (includes existing pressures and trends)	▪ **Erosion and progradation** - Unless artificially constrained, the seaward edges of sand dunes can be a highly mobile feature, though there is a natural trend to greater stability further inland. Very few dune systems are in overall equilibrium, and a majority of those in the UK demonstrate net erosion rather than net progradation; insufficient sand supply is frequently the underlying cause. ▪ **Falling water tables** - As a result of local extraction of water and/or drainage of adjacent land used for agriculture or housing. ▪ **Grazing** - In the absence of human interference, most stable dunes, with the exception of those experiencing severe exposure, would develop into scrub and woodland. The preponderance of grassland and heath vegetation on British dunes is due to a long history of grazing by livestock. Continued grazing is normally necessary to maintain the typical fixed dune communities, but over-grazing, particularly when combined with the provision of imported feedstuffs, can have damaging effects. A more widespread problem is under-grazing, leading to invasion by coarse grasses and scrub, though rabbits are locally effective in maintaining a short turf. Kenfig National Nature Reserve (NNR) has been grazed by sheep in recent years, and grazing is currently under review. Selected dune slacks are mown in order to provide appropriate conditions for the maintenance of these species and the vegetation.

Site Name: Kenfig Location Grid Ref: SS790813 JNCC Site Code: UK0012566 Size: 1191.67 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ **Scrub** - scrub encroachment has been considerable over the last 30 years and grazing alone cannot keep scrub in check. Where natural processes such as mobility, erosion, and wind scour are significant, scrub invasion is not an issue. Where slacks are more mature, scrub can become a problem especially when grazing ceases or is reduced for a period and early scrub encroachment is not controlled. As scrub becomes established shelter and seeding increases and the problem is then exacerbated as stock cannot gain easy access to graze. ▪ **Recreation and access** - people and vehicle access should be managed so that it does not adversely affect the dune slack SAC features. Dune stabilisation works should only be considered in exceptional cases where severe erosion has been caused by vehicle or visitor pressure. The first action should be to manage the source of the problem. Vehicle restrictions to the dunes need to be continued, and be reviewed as problems arise. Wardening and surveillance of access for horse riders among certain areas of the dune slacks at Merthyr Mawr where it is impacting on *P. ralfsii* habitat should be continued, with access to sensitive habitats discouraged via deviation onto other less sensitive habitat. ▪ **Natural successional changes** - within the dune systems are detrimental to the plant communities of the dune grassland and humid dune slacks as well as to *Liparis loeselii* and *Petalophyllum ralfsii*, which are species of early successional changes. ▪ **Air quality*:** ○ Eutrophication. ○ Photochemical oxidants. ○ Particulate matter.

* Air Pollution Information System (APIS). Sand Dunes. Available from: http://www.apis.ac.uk/cgi_bin/habitat_result.pl?habResult=Sand+dunes&choice=allHabs&haborspec=habitat&submit.x=17&submit.y=7

Site Name: Kenfig Location Grid Ref: SS790813 JNCC Site Code: UK0012566 Size: 1191.67 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ **Water quality** - The major water quality concerns are related to elevated macro-nutrient levels. Elevated levels of nitrogen have been found at Burrows Well (a karstic spring) on the Merthyr Mawr component and there is also some indication that dune slacks are becoming increasingly eutrophic. The nature of the underlying limestone aquifer means that off-site activities a considerable distance away can potentially have an impact on the SAC. This effect may occur both spatially and temporally. ▪ **Non-native species** - Large populations of coarse fish (such as introduced carp for example) can distort the balance between the plant community, nutrient levels and the coarse fish population by eating small microscopic animals (zooplankton) that feed on tiny algae (phytoplankton).There should be no new non-native invasive species on the UKTAG Red List present. No increase in *Elodea canadensis*. This species is currently rare. ▪ The **Fen Orchid** is also under threat from: o Natural processes of succession in dune slacks. o Work undertaken to stabilise sand dunes. ▪ The **Pealwort** is also under threat from: o Loss of habitat due to development, dune stabilisation and natural succession. o Drainage. o Recreation. o Botanical collection. Indirect effects on dunes include atmospheric nutrient deposition, and coastal squeeze due to rising sea levels and increased storminess. The potential for dredging and marine aggregate extraction, through the disruption of coastal processes, to have cumulative and long-term effects on sand dunes is an area for further investigation.

Site Name: Kenfig **Location Grid Ref: SS790813** **JNCC Site Code: UK0012566** **Size: 1191.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Landowner/ Management Responsibility	All parts of the Kenfig Dunes SSSI are owned by a charitable organisation, the Kenfig Corporation Trust, dedicated to holding the site in trust for the benefit and enjoyment of the community of Kenfig, allowing unrestricted access in time and space. Bridgend County Borough Council manages the site, in consultation with other parties through the Kenfig NNR management committee. Their aim is to maintain and enhance its value for nature conservation, including the provision of educational and public interpretation resources, run from the visitor centre. NRW (formerly CCW) manage the grazing licences. Fishing is a traditional activity and is dealt with through a separate lease with The Kenfig Hill and District Angling Association.

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 *Zostera* 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 *Festuca rubra* and *Juncus gerardii*; middle marsh dominated by *Puccinellia maritima* with *Glaux maritima* and *Triglochin maritima*; dense monocultures of *Spartina anglica* at the edge of the mudflats-brackish pools and depressions with *Phragmites australis* and *Bolboschoenus maritimus*.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ Estuaries ▪ Mudflats and sandflats not covered by seawater at low tide

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	▪ Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 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 *Petromyzon marinus* ▪ River lamprey *Lampetra fluviatilis* ▪ Twaite shad *Alosa fallax*
Conservation Objectives	**SAC interest feature 1: Estuaries** The conservation objective for the "estuaries" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: 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 communities5 within the site is maintained; v. the extent, variety, spatial distribution and community composition of hard substrate habitats and their

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	notable communities is maintained; vi. the abundance of the notable estuarine species assemblages7 is maintained or increased; vii. the physico-chemical characteristics of the water column9 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. ix. Airborne nutrient and contaminant loads are below levels which would pose a risk to the ecological objectives described above **SAC interest feature 2: Subtidal sandbanks which are covered by sea water all the time (subtidal sandbanks)** The conservation objective for the "subtidal sandbanks" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: 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 subtidal 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. **SAC interest feature 3: Mudflats and sandflats not covered by seawater at low tide (mudflats and sandflats)** The conservation objective for "mudflats and sandflats" feature of the Severn Estuary SAC is to maintain the

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	feature in favourable condition, as defined below: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: 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 communities3 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 of sediment movement and channel migration across the flats) are maintained. **SAC interest feature 4: Atlantic salt meadow** The conservation objective for the "Atlantic salt meadow" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: 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;

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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 *Spartina anglica* salt marsh (SM6) are capable of developing naturally into other saltmarsh communities. **SAC interest feature 5: Reefs** The conservation objective for the "reefs" feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: i. the total extent and distribution of *Sabellaria* reef is maintained; ii. the community composition of the *Sabellaria* reef is maintained; iii. the full range of different age structures of *Sabellaria* reef are present; iv. the physical5and ecological processes necessary to support *Sabellaria* reef are maintained. **SAC interest feature 6: River lamprey *Lampetra fluviatilis*** The conservation objective for the river lamprey *Lampetra fluviatilis* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: 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; iii. the abundance of prey species forming the river lamprey's food resource within the estuary, 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. **SAC interest feature 7: The conservation objective for sea lamprey *Petromyzon marinus*** The conservation objective for the sea lamprey *Petromyzon marinus* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: 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.

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	vi. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above. **SAC interest feature 8: The conservation objective for twaite shad *Alosa fallax*** The conservation objective for the twaite Shad *Alosa fallax* feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: 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.

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ **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**.
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 NRW (formerly 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 NRW (formerly 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 NRW (formerly CCW) to be highly vulnerable to selective extraction.

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	▪ **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 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: Cefn Cribwr Grasslands **Location Grid Ref: SS870830** **JNCC Site Code: UK0030113** **Size: 58.35** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	The site(s) is situated to the east of Bridgend in close proximity to the M4. This is one of four sites representing *Molinia* meadows in south and central Wales, one of the major UK strongholds for this habitat type. At this site, there are extensive stands of M24 *Molinia – Cirsium dissectum* fen-meadow, including the heathy sub-type with cross-leaved heath *Erica tetralix*, as well as other forms with a stronger representation of grasses, rushes and small sedges. Transitions to stands of more acidic *Molinia* and *Juncus* pasture, dry neutral grassland and wet scrub vegetation are well-represented. Uncommon and declining species associated with the *Molinia* meadows at this site include the nationally rare viper's-grass *Scorzonera humilis* and the nationally scarce soft-leaved sedge *Carex montana*. The Cefn Cribwr group of SSSIs is also of importance for the presence of marsh fritillary butterflies. This small species, whose wings have an attractive chequerboard pattern of red, brown and cream, is now rare throughout Britain, and is only found where its food plant, devil's bit scabious, grows in abundance.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) Annex II Species qualifying feature: ▪ Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*
Conservation Objectives	**Conservation Objective for Feature 1:** ***Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)** 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:

Site Name: Cefn Cribwr Grasslands Location Grid Ref: SS870830 JNCC Site Code: UK0030113 Size: 58.35 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ eu-Molinion marshy grassland will occupy between 50% and 55% 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 eu-Molinion marshy grassland: purple moor-grass *Molinia* caerulea; meadow thistle Cirsium dissectum; Carex hostiana; Carex pulicaris; devil's bit scabious Succisa pratensis; carnation sedge Carex panicea; saw wort Serratula tinctoria and; tormentil Potentilla erecta. ▪ Cross-leaved heath Erica tetralix and common heather Calluna vulgaris will also be common in some areas. ▪ Rushes and species indicative of agricultural modification, such as perennial rye grass Lolium perenne and white clover Trifolium repens will be largely absent from the eu-Molinion marshy grassland. ▪ Scrub species such as willow Salix (excluding Salix repens) and birch Betula will also be largely absent from the eu-Molinion marshy grassland. ▪ All factors affecting the achievement of the foregoing 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 Cefn Cribwr Grasslands Management Plan. **Conservation Objective for Feature 2:** **Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*** 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:

Site Name: Cefn Cribwr Grasslands **Location Grid Ref: SS870830** **JNCC Site Code: UK0030113** **Size: 58.35** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ The site will contribute towards supporting a sustainable metapopulation of the marsh fritillary in the Cefn Cribwr area. This will require a minimum of 50ha of suitable habitat, of which at least 10ha must be in good condition, although not all is expected to be found within the SAC. Some will be on nearby land within a radius of about 2km. ▪ 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 40ha within the SAC & associated SSSI will be marshy grassland suitable for supporting marsh fritillary, with Succisa pratensis present and only a low cover of scrub. ▪ At least 8ha will be marsh fritillary breeding habitat in good condition, dominated by purple moor-grass *Molinia* caerulea, with S. pratensis present throughout and a vegetation height of 10-20cm over the winter period. ▪ Suitable marsh fritillary habitat is defined as stands of grassland where Succisa pratensis is present and where scrub more than 1 metre tall covers no more than 10% of the stands ▪ Optimal marsh fritillary breeding habitat will be characterised by grassland where the vegetation height is 10-20 cm, with abundant purple moor-grass *Molinia* caerulea, frequent "large-leaved" devil's-bit scabious Succisa pratensis suitable for marsh fritillaries to lay their eggs and only occasional scrub. In peak years, a density of 200 larval webs per hectare of optimal habitat will be found across the site. ▪ The marshy grassland will be well sheltered by hedgerows and mature trees. ▪ All factors affecting the achievement of the foregoing conditions are under control. Performance indicators for feature 2 (see performance indicators for feature 1)
Component SSSIs	▪ Bryn-Bach, Cefn Cribwr. ▪ Pen y Castell Cefn Cribwr.

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	▪ Waun-fawr, Cefn Cribwr. ▪ Caeau Cefn Cribwr. There are 12 management units of which numbers 1 to 10 comprise to form the Cefn Cribwr Grasslands SAC. A map showing the management units can be viewed on the NRW website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Livestock grazing** - Without an appropriate grazing regime, the grassland would become rank and eventually turn to scrub and woodland. Conversely, overgrazing, or grazing by inappropriate stock (particularly sheep) would also lead to unwanted changes in species composition, through selective grazing, increased nutrient inputs and poaching. Grazing levels (the number of grazing animals and the period of grazing) need to be assessed against feature condition and modified accordingly. Grazing alone may not be sufficient to prevent the gradual encroachment of scrub, woodland or bracken. A scrub control programme may need to be implemented. The abundance of rushes may also increase and may need to be controlled by topping subject to condition assessments. The habitat management required on this site will be best achieved through management agreements with the owners/occupiers. Agreements should specify grazing periods and levels and other details necessary for the management of the site, namely scrub control, rush topping, and fencing/gates required. The life cycle and population dynamics of the marsh fritillary, particularly the periodic population crashes, make it difficult assess whether the population is in a state to maintain itself in the long-term. In addition, further site specific data is required to establish confidence in the influence of grazing levels on habitat condition for marsh fritillaries. Annual monitoring of larval web densities and habitat condition are required until some confidence on these issues is achieved. ▪ **Shelter** belts - Hedgerows, woodland and mature trees in and around the site provide the sheltered conditions which the marsh fritillary requires. These should be retained and managed. On each component SSSI

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	○ Lower limit: at any given time least 80% of the existing mature hedgerows (over 4 metres tall) should be retained. The remaining 20% should be subject to a sustainable hedgerow management rotation. The existing blocks of woodland should be retained. ▪ **Hydrological regime** - The eu-Molinion marshy grassland is dependent on a number of springs and watercourses feeding the site. CCW states that investigation is required to achieve a better understanding of the hydrological regime and to confirm that adjacent mineral workings are having no significant adverse effects.
SAC Condition Assessment	**Conservation status for Feature 1: *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)** This assessment relates to monitoring results from 2001 and provisional results from monitoring undertaken in 2007. The current status of the feature is **Unfavourable**. **Conservation status for Feature 2: Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*** Both larvae and adults of marsh fritillary have been recorded on the site more recently, but it is suspected that the site does not currently support the required density of larval webs that would indicate a sustainable metapopulation. The current status of the feature is **unfavourable**.
Vulnerabilities (includes existing pressures and trends)	▪ **Inappropriate Grazing** - There is a danger of under/over grazing. ▪ **Burning** - is not a sympathetic habitat management tool for maintaining marsh fritillary populations. Burning should only be employed in the restoration of Eu Molinion/marshy grassland, where marsh fritillaries are known not to breed.

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	▪ **Hydrological regime** - The marshy grassland communities are strongly influenced by the quantity and base status of the groundwater. Reductions in the quality and quantity of the water in the springs and watercourses feeding the site may lead to a loss of marshy grassland or changes in species composition. Conversely, reduced/impeded drainage may lead to ground-water stagnation and a different change in species composition, e.g. increased abundance of rushes. Two of the component SSSIs lie close to opencast coal workings and other active mineral workings. These may have indirect effects on the hydrological regime. ▪ **Off-site pollution** - Two of the component SSSIs lie close to opencast coal workings and other active mineral workings. The effects of the releases of lime dust into the atmosphere from the adjacent works on the SSSI are not known; these emissions are subject to the authorisation of other competent authorities, particularly the Environment Agency. CCW states that further investigation is required to establish the existence and significance of any adverse effects. ▪ **Owner/occupier objectives** - the owners/occupiers of the land typically have an interest in securing some financial/agricultural benefit from the land. This return could be optimised by the agricultural improvement of the land, e.g. by installing new drainage, fertiliser application, or re-seeding; however these operations would cause significant long-term damage to the eu-Molinion marshy grassland. ▪ **Weather conditions** - Weather conditions have an effect on the breeding success of the marsh fritillary. In particular, poor weather conditions during the adult flight period will reduce opportunities for mating, egg-laying and dispersal from core areas. Weather conditions during early spring influence the rate of larval development of the marsh fritillary and the effects of the parasitic wasp (see below). This factor is outside the influence of the site manager and an operational limit is not required. ▪ **Parasites** - The larvae of marsh fritillaries can be parasitised by species of braconid wasp of the *Cotesia*

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	genus. The parasites can have good years and infect a large number of larval webs, causing a crash in the subsequent adult population of marsh fritillary. This factor is outside the influence of the site manager; and an operational limit is not required.
Landowner/ Management Responsibility	▪ N/A

Site Name: River Usk **Location Grid Ref: SO301113** **JNCC Site Code: UK0013007** **Size: 1007.71** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	The River Usk SAC rises in the Black Mountain range in the west of the Brecon Beacons National Park and flows east and then south, to enter the Severn Estuary at Newport. The overall form of the catchment is long and narrow, with short, generally steep tributaries flowing north from the Black Mountain, Fforest Fawr and Brecon Beacons, and south from Mynydd Epynt and the Black Mountains. The underlying geology consists predominantly of Devonian Old Red Sandstone with a moderate base status, resulting in waters that are generally well buffered against acidity. This geology also produces a generally low to moderate nutrient status, and a moderate base-flow index, intermediate between base-flow dominated rivers and more flashy rivers on less permeable geology. The run-off characteristics and nutrient status are significantly modified by land use in the catchment, which is predominantly pastoral with some woodland and commercial forestry in the headwaters and arable in the lower catchment. The Usk catchment is entirely within Wales. The ecological structure and functions of the site are dependent on hydrological and geomorphological processes (often referred to as hydromorphological processes), as well as the quality of riparian habitats and connectivity of habitats. Animals that move around and sometimes leave the site, such as migratory fish and otters, may also be affected by factors operating outside the site. The River Usk is also important for its population of sea lamprey *Petromyzon marinus*. The site also supports a healthy population of brook lamprey *Lampetra planeri* and river lamprey *Lampetra fluviatilis* and is considered to provide exceptionally good quality habitat likely to ensure the continued survival of the species in this part of the UK. The site supports a range of Annex II fish species, which includes twaite shad *Alosa falla*, salmon *Salmo sala* and bullhead *Cottus gobi*. The River Usk is an important site for otters Lutra lutra in Wales.
Qualifying Features	Annex I Habitats qualifying feature: ▪ Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Annex II Species primary reason for selection:

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	▪ Sea lamprey *Petromyzon marinus* ▪ Brook lamprey *Lampetra planeri* ▪ River lamprey *Lampetra fluviatilis* ▪ Twaite shad *Alosa fallax* ▪ Atlantic salmon *Salmo salar* ▪ Bullhead *Cottus gobio* ▪ Otter *Lutra lutra* Annex II Species qualifying feature: ▪ Allis shad *Alosa alosa*
Conservation Objectives	**The ecological status of the water course is a major determinant of Favourable Condition Status (FCS) for all features. The required conservation objective for the water course is defined below.** **Conservation Objective for the water course** ▪ The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary. ▪ The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that these limits will concur with the relevant standards used by the Review of Consents process given in Annexes 1-3. ▪ Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC. ▪ All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change.

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	▪ Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed. ▪ The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided. ▪ River habitat SSSI features should be in favourable condition. In the case of the Usk Tributaries SSSI, the SAC habitat is not underpinned by a river habitat SSSI feature. In this case, the target is to maintain the characteristic physical features of the river channel, banks and riparian zone. ▪ Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers. ▪ Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified. ▪ Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered. ▪ Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be agreed between EA and CCW as necessary. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 1 of this document. ▪ Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 2 of this document. ▪ Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 3 of this document. ▪ Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be

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	considered in assessing plans and projects. ▪ Levels of suspended solids will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels. **Conservation Objective for Features 1-5:** - **Sea lamprey** *Petromyzon marinus*; - **Brook lamprey** *Lampetra planeri*; - **River lamprey** *Lampetra fluviatilis*; - **Twaite shad** *Alosa fallax*; - **Allis shad** *Alosa alosa*; - **Atlantic salmon** *Salmo salar*; - **Bullhead** *Cottus gobio*. Vision for features 1-5 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The population of the feature in the SAC is stable or increasing over the long term. ▪ The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions eg. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable

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	future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity, such as physical barriers to migration, will be assessed in view of the following bullet point. ▪ There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. Performance indicators for features 1-5 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 River Usk Management Plan. **Conservation Objective for Feature 6:** **- European otter** *Lutra lutra* Vision for feature 6 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour. ▪ The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Usk SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat

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	enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. ▪ The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. Performance indicators for feature 6 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 River Usk Management Plan. **Conservation Objective for Feature 7:** **- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation** Vision for feature 7 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 conservation objectives for the water course as defined above must be met. ▪ The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. The natural range is taken to mean those reaches where predominantly suitable habitat exists over the long term. Suitable habitat and associated plant communities may vary from reach to reach. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. depth and stability of flow, stability of bed substrate, and ecosystem structure and functions eg. nutrient levels, shade. Suitable habitat for the feature need not be present throughout the SAC but where

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	present must be secured for the foreseeable future, except where natural processes cause it to decline in extent. ▪ The area covered by the feature within its natural range in the SAC should be stable or increasing. ▪ The conservation status of the feature's typical species should be favourable. The typical species are defined with reference to the species composition of the appropriate JNCC river vegetation type for the particular river reach, unless differing from this type due to natural variability when other typical species may be defined as appropriate. Performance indicators for feature 7 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 River Usk Management Plan.
Component SSSIs	▪ River Usk (Upper Usk) SSSI ▪ River Usk (Lower Usk) SSSI ▪ River Usk (Tributaries) SSSI ▪ Penllwyn-yr-hendy SSSI ▪ Coed Dyrysiog SSSI ▪ Coed Nant Menascin SSSI ▪ Coed Ynysfaen SSSI The SAC has been divided into 10 management units: ▪ Units 1 to 3 - River Usk (Lower Usk) SSSI. ▪ Units 4 to 6 - River Usk (Upper Usk) SSSI. ▪ Units 7 to 10 - River Usk (Tributaries) SSSI. A map showing the various management units can be seen within the River Usk Management Plan (2008).

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Key Environmental Conditions (factors that maintain site integrity	▪ **Hydrological processes**: ○ **River flow** (level and variability) and **water chemistry**, determine a range of habitat factors of critical importance to the SAC features, including current velocity, water depth, wetted area, substrate quality, dissolved oxygen levels and water temperature. Maintenance of both high 'spate' flows and base-flows is essential. Reduction in flows may reduce the ability of the adults of migratory fish to reach spawning sites. Water-crowfoot vegetation thrives in relatively stable, moderate flows and clean water. The flow regime should be characteristic of the river in order to support the functioning of the river ecosystem. ▪ **Geomorphological processes** - of erosion by water and subsequent deposition of eroded sediments downstream, create the physical structure of the river habitats. Whilst some sections of the river are naturally stable, especially where they flow over bedrock, others undergo constant and at times rapid change through the erosion and deposition of bed and bank sediments as is typical of meandering sections within floodplains (called 'alluvial' rivers). These processes help to sustain the river ecosystem by allowing a continued supply of clean gravels and other important substrates to be transported downstream. In addition, the freshly deposited and eroded surfaces, such as shingle banks and earth cliffs, enable processes of ecological succession to begin again, providing an essential habitat for specialist, early-successional species. Lampreys need clean gravel for spawning, and marginal silt or sand for the burrowing juvenile ammocoetes. Processes at the wider catchment scale generally govern processes of erosion and deposition occurring at the reach scale, although locally, factors such as the effect of grazing levels on riparian vegetation structure may contribute to enhanced erosion rates. In general, management that interferes with natural geomorphological processes, for example preventing bank erosion through the use of hard revetments or removing large amounts of gravel, are likely to be damaging to the coherence of the ecosystem structure and functions. ▪ **Riparian habitats** - including bank sides and habitats on adjacent land, are an integral part of the river ecosystem. Diverse and high quality riparian habitats have a vital role in maintaining the SAC features in a favourable condition. The type and condition of riparian vegetation influences shade and water

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	temperature, nutrient run-off from adjacent land, the availability of woody debris to the channel and inputs of leaf litter and invertebrates to support in-steam consumers. Light, temperature and nutrient levels influence in-stream plant production and habitat suitability for the SAC features. Woody debris is very important as it provides refuge areas from predators, traps sediment to create spawning and juvenile habitat and forms the base of an important aquatic food chain. Otters require sufficient undisturbed riparian habitats as breeding and resting sites. It is important that appropriate amounts of tree cover, in general at least 50% high canopy cover, tall vegetation and other semi-natural habitats are maintained on the riverbanks and in adjacent areas, and that they are properly managed to support the SAC features. This may be achieved, for example, through managing grazing levels, selective coppicing of riparian trees and restoring adjacent wetlands. In the urban sections the focus may be on maintaining the river as a communication corridor but this will still require that sufficient riparian habitat is present and managed to enable the river corridor to function effectively. ▪ **Habitat connectivity** - is an important property of a river ecosystem structure and function. Many of the fish that spawn in the river are migratory, depending on the maintenance of suitable conditions on their migration routes to allow the adults to reach available spawning habitat and juvenile fish to migrate downstream. For resident species, dispersal to new areas, or the prevention of dispersal causing isolated populations to become genetically distinct, may be important factors. Naturally isolated feature populations that are identified as having important genetic distinctiveness should be maintained. Artificial obstructions including weirs and bridge sills can reduce connectivity for some species. In addition, reaches subject to depleted flow levels, pollution, or disturbance due to noise, vibration or light, can all inhibit the movement of sensitive species. The dispersal of semi-terrestrial species such as the otter can be adversely affected by structures such as bridges under certain flow conditions; therefore, these must be designed to allow safe passage. The continuity of riparian habitats enables a wide range of terrestrial species, for example lesser horseshoe bats, to migrate and disperse through the landscape. Connectivity should be maintained or restored where necessary as a means to ensure access for the features to sufficient habitat within the SAC.

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SAC Condition Assessment	**Conservation status of Feature 1: Sea lamprey *Petromyzon marinus*** Status: **Unfavourable**: Unclassified. Sea lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for spawning site and ammocoete distribution. A caveat on the latter is uncertainty over whether the natural range of sea lamprey extends above Brecon weir: this is assumed not to be the case. Factors leading to an unfavourable assessment are the presence of probable partial barriers further downstream (notably Crickhowell Bridge), and flow depletion resulting from abstractions including Brecon canal and Prioress Mill public water supply abstraction. The latter in particular has been shown to have effects both on a seasonal timescale by reducing spate flows during the migration period and on a diurnal timescale by substantially depleting flows during the night time to the extent that sea lamprey nests and nursery areas are likely to be exposed above the water level. The effect of the Brecon canal abstraction has been shown to comprise a substantial depletion of flows, at least locally, during low flow periods with a resulting reduction in river depth downstream of the off-take weir. **Conservation status of Feature 2: Brook lamprey *Lampetra planeri* and River lamprey *Lampetra fluviatilis*** Status: **Favourable**. Brook/river lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for ammocoete distribution1. It has not been possible to distinguish between these two species during monitoring, due to the reliance on juvenile stages (ammocoetes). Anecdotal evidence suggests that both species are likely to be present in many reaches, though brook lamprey are expected to predominate in the headwaters and river lamprey may be the more abundant species in the main channel and the lower reaches of larger tributaries. More information on the relative abundance of these two species in different parts of the Usk SAC is desirable.

