CAPITA SYMONDS

# Vale of Glamorgan Local Flood Risk Management Strategy

# Volume 2

## Strategic Environmental Assessment Report

August 2013

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# Vale of Glamorgan Local Flood Risk Management Strategy
# Volume 2 Strategic Environmental Assessment Report







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# Appendices

# Glossary of Acronyms

| | |
|---|---|
| AMR | Annual Monitoring Report |
| BAP | Biodiversity Action Plan |
| CAMS | Catchment Abstraction Management Strategy |
| CCW | Countryside Council for Wales |
| CFMP | Catchment Flood Management Plan |
| CSO | Combined Sewer Overflows |
| DCWW | Dwr Cymru Welsh Water |
| DEFRA | Department for Environment. Food and Rural Affairs |
| EA | Environment Agency |
| EAW | Environment Agency Wales |
| EU | European Union |
| FAS | Flood Alleviation Scheme |
| FAWMA | Flood and Water Management Act 2010 |
| GGAT | Glamorgan Gwent Archaeological Trust |
| HER | Historic Environment Record |
| HRA | Habitats Regulations Assessment |
| IMD | Index of Multiple Deprivation |
| LFRMS | Local Flood Risk Management Strategy |
| LDP | Local Development Plan |
| LLFA | Lead Local Flood Authority |
| LNR | Local Nature Reserve |
| MTAN | Minerals Technical Advice Note |
| NFRMS | National Flood Risk Management Strategy |
| NRW | Natural Resources Wales |
| ODPM | Office of the Deputy Prime Minister |
| ONS | Office for National Statistics |
| PAG | Planning Appraisal Guidance |
| PFRA | Preliminary Flood Risk Assessment |
| RIGS | Regionally Important Geological Site |
| RMA | Risk Management Association |
| SAB | SuDS Approval Body |
| SAC | Special Areas of Conservation |
| SEA | Strategic Environmental Assessment |
| Sewta | South East Wales Transport Alliance |
| SINC | Sites of Importance for Nature Conservation |
| SLAs | Special Landscape Areas |
| SMP | Shoreline Management Plan |
| SPA | Special Protection Area |
| SSSI | Site of Special Scientific Interest |
| SuDS | Sustainable Urban Drainage Systems |
| TAN | Technical Advice Note |
| UDP | Unitary Development Plan |
| VoGC | Vale of Glamorgan Council |
| WCH | Wales Centre for Health |
| WFD | Water Framework Directive |
| WIMD | Welsh Index of Multiple Deprivation |
| WWRBD | Western Wales River Basin District |

# 1. Introduction

## 1.1 Background

The Vale of Glamorgan Council's (VoGC) Group Manager Highways Structures and Engineering commissioned Capita Symonds to undertake a Strategic Environmental Assessment (SEA) of the VoGC Local Flood Risk Management Strategy (LFRMS).

This report forms the SEA Environmental Report, which presents an assessment of the potential environmental effects of the VoGC's Local Flood Risk Management Strategy.

This Final SEA Environmental Report has been produced following the receipt of comments during the consultation process (along with the Draft Scoping Report for the Local Flood Risk Management Strategy), that was undertaken as part of the development of the LFRMS. The overarching aim of the LFRMS is to set out a framework for delivering an effective service to address the increasing risk from flooding, specifically from surface water runoff, groundwater and ordinary watercourses in the Vale of Glamorgan.

The LFRMS will set out:

- The roles and responsibilities of the risk management authorities in the Lead Local Flood Authority (LLFA) area and the risk management functions that may be exercised by those authorities;
- The approaches and objectives for managing local flood risk and the measures by which these objectives will be met;
- Timescales for the implementation of the above measures;
- Costs and benefits of these measures and the mechanisms to fund them;
- An assessment of local flood risk for the purpose of the Strategy;
- The method and timescales for review of the strategy; and
- How the LFRMS contributes to the achievement of wider environmental objectives.

## 1.2 Strategic Environmental Assessment

The aim of the SEA is to identify potentially significant environmental effects created as a result of the implementation of the LFRMS on issues such as:

*biodiversity, population, human health, fauna, flora, soil, water, air, climatic, material assets including architectural and archaeological heritage, landscape and the interrelationship between the above factors.*

(Annex 1[f]). The Directive was transposed into Welsh legislation by the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (the 'SEA Regulation').

## 1.3 Aims and Structure of this Report

This report aims to document the SEA process and:

- provides a description of the SEA process and the decisions taken during this process;
- considers, and takes into consideration other strategies, plans and policies deemed relevant;
- identifies key environmental issues and trends and provides environmental context for the Local Flood Risk Management Strategy;
- assesses the potential effects of the Strategy in addition to appropriate mitigation (if required) and enhancement measures; and
- sets out the proposed monitoring measures which will be used to review the Strategy in the future.

Table 1.1 presents the structure of this report with cross-references to the requirements of the SEA Directives.

| SEA Requirement | Section in this Report |
|---|---|
| An outline of the contents and main objectives of the Strategy, and of its relationship with other relevant plans and programmes. | 4.1 & 6.0 |
| The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the Strategy. | 4.2 |
| The environmental characteristics of areas likely to be significantly affected. | 4.3 |
| Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive. | Ref. LFRMS Habitats Regulation Assessment |

| SEA Requirement | Section in this Report |
|---|---|
| The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation. | 5.1 |
| The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material asserts, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above issues. | 7.1 |
| The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme. | N/A |
| An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information. | 5.2 |
| A description of the measures envisaged concerning monitoring. | 7.4 |

Table 1.1: Requirements of the SEA Environmental Report

An outline structure of the remainder of this report is provided below:

Section 2 Consultation;

Section 3 Strategic Environmental Assessment Processes and Stages;

Section 4 Strategic Environmental Context, Baseline and objectives;

Section 5 SEA Assessment Method;

Section 6 Local Flood Risk Management Strategy Objectives;

Section 7 Assessment of Local Flood Risk Management Strategy Objectives; and

Section 8 Future SEA Activities.

## 1.4 Study Area

The Strategic Environmental Assessment will encompass the administrative boundary of the Vale of Glamorgan as indicated as Figure 1.


Figure 1: Location of the Vale of Glamorgan

# 2. Consultations

This section provides a summary of the statutory consultation already undertaken for the Scoping stage of the SEA process and outlines the specific consultation requirements for this Environmental Report.

## 2.1 Previous Consultation

The initial step in the SEA process was to produce a Draft SEA Scoping Report which outlined the proposed framework for the SEA assessment. This report was submitted by VoGC to the then, three statutory consultation bodies in Wales, which are as follows:

- Environment Agency Wales (EAW);
- Countryside Council for Wales (CCW); and
- Cadw

The Consultation Period commenced on 12 November 2012 and ran for 5 weeks. Representations were received from two of the consultation bodies – Environment Agency Wales and Countryside Council for Wales. To date, no response has been received from CADW. Responses were assessed and incorporated into further iterations of the SEA process as required.

Please note that as from 1st April 2013 the Environment Agency and the Countryside Council for Wales (along with the Forestry Commission) were merged into a single body known as Natural Resources Wales (NRW) and further references throughout this final report are to NRW.

## 2.2 Consultations on the Environmental Report

### *2.2.1 Consultation*

Initial consultations were invited in respect of the Environmental Scoping Report in November 2012. Invitation to comment was made to the Statutory Bodies, which at that time were the Environment Agency, Countryside Council for Wales and CADW. Comments on the Scoping Report were received from the EA and CCW in December 2012 and January 2013 respectively. No comments were received from CADW at that time.

The Environmental Report was subject to public consultation alongside the Draft Local Flood Risk Management Strategy and Habitats Regulation Assessment.

Wider comments on the above reports were welcomed, and an additional series of consultation questions were developed in an attempt to assist members of the public in responding. These were as follows:

1. Are there any other key issues or trends that you think should be considered in the SEA?

2. Are there additional environmental effects (including those on humans) that need to be taken into account when developing the LFRMS?

4. Is there any additional mitigation for adverse effects or enhancement opportunities that should be incorporated into the LFRMS?

5. Are there any key environmental indicators that should be incorporated into annual reporting on the LFRMS?

6. Please tell us if you have any overall views or comments on the SEA or our LFRMS that have not been covered by previous questions.

Comments on the Environmental Report were received from Natural Resources Wales (NRW) in May 2013. No comments were received from CADW. The Environmental Report was amended accordingly and re-submitted in August 2013. No comments were received from the CADW or the public in general.

This final report addresses the comments raised by NRW in August 2013.

### *2.2.2 COMMENTING ON THE REPORT*

Comments relating to this report were addressed to the following:

Group Manager
Highways Structures and Engineering
Vale of Glamorgan Council
Civic Offices
Holton Road
Barry
CF63 4RU

An email address for responses was provided within the consultation documentation as an alternative form of contact.

### *2.2.3 CONSULTATION PERIOD*

The consultation on the Environmental Report was open for 6 weeks and comments were to be received by the closing date shown on the consultation response form (15th May 2013).

# 3. Strategic Environmental Assessment Process and Stages

This section outlines the Strategic Environmental Assessment process, and provides a summary of the stages of the process completed thus far.

## 3.1 Strategic Environmental Assessment Screening

Prior to commencement of the SEA process, a Strategy, Plan or Programme would ordinarily be *screened* to establish whether the plan is subject to the SEA Directive and requires an SEA.

With respect to Local Flood Risk Management Strategies, this question is answered within Article 3 of the SEA Directive where SEA is required for plans and programmes that are likely to have significant environmental effects and which are prepared for water management.

## 3.2 Strategic Environmental Assessment Guidance

This has been developed in accordance with the following guidance:
*A Practical Guide to the Strategic Environmental Assessment Directive (ODPM, August 2006).*

| Criteria (Ref Schedule 1 of the Regulations) | Likely to have significant environmental effects? |
|---|---|
| ***The characteristics of plans and programmes, having regard, in particular, to:*** | |
| 1(a) The degree to which the plan or programme sets a framework for projects and other activities, either with regard to the location, nature, size and operating conditions or by allocating resources; | **Uncertain**. The potential scale of projects/ policies associated with the Strategy is unknown at this stage. However, there may be potential for project/ policies to have a large spatial influence. |
| 1(b) The degree to which the plan or programme influences other plans and programmes including those in a hierarchy; | **No predicted significant effects**. However there are potential linkages with other land use, biodiversity and water based plans and strategies. |
| 1(c) The relevance of the plan or programme for the integration of environmental considerations in particular with a view to promoting sustainable development; | **Potentially significant effects**. It is believed that the Strategy will make a significant positive contribution to sustainability in the VoG. |
| 1(d) Environmental problems relevant to the plan or programme; and | **Potential significant effects**. Potential to have positive effects through for instance, land management polices and water quality enhancement. |
| 1(e) The relevance of the plan or programme for the implementation of Community legislation on the environment. | **No predicted significant effects.** |

| Criteria (Ref Schedule 1 of the Regulations) | Likely to have significant environmental effects? |
|---|---|
| *The characteristics of plans and programmes, having regard, in particular, to:* | |
| 2(a) The probability, duration, frequency and reversibility of the effects; | **Uncertain.** Further assessment required. |
| 2(b) Cumulative nature of the effects; | **Uncertain.** There may be potential for positive cumulative effects. |
| 2(c) Transboundary nature of the effects; | **No predicted significant effects**. No transboundary issues. |
| 2(d) Risks to human health or the environment; | **Potential for significant effects** via the increased provision of accessible open space or the reduction in intangible human health issues. Hence likely to have a positive effect. |
| 2(e) Magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected); | **Uncertain**. Potential for significant effects. The spatial extent of projects/ plans associated with the Strategy is unknown at this time, but could encompass a large area. |
| 2(f) Value and vulnerability of the area likely to be affected due to: special natural characteristics or cultural heritage, exceeded environmental quality standards or limit values, intensive land use; and | **Uncertain.** Potential for significant effects. There is a potential that future plans or policies could increase disturbance to habitats and areas of cultural heritage. |
| 2(g) Effects on areas or landscapes which have a recognised national, community or international protection status. | **Uncertain**. Potential for significant effects. There is potential for increased disturbance of species and habitats (including those that form parts of SSSIs and SACs). |

Table 3.1 Prediction of Significant Environmental Effects

## 3.3 Strategic Environmental Assessment Stages

The main stages and tasks for each stage of the SEA process are presented in Table 3.2.

| SEA Stages | SEA Tasks |
|---|---|
| Stage A:<br>Setting the context and objectives, establishing the baseline and deciding on the scope | A1: Identifying other relevant policies, plans and programmes, and environmental protection objectives |
| | A2: Collecting baseline information |
| | A3: Identifying environmental issues and problems |
| | A4: Developing the SEA objectives and framework |
| | A5: Consulting on the scope of the SEA |

| SEA Stages | SEA Tasks |
|---|---|
| Stage B:<br>Developing and refining options and assessing effects | B1: Testing strategy objectives against the SEA objectives |
| | B2: Developing strategic alternatives |
| | B3: Predicting the effects of the strategy, including alternatives |
| | B4: Evaluating the effects of the strategy, including alternatives |
| | B5: Mitigating adverse effects |
| | B6: Proposing measures to monitor the environmental effects of implementing the strategy |
| Stage C:<br>Preparing the Environmental Report | C1: Preparing the Environmental Report |
| Stage D:<br>Consulting on the LFRMS and the SEA Report | D1: Consulting on the draft LFRMS and Environmental Report with the public and Consultation Bodies |
| | D2: Assessing significant changes |
| | D3: Making decisions and providing information |
| Stage E:<br>Monitoring the significant effects of implementing the LFRMS | E1: Developing aims and methods for monitoring |
| | E2: Responding to adverse effects |

Table 3.2 Stages in the SEA Process

This report presents the culmination and summary of Tasks A1 to C1 of the SEA process and progresses the SEA process to Task D1.

## 3.4 Stage A: Strategic Environmental Assessment Scoping

The initial step in the SEA process was to produce a SEA Scoping Report, which outlined the proposed framework for the SEA assessment. This report was submitted by the VoGC to the then, three statutory consultation bodies in Wales on 12 November 2012:

- Environment Agency Wales (EAW);
- Countryside Council for Wales (CCW); and
- Cadw

The Consultation period ran for 5 weeks. Representations were received from EAW and CCW, but no comments were received from CADW. The comments were assessed and amendments incorporated into the Environmental Report as appropriate.

Further comments on the revised report were received from NRW in August 2013 and this report incorporates those comments as appropriate.

## 3.5 Stage B: Developing and Refining Options and Assessing Effects and Stage C – Preparing the Environmental Report

Assessment of the LFRMS measures against the SEA objectives has been undertaken during their development to determine how wider environmental improvements could be incorporated into and considered in the development of the LFRMS. This process has then been documented in the form of this Environmental Report.

# 4. Strategic Environmental Context, Baseline and Objectives

The following section essentially presents a summary of the work undertaken during the SEA scoping stage, summarising key environmental issues identified from baseline data and a summary of the review of relevant strategies, plans, policies and programmes.

This section also provides details on how the SEA objectives were derived and the proposed assessment framework.

## 4.1 Context - Identifying other Relevant Plans, Programmes and Strategies

The LFRMS must comply with existing higher level policies, plans and programmes at international, national and regional levels and endeavour to strengthen and support plans and strategies at the local level. It has therefore been important to identify and review those policies, plans and programmes which are particularly relevant to both the LFRMS and the SEA during the scoping stage. This has allowed any inconsistencies or constraints within the LFRMS to be addressed and also to help develop the SEA framework. The following table outlines the key identified documents, whilst a comprehensive description of these documents together with their relevance is provided within Appendix A.

| International Plans and Programmes |
|---|
| EU Floods Directive - Directive 2007/60/EC on the assessment and management of flood risks (2007). |
| EU Water Framework Directive - Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (2000). |
| UN Framework Convention on Climate Change. |
| Ramsar convention on Wetlands of International Importance especially as wildfowl habitat (1971) |
| Bonn Convention on the Conservation of Migratory species of Wild Animals (1979) |
| Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979) |
| The Convention on Biological Diversity, Rio de Janeiro (1992) |
| EU Directive on the Conservation of Wild Birds (79/409/EEC) |
| EU Habitats (92/43/EEC) |
| EU Biodiversity Strategy (EU, 1998) |
| European Landscape Convention |
| World Heritage Convention |

Table 4.1 Key International Plans, Programmes & Strategies

| National Plans and Programmes |
|---|
| Flood and Water Management Act (2010) |
| The Flood Risk Regulations (2009) |
| National Strategy for Flood and Coastal Erosion Risk Management in Wales (Nov 2011) |
| Water for People and the Environment - Water Resources Strategy for Wales (June 2009) |
| Welsh Government: Adapting to Climate Change; Guidance for Flood and Coastal Management Authorities in Wales |
| Environment Strategy for Wales, Welsh Government (2006) |
| Welsh Government Strategic Policy Position Statement on Water (2011) |
| The Impact of Flooding on Urban and Rural Communities (DEFRA/Environment Agency, 2005) |
| Revised Draft Water Resource Management Plan (Welsh Water, 2011) |
| Land Drainage Act 1991 (as amended 2004) |
| Water Act 2003 |
| Civil Contingencies Act 2004 |
| People, Places, Future – The Wales Spatial Plan (2004) |
| Wales Spatial Plan: Capital Region (2010) |
| Planning Policy Wales - Edition 5 (November 2012) |
| Welsh Government Technical Advice Note (TAN) 15: Development and Flood Risk (2004) |
| Welsh Government Technical Advice Note (TAN) 5: Nature Conservation and Planning (2009) |
| Welsh Government Technical Advice Note (TAN) 8: Planning for Renewable Energy (2005) |
| Welsh Government Technical Advice Note (TAN) 6: Planning for Sustainable Rural Communities (2010) |
| Welsh Government Technical Advice Note (TAN) 14: Coastal Planning (1998) |
| Welsh Government Technical Advice Note (TAN) 18: Transport (2007) |
| Minerals Planning Policy Wales (2001) |
| Minerals Technical Advice Note (MTAN) Wales 1: Aggregates (2004) |
| Countryside Rights of Way Act (2000) |
| Future Biodiversity Action in Wales, The Wales Biodiversity Group (May 2002) |
| Woodland Trust – Space for Nature (2002) |
| Woodlands for Wales (Forestry Commission, 2009) |
| Register of Landscapes of Historic Interest |
| Climate Change Act 2008 |
| Habitats Regulations 2010 |
| The Wildlife and Countryside Act 1981 (as amended) |
| The Natural Environment and Rural Communities Act (2006) |
| Welsh Government Climate Change Strategy and Associated Action Plan |
| The Welsh Government's emerging 'Living Wales' Programme |
| Climate Change: The UK Programme |
| Environment Act 1995 |

| National Plans and Programmes |
|---|
| Welsh Government Flood Risk Management: Community Engagement Toolkit (October 2011) |
| Welsh Government Guidance for the transfer of Ordinary Watercourse Regulatory Powers for Lead Local Flood Authorities in Wales (including the Appendices), February 2012 |
| Environment Agency's National Coastal Erosion Risk Mapping Project |
| Dwr Cymru/Welsh Water (DCWW) Water Resources Management Plan Oct 2011 |
| Current Planning Appraisal Guidance (PAG) |
| Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations SI 1999. No. 293 |
| Environmental Impact Assessment (Land Drainage Improvement Works) Regulations 1999. No. 1783 |
| Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2000. No. 2190 |
| Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003. No. 164 |
| Marine Works (Environmental Impact Assessment) Regulations. SI 2007 No. 1518 |
| Water Resources Act 1991 as amended by the Water Act 2003 |
| CIRIA C687 Planning for SuDS |
| CIRIA C690 Guidance for Water Cycle Management for New Developments |
| CIRIA C697 The SuDS Manual |
| The Eels (England and Wales) Regulations 2009 (as amended) |
| Climate Change Strategy for Wales (2010) |
| One Wales, One Planet: A New Sustainable Development Scheme for Wales |
| The Water Environment (England and Wales) Regulations 2003 |
| Developing Standards for Accessible Natural Greenspace in Towns and Cities 2002 |