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	Records of spawning adult river lamprey would be particularly useful. **Conservation status of Feature 3: Twaite shad *Alosa fallax* and Allis shad *Alosa alosa*** Status: **Unfavourable**: Unclassified. Monitoring of these species in the Usk relies on two methods, Kick sampling for eggs provides qualitative information on spawning distribution, Netting for juveniles in the lower river and tidal reaches during late summer/autumn when juveniles drift downstream towards the estuary. These methods do not distinguish between the two species. Allis shad is thought to be rare, with no recent records in the Usk, while twaite shad is relatively common. Kick sampling for eggs is only able to give a broad scale indication of presence or absence at sampled locations. Netting for juveniles gives a quantitative estimate of abundance, though may be subject to a high degree of uncertainty due to sampling error. This uncertainty is likely to be compounded by variation between years in the size of the adult run, spawning success and resulting numbers of juveniles. Poor adult runs are likely to result from unsuitable flows during the March to June migration period, in particular prolonged low flows, while poor survival of eggs and juveniles is related to spate flows in the mid to late summer which can flush them into the estuary prematurely. CSM guidance states that adult run size should comply with an agreed target for each river, with no drop in the annual run greater than would be expected from variations in natural mortality alone. This attribute is not currently assessed in the Usk due to the absence of a fish counter. The current unfavourable status results from a precautionary assessment of feature distribution and abundance, and from the presence of adverse factors, in particular flow depletion and physical barriers to migration. **Conservation status of Feature 4: Atlantic salmon *Salmo salar***

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	Status: **Unfavourable**: Unclassified. Monitoring of Atlantic salmon in the Usk relies on two methods, 1. Estimation of adult run size from angling catch returns, 2. Electro-fishing for juveniles in nursery areas. The estimate of adult numbers is converted into an estimate of numbers of eggs deposited which is compared against an Egg Deposition Target (EDT), calculated by considering the area of suitable spawning habitat within the catchment. The equivalent adult run to achieve the EDT is described in terms of a Conservation Limit, which must be exceeded 4 years in 5 for the Management Target to be considered attained. Electro-fishing for juveniles is either quantitative or semi-quantitative, and estimated juvenile densities are classified in one of six categories A to F. The monitoring guidance produced by the LIFE in UK Rivers project recommends that ideally juvenile densities should be compared to predicted densities for the sample reach using the HABSCORE model6. These targets are calculated and monitored by the Environment Agency as part of the Salmon Action Plan for the Usk. The current unfavourable status results from a precautionary assessment of feature distribution and abundance, in particular the results of juvenile surveys, and from the presence of adverse factors, in particular flow depletion and localised water quality failures. **Conservation status of Feature 5: Bullhead *Cottus gobio*** Status: **Unfavourable**: Unclassified. The current unfavourable status results from the presence of adverse factors, in particular flow depletion and localised water quality failures. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the main river and tributaries. There is a need for quantitative information on bullhead abundance, which will be addressed by targeted monitoring in 2007. **Conservation status of Feature 6: European otter *Lutra lutra*** Status: **Favourable**. The conservation status of otters in the Usk SAC is determined by monitoring their

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	distribution, breeding success, and the condition of potential breeding and feeding habitat outlined in the Performance Indicators. Their current condition can be considered favourable, but with scope for further improvement, if habitat and other natural factors can be maintained and enhanced. **Conservation status of Feature 7: Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation** Status: **Unfavourable**: Unclassified. This feature is not identified as one of the primary reasons for designation of the River Usk SAC; its distribution being apparently limited by the availability of suitable hydromorphological conditions. Important stands have been identified in the lower reaches of the main river below Abergavenny down to the tidal limit, and in the upper reaches of a headwater stream, the Afon Senni. These reaches may represent a sub-type of the feature where large submerged and floating leaved flowering plants, in particular Ranunculus, are dominant. Habitat suitability studies4 suggest that the natural range of the feature may be more widespread within the SAC. More widespread sub-types may consist of communities dominated by aquatic bryophytes. Where necessary, examples of these sub-types may be identified as priorities for management, for example through the management of riparian vegetation to preserve shade and humidity. Further understanding of the distribution and status of this feature and its natural range within the River Usk SAC is required. The present unfavourable status of the feature results from the over-abundance of invasive non-native species of bankside plant communities, which are included within the feature definition. These are predominantly giant hogweed and Himalayan balsam in the lower reaches of the main river.
Vulnerabilities (includes existing pressures and trends)	▪ **Abstraction levels -** Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. The impact of flow depletion resulting from a small number of major abstractions was highlighted in the Review of Consents process. ▪ **Eutrophication** - factors that are important to the favourable conservation status of this feature include flow,

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	substrate quality and water quality, which in turn influence species composition and abundance. These factors often interact, producing unfavourable conditions by promoting the growth of a range of algae and other species indicative of eutrophication. Under conditions of prolonged low flows and high nutrient status, epiphytic algae may suppress the growth of aquatic flowering plants. ▪ **Diffuse Pollution** - The Atlantic salmon is the focus for much of the management activity carried out on the Usk. The relatively demanding water quality and spawning substrate quality requirements of this feature mean that reduction in diffuse pollution and siltation impacts is a high priority. In the Usk catchment, the most significant sources of diffuse pollution and siltation are from agriculture, including fertiliser run-off, livestock manure, silage effluent and soil erosion from ploughed land. The most intensively used areas such as heavily trampled gateways and tracks can be especially significant sources of polluting run-off. Farm operations should avoid ploughing land which is vulnerable to soil erosion or leaving such areas without crop cover during the winter. Contamination by synthetic pyrethroid sheep dips, which are extremely toxic to aquatic invertebrates, has a devastating impact on crayfish populations and can deprive fish populations of food over large stretches of river. These impacts can arise if recently dipped sheep are allowed access to a stream or hard standing area, which drains into a watercourse. Pollution from organophosphate sheep dips and silage effluent can be very damaging locally. Pollution from slurry and other agricultural and industrial chemicals, including fuels, can kill all forms of aquatic life. All sheep dips and silage, fuel and chemical storage areas should be sited away from watercourses or bunded to contain leakage. Recently dipped sheep should be kept off stream banks. Discharges from sewage treatment works, urban drainage, engineering works such as road improvement schemes, contaminated land, and other domestic and industrial sources can also be significant causes of pollution, and must be managed appropriately. Pollution of rivers with toxic chemicals, such as PCBs, was one of the major factors identified in the widespread decline of otters during the last century. ▪ **Barriers to migration** - There are few barriers to migration for the anadromous species and where barriers exist, investigation is proposed to analyse for potential impacts and remedy them through multi-species fish passes. Crickhowell Bridge is considered to be the most significant barrier to fish migration in the Usk.

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	Management to reduce or remove the effect of this barrier is a high priority for the River Usk SAC. Artificial physical barriers are probably the single most important factor in the decline of shad in Europe. Impassable obstacles between suitable spawning areas and the sea can eliminate breeding populations of shad. Both species (but particularly allis shad) can make migrations of hundreds of kilometres from the estuary to spawning grounds in the absence of artificial barriers. Existing fish passes designed for salmon are often not effective for shad. ▪ **Development pressure** - in the lower catchment can cause temporary physical, acoustic, chemical and sediment barrier effects that need to be addressed in the assessment of specific plans and projects. Noise/vibration e.g. due to impact piling, drilling, salmon fish counters present within or in close proximity to the river can create a barrier to shad migration. Land on both sides of the river in Newport is potentially highly contaminated. Contamination of the river can arise when this is disturbed e.g. as a result of development. Contamination can also arise from pollution events (which could be shipping or industry related). Barriers resulting from vibration, chemicals, low dissolved oxygen and artificially high sediment levels must be prevented at key times (generally March to June). ▪ **Invasive non-native plants** - are a detrimental impact on the water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. Giant hogweed, Himalayan balsam and Japanese knotweed should be actively managed to control their spread and hopefully reduce their extent in the SAC. ▪ **Artificially enhanced densities of other fish** - may introduce unacceptable competition or predation pressure and the aim should be to minimise these risks in considering any proposals for stocking. ▪ **External factors** - operating outside the SAC, may also be influential, particularly for the migratory fish and otters. For example, salmon may be affected by barriers to migration in the Severn Estuary, inshore fishing and environmental conditions prevailing in their north Atlantic feeding grounds. Otters may be affected by developments that affect resting and breeding sites outside the SAC boundary.

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Landowner/ Management Responsibility	▪ N/A

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	The River Wye rises on Plynlimon in the Cambrian Mountains and flows in a generally south-easterly direction to enter the Severn Estuary at Chepstow. The upper catchment comprises several large sub-catchments, including the Irfon on the generally infertile upland landscape in the north-west, the Ithon in the north-east often on more low-lying, fertile terrain and the Lugg in the east in a predominantly low-lying fertile landscape much of which lies within England. The underlying geology consists predominantly of impermeable, acidic rocks of Silurian and Ordovician age in the north-west and more permeable Devonian Old Red Sandstone with a moderate base status in the middle and lower catchment. This geology produces a generally low to moderate nutrient status and a low to moderate base-flow index, making the river characteristically flashy. The run-off characteristics and nutrient status are significantly modified by land use in the catchment, which is predominantly pastoral with some woodland and commercial forestry in the headwaters and arable in the lower catchment and the Lugg. The Wye catchment is divided between Wales and England; the river forms the border from south of Monmouth to Chepstow and to the east of Hay-on-Wye. Historically, the Wye is the most famous and productive river in Wales for Atlantic salmon *Salmo salar*, with high-quality spawning grounds and juvenile habitat in both the main channel and tributaries. The Wye salmon population is particularly notable for the very high proportion (around 75%) of multi sea winter (MSW) fish, a stock component which has declined sharply in recent years throughout the UK. This pattern has also occurred in the Wye, with a consequent marked decline in the population since the 1980s. However, the Wye salmon population is still of considerable importance in UK terms. The Atlantic salmon is the focus for much of the management activity carried out on the Wye. The relatively demanding water quality and spawning substrate quality requirements of this feature mean that reduction in diffuse pollution and siltation impacts is a high priority. The Wye also holds the densest and most well-established otter *Lutra lutra* population in Wales, representative of otters occurring in lowland freshwater habitats in the borders of Wales. The river has bank-side vegetation cover, abundant food supply, clean water and undisturbed areas of dense scrub suitable for breeding, making it particularly favourable as otter habitat. The population remained even during the lowest point of the UK decline, confirming that the site is particularly favourable for this species and the population likely to be highly stable. The site is considered one of the best in the UK for white-clawed crayfish

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	Austropotamobius pallipes. The tributaries are the main haven for the species, particularly at the confluences of the main river and the Edw, Dulas Brook, Sgithwen and Clettwr Brook. Other importance species supported by the River Wye are twaite shad, bullhead and river, sea and brook lamprey.
Qualifying Features	Annex I habitats primary reason for selection: ▪ Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Annex I habitats qualifying feature: ▪ Transition mires and quaking bogs Annex II species primary reason for selection: ▪ White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* ▪ Sea lamprey *Petromyzon marinus* ▪ Brook lamprey *Lampetra planeri* ▪ River lamprey *Lampetra fluviatilis* ▪ Twaite shad *Alosa fallax* ▪ Atlantic salmon *Salmo salar* ▪ Bullhead *Cottus gobio* ▪ Otter *Lutra lutra* Annex II Species qualifying feature: ▪ Allis shad *Alosa alosa*
Conservation Objectives	The ecological status of the watercourse is a major determinant of Favourable Condition Status for all features. The required conservation objective for the watercourse is defined below. **Conservation Objective for the watercourse**

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	▪ The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary. ▪ The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that these limits will concur with the relevant standards used by the Review of Consents process given in Annexes 1-3. ▪ Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC. ▪ All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change. ▪ Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed. ▪ The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided. ▪ River habitat SSSI features should be in favourable condition. Where the SAC habitat is not underpinned by a river habitat SSSI feature, the target is to maintain the characteristic physical features of the river channel, banks and riparian zone. ▪ Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers. ▪ Natural factors such as waterfalls, which may limit, wholly or partially, the natural range of a species feature or dispersal between naturally isolated populations, should not be modified. ▪ Flows during the normal migration periods of each migratory fish species feature will not be depleted by

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	abstraction to the extent that passage upstream to spawning sites is hindered. ▪ Flow objectives for assessment points in the Wye Catchment Abstraction Management Strategy will be agreed between EA and CCW as necessary. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 1 of this document. ▪ Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each Water Framework Directive water body in the Wye SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 2 of this document. ▪ Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed between EA and CCW for each Water Framework Directive water body in the Wye SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 3 of this document. ▪ Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects. ▪ Levels of suspended solids will be agreed between EA and CCW for each Water Framework Directive water body in the Wye SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels. **Conservation Objective for Features 1-5:** - **Sea lamprey** *Petromyzon marinus*; - **Brook lamprey** *Lampetra planeri*; - **River lamprey** *Lampetra fluviatilis*; - **Twaite shad** *Alosa fallax*; - **Allis shad** *Alosa alosa*; - **Atlantic salmon** *Salmo salar*; - **Bullhead** *Cottus gobio*.

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	Vision for features 1-5 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The population of the feature in the SAC is stable or increasing over the long term. ▪ The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions eg. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity, such as physical barriers to migration, will be assessed in view of the following bullet point. ▪ There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. Performance indicators for features 1-5 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 River Wye Management Plan (2008). **Conservation Objective for Feature 6:** **- European otter** *Lutra lutra*

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	Vision for feature 6 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour. ▪ The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Wye SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. ▪ The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. Performance indicators for feature 6 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 River Wye Management Plan (2008). **Conservation Objective for Feature 7:** **- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation**

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	Vision for feature 7 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objectives for the water course as defined above must be met. ▪ The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. The natural range is taken to mean those reaches where predominantly suitable habitat exists over the long term. Suitable habitat and associated plant communities may vary from reach to reach. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. depth and stability of flow, stability of bed substrate, and ecosystem structure and functions eg. nutrient levels, shade. Suitable habitat for the feature need not be present throughout the SAC but where present must be secured for the foreseeable future, except where natural processes cause it to decline in extent. ▪ The area covered by the feature within its natural range in the SAC should be stable or increasing. ▪ The conservation status of the feature's typical species should be favourable. The typical species are defined with reference to the species composition of the appropriate JNCC river vegetation type for the particular river reach, unless differing from this type due to natural variability when other typical species may be defined as appropriate. Performance indicators for feature 7 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 River Wye Management Plan (2008). **Conservation Objective for Feature 8:** **- White-clawed crayfish *Austropotamobius pallipes***

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	Vision for feature 8 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The population of the feature in the SAC is stable or increasing over the long term. ▪ The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. substrate type, water hardness and temperature, and ecosystem structure and functions e.g. food supply, absence of invasive non-native competitors. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity will be assessed in view of the objective below. ▪ There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. Performance indicators for feature 8 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 River Wye Management Plan (2008). **Conservation Objective for Feature 9:** **- Quaking bogs and transition mires**

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	Vision for feature 9 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. The natural range is taken to mean those reaches where near-natural hydrological and geomorphological processes and landforms favour the development of this habitat. The feature need not be present in all suitable locations in the SAC but where present must be secured for the foreseeable future. ▪ The area covered by the feature within its natural range in the SAC should be stable or increasing. ▪ The conservation status of the feature's typical species should be favourable. The typical species are defined with reference to the species composition of the appropriate NVC type(s), unless differing from this type due to natural variability/local distinctiveness when other typical/indicator species may be defined as appropriate. Performance indicators for feature 9 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 River Wye Management Plan (2008).
Component SSSIs	The site has been divided into management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on the following: ▪ SSSI boundaries

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	▪ Natural hydromorphology, where there are significant differences in management issues/key features between reaches ▪ Units partly within England coincide with Natural England's equivalent units, as far as is practicable ▪ The units include one or more of EA's River Basin Management Plan water bodies; as far as is practicable, unit boundaries coincide with these water body boundaries. The component SSSIs and management units that comprise to form the River Wye SAC are: ▪ **River Wye (Lower Wye) SSSI - Management units 1A to 1D;** ○ Twaite shad spawn in Unit 1C & possibly in 1D and migrate through Units 1A & 1B, where they may be subject to disturbance impacts, so are selected as key features in all units. Sea and river lamprey migrate though all units and may spawn. ○ Management for twaite shad and sea lamprey is expected to also be sympathetic for Atlantic salmon, river/brook lamprey and bullhead. ○ Specific management measures for otter relating to adjacent habitats and disturbance require its selection as a key feature in all units. ○ The status of allis shad is uncertain in River Wye (Lower Wye) SSSI. It is assumed to be present in the same units as twaite shad. ○ White-clawed crayfish have been recorded in the River Wye at Hay-on-Wye and in adjacent tributaries including Clyro Brook and Dulas Brook. ▪ **River Wye (Upper Wye) SSSI - Management units 2A & 2B;** ○ Atlantic salmon is a key feature in Unit 2B due to the presence of spawning sites, although salmon may occasionally also spawn within Unit 2A. ○ Twaite shad is recorded spawning throughout Unit 2A but only infrequently upstream of the River Irfon confluence. ○ The status of Allis shad is uncertain in the River Wye SAC. Allis shad is assumed to be present in the same units as twaite shad, but normally migrates further upstream and therefore would be expected to occur in the upper river. ○ Sea lamprey is frequently recorded spawning within Unit 2A; spawning has also been recorded within

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	Unit 2B as far upstream as Rhayader. ○ Management for Atlantic salmon, twaite shad and sea lamprey is expected to be sympathetic for river/brook lamprey and bullhead. ○ Specific management measures for otter relating to adjacent habitats and disturbance require its selection as a key feature in all units. ▪ **River Wye (Tributaries) SSSI - Management unit 3;** ○ The tributaries included in this SSSI form the core range of the white-clawed crayfish in the River Wye SAC. ○ Atlantic salmon spawn in all tributaries within this SSSI although in the Sgithwen and Cletwr their natural range is limited to the lower reaches by waterfalls. ○ Twaite shad, allis shad and sea lamprey are thought not to occur within this SSSI. ▪ **Afon Llynfi SSSI - Management unit 4;** ○ An important population of white-clawed crayfish occurs in this SSSI. ○ Twaite shad, allis shad and sea lamprey are not known to occur within this SSSI but habitat in the lower reaches may possibly be suitable. ▪ **Duhonw SSSI - Management unit 5;** ○ An important population of white-clawed crayfish formerly occurred in this SSSI; restoration of the species here is a management objective. ○ Twaite shad, allis shad and sea lamprey are thought not to occur within this SSSI. ▪ **Afon Irfon SSSI - Management unit 6;** ○ Small populations of white-clawed crayfish are known to occur in the rivers Hafrena and Chwefri in this SSSI; restoration of the species here and to parts of its former range including the Garth Dulas is a management objective. ○ Twaite shad is frequently recorded spawning in the lowest approximately 0.6km of the Afon Irfon and at the confluence with the River Wye. ○ The status of Allis shad is uncertain in the River Wye SAC. Allis shad is assumed to be present in the same units as twaite shad, but normally migrates further upstream and therefore would be expected to occur in the upper river.

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	○ Sea lamprey is reported spawning within the Afon Irfon. ○ Atlantic salmon is recorded spawning throughout this SSSI but reproductive success is limited in parts of the upper Afon Irfon and Gwesyn due to acidification related to forestry. ▪ **River Ithon SSSI - Management unit 7;** ○ White-clawed crayfish has been recorded in this SSSI, including in Howey Brook, however its restoration to this sub-catchment is not a current management objective. ○ Twaite shad, allis shad and sea lamprey are not known to occur within this SSSI but habitat in the lower reaches may possibly be suitable. ▪ **Upper Wye Tributaries SSSI - Management unit 8; and** ○ This SSSI forms an important part of the spawning range of Atlantic salmon. ▪ **Colwyn Brook Marshes (North & South) SSSI - Management units 9A to 9G & 10A & 10E.** ○ This is the only component SSSI of the River Wye SAC that contains the feature 'quaking bogs and transition mires'. ○ The site comprises 5 separate ownership units. Note: a number of smaller SSSI have part of their area included within the River Wye SAC. These are not all included separately here, but management actions for adjacent SAC units also apply to these sites. Maps containing the component SSSIs and management units can be viewed on the NRW website.
Key Environmental Conditions (factors that maintain site integrity	The **ecological structure and functions of the site are dependent on hydrological and geomorphological processes** (often referred to as hydromorphological processes), as well as the quality of riparian habitats and connectivity of habitats. Animals that move around and sometimes leave the site, such as migratory fish and otters, may also be affected by factors operating outside the site. ▪ **Hydrological processes** in particular river flow (level and variability) and water chemistry, determine a range of habitat factors of importance to the SAC features, including current velocity, water depth, wetted area, substrate quality, dissolved oxygen levels and water temperature. Maintenance of both high 'spate'

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	flows and base-flows is essential. Reductions in flow may reduce the ability of the adult migratory fish to reach spawning sites. Water-crowfoot vegetation thrives in relatively stable, moderate flows and clean water. The flow regime should be characteristic of the river in order to support the functioning of the river ecosystem. ▪ **Geomorphological processes** of erosion by water and subsequent deposition of eroded sediments downstream create the physical structure of the river habitats. While some sections of the river are naturally stable, especially where they flow over bedrock, others undergo continual and at times rapid change through the erosion and deposition of bed and bank sediments as is typical of meandering sections within floodplains (called 'alluvial' rivers). These processes help to sustain the river ecosystem by allowing a continued supply of clean gravels and other important substrates to be transported downstream. In addition, the freshly deposited and eroded surfaces, such as shingle banks and earth cliffs, enable processes of ecological succession to begin again, providing an essential habitat for specialist, early-successional species. Processes at the wider catchment scale generally govern processes of erosion and deposition occurring at the reach scale, although locally factors such as the effect of grazing levels on riparian vegetation structure may contribute to enhanced erosion rates. In general, management that interferes with natural geomorphological processes, for example preventing bank erosion through the use of hard revetments or removing large amounts of gravel, are likely to be damaging to the coherence of the ecosystem structure and functions. ▪ **Riparian habitats** including bank sides and habitats on adjacent land, are an integral part of the river ecosystem. Diverse and high quality riparian habitats have a vital role in maintaining the SAC features in a favourable condition. The type and condition of riparian vegetation influences shade and water temperature, nutrient run-off from adjacent land, the availability of woody debris to the channel and inputs of leaf litter and invertebrates to support in-steam consumers. Light, temperature and nutrient levels influence in-stream plant production and habitat suitability for the SAC features. Woody debris is very important as it provides refuge areas from predators, traps sediment to create spawning and juvenile habitat and forms the base of an important aquatic food chain. Otters require sufficient undisturbed

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	riparian habitat for breeding and resting sites. It is important that appropriate amounts of tree cover, in general at least 50% high canopy cover, tall vegetation and other semi-natural habitats are maintained on the riverbanks and in adjacent areas, and that they are properly managed to support the SAC features. This may be achieved for example, through managing grazing levels, selective coppicing of riparian trees and restoring adjacent wetlands. In the urban sections the focus may be on maintaining the river as a communication corridor but this will still require that sufficient riparian habitat is present and managed to enable the river corridor to function effectively. Overhanging trees provide valuable shade and food sources for Atlantic salmon whilst tree root systems provide important cover and flow refuges for juveniles. Bullheads are particularly associated with woody debris in lowland reaches, where it is likely that it provides an alternative source of cover from predators and floods. It may also be used as an alternative spawning substrate. Debris dams and woody debris should be retained where characteristic of the river/reach. Woody debris removal should be minimised, and restricted to essential activities such as flood defence. ▪ **Habitat connectivity** is an important property of river ecosystem structure and function. Many of the fish that spawn in the river are migratory, depending on the maintenance of suitable conditions on their migration routes to allow the adults to reach available spawning habitat and juvenile fish to migrate downstream. For resident species, dispersal to new areas, or the prevention of dispersal causing isolated populations to become genetically distinct, may be important factors. Naturally isolated feature populations that are identified as having important genetic distinctiveness should be maintained. In all river types, artificial barriers should be made passable. Physical modification of barriers is required where depth/velocity/duration of flows is unsuitable to allow passage. Complete or partial natural barriers to potentially suitable spawning areas should not be modified or circumvented. Certain areas of the SAC are critical to the movement of otters both within the system and to adjacent sites. The Wye SAC provides a key movement corridor for otters passing between the relatively high densities in mid Wales and the south-east Wales coastal strip (Seven Estuary and Gwent Levels). The function of this aspect of the site should be protected through the maintenance of suitable resting sites (in terms of size, quality and levels of disturbance) through urban centres such as Monmouth. Connectivity should be maintained, or restored

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	where necessary, as a means to ensure access for the features to sufficient habitat within the SAC. ▪ **External factors** operating outside the SAC, may also be influential, particularly for the migratory fish and otters. For example, salmon may be affected by barriers to migration in the Severn Estuary, inshore fishing and environmental conditions prevailing in their north Atlantic feeding grounds. Otters may be affected by developments that affect resting and breeding sites outside the SAC boundary.
SAC Condition Assessment	**Conservation status of Feature 1: Sea lamprey *Petromyzon marinus*** Conservation status (2006) Status within the site: **Favourable: Unclassified**. Sea lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for spawning site and ammocoete distribution. Sea lamprey ammocoetes were recorded in good numbers immediately upstream of the falls at Rhayader, their most upstream recorded site on the main Wye. They were also recorded in the Irfon and Ithon tributaries. **Conservation status of Feature 2: Brook lamprey Lampetra planeri and River lamprey *Lampetra fluviatilis*** Conservation status (2006) Status within the site: **Favourable: Unclassified**. Brook/river lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold. However, Lampetra ammocoetes were recorded at only 30 of the 54 sample sites (56%) thus failed to meet the criterion of presence at least two thirds of sites within their natural range. Consequently, the feature may be in unfavourable condition. Further clarification is needed concerning a number of sample sites in the upper reaches (Upper Wye and Elan), which may reflect unsuitable habitat and be outside the natural ranges of the species.