Table 4.2 Key National Plans, Programmes & Strategies

| Sub-National Plans and Programmes |
|---|
| Severn Estuary Shoreline Management Plan Review - SMP2 (2010) |
| Lavernock Point to St. Ann's Head Shoreline Management Plan - SMP2 (January 2012) |
| Taff and Ely Catchment Flood Management Plan - Environment Agency (2010) |
| Ogmore to Tawe (including Thaw and Cadoxton) Catchment Flood Management Plan - Environment Agency (2010) |
| Regional Transport Plan - South East Wales Transport Alliance, Sewta (2010) |
| Cadoxton and Thaw Catchment Abstraction Management Strategy - Environment Agency (2006) |
| Taff and Ely Catchment Abstraction Management Strategy – Environment Agency (2006) |
| Relevant Water Resources Management Plan |

| Sub-National Plans and Programmes |
|---|
| Relevant River Basin Management Plan(s): River Basin Management Plan, West Wales River Basin District – Environment Agency (2009) |
| Preliminary Flood Risk Assessment Report (PFRA): Bridgend County Borough Council (August 2011) |
| Preliminary Flood Risk Assessment: Final Report: Cardiff Council (October 2011) |
| Preliminary Flood Risk Assessment Report: Neath Port Talbot County Borough Council (March 2011) |
| Preliminary Flood Risk Assessment Report: Rhondda Cynon Taf (May 2011) |
| South East Wales Regional Waste Plan (2004) |

Table 4.3 Key Sub-National Plans, Programmes & Strategies

| Key Local Plans and Programmes |
|---|
| Vale of Glamorgan Adopted Unitary Development Plan (UDP) 1996-2011 (2005) |
| The Vale of Glamorgan Deposit Local Development Plan (LDP) 2011-2026 (2012) |
| The Vale of Glamorgan Local Biodiversity Action Plan (BAP) |
| Preliminary Flood Risk Assessment, Vale of Glamorgan (2011) |
| Land to the South of Junction 34, M4, Hensol: Flood Consequence Assessment – Wallingford Hydro Solutions Ltd. (June 2011) |
| Waterfront Barry: Strategic Level Flood Study – Arup (August 2009) |
| Plan Preparation and the Assessment of Flood Risk Background Paper (2011) |
| Defence Technical College and Aerospace Business Park: Flood Consequences Assessment – Entec (May 2009) |
| Vale of Glamorgan Community Strategy |

Table 4.4 Key Local Plans, Programmes & Strategies

## 4.2 BASELINE INFORMATION

### *4.2.1 INTRODUCTION*

The baseline information identifies current environmental issues and problems in the area that should be addressed within the LFRMS. This information provides a basis for predicting and monitoring the effects of implementing the Strategy. It is possible that the baseline information will need to be updated during the SEA process as either new information becomes known or issues not already identified become apparent.

For clarity, the baseline information has been grouped under the 8 topics referred to in Annex 1(f) of the SEA Directive.

### 4.2.2 *Water Resources*

Natural Resources Wales (NRW) is responsible for managing water resources in Wales. One of the ways that this is done is through licensing water abstraction within catchment areas. NRW developed Catchment Abstraction Management Strategies (CAMS) to:

- inform the public on water resources and licensing practice;
- provide a consistent approach to local water resources management; and
- help to balance the needs of water-users and the environment.

Two river catchment areas include the Vale of Glamorgan with the majority of the Local Authority area lying within the Cadoxton & Thaw CAMS area. A smaller area to the east lies within the Taff & Ely CAMS areas (both produced in 2006).

The largest potable water supply abstraction within the Cadoxton & Thaw CAMS area authorises a water company to abstract from Biglis Wells on the Cadoxton Moors. At low flow the River Cadoxton is currently identified as over-abstracted.

Carboniferous Limestone is the main aquifer in the area and significant quantities of water can be abstracted from it. However, the limestone provides poor long-term storage and therefore provides little baseflow to the rivers. As a result both river systems can experience naturally occurring low river flows during prolonged dry periods. In very dry summers, some of the smaller tributaries can dry up completely.

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.

In terms of water quality, the Cadoxton & Thaw CAMS biological reports are either good or very good whilst the biological quality of the upper and lower stretches of the River Ely is good.

The Vale of Glamorgan lies within the Western Wales River Basin Management Plan (RBMP), with a small portion at the north of the county being included within the Severn RBMP. The NRW's Local Authority Evidence Package for the Vale shows 8 out of 14 surface water bodies shown to have Good Ecological Status (GES), 5 of Moderate Ecological Status and 1 at Poor Ecological Status.

Influence of LFRMS on Water Resources

The LFRMS options have the potential to affect water resources in terms of flow, quantity and quality, dependent upon items such as culverting policy; maintenance schedules and potential

works for publicly and privately owned assets; the implementation of property level flood protection.

The LFRMS must comply with the requirements of the Water Frameowrk Directive and provides opportunities to provide solutions that provide wider benefits to water quality, biodiversity and other parameters.

An assessment of the LFRMS in relation to the Water Framework Directive is attached as Appendix B and is also available as a Stand-alone Document.

### *4.2.3 FLOODING*

Flood Risk

Flooding is an important consideration when planning development as it can place lives at risk and cause extensive damage and disruption to people and the economy. The Vale of Glamorgan is located within two catchment flood management areas. These are the Taff and Ely area and the Ogmore to Tawe area.

The Ogmore to Tawe (including Thaw and Cadoxton) Catchment Flood Management Plan (CFMP, January 2010) identifies the main sources of flooding to vary from failure/overtopping of defences within the Cowbridge area, to lowland river flooding combined with surface water, sewer flooding and culvert blockages in the Barry and Penarth area. Moorland run-off represents the main source of flooding in rural areas.

The main areas of flood risk are located in Dinas Powys and Barry. In the future there is a significant increase in risk to the Dow Corning chemical complex and around Barry Dock commercial areas.
The Taff and Ely Catchment Flood Management Plan (CFMP, January 2010) identifies that the large floodplain in Peterston Super Ely moors provides natural flood water storage and slows down the run-off from the steeper upstream reaches, north of the M4 motorway. This results in a natural reduction of flows and a reduction in flood risk downstream in Cardiff.

Two significant flood events of significant harmful consequences have occurred within the Vale of Glamorgan. In October 1998 16 properties and local roads were closed in Llanmaes whilst in July 2007 Barry, together with a number of other locations in the Vale of Glamorgan, was subjected to intense rainfall. Significant flooding of properties and roads was reported as watercourses and land drainage systems were unable to cope with the intensity of the event resulting in 100 residential properties, 4 schools and local roads being flooded. One of the most significant areas of flooding was along the route of the Coldbrook watercourse which runs from the Colcot area through the town's districts of Gibbonsdown, Cadoxton and Palmerston to the open stream adjacent to the A4231 Barry Docks Link Road.

The Preliminary Flood Risk Assessment (2011) has identified over 650 residential properties, 189 commercial properties, 5 schools, 1 emergency service and 4 electricity substations at future risk of flooding from surface water.

Flood and Coastal Defence Infrastructure

A Flood Alleviation Scheme (FAS) has reduced the level of flood risk within the main urban settlements of Cowbridge and Llanblethian. Elsewhere, informal defences provide protection where individual properties are at risk.

Influence of LFRMS on Flooding

Options likely to identify local measures to minimise the risk of, or reduce the consequences of flooding, should ensure a closer relationship between national and local flood risk management.

### 4.2.4 *Population and Human Health*

The draft Local Development Plan states that the 2010 midyear estimates indicate that the population of the Vale of Glamorgan is now 124,976, approximately 50,000 of which live in Barry. 46,000 are scattered amongst the larger towns of Penarth, Llantwit Major, Dinas Powys and Cowbridge. The remaining population is accommodated throughout the Vale of Glamorgan's smaller rural villages and hamlets. Population Projections (2008) indicate that the population of the Vale of Glamorgan is set to rise from 126,654 in 2011 to 139,729 by 2026. The age of the population shows a projected increase of 8% in children under 18 and 37% increase in people of retirement age. Conversely, many of the other towns and villages in the Vale of Glamorgan are prosperous. The Index of Multiple Deprivation (IMD, 2010) shows that 71 of the LSOAs (Lower Level Super Output Areas) in the Vale of Glamorgan are the least deprived areas in Wales.

The Vale of Glamorgan experiences a wide socio-economic range with some of the most affluent and the most deprived communities in Wales. The Index of Multiple Deprivation (2008) shows that of the 78 LSOAs in the Vale of Glamorgan, 5 in Barry fall within the top 20% of most deprived areas in Wales. Particular areas of concern relate to high indices of deprivation in respect of employment, income, education, health and community safety. As a result of these socio economic factors, the Welsh Government designated the town as a Strategic Regeneration Area in 2011.

The Vale of Glamorgan Community Strategy (2011-2021) finds that whilst the Vale of Glamorgan compares well against the national average for a variety of health outcomes, the figures from the Health Needs Assessment show that there are problems in some areas and these are of concern. For example, parts of Barry have some of the highest levels of deprivation in Wales and people living in the county's rural areas can have difficulty accessing services.

Health inequalities are the result of a complex and wide ranging network of factors. People who experience material disadvantage, poor housing, lower educational attainment, insecure employment or homelessness are the most likely to suffer poorer health outcomes and earlier death compared with the rest of the population. Children living in income deprived communities also suffer from a multitude of other forms of deprivation and poor educational attainment they become trapped in an intergenerational cycle of low achievement, and poor life outcomes, including poorer health and wellbeing.

Data shows that those living in deprived areas eat a less healthy diet, are more likely to have inactive lifestyles, have higher rates of smoking related illnesses and death from key diseases where smoking is a factor. The Health Needs Assessment shows that people living in the most deprived communities in the Vale of Glamorgan have a reduced life expectancy, higher rates of infant mortality and higher levels of Limiting Long Term Illness.

Influence of LFRMS on Population and Human Health

The LFRMS options will seek to manage flood risk better within the Vale of Glamorgan and this will be a beneficial outcome for the residents of the area. Conversely, the LFRMS will raise awareness of flood issues and this may heighten the perceived risk of flood and affect stress levels and quality of life.

The LFRMS policies and measures will seek to improve the situation for access to services

### 4.2.5 *Biodiversity, Flora, Fauna and landscape*

Special Areas of Conservation (SAC) are identified on the basis of scientific criteria as set out in the European Commission Birds and Habitats Directives and the subsequent Conservation (Natural Habitats) Regulations 1994. They may be designated on any area of land of special interest for its flora, fauna, geological, or physiographic features and are notified by Natural Resources Wales (NRW) as part of a European series of important sites.

Within the Vale of Glamorgan there are 2 SACs. In the south, the Severn Estuary SAC is also a Ramsar wetland site of international importance, an important area for wintering wildfowl and waders, and a Special Protection Area (SPA). The estuary also supports internationally important populations of migratory fish. Dunraven Bay SAC is part of Southerndown Site of Special Scientific Interest (SSSI) and is designated due to the presence of the rare shore dock, one of the rarest plants in Europe. The Kenfig SAC is located within Bridgend County Borough and lies adjacent to the Vale of Glamorgan. It is a largely intact dune system with extensive areas of fixed dune vegetation.

Sites of Special Scientific Interest are identified on the basis of scientific criteria as set out in Section 28 of the Wildlife and Countryside Act 1981 and may be designated on any area of land of special interest for its flora, fauna, geological or physiographic features. SSSIs are notified by the NRW as part of a British set of important sites. The Vale of Glamorgan

supports 26 SSSIs with some notified for their geological interest rather than for nature conservation. Limited information is available on their condition.

Numerous species of biodiversity importance occur within the Vale of Glamorgan. The otter population and distribution has increased dramatically over the last 30 years from the 1960's and 1970's levels. It is a major conservation success story. The main reason for this increase has been the reduction in levels of toxic pesticides that were harmful to otters in the 1960s and 1970s, but the general improvements in water quality and consequent increase in fish stocks have probably played a significant part. The European otter (*Lutra lutra*) is an important biological indicator of the health of rivers and wetlands. As a top predator monitoring the status of the otter gives a valuable measure of the state of our water and wetland ecosystems. Otters are present throughout the river systems of the Vale of Glamorgan, with particularly high levels of activity along the River Thaw and its tributaries.

The bullhead (Cottus gobio) occurs in the Vale of Glamorgan and is a small bottom-living fish that inhabits a variety of rivers, streams and stony lakes. It appears to favour fast-flowing, clear shallow water with a hard substrate (gravel/cobble/pebble) and is frequently found in the headwaters of upland streams. However, it also occurs in lowland situations on softer substrates so long as the water is well-oxygenated and there is sufficient cover. It is not found in badly polluted rivers.

There are 12 Regionally Important Geological sites (RIGS) including Sully Island and Wenvoe Quarry.

Sites of Importance for Nature Conservation (SINC) are a local authority planning designation relating to Policy MG33 of the VoG Local Development Plan (LDP) 2011-2026. There are 358 SINCs scattered across the County.

In addition to all the above, there are 7 Wildlife Trust Managed sites that cover approximately 93 hectares of land, 2 Woodland Trust Reserves in the Dinas Powys area, 2 Country Parks at Comeston Lakes and Porthkerry, and over 500 hectares of common land.

Local Nature Reserves (LNR) are owned or managed by the VoG Council and there are currently 3 within its boundary, at Birchgrove Wood (Barry), Cliff Wood (Porthkerry), and Cwm Talwg (also Barry).

Despite its relatively small area, the geology, coastal location, and land management of the Vale of Glamorgan results in a great variety of habitats. 19 of the key Biodiversity Action Plan (BAP) habitats for which costed habitat plans have been prepared can be found in the Vale. Amongst these are habitats, which are relatively rare in Wales, such as mesotrophic lakes (as at Pysgodlyn Mawr) and saline lagoons (such as at Aberthaw).

Whilst the extent of most of the key habitats (such as lowland heath, reedbeds, wet woodland) in the Vale of Glamorgan is small, relative to other authorities, it is likely that ancient and species-rich hedgerows in the area make up a significant percentage of the all-Wales total. Similarly, as one of the main arable areas in Wales, the extent of cereal field margins is potentially significant.

Other locally important habitats in the Vale of Glamorgan contributing to the characteristic local biodiversity, or supporting key biodiversity species include the following: former quarries (providing habitats for birds of prey, butterflies, plants and lichens), road verges (relict grassland species and which, like disused railway lines, can act as wildlife corridors), waste ground (such as former dockland, which is attractive to some bird species for nesting, and may include rare plants, and parks and gardens.

There are also a number of Highway Verge Conservation Zones within the County. These include a range of species-rich grassland types with associated ditches and hedgerows.

The LBAP also considers European Protected Species such as Otter and Great Crested Newt.

Invasive species non-native species such as Japanese Knotweed and Himalayan Balsam are an environmental factor which impacts upon biodiversity, landscape and water quality (through diffuse pollution, erosion). The Vale of Glamorgan Council LFRMS objectives and measures should ensure the proper and safe management of invasive non-native species to safeguard the physical landscape and the receiving water environment.

There are large numbers of identified ancient semi-natural woodland and ancient replanted woodland with the Vale of Glamorgan. However, there is no data on their quality or overall area.

The Vale is predominantly rural, with a generally open rolling landscape and large plateaux. The landscape is dissected by rivers including the Thaw, Ewenny and Waycock. In contrast the rocky coastline is dramatic and the section from Aberthaw to Ogmore by Sea is designated as Heritage Coast.

Seven Special Landscape Areas (SLA) were designated within the UDP including: Ely Valley and Ridge Slopes in the north-east of the County; Lower Thaw Valley, Upper Thaw Valley; Nant Llancarfan to the north of Cardiff International Airport; Duffryn Basin and Ridge Slopes to the west of Wenvoe and Culverhouse Cross; Cwrt-yr_Ala Basin at Leckwith and; Castle upon Alun near the coast at Ogmore by Sea.

Influence of the LFRMS on Biodiversity, Flora,Fauna and Landscape

The LFRMS has included a number of measures in order to manage flood risk. These range from the development of local planning control policies (including culverting/non-culverting,

consideration of any proposals within floodplain in accordance with TAN 15) through to the adoption of SuDS.

Whilst developing LFRMS options, due regard has been given to the likely sensitivity of biodiversity and landscape character to the potential changes being proposed. All will have the potential to cause changes of land use, alterations to flood patterns and drainage characteristics that could impact upon biodiversity and landscape in both positive and detrimental ways. The LFRMS should look to adopt solutions that provide wider benefits to biodiversity, landscape character and water quality, including conserving and enhancing important features such as wetland areas, floodplains, river corridors and open spaces.

### *4.2.6 CLIMATIC FACTORS*

It is generally accepted that major causes of climate change are the burning of fossil fuels, deforestation and land use change. Extrapolating that greenhouse gas emissions will continue to increase, Wales is likely to experience temperature increases of between 2.0 and 2.5ºC by 2050. Annual average rainfall in Wales is predicted to remain roughly the same as at present, but there is likely to be a large difference in the patterns of summer and winter rainfall in the future. Increased winter rainfall is expected as a result of increased storminess, leading to intense, but short-lived, rainfall events. The projected increases in winter average rainfalls in Wales are 7% by the 2020s, 11% by the 2040s, and 19% by the 2080s.

Key projections for Western Wales River Basin District (WWRBD) by the 2050s predict that winter precipitation increases of around 15% (likely to be between 3% and 33%); precipitation on the wettest day in winter up by around 12% (unlikely to be more than 27%); relative sea level at Swansea very likely to be up between 10 and 40cm from 1990 levels (not including extra potential rises from polar ice sheet loss); and, peak river flows in a typical catchment likely to increase between 12% and 20%. Increases in rain are projected to be greater near the coast than inland.

Ecological footprints measure how much nature we have, how much we use, and who uses what. The Vale of Glamorgan's Ecological Footprint represents the amount of biologically productive land and water used by its residents.

The Welsh Government StatsWales website identifies that the ecological footprint for the Vale of Glamorgan to be 4.6gha (Global Hectares) and 4.4gha per capita in Wales in 2006. The United Kingdom as a whole compares at 4.6gha per capita.

StatsWales identifies that in 2010 the main source of greenhouse gas emissions in Wales was the energy sector, followed by manufacturing and construction. Transport was estimated to be the third largest producer of greenhouse gas emissions in 2010 although public and residential sources also produced only a slightly lower amount. According to the Office for National Statistics (ONS), August 2012 Wales reduced its total greenhouse gas emissions by 15% between 1990 and 2010.

Influence of the LFRMS on Climatic Factors

There will be potential increases in greenhouse gas emissions due to development or maintenance although options could result in more sustainable flood management practices.

Soils providing important carbon stores such as those with high organic content or soils supporting plantation and woodlands need to be identified and conserved. In addition soils with a high degree of permeability should also be conserved and protected as part of the strategy.

### *4.2.7 MATERIAL ASSETS INCLUDING INFRASTRUCTURE AND ENERGY GENERATION/TRANSMISSION*

Housing

The 2011 census identified 53,500 households within the Vale of Glamorgan.

The Preliminary Flood Risk Assessment (2011) has identified over 650 residential properties at future risk of flooding from surface water.

Local Planning Authorities have a duty to ensure that sufficient land is genuinely available or will become available to provide a 5-year supply of land for housing.In order to meet the housing land requirements for the period 2011-2026 provision for 10,945 new dwellings is made within the emerging Draft LDP.

Economy

The economic profile of the Vale of Glamorgan is diverse. The Employment Land Study (2007) indicates the range of the employment sectors currently operating in the Vale. The employment sector is dominated by public administration, education and health, which accounts for nearly 36% of all employment distribution. Hotels and restaurants provide nearly 16% of the employment base, whilst banking, finance and insurance account for 14%. Agriculture and fishing, although once dominant in the Vale of Glamorgan now accounts for only 1% of the employment market.

The Office of National Statistics Unemployment Briefing (2010) indicates that unemployment in the Vale of Glamorgan is 6.8%, significantly below the Welsh average of 9.2%. The Office of National Statistics Survey of Hours and Earnings indicates that the average salary in the area is £30,676, significantly above the Welsh average of £26,838.

Agriculture

There are estimated to be more than 400 farms in the Vale of Glamorgan. Agriculture is a major land-use in the Vale of Glamorgan.

There are approximately 28,000 hectares of agricultural land within the Vale of Glamorgan, accounting for 85% of the land within the Local Authority area. The majority of agricultural land within the Vale of Glamorgan is classified as Grade 2 or Grade 3.

Mineral Resources

The Vale of Glamorgan is an important regional supplier of Carboniferous limestone for general aggregates use and Carboniferous and Liassic limestone for cement manufacture.

There are operational Limestone Quarries located at Pantyffynnon Quarry, Lithalun Quarry, Wenvoe Quarry, Forest Wood Quarry, Pant Quarry, Ewenny, Longlands, Aberthaw, Ruthin, and Garwa Farm.

Land to the south of Pantyffynnon Quarry, to the north west of Pant Quarry and land to the south of Ruthin Quarry is safeguarded from permanent built development. Although there is no history of sand and gravel extraction in the Vale of Glamorgan, several areas have been identified as containing resources that may be of value as aggregates in future and these are also safeguarded from permanent built development.

Waste Management

Every home, business and industry produces waste. There are two civic amenity/recycling centres in the Vale of Glamorgan located at Barry and Llandow with over 40 local recycling points.

At national level the SEA for the Flood and Coastal Erosion Risk Management: Development of a National Strategy for Wales (Welsh Government, May 2011) scoped out waste management stating that it was unlikely that the strategy would have significant impacts upon this environmental discipline.

Reviewing the options and measures of the LFRMS it has also been concluded that significant effects on waste management as a result of the local strategy would be unlikely and this environmental topic has been scoped out.

Infrastructure

The M4 runs along part of the northern boundary of the Vale of Glamorgan whilst various A roads cross the county including the A48 (running east to west), A4222, A4050, A4231, A4226 and A4055.

The main railway line crossing South Wales runs through a northern portion of the Vale between Cardiff and Bridgend whilst the Vale of Glamorgan railway line serves passengers for Llantwit Major, Rhoose, Barry, Dinas Powys, Eastbrook, Cogan and Penarth.

Cardiff Airport welcomes over a million passengers a year, serving scheduled airlines and charter tour operators. The airport has over 50 direct destinations and more than 800 one-stop destinations around the world.

The Port of Barry is a key facility for the region's chemical industry, handling liquid bulks for major companies including Dow Corning. The Port handled 281,000 tonnes in 2010.

Infrastructure associated with energy generation and transmission and telecommunications (such as the Wenvoe transmitting station) etc. are also considered as critical infrastructure.

Influence of the LFRMS on Material Assets

The LFRMS will seek to manage flood risk to essential/critical infrastructure and assets within the Vale of Glamorgan and so provide a benefit.

The establishment of maintenance schedules for assets, both publicly and privately owned and the implementation of such measures is likely to have a beneficial effect on the asset in the vast majority of cases. There could be negative effects on assets of cultural heritage interest dependent upon the actual measures chosen.

The adoption of SuDS has the potential to affect land use such as agriculture as does the provision of guidance on local flood risk management requirements for developers.

### *4.2.8 CULTURAL HERITAGE*

There is a large resource of buildings, architecture and structures of cultural and historic importance within the Vale of Glamorgan and these can be susceptible to disturbance, from land management and drainage.

39 Conservation Areas are located across the Vale with 740 listed buildings, including one in Penarth which is specially protected under Article 4 of the Town and Country Planning Act 1990 (as Amended).

Over 100 Scheduled Ancient Monuments are present within the Vale and 18 Historic Parks & Gardens.

The Vale of Glamorgan also recognises locally important cultural and historic assets as County Treasures. These are non-statutory designations but they recognise architecture and buildings that have an important local history.

The Vale of Glamorgan also has a rich and diverse archaeological landscape. The regional Historic Environment Records (HER) for the area is compiled and maintained by the Glamorgan Gwent Archaeological Trust (GGAT).

Influence of the LFRMS on Cultural Heritage

Cultural heritage features have the potential to be impacted by measures such as: the designation of significant structures and features which could influence local flood risk; the implementation of scheduled maintenance works or; the adoption of local property flood resilience measures.

The influence of climate change may exacerbate problems and risks to heritage assets and features.

### 4.2.9 *Air Quality*

At national level the SEA for the Flood and Coastal Erosion Risk Management: Development of a National Strategy for Wales (Welsh Government, May 2011) scoped out air quality stating that it was unlikely that the strategy would have significant impacts upon air quality.

Reviewing the options and measures of the LFRMS it has also been concluded that significant effects on air quality as a result of the local strategy would be unlikely and the environmental discipline has been scoped out.

## 4.3 Strategic Environmental Objectives

Key environmental issues have been identified and used correspondingly with the review of other relevant plans, policies and programmes to develop a set of SEA objectives. Tables 4.5 through to 4.11 summarises how the assessment of key plans, programmes and policies together with baseline information has been used to develop the SEA objectives.

### 4.3.1 *SEA Objective 1*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| There are over 650 residential properties at risk from surface water flooding in the VoG. | To minimise the risk and manage the consequences of flooding |
| The main areas of flood risk in the VoG are in Dinas Powys and Barry. In the future there is a significant increase in risk to the Dow Corning complex and around Barry Dock commercial areas. | |
| There have been 2 significant flood events of significant harmful consequences in the VoG. In 1998, 16 properties were flooded in Llanmaes and in 2007 significant flooding occurred in Barry and in other locations. 100 properties and 4 schools were flooded. | |
| Over 650 residential properties, 189 commercial properties, 5 schools, 1 emergency service and 4 electricity sub-stations are at future risk from surface water flooding. | |

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| A flood alleviation scheme has reduced the level of flood risk within the main urban settlements of Cowbridge and Llanblethian. In other locations, informal defences provide protection. | To minimise the risk and manage the consequences of flooding |

Table 4.5 Defining SEA Objectives – Flooding

### 4.3.2 *SEA Objective 2*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| There are two river catchment areas in the VoG: Cadoxton & Thaw, and Taff & Ely. | To maintain and enhance water resources and quality |
| The largest potable water supply extraction within the Cadoxton & Thaw area authorises a water company to abstract from Biglis Wells on the Cadoxton Moors. At low flow, the River Cadoxton is currently identified as over-extracted. | |
| Carboniferous Limestone is the main aquifer in the area and significant quantities of water can be abstracted from it. It provides poor long-term storage and therefore provides little baseflow to the rivers. Both river systems can experience naturally occurring low river flows during prolonged dry periods with some of the smaller tributaries drying up completely. | |
| 5 Ground Water Source Protection Zones have been designated in the VoG: Ogmore, Dinas Powys, Llansannor, Llangan and Treoes. | |
| The water quality of the Cadoxton & Thaw river catchments areas is either good or very good. The quality of the upper and lower stretches of the River Ely is good. | |

Table 4.6 Defining SEA Objectives - Water Resources

### 4.3.3 *SEA Objective 3*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| As of 2010, the population of the VoG was 125,000 of which 50,000 live in Barry and14,000 within the larger towns. The remaining population is scattered through the smaller rural villages and hamlets. | To protect and enhance human health and wellbeing |
| The VoG population is set to rise to almost 140,000 by 2026. | |
| The VoG experiences a wide socio-economic range with some of the most affluent and deprived communities in Wales within its boundaries. Areas of concern related to deprivation include employment, income, education, health, community safety and access to services. | |

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| The VoG compares well against the national average for a variety of health outcomes. There are concerns in parts of Barry. People living in deprived areas often eat a less healthy diet, are more likely to lead an inactive lifestyle and have smoking related illnesses. This can lead to a reduced life expectancy. | To protect and enhance human health and wellbeing |

Table 4.7 Defining SEA Objectives – Human Health and Wellbeing

### 4.3.4 *SEA Objective 4*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| There are approximately 53,500 households with the VoG. | To ensure the impact of flood on existing and future critical infrastructure is minimised |
| The VoG has a diverse economic profile with public administration, education and health the dominant employment sectors. Agriculture and fishing, which were once dominant now account for 15 of the employment market. Unemployment in the VoG was 6.8% in 2010 and well below the Welsh average of 9.2%. Average salaries are significantly above the Welsh average. | |
| There are more than 400 farms in the VoG. Farming is a major land-use with approximately 28,000 hectares of agricultural land. Most is Grade 2 or 3. | |
| The VoG is an important regional supplier of Carboniferous limestone for aggregate use and Carboniferous and Liassic limestone for cement manufacture. There are 10 operational quarries extracting limestone. | |

Table 4.8 Defining SEA Objectives – Material Assets

### 4.3.5 *SEA Objective 5*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| There is sufficient land available within the VoG to provide for approximately 11,000 more homes up to 2026. | To ensure that new development is located with respect to the Sequential Test |

Table 4.9 Defining SEA Objectives – New Development

### 4.3.6 *SEA Objective 6*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| Detailed Action Plans for each of the 19 habitats and 53 species of conservation concern in the VoG have been drawn up. | To protect and enhance biodiversity and geodiversity across the Vale of Glamorgan |
| Within the VoG there are 2 SACs with a third lying adjacent to it. The SACs are the Severn Estuary and Dunraven Bay. Kenfig SAC lies within Bridgend County Borough. | |
| There are 26 SSSIs within the VoG. | |
| There are 3 LNPs within the VoG: Birchgrove and Cwm Talwg (both in Barry), and Cliff Wood (Porthkerry) | |
| There are 7 Wildlife Trust for South Wales and West Wales Nature Reserve sites within the VoG. | |
| **Key Environmental /Sustainability Issue/Baseline Data** | **SEA Objective** |
| There are 12 RIGS within the VoG. | To protect and enhance biodiversity and geodiversity across the Vale of Glamorgan |
| 358 SINCs have been designated within the VoG Local Development Plan | |
| Presence and control of invasive species such as Japanese Knotweed and Signal Crayfish | |
| Good Ecological Status of water bodies in LFRMS area | |
| Sustained, protected or improved ecological connectivity | |
| The VoG contains some important transport infrastructure. The M4 runs east/west along part of the northern boundary and various A roads cross it including the A48. The main south Wales railway passes through the VoG and in addition, the Vale of Glamorgan line serves passengers living in the main towns. Cardiff airport is regionally important and the Port of Barry is important for the chemical industry. | To ensure the impact of flood on existing and future critical infrastructure is minimised |

Table 4.10 Defining SEA Objectives – Biodiversity and Geodiversity

### 4.3.7 *SEA Objective 7*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| Over 100 Scheduled Ancient Monuments are present in the VoG together with 18 Historic Parks and Gardens, and 39 Conservation Areas. In addition, there are 740 Listed Buildings. | To maintain and/or enhance the character of the townscape and cultural heritage features and assets throughout the Vale of Glamorgan |
| The VoG also recognises locally important cultural and historic assets as County Treasures. These are non-statutory designations. | |
| The VoG has a rich and diverse archaeological landscape. | |
| The cultural heritage of the VoG can be susceptible to disturbance from land management and drainage. | |

Table 4.11 Defining SEA Objectives – Cultural Heritage

### 4.3.8 *SEA Objective 8*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| Most of the land in the VoG is agricultural with farming the major land-use with approximately 28,000 hectares of agricultural land. Most is Grade 2 or 3. Many soils provide eco-services such as those with a high permeability and those providing an important carbon storage function. | To protect best quality agricultural soil, soils of high permeability, soils providing important carbon storage function and preserve and/or enhance the landscape character of the Vale of Glamorgan |
| The VoG is an important regional supplier of Carboniferous limestone for aggregate use and Carboniferous and Liassic limestone for cement manufacture. There are 10 operational quarries extracting limestone. | |
| The Kenfig SAC is a largely intact dune system with extensive areas of fixed dune vegetation. | |
| The VoG has 2 Country Parks at Cosmeston Lakes and Porthkerry and over 500 hectares of common land. | |
| Reduce flood risk on sites classed as contaminated and increase the number of remediation schemes implemented | |

Table 4.12 Defining SEA Objectives – Soil and Landscape

### 4.3.9 *SEA Objective 9*

| Key Environmental /Sustainability Issue/Baseline Data | SEA Objective |
|---|---|
| By 2050, Wales is likely to experience temperature increases of between 2.0 and 2.5°C. | To adapt development to the impacts of climate change |
| Annual average rainfall is predicted to remain roughly the same as at present but there is likely to be a large difference in the patterns of summer and winter rainfall in the future. | |
| Projections show that by the 2050s, winter rainfall will increase by around 15% with the wettest day seeing an increase of around 12%. | |
| Also by the 2050s, relative sea levels at Swansea will increase by between 10 and 40cm from 1990 levels (not including that resulting from the loss of the polar ice sheet). Typical peak river flows are likely to increase between 12% and 20%. | |
| The ecological footprint per capita for the VoG is slightly higher than for the whole of Wales (in 2006). It is, at 4.6gha, the same as the UK as a whole. | |
| The main sources of greenhouse gas emissions in Wales was the energy sector, followed by manufacturing/construction, with transport third. Wales reduced its total greenhouse gas emissions by 15% between 1990 and 2010. | |
| Potential increases in greenhouse gas emissions due to future development could result in more sustainable flood management practices. | |

Table 4.13 Defining SEA Objectives – Climatic Change

## 4.4 Strategic Environmental Assessment Framework

The SEA framework presented in Table 4.14 has been developed based on the information gathered thus far, and shows the relationship between the following:

- Each of the identified SEA objectives;
- The source of each of the SEA objectives;
- The key questions that have to be asked of each LFRMS policy to assess its relationship with the SEA objectives; and
- The indicators to be used to monitor the success of the LFRMS.

| SEA Objective 1 | Relevant Plans, Strategies and Programmes | Key Sustainability Issues / Questions | Potential Indicators |
|---|---|---|---|
| To minimise the risk and manage the consequences of flooding | *The Ogmore to Tawe (including Cadoxton and Thaw) Catchment Flood Management Plan* – Environment Agency<br><br>*The Taff and Ely Catchment Flood Management Plan* – Environment Agency<br><br>*The Severn Estuary Shoreline Management Plan Review (SMP2) 2010*<br><br>*Lavernock Point to St Ann's Head Shoreline Management Plan (SMP2) 2012*<br><br>*Preliminary Flood Risk Assessment*<br><br>*Land to the South of Junction 34, M4, Hensol – Flood Consequences Assessment*<br><br>*Waterfront Barry – Strategic Level Flood Study*<br><br>*Defence Technical College & Aerospace Business Park – Flood Consequence Assessment* | Will the LFRMS reduce the risk of flooding?<br><br>Will the LFRMS have a reducing effect on the impact of flooding?<br><br>Does the LFRMS encourage the implementation of sustainable drainage systems? | Number of properties/ businesses at risk<br><br>Number of flood defences developed<br><br>Number of sustainable drainage systems implemented since the publication of the LFRMS |

Table 4.14 Strategic Environmental Assessment Framework and Potential Indicators

| SEA Objective 2 | Relevant Plans, Strategies and Programmes | Key Questions | Potential Indicators |
|---|---|---|---|
| To maintain and enhance water resources and quality | *The Cadoxton and Thaw Catchment Abstraction Management Strategy- Environment Agency*<br><br>*The Taff and Ely Catchment Abstraction Management Strategy – Environment Agency* | Will the LFRMS have an adverse impact on water resources/availability?<br><br>Will the LFRMS enhance water resources/availability?<br><br>Will the LFRMS have an adverse impact on water quality?<br><br>Will the LFRMS improve the status of water bodies as required by the Water Framework Directive | Ecological status of rivers<br><br>Chemical status of rivers<br><br>Resource availability status for surface water and groundwater in Catchment Abstraction Management Strategy Areas<br><br>Maintenance or enhancement of existing surface water and groundwater regimes<br><br>Resource availability status at low flows for units of surface water combined with groundwater in Catchment Abstraction Management Strategy Areas<br><br>Condition of water bodies (Water Framework Directive) |

Table 4.14 Strategic Environmental Assessment Framework and Potential Indicators Continued

| SEA Objective 3 | Relevant Plans, Strategies and Programmes | Key Questions | Potential Indicators |
|---|---|---|---|
| To protect and enhance human health and wellbeing | *The Vale of Glamorgan Community Strategy (2011-2021)* – The Vale of Glamorgan Council | Will the LFRMS have an adverse impact on human health?<br><br>Will the LFRMS seek to preserve areas of multi-function green space ? | Number of properties/ businesses at risk of flooding<br><br>Number of developments permitted contrary to EA advice<br><br>Area/number of recreational and amenity facilities affected by flooding incidents<br><br>Number of developments within the County incorporating ecological enhancement/green infra-structure as part of SuDS measures<br><br>Change in area/number/quality of public open areas, recreational and multi-functional green spaces<br><br>Number of flood related injuries |

Table 4.14 Strategic Environmental Assessment Framework and Potential Indicators Continued

| SEA Objective 4 | Relevant Plans, Strategies and Programmes | Key Questions | Potential Indicators |
|---|---|---|---|
| To ensure the impact of flood on existing and future critical infrastructure is minimised | *The Vale of Glamorgan Adopted Unitary Development Plan 1996-2011*- Vale of Glamorgan Council<br><br>*The Vale of Glamorgan Deposit Local Development Plan 2011-2026* – Vale of Glamorgan Council<br><br>*Regional Transport Plan (Sewta)*<br><br>*The Vale of Glamorgan Council Local Housing Strategy 2007-2012* – Vale of Glamorgan Council | Will the LFRMS ensure the protection of important transport infrastructure?<br><br>Will the LFRMS ensure the protection of services including water, power and telecommunications?<br><br>Does the LFRMS ensure the adequate drainage of surface waters?<br><br>Does the LFRMS encourage the implementation of sustainable drainage systems? | Number and severity of incidents leading to disruption or damage to transport infrastructure<br><br>Number and severity of incidents leading to disruption or damage to service provision<br><br>Number of days lost by industry due to access problems |
| **SEA Objective 5** | **Relevant Plans, Strategies and Programmes** | **Key Questions** | **Potential Indicators** |
| To ensure that new development is located with respect to the Sequential Test | *Planning Policy Statement 25: Development and Flood Risk* – Department for Communities and Local Government | Will the LFRMS result in new developments undergoing Sequential Tests in respect of have an adverse impact on human health? | Number of new developments undergoing Sequential Testing<br>Number of developments permitted contrary to the results of Sequential Testing |