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	It has not been possible to distinguish between these two species during monitoring, due to the reliance on juvenile stages (ammocoetes). Anecdotal evidence suggests that both species are likely to be present in many reaches, though brook lamprey are expected to predominate in the headwaters and river lamprey may be the more abundant species in the main channel and the lower reaches of larger tributaries. More information on the relative abundance of these two species in different parts of the Wye SAC is desirable. Records of spawning adult river lamprey would be particularly useful. **Conservation status of Feature 3: Twaite shad *Alosa fallax* and Allis shad *Alosa alosa*** Conservation status (2006) Status within the site: **Unfavourable: Unclassified**. Physical barriers to migration are a major cause of unfavourable status of these species in Europe as a whole; however, there are not thought to be any significant barriers to shad migration in the Wye. The current unfavourable status results from a precautionary assessment of feature abundance, and from the presence of adverse factors, in particular the potential for damaging flow depletion and entrainment/impingement in water intakes. **Conservation status of Feature 4: Atlantic salmon *Salmo salar*** Conservation status (2006) Status within the site: **Unfavourable: Unclassified**. The current unfavourable status results from failure of the Management Target for adult run size as well as a

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	precautionary assessment of juvenile distribution and abundance and the presence of adverse factors, in particular the potential for flow depletion and localised water quality failures. Acidification due to forestry is a factor in the upper reaches of the Wye and Irfon. **Conservation status of Feature 5: Bullhead *Cottus gobio*** Conservation status (2006) Status within the site: **Unfavourable: Unclassified**. The current unfavourable status results from the presence of adverse factors, in particular localised water quality failures. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the main river and tributaries. Quantitative information on bullhead abundance is being provided through targeted monitoring. **Conservation status of Feature 6: European otter *Lutra lutra*** Conservation status (2006) Status within the site: **Unfavourable**. The conservation status of otters in the Wye SAC is determined by monitoring their distribution, breeding success, and the condition of potential breeding and feeding habitat as outlined in the Performance Indicators. Their current condition is considered unfavourable due a lack of suitable breeding sites around the middle reaches of the river. **Conservation status of Feature 7: Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation** Conservation status (2006) Status within the site: **Unfavourable: Declining**. The present unfavourable status of the feature results from

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	declining water quality in some tributaries of the Wye e.g. parts of the Ithon and Llynfi sub-catchments, due mainly to diffuse pollution from agriculture. A further adverse factor is the over-abundance of invasive non-native species of bankside plant communities, which are included within the feature definition. Japanese knotweed and Himalayan balsam are widespread in the catchment, including the Irfon sub-catchment. **Conservation status of Feature 8: White-clawed crayfish *Austropotamobius pallipes*** Conservation status (2006) Status within the site: **Unfavourable: Declining**. There is considerable anecdotal evidence of a major decline in the distribution and abundance of the native white-clawed crayfish in the Wye catchment over the last few decades. Native crayfish may have been lost from the main river channel, from tributaries such as the Duhonw and Ithon and have almost disappeared from the Afon Irfon. Significant populations within the Wye SAC are now confined to the Sgithwen, Cletwr, Edw, Llynfi Dulas and Builth Road Dulas. The most recent assessment of the condition of crayfish in the Wye SAC, using modified Common Standards Monitoring techniques, found that populations are unfavourable.
Vulnerabilities (includes existing pressures and trends)	▪ **Abstraction levels -** entrainment in water abstractions directly impacts on species population dynamics through reduced recruitment and survival rates. The impact of flow depletion resulting from a small number of major abstractions was highlighted in the Review of Consents process. As a result of this process, flow targets have been set which are considered likely to significantly reduce or remove the potential impacts on SAC features. ▪ **Eutrophication** - factors that are important to the favourable conservation status of this feature include flow, substrate quality and water quality, which in turn influence species composition and abundance. These factors often interact, producing unfavourable conditions by promoting the growth of a range of algae

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	and other species indicative of eutrophication. Under conditions of prolonged low flows and high nutrient status, epiphytic algae may suppress the growth of aquatic flowering plants. ▪ **Diffuse Pollution** - in the Wye catchment the most significant sources of diffuse pollution and siltation are from agriculture, including fertiliser run-off, livestock manure, silage effluent and soil erosion from ploughed land. The most intensively used areas such as heavily trampled gateways and tracks can be especially significant sources of polluting run-off. Preventative measures can include surfacing of tracks and gateways, moving feeding areas, and separating clean and dirty water in farmyards. Farm operations should avoid ploughing land which is vulnerable to soil erosion or leaving such areas without crop cover during the winter. Among toxic pollutants, sheep dip and silage effluent present a particular threat to aquatic animals in this predominantly rural area. Contamination by synthetic pyrethroid sheep dips, which are extremely toxic to aquatic invertebrates, has a devastating impact on crayfish populations and can deprive fish populations of food over large stretches of river. These impacts can arise if recently dipped sheep are allowed access to a stream or hard standing area, which drains into a watercourse. Pollution from organophosphate sheep dips and silage effluent can be very damaging locally. Pollution from slurry and other agricultural and industrial chemicals, including fuels, can kill all forms of aquatic life. All sheep dips and silage, fuel and chemical storage areas should be sited away from watercourses or bunded to contain leakage. Recently dipped sheep should be kept off stream banks. Discharges from sewage treatment works, urban drainage, engineering works such as road improvement schemes, contaminated land, and other domestic and industrial sources can also be significant causes of pollution, and must be managed appropriately. Used dip should be disposed of strictly in accordance with Environment Agency Regulations and guidelines. Statutory and voluntary agencies should work closely with landowners and occupiers to minimise the risk of any pollution incidents and enforce existing regulations. Measures to control diffuse pollution in the water environment, including 'Catchment Sensitive Farming', may be implemented as a result of the Water Framework Directive and, along with existing agri-

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	environment schemes, will help to achieve the conservation objectives for the SAC. Pollution of rivers with toxic chemicals, such as PCBs, was one of the major factors identified in the widespread decline of otters during the last century. There should be no increase in pollutants potentially toxic to otters. ▪ **Barriers to migration** - Artificial obstructions including weirs and bridge sills can reduce connectivity for some species. In addition, reaches subject to depleted flow levels, pollution, or disturbance due to noise, vibration or light, can all inhibit the movement of sensitive species. The dispersal of semi-terrestrial species, such as the otter, can be adversely affected by structures such as bridges under certain flow conditions, therefore these must be designed to allow safe passage. ▪ **Development pressure** - can cause temporary physical, acoustic, chemical and sediment barrier effects that need to be addressed in the assessment of specific plans and projects. Noise/vibration eg. due to impact piling, drilling, salmon fish counters present within or in close proximity to the river can create a barrier to shad migration. Barriers resulting from vibration, chemicals, low dissolved oxygen and artificially high sediment levels must be prevented at key times. Engineering works such as bridge repairs in reaches where white-clawed crayfish are known to occur should include appropriate pollution prevention measures and a crayfish rescue by a suitably licensed person where there is a risk of physical damage to crayfish. ▪ **Invasive and non-native species** - are a detrimental impact on the water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. Giant hogweed, Himalayan balsam and Japanese knotweed should be actively managed to control their spread and hopefully reduce their extent in the SAC. The American signal crayfish is present in the Wye catchment and poses a very serious threat to the continued existence of the native white-clawed crayfish in the site and in Wales. Native crayfish are unable to co-exist where signal crayfish are present, due to the latter's superior competitive ability and a disease, crayfish plague, which it carries but to which native crayfish have no immunity. American signal crayfish and crayfish plague are widespread and abundant in nearby catchments such as the Lugg, Arrow and Severn. Crayfish plague can be transferred to streams on wet fishing gear, boots, canoes, machinery, stocked fish etc., so measures such as raising awareness, disinfection facilities and

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	where appropriate restrictions on access, should be implemented where a significant risk is identified. Signal crayfish are also extremely harmful to fish communities and the overall ecology of the river. It is illegal to release non-native crayfish into the wild, to keep live crayfish in most of Wales or to trap crayfish without a licence from the Environment Agency. Bullhead densities have been found to be negatively correlated with densities of non-native crayfish, suggesting competitive and/or predator-prey interactions. Non-native crayfish should be absent from the SAC. ▪ **Artificially enhanced densities of other fish** - may introduce unacceptable competition or predation pressure and the aim should be to minimise these risks in considering any proposals for stocking. A small-scale salmon rearing and stocking programme is currently in operation in the Wye, run by the Wye and Usk Foundation. The management objectives for SAC salmon populations are to attain naturally self-sustaining populations. Salmon stocking should not be routinely used as a management measure. Salmon stocking represents a loss of naturalness and, if successful, obscures the underlying causes of poor performance (potentially allowing these risks to perpetuate). It carries various ecological risks, including the loss of natural spawning from broodstock, competition between stocked and naturally produced individuals, disease introduction and genetic alterations to the population. Therefore, there is a presumption that salmon stocking in the Wye SAC will be phased out over time. The presence of artificially high densities of salmonids and other fish will create unacceptably high levels of predatory and competitive pressure on juvenile and adult bullhead. Stocking of fish should be avoided in the SAC. ▪ **External factors** - operating outside the SAC, may also be influential, particularly for the migratory fish and otters. For example, salmon may be affected by barriers to migration in the Severn Estuary, inshore fishing and environmental conditions prevailing in their north Atlantic feeding grounds. Otters may be affected by developments that affect resting and breeding sites outside the SAC boundary.
Landowner/ Management Responsibility	▪ N/A

Special Protection Areas

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**
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 *Zostera* 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 *Festuca rubra* and *Juncus gerardii*; middle marsh dominated by *Puccinellia maritima* with *Glaux maritima* and *Triglochin maritima*; dense monocultures of *Spartina anglica* at the edge of the mudflats-brackish pools and depressions with *Phragmites australis* and *Bolboschoenus maritimus*.

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**
Qualifying Features	Article 4.1 Qualification Over winter the area regularly supports: ▪ Bewick's Swan *Cygnus columbianus bewickii* 3.9% of the GB population Article 4.2 Qualification Over winter the area regularly supports: ▪ Gadwall *Anas strepera* 0.9% of the population ▪ White-fronted Goose *Anser albifrons albifrons* 0.4% of the population ▪ Dunlin *Calidris alpina alpine* 3.3% of the population ▪ Shelduck *Tadorna tadorna* 1.1% of the population ▪ Redshank *Tringa totanus* 1.3% of the population Article 4.2 Qualification: Internationally Important Assemblage of Birds Over winter the area regularly supports: ▪ 84317 waterfowl
Conservation Objectives	**SPA Interest feature 1: Internationally important population of regularly occurring Annex 1 species: Bewick's swan** The conservation objective is to maintain the Bewick's swan population and its supporting habitats in **favourable condition**, as defined below.

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	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. **SPA Interest feature 2: 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, 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

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	less than 3,002 individuals (ie the 5 year peak mean between 1988/9- ii. 1992/3); iii. the extent of saltmarsh at the Dumbles is maintained; iv. the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose is maintained; v. greater than 25% cover of suitable soft-leaved herbs and grasses is maintained during the winter on saltmarsh areas; vi. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; vii. aggregations of European white-fronted goose at feeding or roosting sites are not subject to significant disturbance. **SPA Interest feature 3: 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); ii. the extent of saltmarsh and associated strandlines is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of hard substrate habitats is maintained; v. the extent of vegetation with a sward height of <10cm is maintained throughout the saltmarsh;

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	vi. the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; vii. the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained; viii. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; ix. aggregations of dunlin at feeding or roosting sites are not subject to significant disturbance. **SPA 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 and associated strandlines is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of hard substrate habitats is maintained; v. the extent of vegetation with a sward height of <10cm throughout the saltmarsh is maintained; vi. the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; vii. the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained;

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	viii. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; ix. aggregations of redshank at feeding or roosting sites are not subject to significant disturbance. **SPA 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. 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 hard substrate habitats is maintained; v. the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; vi. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; vii. aggregations of shelduck at feeding or roosting sites are not subject to significant disturbance. **SPA interest feature 6: Internationally important population of regularly occurring migratory species: wintering gadwall** The conservation objective is to maintain the gadwall population and its supporting habitats in favourable

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	condition, as defined below: The interest feature gadwall 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 gadwall population is no less than 330 (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of intertidal mudflats and sandflats (Appendix 8) is maintained; iii. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; iv. aggregations of gadwall at feeding or roosting sites are not subject to significant disturbance. **SPA Interest feature 7: 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, 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 and their associated strandlines is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of hard substrate habitats is maintained; v. extent of vegetation of <10cm throughout the saltmarsh is maintained; vi. the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is

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	maintained; vii. the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained; viii. greater than 25% cover of suitable soft leaved herbs and grasses during the winter on saltmarsh areas is maintained; ix. unrestricted bird sightlines of >500m at feeding and roosting sites are maintained; x. 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 NRW 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 *Agrostis stolonifera* and *Alopecurus geniculatus* 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**:

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	○ 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 Puccinellia maritime and sea barley Hordeum marinum. 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 is 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.

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	▪ **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 NRW Website.

<table>
<tr><td>Site Name: Severn Estuary
Location (Lat & Long):
51 13 29 N
03 02 57 W
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Designation: SPA</td><td colspan="6">Habitats Regulations Assessment: Data Proforma</td></tr>
<tr><td>SPA Condition Assessment</td><td colspan="6">Severn Estuary SSSI condition summary[1] (compiled 09 April 2008).
<table><tr><th>% Area meeting PSA* target</th><th>% Area favourable</th><th>% Area unfavourable recovering</th><th>% Area unfavourable no change</th><th>% Area unfavourable declining</th><th>% Area destroyed / part destroyed</th></tr><tr><td>95.71%</td><td>95.71%</td><td>0.00%</td><td>2.44%</td><td>1.85%</td><td>0.00%</td></tr></table>*PSA target - The Government's Public Service Agreement (PSA) target to have 95% of the SSSI area in favourable or recovering condition by 2010.</td></tr>
<tr><td>Vulnerabilities (includes existing pressures and trends)</td><td colspan="6">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 NRW (formerly 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.</td></tr>
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[1] Natural England SSSI condition summary. Available [online]: http://www.english-nature.org.uk/special/sssi/reportAction.cfm?report=sdrt18&category=S&reference=1002284

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	▪ **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 the landward side and any increase in disturbance should be avoided. At present NE and NRW (formerly 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 NRW (formerly 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

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	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 NRW (formerly 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 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 NRW (formerly 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

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
	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 NRW (formerly 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 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 NRW (formerly 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

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**
	highly vulnerable to the selective extraction of species.
Landowner/ Management Responsibility	▪ N/A

Ramsar Sites

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, 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 *Zostera* 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 *Festuca rubra* and *Juncus gerardii*; middle marsh dominated by *Puccinellia maritima* with *Glaux maritima* and *Triglochin maritima*; dense monocultures of *Spartina anglica* at the edge of the mudflats-brackish pools and depressions with *Phragmites australis* and *Bolboschoenus maritimus*.

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**
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. Ramsar criterion 4 ▪ This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon *Salmo salar*, sea trout *S. trutta*, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa*, twaite shad *A. fallax*, and eel *Anguilla anguilla*. 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

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
	▪ 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 *Salmo salar*, sea trout *S. trutta*, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa*, twaite shad *A. fallax*, and eel *Anguilla Anguilla* 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 Alosa alosa and twaite shad *A. fallax* which feed on mysid shrimps in the salt wedge.
Conservation Objectives	**Ramsar interest feature 1: Estuaries** The conservation objective for the "estuaries" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SAC "estuaries" feature", in so far as these objectives are applicable to the area designated as Ramsar Site. **Ramsar interest feature 2: Assemblage of migratory fish species** The conservation objective for the "assemblage of migratory fish species" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined below: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: i. the migratory passage of both adults and juveniles of the assemblage of migratory fish species through

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
	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 populations of the assemblage species 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; iii. the abundance of prey species forming the principle food resources for the assemblage species within the estuary, 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. **Ramsar interest feature 3: Internationally important populations of waterfowl : Bewick's swan** The conservation objective for the "Bewick's swan" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "Bewick's swan " feature. **Ramsar interest feature 4: Internationally important populations of waterfowl: European white-fronted goose** The conservation objective for the "European white-fronted goose" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "wintering European white-fronted goose" feature. **Ramsar interest feature 5: Internationally important populations of waterfowl: dunlin** The conservation objective for the "dunlin" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "wintering dunlin" feature.

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 interest feature 6: Internationally important populations of waterfowl: redshank The conservation objective for the "redshank" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "wintering redshank" feature. **Ramsar interest feature 7: Internationally important populations of waterfowl: shelduck** The conservation objective for the "shelduck" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "wintering shelduck" feature. **Ramsar interest feature 8: Internationally important populations of waterfowl: gadwall** The conservation objective for the "gadwall" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "wintering gadwall" feature. **Ramsar interest feature 9: Internationally important assemblage of waterfowl** The conservation objective for the "internationally important assemblage of waterfowl" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "internationally important assemblage of waterfowl" feature - with special reference to the individual species listed and their population figures.
Component SSSIs	▪ Sully Island SSSI

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**
	▪ 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.

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
	▪ **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 *Agrostis stolonifera* and *Alopecurus geniculatus* 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.

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
	○ 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 Puccinellia maritime and sea barley Hordeum marinum. 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 is 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.

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**
	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.**
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.

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
	Information provided by NE and NRW (formerly 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 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 NRW (formerly 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

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
	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 NRW (formerly 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 NRW (formerly 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	▪ 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
Responsibility	

Appendix 2: Plans, Programmes & Projects Review

National

National	
People, Places, Futures: The Wales Spatial Plan (update) 2008	
Plan Type	**Regional Spatial Strategy**
Plan Owner/ Competent Authority	**Welsh Assembly**
Currency	**Adopted 2004**
Region/Geographic Coverage	**Wales**
Sector	**Planning**
Related work HRA/AA	**HRA and AA of the Wales Spatial Plan Update (June 2008)**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The Wales Spatial Plan sets out an agenda for the sustainable development of Wales over the next 20 years. The purpose of the update is to reflect new drivers of change and to give status to the Area work which has developed over the past two years. The plan aims to make South East Wales a networked city-region able to provide quality of life for the population and to be able to compete with comparable areas in the UK and the EU for investment and growth. The pattern of housing development across South East Wales is seen as developing a greater mix and balance of housing in the Heads of the Valleys and Connections Corridor whilst ensuring that development in the Coastal Belt of South East Wales does not undermine this housing market. There should also be a targeted action to secure a supply of affordable housing.	▪ Direct loss of habitat through development - One of the three Strategic Opportunity Areas identified is 'the area around Llantrisant and North West Cardiff'; Cardiff Beech Woods SAC is in close proximity to this. ▪ Housing and employment growth may lead to increased transport movements - the potential for in-combination effect is greater where housing sites are in close proximity to Natura 2000 sites. ▪ New communities require increased infrastructure – potential for land take, pollution increase, disturbance/ severance of habitats and species. ▪ Growth in the requirement for waste management/ transport disposal from new communities and businesses has the potential to increase pollution, and introduce land take issues. ▪ Recreation pressures may result from housing developments near/ adjacent to Natura 2000 sites. ▪ Atmospheric pollution generated as a result of housing, employment and transport growth.

National	
People, Places, Futures: The Wales Spatial Plan (update) 2008	
Three Strategic Opportunity Areas (SOA) were identified as offering potential regional benefits from their sustainable development. These areas are: developments linked to the dualling of the Heads of the Valleys road (A465); the area around Llantrisant and North West Cardiff which has seen major growth over the past 30 years; and development in the Vale of Glamorgan linked to the proposed St Athan military training academy. The Plan states that improvements to transport are essential to making the city-region work, and to the regeneration of Valleys communities, highlighting the importance of external transport links, such as the M4, east/west rail links and Cardiff International Airport.	HRA & AA of the Wales Spatial Plan Update June 2008. http://wales.gov.uk/about/strategy/spatial/hra/download/?lang=en ▪ The HRA Screening concludes that the WSPU and other plans have the potential to give rise to adverse effects at the following sites: Wye Valley Woodlands SAC; Severn Estuary SAC/ RAMSAR/ SPA; and Wye Valley and Forest of Dean Bat Sites (SAC). ▪ The AA states that it is not possible to predict in specific terms whether the WSPU would or would not give rise to significant adverse effects either alone or in combination with other plans/ strategies and projects upon specific European sites. However, it does identify that this site is likely to come under increasing risk of adverse in combination effects from transport infrastructure, urban and economic development and recreation and tourism as a result of the WSPU and English RSSs. The AA also identifies that in combination with the English RSSs the WSPU has the potential to have negative effects on water levels, flood protection and water quality issues, which could affect this site. (Severn Ramsar, SAC Wye Valley woodlands SAC Wye valley and forest of dean Severn SPA)

National	
Property Strategy for Employment in Wales 2004-2008	
Plan Type	**Employment Strategy**
Plan Owner/ Competent Authority	**Welsh Development Agency**
Currency	**2004-2008**
Region/Geographic Coverage	**Wales**
Sector	**Planning**
Related work HRA/AA	**N/A**

National	
Property Strategy for Employment in Wales 2004-2008	
Document Details	**Potential impacts that could cause 'in-combination' effects**
The Property Strategy for Employment in Wales 2004-2008 sets out the Welsh Assembly Government's approach for employment sites and buildings across Wales. The document aims to provide a framework to ensure that Wales can provide high quality employment sites and premises in the right locations for inward investors and indigenous businesses. **Premier Business Park** (1) - focused on M4/capital of Wales One park is needed for Wales as a whole, with a land requirement of some 100-300 acres (40-121 hectares). The current lack of such a premier business park is a major weakness in Wales' current property armoury and investor offer. Only the "Greater Cardiff" area can in principle meet the criteria set out in the strategy. **Business Parks** (6) - 2/3 on M4 Corridor. **Strategic Sites** (15/20) -concentrated on large centres of population with proximity to the primary road network. **Strategic Mixed Use Sites** (5-10) - to complement the business parks and strategic sites network. **Special Category Sites** (1) - but with other sites having 'key' sector roles	▪ Direct loss of habitat through development - There are 4 SACs in close proximity to the M4, these are: o River Usk SAC; o Cardiff Beech Woods SAC; o Cefn Cribwr Grasslands SAC; and o Kenfig SAC. ▪ Employment growth may lead to increased transport movements. ▪ New development requires increased infrastructure - potential for land take, pollution increase, disturbance/ severance of habitats and species. ▪ Growth in the requirement for waste management/ transport disposal from new businesses has the potential to increase pollution, and introduce land take issues. ▪ Recreation pressures may result from developments near/ adjacent to Natura 2000 sites. ▪ Atmospheric pollution generated as a result of employment and transport growth.

National	
Property Strategy for Employment in Wales 2004-2008	
City/Town Centre Office Sites Extensive network based on the main centres of population and existing critical mass, supplemented by smaller scale opportunities The following areas are recommended for early consideration: - major settlements ▪ Cardiff/Cardiff Bay ▪ Swansea ▪ Newport ▪ Wrexham - other settlements ▪ Caerphilly ▪ Cwmbran ▪ Merthyr Tydfil ▪ Carmarthen ▪ Newtown ▪ Bangor ▪ Colwyn Bay **Industrial Estates/Local Sites** 50-70 – to serve essentially sub-regional and local markets.	

National	
One Wales: Connecting the Nation. The Wales Transport Strategy 2008	
Plan Type	**Transport**
Plan Owner/ Competent Authority	**Welsh Assembly Government - Transport Wales**
Currency	**2008**

National	
One Wales: Connecting the Nation. The Wales Transport Strategy 2008	
Region/Geographic Coverage	**Wales**
Sector	**Transport**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The goal of One Wales: Connecting the nation is to promote sustainable transport= networks that safeguard the environment while strengthening our country's economic and social life. Our transport strategy identifies a series of high-level outcomes and sets out the steps to their delivery. One Wales: Connecting the nation long-term outcomes: **Social** ▪ Improve access to healthcare ▪ Improve access to education, training and lifelong learning ▪ Improve access to shopping and leisure facilities ▪ Encourage healthy lifestyles ▪ Improve the actual and perceived safety of travel **Economic** ▪ Improve access to employment opportunities ▪ Improve connectivity within Wales and internationally ▪ Improve the efficient, reliable and sustainable movement of people ▪ Improve the efficient, reliable and sustainable movement of freight ▪ Improve access to visitor attractions **Environmental** ▪ Increase the use of more sustainable materials	▪ Improving the efficient, reliable and sustainable movement of people and freight as well as reducing the contribution of transport to greenhouse gas emissions will help to mitigate or offset any increase in diffuse air pollution as a result of this Strategy.

National	
One Wales: Connecting the Nation. The Wales Transport Strategy 2008	
▪ Reduce the contribution of transport to greenhouse gas emissions ▪ Adapt to the impacts of climate change ▪ Reduce the contribution of transport to air pollution and other harmful emissions ▪ Improve the impact of transport on the local environment ▪ Improve the impact of transport on our heritage ▪ Improve the impact of transport on biodiversity The strategic priorities to focus work cover: ▪ Reducing greenhouse gas emissions and other environmental impacts; ▪ Integrating local transport; ▪ Improving access between key settlements and sites; ▪ Enhancing international connectivity; and ▪ Increasing safety and security.	