Table 4.14 Strategic Environmental Assessment Framework and Potential Indicators Continued

| SEA Objective 6 | Relevant Plans, Strategies and Programmes | Key Questions | Potential Indicators |
|---|---|---|---|
| To protect and enhance biodiversity and geodiversity across the Vale of Glamorgan | *The Vale of Glamorgan Biodiversity Action Plan* – The Vale of Glamorgan Council | Will the LFRMS protect and/or enhance biodiversity, maintaining continuing ecological functionality across the Vale of Glamorgan?<br><br>Does the LFRMS seek to protect and/or enhance national/international designated sites?<br><br>Does the LFRMS seek to conserve and/or enhance natural/semi-natural habitats and their connectivity, particularly along river corridors?<br><br>Does the LFRMS conserve and/or enhance species diversity, and in particular avoid harm to mobile and protected species? | Changes in condition to designated sites<br><br>Achievement of Biodiversity Action Plan targets<br><br>Ecological potential assessments<br><br>Chemical, ecological and morphological condition of rivers<br><br>Requirements for habitat enhancement and/or compensation arising out of the LFRMS |

Table 4.14 Strategic Environmental Assessment Framework and Potential Indicators Continued

| SEA Objective 7 | Relevant Plans, Strategies and Programmes | Key Questions | Potential Indicators |
|---|---|---|---|
| To maintain and/or enhance the character of the townscape and cultural heritage features and assets throughout the Vale of Glamorgan | *The Vale of Glamorgan Adopted Unitary Development Plan 1996-2011- Vale of Glamorgan Council*<br><br>*The Vale of Glamorgan Deposit Local Development Plan 2011-2026 – Vale of Glamorgan Council*<br><br>*Planning (Listed Buildings and Conservation Areas) Act 1980*<br><br>*Ancient Monuments and Archaeological Areas Act 1979* | Will the LFRMS have an adverse impact upon historic, including archaeological, assets? | Number of Scheduled Ancient Monuments and Listed Buildings at risk of flooding events<br><br>Number of flood defences/ strategies implemented to protect Schedules Ancient Monuments and Listed Buildings since the LFRMS was published<br><br>Number and condition of Historic Parks and Gardens, and Conversation Areas. |
| **SEA Objective 8** | **Relevant Plans, Strategies and Programmes** | **Key Questions** | **Potential Indicators** |
| To protect best quality agricultural soil, soils of high permeability, soils providing important carbon storage function and preserve and/or enhance the landscape character of the Vale of Glamorgan | *The Vale of Glamorgan Adopted Unitary Development Plan 1996-2011- Vale of Glamorgan Council*<br><br>*The Vale of Glamorgan Deposit Local Development Plan 2011-2026 – Vale of Glamorgan Council*<br><br>*Vale of Glamorgan County Borough Council Designation of Special Landscape Areas – Vale of Glamorgan Council*<br><br>*Soil, a Precious Resource: Our Strategy for Protecting, Managing and Restoring Soil – Environment Agency* | Will the LFRMS have an adverse impact upon the best and most versatile agricultural land or soils providing natural drainage characteristics or high level of carbon storage? | Area/number of incidences where Grade 2 or 3 soil is lost due to the need for flood defences<br><br>Perceived changes to landscape quality through landscape character assessment |

Table 4.14 Strategic Environmental Assessment Framework and Potential Indicators Continued

| SEA Objective 9 | Relevant Plans, Strategies and Programmes | Key Questions | Potential Indicators |
|---|---|---|---|
| To adapt development to the impacts of climate change | *Climate Change Strategy for Wales – Welsh Government*<br><br>*The Severn Estuary Shoreline Management Plan Review (SMP2) 2010*<br><br>*Lavernock Point to St Ann's Head Shoreline Management Plan (SMP2) 2012* | What impact will the LFRMS have upon the VoG's vulnerability to the impacts of climate change? | Indicative floodplains under current conditions and under climate change scenarios and the developments occurring within. |

Table 4.14 Strategic Environmental Assessment Framework and Potential Indicators Continued

# 5. SEA Assessment Method

The Strategic Environmental Assessment Directive requires "the likely significant effects on the environment of implementing the strategy and reasonable alternatives taking into account the objectives and the geographical scope of the strategy" (Article 5.1). This section aims to outline how the SEA Assessment was undertaken in parallel with the development of the LFRMS and presents the methodology used to undertake the SEA Assessment.

## 5.1 LFRMS/SEA STAGES

The development of the draft LFRMS was undertaken in parallel with the SEA process. Table 5.1 presents the various stages undertaken in the LFRMS and how the SEA has inputted into this development process.

| LFRMS Stage | Description | Strategic Environmental Assessment (SEA) Activities |
|---|---|---|
| Characterisation of flooding and wider environmental issues within the VoG and at a wider catchment scale. | Developing an understanding of the local flood risk within the VoG. | The Scoping work for the SEA process was undertaken alongside the data gathering phase of the LFRMS. |
| Objective setting for managing flood risk. | Developing a set of objectives to manage flood risk and achieve, where possible, improvements to the wider environment. | Main stage (this report) of the SEA process was undertaken alongside the objective setting for the Draft LFRMS. |

Table 5.1 Principal stages in the LFRMS development process and SEA activities

## 5.2 SCENARIOS

Given the high-level nature of the LFRMS, which sets out measures undefined in terms of their spatial and geographical extent, it is difficult at this point in time to develop a set of *"reasonable alternatives"* or scenarios to the measure presented in the LFRMS.

Rather than undertake an SEA assessment which incorporates an alternative scenario, the Vale of Glamorgan Council propose to undertake the SEA assessment by comparing the preferred approach against the **do nothing** scenario. The **do nothing** scenario essentially represents the future state of the environment without implementation of the LFRMS. Given that the LFRMS is likely to generate further, more detailed plans and projects, it would be anticipated that assessment of alternative scenarios would be undertaken during any SEA process carried out at the appropriate point in the future.

## 5.3 Assessment Methodology

The SEA will assess the likely environmental effects of LFRMS measures against the SEA objectives selected in the SEA Framework. An additional assessment of the likely state of the environment under the **do nothing** scenario will be undertaken.

It is proposed that each assessment will be presented in a tabular format as per Table 5.3 Impacts will be colour coded as indicated below:

| Colour | Impact |
|---|---|
| ++ | Major Positive |
| + | Positive |
| 0 | No Impact |
| / | Uncertain |
| - | Negative |
| -- | Major Negative |

Table 5.2 Colour Code Key

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Medium | - | 0 | - | - | - | 0 | 0 | - | 0 |
| | Long | - | -- | - | - | - | -- | - | - | -- |
| Implement LFRMS Strategy | Short | 0 | + | 0 | + | 0 | + | 0 | 0 | 0 |
| | Medium | + | ++ | + | + | + | + | + | + | + |
| | Long | + | ++ | + | + | + | + | + | + | + |
| Summary:<br>*A brief summary of the primary positive and negative effects of each objective will be provided here.* | | | | | | | | | | |

Table 5.3: Examples of SEA Assessment Matrix

The SEA will reflect the timescale over which the policies, measures and strategies of the LFRMS will be implemented. It is intended that three time periods (short, medium and long) will be used to reflect this in the assessment of the LFRMS. Thxese time periods represent:

- S Short term present to 2018
- M Medium term 2018 to 2033
- L Long term 2033 and beyond

# 6. Local Flood Risk Management Strategy Measures

This section presents the detailed Local Flood Risk Management Strategy Measures and gives an insight as to how they were developed, with particular regard to other, overarching strategies and policies.

## 6.1 Detailed LFRMS Strategic Measures

The Vale of Glamorgan Local Flood Risk Management Strategy presents 13 local measures which outline how the Authority intends to manage flood risk within this LFRMS cycle. These measures adhere to the high level measures set out in the Welsh Government's National Strategy for Flood and Coastal Erosion Risk Management and the ambitions of the VoG's Community Strategy. Table 6.1 presents these 13 local measures.

| The Vale of Glamorgan Detailed LFRMS Measures | |
|---|---|
| **Reducing the consequences** | |
| 1 | Provide leadership and direction at a local level |
| 2 | Develop local planning control policies to ensure sustainable flood and coastal erosion risk management measures are delivered by development |
| 3 | Establish and maintain an Asset Register as defined by the FWMA |
| 4 | Seek to reduce flood risks and consequences to identified high risk areas |
| **Raising awareness** | |
| 5 | Identify communities and businesses that are at risk from flooding and coastal erosion |
| 6 | Work with at-risk communities and businesses to collectively understand local flood risks and how they can be managed |
| 7 | Promote property and community level flood resilience |
| **Providing an effective and sustained response** | |
| 8 | Ensure the preparation and testing of Emergency Plans |
| 9 | Respond to flood events in a timely and appropriate manner |
| 10 | Facilitate recovery from flooding within the shortest possible timescales |
| **Prioritising investment** | |
| 11 | Utilise a risk based approach to managing flood risk to ensure structural and non-structural measures are considered to arrive at cost effective solutions that are proportional to local flood risk |
| 12 | Identify and prioritise local risk mitigation works for feeding into the National Investment Programme |
| 13 | Promote the use of alternative funding sources through delivery of multi-benefit risk mitigation projects which are sustainable and protect biodiversity interests using multiple funding sources |

Table 6.1 LFRMS Detailed Measures

# 7. Assessment of Local Flood Risk Management Strategy Measures

This section presents the assessment of LFRMS measures against SEA objectives for both **do nothing** and **implement strategy** scenarios. An assessment of secondary and synergistic effects is additionally presented.

## 7.1 Assessment of Measures

There are 13 detailed measures contained within the Vale of Glamorgan's Local Flood Risk Management Strategy. The ensuing sections assess the likely impact of each of the LFRMS measures (Table 6.1) against each of the SEA objectives (Table 4.14, and reproduced below) in accordance with the framework outline in 4.4.

SEA Objectives

1. To minimise and manage the consequences of flooding
2. To maintain and enhance water resources and quality
3. To protect and enhance human health and wellbeing
4. To ensure the impact of flood on existing and future critical infrastructure is minimised
5. To ensure that new development is located with respect to the Sequential Test
6. To protect and enhance biodiversity and geodiversity across the Vale of Glamorgan
7. To maintain and/or enhance the character of the townscape and cultural heritage features and assets throughout the Vale of Glamorgan
8. To protect best quality soil and preserve and/or enhance the landscape character of the Vale of Glamorgan
9. To adapt development to the impacts of climate change

### 7.1.1 *LFRMS Measure 1 Provide Leadership and Direction at a Local Level*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Medium | - | - | - | - | - | - | - | - | - |
| | Long | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Implement LFRMS Strategy | Short | + | / | 0 | / | + | / | / | / | / |
| | Medium | + | + | + | + | + | + | + | + | + |
| | Long | ++ | + | ++ | + | ++ | + | + | + | ++ |

Summary of Significant Environmental Effects:

- The provision of leadership will maintain a strategic approach ensuring partnerships are developed and consistent advice provided.
- The majority of benefit will be seen in the medium to long term particularly in respect of SEA objectives 1 (minimise risk of flooding), 3 (protect and enhance human health and wellbeing) and 9 (adapt development to climate change).
- A *Local Partnership for Flood Risk Management* will be maintained to discuss local flood risk issues and share information.
- Collaborative working relationships will be established with neighbouring LLFA officers to manage cross-boundary flood risks.
- The creation a *Local Flood Risk Management Strategy* ensures clear guidance will be provided on responsibility of management of all sources of flood risk and support stakeholders to carry out their responsibilities.
- A lack of leadership and direction will impact on the ability to develop and implement the necessary procedures to manage flood risk and address flood consequences.

### 7.1.2 *LFRMS Measure 2 Develop Local Planning Control Policies to Ensure Sustainable flood and Coastal Erosion Risk Management Measures are Delivered by Development*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Medium | - | - | - | - | - | - | - | - | - |
| | Long | -- | - | - | -- | -- | -- | - | - | -- |
| Implement LFRMS Strategy | Short | + | / | / | 0 | + | 0 | 0 | 0 | / |
| | Medium | ++ | + | + | + | + | + | + | + | ++ |
| | Long | ++ | + | + | ++ | ++ | + | + | + | ++ |

Summary of Significant Environmental Effects:

- The impact of LDP policies will be monitored through Annual Monitoring Reports (AMRs).
- Clear guidance will be provided on local flood risk management requirements for developers.
- Establishment of a SuDS Approval Body (SAB) will ensure sustainable flood management practices.
- Local floods risk will be influenced by the development of a planning process for identifying and designating significant structures.
- Improving the understanding links between local flood risk and significant environmental sites.
- A clear policy on culverting will promote positive environmental impacts.
- Local flood risk management policy to be consistent with other existing Council policies with no conflict.
- The above will provide beneficial impacts particularly for SEA objectives 5 (to ensure new development is located with respect to the Sequential Test) and 9 (to adapt developments to the impacts of climate change) as well as positively impact the other SEA objectives.
- Not developing local planning control policies will inevitably impact upon the managing of flood risk, especially SEA objectives 2 (maintain and enhance water resources and quality), 9 (adapt to climate change) and 5 (development with respect to the Sequential Test).

### 7.1.3 *LFRMS Measure 3 Establish and Maintain and Asset Register as Defined by the FWMA*

| | SEA Objective | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | / | 0 | 0 | / | 0 | 0 | 0 |
| | Medium | - | - | / | - | - | / | - | - | 0 |
| | Long | - | - | - | - | -- | - | - | - | -- |
| Implement LFRMS Strategy | Short | 0 | / | 0 | 0 | + | / | / | / | / |
| | Medium | + | + | + | + | + | + | + | + | + |
| | Long | + | + | + | ++ | + | + | + | + | + |

Summary of Significant Environmental Effects:

- Establishing and maintaining an asset register will define responsibilities for inspecting and maintaining particular assets, identifying those likely to have a significant effect on flood risk. Environmental information for each asset will also be recorded.
- This register will therefore provide benefits for SEA objectives 1 (minimising flood risk), 6 (protect and enhance biodiversity and geodiversity) and 4 (protect existing and future critical infrastructure).
- Provide a local definition of *significant influence on local flood risk*.
- The establishment of maintenance schedules for assets will safeguard nature conservation.
- Encourage maintenance of third party assets to safeguard important sites from inappropriate development.
- Encourage maintenance of privately owned assets and minimise unnecessary constrictions in watercourses.
- By not producing an asset register will mean that no records will exist and therefore it will not be known how flooding will be affected.

### 7.1.4 *LFRMS Measure 4 Seek to Reduce Flood Risks and Consequences to Identified High Risk Areas*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | - | - | - | - | 0 | / | / | / | - |
| | Medium | - | - | - | - | - | - | - | - | - |
| | Long | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Implement LFRMS Strategy | Short | / | / | / | / | / | / | / | / | / |
| | Medium | + | + | + | + | + | + | + | + | + |
| | Long | ++ | ++ | + | ++ | ++ | + | + | + | ++ |

Summary of Significant Environmental Effects:

- The understanding of the causes and consequences of flooding through detailed studies.
- Reducing flood risk through the undertaking of feasibility studies.
- The above studies will provide positive impacts for SEA objectives 1 (minimise risk of flooding), 2 (maintain and enhance water resources and quality)
- Biodiversity interests will be protected through the promotion of deculverting (SEA Objective 6).
- By not seeking to reduce flood risk and its consequences, there is likely to be a worsening of flood situations in the future.
- By not seeking to reduce flood risk and its consequences, there is likely to be a worsening of flood situations in the future.

### 7.1.5 *LFRMS Measure 5 Identify Communities and Businesses that are at Risk from Flooding and Coastal Erosion*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Do Nothing | Short | - | 0 | / | / | 0 | 0 | 0 | 0 | 0 |
| | Medium | - | - | - | - | / | 0 | - | 0 | / |
| | Long | -- | - | -- | -- | / | 0 | - | 0 | / |
| Implement LFRMS Strategy | Short | + | 0 | / | + | / | 0 | / | 0 | / |
| | Medium | + | + | + | + | + | 0 | + | 0 | + |
| | Long | ++ | + | ++ | ++ | + | 0 | ++ | 0 | + |

Summary of Significant Environmental Effects:

- The identification of high risk flood areas through the use of national flood maps will provide particular benefits for SEA objectives 1 (minimise flood risk), 3 (protect and enhance human health and wellbeing), 4 (minimise impact to critical infrastructure) and 7 (maintain and enhance townscape character and cultural heritage features).
- Detailed studies will confirm the level of flood risk in uncertain areas.
- With the increasing likelihood of flooding, the lack of information about at-risk communities and businesses will result in an overall worsening of the future situation especially for SEA objectives 1, 3 and 4.

### 7.1.6 *LFRMS Measure 6 Work with At Risk Communities and Businesses to Collectively Understand Local Flood Risks and how they can be Managed*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | / |
| | Medium | - | - | - | - | - | 0 | - | 0 | - |
| | Long | -- | -- | - | -- | - | 0 | - | 0 | - |
| Implement LFRMS Strategy | Short | + | + | ++ | + | + | 0 | + | 0 | + |
| | Medium | ++ | + | ++ | + | + | 0 | + | 0 | ++ |
| | Long | ++ | + | ++ | ++ | + | 0 | + | 0 | ++ |

Summary of Significant Environmental Effects:

- Communicating and sharing flood risk information with at-risk communities.
- Community liaison in identified risk areas.
- Working with at-risk businesses to develop risk management and business continuity plans that protect and safeguard the natural environment.
- Work with other RMAs to establish areas that may see increased risk. Implement CFMP and SMP policies.
- The above will have a major beneficial impact on SEA objective 3 (to protect and enhance human health and wellbeing). In addition it will have positive impacts on SEA objectives 1 (minimise flood risk), 9 (adapt development to the impacts of climate change) and 4 (minimise impacts on critical infrastructure).
- By not working with those at risk will only result in a worsening of flood situations in the future.

### 7.1.7 *LFRMS Measure 7 Promote Property and Community Level Flood Resilience*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Medium | - | - | - | - | - | 0 | - | 0 | 0 |
| | Long | -- | -- | - | - | - | 0 | - | 0 | 0 |
| Implement LFRMS Strategy | Short | 0 | / | / | 0 | + | 0 | + | 0 | 0 |
| | Medium | + | + | + | + | + | 0 | + | 0 | 0 |
| | Long | ++ | + | ++ | + | + | 0 | + | 0 | 0 |

Summary of Significant Environmental Effects:

- National funding will support local community and property level resilience measures.
- The building of a robust knowledge base within the Council to assist communities in the implementation of flood resilience measures.
- Providing advice to communities and business on how to manage flood risk and consequences of flooding along with guidance on maintenance and practical advice on flood protection/mitigation measures and the location and availability of funding to undertake such measures, will have a positive impact on SEA objectives 1 (minimise flood risk) and 3 (protect and enhance human health and wellbeing) in particular.
- The do nothing scenario will reduce the Council's ability to assist communities over flood issues.