National	
National Transport Plan Wales, 2010	
Plan Type	**Regional Spatial Strategy**
Plan Owner/ Competent Authority	**Welsh Assembly**
Currency	**2010**
Region/Geographic Coverage	**Wales**
Sector	**Planning**
Related work HRA/AA	Centre for Sustainability at TRL in association with Halcrow (March 2010) National Transport Plan -Habitats Regulations Assessment Statement to Inform an Appropriate Assessment, Welsh Assembly Government

National	
National Transport Plan Wales, 2010	
Document Details	**Potential impacts that could cause 'in-combination' effects**
The plan sets out the detail of how the Wales Transport Strategy One Wales: Connecting the Nation will be delivered over the next five years. It set out that joining together proposals for road, rail and public transport will enable people and freight to travel more efficiently and sustainably, whilst being able to access the goods, markets, services, facilities and places they need. The Strategy grouped the 17 long-term outcomes for transport into five strategic priorities for the next five years: ▪ Reducing greenhouse gas emissions and other environmental impacts. ▪ Integrating local transport. ▪ Improving access between key settlements and sites. ▪ Enhancing international connectivity. ▪ Increasing safety and security. **Sustainable travel centres** Aim - To continue to establish sustainable travel centres across Wales. **Integrating the impact of travel into wider decision making** Aim - To improve the planning and policy development processes to ensure stronger integration between transport and key services/facilities. **Increasing healthy and sustainable travel choices** Aim - To make it easier for people to be less reliant on the private car and to use public transport, walking and cycling more frequently.	**Overarching Development Pressures** ▪ increased levels of disturbance - recreational activity, noise and light pollution; ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels; and ▪ land-take, which could lead to the loss and fragmentation of habitats. The findings of the HRA screening assessment (2010) were that it is not possible to conclude that there will be no likely significant effect on European sites from the implementation of the NTP, alone or in-combination with other projects or plans. As a result an Appropriate Assessment stage assessment has been undertaken for those sites and features identified as requiring this next level of assessment, against the relevant elements. The site which has required appropriate assessment (that is relevant to the assessment) is: Usk Bats Site SAC. The overall conclusion is that the A465 road widening may have some adverse impacts on the integrity of the Bat feature of the Usk Bat Sites SAC, and that a final statement on scale and significance of impacts cannot be made until more detailed project information and survey information (i.e. type and significance of known roosts, significance of commuting routes, significance of the risk of vehicle collisions foraging habitat used and distances flown, and availability of alternative foraging habitat) is available. However, appropriate mitigation has been identified that should reduce and possibly remove any adverse impacts. Therefore, the assessment concludes that it appears feasible to carry out the proposed intervention (A465 widening) in a way such that there should be no adverse impact on the integrity of the Bat Feature of the SAC. However, given the absence of detailed supporting information, it is

National	
National Transport Plan Wales, 2010	
Improving local bus services Aim - To improve the quality and integration of local bus services. **Improving rail services** Aim - To improve the provision of, and access to, rail services, including improvements for disabled people and vulnerable users, by 2014. **Improving access to key sites and services** Aim - To enable people to access key sites and services more sustainably, particularly where access is currently difficult. **Managing our road infrastructure** Aim - To operate, improve and maintain the trunk road network to meet our statutory obligations and deliver our strategic objectives. **Improving the safety of the road network** Aim - To continue to improve the safety of the road network, with special emphasis on reducing casualty rates of vulnerable users. **Improving the sustainability of freight transport** Aim - To improve the sustainability of freight movements, including supporting the modal shift of freight from road to rail where environmental, economic and social benefits can be achieved. **Improving the sustainability of transport infrastructure and**	recommended that if this proposal is considered in the future then it will be subject to the requirements of Regulation 48 of the Habitats Regulations and will undergo a detailed appropriate assessment at the scheme level. **Policy Q1: Sites of European Importance** Proposals for development which may have an unacceptable impact on a European Site or potential European Site will not be permitted unless: i. the proposed development is directly connected with or necessary for the protection, enhancement and positive management of the site for conservation purposes; ii. the proposed development will not have an unacceptable impact on the conservation objectives associated with the site or the integrity of the site; iii. where the site supports priority habitats and/or species, there are reasons of public health or safety why the development should proceed; iv. where the site supports interests not identified as a priority, there are imperative reasons of overriding public interest why the development

National	
National Transport Plan Wales, 2010	
reducing environmental effects Aim - Use sustainable construction and maintenance methods to reduce the environmental effects of the transport infrastructure for which we are responsible	

National	
The Trunk Road Forward Programme, November 2009	
Plan Type	**Transport**
Plan Owner/ Competent Authority	**Welsh Assembly Government - Transport Wales**
Currency	**2009**
Region/Geographic Coverage	**Wales**
Sector	**Transport**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
Works identified in the 2008 reprioritisation of the Trunk Road Forward Programme which are brought forward into the 2009 document. **Phase 1 - High ranking and programmed to be ready to start between now and April 2011** ▪ A483 Four Crosses ▪ A470 Penloyn to Tan Lan, Llanrwst ▪ A487 Porthmadog, Minffordd, and Tremadog ▪ A470 Cwmbach to Newbridge ▪ A470 Alltmawr ▪ A470 Gelligemlyn ▪ A470 Maes yr Helmau to Cross Foxes	▪ A465 Abergavenny to Gilwern - Runs in close proximity and across the River Usk SAC. Potential for disturbance at point which the A465 crosses the River Usk and for pollution as a result of construction activities. ▪ A465 Gilwern to Brynmawr - This section of the A465 runs directly through Cwm Clydach Woodlands SAC and Usk Bat Sites SAC. Potential for direct land take, increased disturbance for bat population and possible pollution as a result of construction activities. ▪ New M4 Magor to Castleton - This development would involve the building of a bridge across the River Usk SAC. Potential for disturbance at point which the bridge crosses the River Usk and for pollution as a result of construction activities. There is potential for the bridge to have significant effects on migratory fish populations. ▪ All the development proposed has the potential to increase levels of

National	
The Trunk Road Forward Programme, November 2009	
▪ A470 Pentrefelin to Bodnant West Lodge ▪ A40 Penblewin to Slebech ▪ A40 The Kell **Phase 2 - High ranking and programmed to be ready to start between April 2011 and April 2014** ▪ A470 Plas Maenan and Bodhyfryd ▪ A487 Caernarfon to Bontnewydd ▪ A470 Builth Wells ▪ A483 Newtown ▪ A470 Rhayader ▪ A477 St Clears to Red Roses ▪ A465 Brynmawr to Tredegar ▪ A465 Gilwern to Brynmawr ▪ Cardiff International Airport Access ▪ New M4 - Magor to Castleton* * (Awaiting Business Case) **Phase 3 - High ranking but studies needed to identify best solutions to problems but unlikely to be ready to start before April 2014** ▪ A483 Llandeilo ▪ A470 Llanrwst ▪ A40 Llanddewi Velfrey to Penblewin ▪ A4042 Llanellen ▪ A465:A470 to Hirwaun ▪ A465 Dowlais Top to A470 ▪ A494 Drome Corner to Ewloe ▪ A55/A494 Ewloe Interchange ▪ A55 Ewloe to Northop ▪ A55 Abergwyngregyn to Tai'r Meibion ▪ A458 Buttington Cross to Wollaston Cross **On Hold - Problem identified but no ranking applied**	traffic and therefore contribute to an increase in diffuse air pollution.

National	
The Trunk Road Forward Programme, November 2009	
▪ A40 Abergavenny ▪ A470 Llandinam ▪ A470 Commins Coch ▪ A470 Llangurig to Wern Villa ▪ A483 Brynsadwrn ▪ A4042 Penperlleni ▪ A55 Climbing Lane Northop to Coed-y-Cra ▪ A458 Sylfaen to Cyfronydd ▪ A44 Llanbadarn Fawr ▪ A494 Ffynnon-y-Berth	

National	
Minerals Planning Policy Wales 2001	
Plan Type	**Minerals & Waste**
Plan Owner/ Competent Authority	**Welsh Assembly Government**
Currency	**2001**
Region/Geographic Coverage	**Wales**
Sector	**Minerals**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites 23. Minerals proposals within or likely to significantly affect potential and classified SPAs, designated, candidate or proposed SACs or Ramsar sites must be carefully examined in relation to the site's conservation objectives in order to	No locations are specified. The document contains strong policies in regard to the protection of Natura 2000 and Ramsar sites.

National	
Minerals Planning Policy Wales 2001	
ascertain whether or not they are likely to be significant in terms of the ecological objectives of the site. For the purpose of considering development proposals affecting them, potential SPAs and candidate SACs should be given the same protection and treated as classified SPAs and designated SACs. As a matter of policy, the Assembly has chosen to apply the same considerations to Ramsar sites. If a proposal individually or in combination with other proposals and sites with extant planning permission is likely have a significant effect on such a site, an appropriate assessment of the implications for the site must be made by the planning authority. If the proposal would adversely affect the integrity of the site (taking into account advice from the Countryside Council for Wales) and conditions would not remove this effect, planning permission will not be granted unless there are: ▪ no alternative solutions (i.e. alternative supplies cannot be made available at reasonable cost; and there is no scope for meeting the need in some other way); and, ▪ imperative reasons of overriding public interest – including those of a social and economic nature. In determining this, authorities should have regard to considerations such as the need for the development in terms of UK mineral supply; and, the impact of permitting the development or refusing it on the local economy. The Assembly would consider the question of whether there are imperative reasons of overriding public interest for the development, taking account of advice from the Countryside Council for Wales, and bearing in mind the views of any other competent authority.	

National	
Minerals Planning Policy Wales 2001	
Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) 25. Minerals proposals within SSSIs or likely to affect them should be very carefully considered, and where the impact is likely to be significant they should be subject to the most rigorous examination, and the need for the mineral must be balanced against environmental and other relevant considerations. Particular care should be taken in assessing proposals that are likely to affect an SSSI which has been designated an NNR24. Consideration must always include an assessment of: ▪ the need for the development in terms of UK considerations of mineral supply; ▪ the impact of permitting the development or refusing it on the local economy; ▪ whether alternative supplies can be made available at reasonable cost; and the scope for meeting the need in some other way; ▪ any detrimental effect of the proposals on the nature conservation interest of the site in terms of habitat, protected species, bio-diversity, environment and landscape, and the extent to which that should be moderated; and, ▪ in the case of extensions to existing quarries and other mineral extraction sites, the extent to which the proposal would achieve an enhancement to the nature conservation and biodiversity interest of the site. **Proposals for opencast or deep-mine development or colliery spoil disposal will be expected to meet the following**	

National	
Minerals Planning Policy Wales 2001	
requirements otherwise they should not be approved: ▪ within or likely to affect Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites must meet the additional tests set out in paragraphs 23 and 25 above;	

National	
Welsh Coastal Tourism Strategy 2008	
Plan Type	**Coastal Strategy**
Plan Owner/ Competent Authority	**Welsh Assembly Government**
Currency	**2008**
Region/Geographic Coverage	**Wales**
Sector	**Planning**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
South East – The Capital Network South East Wales is the most populous area of Wales with the coast zone being a main economic driver. Cardiff and Newport are both coastal located cities and the former has an important tourism role as a capital city, regional shopping and cultural centre, a major sporting venue and increasingly as a conference centre and the Ryder Cup at Newport in 2010. The regeneration of Cardiff Waterfront has created an	▪ Direct loss of habitat through development - Severn Estuary SPA, Ramsar and SAC is present all along the Cardiff coastline. ▪ Increased levels of tourism and employment may lead to increased transport movements. ▪ Atmospheric pollution generated as a result of employment and transport growth. ▪ Increased recreational pressure through water sports. ▪ An increased level of waterborne transport and development along the coast has the potential to increase diffuse levels of water pollution.

National	
Welsh Coastal Tourism Strategy 2008	
important arc of leisure and recreation facilities around an impounded area of water. The area also has the more traditional seaside resorts of Barry and Penarth and in the Vale of Glamorgan an extensive length of Heritage Coast. In the east of the area the Gwent Levels are important for its wildlife particularly migrating birds. Elements to consider in the South East Spatial Plan Area ▪ To continue to support the waterfront regeneration initiatives ▪ To consider the potential of additional or new berths at Cardiff and Newport and the provision of visiting berths at existing marinas ▪ To consider the improvement of facilities for cruise liners and for passengers in Cardiff.	

National	
Partnership for Growth: The Welsh Government Strategy for Tourism 2013-2020	
Plan Type	**Tourism Strategy**
Plan Owner/ Competent Authority	**Welsh Government**
Currency	**2013-2020**
Region/Geographic Coverage	**Wales**
Sector	**Planning**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**

National	
Partnership for Growth: The Welsh Government Strategy for Tourism 2013-2020	
It seeks to drive higher tourism earnings to deliver maximum value for the Welsh economy and to support the delivery of the following priorities for tourism defined in the Welsh Government's Programme for Government: ▪ Develop tourism activity and specialist markets and secure maximum benefit from major events in our high profile venues. ▪ Promote Wales as a destination by making a high quality tourism offer. ▪ Work to extend the tourism season and associated benefits. ▪ Identify funding opportunities to improve the visitor infrastructure and product in Wales. ▪ Support investment in staff training and management to support a high quality tourism industry. ▪ The new strategy focuses on five key areas: ▪ Promoting the Brand ▪ Product Development ▪ People Development ▪ Profitable Performance ▪ Place Building This strategy provides the basis for the Welsh Government, the tourism industry and other organisations to focus on the priorities that will deliver a more prosperous and competitive sector.	▪ Increased recreational pressure on European sites. ▪ An increased level of watersports has the potential to increase diffuse levels of water pollution. ▪ There is also the potential of increased levels of disturbance on nesting birds. ▪ Land-take, which could lead to the loss and fragmentation of habitats. ▪ Increased levels of tourism and employment may lead to increased transport movements. ▪ Atmospheric pollution generated as a result of employment and transport growth. ▪ Increased recreational pressure through water sports. ▪ An increased level of waterborne transport and development along the coast has the potential to increase diffuse levels of water pollution.

Regional

Regional	
The South East Wales Regional Waste Plan 1st Revision September 2008	
Plan Type	**Waste & Minerals**
Plan Owner/ Competent Authority	**South East Wales Regional Waste Group**
Currency	**Consultation document (ended Dec 2007) Final document due 2008**
Region/Geographic Coverage	**Wales**
Sector	**Waste**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The **estimated total land area required** in South East Wales for new in-building facilities by 2013 for the seven Preferred Options ranges from between 48 hectares to 108 hectares. The analysis of the potentially available land area on existing B2 (and similar) or major industry sites and B2 sites that have already been allocated in development plans has shown that in each Unitary Authority area for which data is available there is, at the current time, a clear surplus of developable land with a B2 (and similar) planning permission or proposed use to accommodate the highest estimate of the total land area required for new in-building waste management facilities. In South East Wales there is a total of 729 developable hectares of land with a B2 (and similar) planning permission or proposed use. **Biodiversity** - The footprint of statutory designated sites, including Special Areas of Conservation, Ramsar sites, Sites of Special Scientific Interest, National Nature Reserves and Special Protection Areas have all been **designated as absolute**	Natura 2000 sites have designated as absolute areas of constraint, constituting areas that are unsuitable for waste management facilities. In addition, impacts on designated sites as a result of placing waste management facilities nearby have been considered.

Regional	
The South East Wales Regional Waste Plan 1st Revision September 2008	
areas of constraint, constituting areas that are unsuitable for waste management facilities. These have subsequently been omitted from the search. In addition, impacts on designated sites as a result of placing waste management facilities nearby have been considered. This has been undertaken by applying buffer areas around the footprint of designated sites, which present areas of some constraint. As the distance from the designated sites increases, the level of constraint decreases as reflected by the lowering weighting. The buffer zones vary depending on the importance of the designated site; buffers have been derived from information held within current planning policy regarding siting development near such sites, the weightings are appropriate to this and reflect the distance from the designated site, as well as the type of waste facility. For biodiversity issues, the Areas of Search subsequently reflect areas that are considered to be constrained by virtue of planning policy, reflected at the broad, national level. By excluding sites of nature conservation importance and applying buffers around them representing constraints, the permanent negative effects on biodiversity, including flora and fauna, are minimised.	

Regional	
South East Wales Transport Alliance: Regional Transport Plan 2010	
Plan Type	**Regional Transport Plan**
Plan Owner/ Competent Authority	**South East Wales Transport Alliance**
Currency	**2010**

Regional	
South East Wales Transport Alliance: Regional Transport Plan 2010	
Region/Geographic Coverage	**South East Wales Transport Alliance (SEWTA) region**
Sector	**Transport**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The aim of this RTP is to improve regional transport in South East Wales and help deliver the social, economic and environmental objectives of the Wales Spatial Plan and the Wales Transport Strategy. The RTP vision is: A modern, accessible, integrated and sustainable transport system for South East Wales which increases opportunity, promotes prosperity for all and protects the environment; where walking, cycling, public transport, and sustainable freight provide real travel alternatives Sewta's priorities build on the RTP's vision. They tackle Sewta's main problems and they set the general direction of the RTP, as follows: 1. To improve access for all to services, facilities and employment, particularly by walking, cycling and public transport; 2. To increase the proportions of trips undertaken by walking, cycling and public transport; 3. Minimising demand on the transport system; 4. To develop an efficient, safe and reliable transport system with improved transport links between the 14 key settlements in South-East Wales and between South-East Wales and to the rest of Wales, the UK and Europe. 5. To provide a transport system that encourages healthy and	▪ The key focus of the regional transport plan is to rebalance capital investment away from road building towards public transport, walking and cycling, this includes investment in travel planning measures. ▪ The overarching aim of this plan is to seek long term sustainable transport solutions. Key objectives include seeking a modal shift for private and freight transports onto more sustainable modes, reducing the impact of the transport system on the natural environment, reducing greenhouse gas emissions from transport, and reducing traffic growth and congestion. ▪ The in-combination effects of the Regional Transport Plan with Local Development Plans are likely to be positive in the long-term. ▪ The shared approach of these plans to deliver more sustainable transport and travel solutions for commercial and private traffic provides strong support for overarching aims to reduce air pollution which can contribute to the reduction of damaging effects to habitats and species.

Regional	
South East Wales Transport Alliance: Regional Transport Plan 2010	
active lifestyles. 6. To reduce significantly the emission of greenhouse gases and the impact of the transport system on local communities. 7. To ensure developments are accessible by sustainable transport and make sustainable transport and travel planning an integral component of regeneration schemes. 8. To make better use of the existing transport system The document identifies a number of specific core activities and interventions that according to SEWTA are absolutely critical to achieving its vision. 1. Developing innovative walking, cycling and Smarter Choices programmes 2. Continuing investment in the regional rail system 3. Improving the quality of bus services across the region. 4. Developing better public transport integration 5. Making better use of the regional road system "Three 'Strategic Opportunity Areas" (SOAs) have been identified. These areas are: ▪ Development linked to the dualling of the Heads of the Valleys Road (A465); ▪ The area around Llantrisant and North West Cardiff; and ▪ The development in the Vale of Glamorgan linked to the proposed St Athan military training academy. The RTP objectives are: Safety and security ▪ To reduce the number and severity of road traffic	

Regional	
South East Wales Transport Alliance: Regional Transport Plan 2010	
casualties. ▪ To improve actual and perceived levels of personal security when travelling. Connectivity and accessibility ▪ To improve access for all to employment opportunities, services, healthcare, education, tourism and leisure facilities ▪ To improve connectivity by sustainable transport between ▪ South-East Wales and the rest of Wales, the UK and Europe. Quality and efficiency ▪ To improve interchange within and between modes of transport. ▪ To improve the quality, efficiency and reliability of the transport system. ▪ To reduce traffic growth, traffic congestion and to make better use of the existing road system. Environment ▪ To achieve a modal shift towards more sustainable forms of transport for moving both people and freight. ▪ To reduce significantly the emission of greenhouse gases from transport. ▪ To reduce the impact of the transport system on the local street scene and the natural, built and historic environment. ▪ To promote sustainable travel and to make the public more aware of the consequences of their travel choices on climate, the environment and health. Land use and regeneration ▪ To ensure developments in South East Wales are accessible	

Regional	
South East Wales Transport Alliance: Regional Transport Plan 2010	
by sustainable transport ▪ To make sustainable transport and travel planning an integral component of regeneration schemes.	

Regional	
SEWTA Rail Strategy Study 2013	
Plan Type	**Rail Strategy**
Plan Owner/ Competent Authority	**South East Wales Transport Alliance**
Currency	**2013 - 2033**
Region/Geographic Coverage	**Wales – with regional sections Including South East Wales Transport Alliance (SEWTA) region**
Sector	**Transport**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The Sewta Rail Strategy sets out the investment which the combined local authorities in South East Wales believe is needed to ensure a robust and efficient rail network over the next 20 years. The strategy is planned to accommodate passengers in comfort and encourage growth of both rail passengers and freight in an environmentally sustainable form The key changes in the rail network over this period will be re-signalling of the Cardiff area, including capacity increases for passengers and freight, electrification and re-franchising of passenger services. The Rail Strategy sets out a package of measures that will create a rail network meeting the economic and social needs	▪ Improvements to the rail network could lead to a reduction in car use and improvements to air quality in the region.

Regional	
SEWTA Rail Strategy Study 2013	
of the region. The strategy is complementary with the possible development of a South Wales Metro, which is part of a bigger vision currently under consideration	

Regional	
Turning Heads... A Strategy for the Heads of the Valleys 2020	
Plan Type	**Regional Spatial Planning and Regeneration Strategy**
Plan Owner/ Competent Authority	**Welsh Assembly Government**
Currency	**June 2006**
Region/Geographic Coverage	**Heads of the Valleys covering parts of the administrative areas of (Rhondda Cynon Taf, Merthyr Tydfil, Caerphilly, Blaenau Gwent)**
Sector	**Planning/ Regeneration**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
Strategy set within context of Wales Spatial Plan - sets a shared vision for planning for the Heads of the Valleys. **Preferred Approach - Option A 'Developing Balanced Communities'** ▪ Mix strong employment opportunities with distinctive communities. ▪ Provide mix of housing, retail, leisure/ tourism. ▪ Exploit internal and external employment opportunities including along M4 corridor. Public Sector Investment for 2006-09 includes: ▪ Environment c£300m, including improvements to Merthyr Tydfil, Ebbw Vale, Bargoed, Abertillery, Blaenavon and	▪ Direct loss of habitat through development - One of the three Strategic Opportunity Areas identified is 'the area around Llantrisant and North West Cardiff'; Cardiff Beech Woods SAC is in close proximity to this. ▪ Housing and employment growth may lead to increased transport movements - the potential for in-combination effect is greater where housing sites are in close proximity to Natura 2000 sites. ▪ Atmospheric pollution generated as a result of housing, employment and transport growth. ▪ The A465 runs in close proximity and across the River Usk SAC and runs directly through Cwm Clydach Woodlands SAC and Usk Bat Sites SAC. There is the potential for direct land take, increased disturbance and increased levels of diffuse air pollution. ▪ A465 dualling, the Brynmawr to Gilwern section – potential for effects relating to Air Quality and Habitat Fragmentation. Project HRA would

Regional	
Turning Heads... A Strategy for the Heads of the Valleys 2020	
Mountain Ash Town Centres. ▪ Economy c£500m incuding the next phase of the A465(T) dualling. ▪ Tourism and leisure - c£50m, including local authority investment in community facilities. ▪ Continued major public investment in the area, including the regeneration of the former Ebbw Vale Steelworks site. ▪ Housing renewal £0.6billion investment n social housing stock between now and 2012. **Key Strategic Goals include:** **SP2: A Perception Changing Landscape** With stakeholders, we will develop and implement a number of key strategic landscape-scale environmental enhancements, concentrating on key corridors and gateways such as the A465(T) Heads of the Valleys Road, and approaches to the former Ebbw Vale Steelworks and Hirwaun. **SP5: Joined-Up Solutions for Business** Informed by market demand, we will actively encourage developers to improve and expand the range of business premises in the area, including within town centres, to help the Heads of the Valleys become a realistic investment option alongside centres such as Newport and Cardiff. This will be supported by good community and public transport links connecting people with jobs and services - integrated into the wider South East Wales Transport Plan.	however be required and should be sufficient to address any potential impacts. ▪ Employment development along the M4 could have implications for Cardiff Beech Woods SAC, River Usk SAC, Kenfig SAC and Cefn Cribwr Grasslands SAC. There is the potential for direct land take, increased disturbance and increased levels of diffuse air pollution.

Regional	
Welsh Water's Final Water Resource Management Plan 2012	
Plan Owner/ Competent Authority	**Welsh Water**
Region/Geographic Coverage	**Welsh Water's boundary**
Related work HRA/AA	Dŵr Cymru Welsh Water (October 2011) Revised Draft Water Resources Management Plan, Habitats Regulations Assessment of the Revised Draft Water Resources Management Plan.
Document Details	**Potential impacts that could cause 'in-combination' effects**
This Plan details the strategy for managing supply and demand water resources across Welsh Water's supply area over the next 25 years. The key elements of our overall strategy can be summarised as follows: ▪ regional leakage is expected to fall from 190.45 Ml/d in 2010-11 to 184.08 Ml/d in 2014-15. This strategy is in line with the targets agreed with our economic regulator, Ofwat. As part of the option selection process for addressing supply demand deficits we have considered options involving more reductions in leakage. However, none have been selected because of their comparatively high costs; ▪ the promotion of a wide range of water efficiency activities for both our domestic and business customers. For the period 2010-15 the full suite of baseline promotion activities will continue; ▪ the installation of water meters at all new properties and those households who opt to be metered under our free meter option scheme. All new business customers will be metered and carry out selective metering on high water use unmeasured business premises; ▪ for Pembrokeshire, where the deficit has been driven by the	The HRA indicates that the following Preferred Options are will not have any adverse effects on any European sites, assuming that normal and established environmental measures are employed at the scheme level: ▪ 8121.11 SEWCUS: Re-instate Grwyne reservoir with new WTW; ▪ 8121.13 SEWCUS: Re-instate Wentwood reservoir with new WTW; ▪ 8206.11 Pembrokeshire: Bolton Hill to Preseli transfer. However, a conclusion of 'no adverse effects' cannot, at this strategic level, be made with certainty for the following Options: ▪ 8108.4 Brecon-Portis: Additional releases from Usk Reservoir; ▪ 8206.1 Pembrokeshire: Re-instate Milton source for industrial use. Possible effects on some interest features of the River Usk SAC, notably salmon and possible effects on spawning sites due to changes in flow regime – although effects are likely to be positive and are promoted by the EAW through the RoC process. No other sites are connected by reasonable impact pathways or likely to be vulnerable to the effects of the scheme. The scheme will be subject to further HRA as part of the licence amendment process, which will ensure that there are no significant or adverse effects. It should be noted that the scheme is required as a result of licence modifications to the Brecon licences under RoC. EAW have

potential impacts of climate change and the significant impact of sustainability reductions being proposed by the Environment Agency, it is proposed to reinstate a currently licence-exempt groundwater source and carry out a network scheme that will enhance the connectivity of the zone; ▪ in the Brecon – Portis water resource zone where the Environment Agency wants to reduce abstractions from the River Usk at Brecon, the plan is to supplement the available flow in the river with additional releases from the Usk reservoir, when required; and ▪ in the South East Wales Conjunctive Use System zone, the effects of the Agency's review of abstractions on the protected habitats in the Wye and the Usk must be addressed, plus the effects of climate change on Deployable Output. The plan is to reinstate two reservoirs that have not been used for public water supply for some time, namely Wentwood and Grwyne Fawr, and to build new treatment works for both sources.	indicated that use of Usk reservoir to regulate/augment flows in the River Usk is an acceptable solution and therefore it is reasonable to assume that the scheme will not result in adverse effects.

Regional	
River Basin Management Plan Western Wales River Basin District (2009)	
Plan Owner/ Competent Authority	Environment Agency
Region/Geographic Coverage	Western half of Wales from the Vale of Glamorgan in the South, to Denbighshire in the North.
Related work HRA/AA	Environment Agency (November 2009) Habitats Regulations Assessment of the River Basin Management Plan for the Western Wales River Basin District
Document Details	**Potential impacts that could cause 'in-combination' effects**
The Plan focuses on the protection, improvement and sustainable use of the water environment. Many organisations and individuals help to protect and improve the water	The assessment concluded that the River Basin Management Plan is unlikely to have any significant negative effects on any European sites. The Plan itself does not require further assessment under the Habitats Regulations.

Regional	
River Basin Management Plan Western Wales River Basin District (2009)	
environment for the benefit of people and wildlife. River basin management is the approach the Environment Agency is using to ensure our combined efforts achieve the improvement needed in the Western Wales River Basin District. The plan describes the river basin district, and the pressures that the water environment faces. It shows what this means for the current state of the water environment, and what actions will be taken to address the pressures. It sets out what improvements are possible by 2015 and how the actions will make a difference to the local environment – the catchments, the estuaries and coasts, and the groundwater. Looking towards implementation, the plan highlights the programme of investigations to be undertaken. This will identify more actions, particularly those associated with diffuse pollution, for delivery during the first cycle. New national measures, made available by government, will also lead to additional improvements. At local level, the Environment Agency will be working closely with a wide variety of organisations and individuals, not only to deliver the commitments contained in the plan, but wherever possible to expand upon them for the benefit of the water environment.	This conclusion is reliant on the fact that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations. The Plan aims to improve and protect the water environment; therefore no negative in-combination effects are anticipated.

Sub-Regional	
The Thaw & Cadoxton Catchment Abstraction Management Strategy 2006	
Plan Type	**Catchment Abstraction Management Strategy**
Plan Owner/ Competent Authority	**Environment Agency Wales**

Currency	**2006-2011**
Region/Geographic Coverage	**Thaw and Cadoxton Catchment**
Sector	**Water**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The document sets out how the Environment Agency Wales will manage water abstraction from the Thaw and Cadoxton catchment until 2011. The strategy provides the framework for any decision on an abstraction license application. The Thaw & Cadoxton CAMS area encompasses approximately 159km2 of the distinctive lowland landscape of the Vale of Glamorgan. The principal town in the catchment is Barry, with the market town of Cowbridge to the west and Penarth to the east. Although some parts of the catchment are heavily industrialised the catchment as a whole is predominantly rural with much of the land area used for agriculture.	Under the Habitats Regulations the Environment Agency Wales has a duty to assess the effects of existing abstraction licences and any new applications to make sure they are not impacting on internationally important nature conservation sites. Water efficiency is also tested by the EA before a new license is granted. If the assessment of a new application shows that it could have an impact on a SAC/SPA the EA will have to follow strict rules in setting a time limit for that license. The catchment has been split into 5 Water Resource Management Units (WRMU) and 5 Groundwater Management Units (GWMU). The document states that WRMU 1 and all 5 of the GWMUs have 'water available'. WRMUs 2 to 4 are considered to have 'no water available', while WRMU 10 is assessed to be 'over abstracted'. Both the River Thaw and the River Cadoxton ultimately flow into the Severn Estuary. Therefore any impact to the Severn Estuary caused by changes to the water resource management of the catchment needs is considered as part of the CAMS process.

Sub-Regional	
The Taff and Ely Catchment Abstraction Management Strategy 2006 and July 2007 update	
Plan Type	**Catchment Abstraction Management Strategy**
Plan Owner/ Competent Authority	**Environment Agency Wales**

Currency	**2006-2010**
Region/Geographic Coverage	**Taff and Ely Catchment**
Sector	**Water**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The document sets out how the Environment Agency Wales will manage water abstraction from the Taff and Ely catchment until 2010. The strategy provides the framework for any decision on an abstraction license application. The Taff and Ely have a total catchment area of approximately 576 km^2, which encompasses the River Taff, the River Ely and their respective tributaries. A large groundwater abstraction occurs at Ely Wells (in the lower Ely catchment) providing water for operations at Aberthaw Power Station. In the upper areas of the catchment there are carboniferous limestone and sandstone units (capable of supporting significant yields), which are currently not being used to their full potential.	Under the Habitats Regulations the Environment Agency Wales has a duty to assess the effects of existing abstraction licences and any new applications to make sure they are not impacting on internationally important nature conservation sites. Water efficiency is also tested by the EA before a new license is granted. If the assessment of a new application shows that it could have an impact on a SAC/SPA the EA will have to follow strict rules in setting a time limit for that license. The catchment has been split into 3 Water Resource Management Units (WRMU) and 1 Groundwater Management Unit (GWMU). The document states that two of the WRMUs and the GWMU are over licensed. The WRMU that contains the River Ely has water available for abstraction. Blaen Cynon SAC falls within WRMU 6 which according to the CAMS is over licensed. The Resource availability status of WRMU 6 is that there will be no water available by 2016. A reduction in the water table could affect the devil's-bit scabious, which prefers moist soils. The Marsh Fritillary Butterfly requires this plant species as it is their larval food.

Sub-Regional	
The Neath, Afan and Ogmore Catchment Abstraction Management Strategy 2005 and Dec 2009 update	
Plan Type	**Catchment Abstraction Management Strategy**
Plan Owner/ Competent Authority	**Environment Agency Wales**

Currency	**2006-2010**
Region/Geographic Coverage	**Neath, Afan and Ogmore Catchment**
Sector	**Water**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The document sets out how the Environment Agency Wales will manage water abstraction from the Neath, Afan and Ogmore catchment until 2010. The strategy provides the framework for any decision on an abstraction license application. The Neath, Afan and Ogmore CAMS is a surface water dominated catchment that covers the whole length of the rivers Neath, Afan, Ogmore and Kenfig. The CAMS area ranges from Crymlyn Bog in the west, to east of Bridgend, and up to the Brecon Beacons in the north. Within the CAMS area there are 28 licensed surface water abstractions and 20 licensed groundwater abstractions. There are also two abstractions for navigation purposes, which are exempt from licensing, namely the supply of water to Neath Canal and Port Talbot Docks.	Under the Habitats Regulations the Environment Agency Wales has a duty to assess the effects of existing abstraction licences and any new applications to make sure they are not impacting on internationally important nature conservation sites. Water efficiency is also tested by the EA before a new license is granted. If the assessment of a new application shows that it could have an impact on a SAC/SPA the EA will have to follow strict rules in setting a time limit for that license. The catchment has been split into 9 Water Resource Management Units (WRMU). The document states that two of the WRMUs have no water available and three are over abstracted.

Sub-Regional	
Shoreline Management Plan 2 Lavernock Point to St Ann's Head (2010).	
Plan Type	**Shoreline Management Plan**
Plan Owner/ Competent Authority	**The Swansea and Carmarthen Bay Coastal Engineering Group**

Currency	2010
Region/Geographic Coverage	**The South Wales coast between Lavernock Point (Vale of Glamorgan) and St Ann's Head (Pembrokeshire)**
Sector	**Planning**
Related work HRA/AA	**Appendix H: Habitats Regulations Assessment July 2010**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The SMP uses four generic policies, as defined by Shoreline Management Plan guidance. Each section of coast has been assigned a policy for each of the three time periods (0 to 20 years; 20 to 50 years; and 50 to 100 years). If required a different policy has been defined for each of the three time periods. **Hold the line** - This policy means that existing defences are maintained and replaced (if required) along their current alignment. **Advance the line** - New defences are built seaward of the original defences, in order to create new land. **Managed realignment** - This policy allows the shoreline to move backwards with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences). **No active intervention** - This policy means that there is no investment in coastal defences or operations. The areas of relevance to this HRA are: **Area 1: Lavernock Point to Barry Island** - Allow natural erosion of undefended coastline to continue, maintain	The HRA concluded that SMP2 policies may lead to adverse effects on the following sites: ▪ Pembrokeshire Marine SAC; ▪ Limestone Coast of South West Wales SAC; ▪ Carmarthen Bay and Estuaries SAC; ▪ Carmarthen Bay Dunes SAC; ▪ Burry Inlet SPA; and ▪ Burry Inlet Ramsar Site. In respect of these effects, a Statement of Case will be prepared, showing that there are no less damaging, appropriate alternative policies for the frontages concerned and that there are Imperative Reasons of Overriding Public Interest (IROPI) for pursuing the preferred policies. The Statement of Case will also outline the compensatory measures that will be delivered to offset the adverse effects of implementing the strategy. This includes compensatory habitat to be delivered under the Environment Agency Wales' Wales Habitat Creation Programme.

existing defences for as long as possible at Swanbridge (up to to 20 years) but do not improve or replace structures once they have failed. **Area 2: Barry Island and Docks** - Hold the existing line through maintenance (and upgrading, if justified) of existing defences to reduce the risk of coastal erosion and flooding to key assets. Potential managed realignment at Whitmore Bay in the long term (50 to 100 years) to maintain the amenity beach, subject to further detailed studies. Allow natural erosion of undeveloped areas of coastline. **Area 3: The Knap to Watch House Bay** - Allow natural erosion of the undefended coastline to continue. At the Knap maintain existing defences for as long as possible (up to 20 years) followed by managed realignment, subject to further detailed studies. **Area 4: Aberthaw** - Hold the existing line through maintenance and upgrading of existing defences to reduce risk of coastal erosion and flooding to the power station. **Area 5: Limpert Bay to Nash Point -** Allow natural erosion of the undefended coastline to continue. Maintain and upgrade localised defences at Llantwit Major, consider managed realignment in the long term (50 to 100 years), subject to further detailed studies. **Area 6: Nash Point to Porthcawl** - Allow natural erosion of the undeveloped coastline and management of the existing dune systems.	

Local Development Plans

Local Development Plans	
Bridgend County Borough Council Deposit Plan (Examination)	
Plan Type	**Local Development Plan**
Plan Owner/ Competent Authority	**Bridgend County Borough Council**
Currency	**2006-2021**
Region/Geographic Coverage	**Bridgend County Borough Council administrative boundaries**
Sector	**Planning**
Related work HRA/AA	**HRA of the Deposit Plan, March 2012.**
Document Details	**Potential impacts that could cause 'in-combination' effects**
Theme one: to produce high quality sustainable places. The LDP: ▪ Focuses development within four strategic regeneration growth areas. ▪ Defines 'settlement boundaries' around 32 towns and villages in Bridgend County Borough. ▪ Allocates 20 regeneration and mixed use sites for development. ▪ Sets out the design and place making principles upon which every planning application will be assessed. ▪ Outlines how climate change and peak oil issues will be addressed. ▪ Sets out transport planning principles to encourage use of public transport, reduce congestion and improve road safety. ▪ Highlights 27 specific transport schemes including walking and cycling routes and rail, bus and road proposals. **Theme three: to spread prosperity and opportunity through**	The HRA concluded that the Deposit Plan will have no significant impacts on Natura 2000 sites, alone or in-combination. The HRA included recommendations to mitigate against potential adverse impacts of development that could adversely effect the following European sites: ▪ Blackmill Woodlands SAC ▪ Kenfig SAC ▪ Cefn Cribwr SAC

Local Development Plans	
Bridgend County Borough Council Deposit Plan (Examination)	
regeneration. The LDP: ▪ Allocates four strategic employment sites for high-quality development at Brocastle Bridgend, Island Farm Bridgend, Pencoed Technology Park and Ty Draw Farm, North Cornelly. ▪ Identifies and protects 164 hectares of land for employment purposes. ▪ Outlines the 27 retail and commercial centres in the county borough with policies to protect retail uses. ▪ Allocates land for new retail development in town centres. ▪ Promotes new tourism ventures, particularly in Porthcawl and the valleys. **Key proposals for Maesteg and the Llynfi Valley** ▪ Maesteg Washery – including housing and recreation. ▪ Ewenny Road, Maesteg - including employment, commercial centre, housing and community facilities. ▪ Coegnant Reclamation Site – including leisure park, tourism, housing and local employment. ▪ Maesteg Transport Hub and half-hourly rail service. ▪ Improved Walking and Cycling routes – linking to the Afan Forest Park. **Key proposals for Porthcawl, Pyle, North Cornelly and Kenfig Hill** ▪ Porthcawl Waterfront Regeneration Area – including retail, leisure, tourism, residential and community facilities. ▪ Pwll-Y-Waun – including residential, B1 business and recreation. ▪ Mixed-use development at Gibbons Way for health, local	

Local Development Plans	
Bridgend County Borough Council Deposit Plan (Examination)	
business and housing. ▪ Improved walking and cycling routes. ▪ Strategic employment site at Ty Draw Farm, North Cornelly. **Key proposals for the Valleys Gateway and the Ogmore and Garw valleys** ▪ 'Gateway to the Valleys' site at Sarn – including a new comprehensive school, community facilities and housing. ▪ Ogmore Comprehensive, Bryncethin – including the retention of the school for education, recreation and housing. ▪ Christie Tyler site Brynmenyn – including employment and housing. ▪ Sarn Park Services employment site. ▪ Improved walking and cycling routes. ▪ Promotion of tourism hubs in the Ogmore and Garw Valleys, and at Bryngarw Country Park. ▪ Improved recreation facilities. ▪ A new school in Blaengarw. **Key proposals for Bridgend and Pencoed** ▪ Parc Derwen – including housing, a new primary school, commercial centre and community facilities. ▪ North East Brackla – including employment, housing, commercial centre and recreation. ▪ Parc Afon Ewenni - including housing, employment, commercial centre and community facilities. ▪ Bridgend town centre key retail re-development sites. ▪ Regeneration projects in Pencoed – including park and ride, a new school and recreation. New railway station	

Local Development Plans	
Bridgend County Borough Council Deposit Plan (Examination)	
and park and ride at Brackla. ▪ Improved walking and cycling routes. ▪ Strategic employment sites at Brocastle and Island Farm, Bridgend and at Pencoed Technology Park.	

Local Development Plan	
Cardiff Local Development Plan 2006 – 2026: Preferred Strategy	
Plan Type	**Local Development Plan**
Plan Owner/ Competent Authority	**Cardiff Council**
Currency	**Not yet adopted**
Region/Geographic Coverage	**Cardiff Council administrative boundary**
Sector	**Planning**
Related work HRA/AA	**HRA Screening Report 2012**
Document Details	**Potential impacts that could cause 'in-combination' effects**
This document sets out a strategy for the future development of Cardiff, capital city of Wales and economic driver of the wider city-region to 2026. It provides an opportunity for people and organisations to comment on the strategy before a more detailed framework called the Deposit Local Development Plan (LDP) is consulted on and then formally submitted for independent examination prior to adoption. LDPs are a key driver for investment, help the city-region compete in a competitive market, create homes and protect sensitive environments. They deliver vital outcomes for not only the local community but also for businesses and other interests. In this way LDPs set out how	An HRA was made of the likelihood of significant impact of the Preferred Strategy on eight international sites in and around Cardiff, namely **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**. Those elements of the Preferred Strategy which were judged to have the potential to affect some or all of these sites, were **Policy 1: Level of growth-Delivering sustainable development**, **Policy 2: Strategic sites to deliver growth, Policy 5: City Centre and Bay Business Areas**, **Policy 6: Minerals and Aggregates**, **Policy 7: Waste**, **Policy 24: Strategic Recreational Routes**, **Strategic Growth Options A, B and C**, **Spatial Option -**

Local Development Plan	
Cardiff Local Development Plan 2006 – 2026: Preferred Strategy	
development can be delivered in a sustainable way for the next 15 years. Three strategic Growth options have been put forward: **Option A:** Based on the Welsh Government 2008 based population and household projections - Plan will provide for about 54,400 new homes and 55,000 new jobs **Option B:** Based on the Welsh Government 2008 based population and household projections but applying locally robust data to recalibrate these trend-led projections - Plan will provide for about 45,400 new homes and 40,000 new jobs **Option C:** Based on long term past rates of net migration rates and housing completions - Plan will provide for about 36,500 new homes and 26,000 new jobs	**Greenfield site north of M4 at Thornhill**, **Spatial Option - Dispersed smaller greenfield sites**, **Spatial Option – Dispersed brownfield sites** and **Spatial Option - Greenfield sites south of Creigiau/ north Junction 33.** Following this screening assessment, none of these policies were considered likely to have a significant effect on any of the international sites either alone or in combination with other plans, projects or programmes. The Habitats Regulations Appraisals of the LDPs of neighbouring Local Authorities have indicated that in the absence of direct effects, in-combination effects with other plans are not likely to be significant at the sites considered in the light of the evidence available. There could be potential in combination effects from increased development with regard to water resources. The water supply for Cardiff along with VoG is sourced from the South East Wales Conjunctive Use System Which includes abstractions from the River Usk and River Wye.

Local Development Plans	
Rhondda Cynon Taff County Borough Council Local Development Plan (adopted) 2011	
Plan Type	**Local Development Plan**
Plan Owner/ Competent Authority	**Rhondda Cynon Taf County Borough Council**
Currency	**2006 - 2021**
Region/Geographic Coverage	**Rhondda Cynon Taf County Borough Council administrative boundaries**
Sector	**Planning**
Related work HRA/AA	**HRA (AA) Report on Deposit January 2010.**
Document Details	**Potential impacts that could cause 'in-combination' effects**

Local Development Plans	
Rhondda Cynon Taff County Borough Council Local Development Plan (adopted) 2011	
Policy CS 3 – Strategic Sites In order to promote sustainable growth within Rhondda Cynon Taf the following sites are allocated for the development of a mixture of largescale residential, employment, retail and recreational purposes: 1. Former Maerdy Colliery Site, Rhondda Fach (Policy NSA4); 2. Former Fernhill Colliery Site, Blaenrhondda (Policy NSA5); 3. Former Phurnacite Plant, Abercwmboi (Policy NSA6); 4. Land at Robertstown / Abernant, Aberdare (Policy NSA7); 5. Land South of Hirwaun (Policy NSA8); 6. Cwm Colliery and Coking Works / Tyn-y-Nant (Policy SSA7); 7. Mwyndy / Talbot Green Area (Policy SSA8), and 8. Former OCC Site Llanilid, Llanharan (Policy SSA9). **Policy CS 4 – Housing Requirements** In order to meet housing requirements land will be made available for the construction of 14,385 new dwellings in sustainable locations during the plan period. Provision will be met in accordance with Policy AW 1 – Supply of New Housing. Land for the construction of between 5,000 – 5,450 new dwellings is allocated on the following Strategic Sites:- 1 Former Fernhill Colliery Site, Blaenrhondda 350 – 400 2 Former Phurnacite Plant Site, Abercwmboi 500 3 Land at Robertstown / Abernant Strategic Site, Aberdare 500 – 600 4 Land South of Hirwaun 400 5 Former Cwm Colliery and Coking Works, Tyn-y-Nant, Pontypridd 800-950 6 Mwyndy / Talbot Green Area 500	The HRA concluded that the Deposit Plan will not have adverse effects on the integrity of European sites. The risk of a significant effect on the integrity of the Blaen Cynon SAC was considered unlikely, when the proposed avoidance and mitigation measures have been taken into account and the additional policy recommendations provided by the HRA for the LDP are in place.

Local Development Plans	
Rhondda Cynon Taff County Borough Council Local Development Plan (adopted) 2011	
7 Former OCC Site Llanilid, Llanharan 1950- 2100 Land for 4,025 new dwellings to meet local need is allocated in accordance with policies NSA 9 and SSA 10. **Policy CS 6 – Employment Requirements** In order to maximise the opportunities presented by the Capital Region and to ensure that Rhondda Cynon Taf achieves its economic potential, land will be allocated to meet strategic and local employment needs. Land for the provision of 51 hectares of new B1, B2 and B8 strategic employment development is allocated at the following locations:- 1 Strategic Site 5: Land South of Hirwaun (B1, B2 & B8 36) 36 ha 2 Strategic Site 7: Land at Mwyndy / Talbot Green (B1) 15 ha Land for the provision of 47 hectares of new B1, B2 and B8 local employment development is allocated in accordance with policies NSA 4, NSA 6, NSA 7, NSA 14, SSA 7 and SSA 14. Proposals relating to policy CS 6.1 will require an assessment of Likely Significant Effect on the Blaen Cynon SAC and the features for which the site is of European importance. Proposals at CS 6.1 will be required to incorporate landscape and habitat improvements and enhancements and build on the strong public right of way network within the site. ▪	

Minerals and Waste Strategies

Minerals & Waste	
Bridgend County Borough Council Municipal Waste Strategy 2011	
Plan Type	**Municipal Waste Strategy**
Plan Owner/ Competent Authority	**Bridgend County Borough Council**
Currency	**2011 - 2025**
Region/Geographic Coverage	**Bridgend County Borough Council administrative boundaries**
Sector	**Waste**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The strategic objectives underpinning the Municipal Waste Management Strategy are: a) To set standards and targets and to monitor performance in implementing the Council's Municipal Waste Management Strategy and to review and update the Strategy on a regular basis. b) To promote waste minimisation to householders and local business through the provision of information, advice, education and awareness raising campaigns and, where appropriate, to provide support for local schemes to reduce waste through such measures as home composting, re-use of waste and reduction of waste at source. c) To promote the principles of sustainable waste management and waste minimisation, re-use and recycling by adopting and developing 'good practice' in the management and delivery of the Council's services and purchasing systems.	**Overarching Development Pressures** **Recycling** Air Pollution/ Disturbance ▪ Transport and energy emissions generated by collection, sorting and processing ▪ Dust, noise and odour associated with industrial process **Composting** Air/ Water Pollution, Introduced/Invasive Species ▪ Odour, litter, possible vermin generation ▪ Release of spores [non-native], requirement for buffer zones (at least 250 metres between composting operations and sensitive receptors) ▪ Production of liquid pollutant ▪ Potential for combustion **Mechanical Biological Treatment (MBT)** Air Pollution, Land Take, Hydrology ▪ Emissions, traffic impacts, land take and wider environmental impacts analogous with industrial process ▪ Processes produce residue

Minerals & Waste	
Bridgend County Borough Council Municipal Waste Strategy 2011	
d) To increase the amount of municipal waste that is recovered for re-use, particularly where such re-use creates employment and training opportunities locally. e) To increase the segregation at source of municipal waste for recycling and composting, with due regards to the benefits and costs and to ensure that further value is recovered from residual waste either for recycling, mixed waste composting or energy recovery. f) To ensure that contractors carry out the treatment or disposal of waste in a manner that minimises risks to the environment or health. g) To take measures to prevent the illegal disposal of waste through litter, fly-tipping or abandoned vehicles, and that to ensure that where it does occur, that due consideration is given to taking appropriate enforcement action against identified offenders.	**Refuse Derived Fuel (energy from waste)** Air Pollution ▪ Emission concerns, particulates and potentially dioxins **Anaerobic Digestion (energy from Waste)** Air/Water Pollution ▪ Emissions to air – odour (during collection, transport and pre-treatment) ▪ Wastewater – potential for high concentrations of metals, dissolved nitrogen and organic material **Incineration with Energy Recovery** Air/ Water Pollution ▪ Noise, dust, traffic, visual amenity, potential to impact fauna and flora ▪ Deposition of substances on surface water ▪ Solid, liquid emissions ▪ Gaseous emissions include odour, acid gas, heavy metals, particulates, organic compounds ▪ Ash residues comprising fine particles, [need to landfill ash/ scrap] dioxins, heavy metals salts, unreacted lime and carbon ▪ Contamination, accumulation of toxic substance (food chain)] **Landfill & Landraise** Air/ Water Pollution, Invasive Species, Land Take ▪ Methane and carbon monoxide emissions ▪ Leachate, salts, heavy metals, biodegradable and persistent organics ▪ Accumulation of hazardous substances in soil ▪ Topography alteration, visual intrusion ▪ Soil occupancy, prevention of other land uses ▪ Attraction of vermin ▪ Contamination, accumulation of toxic substances ▪ Potential exposure to hazardous substances ▪ Impact on surface water runoff, flood risk

Minerals & Waste	
Bridgend County Borough Council Municipal Waste Strategy 2011	
	SAC Specific Issues ▪ Specific potential in-combination impacts cannot be explored in absence of specific waste locations.

Minerals & Waste	
Cardiff Council Waste Management Strategy – 2011- 2016	
Plan Type	**Municipal Waste Strategy**
Plan Owner/ Competent Authority	**Cardiff Council**
Currency	**2011 - 2016**
Region/Geographic Coverage	**Cardiff Council administrative boundaries**
Sector	**Waste**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The first Municipal Waste Management Strategy for Cardiff was published in 2006 and is drawing to a conclusion in 2010. In June 2010 the Welsh Assembly Government (WAG) set out in "Towards Zero Waste – An Overarching Strategy" future targets and aspirations for waste management in Wales as a whole. In advance of this statement of national policy, the Executive took stock of the current position in Cardiff and agreed that, in order to move forward, a new Waste Strategy would need to be developed for the next five years. To provide a framework for the development and delivery of the Council's Waste Management Strategy to meet these	**Overarching Development Pressures** **Recycling Processing** Air Pollution/ Disturbance ▪ Transport and energy emissions generated by collection, sorting and processing ▪ Dust, noise and odour associated with industrial process **Organic Waste Treatment (Composting)** Air/ Water Pollution, Introduced/Invasive Species ▪ Odour, litter, possible vermin generation ▪ Release of spores [non-native], requirement for buffer zones (at least 250 metres between composting operations and sensitive receptors) ▪ Production of liquid pollutant

Minerals & Waste	
Cardiff Council Waste Management Strategy – 2011- 2016	
new challenges, the following headline policy objectives have been identified: **Headline Policy and Objective** **1 - Towards Zero Growth** To inhibit the growth of MSW per capita by promoting waste minimisation initiatives with a long term aim of reducing growth to zero **2 – Underpinning Awareness and Education** To raise awareness with the public and the Council of the need to enhance recycling and composting throughout the city through comprehensive stakeholder engagement **3 - High Recycling** To comply with the principal WAG target of achieving 70% recycling and composting by 2024/25 **4 - Minimising Waste to Landfill** To minimise the amount of MSW sent to landfill; by not exceeding the maximum amount of waste to landfill targets established by WAG **5 - Maximising Recovery from Residual Waste** Where material cannot be recycled; the recovery of benefits will be optimised without exceeding the maximum amount of treatment level in line with the maximum targets set out by WAG **6 - Cost Efficient Service** To provide a value for money waste management service which is cost effective and efficient	▪ Potential for combustion **Mechanical Biological Treatment (MBT)** Air Pollution, Land Take, Hydrology ▪ Emissions, traffic impacts, land take and wider environmental impacts analogous with industrial process ▪ Processes produce residue **Refuse Derived Fuel (energy from waste)** Air Pollution ▪ Emission concerns, particulates and potentially dioxins **Anaerobic Digestion (energy from Waste)** Air/Water Pollution ▪ Emissions to air – odour (during collection, transport and pre-treatment) ▪ Wastewater – potential for high concentrations of metals, dissolved nitrogen and organic material **Incineration with Energy Recovery** Air/ Water Pollution ▪ Noise, dust, traffic, visual amenity, potential to impact fauna and flora ▪ Deposition of substances on surface water ▪ Solid, liquid emissions ▪ Gaseous emissions include odour, acid gas, heavy metals, particulates, organic compounds ▪ Ash residues comprising fine particles, [need to landfill ash/ scrap] dioxins, heavy metals salts, unreacted lime and carbon ▪ Contamination, accumulation of toxic substance (food chain)] **Residual Waste (Landfill & Landraise)** Air/ Water Pollution, Invasive Species, Land Take ▪ Methane and carbon monoxide emissions ▪ Leachate, salts, heavy metals, biodegradable and persistent organics ▪ Accumulation of hazardous substances in soil ▪ Topography alteration, visual intrusion

Minerals & Waste	
Cardiff Council Waste Management Strategy – 2011- 2016	
7 – Sustainable Management To deliver waste management services that offer substantially improved sustainability and much reduced carbon emissions **8 – Partnering** To work with partner organisations, where practicable, to lever local, regional and national benefits	▪ Soil occupancy, prevention of other land uses ▪ Attraction of vermin ▪ Contamination, accumulation of toxic substances ▪ Potential exposure to hazardous substances ▪ Impact on surface water runoff, flood risk **SAC Specific Issues** Specific potential in-combination impacts cannot be explored in absence of specific waste locations.