### 7.1.8 *LFRMS Measure 8 Ensure the Preparation and Testing of Emergency Plans*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | - | - | 0 | 0 | 0 | / | 0 |
| | Medium | - | - | - | - | 0 | - | - | / | - |
| | Long | - | - | -- | - | 0 | - | - | / | - |
| Implement LFRMS Strategy | Short | 0 | + | + | + | 0 | 0 | + | / | 0 |
| | Medium | + | + | + | + | 0 | + | + | / | + |
| | Long | + | + | ++ | + | 0 | + | + | / | + |

Summary of Significant Environmental Effects:

- With Emergency Plans likely to take on greater importance in the future, their need is essential.
- The preparation of community specific emergency plans in relation to local flood risk.
- Review and update emergency plans using best available information.
- Organise and participate in community level emergency exercises in high risk flooding areas.
- Contribution to national or regional emergency exercise programmes related to flood risk.
- This will have a major positive impact on SEA objective 3 (protect and enhance human health and wellbeing)

### 7.1.9 *LFRMS Measure 9 Respond to Flood Events in a Timely and Appropriate Manner*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Do Nothing | Short | -- | 0 | -- | - | 0 | 0 | 0 | 0 | 0 |
| | Medium | -- | - | -- | - | 0 | 0 | 0 | 0 | 0 |
| | Long | -- | - | -- | - | 0 | 0 | 0 | 0 | 0 |
| Implement LFRMS Strategy | Short | ++ | + | ++ | + | 0 | / | 0 | + | 0 |
| | Medium | ++ | + | ++ | + | 0 | / | + | + | 0 |
| | Long | ++ | + | ++ | + | 0 | / | + | + | 0 |

Summary of Significant Environmental Effects:

- Timing can be critical in any emergency event and anything less than a prompt response could result in life-threatening situations. This measure will result in a major positive impact on SEA objectives 1 (minimise the risk and manage the consequences of flood risk) and 3 (to protect and enhance human health and wellbeing). This measure will also directly benefit SEA objectives 6 (protect and enhance biodiversity and geodiversity) and 4 (minimise impacts on critical infrastructure).
- The resources of the Council will support the Emergency Services.
- The co-ordination of Voluntary Agencies to mitigate the effects of incidents.
- The investigation and reporting on significant flood incidents within two months.

### 7.1.10 *LFRMS Measure 10 Facilitate Recovery from Flooding within the Shortest Possible Timescales*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | - | 0 | - | - | 0 | - | 0 | 0 | 0 |
| | Medium | - | 0 | - | - | 0 | - | - | - | - |
| | Long | -- | 0 | -- | - | 0 | - | - | - | - |
| Implement LFRMS Strategy | Short | + | 0 | + | + | 0 | 0 | + | 0 | 0 |
| | Medium | + | + | + | + | 0 | + | + | + | 0 |
| | Long | ++ | + | ++ | + | 0 | + | + | + | 0 |

Summary of Significant Environmental Effects:

- Taking a lead role in facilitating and rehabilitation of the community/restoration of the environment following flooding incidents will benefit SEA objectives 1 (reduce risk and manage consequences of flooding) and 3 in particular (protect and enhance human health and wellbeing) as it will greatly reduce stress levels of individuals and communities affected.
- Support to local businesses through continuity planning.
- Local flood risk knowledge will identify vulnerable individuals and communities and although the assessment of potential levels of flood impact.
- If recovery is not prompt there will inevitably be a higher price to pay for the results of flooding – this will lead to larger impacts upon biodiversity, critical infrastructure, water quality and resources, soils, landscape and cultural heritage features.

### 7.1.11 *LFRMS Measure 11 Utilise a Risk Based Approach to Managing Flood Risk to Ensure Structural and Non-Structural Measures are Considered to Arrive at Cost Effective Solutions that are Proportionate to Local Flood Risk*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| | Medium | - | - | 0 | -- | 0 | 0 | - | 0 | - |
| | Long | -- | -- | 0 | -- | 0 | 0 | -- | 0 | -- |
| Implement LFRMS Strategy | Short | / | 0 | + | / | + | / | / | / | / |
| | Medium | + | + | + | + | + | + | + | + | + |
| | Long | ++ | + | + | ++ | + | + | + | + | + |

Summary of Significant Environmental Effects:

- The above will have beneficial impacts for SEA objectives 1 (minimise flood risk), 3 (protect and enhance human health and wellbeing), 6 (protect and enhance biodiversity and geodiversity) and 4 (minimise impact on critical infrastructure). It is anticipated that all SEA objectives would see positive impact in the long term.
- The development a comprehensive understanding of local flood risk management tools that can be used in the VoG.
- The establishment of a clear and transparent risk based hierarchy for decision making of flood risk mitigation prioritising/investment.
- An up to date knowledge on significant environmental sites and their interaction with flood risk areas to ensure that multi-benefit solutions are identified.
- By not utilising a risk-based approach to flood risk will result in greater expenditure in the long term.

### 7.1.12 *LFRMS Measure 12 Identify and Prioritise Local Risk Mitigation Works for Feeding Into the National Investment Programme*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | 0 | - | - | 0 | 0 | 0 | - |
| | Medium | -- | - | - | -- | - | - | - | - | - |
| | Long | -- | - | - | -- | -- | - | - | - | -- |
| Implement LFRMS Strategy | Short | ++ | + | ++ | + | + | / | / | / | / |
| | Medium | ++ | + | ++ | + | + | + | + | + | + |
| | Long | ++ | + | ++ | ++ | + | + | + | + | ++ |

Summary of Significant Environmental Effects:

- This measure will have a major positive effect on SEA Objectives 1 (minimise risk and manage consequences of flooding) and 3 (protect and enhance human health and wellbeing) as even in the short term (prior to the mitigation measures being in place) the areas at highest risk requiring mitigation works will be identified and in the longer term, mitigation measures will have been installed.
- Major positive benefits will also be realised (on installation of appropriate mitigation measures) for SEA Objectives 9 (adapting to the impacts of climate change) and 4 (minimise impacts on critical infrastructure).
- If risk mitigation works are not identified and prioritised by the Council, there will a reduced likelihood of them being implemented.

### 7.1.13 *LFRMS Measure 13 Promote the Use of Alternative Funding Sources Through Delivery of Multi-Benefit Risk Mitigation Projects which are Sustainable and Protect Biodiversity Interests Using Multiple Funding Sources*

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Do Nothing | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Short | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Medium | - | - | - | - | 0 | - | - | - | - |
| | Long | - | - | - | - | 0 | -- | - | -- | - |
| Implement LFRMS Strategy | Short | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + |
| | Medium | + | + | + | + | 0 | ++ | + | ++ | + |
| | Long | ++ | ++ | ++ | + | 0 | ++ | + | ++ | ++ |

Summary:

- The delivery of multi-benefit risk mitigation projects will benefit all of the SEA objectives but particularly SEA Objectives 1 (minimise risk and manage consequences of flood), 2 (maintain and enhance water quality), 3 (protect and enhance human wellbeing), 6 (protect and enhance biodiversity and geodiversity), 9 (adapt to climate change) and 8 (to protect soils and landscape).
- The funding of mitigation measures is critical and if this measure is not implemented it is likely that there will be a reduction in works carried out.
- Maintain a high level understanding of available funding sources and how they can be accessed.
- Maintain a high level of flood risk resource and skills within the Council.

## 7.2 Summary Assessment of LFRMS

An attempt has been made to summarise the likely environmental effects of implementing the LFRMS as a whole and is presented below.

| | | SEA Objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Timeframe | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Do Nothing | Short | -- | - | - | - | - | - | - | - | - |
| | Medium | -- | -- | -- | -- | - | - | - | - | -- |
| | Long | -- | -- | -- | -- | - | - | - | - | -- |
| Implement LFRMS Strategy | Short | ++ | ++ | ++ | ++ | + | + | | + | + |
| | Medium | ++ | ++ | ++ | ++ | + | + | | + | ++ |
| | Long | ++ | ++ | ++ | ++ | + | + | | + | ++ |

As is to be expected, the LFRMS has particularly strong, positive environmental effects of SEA objectives concerning:

- Minimising of the risk of flooding – implementing the range of measures proposed by the LFRMS should result in a minimised risk of flooding;
- Maintenance and enhancing of water resources and quality will be achieved through a number of measures to schedule watercourse and structures maintenance and investigation of such elements, through the implementation of flood risk management plans;
- The measures outlined within the LFRMS will protect and enhance human health and wellbeing through reducing the risks and impacts of flooding and also reducing stress and anxiety by timely responses to flood incidents.
- Implementation of the LFRMS will ensure risks to critical infrastructure are addressed and that development is mitigated or adapted to the potential impacts of climate change.

The implementation of the LFRMS and its measures will benefit all SEA Objectives in the long term.

## 7.3 Significant Secondary and Synergistic Effects

The Strategic Environmental Assessment Directive requires the assessment of synergistic and cumulative effects of a strategy – effects which interact in such a way to form significant positive/negative environmental effects. A summary of the additional cumulative/synergistic significant environmental effects likely to arise from implementation of the LFRMS is summarised in Table 7.1 according to SEA theme.

| SEA Theme | Significant Synergistic/Secondary Environmental Effects |
|---|---|
| Flooding | There are obvious synergies with environmental and Water Framework Directive objectives contained within overarching strategies, most notably the Ogmore to Tawe (including Cadoxton and Thaw) and the Taff and Ely Catchment Flood Management Plans. |
| Water Resources | |
| Human Health and Wellbeing | The LFRMS shows a degree of synergy with the Vale of Glamorgan's Community Strategy. The LFRMS will also contribute to ensuring that residents of the VoG are prepared for how climate change is likely to affect local communities. |
| Material Assets | Apart from the adoption of SuDS, the SEA did not identify any significant environmental effects for this theme. |
| New Development | The need to apply Sequential Testing to proposed new developments is particularly important given the likely future incidences of flooding. |
| Biodiversity and Geodiversity | Where potential exists, the LFRMS will compliment the Vale of Glamorgan's Local Biodiversity Action Plan. For instance opportunities to incorporate habitat enhancements into flood risk management measures will be sought where possible. |
| Cultural Heritage | The SEA did not identify any significant environmental effects for this theme. |
| Soil and Landscapes | By implementing SuDS and innovative land management techniques there is likely to be a beneficial impact on soil quality and sustainable use of soil resources. Thus there is likely to be a certain degree of synergy with the Environment Agency Strategy for Soil. With respect to landscape, there is also a strong link to the Vale of Glamorgan Local Development Plan and Designation of Special Landscape Areas |
| Climatic Change | Climatic change has the potential to increase the incidences of flooding and therefore there are obvious synergies with the LFRMS. |

Table 7.1 Secondary/Significant Environmental Effects

## 7.4 Proposed Monitoring

Upon finalisation and adoption of the draft Local Flood Risk Management Strategy, Article 10 (1) of the Strategic Environmental Assessment requires monitoring of significant environmental effects.

The Vale of Glamorgan will attempt to utilise existing monitoring protocols to meet the monitoring requirements of the Strategic Environmental Assessment process. Table 7.2 presents the proposed monitoring measures. Whilst using existing monitoring measures will give an indication of wider environmental trends, it is unlikely that these measures will directly pick up the effects of LFRMS policies due to the impact of other influences. It should be noted that some SEA themes have suggested monitoring that is equally applicable to others.

| SEA Theme | Proposed Monitoring |
|---|---|
| Flooding | The number of properties/ businesses at risk. |
| | The number of flood defences developed. |
| | The number of sustainable drainage systems implemented since the publication of the LFRMS. |
| Water Resources | The ecological status of rivers. |
| | The chemical status of rivers. |
| | The resource availability status for surface water and groundwater in Catchment Abstraction Management Strategy Areas. |
| | The resource availability status at low flows for units of surface water combined with groundwater in Catchment Abstraction Management Strategy Areas. |
| | The condition of water bodies (Water Framework Directive). |
| | The number of properties/ businesses at risk. |
| Human Health and Wellbeing | The number of developments permitted contrary to EA advice. |
| | The area/number of recreational and amenity facilities affected by flooding incidents. |
| | The change in area/number/quality of public open spaces, recreational and amenity facilities. |
| | The number of flood related injuries. |
| | The ecological and biological status of rivers. |
| Material Assets | The number and severity of incidents leading to disruption or damage to transport infrastructure. |
| | The number and severity of incidents leading to disruption or damage to service provision. |
| | The number of days lost by industry due to access problems. |
| New Development | The number of new developments undergoing Sequential Testing |
| | The number of developments permitted contrary to the results of Sequential Testing |
| Biodiversity and Geodiversity | The changes in condition to designated sites. |
| | Ecological potential assessments. |
| | Achieving Biodiversity Action Plan targets. |
| | The requirements for habitat enhancement and/or compensation arising out of the LFRMS. |
| Cultural Heritage | The number of Scheduled Ancient Monuments and Listed Buildings at risk of flooding events. |
| | The number of flood defences/ strategies implemented to protect Schedules Ancient Monuments and Listed Buildings since the LFRMS was published. |
| | The number and condition of Historic Parks and Gardens, and Conversation Areas. |

| SEA Theme | Proposed Monitoring |
|---|---|
| Soil and Landscapes | The area/number of incidences where Grade 2 or 3 soil is lost due to the need for flood defences. |
| Climatic Change | Monitoring of indicative floodplains under current conditions and under climate change scenarios and the developments occurring within. |

Table 7.2 Proposed Monitoring

# 8. Future SEA Activities

This SEA Environmental Report concludes the principal stage of the Vale of Glamorgan Council's Local Flood Risk Management Strategy. Additional assessment may be required if changes to the draft Strategy significantly alter the significant environmental effects described in this report.

An additional statement will be published upon adoption of the final Local Flood Risk Management Strategy highlighting how consultation responses have influenced the Final Strategy in addition to finalising the monitoring requirements.

# Appendix A Review of Key Plans, Programmes and Strategies

## A.1 International Plans, Programmes and Strategies

The following tables present a more detailed appraisal of the international levels plans, programmes and strategies deemed most applicable to VoGCs Local Flood Risk Management Strategy.

| EC Birds and Habitats Directives (79/409/EEC and 92/43/EEC respectively) | |
|---|---|
| **Description** | The principal aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring Member States to maintain or restore natural habitats and species at an appropriate conservation status as well as introducing habitat and species protection. The objectives of the Birds Directive include providing a framework for the conservation, protection, control and management of wild birds. |
| **Link to LFRMS** | The LFRMS should avoid having a detrimental impact on sites indicated within the Directives |
| **Reference** | http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:HTML |

| EU Water Framework Directive, 2000 (2000/60/EC) | |
|---|---|
| **Description** | This Directive sets out a timetable for improvement of aquatic ecosystems and wetlands to achieve good ecological status (or potential, where dealing with heavily modified watercourses) by 2027. |
| **Link to LFRMS** | The LFRMS should avoid compromising the objectives of the WFD, and where possible, explore options that complement the Directive. |
| **Reference** | http://ec.europa.eu/environment/water/water-framework/index_en.html |

| EU Floods Directive (2007/60/EC) | |
|---|---|
| **Description** | The Directive aims to reduce the consequences of flooding to human health, the wider environment, the economy and cultural heritage. |
| **Link to LFRMS** | By definition, the LFRMS will complement the Directive. |
| **Reference** | http://floods.jrc.ec.europa.eu/eu-floods-directive |

| EU Groundwater Directive (80/68/EEC) | |
|---|---|
| **Description** | Aims to protect groundwater bodies from harm from particular dangerous substances. |
| **Link to LFRMS** | The LFRMS should avoid compromising the objectives of the Groundwater Directive, and where possible, explore options that complement the Directive. |
| **Reference** | http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=Directive&an_doc=1980&nu_doc=68 |

| Our Life Insurance, our Natural Capital: The EU Biodiversity Strategy to2020 (2011) | |
|---|---|
| Description | This strategy is aimed at reversing biodiversity loss and speeding up the EUs transition towards a resource efficient and green economy. Primary objectives of the strategy include:<br>• conserving and restoring nature;<br>• maintaining and enhancing ecosystems and their services;<br>• ensuring the sustainability of agriculture, forestry and fisheries;<br>• combating invasive alien species; and<br>• addressing the global biodiversity crisis. |
| Link to LFRMS | The LFRMS will need to consider the objectives and targets of this strategy. |
| Reference | http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/1_EN_ACT_part1_v7[1].pdf |

| The Convention on Biological Diversity - Rio de Janeiro (1992) | |
|---|---|
| Description | The Convention called for the development and enforcement of national strategies and associated action plans to identify, conserve and protect existing biological diversity, and to enhance it wherever possible. |
| Link to LFRMS | The LFRMS will need to recognise the statutory designations of biodiversity interests and complement the provisions of any action plans. |
| Reference | http://www.cbd.int/doc/legal/cbd-en.pdf |

| Ramsar Convention on Wetlands of International Importance especially as wildfowl habitat | |
|---|---|
| Description | The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. |
| Link to LFRMS | The LFRMS must avoid having detrimental impacts upon designated sites |
| Reference | http://www.ramsar.org/cda/en/ramsar-home/main/ramsar/1_4000_0__ |

| Bonn Convention on Conservation of Migratory Species of wild animals | |
|---|---|
| Description | The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention) aims to conserve terrestrial, aquatic and avian migratory species throughout their range. |
| Link to LFRMS | The LFRMS should avoid detrimental effects upon species listed in the Convention |
| Reference | http://www.cms.int/about/intro.htm |

| Bern Convention on the Conservation of European Wildlife and Natural Habitats 1979 | |
|---|---|
| **Description** | The Convention is intended to promote cooperation between the signatory States in order to conserve wild flora and fauna and their natural habitats and to protect endangered migratory species. |
| **Link to LFRMS** | The LFRMS should avoid compromising the aims of the Convention. |
| **Reference** | http://europa.eu/legislation_summaries/environment/nature_and_biodiversity/l28050_en.htm |

| The European Landscape Convention – Florence (2000) | |
|---|---|
| **Description** | The European Landscape Convention - also known as the Florence Convention, - promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. |
| **Link to LFRMS** | The LFRMS should avoid compromising the aims of the convention. |
| **Reference** | http://www.coe.int/t/dg4/cultureheritage/heritage/landscape/default_en.asp |

| Convention Concerning the Protection of World Cultural and Natural Heritage (1972) | |
|---|---|
| **Description** | The most significant feature of the 1972 World Heritage Convention is that it links together in a single document the concepts of nature conservation and the preservation of cultural properties. The Convention recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two |
| **Link to LFRMS** | The LFRMS should avoid compromising the aims of the convention. |
| **Reference** | http://whc.unesco.org/en/conventiontext/ |

## A.2 National Plans, Programmes and Strategies

The following tables present a more detailed appraisal of the national levels plans, programmes and strategies deemed most applicable to VoGCs Local Flood Risk Management Strategy.