Minerals & Waste	
Vale of Glamorgan Council Municipal Waste Strategy 2004	
Plan Type	**Municipal Waste Strategy**
Plan Owner/ Competent Authority	**Vale of Glamorgan Council**
Currency	**2004 - 2010**
Region/Geographic Coverage	**Vale of Glamorgan Council administrative boundaries**
Sector	**Waste**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
The preferred strategy is as follows: Expansion of recycling and reuse schemes for municipal waste such that the waste strategy targets for each of the target years of 2006/07 and 2009/10 are met and in fact exceeded. All residual waste would be sent to a Mechanical Biological Treatment plant. Continued landfill of waste residues will be required.	**Overarching Development Pressures** **Recycling** Air Pollution/ Disturbance ▪ Transport and energy emissions generated by collection, sorting and processing ▪ Dust, noise and odour associated with industrial process **Composting**

Minerals & Waste	
Vale of Glamorgan Council Municipal Waste Strategy 2004	
The strategy for the Vale of Glamorgan will comprise a number of key elements, as follows: ▪ Waste minimisation is central to reducing the amount of waste produced in the Vale, and this will be a priority for the Council over the next few years. ▪ Continued development of the kerbside collection scheme for dry recyclable and organic (compostable) materials. It will be necessary to develop the scheme over the period up to 2009/10 in order to achieve the level of diversion required to meet the targets. ▪ Enhancement of the Household Waste Recycling Centre (HWRC) provision across the Authority to facilitate improved access to the principal population centres and increased diversion of materials for recycling and reuse. This will include replacement of the two existing civic amenity sites in Sully and Llandow. ▪ Enhancement of the existing network of 'Bring Sites', to include the provision of a number of strategically located community based recycling centres. ▪ Development of waste handling and treatment facilities within the context of a 'Waste Resource Park', to include the following: o Provision of a Materials Recycling Facility (MRF) to deal with recyclable materials diverted at the kerbside and at HWRCs and 'Bring Sites'. o Development of an 'in-vessel' composting facility for the treatment of kerbside segregated organic materials (including green waste and organic kitchen wastes).	Air/ Water Pollution, Introduced/Invasive Species ▪ Odour, litter, possible vermin generation ▪ Release of spores [non-native], requirement for buffer zones (at least 250 metres between composting operations and sensitive receptors) ▪ Production of liquid pollutant ▪ Potential for combustion **Mechanical Biological Treatment (MBT)** Air Pollution, Land Take, Hydrology ▪ Emissions, traffic impacts, land take and wider environmental impacts analogous with industrial process ▪ Processes produce residue **Refuse Derived Fuel (energy from waste)** Air Pollution ▪ Emission concerns, particulates and potentially dioxins **Anaerobic Digestion (energy from Waste)** Air/Water Pollution ▪ Emissions to air – odour (during collection, transport and pre-treatment) ▪ Wastewater – potential for high concentrations of metals, dissolved nitrogen and organic material **Incineration with Energy Recovery** Air/ Water Pollution ▪ Noise, dust, traffic, visual amenity, potential to impact fauna and flora ▪ Deposition of substances on surface water ▪ Solid, liquid emissions ▪ Gaseous emissions include odour, acid gas, heavy metals, particulates, organic compounds ▪ Ash residues comprising fine particles, [need to landfill ash/ scrap] dioxins, heavy metals salts, unreacted lime and carbon ▪ Contamination, accumulation of toxic substance (food chain)] **Landfill & Landraise**

Minerals & Waste	
Vale of Glamorgan Council Municipal Waste Strategy 2004	
○ This will need to be in place to meet the 2006/07 and 2009/10 composting targets of 10% and 15%, respectively. ○ Provision of facilities for the local reuse and reprocessing of materials segregated from the municipal waste stream. ○ Provision of a new Household Waste Recycling Centre (HWRC) to replace the existing civic amenity site in Sully. ○ Provision of a waste transfer facility for residual waste (i.e. materials that are not segregated for recycling or composting). ○ Possible provision, in the medium to long term (by 2010, or soon thereafter), of a residual waste treatment facility. ▪ The continued use of small scale farm-based open windrow composting in the short term for green wastes. Open windrow techniques will also be required for further maturation of the product from the 'in-vessel' facility.	Air/ Water Pollution, Invasive Species, Land Take ▪ Methane and carbon monoxide emissions ▪ Leachate, salts, heavy metals, biodegradable and persistent organics ▪ Accumulation of hazardous substances in soil ▪ Topography alteration, visual intrusion ▪ Soil occupancy, prevention of other land uses ▪ Attraction of vermin ▪ Contamination, accumulation of toxic substances ▪ Potential exposure to hazardous substances ▪ Impact on surface water runoff, flood risk **SAC Specific Issues** ▪ Specific potential in-combination impacts cannot be explored in absence of specific waste locations.

Other Plans and Programmes

Other	
Cardiff International Airport Master Plan 2006	
Plan Type	**Masterplan**
Plan Owner/ Competent Authority	**Cardiff International Airport**
Currency	**2006**
Region/Geographic Coverage	**administrative boundary**
Sector	**Planning**
Related work HRA/AA	**N/A**
Document Details	**Potential impacts that could cause 'in-combination' effects**
Runway It is not envisaged that any runway extension is required to meet the traffic forecasts; a taxiway extension would satisfy this increased traffic. The taxiway extension would provide a parallel route running right to the end of the runway pavement. **Terminal, Aprons, Car Parks and Access Roads** It is likely that, in addition to a reorganisation of the existing stand layout, additional stands and parking areas will be required within this time frame. There is no requirement for a new terminal at any time in the planned period. It is anticipated that all the growth forecast can be accommodated by modest extensions and re-organisations of the existing terminal building. The floor space of the Terminal totals at approximately 47,800 sq m. in 2030. Based on 6000 sq m per million passengers, which is an accepted standard, this would provide for projected passenger numbers of 7.9million for 2030.	**Overarching Development Pressures** ▪ Increased air traffic - increased levels of disturbance (noise), emissions and recreational pressure. ▪ Improvements to highways access - increase in recreational pressure as a result of improved access. **SAC Specific Issues** ▪ A greater number of planes and improved highways access has the potential to increase the levels of recreational pressure at Cardiff Beech Woods SAC and the Severn Estuary SPA/ Ramsar/SAC. ▪ Severn Estuary SPA/ Ramsar/SAC - overwintering birds can be disturbed by sudden movements and noises that can result in reduced food intake and/or increased energy expenditure. ▪ Cardiff Beech Woods SAC - 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

Other	
Cardiff International Airport Master Plan 2006	
Car parking will be accommodated by structural car parking on the existing car parking sites. This will minimise land take but may lead to a slight increase in visual intrusion. **Highways Access** Short-term It was proposed in the Culverhouse Cross Study to implement a range of public transport and highway improvements, including the 'trunking' of the existing A48 between Culverhouse Cross and Bonvilston and the A4226 (Five Mile Lane) to the airport. Following the trunking of the route, highway improvements to the existing route were proposed, largely to improve safety. Medium Term In the Culverhouse Cross Study it is proposed to improve the A48/ Five Mile Lane route from the Culverhouse Cross junction to the airport, providing an alternative route to the current signed route via Wenvoe and north Barry. This would involve the following proposals: ▪ Junction capacity enhancement, (junction at south end A4226 Five Mile Lane / Waycock Road with A4050 in north Barry at Green Farm); ▪ Safety enhancements on Five Mile Lane / Waycock Road; ▪ Junction capacity and safety enhancements at the Five Mile Lane junction with A48 (Sycamore Cross). Longer Term In the longer-term, further improvements of this route to allow airport traffic to avoid Culverhouse Cross were to be	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.

Other	
Cardiff International Airport Master Plan 2006	
considered. The preferred option involved a new link to the airport from the M4 at Junction 34 to the A48 at Sycamore Cross. In conjunction with the new highway link, it would be possible to provide a strategic park and ride/modal interchange at Junction 34 of the M4. These longer-term proposals are referred to in Phase 3 of the Trunk Road Forward Programme of the Welsh Assembly Government, which indicates a commencement of work after March 2010. **Future Opportunities for Rail** A number of options for introducing enhanced services to Rhoose Cardiff International Airport station have been considered. The options generally revolve around the basic principle of two all-station Valley Lines services per hour on the Vale of Glamorgan line and at least one interurban service from Bristol.	

Other	
Economic Renewal : A New Direction (2010)	
Plan Owner/ Competent Authority	Welsh Assembly Government
Region/Geographic Coverage	Wales
Related work HRA/AA	N/A
Document Details	**Potential impacts that could cause 'in-combination' effects**

Other	
Economic Renewal : A New Direction (2010)	
Economic Renewal: a new direction sets out the role devolved government can play in providing the best conditions and framework to enable the private sector to grow and flourish. The vision for economic renewal is of a Welsh economy built upon the strengths and skills of its people and natural environment; recognised at home and abroad as confident, creative and ambitious; a great place to live and work. The five priorities for delivering this vision are: ▪ Investing in high quality and sustainable infrastructure. Wales needs modern, sustainable infrastructure to underpin economic growth and the wellbeing of our people. Our people, businesses and communities need to be well-connected within and beyond Wales, and to have access to the right facilities and services where they live and work. ▪ Making Wales a more attractive place to do business. We need to develop the conditions which not only allow, but actively help, people and businesses to flourish sustainably – by making the most of our assets, by improving the health of our working age population, and by getting the balance right between environmental, social and economic objectives. ▪ Broadening and deepening the skills base. The foundation of any economy is its working population and education and skills at all levels are vital for economic growth and prosperity in Wales. Delivering this is a shared responsibility for us as a Government, learning providers, employers and individuals. ▪ Encouraging innovation. Research and development play	It must be noted that any investment into the economy is likely to lead to an increase in population and development of land. This could cause a wide range of in-combination effects although the document is underpinned by the principles of sustainable development.

Other	
Economic Renewal : A New Direction (2010)	
an important role in stimulating innovation, and innovation is a key driver of economic growth and long-term wellbeing. Wales must move towards a more R&D intensive and knowledge-based economy where the right conditions exist for innovation to flourish.	

Appendix 3: Deposit LDP Policy Screening 2013

Policy Screening: Categorising the Potential Effects of the Plan[1]	
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	General policy statements or policies which only express general intentions or political aspirations and there are no 'clear and direct' links to European sites.
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, generally, (and may indicate a broad scale and / or one or more broad locations e.g. a particular part of the plan area) so a likelihood of a significant effect cannot be ruled out, but more precise scale and / or detailed location of the development is to be selected following **consideration of options in a later, more specific, lower tier plan**, subject to Habitats Regulations Appraisal.
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

[1] Tyldesley, D., 2009(Revised April 2010 and September 2012), *Draft Guidance for Plan Making Authorities in Wales: The Appraisal of Plans under the Habitats Regulations* for Countryside Council for Wales CCW Bangor

Policy Screening: Categorising the Potential Effects of the Plan[1]	
Criteria Category	**Rationale**
	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, and is not merely a general statement of policy.
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.
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 or projects**, and possibly the effects of other projects provided for in the plan as well, the combined effects would be 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.

Deposit LDP Policy	Assessment Category	Can the element be changed at screening stage to avoid likely significant effect (LSE)	Likely Significant Effect (LSE) No X Yes ✓ Uncertain ?
Strategic Policies			
SP 1 – DELIVERING THE STRATEGY	**C2 & D2**	The Strategy has potential for direct impacts on the Severn Estuary SPA/SAC/RAMSAR. Indirect impacts are possible for other European sites. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
SP 2 – STRATEGIC SITES	**C2 & D2**	The Policy identifies 3 locations (Barry Waterfront, St Athan and Land adjacent to the Airport at Rhoose) that are considered to be major elements contributing to the implementation of the LDP strategy. The 3 sites have been assessed/ screened in Appendix 4 and it was found that the development proposed at the 3 locations identified in the policy are not likely to have significant effects alone on European sites. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
SP 3 – RESIDENTIAL REQUIREMENT	**C2 & D2**	The policy requires that land is made available for the provision of 9,950 new residential units up to 2026. This policy does not set out the locations for development. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
SP 4 – AFFORDABLE HOUSING PROVISION	**A1**	The policy sets the level of affordable housing as a proportion of the new residential units required by SP 3. It will not lead to development itself.	**X**
SP 5 – EMPLOYMENT	**D2**	The policy requires the provision of 473 ha (225 Net) of employment land	**?**

REQUIREMENTS		over the plan period. This policy does not set out the locations for this type of development. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	
SP 6 – RETAIL	**D2**	The policy requires that provision is made for new retail floorspace and that the use of vacant floorspace and the refurbishment of properties will be maximised. This policy does not set out the locations for this type of development. Refer to Policy SP 1.	**?**
SP 7 – TRANSPORTATION	**D2**	The site allocations screening (Appendix 4) assessed that development proposed at the 9 priorities identified in the policy are not likely to have significant effects alone on European sites.	**?**
SP 8 – SUSTAINABLE WASTE MANAGEMENT	**C2 & D2**	Operational mineral working sites are included as suitable locations for open air waste facilities such as civic amenity sites and composting. This could have implication for aquifers and potential impact on water sensitive European sites such as Kenfig SAC. Further research/evidence is required about the use of mineral working sites for waste management, any implications on the aquifer and the likelihood of any impact on Kenfig SAC. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
SP 9 – MINERALS	**C4**	Safeguards known resources limestone, sand and gravel reserves and favours proposals which promote sustainable use of minerals and encourages the use of secondary and alternative resources. The wharf at Barry Docks has been safeguarded. Regarding the impact of minerals working on Kenfig SAC, the VoG HRA/AA Screening Report (2007) stated: *'... there are three operational quarries (Ewenny, Pant, Lithalun)*	**?**

		within 3 kilometres of the SAC. Mineral extraction and/or after use of the site could therefore impact upon the SAC as described above however this is considered to be unlikely due to the distance and ground contours. However, the site should be subject to a more detailed assessment at a later stage of the LDP development'. Further research/evidence is required about the use of mineral working sites, any implications on the aquifer and the likelihood of any impact on Kenfig.	
SP 10 – BUILT AND NATURAL ENVIRONMENT	**A1/A2**	Policy will not lead to development itself and also seeks to protect the natural environment. The supporting text of the Policy should be amended to include all four European and international sites along the Glamorgan coast and not just the Severn Estuary SPA (suggestion by CCW (April 2012)).	**X**
SP 11 - TOURISM AND LEISURE	**D2**	Encourages proposals for tourism and leisure. It states that favourable consideration will be given to proposals which promote the sustainable use of the countryside. Refer to Policy SP 1.	**?**
Managing Growth in the Vale Of Glamorgan			
MG 1 - HOUSING SUPPLY IN THE VALE OF GLAMORGAN	**D2**	Land for new residential development is allocated in accordance with Policies SP 3 and MG 2 for 7,829 dwellings. The remaining units will be delivered by: • Development sites with extant planning permissions; • Development of unallocated windfall sites in suitable locations; and • Small sites, including infill, the conversion of suitable buildings and subdivision of existing dwellings. See Policies SP3 and MG2.	**?**
MG 2 - HOUSING ALLOCATIONS	**D2**	Proposes 46 sites with a total of 7829 units. Each site was screened (Appendix 4) and it was found that development proposed at each site in the policy were not likely to have significant effects alone on European sites.	**?**

		The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	
MG 3 – STRATEGIC SITE AT BARRY WATERFRONT	**C2 & D2**	Land at Barry Waterfront is allocated for mixed use development. Given mitigation in place this was not considered to have significant effects alone - see site assessment in Appendix 4. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MG 4 – AFFORDABLE HOUSING	**A1**	Policy will not lead to development itself – involves proportion of affordable housing.	**X**
MG 5 – GYPSY AND TRAVELLER SITE	**B**	Any impact likely to be trivial/ minimal, given the location and nature of European sites. Please see Appendix 4 for site assessment.	**X**
MG 6 – PROVISION OF EDUCATIONAL FACILITIES	**D2**	Land is allocated for the future development of new and improved educational facilities at 6 locations. Each site was screened (Appendix 4) and it was found that development proposed at each site in the policy were not likely to have significant effects alone on European sites. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MG 7 – PROVISION OF COMMUNITY FACILITIES	**D2**	It allocates four sites for future development of community infrastructure. Each site was screened (Appendix 4) and it was found that development proposed at each site in the policy were not likely to have significant effects alone on European sites. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	
MG 8 – PROVISION OF HEALTH	**B**	Potential expansion of Llandough hospital site. It is considered that this will	**X**

FACILITIES		not have an LSEs on European sites either alone or in combination.	
MG 9 - EMPLOYMENT ALLOCATIONS	**D2**	Makes provision for 3 strategic and 11 local employment sites. Each site was screened (Appendix 4) and it was found that development proposed at each site in the policy were not likely to have significant effects alone on European sites. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MG 10 – ST ATHAN – CARDIFF AIRPORT ENTERPRISE ZONE	**D2**	See Policy SP1. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report. See Appendix 4 for site assessment. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MG 11 – LAND TO THE SOUTH OF JUNCTION 34 M4 HENSOL	**C2 & D2**	Land to the South of Junction 34 M4 Hensol is allocated for employment development. Given mitigation in place this was not considered to have significant effects alone - see site assessment in Appendix 4. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MG 12 – RETAIL HIERARCHY	**A1**	Policy will not lead to development itself.	**X**
MG 13 – EGDE AND OUT OF TOWN RETAILING AREAS	**A1**	Policy will not lead to development itself.	
MG 14 – NON A1 RETAIL USES WITHIN TOWN AND DISTRICT RETAIL CENTRES	**A1**	Policy will not lead to development itself (about change of use).	**X**
MG 15 – NON A1 RETAIL USES WITHIN LOCAL &	**A1**	Policy will not lead to development itself (about change of use).	**X**

NEIGHBOURHOOD RETAIL CENTRES			
MG 16 – TRANSPORT PROPOSALS	**D2**	Policy concerns improvement to walking, cycling, bus routes, highway improvements (including new link road) and interchange improvements. Each scheme has been assessed/ screened in Appendix 4 and it was found that the schemes are not likely to have significant effects alone on European sites. See Policy SP1. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MG 17 – SPECIAL LANDSCAPE AREAS	**A1**	Policy will not lead to development itself.	**X**
MG 18 - GREEN WEDGES	**A1**	Policy will not lead to development itself.	**X**
MG 19 - SITES OF IMPORTANCE FOR NATURE CONSERVATION	**A1**	Policy will not lead to development itself.	**X**
MG 20 – DEVELOPMENT IN MINERALS SAFEGUARDING AREAS	**C2**	Policy safeguards mineral reserves from built development. However, if these areas are worked in the future, they could have an impact on European sites, particularly Kenfig. Further research/evidence is required about the use of mineral working sites, any implications on the aquifer and the likelihood of any impact on Kenfig. This could be looked at as part of a Water Cycle Strategy.	**?**
MG 21 – BUFFER ZONES	**A1**	Policy will not lead to development itself.	**X**
MG 22 – DORMANT MINERAL SITES	**A1**	Policy seeks to prevent mineral extraction.	**X**
MG 23 - MINERAL WORKING	**D2**	The policy requires that impacts on the natural environment are mitigated to an acceptable level and enhanced wherever possible. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MG 24 - GLAMORGAN	**C2**	Preservation and enhancement of the Heritage Coast.	**?**

HERITAGE COAST		The policy restricts new development to development that is necessary for coastal defence (as identified within the Lavernock Point to St Ann's Head Shoreline Management Plan), development that is required for agriculture, nature conservation, informal recreation, low impact tourism or coastal access, and other appropriate and sustainable development for which a coastal location is essential. Whilst Policy SP10 requires development proposals to preserve and where appropriate enhance sites designated for their European nature conservation importance, Policy MG 24 should clarify that any development should not impact negatively on European Sites.	
MG 25 – PUBLIC OPEN SPACE ALLOCATIONS	**A1**	Policy will not lead to development itself.	**X**
MG 26 - TOURISM AND LEISURE FACILITIES	**C2 & D2**	Land is allocated at three locations for tourism related development. Each location has been assessed/ screened in Appendix 4 and it was found that the locations are not likely to have significant effects alone on European sites. Refer to Policy SP1. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
Managing Development Policies			
MD1 - LOCATION OF NEW DEVELOPMENT	**A1**	Policy will not lead to development itself. The policy states that development will be favoured where it does not have an unacceptable impact on green wedges, sites of important nature conservation, special landscape areas and / or the Glamorgan Heritage coast.	**X**
MD 2 - PLACE MAKING	**A1**	Policy will not lead to development itself.	**X**
MD 3 – DESIGN OF NEW DEVELOPMENT	**A1**	Policy will not lead to development itself. As recommended by the HRA (AA) Report (Dec 2013) and CCW (April	**X**

		2012) the supporting text of the policy now seeks proposals to demonstrate that there is sufficient capacity in local waste water treatment facilities prior to occupation.	
MD 4 - COMMUNITY INFRASTRUCTURE AND PLANNING OBLIGATIONS	**A1**	Policy will not lead to development itself.	**X**
MD 5 – RESIDENTIAL DEVELOPMENT IN KEY, SERVICE CENTRE AND PRIMARY SETTLEMENTS	**D2**	Policy sets criteria for new residential development within key centres and primary settlements. See Policies MG 1 and SP 1. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MD 6 – RESIDENTIAL DEVELOPMENT WITHIN MINOR RURAL SETTLEMENTS	**D2**	See Policies MG 1 and SP 1. The potential for the Deposit LDP to act in combination with other plans, programmes and projects to have significant effects on European sites is considered in Section 4 of the AA Report.	**?**
MD 7 - HOUSING DENSITIES	**A1**	Policy will not lead to development itself – involves proportion of housing densities.	**X**
MD 8 - ENVIRONMENTAL PROTECTION	**A1**	Policy will not lead to development itself. Consideration should be given to including a specific reference to the need to comply with the Habitats Regulations if there is insufficient environmental capacity for new developments (CCW, April 2012).	**X**
MD 9 – HISTORIC ENVIRONMENT	**A3**	Policy requires that development proposals must protect the qualities of the built and historic environment.	**X**
MD 10: PROMOTING BIODIVERSITY	**A1**	Policy seeks to protect and enhance biodiversity.	**X**
MD 11 - AFFORDABLE HOUSING IN RURAL AREAS	**A1**	Policy encourages and sets criteria for the provision of affordable housing.	**X**
MD 12 – CONVERSION AND RENOVATION OF RURAL BUILDINGS	**B**	Policy encourages conversions and renovations, setting out criteria to guide any such applications. These can have an impact where old/ disused buildings are valuable for bat habitats – but this is not the case for European sites in the VoG.	**X**
MD 13 – DWELLINGS IN THE COUNTRYSIDE	**B**	Any impact likely to be trivial/minimal, given the location and nature of European sites.	**X**

MD 14 - TOURISM AND LEISURE	**D2**	Encourages proposals for sustainable tourism and leisure. Refer to Policy SP 1.	**?**
MD 15 – NEW EMPLOYMENT PROPOSALS	**D2**	Encourages and sets criteria for employment development where need cannot be met on an existing or allocated employment site. Refer to Policy SP 1.	**?**
MD 16 – PROTECTION OF EMPLOYMENT LAND AND PREMISES	**D2**	Refer to SP 1. Sets criteria for development to meet if it involves the loss of redevelopment of existing employment sites or premises.	**?**
MD 17 – RURAL ENTERPRISE	**B**	Small scale employment uses in rural areas.	**X**
MD 18 – GYPSY AND TRAVELLER ACCOMMODATION	**B**	Refer to Policy SP 1. Deposit Plan only allocates an existing site.	**X**
MD 19 – LOW CARBON AND RENEWABLE ENERGY GENERATION	**D2**	Encourages low carbon and renewable energy schemes. Refer to Policy SP 1.	**?**

Appendix 4: Site Allocations Screening Matrix

The screening undertaken in the following matrix considers the potential for site allocations identified in the Vale of Glamorgan Deposit LDP to have likely significant effects on European sites indentified in Appendix 1. A variety of information sources were used to carry out the screening in the matrix below, including information from the European site characterisations and information available through the Deposit LDP. The screening matrix below has taken a precautionary approach when identifying possible European sites at risk, as recommended by the Welsh Government and good practice guidance.

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
POLICY SP 2 – STRATEGIC SITES					
1 Mixed Uses at Barry Waterfront	48.55	-	The potential for LSEs has been assessed below under Policy MG 3 as it outlines all the development (type and quantity) allocated for this site. Please see under Policy MG 3 below.	-	-
2 Mixed Uses at St Athan		305ha Aerospace Business Park, Employment and Education Northern Access road 4 strategic housing sites (835)	The potential for LSEs has been assessed for each element individually under a number of policies below (Policies SP 7 (2), MG 2 (2 – 5) and MG 9 (3)). As the site is located considerable distance from any European Sites (over 12km), and given the nature of the uses, it is considered that it would not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
3 Employment Uses at land Adjacent to	-	B1, B2 and B8 (77.4 ha)	The potential for LSEs has been assessed for the employment individually under Policy MG 9 (2).	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
Cardiff Airport and Port Road, Rhoose, as Part of the St Athan – Cardiff Airport Enterprise Zone		Land for extension to Porthkey Country Park (42 ha) Provision of an energy centre to serve the development Safeguarding of a route for a potential rail link to Cardiff Airport across the site	As the site is located a considerable distance from any European sites (around 12km), it is therefore considered to have no significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
POLICY SP 7 - TRANSPORTATION					
1 A New Barry Island Link Road	-	Primary access corridor through the development area providing improve sustainable transport infrastructure	The scheme will be delivered as part of the development of the strategic site at Barry Waterfront. Gained outline planning permission (see applications: 2009/00946/OUT and 2009/00947/OUT). The potential for LSEs has been assessed under Policy MG 3 as it outlines all the development (type and quantity) allocated for Barry Waterfront. Please see under Policy MG 3 below.	-	-
2 A new Northern Access road at St	-	Previous scheme	This road is located a considerable distance from any European sites (around 12km) and is therefore	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
Athan Enterprise Zone		approved (2009/00500/OUT and 2009/00501/OUT)	considered to have no significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
3 Improvements to the A 4226 Between Waycock Cross, Barry and Sycamore Cross A 48 (Five Mile Lane)	-	-	The scheme is included within the Welsh Government's National Transport Plan and has previously been awarded funding by the Welsh Government from the Principal Road Grant. A draft WelTAG1 report has been prepared and further work is ongoing before Welsh Government approval. The scheme requires: • Environmental Statement • WelTAG appraisal • Flood Consequence Assessment The scheme is over 6km from the Severn Estuary and no direct or indirect impacts considered likely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
4 Improvements to the B 4265 At Gileston – Old Mill	-	-	Gained outline planning permission. More than 15km from any European site and no direct or indirect impacts likely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
5 Electrification of the Vale of Glamorgan Line	-	Welsh Government Project to be completed by 2018.	No direct or indirect impacts considered likely.	-	No
6 The National Cycle	-	Route	No direct impacts considered likely. There could	Policy mitigation/ safeguards in the LDP	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
Network Route 88		connects Barry, Sully and Penarth to Cardiff	be potential for indirect impacts through increased recreational disturbance to the part of route 88 which is in close proximity to the Severn Estuary SAC, SPA and Ramsar. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	include: • SP 10: Built & Natural Environment • MD 1: Location of New Development • MD 2: Place Making • MD 3: Design of New Development • MD 4: Community Infrastructure and Planning Obligations • MD 8: Environmental Protection • MD 10: Promoting Biodiversity Policy SP10 requires development proposals to protect and where appropriate enhance sites designated for their European nature conservation importance. Given the application of other policies in the Plan, it is assessed that development at this location will not have likely significant effects on the Severn Estuary SAC, SPA and Ramsar alone.	
7 Cycle routes at: • A4050 Culverhouse To Cardiff Airport • A 48 Culverhouse Cross to Bridgend Via Cowbridge • Barry Waterfront to Dinas Powys	-	-	No direct or indirect impacts considered likely.	-	No
8 Bus Park and Ride	-	-	No direct or indirect impacts considered likely.	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
at Cosmeston, Penarth					
9 Bus Priority Measures at: • A4050 Culverhouse To Cardiff Airport • A 48 Culverhouse Cross to Bridgend Via Cowbridge • Merrie Harrier Cardiff Road Barry to Cardiff Via Barry Road • Leckwith Road, Llandough to Cardiff • Lavernock Road to Cardiff Via Barrage	-	-	No direct or indirect impacts considered likely.	-	No
POLICY MG 2 – HOUSING ALLOCATIONS					
Strategic Housing Sites					
1 Phase 2, Barry Waterfront	48.55	1700 dwellings	The potential for LSEs has been assessed under Policy MG 3 as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 3 below.	-	-
2 Land at Higher End, St Athan	9.78	220 dwellings	This site is located a considerable distance from any European sites (around 12km) and is therefore considered to have no significant effects alone.	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
3 Land at Church Farm, St Athan	8.4	250 dwellings	This site is located a considerable distance from any European sites (around 12km) and is therefore considered to have no significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
4 Former Stadium Site/ Land adjacent to Burley Place, St Athan	2.2	65 dwellings	This site is located a considerable distance from any European sites (around 12km) and is therefore considered to have no significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
5 Land to the East of Eglwys Brewis, St Athan	10.9	300 dwellings	This site is located a considerable distance from any European sites (around 12km) and is therefore considered to have no significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
6 Land Adjacent to Froglands Farm, Llantwit Major	4.4	90 dwellings	This site lies around 11km away from the nearest European Site (Dunraven Bay SAC) and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
7 Land Between New Northern Access Road and Eglwys Brewis Road, Llantwit Major	15.8	375 dwellings	This site lies around 11km away from the nearest European Site (Dunraven Bay SAC) and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
Key Settlement: Barry					

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
8 Barry Island Pleasure Park. Barry Island	1.18	124 dwellings	This site lies around 7.5km away from the nearest European Site (Severn Estuary) and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
9 White Farm, Barry	12.14	177 dwellings Mixed use, including: open space and recreational facilities ((6.9 ha)	This site lies around 8km away from the nearest European Site (Severn Estuary) and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
10 Land to east of Pencoedtre Lane, North East Barry	2.8	67 dwellings	This site lies around 6km away from the nearest European Site (Severn Estuary) and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
11 Land west of Pencoedtre Lane, North East Barry	1.3	40 dwellings	This site lies around 6km away from the nearest European Site (Severn Estuary) and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
12 Ysgol Maes Dyfan	1.44	45 dwellings	This site lies around 5km away from the nearest European Site (Severn Estuary) in the centre of Barry and therefore will not have any significant effects alone. Potential in combination effects on European sites	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			are considered in Section 4 of the AA Report.		
13 Barry Magistrates Court	0.41	52 dwellings	This site lies around 5km away from the nearest European Site (Severn Estuary) and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
14 Court Road Depot	1.6	50 dwellings	This site lies around 4.6 km away from the nearest European Site (Severn Estuary) in the centre of Barry and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
15 Holm View	1.2	50 dwellings	This site lies around 5.4 km away from the nearest European Site (Severn Estuary) to the northern part of Barry and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
16 Hayes Wood, The Bendricks	1.8	55 dwellings	This site lies around 2.8km away from the nearest European Site (Severn Estuary) to the southern part of Barry and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
Service Centre Settlement: Cowbridge					
17 Cowbridge Comprehensive Lower School	0.8	21 dwellings	This site lies more than 10km away from the nearest European Site (Dunraven Bay) and therefore will not significant effects alone.	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
18 Cowbridge Comprehensive Sixth Form Block, Aberthin Road	0.52	20 dwellings	This site lies more than 10km away from the nearest European Site (Dunraven Bay) and therefore will not significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
19 Land adjoining St Athan Road, Llanblethian, Cowbridge	4.3	130 dwellings	This site lies more than 10km away from the nearest European Site (Dunraven Bay) and therefore will not significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
20 Land to the North and West of Darren Close Cowbridge	17	390 dwellings Including a New Welsh Medium Primary School (2 ha)	This site lies more than 10km away from the nearest European Site (Dunraven Bay) and therefore will not significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
Service Centre Settlement: Llantwit Major					
21 Plasnewydd Farm, Llantwit Major	4.4	130 dwellings	This site lies more than 8km away from the nearest European Site (Dunraven Bay) and about 12km from Kenfig, and therefore will not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
22 Land Adjacent to Llantwit Major Bypass	2.4	70 dwellings	This site lies more than 11km away from the nearest European Site (Dunraven Bay) and about 12km from Kenfig, and therefore will not have any significant effects alone.	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
Service Centre Settlement: Penarth					
23 Land at Upper Cosmeston Farm, Lavernock (formerly known as Land at Fort Road)	7.8	235 dwellings Including a New Primary and Nursery school and new community infrastructure	Site is 400m away from the Severn Estuary SAC, SPA & Ramsar. Development will not result in any direct impacts. There are a range of indirect impacts possible, including recreational disturbance, disturbance through noise and vibration and pollution through ground and surface water run-off. Given that the site is raised on a headland above the Severn Estuary, direct impacts from land-take are unlikely. There is however, the potential for indirect impacts on the Severn Estuary SAC, SPA and Ramsar through increased recreation, atmospheric pollution, pressure on sewerage capacity and surface run-off. The 235 dwellings proposed for the site will be phased over the life of the plan (2016 to 2026) and the mitigation provided by Deposit LDP policies will seek to protect biodiversity and minimise the impact of development on the environment. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	Policy mitigation/ safeguards in the LDP include: • SP 1: Strategy • SP 7: Transportation • SP 10: Built & Natural Environment • MG 16: Transport Proposals • MG 18: Green Wedges • MG 19: Sites of Importance for Nature Conservation • MD 1: Location of New Development • MD 2: Place Making • MD 3: Design of New Development • MD 4: Community Infrastructure and Planning Obligations • MD 8: Environmental Protection • MD 10: Promoting Biodiversity Policy SP10 requires development proposals to protect and where appropriate enhance sites designated for their European nature conservation importance. In the previous version of the Vale of Glamorgan Local Development Plan 2011 – 2026 Deposit Plan January 2012, there were requirements to carry out both a project level HRA of the development and a drainage assessment to accompany the application. It	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
				is recommended that these are re-instated. Given the above, and the application of other policies in the Plan, it is assessed that development at this location will not have likely significant effects on the Severn Estuary SAC, SPA and Ramsar alone.	
24 - Land adjoining St Joseph's School, Sully Road, Penarth	2.7	80 dwellings	This site lies around 2.5km away from the nearest European Site (Severn Estuary), separated from the estuary by Penarth town. It is unlikely to have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
25 Headlands School, St Augustine's Road	2.2	65 dwellings Including open space and recreational facilities (0.24 ha)	Site lies around 100m from part of the Severn Estuary SAC, SPA & Ramsar. There are a range of direct and indirect impacts possible, including land-take of supporting habitats (no direct land-take of European sites), recreational disturbance, disturbance through noise and vibration and pollution through ground and surface water run-off. There is no phasing of the development – all 65 units planed between now and 2016. The mitigation provided by Deposit LDP policies will seek to protect biodiversity and minimise the impact of development on the environment. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	Policy mitigation/ safeguards in the LDP include: • SP 1: Strategy • SP 7: Transportation • SP 10: Built & Natural Environment • MG 16: Transport Proposals • MG 18: Green Wedges • MG 19: Sites of Importance for Nature Conservation • MD 1: Location of New Development • MD 2: Place Making • MD 3: Design of New Development • MD 4: Community Infrastructure and Planning Obligations • MD 8: Environmental Protection • MD 10: Promoting Biodiversity Policy SP10 requires development proposals to	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
				protect and where appropriate enhance sites designated for their European nature conservation importance. In the previous version of the Vale of Glamorgan Local Development Plan 2011 – 2026 Deposit Plan January 2012, there were requirements to carry out both a project level HRA of the development and a drainage assessment to accompany the application. It is recommended that these are re-instated. Given the above, and the application of other policies in the Plan, it is assessed that development at this location will not have likely significant effects on the Severn Estuary SAC, SPA and Ramsar alone.	
Primary Settlement: Dinas Powys					
26 Land at and adjoining St Cyres School, Murch Road, Dinas Powys.	13.2	300 dwellings Including new community infrastructure	This site lies around 3-4km away from the nearest European Site (Severn Estuary), so direct or indirect impacts are unlikely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
27 Land at Caerleon Road, Dinas Powys	2.5	75 dwellings	This site lies around 3-4km away from the nearest European Site (Severn Estuary) so direct or indirect impacts are unlikely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
28 Land at Adjoining Ardwyn, Pen-y-Turnpike	1.6	15 dwellings	This site lies around 3.4km away from the nearest European Site (Severn Estuary) so direct or indirect impacts are unlikely.	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
29 Land at Cross Common Road	2.3	50 dwellings	This site lies around 3.1km away from the nearest European Site (Severn Estuary) so direct or indirect impacts are unlikely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
Primary Settlement: Llandough (Penarth)					
30 Land South of Llandough Hill / Penarth Road.	5.2	130 dwellings	This site lies around 3km away from the nearest European Site (Severn Estuary) so direct or indirect impacts are unlikely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
31 Land north Leckwith Road, Llandough	0.6	15 dwellings	This site lies around 3-4km away from the nearest European Site (Severn Estuary) so direct or indirect impacts are unlikely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
32 Llandough Landings	6.0	120 dwellings	This site lies around 2.4km away from the nearest European Site (Severn Estuary) so direct impacts are unlikely. However, given the site is directly adjacent to the Ely River which eventually flows into the Severn Estuary, there could be indirect impacts resulting from pollution of ground and surface water run-off both during construction and potentially during operation.	Policy mitigation/ safeguards in the LDP include: • SP 1: Strategy • SP 7: Transportation • SP 10: Built & Natural Environment • MG 16: Transport Proposals • MG 18: Green Wedges • MG 19: Sites of Importance for Nature Conservation • MD 1: Location of New Development	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			Potential in combination effects on European sites are considered in Section 4 of the AA Report.	• MD 2: Place Making • MD 3: Design of New Development • MD 4: Community Infrastructure and Planning Obligations • MD 8: Environmental Protection • MD 10: Promoting Biodiversity Policy SP10 requires development proposals to protect and where appropriate enhance sites designated for their European nature conservation importance. Policy MD 8 requires that development proposals will need to demonstrate that they will not result in an unacceptable impact on the natural environment from pollution of land, surface water, ground and air. It would also be recommended that there should be a requirement under policy to screen this site at the project level for the need to carry out a HRA. Given the above, and the application of other policies in the Plan, it is assessed that development at this location will not have likely significant effects on the Severn Estuary SAC, SPA and Ramsar alone.	
Primary Settlement: Rhoose					
33 Land north of the Railway Line, Rhoose.	25.82	650 dwellings Including a New Primary	This site is located a considerable distance from any European site (around 12km) and is therefore considered to have no direct or indirect impact.	• Mitigation measures to prevent surface water flooding will need to be considered due to historic record of surface water flooding adjoining the railway.	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
		and Nursery School and open space and recreational facilities (3.6 ha)	Potential in combination effects on European sites are considered in Section 4 of the AA Report. The Environment Agency has indicated that the site is located on a major aquifer. Therefore, no discharge of foul or contaminated run-off will be permitted. The Agency will need to be consulted prior to any works being undertaken at the site to discuss the necessary measures required to protect the aquifer.	• Recommended that prospective developers investigate the disposal of surface water direct to the sea.	
34 Land south of the Railway Line, Rhoose Point.	2.65	87 dwellings	This site is located a considerable distance from any European site (around 12km) and is therefore considered to have no direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
Primary Settlement: Wenvoe					
35 Land at the west of Port Road, Wenvoe	6.98	140 dwellings	This site is approximately 7km from the Severn Estuary and around 9km from Cardiff Beech Woods, and no direct or indirect impacts are likely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
Minor Rural Settlements:					
36 Land adjoining Court Close, Aberthin.	0.75	20 dwellings	This site lies more than 10km away from the nearest European Site (Dunraven Bay) and therefore will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
37 Land to the East of Bonvilston	7.2	120 dwellings Including open	This site lies more than 9.3km away from the nearest European Site (Cardiff Beech Woods) and therefore will not have any direct or indirect	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
		space and recreational facilities (0.55 ha)	impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
38 Land to rear of St. David's Church in Wales Primary School, Colwinston.	2.5	65 dwellings	This site lies around 6km from Dunraven Bay, 7km from Kenfig and 10km from Cefn Cribwr Grasslands and therefore will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
39 ITV Wales Site	7.1	250 dwellings Including open space and recreational facilities (1.03 ha)	This site lies around 8km from both the Severn Estuary and Cardiff Beech Woods and will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
40 The Former Garden Emporium, Fferm Goch.	2.2	40 dwellings	This site lies just under 10km away from Kenfig and Dunraven Bay and about 12km away from Cefn Cribwr Grasslands and therefore will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
41 Ogmore Residential Centre	3.25	84 dwellings Including new community infrastructure	These sites lie around 2km from both Kenfig and Dunraven Bay European Sites. Dunraven Bay SAC is primarily designated for the population of shore dock which is located on an inaccessible cliff face. Therefore, development is unlikely to have direct or indirect impacts on this site.	Policy mitigation/ safeguards in the Draft Deposit LDP include: • SP 1: Strategy • SP 7: Transportation • SP 10: Built & Natural Environment • MG 16: Transport Proposals • MG 18: Green Wedges	No
42 Ogmore Caravan Park, Ogmore-by-Sea	3.7	82 dwellings			

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			Kenfig SAC is a largely intact dune system in South Wales with extensive areas of fixed dune vegetation; part of which is in direct proximity to Ogmore. Development in this vicinity has the potential for likely significant effect on the Kenfig SAC through changes to the groundwater which feeds the site. Development in smaller settlements may also have an impact on the Kenfig and Ogwr rivers and potential cumulative impacts will need to be considered. Cumulative impacts may also occur in conjunction with any development plans for Porthcawl which is immediately adjacent to part of the Kenfig SAC boundary. The Kenfig/Cynffig SAC is designated for its internationally significant coastal dune systems. Annex I habitats of the EC Habitats Directive that are the primary reasons for designating the site include fixed dunes with herbaceous vegetation, dunes with Salex repens spp. Argentea, humid dune slacks and Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. Annex II species that are the primary reason for designating the site include Petalwort and Fen Orchid (Joint Nature Conservation Committee, http://www.jncc.gov.uk). The particular vulnerabilities of the site include: • falling water tables from local extraction of water and/or drainage of adjacent land used for agriculture or housing • water quality the major water quality concerns	• MG 19: Sites of Importance for Nature Conservation • MD 1: Location of New Development • MD 2: Place Making • MD 3: Design of New Development • MD 4: Community Infrastructure and Planning Obligations • MD 8: Environmental Protection • MD 10: Promoting Biodiversity Policy SP10 requires development proposals to protect and where appropriate enhance sites designated for their European nature conservation importance. Policy MD 8 requires that development proposals will need to demonstrate that they will not result in an unacceptable impact on the natural environment from pollution of land, surface water, ground and air. It would also be recommended that there should be a requirement under policy to screen this site at the project level for the need to carry out a HRA. In the previous version of the Vale of Glamorgan Local Development Plan 2011 – 2026 Deposit Plan January 2012, there were requirements for both developments to both investigate into the potential of sustainable drainage systems and use of soakaways required and to be accompanied a surface	

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			are related to elevated nutrient levels. Elevated levels of nitrogen have been found at Burrows Well on Merthyr Mawr and there is also some indication that dune slacks are becoming increasingly eutrophic. The nature of the underlying limestone aquifer means that off-site activities a considerable distance away can potentially have an impact on the SAC • petalwort is vulnerable to impacts of drainage Water pollution could cause nutrient enrichment resulting in changes to the types and abundance of vegetation, with an impact on species that are integral to the combined site designation. These impacts can be from poor water quality from insufficient treatment of waste water and therefore can in part be addressed through the LDP, although this would need to be in combination with the implementation of other measures to control pollution. There could also be impacts of water quantity, with the pools and dune slacks on the combined site requiring high ground water levels. Therefore, water demand from new built development could have an impact on this. The NRW Review of Consents process will ensure that any new abstractions will not have adverse effects on the integrity of Kenfig SAC through reduced water levels. In addition, mineral workings can have an impact, such as quarry dewatering and the possible	water drainage assessment. It is recommended that these are re-instated. To address the identified issues with regard to water levels and quality it is recommended: • that the Plan requires that any proposals for the sites are accompanied by a sustainable water strategy, which not only considers surface water drainage but also includes an assessment of groundwater pollution risk and management. This may also be needed to inform a project level HRA if necessary. • that the Deposit Plan includes a policy that requires the efficient use of water in new developments. Policy MD 3 (Design of new development) could include wording that requires new residential development to achieve Level 5 for the water aspect of the Code for Sustainable Homes from adoption of the LDP. Given the above, and the application of other policies in the Plan, it is assessed that development at this location will not have likely significant effects on the Kenfig SAC alone.	

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			impacts of this on the SAC will need to be taken into account by the LDP through minerals policy for new mineral developments or the review of existing permissions. Regarding the impact of minerals working on Kenfig SAC, the VoG HRA/AA Screening Report (2007) stated: *'... there are three operational quarries (Ewenny, Pant, Lithalun) within 3 kilometres of the SAC. Mineral extraction and/or after use of the site could therefore impact upon the SAC as described above however this is considered to be unlikely due to the distance and ground contours. However, the site should be subject to a more detailed assessment at a later stage of the LDP development'.* Groundwater aquifers underlying the Porthcawl Development Area have recently been classified as 'not at risk' by the Environment Agency under the Water Framework Directive (Environment Agency, http://www.environment-agency.gov.uk).		
43 Land to the East of St Nicholas	3.9	100 dwellings Including open space and recreational facilities (0.48 ha)	This site lies around 7.5km from Cardiff Beech Woods and around 10km from the Severn Estuary and therefore will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
44 Land off St. Brides Road, Wick	4.0	100 dwellings	This site lies around 3-4km from Dunraven Bay and around 7km from Kenfig and therefore will not have any direct or indirect impact. Given the nature of the interest at Dunraven, it is unlikely to be affected. It is considered too distant to affect	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			Kenfig. Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
45 Land north of Sandy Lane, Ystradowen	4.2	85 dwellings Including open space and recreational facilities (0.43 ha)	This site is over 10km from any European Site and will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
Reserve Site					
46 Land West of Swanbridge Road, Sully (reserve site)	20.0	500 dwellings	This site lies 2.5km from the Severn Estuary European Site and whilst it is a sizeable development of 500 units direct impacts are unlikely. The 500 dwellings proposed for the site will be phased over the life of the plan (2016 to 2026) and the mitigation provided by Deposit LDP policies will seek to protect biodiversity and minimise the impact of development on the environment. There could be indirect impacts from this proposal in terms of recreational disturbance. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	Policy mitigation/ safeguards in the LDP include: • SP 1: Strategy • SP 7: Transportation • SP 10: Built & Natural Environment • MG 16: Transport Proposals • MG 18: Green Wedges • MG 19: Sites of Importance for Nature Conservation • MD 1: Location of New Development • MD 2: Place Making • MD 3: Design of New Development • MD 4: Community Infrastructure and Planning Obligations • MD 8: Environmental Protection • MD 10: Promoting Biodiversity Policy SP10 requires development proposals to protect and where appropriate enhance sites designated for their European nature	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
				conservation importance. Given the above, and the application of other policies in the Plan, it is assessed that development at this location will not have likely significant effects on the Severn Estuary SAC, SPA and Ramsar alone.	
POLICY MG 3 – STRATEGIC SITE AT BARRY WATERFRONT					
Land at Barry Waterfront	48.55	1700 dwellings 6400 sq (Net) Retail Floorspace Hotel, Café, Bars and Restaurants B1(Offices) New community infrastructure Barry Island Link Road A New Primary And Nursery School (2 ha) 7.83 ha of	Given the distance of European sites from this site with its associated development (6 -7km); there are no pathways for development to have direct impacts on European sites. **Severn Estuary SAC, SPA & Ramsar** There is however, the potential for indirect impacts on the Severn Estuary SAC, SPA and Ramsar through increased recreation, atmospheric pollution, pressure on sewerage capacity. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	Policy mitigation/ safeguards in the LDP include: • SP 1: Strategy • SP 7: Transportation • SP 10: Built & Natural Environment • MG 16: Transport Proposals • MG 18: Green Wedges • MG 19: Sites of Importance for Nature Conservation • MD 1: Location of New Development • MD 2: Place Making • MD 3: Design of New Development • MD 4: Community Infrastructure and Planning Obligations • MD 8: Environmental Protection • MD 10: Promoting Biodiversity Policy SP10 requires development proposals to protect and where appropriate enhance sites designated for their European nature conservation importance. Barry Waterfront Development Principles	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
		open space and recreational facilities		Document (already in existence and adopted): • Outline planning permission for the whole of the site required, in order to ensure a comprehensive approach to development and provision of infrastructure. • Environmental Statement • Transport Assessment • Retail Impact Assessment • Design and Access Statement • Sustainability and Energy Statement • Public Consultation Report However, given its distance from the Severn Estuary (7km), the mitigation provided by LDP Policies, plus the infrastructure and implementation requirements of the development (e.g. transport contributions, public open spaces) would make any significant impacts unlikely alone.	
POLICY MG 5 - GYPSY AND TRAVELLER SITE					
Land Allocated at Sully Llangan	0.85	19 pitches	This site lies around 1.8km away from the nearest European Site (Severn Estuary). Given the nature of the development, it is unlikely to have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
POLICY MG 6 – PROVISION OF EDUCAIONAL FACILITIES					
1 The Penarth	12.89	-	This site lies around 2.5km away from the nearest	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
Learning Community, Sully Road, Penarth			European Site (Severn Estuary), separated from the estuary by Penarth town. It is unlikely to have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
2 Llantwit Major (Secondary and Primary Schools) Ham Lane, Llantwit Major	10.79	-	This site lies around 8km away from the nearest European Site and is unlikely to have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
3 A New Primary And Nursery School At Barry Waterfront, Barry	2.0	-	The potential for LSEs has been assessed under Policy MG 3 as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 3 above.	-	-
4 A New Welsh Medium Primary School at Land North and West Of Darren Close, Cowbridge	2.0	-	The potential for LSEs has been assessed under Policy MG 2 (20) as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 2 (20) above.	-	-
5 A New Primary and Nursery school at Land at Upper Cosmeston Farm, Lavernock	1.0	-	The potential for LSEs has been assessed under Policy MG 2 (23) as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 2 (23) above.	-	-
6 A New Primary and Nursery School on Land to the North of the Railway Line, Rhoose	1.0	-	The potential for LSEs has been assessed under Policy MG 2 (33) as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 2 (33) above.	-	-