| Flood and Water Management Act, 2010 | |
|---|---|
| **Description** | The Flood and Water Management Act 2010:-<br>• embeds the principals of flood risk management into legislation;<br>• introduces the concept of Risk Management Authorities and clarifies their roles and responsibilities;<br>• states the requirement for statutory flood and coastal erosion risk management strategies at both the national and local levels;<br>• establishes Regional Flood and Coastal Committees;<br>• updates reservoir safety legislation; and<br>• amends existing legislation to provide Risk Management Authorities with the powers they need to implement their risk management approach. |
| **Link to LFRMS** | The Flood and Water Management Act sets out the requirement and scope for Local Flood Risk Management Strategies, essentially acting as the overarching driver for Local Flood Risk Management Strategies. |
| **Reference** | http://www.legislation.gov.uk/ukpga/2010/29 |

| Flood Risk Regulations, 2009 | |
|---|---|
| **Description** | The EU Floods Directive has been transposed into UK law by the Flood Risk Regulations 2009. The Regulations require Lead Local Flood Authorities to determine whether, and if so, where, they have significant flood risk and document this in the form a Preliminary Flood Risk Assessment Report. Where *Significant Flood Risk Areas* have been identified, subsequent flood hazard and flood risk maps in addition to flood risk management plans are to be produced. The Regulations additionally stipulate when these elements of work are to be completed. |
| **Link to LFRMS** | VoGC's Preliminary Flood Risk Assessment shows that VoG has significant flood risk in its area. Consequently, Flood Risk and Flood Hazard maps in additional to Flood Risk Management Plans will be produced. These detailed, local scale plans are likely to be a key influence in implementing the higher level Local Flood Risk Management Strategy at the local level within the County. |
| **Reference** | http://www.legislation.gov.uk/uksi/2009/3042/contents/made |

| National Flood and Coastal Erosion Risk Management Strategy for Wales (2011) | |
|---|---|
| Description | As required by the Flood and Water Management Act 2010, the Welsh Government has produced a National Flood and Coastal Erosion Risk Management Strategy for Wales. The National Strategy sets four overarching objectives for the management of flood and coastal erosion risk in Wales:<br>• **reducing the consequences** for individuals, communities, businesses and the environment from flooding and coastal erosion;<br>• **raising awareness of and engaging people in the response** to flood and coastal erosion risk;<br>• **providing an effective and sustained response** to flood and coastal erosion events; and<br>• **prioritising investment** in the most at risk communities |
| Link to LFRMS | In preparing its Local Flood Risk Management Strategy, VoGC should ensure consistency with the National Strategy produced by the Welsh Government, particularly with regards to the four overarching objectives listed above. |
| Reference | http://wales.gov.uk/consultations/environmentandcountryside/floodstrategy |

| Technical Advice Note 15 (TAN 15): Development and Flood Risk | |
|---|---|
| Description | TAN 15 provides technical guidance which supplements the Welsh Government policy in relation to development and flooding. It advises on development and flood risk as this relates to sustainability principles and provides a framework within which risks from both river and coastal flooding, and from additional run-off from developments can be assessed. |
| Link to LFRMS | Issues raised in TAN 15 need to be considered when developing the LFRMS. |
| Reference | http://wales.gov.uk/topics/planning/policy/tans/tan15 |

| Land Drainage Act 1991 | |
|---|---|
| Description | Gives relevant authorities, including Vale of Glamorgan Council, certain powers to undertake works or require others to undertake works to watercourses. |
| Link to LFRMS | The powers available within the Act should be considered when developing the LFRMS. |
| Reference | http://www.legislation.gov.uk/ukpga/1991/59/content |

| Water for People and the Environment, Water Resources Strategy for Wales, 2009 | |
|---|---|
| Description | Strategy developed by Environment Agency Wales to set how water resources can be sustainably managed. Essential to ensure sufficient water will exist in the future for both the population and the environment. |
| Link to LFRMS | The LFRMS should not have a detrimental impact upon water resources. Due regard should be given to the management of water resources in VoGC. |
| Reference | http://publications.environment-agency.gov.uk/PDF/GEHO0609BQCO-B-E.pdf |

| Technical Advice Note 5 (TAN 5): Nature Conservation and Planning, 2009 | |
|---|---|
| **Description** | TAN 5 provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. |
| **Link to LFRMS** | The LFRMS should conform with the provisions of TAN 5. |
| **Reference** | http://wales.gov.uk/topics/planning/policy/tans/tan5 |

| Environment Strategy for Wales 2006 2026 (2006) | |
|---|---|
| **Description** | The Environment Strategy for Wales sets out the Welsh Government's framework for achieving a clean, healthy, biologically diverse and publicly valued environment in Wales. The Strategy has five main environmental themes:<br>• addressing climate change;<br>• sustainable resource use;<br>• distinctive biodiversity, landscapes and seascapes;<br>• our local environment; and<br>• environmental hazards. |
| **Link to LFRMS** | The LFRMS should have due regard for the high level environmental policies set out in this national strategy |
| **Reference** | http://wales.gov.uk/topics/environmentcountryside/epq/envstratforwale |

| UK Biodiversity Action Plan – UK BAP 1994 | |
|---|---|
| **Description** | The UK Biodiversity Action Plan (UK BAP) was published in 1994, and is the UK Government's response to the Convention on Biological Diversity (CBD). The Convention called for the development and enforcement of national strategies and associated action plans to identify, conserve and protect existing biological diversity, and to enhance it wherever possible. The UK BAP describes the biological resources of the UK and provides detailed plans for conservation of these resources, at national and devolved levels. Action plans for the most threatened species and habitats have been set out to aid recovery. |
| **Link to LFRMS** | The LFRMS will need to recognise the statutory designations of protected species and complement the provisions of any action plans. |
| **Reference** | http://jncc.defra.gov.uk/page-5155 |

| Water for People and the Environment – Water Resources Strategy for Wales (2009) | |
|---|---|
| **Description** | Sets out how the Environment Agency believes water resources should be managed in Wales until 2050 and beyond. |
| **Link to LFRMS** | Due regard should be given within the LFRMS to this strategy |
| **Reference** | http://www.environment-agency.gov.uk/research/library/publications/40731.aspx |

| Environment Agency –Soil: a precious resource – our strategy for protecting, managing and restoring soil | |
|---|---|
| Description | This Strategy sets out the Environment Agency's priorities and likely actions that they intend to take to protect and manage soil. See also cross-links with the Environment Strategy for Wales. |
| Link to LFRMS | The LFRMS should have due regards to the proposed actions contained in this Strategy, particularly with regards to the potential synergies available which could have additional flood risk management benefits. |
| Reference | http://www.environment-agency.gov.uk/homeandleisure/wildlife/31372.aspx |

| Welsh Government Strategic Policy Position Statement on Water (2011) | |
|---|---|
| Description | Outlines priorities for water and outlines key issues and actions to be taken. |
| Link to LFRMS | The LFRMS should have due regards to the proposed actions contained in this position statement. Some of the measures contained within the LFRMS will act in synergy with the aims of the position statement in respect of sustainability and ecosystem services. |
| Reference | http://wales.gov.uk/docs/desh/publications/110208waterstatement2011en.pdf |

| The Impacts of Flooding on Urban and Rural Communities (DEFRA/Environment Agency – 2005) | |
|---|---|
| Description | Research paper exploring the relationship between Urban/Rural policies and flood risk management policy and secondly to explore the evidence for differential impacts of flooding on urban and rural communities. |
| Link to LFRMS | The LFRMS should build on key potential synergies available which include rural and urban policy considering FRM as part of their design and landscape approaches. |
| Reference | http://cdn.environment-agency.gov.uk/scho1005bjtg-e-e.pdf |

| Revised Draft Water Resource Management Plan (Welsh Water, Dwr Cymru, 2011) | |
|---|---|
| Description | 25-year strategy for managing water resources across supply area and maintaining the balance between supply and demand. It identifies deficit zones where demand is exceeding (or forecast to exceed) supply and identifies appropriate measures to either increase supply or to manage demand in each water resources zone. The strategy has looked at a range of options to meet the deficit including developing new water resources and the promotion of water efficiency measures. |
| Link to LFRMS | The LFRMS should have due regard to the aims of the management plan |
| Reference | http://www.dwrcymru.com/en/Environment/Water-Resources/Water-Resource-Management-Plan.aspx |

| The Water Act 2003 | |
|---|---|
| **Description** | Updated legislation following droughts of 1990's changing the licensing system in a number of key areas. |
| **Link to LFRMS** | LFRMS to have due regard to licensing requirements |
| **Reference** | http://www.legislation.gov.uk/ukpga/2003/37/contents |

| Planning Policy Wales Edition 5 (November 2012) | |
|---|---|
| **Description** | This document provides the policy framework for the preparation of local planning authority development plans. It is supported by Technical Advice Notes (TAN) and Welsh Government Circulars |
| **Link to LFRMS** | The LFRMS must pay due regard to the high level framework planning policies contained within this document |
| **Reference** | http://wales.gov.uk/topics/planning/policy/ppw/?lang=en |

| Technical Advice Note (TAN) 14: Coastal Planning (1998) | |
|---|---|
| **Description** | Provides advice in relation to planning for the coastal zone including recreation and heritage and shoreline management plans |
| **Link to LFRMS** | Measures identified within the LFRMS must ensure that they recognise that works on-shore can often impact off-shore. This is particularly relevant where there is a candidate marine SAC |
| **Reference** | http://wales.gov.uk/topics/planning/policy/tans/tan14/;jsessionid=A277EE7D80C565ABA8078D7A3D3A12A9?lang=en |

| Minerals Planning Policy | |
|---|---|
| **Description** | Sets out the land use policy guidance in relation to mineral extraction and related development |
| **Link to LFRMS** | LFRMS to have regard to policies contained within this document |
| **Reference** | http://wales.gov.uk/topics/planning/policy/minerals/mineralsplanning/;jsessionid=68CE00EC0EDBF276489CFD8DF763BE0F?lang=en |

| Countryside and Rights of Way Act 2000 | |
|---|---|
| **Description** | Provides rights of access to open access land and amends and strengthens some wildlife law |
| **Link to LFRMS** | The LFRMs will need to pay due regard to the CRoW Act in respect of access and nature conservation designations |
| **Reference** | http://www.legislation.gov.uk/ukpga/2000/37/contents |

| Wildlife and Countryside Act 1981 (as amended) | |
|---|---|
| **Description** | Sets out nature conservation law and designations |
| **Link to LFRMS** | Measures or works arising out of the LFRMS will pay due regard to the requirements of this legislation |
| **Reference** | http://www.legislation.gov.uk/ukpga/1981/69 |

| The Natural Environment and Rural Communities Act (2006) | |
|---|---|
| **Description** | This Act makes for provision for bodies concerned with the natural environment and rural communities |
| **Link to LFRMS** | Under the Act, local authorities have a duty to pay due regard to biodiversity in carrying out its functions and the LFRMS and works arising out of it will take this act into account. |
| **Reference** | http://www.legislation.gov.uk/ukpga/2006/16/contents |

| Register of Landscapes of Historic Interest in Wales | |
|---|---|
| **Description** | The register is in 2 volumes and describes 58 landscapes in Wales that are of outstanding or historic interest |
| **Link to LFRMS** | This register has been used to inform the baseline information associated within this Environmental Report and the LFRMS and any works arising out of it will take account of historic landscapes. |
| **Reference** | http://www.ccgc.gov.uk/landscape--wildlife/protecting-our-landscape/historic-landscapes/historic-landscapes-register.aspx |

| Climate Change Act 2008 | |
|---|---|
| **Description** | The Act allows for targets to be set for reduction of targeted greenhouse gas emissions. |
| **Link to LFRMS** | There are synergies between the aims of the LFRMs and the Climate Change Act. |
| **Reference** | http://www.legislation.gov.uk/ukpga/2008/27/contents |

| Climate Change: The UK Programme | |
|---|---|
| **Description** | Sets out how the UK are to meet its targets in respect of climate change |
| **Link to LFRMS** | There are synergies between the aims of the LFRMS and the Climate Change Programme. |
| **Reference** | http://www.official-documents.gov.uk/document/cm67/6764/6764.pdf |

| Welsh Government Flood Risk management: Community Engagement Toolkit (October 2011) | |
|---|---|
| **Description** | The purpose of the toolkit is to assist those responsible for flood risk management schemes and provide guidance on how to approach community engagement and partnership working. The toolkit has already been used on a pilot flood alleviation scheme in Barry. |
| **Link to LFRMS** | The LFRMS will require community engagement and involvement and will therefore accord with the toolkit. |
| **Reference** | http://wales.gov.uk/topics/environmentcountryside/epq/flooding/communities/toolkit/?lang=en |

| The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 | |
|---|---|
| **Description** | Legislation to implement compliance with the Water Framework Directive by Welsh Government and the Environment Agency. |
| **Link to LFRMS** | The LFRMS will have due regard to the Water Framework Directive (WFD) and a separate WFD assessment of the LFRMS has been undertaken. |
| **Reference** | http://www.legislation.gov.uk/uksi/2003/3242/regulation/1/made |

| The Eels (England and Wales) Regulations 2009 | |
|---|---|
| **Description** | These Regulations implement Council Regulation (EC) No. 1100/2007 |
| **Link to LFRMS** | The LFRMS shall pay due regard to the regulations particularly in respect of impounding licenses which could arise from works that may be required under the strategy in the future. |
| **Reference** | http://www.legislation.gov.uk/uksi/2009/3344/contents/made |

| Developing Standards for Accessible Natural Greenspace in Towns and Cities (2002) | |
|---|---|
| **Description** | The model enable local authorities to consider the provision of natural areas as part of a balanced policy to ensure local communities have access to an appropriate mix of green spaces for recreation. |
| **Link to LFRMS** | The LFRMS will need to pay due regard to this requirement in the spatial planning of any works arising from its implementation. |
| **Reference** | http://www.caerphilly.gov.uk/pdf/Environment_Planning/LDP-Examination-Documents/UK15.pdf |

| Climate Change Strategy for Wales (2010) | |
|---|---|
| **Description** | This Strategy sets out the Welsh Government's commitment to tackling the causes and consequences of climate change in Wales in a sustainable manner. |
| **Link to LFRMS** | The LFRMS should consider the policies contained within the Climate Change Strategy for Wales. Potential cross-over exists within the *adaptation* and *communication* themes of the Strategy which may be relevant to the LFRMS. |
| **Reference** | http://wales.gov.uk/topics/environmentcountryside/climatechange/?lang=en |

| Technical Advice Note 6 (TAN 6): Planning for Sustainable Rural Communities | |
|---|---|
| **Description** | This Technical Advice Note provides guidance on how the planning system can contribute to:<br>• sustainable rural communities;<br>• sustainable rural housing;<br>• sustainable rural services; and<br>• sustainable agriculture |
| **Link to LFRMS** | The LFRMS should conform with the provisions of TAN 6. |
| **Reference** | http://wales.gov.uk/topics/planning/policy/tans/tan6/?lang=en |

| Technical Advice Note 18 (TAN 18): Transport | |
|---|---|
| **Description** | This Technical Advice Note aims to consider:<br>• the integration of transport and land use planning;<br>• the integration between different types of transport; and<br>• the integration of transport policy with policies for the environment, education, social justice, health, economic development and wealth creation. |
| **Link to LFRMS** | The LFRMS should have due regard to the guidance set out in TAN 18. |
| **Reference** | http://wales.gov.uk/topics/planning/policy/tans/tan18/?lang=en |

| Technical Advice Note 16 (TAN 16): Sport, Recreation and Open Space 2009 | |
|---|---|
| **Description** | TAN 16 advises on the role of the planning system in making provision for sport and recreational facilities and informal open spaces, in addition to the protection of existing facilities in both urban and rural areas of Wales. |
| **Link to LFRMS** | The LFRMS should complement the advice set out in TAN 16 and where possible, seek to enhance the provision of open space/recreational facilities in recognition of their enhancement of the local populations; health and quality of life. |
| **Reference** | http://wales.gov.uk/topics/planning/policy/tans/tan16e/?lang=en |

| Planning Policy Wales edition 4 (2011) | |
|---|---|
| **Description** | PPW provides the policy framework for the preparation of local authorities; development plans in Wales. It sets out the land use planning polices of the Welsh Government. |
| **Link to LFRMS** | Due regard should be given within the LFRMS to the high-level planning framework in Wales |
| **Reference** | http://wales.gov.uk/topics/planning/policy/ppw/?lang=en |

| Woodland for Wales (2009) | |
|---|---|
| **Description** | Woodlands for Wales is the Welsh Government's strategy for woodlands and trees, setting out the objectives for all woodlands and trees in both public and private ownership within Wales. |
| **Link to LFRMS** | The LFRMS should have no detrimental affect upon the woodlands of the Vale of Glamorgan. Ideally the LFRMS will seek to utilise the obvious synergies that potentially exist with the 'water and soil management' objectives and measures of the Woodland Strategy. |
| **Reference** | http://www.forestry.gov.uk/wwstrategy |

| One Wales, One Planet; A New Sustainable Development Scheme for Wales (2009) | |
|---|---|
| **Description** | The Sustainable Development Scheme sets out the Welsh Government's vision of a sustainable Wales, and reflects the priorities of the EU Sustainable Development Strategy. |
| **Link to LFRMS** | The LFRMS will need to consider the 2 core and 6 supporting principles of the Welsh Governments Sustainable Development Scheme. |
| **Reference** | http://wales.gov.uk/topics/sustainabledevelopment/publications/onewalesoneplanet/?lang=en |

| Creating an Active Wales (2009) | |
|---|---|
| **Description** | This action plan sets out the Welsh Governments four strategic aims for ensuring that the population of Wales is more physically active:<br>• to develop a physical environment that makes it easier for people to choose to be more physically active;<br>• to support children and young people to live active lives, and become active adults;<br>• to encourage more adults to be more active, more often, throughout life; and<br>• to increase participation in sport, by all sectors of the population. |
| **Link to LFRMS** | The LFRMS will seek opportunities, where possible, to enhance the aims of the above action plan. |
| **Reference** | http://wales.gov.uk/topics/cultureandsport/sportandactiverecreation/active/?lang=en |

| People, Places, Futures Wales Spatial Plan 2008 Update (2008) | |
|---|---|
| **Description** | The broad objectives of the Wales Spatial Plan are:<br>• to ensure that decisions are taken with regard to their impact beyond the immediate sectoral or administrative boundaries and that the core values of sustainable development are adhered to;<br>• to set the context of local and community planning;<br>• to influence where money is spent by the Welsh Government through an understanding of the roles and interactions between places; and<br>• to provide a clear evidence base for the public, private and third party sectors to develop policy and action. |
| **Link to LFRMS** | The LFRMS should have due regards for the objectives within the Wales Spatial Plan, particularly with regards to the details set out for the South East Wales – Capital Region. |
| **Reference** | http://wales.gov.uk/dpsp/wspatialplan/documents/wsp2008update/wsp2008updatee.pdf?lang=en |

| Severn Estuary Shoreline Management Plan Review (SMP2) 2010 | |
|---|---|
| **Description** | The aim of the Shoreline Management Plan is to provide the basis for sustainable coastal defense policies within the Severn Estuary and to develop objectives for the future management of the shoreline. The document contains draft policies on how the shoreline around the Severn Estuary should be managed over the next 100 years. |
| **Link to LFRMS** | Policies within the LFRMS should complement those within SMP2 where relevant |
| **Reference** | http://www.severnestuary.net/secg/docs/public%20consultation/dec10/Executive%20Summary_English%20and%20Welsh_FINAL.pdf |

| Lavernock Point to St Anne's Head Shoreline Management Plan (SMP2) (January 2012) | |
|---|---|
| **Description** | This SMP covers the area from St Anne's Head in Pembrokeshire to Lavernock Point in the Vale of Glamorgan. The Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with coastal erosion and flooding at the coast. It also presents policies to help manage these risks to people and to the developed, historic and natural environment in a sustainable manner. |
| **Link to LFRMS** | This section of coastline includes that associated with the Vale of Glamorgan |
| **Reference** | http://www.southwalescoast.org/content.asp?id=58 |

| Ogmore to Tawe Catchment (including Thaw and Cadoxton) Flood Management Plan (2010) | |
|---|---|
| **Description** | This CFMP presents an understanding of the scale and extent of flooding within the Ogmore and Tawe and Thaw and Cadoxton catchments both now and in the future. It also sets polices for managing flood risk within the catchments. |
| **Link to LFRMS** | Policies and strategies laid out in the CFMP should be considered and adhered to within the LFRMS. |
| **Reference** | http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/gewa0110brki-e-e.pdf |

| Taff and Ely Catchment Abstraction Management Strategy (2006) | |
|---|---|
| **Description** | This strategy sets out how the Environment Agency intends to manage water resources within the catchment. |
| **Link to LFRMS** | The LFRMS should not have a detrimental effect upon the aims and objectives of the CAMS. |
| **Reference** | http://cdn.environment-agency.gov.uk/geho0310bsbh-e-e.pdf |

| Water for Life and Livelihoods, River Basin Management Plan, West Wales River Basin District | |
|---|---|
| **Description** | The Western Wales River Basin Management Plan is about the pressures facing the water environment in this river basin district, and the actions that will address them. |
| **Link to LFRMS** | Any measures outlined should be reflected within the LFRMS |
| **Reference** | http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/gewa0910bswp-e-e.pdf |

| Regional Transport Plan, SEWTA (2010) | |
|---|---|
| **Description** | The Regional Transport Plan is a statutory plan which sets out an integrated and sustainable transport strategy for South East Wales. This plan includes:<br>a strategic framework, setting out the issues, analysis, vision, aims and policies;<br>an implementation programme identifying actions, proposals and a five year programme and<br>a monitoring and review mechanism |
| **Link to LFRMS** | Policies, measures and options proposed within the LFRMS should not conflict with the objectives of the Regional Transport Plan. The level of prioritisation given to the protection of key transport infrastructure assets will be a key consideration of the LFRMS |
| **Reference** | http://www.sewta.gov.uk/regional-transport-plan/ |

| Environment Agency, Salmon Action Plans | |
|---|---|
| **Description** | The plans aim to address the decline of Atlantic Salmon and provides objectives and measures for their conservation within the freshwater stages of their lifecycle. |
| **Link to LFRMS** | Measures within the strategy should be reflected within the LFRMS |
| **Reference** | http://www.environment-agency.gov.uk/static/documents/Research/ogmoresape827821.pdf |

## A.4 LOCAL PLANS, PROGRAMMES AND STRATEGIES

| Vale of Glamorgan Council Adopted Unitary Development Plan 1996 – 2011 (2005) | |
|---|---|
| **Description** | The UDP sets the framework for the development of the County over the period 1996 - 2011 |
| **Link to LFRMS** | Baseline data for this SEA has been taken from this UDP |
| **Reference** | http://www.valeofglamorgan.gov.uk/files/Living/Planning/Policy/UDP/UDP.pdf |

| Vale of Glamorgan Council Deposit Local Development Plan 2011 – 2026 (2012) | |
|---|---|
| **Description** | Vale of Glamorgan's Local Development Plan sets out how the County will be developed over the plan period. Advocating areas for potential development whilst protecting others. The LDP also contains detailed policies that will control the form of new development. |
| **Link to LFRMS** | The LFRMS will need to conform with the Local Development Plan. |
| **Reference** | http://www.valeofglamorgan.gov.uk/living/planning/planning_policy/local_development_plan.aspx |

| Vale of Glamorgan Local Biodiversity Action Plan | |
|---|---|
| **Description** | The Vale of Glamorgan Biodiversity Partnership (BBP) was established to advance biodiversity conservation and enhancement in the Vale. The Partnership identified the following broad objectives:-<br>• Protect all habitats and species important at a local as well as national or international level for nature conservation;<br>• Promote optimum management for these sites;<br>• Where appropriate, improving degraded habitats or creating new habitats;<br>• Creating a healthy environment in which the commoner species can thrive;<br>• Creating public awareness of local biodiversity through education and information to all sectors.<br>Specific objectives include:<br>• Developing networks and partnerships to implement objectives;<br>• Researching all information and data sources;<br>• Quantifying data and mapping on a GIS-type system;<br>• Undertaking surveys to establish the extent and quality of the habitat or status/range of species;<br>• Monitoring key species;<br>• Promoting advice and information to owners and managers of key habitats;<br>• Encouraging the take-up of funding and other assistance for biodiversity management;<br>• Encouraging sustainable rural and urban land use and practices;<br>• Establishing, promoting and protecting Sites of Nature Conservation Interest (SINCs). |

| Vale of Glamorgan Local Biodiversity Action Plan | |
|---|---|
| **Link to LFRMS** | The LFRMS will need to have regard for the habitats and species identified in the LBAP and complement any actions and targets presented in the LBAP. |
| **Reference** | http://www.valeofglamorgan.gov.uk/files/Living/Environment/Biodiversity/Local_Biodiversity_Action_Plan.pdf |

| Preliminary Flood Risk Assessment, Vale of Glamorgan (2011) | |
|---|---|
| **Description** | The Preliminary Flood Risk Assessment (PFRA) has been undertaken under the Flood Risk Regulations 2009 and provides an assessment of existing and potential flood risk within the County. The objective of the PFRA is to identify local Flood Risk Areas in the Vale of Glamorgan to inform the later stages of the Regulations and the Flood and Water Management Act, and to support any local flood risk management strategy. |
| **Link to LFRMS** | Baseline data for this SEA has been taken from this PFRA |
| **Reference** | http://www.valeofglamorgan.gov.uk/idoc.ashx?docid=76ab989e-2e3a-463a-b178-85e1739ace21&version=-1 |

| Land to the South of Junction 34, M4, Hensol – Flood Consequences Assessment (Wallingford Hydro Solutions Ltd., June 2011) | |
|---|---|
| **Description** | The FCA acknowledges the type of development proposed for this site can be suitable and permissible within Flood Zones A, B and C, due to its classification as *'Less Vulnerable'* under TAN 15. |
| **Link to LFRMS** | Links to any direct development proposals or flood defence measures for the area. |
| **Reference** | http://www.valeofglamorgan.gov.uk/living/planning/planning_policy/local_development_plan/ldp_background_documents.aspx?theme=print |

| Waterfront, Barry – Strategic Level Flood Study – Arup (2009) | |
|---|---|
| **Description** | This study provided a high level document for reference in addressing the requirements of TAN 15 for the outline planning application prior to development details being available. |
| **Link to LFRMS** | This study has provided background and baseline information. |
| **Reference** | www.valeofglamorgan.gov.uk/idoc.ashx?docid=0fa683f1...1 |

| Plan Preparation and the Assessment of Flood Risk Background Paper (2011) | |
|---|---|
| **Description** | This paper forms part of the evidence base used to inform the policies and site allocations in the LDP. |
| **Link to LFRMS** | The LFRMS will take account of the LDP. |
| **Reference** | http://www.valeofglamorgan.gov.uk/idoc.ashx?docid=79ee6505-1fc0-4ca7-aaea-d8c01966a8cf&version=-1 |

| 'Defence Technical College and Aerospace Business Park: Flood Consequences Assessment – Entec (May 2009) | |
|---|---|
| **Description** | The flood consequences assessment provides detailed study of this large site area and the requirements of TAN15 |
| **Link to LFRMS** | This study has provided background and baseline information. |
| **Reference** | No reference available |

| The Vale of Glamorgan Community Strategy 2011 - 2021 | |
|---|---|
| **Description** | This strategy sets out a vision for the Vale of Glamorgan and represents a coordinated approach to improving quality of life in the Vale. |
| **Link to LFRMS** | This strategy is, in effect an over-arching socio-economic strategy and the LFRMS will attempt to adhere to and where practical contribute to the aims of the Community Strategy. |
| **Reference** | www.valeofglamorgan.gov.uk/idoc.ashx?docid=d0075274...1 |

# Appendix B Water Framework Directive Assessment

CAPITA SYMONDS

# Memo

6 August 2103

| | |
|---|---|
| **To** | Geraint Pitman |
| **CC** | Carl Woods |
| **Subject** | Water Framework Directive - Preliminary Assessment |

## PURPOSE

This report represents a Preliminary Assessment of the Vale of Glamorgan Local Flood Risk Management Strategy ('Local Strategy') against the requirements of the Water Framework Directive (WFD), according to the requirements of the Environment Agency document *WFD Expert Assessment of Flood Management Impacts (2009)*. The assessment applies to the Vale of Glamorgan Council administrative area.

## INTRODUCTION

A Preliminary Assessment aims to gather baseline information and identify areas of potential water quality or hydromorphological impact in 'surface water bodies' (coastal / transitional waters, rivers, streams or lakes, as defined by the Water Framework Directive) and groundwater. This can then be used as a basis for mitigating negative impacts and promoting environmental enhancements in the context of local flood risk management activities. It is not proposed to continue to a 'Level 1' or 'Level 2' Assessment at this stage as the Local Strategy does not actually define specific physical activities that can be directly assessed. Therefore, the intention of this assessment is to provide a basis for more detailed assessments in future. The overall WFD assessment process in the context of flood and coastal erosion risk management (FCERM) is summarised in Figure 1 (from WFD Expert Assessment of Flood Management Impacts, 2009).

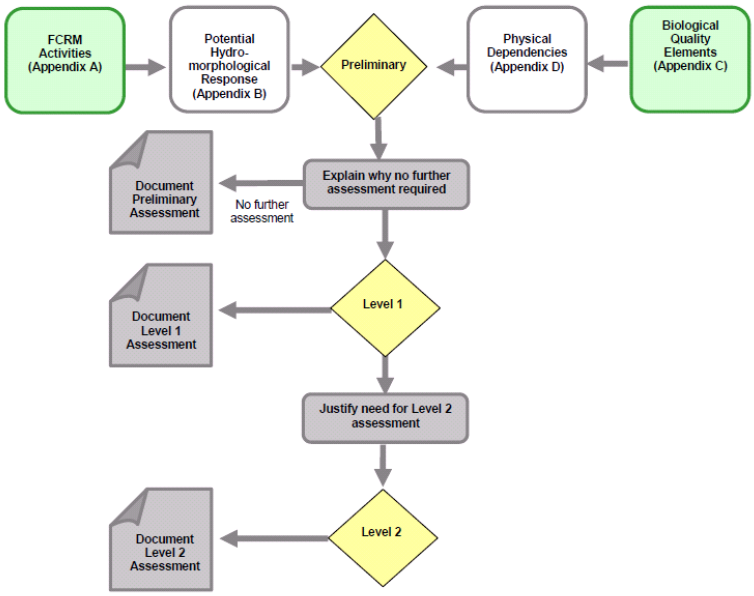


**Figure 1: Summary of WFD Assessment Process for FCERM**


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Capita Symonds Ltd

The Preliminary Assessment consists of three steps:

1. Collect Water Body baseline data
2. Collect proposed Local Strategy objectives and measures
3. Assess potential impacts at strategic scale (no specific physical works are currently proposed as part of the Local Strategy – so only a general impact assessment can be done on proposed measures)

## WATER BODY BASELINE DATA AND OBJECTIVES

### River Basin Management Plans (RBMP)

RBMPs are prepared by Natural Resources Wales (NRW) under the Water Framework Directive, which requires all countries throughout the European Union to manage the water environment to consistent standards. Each country has to:

- Prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters
- Aim to achieve at least "good" status[1] for all water bodies by 2015. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027
- Meet the requirements of Water Framework Directive Protected Areas
- Promote sustainable use of water as a natural resource
- Conserve habitats and species that depend directly on water
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants
- Contribute to mitigating the effects of floods and droughts.

Each 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.

The Vale of Glamorgan Council administrative area falls into two RBMP areas:

- Western Wales River Basin District (Ogmore to Tawe catchments)
- Severn River Basin District (Merthyr Tydfil / South East Valleys / Cardiff Bay)

Each of the RBMPs uses the same technical approach to assess and classify the status of the various water bodies. The outputs from these studies form the basis for this WFD Assessment.

[1] The WFD classification scheme for water quality includes five status classes: high, good, moderate, poor and bad. 'High status' is defined as the biological, chemical and morphological conditions associated with no or very low human pressure. This is also called the 'reference condition' as it is the best status achievable - the benchmark. These reference conditions are type-specific, so they are different for different types of rivers, lakes or coastal waters so as to take into account the broad diversity of ecological regions in Europe. Assessment of quality is based on the extent of deviation from these reference conditions, following the definitions in the Directive. 'Good status' means 'slight' deviation, 'moderate status' means 'moderate' deviation, and so on. The definition of ecological status takes into account specific aspects of the biological quality elements, for example "composition and abundance of aquatic flora" or "composition, abundance and age structure of fish fauna"

## Lake, River and Coastal / Estuarine Typology

The rivers in the Vale of Glamorgan fall into two types[2]:

- River Type 2: Small catchment area (10-100km$^2$), mean catchment altitude- low (<200m), with a predominantly calcareous geology. This river type is found in virtually all lowland regions of England and Wales. The "Reference Conditions for this river type are summarised below:

**Table 1 – Summary of 'River Type 2' Reference Conditions**

| Characteristic | Relevant Details |
|---|---|
| **Macrophytes and phytobenthos** | Species typical of base and nutrient-rich situations. Few rooted aquatics are widespread |
| **Fish** | Brown trout commonly occur, along with bullhead, minnow and brook lamprey |
| **Macroinvertebrates** | Diverse but with wide regional diversity |
| **Physico-chemistry** | pH is typically 7 or higher, alkalinity is medium to high. Waters are generally clear but will become clouded with re-suspension of solids |
| **Hydrology** | Small catchments tend to show quick response to rainfall events. Lower elevation catchments tend to show smaller discharges per unit catchment area. |
| **Morphology** | May be relatively fast flowing and with stony beds in upper reaches |

(Source: Type Specific Reference Condition Descriptions for Rivers in Great Britain, 2004)

- River Type 5: Medium size catchment area (100-1000 km$^2$), mean catchment altitude- low altitude (<200m), with a predominantly calcareous geology. Reference conditions shown below:

**Table 2 – Summary of 'River Type 5' Reference Conditions**

| Characteristic | Relevant Details |
|---|---|
| **Macrophytes and phytobenthos** | Due to more stable flows and substrate vascular plants dominate, cover is high and both aquatic and emergent vegetation is diverse with sites typically containing approximately 45 species per reach |
| **Fish** | Brown trout commonly occur together with bullhead, minnow and brook lamprey. Where there are no natural barriers to migratory fish, salmon and/or sea trout and eel are to be expected together with river and or sea lamprey |
| **Macroinvertebrates** | Significant regional variations in composition and diversity are likely to occur |
| **Physico-chemistry** | Water colour will generally be clear, although it may be discoloured due to re-suspension of deposited material during periods of high flow. Alkalinity is typically medium to high, and pH is 7 or higher. |
| **Hydrology** | Calcareous catchments have a relatively high baseflow index. The hydrological regime will therefore exhibit a significant degree of connectivity with groundwater and as result there will be a delayed and subdued hydrological response to rainfall events |
| **Morphology** | A widespread group mostly occurring on shallow slopes. Channel width is variable, and there is a predominantly depositional environment, resulting in gravels and silts being the most common substrate type |

(Source: Type Specific Reference Condition Descriptions for Rivers in Great Britain, 2004)

The Ely River is the only Type 5 River, with all other rivers in the Vale being Type 2. As can be seen both river types share similar characteristics with regard to biology, physico-chemistry, hydrology and morphology. The key difference between the two is the overall response time to rainfall. The medium sized catchment

[2] TAG2004 WP8a(02) Type Specific Reference Conditions for River UK (v2 PR1 15-03-15)

tends to have a slower response to rainfall, time to peak and recession back to baseflow compared to the smaller catchments.

The coastal and transitional typology of the Vale of Glamorgan range between three types from West to East:

- Ogmore-by-Sea to Nash Point: Exposed, Macrotidal (Coastal Water Type 1)
- Nash Point to Lavernock: Moderately Exposed, Macrotidal (Coastal Water Type 4)
- Lavernock to Cardiff Bay: Estuary, Macrotidal (Transitional Water Type 3)

With the exception of the Ely River, all other rivers in the Vale discharge into the Exposed or Moderately Exposed coastal environment. All identified types have a macro tidal range (5m+) and extensive intertidal areas. The main differentiating factor between the areas is the level of wave exposure.

While outside the administrative boundary of the Vale, the water quality of Cardiff Bay is influenced by the Ely River that originates within the Vale. Cardiff Bay is classified as a high alkalinity, shallow lake. Extensive beds of submerged macrophytes and reed fringes characterise this type of lake.

## Biological Quality Elements (BQEs)

The table below summarises the BQEs and related physical parameters that are applicable to the Local Strategy assessment.

**Table 3 – BQEs within the Local Strategy Area**

| BQE | Rivers | Transitional and Coastal (TraC) | Physical Parameter | Applicable to VoGC Local Strategy? | Justification for Exclusion |
|---|---|---|---|---|---|
| Phytoplankton | ✓ | ✓ | Residence time | ✓ | |
| | | | Water depth | ✓ | |
| | | | Thermal regime | ✓ | |
| | | | Turbidity | ✓ | |
| Macrophytes | ✓ | | Slope | ✓ | |
| | | | Longitudinal position | ✓ | |
| | | | Shoreline complexity or heterogeneity | ✓ | |
| | | | Light quality and quantity (for macro algae and bryophytes) | ✓ | |
| | | | Episodicity of flows and inundation | ✓ | |
| | | | Baseflow (in chalk streams) | ✓ | |
| | | | Turbidity | ✓ | |
| | | | Riparian shade and structure | ✓ | |
| | | | Substrate conditions (stability, particle size distribution and variability) | ✓ | |
| Phytobenthos (diatoms only) | ✓ | | None determined | ✓ | |
| Macroalgae | | ✓ | Episodicity (at the low end of velocity spectrum) | ✗ | The Local Strategy does not influence significant coastal works (these are addressed by the Shoreline Management Plans) |
| | | | Salinity | ✗ | It is unlikely that any policy type will result in any significant changes in salinity at the water body level and salinity is therefore not considered |
| | | | Abrasion (associated to velocity) | ✗ | The Local Strategy does not influence significant coastal works (these are addressed by the Shoreline Management Plans) |

| BQE | Rivers | Transitional and Coastal (TraC) | Physical Parameter | Applicable to VoGC Local Strategy? | Justification for Exclusion |
|---|---|---|---|---|---|
| Angiosperms | | ✓ | Inundations (tidal regime) | × | The Local Strategy does not influence significant coastal works (these are addressed by the Shoreline Management Plans) |
| | | | Sediment loading | × | |
| | | | Land elevation | × | |
| | | | Salinity | × | It is unlikely that any policy type will result in any significant changes in salinity at the water body level and salinity is therefore not considered |
| | | | Abrasion (associated to velocity) | × | The Local Strategy does not influence significant coastal works (these are addressed by the Shoreline Management Plans) |
| Benthic/macro Invertebrate | ✓ | ✓ | Beach water table (TraC) | × | The Local Strategy does not influence significant coastal works (these are addressed by the Shoreline Management Plans) |
| | | | Rainfall patterns | × | It unlikely that changes in local policy or physical works will impact rainfall patterns |
| | | | Light | ✓ | |
| | | | Groundwater connectivity | ✓ | |
| | | | Availability of leaf litter/organic debris | ✓ | |
| | | | Connectivity with riparian zone | ✓ | |
| Fish | ✓ | ✓ | Heterogeneity of habitat (substrate, provision of shelter) | ✓ | |
| | | | Continuity for migration routes | ✓ | |
| | | | Substrate conditions | ✓ | |
| | | | Presence of macrophytes | ✓ | |
| | | | Accessibility to nursery areas (elevation of saltmarsh, connectivity with shoreline/riparian zone) | ✓ | |

## Current Quality Status

The current status of relevant water bodies within the Vale of Glamorgan is summarised in the tables below. Mapping showing the location of each of the rivers, lakes, coastal areas and groundwater zones are included in Annex 1.