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
POLICY MG 7 – PROVISION OF COMMUNITY FACILITIES					
1 Barry Waterfront (As Part of Mixed Use)	-	-	The potential for LSEs has been assessed under Policy MG 3 as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 3 above.	-	-
2 St Cyres (As Part of Mixed Use)	-	-	The potential for LSEs has been assessed under Policy MG 2 (26) as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 2 (26) above.	-	-
3. Ogmore Residential Centre	-	-	The potential for LSEs has been assessed under Policy MG 2 (41) as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 2 (41) above.	-	-
4. Cosmeston Farm (As Part of Mixed Use)	-	-	The potential for LSEs has been assessed under Policy MG 2 (23) as it outlines all the development (type and quantity) allocated for this site. Please see Policy MG 2 (23) above.	-	-
POLICY MG 9 – EMPLOYMENT ALLOCATIONS					
Strategic Employment Sites					
1 Land to the South of Junction 34 M 4 Hensol	44.5 (Gross) 28.26 (Net)	B1, B2, B8	This site has been considered for potential LSE under Policy MG 11 as outlines all the development (type and quantity) allocated for this site. Please see Policy MG 11 below.	-	-
2 Land Adjacent to Cardiff Airport and Port Road, Rhoose (Part of the St Athan – Cardiff Airport Enterprise Zone)	77.4 (Gross) 76.64 (Net)	B1, B2, B8	This site is located a considerable distance from any European sites (around 12km) and is therefore considered to have no significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
3 Aerospace Business Park, St Athan, Rhoose (Part of the St Athan – Cardiff Airport Enterprise Zone)	305 (Gross) 66.92 (Net)	Aerospace Business Park, Employment and Education	Allocated for business and commercial uses aimed at the aerospace sector particularly for aerospace employment, research and development and associated training. Outline planning permission has been granted [2009/00501/OUT] on the site for an Aerospace Business Park promoted by the Welsh Government alongside proposals for a unified Defence Training Academy at the RAF St Athan base. This site is located considerable distance from any European Sites (over 12km), and given the nature of the uses it is considered that it would not have any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
Local Employment Sites					
4 Atlantic Trading Estate	7.3	B1, B2, B8	Site lies about 6-7km west of Severn Estuary European Site and will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
5 Land at Ffordd y Mileniwm Way, Barry	78.9	B1, B2, B8	Site lies about 6-7km west of Severn Estuary European Site and will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	Site has no sewage provision and additional foul discharges may require an upgrade to the Bendricks Sewage Pumping Station. Surface water run-off could discharge directly into No 2 Dock and it is recommended that any prospective developer discusses proposals with the operator of the Dock, Associated British Ports.	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
6 Hayes Lane, Barry	1.4	B1, B8	Site lies about 6-7km west of Severn Estuary European Site and will not have any direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
7 Hayes Road, Sully	7.5	B1	Site located 4-5km from Severn Estuary and requires coastal buffer strip as borders coastal SSSI. Given location and B1 use the development is unlikely to have an impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
8 Hayes Wood, Barry	1.9	B1, B8	Site located 4-5km from Severn Estuary and requires coastal buffer strip as borders coastal SSSI. Given location and B1 and B8 use the development is unlikely to have an impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
9 Llandow Trading Estate	6.8	B1, B2, B8	Sites are over 5km from Dunraven Bay and around 7.5km from Kenfig and no direct or indirect impacts are likely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	• Restrictions may be imposed following consultation with Environment Agency regarding pollution control and materials storage, as the site is known to drain to a carboniferous limestone aquifer. • Investigation into the potential of sustainable drainage systems and use of soakaways required. • If percolation drainage is not viable surface water attenuation may be required with flows being limited to a discharge rate to be agreed.	No
10 Vale Business	12.4	B1, B2, B8	Sites are about 7.4 km from the nearest European	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
Park, Llandow			site (Dunraven Bay) and as a result no direct or indirect impacts are considered to be likely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
11 Land to the South of Junction 34 M 4 Hensol	6.64 (Net)	B1, B2	This site has been considered for potential LSE under Policy MG 11 as outlines all the development (type and quantity) allocated for this site. Please see Policy MG 11 below.	-	-
POLICY MG 10 – ST ATHAN – CARDIFF AIRPORT ENTERPRISE ZONE					
Land is allocated adjacent to Cardiff Airport and Port road, Rhoose (77 ha) and at the aerospace business park St Athan (305ha) for the development of 382 hectares of strategic employment land (class b1, b2 and b8) forming part of the St Athan – Cardiff airport enterprise zone.	382.0	B1, B2 , B8	The two sites put forward in this policy have been considered individually above under Policies SP 2 (2) MG 9 (3-4). Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	-
POLICY MG 11 – LAND TO THE SOUTH OF JUNCTION 34 M 4 HENSOL					
Land is allocated to the south of junction 34 M 4 (Hensol) (45ha gross) for	76.99	As set out in the policy wording	This site lies over 5km from the nearest European site, Cardiff Beech Woods SAC. Policy SP5 states that this site (along with the other	The site contains areas of high nature conservation value and the Council will seek appropriate mitigation and management of these areas within any future development	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
employment purposes (class B1, B2 and B8) comprising 28.26ha (net) for strategic employment and 6.64ha to meet local need.			SP5 employment locations) is intended to meet the needs of the following key economic sectors: • Aerospace Industry; • High Tech Manufacturing and • Logistics and Distribution. Impacts could occur from increased pollution associated with the development, either from increased road use (from distribution and logistics) or from specific industrial purposes. Acidification and the deposition of nitrogen compounds present a major conservation threat to wildlife in many parts of the UK. The Joint Nature Conservation Committee (JNCC) advocates the reduction of acid deposition to levels that will sustain national and internationally designated habitats. The reduction of pollution to below critical loads and levels are also the government's stated objectives. The Statutory Nature Conservation Agencies and others have demonstrated that even when all currently proposed cuts in acidifying and eutrophying emissions are put in place a large number of internationally important habitats will still be receiving harmful levels of pollution in excess of their critical loads. The Council's 2007 Screening Report advised that '*A detailed evaluation of air pollution impacts to the Cardiff Beech Woods SAC will be required before the potential risks to the habitats and species can be properly assessed*'.	proposals for the site. Consultation with NRW (formerly CCW) and the Council's Ecologist on development proposals is recommended. We recommended additional mitigation in order to minimise any impact: • Polluting industrial uses will not be permitted; and • Travel plans will be drawn up for future uses, where appropriate. Given the above, and the application of other policies in the Plan, it is assessed that development at this location will not have likely significant effects on the Cardiff Beech Woods SAC alone.	

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
			The woodlands' 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. There is no evidence to date that this has had an adverse impact on the features but this may need to be addressed in more detail in the future. In the regional and national context critical loads may have been exceeded in recent years and this will need to be addressed when assessing air emissions of future developments. The Plan and this site allocation are likely to result in increased vehicular movements and therefore produce a resultant increase in air pollution. However, the location of the designated site within industrial South Wales means that it is already subject to high levels of pollution (see above). Given that the uses are unknown, any air pollution impacts are difficult to assess. However, it is unlikely that this development in isolation would lead to any significant effects alone. Potential in combination effects on European sites are considered in Section 4 of the AA Report.		
POLICY MG 16 – TRANSPORT PROPOSALS					
WALKING AND CYCLING	-	-	The potential for LSEs has been assessed under Policy SP 7 (6) for Schemes 1-3 and 5. Please see	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
1. NATIONAL CYCLE NETWORK ROUTE 88 AND ASSOCIATED LOCAL URBAN AND RURAL CONNECTIONS 2. A4050 PORT ROAD TO CARDIFF AIRPORT 3. A48 CULVERHOUSE CROSS TO BRIDGEND 4. EGLWYS BREWIS ROAD IN CONJUNCTION WITH THE PROPOSED NORTHERN ACCESS ROAD, ST ATHAN ENTERPRISE ZONE 5. BARRY WATERFRONT TO DINAS POWYS			Policy SP 7 (6) above. Scheme 4 is unlikely to have direct or indirect impacts.		
RAIL 6. ELECTRIFICATION OF THE VALE OF GLAMORGAN LINE 7. COGAN PARK AND RIDE 8. EASTBROOK PARK AND RIDE	-	-	The potential for LSEs has been assessed under Policy SP 7 (5) for Scheme 6. Please see Policy SP 7 (5) above. Schemes 7 and 8 are unlikely to have direct or indirect impacts.	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
BUS 9. A4050 CULVERHOUSE TO CARDIFF AIRPORT 10. A48 CULVERHOUSE CROSS TO BRIDGEND VIA COWBRIDGE, 11. MERRIE HARRIER CARDIFF ROAD BARRY TO CARDIFF VIA BARRY ROAD 12. LECKWITH ROAD, LLANDOUGH TO CARDIFF 13. LAVERNOCK ROAD TO CARDIFF VIA THE BARRAGE 14. BUS PARK AND RIDE AT COSMESTON PENARTH	-	-	The potential for LSEs has been assessed under Policy SP 7 (8 and 9). Please see Policy SP 7 (8 and 9) above.	-	-
HIGHWAYS 15. BARRY ISLAND LINK ROAD 16. NORTHERN ACCESS ROAD (ST ATHAN ENTERPRISE ZONE) 17. GILESTON - OLD	-	-	The potential for LSEs has been assessed under Policy SP 7 (1-4) for schemes 15 - 18. Please see Policy SP 7 (1-4) above. Schemes 19 - 21 are unlikely to have direct or indirect impacts.	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
MILL B4265 18. IMPROVEMENTS TO THE A4226 BETWEEN WAYCOCK CROSS, BARRY AND SYCAMORE CROSS, A48 (FIVE MILE LANE) 19. CROSS COMMON ROAD JUNCTION IMPROVEMENTS 20. NORTH OF A48, BONVILSTON ROAD IMPROVEMENTS 21. LINK ROAD BETWEEN A48 AND LLANTWIT MAJOR ROAD, COWBRIDGE					
INTERCHANGES 22. BARRY DOCK STATION BUS INTERCHANGE	-	-	The scheme is over 6km from the Severn Estuary and no direct or indirect impacts considered likely. Potential in combination effects on European sites are considered in Section 4 of the AA Report.	-	No
POLICY MG 26 – TOURISM AND LEISURE FACILITIES					
1 Barry Island Pleasure Park	-	Tourism and leisure facilities with possible residential or other commercial development	Site is around 8km from Severn Estuary and no direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report	-	No
2 Land At Nell's	4.45	-	Site is around 8km from Severn Estuary and no	-	No

Site Code/ Name	Area (Ha)	Description (dwellings/ use class)	Potential of Likely Significant Effect (LSE) *European Site Characterisations (qualifying features and vulnerabilities provided in Appendix 1)*	Potential to Mitigate through Avoidance Measures and Policy Measures/ Safeguards?	Residual Effect Yes/No
Point, Whitmore Bay			direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report		
3 Land at Cottrell Park Golf Course	-	New hotel and luxury spa to complement existing golf course	Site is around 8.5km from Severn Estuary and no direct or indirect impact. Potential in combination effects on European sites are considered in Section 4 of the AA Report	-	No

Appendix 5: Consultation Commentary

HRA (Appropriate Assessment) Report (December 2011)

Respondent	Summarised Content	Response
Maggie Hill CCW 02/04/12	**1 Introduction.** **1.9 – 1.11** Consultation. CCW welcomes the formal consultation on the Vale of Glamorgan LDP HRA. While there is no statutory requirement to consult CCW during the development of the HRA, we are somewhat disappointed that offers to discuss the HRA have not been taken up. This is the first opportunity for CCW to comment since the screening consultation in December 2007, and we have no record of being consulted on the 'Screening Review' carried out in 2009. While we largely agree with the main conclusions of the HRA, a number of the concerns discussed below could have been effectively addressed during the development of the HRA itself and at the various stages of the LDP process. We look forward to working with the Vale of Glamorgan Council to resolve these issues over the coming months.	Noted.
	2 Method **2.1** We note the two sites identified in the screening process as having the potential to be adversely affected by the LDP. We also note and welcome the fact that a further four sites were taken forward on a precautionary basis for further assessment, and we assume that these are the same four sites covered by the original screening report (Cardiff Beech Woods, Dunraven Bay, Blackmill Woodlands and Cefn Cribwr Grasslands) though only two of these sites are listed in appendix 1. It would be useful to summarise the screening assessment tables (appendix 4 of the original screening report) here and perhaps give some explanation why sites such as Sugar Loaf Woodlands SAC, Wye Valley Woodlands SAC etc. are included in appendix 1, but were not included in the original screening report or further referenced within the main report.	Noted. The following sites were not scoped into the screening assessment and were included in error in Appendix 1. These sites have now been removed from the revised HRA: ▪ Sugar Loaf Woodlands SAC ▪ Usk Bat Sites SAC ▪ Wye Valley and Forest of Dean Bat Sites SAC ▪ Wye Valley Woodlands SAC
	We would also expect to see the River Usk SAC and the River Wye SAC included in this consideration, due to possible impacts resulting from increased water resources demands. As the Vale of Glamorgan obtains at least some of its water from the South East Wales Conjunctive Use System (SEWCUS), which in turn sources supply from the two	Noted, the River Usk SAC and River Wye SAC will be scoped into the revised screening assessment.

Respondent	Summarised Content	Response
	sites identified above, there is the potential for likely significant effects. We note that this is acknowledged later in the report (sections 4.36 – 4.43) but this does not negate the need to identify the risk to these sites in the screening process. Therefore, we strongly advise you to amend this section of the assessment to acknowledge this potential risk.	
	2.2 We note the main potential impacts identified in the screening, but we would recommend that potential loss or deterioration of habitat, particularly in relation to possible coastal impacts on the Severn Estuary SAC, SPA and Ramsar sites, is also considered, particularly given the reference to 'land take' in the assessment of the allocation at Headlands School, St Augustine's Road, Penarth (MG2 [18]). We welcome the consideration of possible impacts related to water abstraction, but these should also be considered in their wider context of potential impacts on the River Usk SAC and River Wye SAC.	The reference to land-take is referring to potential supporting habitats and not the designated habitats itself – this will be clarified in the revised screening of site allocations. The River Usk SAC and River Wye SAC have been scoped into the revised screening assessment.
	2.3 - 2.5 We welcome the precautionary assessment of the site allocations against the sites identified in the initial screening report. For clarity, the names of these sites should also be listed here, and in appendix 4. In addition, the results of the detailed screening of allocations carried out as part of this HRA, particularly any mitigation measures identified as being necessary to avoid adverse effects, should be summarised in the main report.	European sites considered for the initial AA Screening Report (2007) will be listed in the revised HRA (AA) Report.
	2.7 We note the five sites identified as requiring more detailed assessment. Given the risks outlined above, it is likely that the River Usk SAC and the River Wye SAC will also need to be included in this list.	The River Usk SAC and River Wye SAC will be scoped into the revised screening assessment.
	3 Re-Evaluation of Screening Findings (2011) **3.1** We welcome the re-screening of policies and allocations to take account of the additional detail available at the deposit stage. We note the reference to a 'HRA screening review, 2009' but we have no record of being consulted on this document.	Noted, the review was an internal document for the Council. The revised HRA (AA) Report will provide a clearer explanation as to the purpose of the review.
	3.5 We note that policies SP8, SP9, MG24 and MG27 are also assessed as likely to have significant effects and requiring further assessment due to potential hydro-geological impacts on Kenfig SAC (SP8, SP9 and MG24) and disturbance impacts on the Severn Estuary suite of sites (MG27). We welcome and support the precautionary approach taken to the assessment of these policies and acknowledge that additional hydro-geological modelling work around the Kenfig SAC would help further refine and support the baseline assumptions. However, as currently worded, and when considered with the	Noted.

Respondent	Summarised Content	Response
	other mitigation policies identified within the Plan (subject to the comments below), it is reasonable to conclude that these policies would be unlikely to have a significant effect.	
	3.6 We note the recommendation that policy MG27 should be strengthened to ensure that development along the Heritage Coast does not lead to adverse effects on European sites and welcome the clarification made in the supporting text of the Plan (7.106).	Noted.
	3.7 While we largely agree with the assessment conclusions, and the protective role of policy SP10 (though it should be amended to include all four European and international sites along the Glamorgan coast and not just the Severn Estuary SPA), it should be noted that the wording of Policy MD 6, Biodiversity Protection, is not compliant with the Regulations. The LDP must make it clear that development which would have adverse effects on a European or international designated site would be unacceptable unless such impacts could be avoided, cancelled or reduced to a point where they would no longer be likely and/or significant by mitigation measures. Compensation, in the context of the Regulations, is intended to maintain the integrity of the Natura 2000 series where a plan or project has been permitted, despite there being adverse effects on a European or international site, due to Imperative Reasons of Over-riding Public Interest and a lack of less damaging alternatives. It is not appropriate and is potentially misleading, therefore, for the plan to imply that such development will be permitted providing suitable 'compensation' can be provided, unless it is also made clear that it would first have to meet the criteria set out in Regulation 62 of the Conservation of Habitats and Species Regulations (2010) (as amended). This policy should be the key mitigation policy for any unforeseen effects from development or impacts which can not be meaningfully assessed at the level of the Plan but, in its current form, it potentially undermines this role and we strongly recommend that it is therefore amended to remove this discrepancy.	Amended policy MD 10 (promoting Biodiversity) in the Deposit LDP no longer includes a reference to the provision of compensation with regard to European sites. The revised HRA (AA) Report now recommends that Policy MD 10 (Promoting Biodiversity) clearly sets out that in line with the Habitats Regulations (Regulation 62) and in consultation with NRW, it will be necessary for project level assessments to be undertaken where there is a potential for significant effects on European sites. Any development project that could have an adverse effect on integrity of a European site will not be in accordance with the development plan, within the meaning of S.38(6) of the Planning and Compulsory Purchase Act 2004'.
	3.8 We note that a number of policies were identified as having the potential for 'in combination' effects with other plans and projects in relation to water quality, water resources, atmospheric pollution and disturbance. We agree that these are the most likely potential 'in combination' impacts.	Noted.
	3.10 – 3.13 Site allocations screening. We note that a number of Plan policies have been	Noted.

Respondent	Summarised Content	Response
	identified as providing mitigation for the potential adverse effects identified for specific allocations, particularly SP10 (built and natural environment) and MD 6 (promoting biodiversity). We welcome the use of specific wording in policies to ensure potential adverse effects are avoided, cancelled or reduced to a point where they would no longer be likely and/or significant, but where such wording is used it must be clear and demonstrable. With the exception of SP10 and MD6 (subject to the clarification detailed in 3.7) and, to an extent, MD 3 and MD5, the other policies identified in this list provide only indirect mitigation and there is no clear link between the policy and the risk identified in this HRA. While we welcome the wording in policies such as MD2, MD4, MD10, MG22 and MG23, we feel they are not specific enough to provide meaningful mitigation for any likely significant effects identified. However, policies MD3 (Design of New Development) and MD5 (Environmental Protection), do contain clear and effective mitigation measures for the potential water quality impacts identified for allocations such as Barry Waterfront and Land at Fort Road, Lavernock. The mitigation role of these policies would be further strengthened if specific reference to this HRA or the Habitats Regulations within the policy or supporting information was also included, as there is in Policy MG27. These policies should also be identified in the monitoring strategy to ensure that they are effective in mitigating any potential adverse effects.	
	3.14 Barry Waterfront (SP 2[1] MG2 [1]. We note the potential impacts from increased atmospheric pollution, water quality and recreational disturbance. See comments on section 4.3 in relation to air quality, but we largely accept that the mitigation provided by policies such as MD3 and MD5, combined with SP10 and MD6 (subject to further clarification) should ensure any significant effects will be avoided, cancelled or reduced to a point where they are no longer likely and/or significant.	Noted.
	3.15 & 3.16 Land to south of Junction 34, M4 Hensol (SP5 [2] MG12 [1]. See comments on section 4.3 in relation to potential air quality impacts.	Noted.
	3.17 Land at Fort Road, Lavernock (MG2 [16]). We note the potential impacts from increased atmospheric pollution, water quality and recreational disturbance from the development of this allocation. See comments on section 4.3 in relation to air quality, but we largely accept that the mitigation provided by policies such as MD3 and MD5, combined with SP10 and MD6 (subject to further clarification), should ensure any adverse effects will be avoided, cancelled or reduced to a point where they are no longer likely and/or significant. The intention to phase the development over the lifetime	Noted – the size of land at Upper Cosmeston Farm, Lavernock (formerly Land at Fort Road, Labernock) has been reduced by almost half (400 down to 235).

Respondent	Summarised Content	Response
	of the plan should also help ensure there will be sufficient environmental capacity available prior to occupation. However, given the size of the development and the proximity of the site to the Severn Estuary SAC, SPA and Ramsar sites, we welcome the additional requirement for project level HRA to be undertaken as set out in the sites briefing (chapter 8).	
	3.18 Headlands School, St Augustine's Road, Penarth (MG 2 [18]). We note the potential for water quality impacts and recreational disturbance from the development of this allocation, but we largely accept that the mitigation provided by policies such as MD3 and MD5, combined with SP10 and MD6 (subject to further clarification), should ensure effects resulting from these aspects of the development will be avoided, cancelled or reduced to a point where they are no longer likely and/or significant. However, we also note the reference to possible 'land-take' resulting from implementing development in this allocation. The proposals map does not indicate that the boundary of this allocation extends into the Severn Estuary SAC, SPA or Ramsar sites so we are unclear where the possibility of land-take arises, but this should be clarified as a matter of some urgency. If the proposals for this allocation are likely to require a loss of designated habitat within the Severn Estuary, then the mitigation measures within this Plan are unlikely to be able to address the adverse effects on the protected sites and the proposals would not be in accordance with national planning policy, the Habitats Regulations or conforming to the Plans own strategic policy, SP10. If this is the case, you should consider amending or withdrawing the allocation. We also note that the implementation of this allocation is likely to occur early in the Plan period and therefore environmental capacity may be an issue. While we welcome the requirement for project level HRA identified in the sites briefing, the potential for 'in combination' effects from a number of similar allocations being implemented should be acknowledged in this assessment and appropriate monitoring indicators identified in the Plan itself.	Noted - the reference to land-take is referring to potential supporting habitats and not the designated habitats itself – this will be clarified in the revised screening of site allocations.
	3.19 Land West of Swanbridge Road, Sully (reserve site) (MG 2 [25]). While we accept that this allocation is some distance (2.5km) from the Severn Estuary SAC, SPA and Ramsar sites we welcome that the potential for significant effects has been acknowledged. The intention to phase the development over the lifetime of the plan, should help ensure there will be sufficient environmental capacity available prior to occupation, particularly in relation to potential water quality impacts due to insufficient waste water treatment capacity. Due to the size of this allocation, in combination with	Noted and agreed – the site has been reduced in size by just over 30% (720 dwellings down to 500).

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	the others identified in proximity to the Severn Estuary, a clear link should be made to the appropriate monitoring indicator to ensure that development remains within environmental limits.	
	3.20 – 3.23 Ogmore Residential Centre (MG 2 [31]) and Caravan Park, Ogmore-by-Sea (MG 2 [32]). We note the proximity of these two allocations to Kenfig SAC and Dunraven Bay SAC and note that changes to water quality and quantity have been identified as potential impacts on Kenfig SAC. We welcome the mitigation measures identified, particularly the requirement for a surface water management plan to be produced for each development, though this should also be identified as being needed to potentially inform a project level HRA if necessary. We also agree that the mitigation provided by policies such as MD3 and MD5, combined with SP10 and MD6 (subject to further clarification), should ensure any effects resulting from these aspects of the development will be avoided, cancelled or reduced to a point where they are no longer likely and/or significant. We largely accept the justification for no likely significant effects on Dunraven Bay SAC.	Noted.
	3.24. Subject to the clarifications identified above, particularly relating to the 'land-take' issue at Headlands School (MG 2 [18]) and the need for clear links to the monitoring strategy, we agree with the assessment conclusions of no likely significant effect, provided the mitigation measures identified are implemented appropriately.	Noted.
	4.0 Appropriate assessment. **4.2** We note the four potential impact areas identified in the screening assessments. We largely agree with these subject to the point raised in our response to 3.18 relating to the potential loss or deterioration of habitat in the Severn Estuary SAC, SPA and Ramsar sites. We particularly welcome the consideration of possible impacts related to water abstraction but, as noted in our comments on section 2.1, these should also consider potential impacts on the River Usk SAC and River Wye SAC, depending on the conclusions of the additional screening we recommend.	Noted.
	4.3 – 4.17 Air Quality. We welcome the comprehensive and precautionary assessment of potential air quality impacts which could result from the levels of growth proposed in the Vale of Glamorgan LDP. We agree that the key pollutants in relation to the European and international sites identified are oxides of nitrogen and, to a lesser extent, sulphur and note with some	Noted.

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	concern that the nitrogen dioxide levels increased at 36 out of the 44 monitoring locations referred to in the assessment. We have already noted, and agreed that the specific allocations are unlikely to have direct impacts on any of the sites, largely due to their distance from the identified sites, which would make modelling of changes to critical levels difficult if not impossible for all but major emission sources. Similarly, we agree that direct effects from major roads are unlikely beyond 200m.	
	However, there is still the potential for the level of development in the Plan to contribute to diffuse pollution levels and increase critical loads on a number of sites, including the three identified. We accept that a number of policies within the Plan such as MD5, MD3, MD13 and SP1 and sustainable transport policies such as SP7 aim to manage and reduce pollution levels but these should be tied to a monitoring indicator (such as the diffusion tubes referred to in section 4.9) so that if nitrogen oxide levels increase, despite these measures, it will trigger further review and analysis.	Noted and agreed.
	4.18 – 4.31 Disturbance We welcome the comprehensive and precautionary assessment of potential impacts from disturbance which could result from the levels of growth proposed in the Vale of Glamorgan LDP. We note the policies identified as providing mitigation and largely accept that these should help ensure that the development proposed within the LDP does not lead to significant impacts as a result of increased disturbance.	Noted.
	4.32 – 4.43 Water Resources (See also comments on section 2.1) We note the focus of this assessment on the Kenfig SAC and the Severn Estuary SAC, SPA and Ramsar. However we strongly recommend that further justification is given for why there will be no adverse effects on the River Usk SAC and the River Wye SAC as a result of the proposed levels of growth in the Vale of Glamorgan LDP, particularly as the assessment identifies that abstraction rates from the two Water Resources Management Zones (WRMZs) which cover the Vale of Glamorgan, is likely to increase as a result of the development proposed in the Plan. We appreciate that the current Dwr Cymru Welsh Water draft Water Resources Management Plan (dWRMP) has allocated sufficient resources to cover the rate of population growth identified by the Welsh Government. We also note that the dWRMP now takes account of the changes required as a result of the Review of Consents (RoC) process but it is also important to note that it does not include potential industrial growth and there remains a degree of uncertainty over the potential levels of development across the SEWCUS WRMZ.	Noted and agreed.

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	The assessment itself identifies these potential 'in combination' risks and we would expect the LDP to include measures to ensure that these risks are appropriately addressed. In this instance, we welcome the intention to produce a Water Cycle Study over the first four years of the Plan, which should help clarify and inform the situation, and support the inclusion of additional policy wording in MD3 to encourage water efficiency. However, the Authority should also consider making the phasing of development dependant on sufficient sustainable water resources being available. This should be clearly linked to an appropriate monitoring indicator in the monitoring strategy. We note the assessment conclusions in relation to water resource impacts on Kenfig and the Severn Estuary sites and agree that the proposed mitigation measures should adequately address potential water resource impacts on these sites.	Noted.
	4.44 – 4.56 Water quality We note the potential water quality impacts identified for the Kenfig SAC and the Severn Estuary SAC, SPA and Ramsar. We acknowledge that the RoC process did not identify any additional measure to address existing water quality issues within the Severn Estuary but it should also be noted that this would not necessarily apply to new permissions. As acknowledged in the screening of candidate sites, there may be waste water treatment infrastructure capacity issues for some of the developments close to the Severn, but these issues may also extend to the whole of the foul water drainage catchment.	Noted.
	We accept that Policy MD5 provides clear mitigation for potential impacts, but would also strongly support including policy wording to ensure that there is capacity in waste water treatment facilities (or environmental capacity) prior to occupation of any new development throughout the lifetime of the plan. You should also consider including a specific reference to the need to comply with the Habitats Regulations if there is insufficient environmental capacity for new developments. Providing these mitigation measures are implemented we agree that there are unlikely to be any significant water quality effects on Kenfig SAC or the Severn Estuary SAC, SPA and Ramsar as a result of implementing the Plan.	Noted, Policy MD 3 (previously policy MD5) now includes the following in the supporting text, 'proposals will need to demonstrate that there is sufficient capacity in local waste water treatment facilities prior to occupation.
	5.0 Conclusions and future work We note the conclusions and 'in combination' assessments which are covered by our previous comments. We particularly welcome the clear statement provided in section 5.9 that this plan level HRA does not remove the need for project level HRA, if required,	Noted and agreed.

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	and would recommend the inclusion of such a statement within the Plan itself, perhaps in the supporting text of MD6, in addition to the references included for specific sites.	