**Table 4: Water Bodies Status Summary (Baseline 2009)**

| Water Body Category | Chemical Status | | | Ecological Status | | | | | Quantitative Status | | Total No. Water Bodies |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Good | Failing to achieve Good | Does not require assessment | High | Good | Moderate | Poor | Bad | Good | Poor | |
| Coastal | 2 | | | | 1 | 1 | | | | | 2 |
| Groundwater | 4 | 2 | | | | | | | 5 | 1 | 6 |
| Lake | 1 | | 1 | | | 1 | | | | | 1 |
| River | 3 | 1 | 16 | | 11 | 7 | 2 | | | | 20 |
| Transitional | 2 | | | | 1 | 1 | | | | | 2 |

The top five reasons for failing to achieve 'good' status across all water bodies in the Vale are: Agricultural pollution, sewage discharges, urban / transport development, barriers to fish migration and 'other' (as defined by NRW). Mapping showing the spatial extent of the factors causing failure to achieve 'good' status are included in Annex 1.

## Other Protected Areas

Where sites are protected under other European Legislation, such as the Habitats Directive or Birds Directive, the WFD also sets standards to ensure compliance with any relevant objectives for these sites. For sites where more than one quality standard applies, compliance with the stricter standard is required. The table below summarises the number of protected sites associated with each relevant water body in the Vale. Mapping showing the location of each of the rivers, lakes, coastal areas and groundwater zones are included in Annex 1.

**Table 5: Water Bodies Protected Areas Summary (Baseline 2009)**

| Water Body Category | Type of Protected Area | | | | | | | | Total No. Water Bodies in a Protected Area |
|---|---|---|---|---|---|---|---|---|---|
| | Bathing Waters | Drinking Water | Fresh Water Fish | Shellfish Waters | Nitrates | Urban Waste Water | Habitats and Species | Wild Birds | |
| Coastal | 2 | | | 1 | | | 2 | 1 | 2 |
| Groundwater | | 6 | | | | | | | 6 |
| Lake | | | | | | | | | 0 |
| River | 4 | | 11 | | | 1 | | | 13 |
| Transitional | 1 | | | 1 | | 1 | 1 | 1 | 2 |

## WFD Objectives

The WFD contains Environmental Objectives, which aim to prevent a negative change to the status of water bodies, which could be caused by a deterioration of any of the biological, physico-chemical or hydromorphological Quality Elements listed in Annex V of the WFD. Relevant Environmental Objectives taken from Article 4 of the Water Framework Directive (WFD) are shown in the table below.

**Table 6: WFD Objectives**

| Objective ID | Description |
|---|---|
| WFD1 | No changes affecting high status sites |
| WFD2 | No changes that will cause failure to meet surface water Good Ecological Potential or result in a deterioration of surface water Ecological Potential |
| WFD3 | No changes which will permanently prevent or compromise the environmental objectives being met in other waterbodies |
| WFD4 | No changes that will cause failure to meet good groundwater status or result in a deterioration in groundwater status |

## Local Strategy Objectives and Measures – Impact Assessment

The tables on the following pages summarise the 'Local Objectives' and 'measures' selected to achieve them as defined in the Local Strategy (Version 1.0 – August 2013). A strategic assessment of potential impact on successful delivery of WFD objectives for each measure is also shown – along with additional comments where appropriate. A 'tick' shows that the measure will have a positive impact on the listed objective. A 'cross' shows that measure could have a negative impact and a '?' indicates that further assessment is required on a case by case basis. As in the Local Strategy document, the tables are aligned with the four National Objectives as defined by the National Strategy for Flood and Coastal Risk Management (Wales).

## Reducing the Consequences

| No. | Local Objectives | Measures | WFD Objectives | | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | WFD1 | WFD2 | WFD3 | WFD4 | |
| 1 | Provide leadership and direction at a local level | Lead and maintain a 'Local Partnership for Flood Risk Management' to discuss local flood risk issues and share information. | ✓ | ✓ | ✓ | ✓ | |
| | | Establish collaborative working relationships with neighbouring LLFA officers to manage cross-boundary flood risks | ✓ | ✓ | ✓ | ✓ | |
| | | To provide clear guidance on responsibility on management of all sources of flood risk and support stakeholders to carry out their responsibilities | ✓ | ✓ | ✓ | ✓ | |
| | | Create and implement a ***Local Flood Risk Management Strategy*** | ✓ | ✓ | ✓ | ✓ | |
| 2 | Develop local planning control policies to ensure sustainable flood and coastal erosion risk management measures are delivered by development | Monitor the impact of LDP policies through Annual Monitoring Reports (AMRs) and review policies where required based the best available local flood risk information | ✓ | ✓ | ✓ | ✓ | |
| | | Provide clear guidance on local flood risk management requirements for developers by working with NRW and other relevant partners to develop a comprehensive understanding of all sources of flood risks. | ✓ | ✓ | ✓ | ✓ | |
| | | Establish a SUDS Approval Body (SAB) to review development proposals, adopt SUDS from developers and ensure sustainable flood management practices are implemented | ✓ | ✓ | ✓ | ? | VoGC will need to ensure that SuDS guidance accounts for local groundwater conditions |
| | | Develop and implement a planning process for identifying and 'designating' significant structures or features that have a 'significant influence on local flood risk' | ✓ | ✓ | ✓ | ✓ | Process will assist in identification of structures that may impact WFD objectives |
| | | Establish clear links between local flood risk and significant environmental sites* to understand the impacts and opportunities presented by their interaction | ✓ | ✓ | ✓ | ✓ | |

* Significant environmental sites include Special Areas of Conservation, Sites of Special Scientific Interest, Special Protection Areas, RAMSAR Sites, European Protected Species and Biodiversity Action Plan (BAP) Species

| No. | Local Objectives | Measures | WFD Objectives | | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | WFD1 | WFD2 | WFD3 | WFD4 | |
| | | Finalise and implement a clear policy on culverting of watercourses that is aligned with the national Environment Agency policy and promotes positive environmental impacts. | ✓ | ✓ | ✓ | ✓ | |
| | | Ensure that local flood risk management policy created by the Council is consistent with other existing Council policy and does not conflict with the policy of other local Risk Management Authorities | ✓ | ✓ | ✓ | ✓ | |
| 3 | Establish and maintain an 'Asset Register' as defined by the FWMA | Create and maintain an Asset Register using a suitable software platform | ✓ | ✓ | ✓ | ✓ | Asset register should be mapped with WFD water bodies to ensure WFD objectives are considered for enforcement and / or maintenance activities |
| | | Establish a local definition of 'significant influence on local flood risk' | ✓ | ✓ | ✓ | ✓ | |
| | | Populate the Asset Register with structures and features that have a 'significant influence on flood risk' | ✓ | ✓ | ✓ | ✓ | As noted for 'Designation' measure above. |
| | | Regularly review and update the Asset Register | ✓ | ✓ | ✓ | ✓ | |
| | | Establish and implement maintenance schedules for high risk assets on the register that are the responsibility of the Council. These measures will safeguard natural conservation and protect the receiving environment | ✓ | ✓ | ✓ | ✓ | As noted above, WFD water bodies should be included in background mapping to ensure maintenance activities maintain or enhance the water environment |
| | | Encourage maintenance of third party assets to safeguard nationally and internationally designated sites from inappropriate development | ✓ | ✓ | ✓ | ✓ | Communication with third parties should include reference to WFD water bodies and related objectives where relevant |
| | | Encourage maintenance of privately owned assets and minimise unnecessary constrictions in watercourses | ✓ | ✓ | ✓ | ✓ | |
| 4 | Seek to reduce flood risks & consequences to identified high risk areas | Undertake detailed studies to identify the causes and consequences of flooding in these areas, both now and in the future | ✓ | ✓ | ✓ | ✓ | |
| | | Undertake a feasibility studies to investigate options for reducing flood risk in high risk areas confirmed by detailed studies | ✓ | ✓ | ✓ | ✓ | VoGC to include WFD objectives within feasibility study requirements |

| No. | Local Objectives | Measures | WFD Objectives | | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | WFD1 | WFD2 | WFD3 | WFD4 | |
| | | Promote deculverting, particularly as land comes up for redevelopment, through implementation of the culverting policy and relevant UDP / LDP policies - These policies will ensure that biodiversity interests are protected in accordance with national regulations and guidance. | ✓ | ✓ | ✓ | ✓ | |
| | | Seek to reduce runoff from existing developed areas through robust LDP policies and implementation of the SAB. These policies will ensure that biodiversity interests are protected in accordance with national regulations and guidance. | ? | ? | ? | ? | Case by case assessment will be needed to ensure WFD water bodies are appropriated maintained or improved (if the flow regime is changed) |
| | | Secure funding and community “buy-in” to implement property level flood protection to existing properties at risk. These policies will ensure that biodiversity interests are protected in accordance with national regulations and guidance. | ✓ | ✓ | ✓ | ✓ | |
| | | Develop and implement a risk based maintenance plan for local and main road drainage assets | ✓ | ✓ | ✓ | ✓ | WFD status of local water bodies should be considered as part of maintenance plan implementation |

## Raising Awareness

| No. | Local Objectives | Measures | WFD Objectives | | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | WFD1 | WFD2 | WFD3 | WFD4 | |
| 1 | Identify communities and businesses that are at risk from flooding and coastal erosion | Use national flood risk maps to identify high risk areas | N/A | N/A | N/A | N/A | |
| | | Undertake detailed studies in areas of uncertain flood risk to confirm level of risk and who may be affected | ✓ | ✓ | ✓ | ✓ | VoGC to include WFD objectives within feasibility study requirements |
| 2 | Work with at risk communities and businesses to collectively understand local flood risks and how they can be managed | Develop effective methods for communicating and sharing flood risk information with at risk communities | N/A | N/A | N/A | N/A | |
| | | Undertake regular community liaison in identified risk areas to discuss risks and how they can be managed | ✓ | ✓ | ✓ | ✓ | VoGC to ensure that liaison includes advice on meeting WFD objectives |
| | | Work with at risk businesses to develop risk management and business continuity plans that protect and safeguard the natural environment and are proportional to the local risks | ✓ | ✓ | ✓ | ✓ | |
| | | Work with other RMAs to establish areas that may see increased risk through the implementation of CFMP & SMP policies and develop a strategy to communicate this to affected communities and raise awareness. | ✓ | ✓ | ✓ | ✓ | |
| 3 | Promote property and community level flood resilience | Proactively seek national funding to support local community and property level resilience measures which are environmentally friendly and sustainable | ✓ | ✓ | ✓ | ✓ | |
| | | Build a robust knowledge base within the council to assist the community in implementation of flood resilience measures | N/A | N/A | N/A | N/A | |

## Providing an Effective and Sustained Response

| No. | Local Objectives | Measures | WFD Objectives | | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | WFD1 | WFD2 | WFD3 | WFD4 | |
| 1 | Ensure the preparation and testing of Emergency Plans | Prepare community specific emergency plans in relation to local flood risk which accord with national guidance and environment regulations | ✓ | ✓ | ✓ | ✓ | |
| | | Regularly review and update emergency plans using the best available local flood risk information. These will accord with national guidance and environment regulations. | ✓ | ✓ | ✓ | ✓ | |
| | | Organise and participate in regular community level emergency exercises in areas identified as at high risk of flooding – including communication procedures, location / deployment of resources and coordination with other services. | ? | ? | ? | ? | Case by case assessment will be needed to ensure WFD water bodies are appropriately selected to minimise environmental impacts |
| | | Contribute to and participate in any national or regional emergency exercise programmes related to flood risk | ? | ? | ? | ? | |
| 2 | Respond to flood events in a timely and appropriate manner | Utilise the resources available to the Council to provide support for the Emergency Services | × | × | × | × | Resources will need to be prioritised to safeguard human life and property above mitigation of environmental impact |
| | | Coordinate the Voluntary Agencies to mitigate the effects of the incident as it occurs | × | × | × | × | |
| | | Investigate and publically report on significant flood incidents within ***two months*** of their occurrence (including identification of responsible parties for mitigation) | ✓ | ✓ | ✓ | ✓ | VoGC to include WFD impacts within incident reporting |
| 3 | Facilitate recovery from flooding within the shortest possible timescales | Take the lead role in facilitating the rehabilitation of the community and the restoration of the environment | ✓ | ✓ | ✓ | ✓ | |
| | | Provide support to local businesses through implementation of environmentally sustainable business continuity planning | ✓ | ✓ | ✓ | ✓ | |
| | | Use local flood risk knowledge to identify vulnerable individuals / communities and assess potential level of flood impact based on risk maps in advance of incident. | N/A | N/A | N/A | N/A | |

**Prioritising Investment**

| No. | Local Objectives | Measures | WFD Objectives | | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | WFD1 | WFD2 | WFD3 | WFD4 | |
| 1 | Utilise a risk based approach to managing flood risk to ensure structural and non-structural measures are considered to arrive at a cost-effective solutions that are proportional to local flood risk | Develop a comprehensive understanding of local flood risk management tools that are practical for use in the Vale of Glamorgan (based on local ground conditions and existing infrastructure) | ✓ | ✓ | ✓ | ✓ | VoGC to include WFD objectives within requirements for flood risk management tools |
| | | Establish a clear and transparent risk based hierarchy for decision making on flood risk mitigation prioritisation and investment | ✓ | ✓ | ✓ | ✓ | VoGC to include WFD as a parameter on risk hierarchy (such as consideration of the top five reasons for failure to achieve 'good' status for water bodies) |
| | | Maintain an up to date knowledge of significant environmental sites and how they interact with flood risk areas to ensure that multi-benefit flood risk mitigation solutions are identified and improve the status of their classification. | ✓ | ✓ | ✓ | ✓ | |
| 2 | Identify and prioritise local risk mitigation works for feeding into the National Investment Programme | Identify and prioritise areas of flood and coastal erosion risk | ✓ | ✓ | ✓ | ✓ | |
| | | Prepare feasibility studies for mitigation of risk in high priority areas and submit to National Programme for consideration | ✓ | ✓ | ✓ | ✓ | VoGC to include WFD objectives within feasibility study requirements |
| 3 | Promote the use of alternative funding sources through delivery of multi-benefit risk mitigation projects which are sustainable and protect biodiversity interests using multiple funding sources | Clearly identify all beneficiaries of proposed risk mitigation schemes | ✓ | ✓ | ✓ | ✓ | |
| | | Proactively maintain a high level of understanding of available funding sources and how to access them | ✓ | ✓ | ✓ | ✓ | WFD activities enable access to a wide range of funding sources |
| | | Proactively maintain a high level of flood risk management resource and skills within the council to ensure local risk management schemes can be investigated, designed and implemented using available funding sources (These will not cause any harm to features of the natural environment – including protected or priority species, habitats as well as wildlife corridors) | ✓ | ✓ | ✓ | ✓ | |

## CONCLUSIONS

In general, activities related to the Local Strategy will have a more significant impact on inland waters (rivers and groundwater) than coastal waters. This is due to the Local Strategy being focussed on local flood risk (flooding from ordinary watercourses, surface water and groundwater). Successful achievement of the WFD objectives is intrinsically related to local flood risk management activities within the Vale.

The Local Strategy does not currently include any specific physical works, but the measures proposed should be implemented with regard to the overall WFD objectives and the local objectives of the RBMPs. Specific consideration should be given to:

- Development of SUDS guidance and potential impacts on WFD objectives (such as reduction of runoff volume to rivers or increase of infiltration leading to faster migration of contaminants)
- Recognition that flood risk management structures can have both negative and positive impacts on WFD objectives
- Third party organisations may not be aware of WFD objectives and should be encouraged to recognise them during maintenance works
- Feasibility studies should include recognition of WFD objectives as part of identification of beneficiaries (this could lead to additional funding sources or higher contributions from stakeholders)
- Reasons for failure to achieve 'good' water body status should be included in prioritisation and selection of flood risk management initiatives (structural and non-structural)
- Recognition that an emergency response to flooding must prioritise safeguarding of human life and property above environmental considerations – but mitigation of negative impacts can be included within the recovery plan.

A Level 1 WFD Assessment is not appropriate for the current Local Strategy. The Local Strategy does not propose any specific locations for physical works or works types; therefore there are no 'options' or specific locations to assess within the WFD framework. The high level assessment completed by NRW as part of the RBMP is sufficient to inform policy decisions, feasibility assessments and prioritisation activities undertaken as part of the Local Strategy in its current form. More detailed WFD assessments should be undertaken by VoGC or third parties as specific physical works are identified and located.

It should be noted that the RBMPs are due for update in 2015. The updated RBMP should be reviewed by VoGC when it becomes available to ensure they are aware of any changes in water body condition status or improvement objectives.

## RECOMMENDATIONS

It is recommended that:

- The above conclusions are incorporated with the overall implementation of the Local Strategy by the VoGC
- This report is added to the Strategic Environmental Assessment (SEA) as an appendix.
- The conclusions of this report are reflected in the SEA to demonstrate that water quality has been explicitly considered
- When the Local Strategy is reviewed in 2017, a Level 1 WFD Assessment is considered based on the revised objectives / measures

## Annex 1: Environment Agency Wales / Natural Resources Wales – Local Evidence Package (Vale of Glamorgan)

This package is intended primarily for use by plan-making authorities such as Local Planning Authorities and Regional Transport Planning Consortia in their discussions with Environment Agency Planning Liaison teams. It summarises environmental information from the Environment Agency's main datasets. Information is presented in the form of maps cut to Local Authority areas, accompanied by a brief description of the data. Further interpretation is therefore required to assess the meaning of the data in terms of decision making.

Datasets provided in this Package that are relevant to the WFD Assessment are:

- Water Framework Directive (WFD): River Basin Districts & River Basin Management Plans
- Water Framework Directive (WFD): Surface Water Ecological & Chemical Status
- Water Framework Directive (WFD): Groundwater Chemical & Quantity Status
- Water Framework Directive (WFD): Protected Areas
- Water Framework Directive (WFD): Reasons for Failure
- General Quality Assessment (GQA): Biology Historical Trend

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